



HBMWD 1-MG Domestic Reservoir Roof Replacement and Painting Project

Technical Specifications and Contract Documents



November 2016

www.ghd.com



Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting Project

November 2016

Prepared for

Humboldt Bay Municipal Water District
828 Seventh Street
Eureka, California 95501

BOARD OF DIRECTORS

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Prepared by

GHD Inc.
718 Third Street, Eureka, CA 95501
(707) 443-8326

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TABLE OF CONTENTS

Advertisement for Bids	<u>Page</u> AD-1
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PART 1 – BIDDING REQUIREMENTS

Information for Bidders.....	1-1
Bidders' Checklist	1-7
Bid	1-9
Bid Schedule.....	1-10
Subcontractor Details.....	1-12
Bid Bond	1-13

PART 2 – CONTRACT FORMS

Contract Agreement.....	2-1
Performance Bond.....	2-3
Payment Bond	2-5
Notice of Award	2-7
Notice to Proceed	2-8

PART 3 – GENERAL CONDITIONS

General Conditions Table of Contents.....	3-i
General Conditions	3-1

PART 4 – TECHNICAL SPECIFICATIONS

PART TITLE

DIVISION 01 – GENERAL REQUIREMENTS

01 11 00	SUMMARY OF WORK
01 15 00	MEASUREMENT AND PAYMENT
01 30 00	ADMINISTRATIVE REQUIREMENTS
01 33 00	SUBMITTAL PROCEDURES
01 40 00	QUALITY REQUIREMENTS
01 50 00	TEMPORARY FACILITIES AND CONTROLS
01 56 00	SITE AREA AND CLEANUP
01 60 00	PRODUCT REQUIREMENTS
01 70 00	EXECUTION REQUIREMENTS

DIVISION 02 – EXISTING CONDITIONS

02 83 00	REMOVAL AND DISPOSAL OF MATERIAL CONTAINING LEAD
----------	--

DIVISIONS 03 TO 08

NOT USED

DIVISION 09 – FINISHES

09 91 00	TANK PREPARATION AND COATING
----------	------------------------------

DIVISION 33 – UTILITIES

33 13 13 WATER RESERVOIR DISINFECTION

33 16 13 STEEL TANK ROOF

DIVISIONS 34 TO 48

NOT USED

PART 5 – HAZARDOUS MATERIALS ASSESSMENT SURVEY REPORT

PART 6 – PROJECT SITE PHOTOS

PART 7 – PROJECT PLANS

ADVERTISEMENT FOR BIDS

Humboldt Bay Municipal Water District
Owner

828 Seventh Street
Eureka, CA 95501
Address

Separate sealed bids will be received for the 1-MG Domestic Reservoir Roof Replacement and Painting Project.

A conditional or qualified bid will not be accepted if it modifies the Plans or Specifications or method of work.

There will not be a pre-bid meeting for this project; however, potential bidders are encouraged to visit and familiarize themselves with the site. A site overview can be arranged by contacting Pat Kaspari or Nathan Stevens at GHD Inc. by telephone at (707) 443-8326.

A recent inspection of the Humboldt Bay Municipal Water District's 1-million-gallon domestic reservoir at their Turbidity Reduction Facility near Arcata, CA indicated severe corrosion of the beams and roof vents for the tank. The work consists of furnishing all labor, materials, equipment, and supervision required for replacing and painting the roof, including support beams, as well as sandblasting and painting the interior of the tank, and painting the exterior of the tank (spot prepping where required).

Each coating contractor shall submit a Qualifications Statement as a part of their bid.

- Copy of California Contractor's license
- Department of Industrial Relations registration number

They shall also submit a list of a minimum of three (3) completed projects over the last 5 years of similar size and complexity to the coating portion of this work. Include for each project:

1. Project name and location.
2. Name of owner with contact number.
3. Name of contractor with contact number.
4. Name of engineer with contact number.
5. Name of coating manufacturer with contact number.
6. Approximate area (square footage) of coatings applied.
7. Date of completion.

Bids will be received by the General Manager of the Humboldt Bay Municipal Water District at the District Office, 828 Seventh Street, Eureka, California until 3:00pm Pacific Standard Time, December 21, 2016, and then at said office publicly opened and read aloud.

The Contract Documents are available and may be examined at the following locations:

Humboldt Builders Exchange, Eureka
Shasta Builders Exchange, Redding
Sacramento Builders Exchange, Sacramento
North Coast Builders Exchange, Santa Rosa

Copies of the Specifications and Plans may be obtained at the office of GHD Inc., located at 718 Third Street, Eureka, California, 95501, (707) 443-8326 upon payment of \$35.00 for each set. None of the above payments for Contract Documents will be refundable.

Each proposal must be submitted on the prescribed form and accompanied by a certified check or Bid Bond in an amount of not less than 10 percent of the amount bid. Successful bidders will be required to

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

furnish both a Payment Bond and Performance Bond in the full amount of the Contract Price. In accordance with Public Contract Code Section 10263, the Contractor will be allowed to substitute securities for monies normally withheld by the owner to insure performance under this contract.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations, State of California. The general prevailing wage rates applicable to the work are set by the Director of the Department of Industrial Relations. The Contractor will be required to comply with any changes in these wage rates as they are updated by the State government at no cost to the Owner.

All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (Division of Labor Standards Enforcement).

Pursuant to Senate Bill 854, all contractors bidding on public works projects must register with the Department of Industrial Relations. Contractors are subject to a registration and annual renewal fee. No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) 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)]. Accordingly, all Prime and Subcontractors contained in a bid must provide valid Department of Industrial Relations registration number(s). Failure to provide valid DIR registration numbers in the bid documents shall disqualify the bid.

Barbara Hecathorn

President
Humboldt Bay Municipal Water District

November 17, 2016
Date

PART 1
BIDDING REQUIREMENTS

INFORMATION FOR BIDDERS

Project: HBMWD 1-MG Domestic Reservoir Roof Replacement and Painting

Bids will be received by Humboldt Bay Municipal Water District (herein called the "Owner"), at 828 Seventh Street, Eureka, CA 95501 until the time listed in the Advertisement for Bids; and then at said office publicly opened and read aloud.

Each bid must be submitted in a sealed envelope, addressed to Humboldt Bay Municipal Water District, 828 Seventh Street, Eureka, CA 95501. Each sealed envelope containing a bid must be plainly marked on the outside as BID FOR: 1-MG DOMESTIC RESERVOIR ROOF REPLACEMENT AND PAINTING PROJECT, and the envelope should bear on the outside the name of the bidder, their address, and license number. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to the Owner at Humboldt Bay Municipal Water District, P.O. Box 95, Eureka, CA 95502.

Bids received after the time specified for bid opening will not be considered. The Bidder is solely responsible for timely delivery of their bid.

There will not be a pre-bid meeting for this project; however, potential bidders are encouraged to visit and familiarize themselves with the site. A site overview can be arranged by contacting Pat Kaspari or Nathan Stevens at GHD Inc. by telephone at (707) 443-8326. It is assumed that by submitting a bid, the Contractor is fully familiar with the existing site conditions and proposed work, and change orders for changed site conditions will not be considered, unless mutually agreed upon by the Owner and Contractor.

All bids must be made on the required bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one copy of the bid form is required.

The Owner may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within six (6) months after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the bid schedule by examination of the site and a review of the Plans and Specifications including addenda. After bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of Work or of the nature of the Work to be done.

The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve the Contractor from fulfilling any of the conditions of the Contract.

Each bid must be accompanied by a bid bond payable to the Owner, for ten percent of the total amount of the bid. As soon as the bid prices have been compared, the Owner will return the bonds of all except the three lowest responsible bidders. When the Agreement is executed, the bonds of the two remaining unsuccessful bidders will be returned. The bid bond of the successful Bidder(s) will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond.

A performance bond and a payment bond, each in the amount of 100 percent of the contract price, with a corporate surety approved by the Owner, will be required for the faithful performance of the Contract.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

Attorneys-in-fact who sign bid bonds or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the performance bond, payment bond, and required insurance certificates within twenty one (21) calendar days from the date when Notice of Award is delivered to the Bidder. The Notice of Award shall be accompanied by the necessary Agreement and bond forms. In case of failure of the Bidder to execute the Agreement, the Owner may at his option consider the Bidder in default, in which case the bid bond accompanying the proposal shall become the property of the Owner.

The Owner, within twenty one (21) calendar days of receipt of an acceptable performance bond, payment bond and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may submit a written notice to withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

The Notice to Proceed shall be issued within twenty one (21) calendar days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor.

If the Notice to Proceed has not been issued within the twenty one (21) day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

The Owner may make such investigations as they deem necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the Work contemplated therein.

A conditional or qualified bid will not be accepted if it modifies the Plans or Specifications or method of Work. The intent is to award the entire job (all Schedules thereunder) to such Contractor or Contractors that will result in the lowest overall total cost to the Owner.

Awards will be made to the lowest, responsive, responsible Bidder(s).

All applicable laws, ordinances, rules and regulations of all Federal, State and local authorities having jurisdiction over construction of the project shall apply to the Contract throughout.

The Bidder shall supply the names, addresses, and valid DIR registration numbers of major subcontractors, material suppliers and/or fabricators with his bid.

The Contract Documents under which it is proposed to execute the Work consist of the Plans and all material bound herewith. These Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed Work. Any person contemplating the submission of a Bid shall have thoroughly examined all of the various parts of these Documents, and should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing at least six (6) working days prior to bid opening, an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of addenda to the Documents and will be furnished to all Bidders receiving a set of the Documents, issued no later than 72 hours prior to bid opening, who shall submit, or indicate receipt of all addenda with their proposals. The Owner will not be responsible for any other explanation or interpretations of said Documents.

Questions regarding the Plans and Specifications shall be submitted in writing to Engineer: Pat Kaspari at

GHD Inc., 718 Third Street, Eureka, CA, by fax at 707-267-2289, or by email at pat.kaspari@ghd.com. Replies to such inquiries will be in the form of addenda or clarification that will be sent to all plan holders. Requests for clarification regarding various portions may be made by phone to Pat Kaspari, at GHD Inc., 707-443-8326.

Copies of Contract Plans and Specifications may be obtained from the office of GHD Inc., as specified in the Advertisement for Bids. The payment will not be refundable.

The Contract Documents are assembled, arranged, and titled generally in conformance with the 48-division format suggested by the Construction Specifications Institute (CSI). Minor variations to the CSI format may be used herein to suit Owner requirements or to better adapt the Documents to particular types of projects.

Portions of these Contract Documents may contain standard preprinted material. The Bidder's attention is called to the Conditions of the Contract which may modify and add to the preprinted material contained herein. Sentences in the Contract Documents which are phrased in mandatory language, but which include no explicit reference to the party who has responsibility for performing the mandated duty, shall be interpreted as imposing responsibility for performance of the duty described on the Contractor. For example, a directive that "the site shall be kept clean" would impose the duty of keeping the site clean on the Contractor.

Each proposal must be submitted on the prescribed form and accompanied by a certified check or Bid Bond in an amount of not less than 10 percent of the amount bid. Successful bidders will be required to furnish both a Payment Bond and Performance Bond in the full amount of the Contract Price. In accordance with Public Contract Code Section 10263, the Contractor will be allowed to substitute securities for monies normally withheld by the owner to insure performance under this contract.

Where the Bid Proposal is to be submitted on a unit price basis, unit prices will be accepted on all items of Work set forth in the Bid, except those designated to be paid for as a lump sum. The estimate of quantities of Work to be done is tabulated in the Bid and, although stated with as much accuracy as possible, is approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. Payment to the Contractor will be made on the measurement of the Work actually performed by the Contractor as specified on the Contract Documents. The Owner reserves the right to increase or diminish the amount of any class of Work as may be deemed necessary.

When the Bid Proposal is to be submitted on a lump sum basis, a single lump sum price shall be submitted in the appropriate place. The total amount to be paid the Contractor shall be the amount of the lump sum in the Bid, as adjusted for additions or deletions resulting from changes in construction. After award of Contract, the Contractor may be required to break down the lump sum Bid into unit prices for the various portions to be completed.

All blank spaces in the Bid form must be filled in, in ink, in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in cases of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail.

Any Bid Proposal shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Advertisement for Bid.

The Bidder shall sign his Bid Proposal in the blank space provided therefore. 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. Bid proposals signed by a non-corporate officer shall be invalid. If Bidder is a co-partnership, the true name of the firm shall be set forth above, together with the signature of the general partner or general partners authorized to sign contracts in behalf of the co-partnership. If signature is by an agent, other than an officer of a corporation or a

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

member of a partnership, a Power of Attorney must be on file with the Owner prior to opening of Proposals or submitted with the Proposal, otherwise the Proposal will be regarded as not properly authorized.

State and local sales and use taxes, as required by the laws and statutes of the State and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Proposal shall include sales tax unless provision is made in the Bid Proposal form to separately itemize the tax.

Any Bidder may modify their bid by telegraphic or written communication at any time prior to the scheduled closing time for receipt of bids, provided such communication is received by the Owner prior to the closing time. The telegraphic or written communication should not reveal the bid price, but should state the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened.

Each Bidder must inform themselves of the conditions relating to the execution of the Work, and it is assumed that Bidders will inspect the site, site access limitations, subsurface conditions, weather, variations of soil moisture and workability with rainfall, and make themselves thoroughly familiar with all the Contract Documents. The Bidder should check with local contractors regarding local site, surface, subsurface and material conditions and variability. Failure to do so will not relieve the successful Bidder of the obligation to enter into a Contract and complete the contemplated Work in strict accordance with the Contract Documents. The Bidder's attention is called to the General Conditions and Supplementary Conditions of the Contract Documents in regards to the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions, and Notice requirements.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) or be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the State of California 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)]. This project is subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations. Accordingly, all Prime and Subcontractors contained in a bid must provide valid Department of Industrial Relations registration number(s). Failure to provide valid DIR registration numbers in the bid documents shall disqualify the bid.

The general prevailing wage rates applicable to this work are set by the Director of the Department of Industrial Relations. The Contractor will be required to comply with any changes in these wage rates as they are updated by the State government at no cost to the Owner.

All contractors and subcontractors must furnish electronic certified payroll records directly to the Labor Commissioner (Division of Labor Standards Enforcement), electronic Certified Payroll Reporting (eCPR) at the DIR, and also directly submit certified payroll and supporting documents to Carolyn Lay at North Valley Labor Compliance Services and the Humboldt Bay Municipal Water District. The contact information for North Valley Labor Compliance Services is:

Address:	North Valley Labor Compliance Services Attn: Carolyn Lay 6955 N Durango Dr Suite 1115-254 Las Vegas, NV 89149-4411
Business Phone:	(530) 674-3033
Mobile Phone:	(714) 408-8687
Email:	cplay@sbcglobal.net

The contact information for the Humboldt Bay Municipal Water District is:

Address:	HBMWD Attn: John Friedenbach PO Box 95 Eureka, CA 95502-0095
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Business Phone: (707) 443-5018
Email: friedenbach@hbmwd.com

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, Federal, State and local laws, statutes, and ordinances relative to the execution of the Work. This requirement includes, but is not limited to, grant requirements as they apply to the Contractor's work, applicable regulations concerning employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees, and similar subjects.

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BIDDERS' CHECKLIST

This checklist has been prepared and furnished to aid bidders in including all necessary supporting information with their bid. Bidders' submittals should include, but are not limited to the following:

<u>ITEM</u>	<u>PAGE</u>	<u>CHECKED</u>
1. Bid	1-9 through 1-11	_____
2. List of Subcontractors (Subcontractor Details)	1-12	_____
3. Bid Bond	1-13 through 1-14	_____
4. Authority to Sign Bid Proposal (if applicable)	(Attached to Bid Bond)	_____
5. Power of Attorney	(Attached to Bid Bond)	_____
6. Method of Roof Framing to be Used, with Justification	Drawing S101, Roof Build Note 1	_____

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BID

Proposal of _____
(hereinafter called "Bidder"), organized and existing under the laws of the State of California,

doing business as _____*.

To the Humboldt Bay Municipal Water District, (hereinafter called "Owner").

In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all Work for the 1-MG Domestic Reservoir Roof Replacement and Painting Project in strict accordance with the Contract Documents, within the time set forth therein, and at the prices stated below.

In the event of a difference between a price quoted in words and a price quoted in figures for the same quotation, the words shall be the amount bid. In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern and the corrected product of the unit price and the estimated quantity shall be deemed to be the amount bid. If the sum of two or more items in a bidding schedule does not equal the total amounts quoted, the individual items amounts shall govern and the corrected total shall be deemed to be the amount bid.

By submission of this bid, each Bidder certifies, and in the case of a joint bid, each party certifies as to his own organization, that his bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence Work under this Contract on or before a date to be specified in the Notice to Proceed and to fully complete the project and pay the liquidated damages as provided in Articles III and IV of the General Conditions.

*Insert "a corporation," "a partnership," or "an individual" as applicable.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

BID PROPOSAL

Bidder agrees to perform all the Work described in the Contract Documents for the following prices. Bidder is advised to carefully review all sections of the Plans and Specifications in order to completely understand the Work and all constraints, including the schedule and material requirements.

The Work generally includes, but is not limited to, providing all labor, materials, equipment, and supervision required for replacing and painting the roof, as well as sandblasting and repainting the interior of the tank, painting the exterior of the tank (spot prepping where required), and all other Work required to complete the modifications as shown on the Plans and described in the Specifications.

The following table has been provided for the Bidder's convenience to assist Bidder in quantifying the major components of the Work, and shall in no way be interpreted to be comprehensive. The bid shall be comprehensive and shall include all work associated with the project.

BID SCHEDULE

Item No.	Description	Unit	Qty.	Unit Cost	Total Cost
1.	Mobilization/Demobilization	LS	1	\$ _____	\$ _____
2.	Deconstruct and Dispose of Existing Tank Roof	LS	1	\$ _____	\$ _____
3.	Provide, Install, and Paint New Tank Roof	LS	1	\$ _____	\$ _____
4.	Prepare and Paint Interior and Spot Prep and Paint Exterior of Existing Tank	LS	1	\$ _____	\$ _____
5.	Tank Disinfection and Disposal of Disinfection Water	LS	1	\$ _____	\$ _____
6.	Remove and Replace Miscellaneous Metal and Electrical Items on the Outside of the Tank				

Humboldt Bay Municipal Water District
1-MG Domestic Reservoir Roof Replacement and Painting

Bid for Humboldt Bay Municipal Water District, 1-MG Domestic Reservoir Roof Replacement and Painting Project, including all necessary labor, materials, equipment, supervision, sales tax, and all other applicable taxes and fees.

TOTAL OF BID (\$ _____)

TOTAL OF BID IN WORDS: _____

Receipt of the following Addenda is acknowledged:

The representations made herein are made under penalty of perjury.

Respectfully submitted:

Signature

Title

License Number

Date

License Expiration Date

DIR Registration Number

(SEAL - If Bid is by Corporation)

SUBCONTRACTOR DETAILS

The Bidder certifies that:

- A. ___ I do not intend to subcontract any Work on this project.

- B. ___ I do intend to subcontract portions of the Work on this project.

NOTE: The Bidder shall check box A or box B. If the Bidder does not check a box, it will be deemed that he has checked box A.

If awarded the Contract, the Bidder proposes to employ the following subcontractors who will perform Work or labor or render service to the Bidder in or about the Work in an amount in excess of one-half of one percent (0.5%) of the total amount of Bidder's proposal. If no subcontract Work is proposed, except within the one-half of one percent (0.5%) limit set forth, the Bidder shall so state.

NAME & ADDRESS OF SUBCONTRACTOR	DESCRIPTION OF WORK TO BE SUBCONTRACTED	SUBCONTRACTOR'S CALIF. LIC. NO.	SUB'S DIR NO.

BID BOND

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

_____ as Principal, and

_____, as Surety, are hereby held and firmly bound unto

Humboldt Bay Municipal Water District _____,

as Owner, in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed this ____ day of _____, 20____.

The Condition of the above obligation is such that whereas the Principal has submitted to _____ a certain bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the:

_____ 1-MG Domestic Reservoir Roof Replacement and Painting Project _____

NOW, THEREFORE,

- (a) If said bid shall be rejected, or
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid), and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

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

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

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

SEAL:

Principal

By: _____

Title: _____

Surety

By: _____

Title: _____

IMPORTANT - Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

NOTE: Bidder shall provide current "Power of Attorney" for Attorney-in-fact who signs Bid Bond.

PART 2
CONTRACT FORMS

CONTRACT AGREEMENT

THIS AGREEMENT, MADE THIS _____ DAY OF _____, 20____, by and

between the Humboldt Bay Municipal Water District, hereinafter called "Owner," and

doing business as _____, hereinafter called "Contractor"
(insert "a corporation," "a partnership," or "an individual" as applicable).

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The Contractor will commence and complete the:
1-MG Domestic Reservoir Roof Replacement and Painting Project
2. The Contractor will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.
3. The Contractor will commence the Work required by the Contract Documents within 21 calendar days after the date of the Notice to Proceed, or by April 1, 2017, whichever is later, and will complete the same within the time provided in Section B-35 of the General Conditions, unless the period for completion is extended otherwise by the Contract Documents.
4. The Contractor agrees to perform all of the Work described in the Contract Documents and comply with terms therein for the sum of \$_____, or as shown in the Bid Schedule.
5. The Contract Documents consist of the Bidding Requirements, Contract Forms, Conditions of the Contract, the Specifications, and the Plans, including all modifications thereof incorporated into the documents before their execution, and including all other requirements incorporated by specific reference thereto. These form the Contract.
6. The Owner will pay to the Contractor in the manner and at such times as set forth in the General Conditions such amounts as required by the Contract Documents.
7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in quadruplicate, each of which shall be deemed an original on the date first above written.

Owner

Contractor

Title_____

Title_____

Date_____

Date_____

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PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Humboldt Bay Municipal Water District
(Name of Owner)

828 Seventh Street, Eureka, CA 95501
(Address of Owner)

hereinafter called Owner, in the penal sum of

_____ Dollars (\$_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

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

1-MG Domestic Reservoir Roof Replacement and Painting Project

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

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder of the Specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

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

Humboldt Bay Municipal Water District
1-MG Domestic Reservoir Roof Replacement and Painting

IN WITNESS WHEREOF, this instrument is executed in 4 counterparts, each one of which shall be deemed an original, this _____ day of _____, 20____.

ATTEST:

(Principal) Secretary

Principal

By _____

Address

Witness as to Principal

Address

Surety

ATTEST:

Witness as to Surety

By _____
Attorney-in-Fact

Address

Address

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

Humboldt Bay Municipal Water District
(Name of Owner)

828 Seventh Street, Eureka, CA 95501
(Address of Owner)

hereinafter called Owner, in the penal sum of

_____ Dollars (\$ _____)
in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

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

1-MG Domestic Reservoir Roof Replacement and Painting Project

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

PROVIDED, FURTHER, that the said Surety for value received hereby stipulated and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the Work or to the Specifications.

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

Humboldt Bay Municipal Water District
1-MG Domestic Reservoir Roof Replacement and Painting

IN WITNESS WHEREOF, this instrument is executed in 4 counterparts, each one of which shall be deemed an original, this _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

Principal

By _____

Address

Witness as to Principal

Address

Surety

ATTEST:

Witness as to Surety

By _____
Attorney-in-Fact

Address

Address

NOTE: Date of bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

NOTICE OF AWARD

TO: _____

PROJECT: 1-MG Domestic Reservoir Roof Replacement and Painting Project

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for BIDS dated _____ and Information for BIDDERS.

You are hereby notified that your BID has been accepted for items in the amount of _____ Dollars (\$ _____)

You are required by the Information for BIDDERS to execute the Agreement and furnish the required Contractor's certificates of insurance within twenty one (21) calendar days from the date this Notice is received by you.

If you fail to execute said Agreement and to furnish said INSURANCE within twenty one (21) calendar days from the date of receipt of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 20_____

Owner: Humboldt Bay Municipal Water District

By: Paul Helliker Title: General Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by:

(Name of Contractor)

Dated this _____ day of _____, 20_____

By: _____ Title: _____

NOTICE TO PROCEED

TO: _____

PROJECT: 1-MG Domestic Reservoir Roof Replacement and Painting Project

You are hereby notified to commence Work in accordance with the Agreement on or before the _____ day of _____, 20_____, and you are to complete the Work within 91 consecutive calendar days thereafter.

The date of completion of all Work is therefore _____ day of _____, 20_____.

You are required to return an acknowledged copy of this NOTICE OF PROCEED to the OWNER.

Dated this _____ day of _____, 20_____

Owner: Humboldt Bay Municipal Water District

By: Paul Helliker Title: General Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

(Name of Contractor)

Dated this _____ day of _____, 20_____

By: _____ Title: _____

PART 3
GENERAL CONDITIONS

**GENERAL CONDITIONS
TABLE OF CONTENTS**

SECTION A – DEFINITIONS AND TERMS	Page 3-
A-1 General.....	1
A-2 Abbreviations.....	1
A-3 Definitions.....	2
SECTION B – GENERAL CONDITIONS	
ARTICLE I. SCOPE OF WORK	6
B-1 Intent of Contract Documents	6
B-2 Contractor's Understanding.....	6
B-3 Changes in the Work	7
B-4 Procedures and Allowable Costs on Changes.....	8
B-5 Unilateral Change in or Addition to the Work	10
B-6 Differing Site Conditions.....	10
B-7 Claims for Extra Costs	11
B-8 Disputes	12
B-9 Guarantee	12
ARTICLE II. CONTROL OF WORK.....	13
B-10 Authority of the Engineer	13
B-11 Drawings	13
B-12 Construction Staking and Surveys	15
B-13 Permits and Regulations	15
B-14 Conformity with Contract Documents and Allowable Deviations.....	15
B-15 Coordination and Interpretation of Contract Documents.....	15
B-16 Subcontracts	16
B-17 Cooperation of Contractors	16
B-18 Superintendence	17
B-19 Inspection of Work	17
B-20 Tests	19
B-21 Removal of Rejected and Unauthorized Work and Materials	19
B-22 Deductions for Uncorrected Work.....	19
B-23 Equipment and Plants	19
B-24 Character of Worker.....	20
B-25 Separate Contracts	20
B-26 Materials, Services and Facilities	21
B-27 Storage of Materials	22
B-28 Trade Names and Alternatives.....	22
B-29 Certificate of Compliance	22
B-30 Assignment	23
B-31 Use of Completed Portions, Right to Operate Unsatisfactory Equipment or Facilities	23
B-32 Lands for Work, Right-of-Way Construction Roads.....	23
B-33 District's Right to Audit and Preservation of Records.....	24
ARTICLE III. PROGRESS AND COMPLETION OF WORK.....	26
B-34 Progress Schedule.....	26
B-35 Commencement and Progress of the Work and Time of Completion	26
B-36 Suspension of Work.....	26
B-37 Termination For Default - Damages For Delay - Timely Extension	27
B-38 Rights of DISTRICT Upon Termination.....	29
B-39 Failure to Complete the Work in the Time Agreed Upon - Liquidated Damages.....	29
B-40 Clean-up.....	30

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

ARTICLE IV. LEGAL RELATIONS AND RESPONSIBILITY 31

B-41 Compliance with Laws - Permits, Regulations, Taxes 31

B-42 Prevailing Wage 31

B-43 Labor Discrimination 32

B-44 Eight-Hour Day Limitation 32

B-45 Compliance with State Requirements for Employment of Apprentices..... 33

B-46 Underground Utilities..... 33

B-47 Water Pollution..... 33

B-48 Payment of Taxes 33

B-49 Permits and Licenses..... 33

B-50 Patents 34

B-51 Public Convenience..... 34

B-52 Safety 34

B-53 Protection of Person and Property 36

B-54 Responsibility for Repair of Facilities 37

B-55 Resolution of Construction Claims 37

B-56 DISTRICT's Repair..... 37

B-57 Antitrust Claim Assignment 37

B-58 Waiver of Right to Rescind For Material Breach 38

B-59 Contractor's License Notice 38

ARTICLE V. INSURANCE AND LIABILITY 39

B-60 Insurance..... 39

B-61 Indemnity and Litigation Cost 43

B-62 Protection of Work 43

B-63 No Personal Liability..... 45

ARTICLE VI. MEASUREMENT AND PAYMENT 46

B-64 Measurement of Quantities 46

B-65 Scope of Payment..... 46

B-66 Progress Estimate..... 46

B-67 Progress Payments..... 47

B-68 Liens and Stop Notices 47

B-69 Final Acceptance and Date of Completion..... 48

B-70 Final Payment 48

B-71 Final Release 48

B-72 Right to Withhold Payments..... 49

B-73 Waiver of Interest..... 50

B-74 Satisfaction of Claims and Liens 50

SECTION A
DEFINITIONS AND TERMS

A-1 General

Wherever the following abbreviations and terms, or pronouns in place of them, are used in these Conditions and other Contract Documents of which these Conditions are a part, the intent and meaning shall be interpreted as provided below.

A-2 Abbreviations

The following abbreviations may be used in the Contract Documents:

AA	Aluminum Association
AASHO	American Association of State Highway Officials
ABMA	American Boiler Manufacturer's Association
ACI	The American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors
AGMA	American Gear Manufacturer's Association
AI	The Asphalt Institute
AIA	American Institute of Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALSC	American Lumber Standards Committee
ANSI	American National Standards Institute, Inc.
API	American Petroleum Institute
APWA	American Public Works Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
CCMTC	California Concrete Masonry Technical Committee
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CRSI	Concrete Reinforcement Steel Institute
DFPA	Douglas Fir Plywood Association
DIR	Department of Industrial Relations
ETL	Electrical Testing Laboratory
FEMA	Federal Emergency Management Agency
FS	Federal Specification
HBMWD	Humboldt Bay Municipal Water District
HMGP	Hazard Mitigation Grant Program
ICBO	International Conference of Building Officials
IEEE	The Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IPCEA	Insulated Power Cable Engineers Association
MBMA	Metal Building Manufacturer's Association
MSS	Manufacturers Standardization Society of the Valve and Fitting Industry Standards
NBFU	National Board of Fire Underwriters
NBS	National Buildings Standards

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Act of 1970
PCA	Portland Cement Association
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
UBC	Uniform Building Code
USPHS	United States Public Health Service
UL	Underwriter's Laboratory
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USAS	The United States of America Standard Institute
USBR	United States Bureau of Reclamation
WCLIB	West Coast Lumber Inspection Bureau
WIC	Woodwork Institute of California

"Bureau" - United States Bureau of Reclamation

"State" - State of California

"State Standard Specifications" - Standard Specifications issued by the State of California Business and Transportation Agency, Department of Transportation, dated January 1984, and as amended, unless a specific edition is referenced.

A-3 Definitions

- a) Acceptance - The formal written acceptance by the DISTRICT of the entire Contract which has been completed in all respects in accordance with the Specifications and any approved modifications.
- b) Addenda - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications by additions, deletions, clarifications or corrections.
- c) As Approved - The words "as approved" unless otherwise qualified, shall be understood to be followed by the words "by the Engineer."
- d) Bid - The offer of the Bidder for the Work when made out and submitted on the prescribed bid form, properly signed and guaranteed. A Bid is also known as a Proposal.
- e) Bid Bond - The cash, cashier's check, certified check, or bidder's bond accompanying the Bid submitted by the bidder, as a guarantee that the Bidder will enter into a Contract with the DISTRICT for the performance of work herein described.
- f) Bidder - Any individual, firm, partnership or corporation submitting a bid for the work contemplated, and acting directly or through a duly authorized representative.
- g) Change Orders - A written order to the Contractor authorizing an addition, deletion, or revision in the work within the general scope of the Contract Documents or authorizing adjustment in the Contract price or Contract time.
- h) Claim - A separate demand by the Contractor for (i) a time extension, (ii) 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 (iii) an amount the payment of which is disputed by the DISTRICT.

- i) **Contract** - The written agreement covering the performance of the work and the furnishing of labor, materials, tools and equipment in the construction of the Work. The Contract shall include all Contract Documents and supplemental agreements amending or extending the work contemplated which may be required to complete the Work in a substantial and acceptable manner. Supplemental agreements are written agreements covering alterations, amendments or extensions to the Contract and include Addenda and Contract Change Orders.
- j) **Contract Documents** - The Contract Documents are any or all of the documents listed in Article I of the Contract.
- k) **Contract Price** - Total monies payable to the Contractor under the terms and conditions of the Contract Documents.
- l) **Contract Time** - The numbers of days stated in the Contract Documents for the completion of the Work.
- m) **Contractor** - The person or persons, firm, partnership or corporation or other entity that has entered into the Contract with the DISTRICT to perform the Work.
- n) **Contract Drawings** - "Contract Drawings" or "drawings" means and includes:
 - (i) all drawings which have been prepared on behalf of the DISTRICT and which are included in the Contract Documents and all modifying drawings issued by addenda thereto;
 - (ii) all drawings submitted pursuant to the terms of the Contract by the Contractor with his proposal and by the Contractor to the DISTRICT during the progress of the Work when accepted by the Engineer. Except where a specific type of drawing is indicated, the terms "Drawings" and "Plans" are used interchangeably throughout the Contract Documents and the Plans are Drawings as defined above.
- o) **County** - County of Humboldt, California.
- p) **Date of Execution of the Contract** - The date on which the Contract is signed by the DISTRICT's authorized representative.
- q) **Datum** - The figures given in the Specifications or upon the Drawings after the word "Elevation" or an abbreviation of it shall mean NVGDS datum.
- r) **Days** - Unless otherwise designated, days as used in the Contract Documents shall mean calendar days.
- s) **District** - The HUMBOLDT BAY MUNICIPAL WATER DISTRICT, may also be referred to as the DISTRICT or OWNER.
- t) **Engineer** - Wherever in these documents the word "Engineer" appears, it shall be understood to mean GHD Inc. The Engineer will have final authority as regards to contract administration, field inspection, and related items.
- u) **Field Order** - A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of Contract Time, issued by the Engineer to the Contractor during construction.
- v) **His** - "His" shall include "her" and "its".
- w) **Install** - "Install" wherever and in whatever manner used shall mean the installation, complete in place of an item.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- x) Notice of Award - The written notice of the acceptance of the Bid from the DISTRICT to the successful Bidder.
- y) Notice to Proceed - Written communication issued by the DISTRICT to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.
- z) Or Equal - The terms "or equal" or "approved equal" shall be understood to indicate that the "equal" product be the same or better than the product named in function, performance, reliability, quality and general configuration. Determination of equality in reference to the project design requirement will be made by the Engineer.
- aa) District Project Representative – The authorized representative of the DISTRICT who is assigned to the project site or any part of thereof.
- bb) Plans or Specification Drawings - The term "Plans or Specification Drawings" refers to the official Plans, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Engineer, which show the location, character, dimensions, and details of the work to be performed. Plans may either be bound in the same book as the balance of the Contract Documents or bound in separate sets, and are a part of the Contract Documents, regardless of the method of binding.
- cc) Project - The undertaking performed as provided by the Contract Documents.
- dd) Provide - "Provide" wherever and in whatever manner used shall be understood to mean furnish and install.
- ee) Project Geotechnical Engineer – There is no Geotechnical Engineer for this project.
- ff) Resident Project Representative - Authorized representative of the Engineer who is assigned to the Project or any part thereof.
- gg) Service of Notice - Any notice from one party to the other under the Contract shall be in writing and shall be dated and signed by the party giving such notice or by a duly authorized representative thereof. Any such notice shall not be effective for any purpose whatsoever unless service in the following manner:
 - (i) If the notice is given to the DISTRICT by personal delivery thereof, the DISTRICT'S Project Representative or by depositing the notice in the U.S. mail, enclosed in a sealed envelope addressed to HUMBOLDT BAY MUNICIPAL WATER DISTRICT, P.O. Box 95, Eureka, CA 95502, postage prepaid, by certified mail return receipt requested.
 - (ii) If the notice is given to the Contractor, by personal delivery to the Contractor or its duly authorized representative at the project site or by depositing in the U.S. mail, enclosed in a sealed envelope address to the Contractor on the Contract Form, postage prepaid, by certified mail, return receipt request.
 - (iii) If the notice is given to the Surety or any other person, by personal delivery to such Surety or other person by personal delivery to such Surety or other person by depositing in the U.S. mail, enclosed in a sealed envelope, addressed to the surety or other person at the address of such Surety or other person last communicated to the party giving the notice, postage prepaid, by certified mail return receipt requested.
- hh) Shall or Will - "Shall," or "Will," whenever used to stipulate anything, means shall or will be done or be performed by either the Contractor or the DISTRICT and means that the Contractor or the DISTRICT has thereby entered into a covenant with the other party to do or perform the same.
- ii) Shop Drawing - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, which

illustrate how specific portions of the Work shall be fabricated or installed.

- jj) Shown - "Shown," "indicated," "detailed," and words of like import, wherever and in whatever manner used, with or without reference to the drawings, means shown, indicated or detailed on the Drawings or Plans.
- kk) Specifications - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship, including the General Conditions and Supplemental General Conditions.
- ll) Specified - "Specified," "described," or "noted," wherever and in whatever manner used, means as specified, described or noted in the Contract Documents.
- mm) Subcontractors - The term "Subcontractor", as employed herein, includes only those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design according to the Plans or Specifications of this Work, but does not include one who merely furnishes material not so worked and would be considered a supplier only.
- nn) Substantial Completion - That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

The Engineer may, at its sole discretion, issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees, and to establish the date that the DISTRICT will assume the responsibility for the cost of operating such equipment. Said notice shall not be considered as final acceptance of any portion of the Work or relieve the Contractor from completing the remaining work within the specified time and in full compliance with the Contract Documents.

- oo) Sufficient - "Sufficient," "necessary," or "proper," "acceptable," "satisfactory," "desirable," and words of like import, wherever and in whatever manner used, with or without reference to the Engineer, means sufficient, necessary, proper, acceptable, satisfactory and desirable in the judgment of the Engineer.
- pp) Supplementary Conditions - Modifications to General Conditions required by a Federal Agency for participation in the PROJECT and approved by the Agency in writing prior to inclusion in the Contract Documents, or such requirements that may be imposed by applicable State laws.

References to "Supplemental General Conditions" in the General Conditions and elsewhere in the Contract Documents shall be construed to read "Supplementary Conditions."

- qq) Supplier - Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.
- rr) Time Limits - All time limits stated in the Contract Documents are of the essence of the Contract.
- ss) Work - All the work specified, indicated, shown or contemplated in the Contract to construct the improvements, including all alterations, amendments or extensions thereto made by Contract Change Order or other written orders of the Engineer.
- tt) Written Notice - "Written Notice" shall be deemed to have been duly served when delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended or if delivered at or sent by registered mail to the last business address known to it who gives the notice.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- uu) Whenever in the Specifications or upon the Drawings the words DIRECTED, REQUIRED, PERMITTED, ORDERED, DESIGNATED, PRESCRIBED, or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation or prescription of the Engineer is intended, and similarly the words APPROVED, ACCEPTABLE, SATISFACTORY, or words of like import, shall mean approved or acceptable to, or satisfactory to the Engineer, unless otherwise expressly stated.

**SECTION B
GENERAL CONDITIONS**

ARTICLE I. SCOPE OF WORK

B-1 Intent of Contract Documents

The intent of the Contract Documents is to prescribe the details for the construction and completion of the Work which the Contractor undertakes to perform in accordance with the terms of the Contract. Where the Specifications and Plans describe portions of the Work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment and incidentals and do all the work involved in performing the Contract in a satisfactory and workmanlike manner, ready for use occupancy or operation by the DISTRICT.

The technical provisions are presented in sections for convenience. However, this presentation does not necessarily delineate trades or limits of responsibility. All sections of the Specifications and Plans are interdependent and applicable to the Project as a whole.

The Contract Documents are complementary, and what is called for in any one shall be as binding as if called for in all.

Anything shown on the Drawings and not mentioned in the Specifications or mentioned in the Specifications and not shown on the Drawings shall have the same effect as if shown or mentioned respectively in both. Any work shown on one drawing shall be construed to be shown in all drawings and the Contractor will coordinate the Work and the Drawings. If any portion of the Contract Documents shall be in conflict with any other portion, the various documents comprising the Contract Documents shall govern in the following order of precedence: The DISTRICT-Contractor Contract; the Bid; any Supplementary or Special Conditions; Instructions to Bidders; the General Conditions; the Specifications; the Drawings. Technical Specifications take priority over general Specifications and detail Drawings take precedence over general Drawings. As between schedules and information given on Drawings, the Schedules shall govern. As between figures given on Drawings and the scales measurements, the figures shall govern. As between large-scale Drawings and small-scale Drawings, the larger scale shall govern. Any conflict or inconsistency between or in the Drawings shall be submitted to the Engineer through the DISTRICT'S Project Representative or Resident Project Representative in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's own risk.

B-2 Contractor's Understanding

It is understood and agreed that the Contractor has, by careful examination, satisfied itself as to the nature and location of the Work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, the general and local conditions, and all other matters which can in any way affect the Work under this Contract. No verbal agreement or conversation with any officer, agent or employee of the DISTRICT, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

Contractor shall comply with all Federal, State, and Local laws and regulations applicable to this scope of

work and said project, as well as all permits and environmental conditions established for this project (see section B-13). Contractor is responsible for obtaining all necessary permits for construction except for those permits already obtained by the DISTRICT prior to construction. If a Contractor materially fails to comply with any term of this award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, the DISTRICT may terminate the project.

B-3 Changes in the Work

The DISTRICT may, at any time, by written order make changes in the Work including but not limited to: (a) changes in the Specifications or Drawings; (b) changes in the sequence, method or manner of performance of the Work; (c) changes in the owner-furnished facilities, equipment, materials, services or site; or (d) changes directing acceleration of the Work. If such changes cause an increase or decrease in the Contractor's cost of, or time required for, performance of the Contract an equitable adjustment will be made and the Contract modified in writing accordingly.

Such modification will be in the form of a Contract Change Order which will set forth the work to be done or the method by which the change and cost adjustment, if any, will be determined, and the time of completion of the Work.

To comply with the California Environmental Quality Act (CEQA), material additions or amendments to this scope of work (SOW) may have to be reviewed by all State agencies participating in the CEQA process. CEQA compliance for all scope of work additions or amendments is essential before the revised SOW can be approved by the appropriate agencies or implemented by the DISTRICT. Any construction activities associated with a SOW change, prior to approval, may be ineligible for reimbursement. The Contractor shall obtain approval in writing from the DISTRICT prior to proceeding with any changes of work.

The compensation to be paid for any extra work or change shall be determined in one or more of the following ways or at DISTRICT's sole election:

- a) By unit prices previously approved (unit prices previously approved shall be used in all cases for similar units unless mutually agreed that for some reason they are not applicable);
- b) By estimate and acceptance of an agreed upon lump sum; or
- c) On a time and materials basis involving the actual necessary expenses and other services necessary to complete the Work. In addition, there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual necessary expense to cover the cost of general overhead, general superintendence, other expenses and profit. In the events that items (a) and (b) above are not applicable, then this latter method (c) shall be used. Markup by Subcontractors on their work shall not exceed fifteen percent. Contractor's markup on Subcontractor's work shall not exceed five (5) percent.

The Contractor shall keep full and complete records of the actual cost of such work in the form and manner prescribed by the Engineer and shall permit the Engineer to have access to such records as may be necessary to assist in the determination of the compensation payable for such work.

The Engineer also may at any time by issuing a Field Order make changes in the details of the Work. The Contractor shall proceed with the performance of any change in the Work so ordered by the Engineer unless the Contractor believes that such Field Order entitles it to a change in the Contract Price or Time, or both in which event the Contractor shall give the Engineer written notice thereof within seven (7) calendar days after the receipt of the ordered change. The Contractor shall not execute such changes pending the receipt of an executed change order or further instruction from the DISTRICT.

If the Contractor is delayed in completing by reason of any change made pursuant to this section, the time for completion of the Work shall be extended by change order for a period agreed to, commensurate with

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

such delay. The Contractor shall not be subjected to any claim for liquidated damages for this period of time, but the Contractor shall have no claim for any other compensation for any such delay.

B-4 Procedures and Allowable Costs on Changes

- a) No indirect costs of a Contractor are separately eligible for reimbursement.
- b) All changes which affect the cost or time of the construction of the project must be authorized by means of a Change Order. The Change Order will include extra work, work for which quantities have been altered from those shown in the bidding schedule, as well as decreases or increases in the quantities of installed units which are different than those shown in the bidding schedule because of final measurements. All changes should be recorded on a Change Order as they occur. Each Change Order must contain complete and detailed justification for all items addressed by the Change Order.
- c) If the change in or addition to the Work will result in an increase in the contract sum, the DISTRICT shall have the right to require the performance thereof in any of the following ways, at DISTRICT's sole election:
 - (i) By unit prices previously approved (unit prices previously approved shall be used in all cases for similar units unless mutually agreed that for some reason they are not applicable);
 - (ii) By estimate and acceptance of an agreed upon lump sum; or
 - (iii) On a time and materials basis involving the actual necessary expenses and other services necessary to complete the work. In addition, there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual necessary expense to cover the cost of general overhead, general superintendence, other expenses and profit. In the events that items (a) and (b) above are not applicable, then this latter method (c) shall be used. Markup by Subcontractors on their work shall not exceed fifteen percent. Contractor's markup on Subcontractor's work shall not exceed five percent (5%).
- d) If the DISTRICT elects to have the Change in the Work performed on a lump sum basis, such election shall be based on a lump sum proposal which shall be submitted by the Contractor within ten (10) calendar days of the DISTRICT's request therefor. Request for a lump sum proposal shall not be deemed an election to have the Work performed on a lump sum basis. The Contractor's proposal shall be itemized and segregated by labor and materials for the various components of the change (no aggregate labor total will be acceptable) and shall be accompanied by signed proposals of any Subcontractors which will perform any portion of the change, and of any persons who will furnish materials or equipment for incorporation therein. The proposal shall also include the Contractor's estimate of the time required to perform said changes or additional work.

The portion of the proposal relating to labor, whether by the Contractor's forces or the forces of any of its Subcontractors, may include reasonably anticipated gross wages of Job Site labor, including foremen, who will be directly involved in the Change in the Work (for such time as they will be so involved), plus payroll costs (including premium costs of overtime labor, if overtime is anticipated, social security, Federal or State unemployment insurance taxes and fringe benefits required by collective bargaining agreements entered into by the Contractor or any such Subcontractor in connection with such labor) and up to fifteen percent (15%) of such anticipated gross wages, but not payroll costs, as overhead and profit for the Contractor or any such Subcontractor, as applicable (such overhead and profit to include all supervision except foremen.)

The portion of the proposal relating to materials may include the reasonably anticipated direct costs to the Contractor or to any of its Subcontractors of materials to be purchased for incorporation in the Change in the Work, plus transportation and applicable sales or use taxes and up to fifteen percent (15%) of such anticipated gross wages, but not payroll costs, as overhead and profit for the Contractor or any such Subcontractor, as applicable (such overhead

and profit to include all supervision except foremen.)

The portion of the proposal relating to materials may include the reasonably anticipated direct costs to the Contractor or to any of its Subcontractors of materials to be purchased for incorporation in the Change in the Work, plus transportation and applicable sales or use taxes and up to fifteen percent (15%) of said direct material costs as overhead and profit for the Contractor or any such Subcontractor (such overhead and profit to include all small tools), and may further include the Contractor's and any of its Subcontractors' reasonably anticipated rental costs in connection with the Change in the Work (either actual rates or discounted local published rates), plus up to five percent (5%) thereof as overhead and profit for the Contractor or any such Subcontractors, as applicable. If any of the items included in the lump sum proposal are covered by unit prices contained in the Contract Document, the DISTRICT may, if it requires the Change in the Work to be performed on a lump sum basis, elect to use these unit prices in lieu of the similar items included in the lump sum proposal in which event and appropriate deduction will be made in lump sum amount prior to the application of any allowed overhead and profit percentages. No overhead and profit shall be applied to any unit prices.

The lump sum proposal may include up to five percent (5%) of the amount which the Contractor will pay to any of its Subcontractors for the Change in the Work as a commission to the Contractor.

- e) In the event that the Contractor fails to submit its proposal within the designated period, the Engineer may direct the Contractor to proceed with the Change or Addition to the Work and the Contractor shall so proceed. The Engineer shall determine the reasonable costs and time to perform the Work in question, which determination when approved by DISTRICT shall be final and binding upon the Contractor.
- f) In the event that the parties are unable to agree as to the reasonable costs and time to perform the change in or addition to the Work based upon the Contractor's proposal and the Engineer and DISTRICT do not elect to have the change in the Work performed on a time and material basis, the Engineer and DISTRICT shall make a determination of the reasonable cost and time to perform the Change in the Work, based upon their own estimates, the Contractor's submission or combination thereof. A Change Order shall be issued for the amount of costs and time determined by the Engineer and the DISTRICT and shall become binding upon the Contractor unless the Contractor submits its protest in writing to the DISTRICT within thirty (30) calendar days of the issuance of the Change Order. The DISTRICT has the right to direct the Contractor in writing to perform the Change in the Work which is the subject of the Change Order. Failure of the parties to reach agreement regarding the costs and time of the performing the Change in the Work and/or any pending protest shall not relieve the Contractor from performing the Change in the Work promptly and expeditiously.
- g) If the DISTRICT elects to have the Change in the Work performed on a time and material basis, the same shall be performed, whether by the Contractor's forces or the forces of any of its Subcontractors or Sub-subcontractors, at actual costs to the entity or entities performing the Change in the Work (without any charge for administration, clerical expense, supervision or superintendence of any nature whatsoever, including foremen, or the costs, use or rental of tools or plant), plus fifteen percent (15%) thereof as the total overhead and profit to the entity or entities actually performing the change (except that this fifteen percent (15%) shall not be applied against any payroll costs, defined herein with respect to lump sum proposals). If the entity or entities actually performing the work are Subcontractors or Sub-subcontractors, the Contractor shall be allowed five percent (5%) of the total charge of the performing entity or entities (including mark-up) as Contractor's mark-up. No other mark-ups shall be allowed hereunder. The Contractor shall submit to the DISTRICT daily work and material tickets, to include the identification number assigned to the Change in the Work, the location and description of the Change in the Work, the classification of labor employed (and names and social security numbers), the material used, the

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

equipment rented (not tools) and such other evidence of cost as the DISTRICT may require. The DISTRICT may require authentication of all time and material tickets and invoices by persons designated by the DISTRICT for such purpose. The failure of the Contractor to secure any required authentication shall, if the DISTRICT elects to treat it as such, constitute a waiver by the Contractor of any claim for the cost of that portion of the Change in the Work covered by a non-authenticated ticket or invoice; provided, however, that the authentication of any such ticket or invoice by the DISTRICT shall not constitute an acknowledgment by the DISTRICT that the items thereon were reasonably required for the Change in the Work.

- h) No overhead and profit will be paid by the DISTRICT on account of a Change in the Work except as specifically provided in this Section B-4. Overhead and Profit, as allowed under this paragraph, shall be deemed to include all costs and expenses which the Contractor or any of its Subcontractors may incur in the performance of the Change in the Work and which are not otherwise specifically recoverable by them pursuant to this paragraph.
- i) The Contractor shall not be entitled to any amount for indirect costs, damages or expenses of any nature, including, but not limited to, so-called "impact" costs, labor inefficiency, wage, material or other escalations beyond the prices upon which the proposal is based and to which the parties have agreed pursuant to the provisions of this section, and which the Contractor, its Subcontractors and Sub-subcontractors or any other person may incur as a result of delays, interferences, suspensions, changes in sequence or the like, for whatever cause, whether reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable, arising from the performance of any and all Changes in the Work performed pursuant to this section. It is understood and agreed that the Contractor's sole and exclusive remedy in such event shall be recovery of its direct costs as compensable hereunder and an extension of the time of the Contract, but only in accordance with the provisions of the Contract Documents.

The Contractor agrees that it shall not be entitled to claim damages for anticipated profits on any portion of work that may be deleted. The amount of any adjustment for work deleted shall be estimated at the time deletion of work is ordered and the estimated adjustment will be deducted for the subsequent monthly pay estimates.

The DISTRICT reserves the right to contract with any person or firm other than the Contractor for any or all extra work.

B-5 Unilateral Change in or Addition to the Work

Notwithstanding the above, the DISTRICT, directly or through the Engineer, may direct the Contractor in writing to perform changes in or additions to the scope of the Contract. The Contractor shall perform such work and the parties shall proceed pursuant to the provisions of Section B-4.

B-6 Differing Site Conditions

The Contractor shall promptly, and before the following conditions are disturbed, notify the DISTRICT in writing of any:

- a) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25118 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law; or
- b) Subsurface or latent physical conditions at the site differing from those indicated in the Contract Documents; or
- c) Unknown conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

The Engineer shall thereupon promptly investigate the conditions. If the Engineer finds that they do involve hazardous waste, or do materially differ and cause any decrease or increase in the Contractor's cost or time of performance, it will issue a Change Order as appropriate. Any increase or decrease in the cost of the Work or the time for performance shall be adjusted in the manner provided herein for adjustments as to extra and/or additional work and changes. The procedures applicable to claims per extra costs shall then apply.

In accordance with 36 CFR Part 800, in the event a potential historic property or cultural resource is discovered during construction activities, the Contractor must cease work in the vicinity of the discovery and take all reasonable measures to avoid or minimize harm to the discovered property/resource. Construction activities in the area of the discovery shall not resume until the DISTRICT concludes consultation with the State Historic Preservation Officer (SHPO) for treatment of the discovery.

B-7 Claims for Extra Costs

- a) The Plans for Work show the conditions as they are supposed or believed by the Engineer to exist, but it is neither intended nor to be inferred that the conditions as shown thereon constitute a representation by the DISTRICT or its officers that such conditions are universally existent nor shall the DISTRICT or any of its officers or representatives be liable for any loss sustained by the Contractor as a result of any variance between conditions as shown on the Plans and alternate conditions revealed during the progress of the Work, or otherwise.
- b) The DISTRICT assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefor is assumed by the DISTRICT.
- c) It is hereby mutually agreed that the Contractor shall not be entitled to the payment of any additional compensation for any cause, including any act, or failure to act, by the Engineer or the DISTRICT, or the happening of any event, thing or occurrence, unless the Contractor shall have given the Engineer due written notice of potential claims as hereinafter specified.
- d) The written notice of potential claims shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. Except as provided in Section B-6, the notice as above required shall be given to the Engineer at least 48 hours prior to the time that the Contractor commences performance of the work giving rise to the potential claim for additional compensation. If such notice is not given, the Contractor shall be barred from making any such claim for extra compensation.
- e) The Contractor may submit a claim to the Engineer concerning any matter for which a protest under Section B-3 or a notice of potential claim is filed within sixty (60) calendar days following the submission of said protest or notice, unless, due to the nature of the claim or the uncompleted state of the work, it is impracticable to determine the amount or the extent of the claim within such period, in which case a claim may be submitted at the earliest time thereafter that such determination can be made, but in no event later than the final release by the Contractor provided for in Section B-71. The claims shall set forth clearly and in detail, for each item of additional compensation claimed, the reasons for the claim, reference to applicable provisions of the Specifications, the nature and the amount of the cost involved, the computations used in determining such costs, and all pertinent factual data. The Contractor shall maintain complete and accurate records of the cost or any portion of the Work for which additional compensation is claimed, and shall provide the Engineer with copies thereof, as required.
- f) The Engineer will, within a reasonable time after submission of the Contractor's claim, make

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

decisions in writing on all claims of the Contractor. All such decisions of the Engineer shall be final unless the Contractor shall within ten (10) calendar days after receipt of the Engineer's decision, file with the Engineer a written protest, stating clearly and in detail the basis thereof. Such protest will be forwarded promptly by the Engineer to the DISTRICT, which will issue a decision upon each such protest, and the DISTRICT's decision will be final. Pending such decision, the Contractor shall proceed with its work in accordance with the determination or instructions of the Engineer. It is hereby agreed that the Contractor's failure to protest the Engineer's determination or instructions, within ten (10) calendar days from and after the Engineer's determinations or instructions, shall constitute a waiver by the Contractor of all its rights to further protest, judicial or otherwise.

- g) It is the intention of this Section that the differences between the parties, arising under and by virtue of the Contract, be brought to the attention of the Engineer at the earliest possible time in order that such matters may be settled, if possible or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any claim that may be based on any act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was timely filed.
- h) In the event of an emergency endangering life or property, the Contractor shall act as stated in Section B-62 herein, and after execution of the emergency work shall present an accounting of labor, materials and equipment in connection therewith. The procedure for any payment that may be due for emergency work will be as specified in Section B-3 herein.

B-8 Disputes

Except as otherwise specifically provided in the Contract Documents, the Engineer will initially decide all claims of the Contractor and all disputes arising under and by virtue of the Contract. Such claim or dispute will be processed and decided by the Engineer as soon as practicable after its submission and the submission or availability of any additional information necessary to its decision. If the Contractor is dissatisfied with the Engineer's decision, the Contractor may, within 15 calendar days from the date of the Engineer's decision, follow the procedures set forth in Section B-55. If the Contractor fails to follow the procedures set forth in Section B-55 within the 15 calendar day period, then the Engineer's decision shall be final, conclusive, and binding on the Contractor.

B-9 Guarantee

- a) In addition to warranties, representations and guarantees stated elsewhere in the Contract Documents, the Contractor unconditionally guarantees all materials and workmanship furnished hereunder, and agrees to replace at its sole cost and expense, and to the satisfaction of the Engineer and the DISTRICT, any and all materials which may be defective or improperly installed.
- b) The Contractor shall repair or replace to the satisfaction of the Engineer any or all such work that may prove defective in workmanship or materials, ordinary wear and tear excepted, together with any other work which may be damaged or displaced in so doing.
- c) In the event of failure to comply with the above stated conditions within a reasonable time, the DISTRICT is authorized to have the defect repaired and made good at the expense of the Contractor who will pay the costs and charges therefor immediately upon demand, including any reasonable management and administrative costs, and engineering, legal and other consultant fees incurred to enforce this section.
- d) The signing of the Contract by the Contractor shall constitute execution of the above guarantees. Except as otherwise provided in this Contract, the guarantees and warranties shall remain in effect through the one-year maintenance warranty period specified in the Performance Bond.

ARTICLE II. CONTROL OF WORK

B-10 Authority of the Engineer

- a) The Engineer is the representative of the DISTRICT and has full authority to interpret the Contract Documents, to conduct the construction review and inspection of the Contractor's performance, and to decide questions which arise during the course of the work and its decisions on these matters shall be final and conclusive. The Engineer has the authority to reject all work and materials which do not conform to the Contract Documents, and has the authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of the Contract.
- If at any time the Contractor's work force, tools, plant or equipment appear to the Engineer to be insufficient or inappropriate to secure the required quality of work or the proper rate of progress, the Engineer may order the Contractor to increase their efficiency, improve their character, to augment their number or to substitute other personnel, new tools, plant or equipment, as the case may be, and the Contractor shall comply with such order.
- b) Neither the failure of the Engineer to demand such increase of efficiency, number, or improvement, nor the compliance by the Contractor with the demand, shall relieve the Contractor of its obligation to provide quality work at the rate of progress necessary to complete the Work within the specified time.
- c) The Engineer shall have the authority to make minor changes in the Work, not involving extra costs, and not inconsistent with the purposes of the Work.
- d) Any order given by the Engineer, not otherwise required by the Contract Documents to be in writing shall, on request of the Contractor, be given or confirmed by the Engineer in writing.
- e) Whenever work, methods of procedure, or any other matters are made subject to direction or approval, such direction or approval will be given by the Engineer.
- f) The Engineer shall not be responsible for the construction means, controls techniques, sequences procedures or construction safety.
- g) It is expressly agreed and understood that GHD Inc. will have no liability whatsoever resulting from the obligations entered into under the Contract except as provided in any scope of work agreement between GHD Inc. and the DISTRICT; that the DISTRICT must look solely to the Contractor for the furnishing of the Work; that the Contractor must look solely to the DISTRICT for payment; and that the DISTRICT and the Contractor must look solely to each other for the enforcement of any claims or liabilities arising under or by reason of the Contract.

B-11 Drawings

- a) Drawings furnished herewith are for bidding purposes. The Engineer will furnish the Contractor additional copies of the Contract Documents and full-size plans. Additional copies may be obtained by paying the actual cost of reproduction. The Contractor shall have no claim for excusable delay on account of the failure of the Engineer to deliver such drawings unless the Engineer shall have failed to deliver the same within fourteen (14) calendar days after receipt of written demand therefor from the Contractor. The Contractor shall keep one copy of said drawings, in good order, available to the Engineer and its representatives, and convenient to the working site. The Contractor shall maintain on the job site and make available to the Engineer on request, one current full-sized marked-up set of design drawings which accurately indicate all variations in the completed work that differ from the design information shown on the Plans. If the Contractor, in the course of the Work, finds any discrepancy between the Drawings and the physical condition of the locality, or any errors or omissions in the Drawings, or in the layout as given by points and instructions, it shall be the Contractor's duty to inform the Engineer in writing, and the Engineer will

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk. All Drawings, Specifications, and copies thereof furnished by the Engineer are the property of the Engineer and shall not be reused on other work and, with the exception of the signed Contract sets, are to be returned to the Engineer, on request, at the completion of the Work. All models are the property of the DISTRICT. The Contractor may be furnished additional instructions and detail drawings by the Engineer as necessary to carry out the work required by the Contract Documents.

The additional drawings and instructions thus supplied, will become part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

- b) The Drawings shall be supplemented by such shop drawings prepared by the Contractor as are necessary to adequately control the Work. No changes shall be made by the Contractor in any shop drawings after they have been reviewed by the Engineer.
- c) Shop Drawings for any structure shall include, but not be limited to: stress sheets, anchor bolt layouts, shop details, and erection plans, which shall be reviewed and accepted by the Engineer before any such work is performed.
- d) Contractor agrees that shop drawings processed by the Engineer are not Contract Change Orders; that the purpose of shop drawings submitted by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept, that it demonstrates its understanding by indicating which equipment and material it intends to furnish and by detailing the fabrication methods it intends to use.
- e) It is expressly understood, however, that favorable review of the Contractor's shop drawings shall not relieve the Contractor of any responsibility for accuracy of dimensions and details, or for mutual agreements of dimensions and details. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of its shop drawings with the Specifications. Contractor further agrees that if deviations, discrepancies or conflicts between shop drawings and Specifications are discovered either prior to or after shop drawings are processed by the Engineer, the Specifications shall control and shall be followed.
- f) Unless otherwise stated, the Engineer shall have thirty (30) calendar days from the date of receipt of shop drawings for review.
- g) Full compensation for furnishing all shop drawings shall be considered as included in the prices paid for the Contract items of Work to which such drawings relate and no additional compensation will be allowed therefor. Any cost related to the Engineer's review of any particular set of shop drawings more than twice, due to incompleteness or unacceptability, shall be borne by the Contractor, and the DISTRICT reserves the right to withhold such costs from payments due the Contractor.
- h) When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that he has reviewed, checked and approved the Shop Drawings and that they are in conformance with the requirements of the Contract Documents.
- i) That portion of the Work requiring a shop drawing or sample submission shall not begin until the shop drawing or submission has been approved by the Engineer. A copy of each approved shop drawing and each approved sample shall be kept in good order by the Contractor at the site and shall be available to the Engineer.
- j) Acceptance by the Engineer of any drawing, method of work, or any information regarding materials and equipment the Contractor proposes to furnish shall not relieve the Contractor of his responsibility for any errors therein and shall not be regarded as an assumption of risks or liability

by the Engineer or DISTRICT, or any officer or employee thereof, and the Contractor shall have no claim under the Contract on account of the failure or partial failure or inefficiency or insufficiency of any plan or method or work or material and equipment so accepted. Such acceptance shall be considered to mean merely that the Engineer has no objection to the Contractor using, upon his own full responsibility, the plan or method of work proposed, or furnishing the materials and equipment proposed.

B-12 Construction Staking and Surveys

The Contractor shall furnish land surveys deemed necessary for locating the principal component parts of the Work.

B-13 Permits and Regulations

Permits, licenses, and easements of a temporary or permanent nature, necessary for the prosecution of the Work shall be secured and paid for by the Contractor, except as noted in Section B-32, and herein.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as shown on the Plans and described in the Specifications. It shall promptly notify the Engineer in writing of any specification at variance therewith and any necessary changes shall be adjusted as provided in the Contract for Changes in the Work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations and without such notice to the Engineer, it shall bear all costs arising therefrom.

B-14 Conformity with Contract Documents and Allowable Deviations

Work and materials shall conform to the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on Contract Documents. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Engineer shall be the sole judge as to whether the work or materials deviate from the Specifications and Plans, and its decision as to any allowable deviations therefrom shall be final and conclusive.

Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered as described in Section B-28. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the Contract Documents by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutions are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitution will be made by the Contractor without a change in the Contract Price or Contract Time.

B-15 Coordination and Interpretation of Contract Documents

- a) The Contract Documents are complementary and a requirement occurring in one is as binding as though occurring in all.
- b) In the event of conflict between the Plans and the Technical Specifications, the Technical Specifications shall govern, except that, where items are shown on the Plans and are not specifically included in the Technical Specifications, the Plans shall govern.
- c) Should it appear that the work to be done or any of the matters relative thereto are not sufficiently

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

detailed or explained in the Specifications and Plans, the Contractor shall apply to the Engineer for such further explanations as may be necessary and shall conform to them as part of the Contract. In the event of any doubt or question arising respecting the true meaning of the Specifications and Plans, reference shall be made to the Engineer, whose decision thereon shall be final and conclusive.

- d) In the event of any discrepancy between any plans and the figures written thereon, the figures shall be taken as correct. Detailed drawings shall prevail over general drawings.
- e) Any reference made in these Specifications or on the plans to any Specification, standard, method, or publication of any scientific or technical society or other organization shall, in the absence of a specific designation to the contrary, be understood to refer to the Specification, standard, method, or publication in effect as of the date that the Work is advertised for Bids.

B-16 Subcontracts

- a) In accordance with 44 CFR Section 13.35, the Contractors must not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension,"
- b) The attention of the Contractor is directed to the provisions of Public Contract Code sections 4100-4113, regarding subcontracting and said provisions are by this reference incorporated herein and made a part hereof.
- c) Each Subcontract shall contain a suitable provision for the suspension or termination thereof should the Work be suspended or terminated or should the Subcontractor neglect or fail to conform to every provision of the Contract Documents insofar as such provisions are relevant. No Subcontractor or supplier will be recognized as such, and all persons engaged in work will be considered as employees of the Contractor, and the Contractor will be held responsible for their work, which shall be subject to the provisions of the Contract Documents. The Contractor shall be fully responsible to the DISTRICT for the acts or omissions of its Subcontractors and of the persons either directly or indirectly employed by him. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the DISTRICT. If a legal action, including arbitration and litigation, against the DISTRICT is initiated by a Subcontractor or Supplier, the Contractor shall reimburse the DISTRICT for the amount of legal, engineering and all other expenses incurred by the DISTRICT in defending itself in said action.
- d) The DISTRICT and the Engineer reserve the right to approve all Subcontractors. Such approval shall be a consideration to the awarding of the Contract and unless notification to the contrary is given to the Contractor prior to the signing of the Contract, the list of Subcontractors which is submitted with its proposal will be deemed to be acceptable.

B-17 Cooperation of Contractors

- a) Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to said limits, the Contractor shall cooperate with all such other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.
- b) When two or more contractors are employed on related or adjacent work, each shall conduct its operation in such a manner as not to cause any unnecessary delay or hindrance to the other. Each contractor shall be responsible to the other for all damage to work, to persons or property caused to the other by its operations, and for loss caused the other due to its unnecessary delays or failure

to finish the Work within the time specified for completion.

B-18 Superintendence

- a) The Contractor shall designate in writing before starting work an individual as authorized representative who shall have the authority to represent and act for the Contractor. This authorized representative shall be present at the site of the work at all times while work is actually in progress on the Contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to the Engineer shall be made for any emergency work which may be required.
- b) The Contractor is solely responsible, at all times, for the superintendence of the Work and for its safety and progress.
- c) Whenever the Contractor or its authorized representative is not present on any particular part of the Work where it may be desired to give direction, orders will be given by the Engineer, which shall be received and obeyed by the superintendent or foreman who may have charge of the particular work in reference to which the orders are given.
- d) Any order given by the Engineer, not otherwise required by the Specifications to be in writing, will on request of the Contractor, be given or confirmed by the Engineer in writing.

B-19 Inspection of Work

- a) Unless otherwise provided, all equipment, materials, and work shall be subject to inspection and testing by the Engineer. The Engineer will observe the progress and quality of the Work and determine, in general, if the Work is proceeding in accordance with the intent of the Contract Documents. The Engineer shall not be required to make comprehensive or continuous inspections to check the quality of the Work, and it shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work. Visits and observations made by the Engineer shall not relieve the Contractor of its obligation to conduct comprehensive inspections of the Work and to furnish proper materials, labor, equipment and tools, and perform acceptable work, and to provide adequate safety precautions, in conformance with the intent of the Contract.
- b) Whenever the Contractor varies the period during which work is carried on each day, it shall give due notice to the Engineer so that proper inspection may be provided. Any work done in the absence of the Engineer shall be subject to rejection. Proper facilities for safe access for inspection to all parts of the Work shall at all times be maintained for the necessary use of the Engineer and other agents of the DISTRICT, and agents of the Federal, State, or Local governments at all reasonable hours for inspection by such agencies to ascertain compliance with laws and regulations.
- c) One or more inspectors may be assigned to observe the Work and to act in matters of construction under this Contract. It is understood that inspectors shall have the power to issue instructions and make decisions within the limitations of the authority of the Engineer. Such inspection shall not relieve the Contractor of its obligation to conduct comprehensive inspections of the work, to furnish proper materials, labor, equipment and tools, and perform acceptable work, and to provide adequate safety precautions in conformance with the intent of the Contract.
- d) The Engineer and its representatives and the DISTRICT and its Representative shall at all times have access to the Work wherever it is in preparation or progress, and the Contractor shall provide safe and convenient facilities for such access and for inspection. If the Specifications, the Engineer's instructions, laws, ordinances, or any public authority require any material, equipment or work to be specifically tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection, and if the inspection is by an authority other than the DISTRICT, of the

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

time fixed for inspection. Inspections by the Engineer will be made promptly and, where practicable, at the source of supply.

- e) Work performed without inspection may be required to be removed and replaced under proper inspection and the entire cost of removal and replacing, including the cost of DISTRICT-furnished materials used in the Work, shall be borne by the Contractor, regardless of whether or not the Work exposed is found to be defective. Examination of questioned work, other than that installed without inspection, may be ordered by the Engineer and, if so ordered, the work must be uncovered by Contractor. If such work is found to be in accordance with the Contract Documents, the DISTRICT will pay the cost of re-examination and replacement. If such work is found to be not in accordance with the Contract Documents, the Contractor shall pay such cost unless it can show that the defect in the work was caused by another Contractor, and in that event the DISTRICT will pay such costs.
- f) The inspection of the Work shall not relieve the Contractor of its obligation to fulfill the Contract as herein prescribed, or in any way alter the standard of performance provided by the Contractor, and defective work shall be made good and unusable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the Work or any part thereof shall be found defective, Contractor shall, within ten (10) calendar days, make good such defect in a manner satisfactory to the Engineer. If the Contractor shall fail or neglect to make ordered repairs of defective work or to remove the condemned materials from the Work within ten (10) calendar days after direction by the Engineer in writing, the DISTRICT may make the ordered repairs, or remove the condemned materials, and deduct the cost thereof from any monies due the Contractor.
- g) The Contractor shall furnish promptly without additional charge all facilities, labor and materials reasonably needed by the Engineer for performing all inspection and tests. Contractor shall be charged with any additional cost of inspection when material and workmanship are not ready at the time specified by the Contractor for its inspection.
- h) Where any part of the Work is being done under an encroachment permit or building permit, or is subject to Federal, State, County or City codes, laws, ordinances, rules or regulations, representatives of the government agency shall have full access to the Work and shall be allowed to make any inspection or tests in accordance with such permits, codes, laws, ordinances, rules, or regulations. If advance notice of the readiness of the Work for inspection by the governing agency is required, the Contractor shall furnish such notice to the appropriate agency.
- i) The Engineer may inspect production of the material, or the manufacture of products at the source of supply. Plant inspection, however, will not be undertaken until the Engineer is assured of the cooperation and assistance of both the Contractor and the material producer. The Engineer or its authorized representative shall have free entry at all times to such parts of the plant as concerns the manufacture or production of the materials. Adequate facilities shall be furnished free of charge to make the necessary inspection. The DISTRICT assumes no obligation to inspect materials at the source of supply.
- j) Forty-eight (48) hours prior to work being accomplished, the Contractor will notify the Engineer of the proposed working hours to accomplish the work for that day. Overtime and shift work may be established as a regular procedure by the Contract and with the written permission of the Engineer. Such permission may be revoked at any time. No work other than overtime and shift work established as a regular procedure shall be done between the hours of 6 p.m. and 7 a.m., nor on Saturdays, Sundays, or legal holidays, except such work as is necessary for the proper care and protection of the work already performed or except in case of an emergency.

All costs for the overtime inspection, including those occurring as a result of overtime and shift work established as a regular procedure, shall be paid for by the Contractor. Overtime inspection

shall include inspection required during holidays, Saturdays, Sundays, and any weekday between the hours of 6 p.m and 7 a.m. Such costs will include, but will not necessarily be limited to, engineering, inspection, general supervision and other expenses which are directly chargeable to the overtime work. All such charges shall be deducted by the DISTRICT from payment due the Contractor.

- k) A prefinal inspection of the Work will be made by the DISTRICT and the Engineer. This inspection shall be made as soon as practical after Contractor has notified the DISTRICT in writing that the Work is ready for this inspection. The prefinal inspection shall be made prior to acceptance of any portion of the Work as being substantially complete and prior to filing the Notice of Completion.

A final inspection of all the Work will be made by the DISTRICT, Engineer, and Contractor.

B-20 Tests

The DISTRICT shall perform or witness all tests specified or required by the Technical Specifications. The responsibility for payment for these tests is also outlined in the Technical Specifications. The Engineer will perform such tests as it deems necessary to determine the quality of work or compliance with Contract Documents. The Contractor shall furnish promptly without additional charge all facilities, labor, and material reasonably required for performing safe and convenient tests as may be required by the Engineer. All tests by the Engineer will be performed in such a manner as will not unnecessarily delay the work. The Contractor shall not be required to reimburse the DISTRICT for tests performed by the DISTRICT or Engineer. If samples of materials are submitted which fail to pass the specified tests, the Contractor shall pay for all subsequent tests.

B-21 Removal of Rejected and Unauthorized Work and Materials

- a) All work or materials which have been rejected shall be remedied, or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed it for such removal, replacement, or remedial work.
- b) Any work done beyond the lines and grades shown on the plans or established by the Engineer or any extra work done without written authority will be considered as unauthorized work and will not be paid for. Upon order of the Engineer, unauthorized work shall be remedied, removed, or replaced at the Contractor's expense.
- c) Upon failure of the Contractor to comply with any order of the Engineer made under this Section, the DISTRICT may cause rejected or unauthorized work to be remedied, removed or replaced, and may deduct the costs therefor from any monies due or to become due the Contractor.
- d) If following the installation of any equipment furnished hereunder, defects requiring correction by the Contractor are found, the DISTRICT shall have the right to operate such unsatisfactory equipment and make reasonable use thereof until the equipment can be shut down for correction of defects without injury to the DISTRICT.

B-22 Deductions for Uncorrected Work

If the Engineer deems it inexpedient to correct work damaged or not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor, and such sum may be withheld by DISTRICT from Contractor's payment.

B-23 Equipment and Plants

- a) Only equipment and plants suitable to produce the quality of work and materials required will be permitted to operate on the project.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- b) Plants will be designed and constructed in accordance with general practice for such equipment and shall be of sufficient capacity to insure the production of sufficient material to carry the Work to completion within the time limit.
- c) The Contractor shall provide adequate and suitable equipment and plants to meet the above requirements, and when ordered by the Engineer, shall remove unsuitable equipment from the Work and discontinue the operation of unsatisfactory plants.
- d) The Contractor shall identify each piece of its equipment, other than hand tools, by means of an identifying number plainly stenciled or stamped on the equipment at a conspicuous location, and shall furnish to the Engineer a list giving the description of each piece of equipment and its identifying number. In addition, the make, model number and empty gross weight of each unit of compacting equipment shall be plainly stamped or stenciled in a conspicuous place on the unit. The gross weight shall be either the manufacturer's rated weight or the scale weight.
- e) In the case of termination of this Contract before completion from any cause whatever, the Contractor, if notified to do so by the DISTRICT, shall promptly remove any part or all of its equipment and supplies from the property of the DISTRICT. If the Contractor fails to do so, the DISTRICT shall have the right to remove such equipment and supplies at the expense of the Contractor.

B-24 Character of Worker

The Contractor shall employ only competent Subcontractors or skillful workers to do the work. If any Subcontractor, or person employed by the Contractor or any Subcontractor shall fail or refuse to carry out the directions of the DISTRICT or its agents or shall appear to the DISTRICT or its agents to be incompetent or to act in a disorderly or improper manner, it shall be removed from the project Work immediately on the requisition of the DISTRICT or its agents, and such person shall not again be employed on the Work. Such discharge shall not be the basis for any claim for compensation or damages against the DISTRICT, or any of its officers or agents.

B-25 Separate Contracts

The DISTRICT reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with the other contractor's work.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results. The Contractor's failure to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of its work, except as to defects which may develop in the other contractor's work after the execution of its work.

To ensure the proper execution of its subsequent work, the Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and the Drawings.

The DISTRICT may perform additional Work related to the Project itself, or it may let other contracts containing provisions similar to these. The Contractor will afford the other contractors who are parties to such contracts (or the DISTRICT, if the DISTRICT is performing the additional Work itself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work and shall properly connect and coordinate his Work with theirs.

If the performance of additional Work by other contractors or the DISTRICT is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor

prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the DISTRICT or others involves him in additional expense or entitles him to an extension of the Contract Time, he may make a claim therefore as provided in Section B-7 of this Contract.

B-26 Materials, Services and Facilities

- a) Unless otherwise specifically stated in the Contract Documents, the Contractor shall furnish all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature on all of the facilities necessary for the execution and completion of the Work. Unless otherwise specified, all materials shall be new and shall be manufactured, handled, and installed in a workmanlike manner to ensure completion of the Work in accordance with the Contract Documents. The Contractor shall, upon request of the Engineer, furnish satisfactory evidence as to the kind and quality of materials.
- b) Where materials are to be furnished by the DISTRICT, the type, size, quantity and location at which they are available will be stated in the Contract Documents.
- c) Manufacturers' warranties, guarantees, instruction sheets and parts listed, which are furnished with certain articles or materials incorporated in the Work, shall be delivered to the Engineer before acceptance of the Contract.
- d) Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.
- e) Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.
- f) Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- g) The completed Work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items required by the State and Federal (OSHA) industrial safety authorities and applicable local and national codes. Further, any features of the Work subject to such safety regulations shall be fabricated, furnished, and installed in compliance with these requirements. Prior to performing Work specified herein, the Contractor shall request an inspection by a State Industrial Safety representative for the purpose of determining that the facilities provided are in compliance with the State and Federal safety requirements. Any facilities which are deemed necessary by official response following the above safety inspection shall be added or corrected as required as a part of the Contract Work. However, no payment will be made to the Contractor for such changes or additions to equipment furnished under this Contract since it is a requirement of these Specifications that such equipment be manufactured or fabricated in such a manner as to be in conformance with all Federal, State, and local safety requirements. The Contractor shall notify all manufacturers, equipment suppliers, and Subcontractors of the provisions of this article.
- h) In approving equipment for installation in the project, the DISTRICT and Engineer assume no responsibility for injury or claims resulting from failure of the equipment to comply with applicable National, State, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials.
- i) All materials incorporated into the job shall be new, especially purchased for the project unless otherwise specified or agreed in writing. Unless otherwise noted, any equipment offered shall be current modifications which have been in successful regular operation under comparable conditions for a period sufficient to determine the reliability of the product. This time requirement, however, does not apply to minor details nor to thoroughly demonstrated improvements in design

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

or in materials of construction.

- j) Whenever the Contractor shall furnish materials or manufactured articles or shall do work for which no detailed specifications are set forth, the materials or manufactured articles shall be of the best grade in quality and workmanship obtainable in the market from firms of established good reputation, or, if not ordinarily carried in stock, shall conform to the usual standards of first-class materials or articles of the kind required with due consideration of the use to which they are to be put. In general, the work performed shall be in full conformity and harmony with the intent to secure the best standard of construction and equipment of the work as a whole or in part.

B-27 Storage of Materials

Materials shall be so stored as to ensure the preservation of their quality and fitness for the Work. When considered necessary, they shall be placed on wooden platforms or other hard, clean surfaces, and not on the ground, and they shall be placed under cover. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the owner or lessee.

Electrical equipment, devices, and motors shall be placed in dry and warm storage as approved by the Engineer.

All equipment and materials which are not to be painted (such as aluminum and stainless steel) and all factory finished or coated equipment and materials which are not to be painted, that are installed prior to completion of adjacent work, shall be completely covered and protected.

Articles or materials to be incorporated in the Work shall be stored in such a manner as to ensure the preservation of their quality and fitness for the Work, and to facilitate inspection.

B-28 Trade Names and Alternatives

For convenience in designation in the Specifications and Plans, certain articles or materials to be incorporated in the Work may be designated under a trade name or the name of a manufacturer and its catalog information. The use of an alternative article or material which is of equal quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:

- a) The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and it shall furnish all information necessary as required by the Engineer. The Engineer shall be the sole judge as to the quality and suitability of alternative articles or materials and its decision shall be final.
- b) Whenever the Specifications and Plans permit the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material or article will be made until the request for substitution is made in writing by the Contractor accompanied by complete data as to the equality of the material or article proposed. Such request by the Contractor must be made within thirty-five (35) calendar days after award of Contract.

B-29 Certificate of Compliance

- a) A Certificate of Compliance shall be furnished prior to the use of any materials for which the Technical Specifications require that such a certificate be furnished. In addition, when so authorized in the Specifications, the Engineer may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance. The Certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Contract. A Certificate of Compliance shall be furnished with each lot of material delivered to the Work and the lot so certified shall be clearly identified in the Certificate.

- b) All materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents and any such material not conforming to such requirements will be subject to rejection whether in place or not.
- c) The DISTRICT reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance.
- d) The form of the Certificate of Compliance and its disposition shall be as directed by the Engineer.

B-30 Assignment

The Contractor shall not assign the Contract or sublet it as a whole or in part without the prior written consent of the DISTRICT, nor shall the Contractor assign any monies due, or to become due to it hereafter, without the prior written consent of the DISTRICT.

B-31 Use of Completed Portions, Right to Operate Unsatisfactory Equipment or Facilities

- a) The DISTRICT may, at any time, and from time to time, during the performance of the Work, enter the work site for the purpose of installing any necessary work by the DISTRICT labor or other contracts, and for any other purpose in connection with the installation of facilities. In doing so, the DISTRICT shall endeavor not to interfere with the Contractor and the Contractor shall not interfere with other work being done by or on behalf of the DISTRICT.
- b) If, prior to completion and final acceptance of all the Work, the DISTRICT takes possession of any structure or facility (whether completed or otherwise) comprising a portion of the Work with the intent to retain possession thereof (as distinguished from temporary possession contemplating the return to the Contractor), then, while the DISTRICT is in possession of the same, the Contractor shall be relieved of liability for loss or damage to such structure other than that resulting from the Contractor's fault or negligence. Such taking of possession by the DISTRICT shall not relieve the Contractor from any provisions of this Contract respecting such structure, other than to the extent specified in the preceding sentence, nor constitute a final acceptance of such structure or facility.
- c) If, following installation of any equipment or facilities furnished by the Contractor, defects requiring correction by the Contractor are found, the DISTRICT shall have the right to operate such unsatisfactory equipment or facilities and make reasonable use thereof until the equipment or facilities can be shut down for correction of defects without injury to the DISTRICT.

B-32 Lands for Work, Right-of-Way Construction Roads

- a) The DISTRICT will provide the lands, easements, rights-of-way, and/or encroachment permits necessary or other rights to enter and work on lands necessary for the performance of the Work. Other permits and licenses are addressed by sections B-13 and B-49. Should the Contractor find it advantageous to use any additional land for any purpose whatsoever, the Contractor shall provide for the use of such land at its expense. The Engineer shall be furnished with a copy of written agreements or otherwise be notified in writing of additional working space which is acquired. Nothing herein contained and nothing marked on the Plans shall be interpreted as giving the Contractor exclusive occupancy of the territory provided by the DISTRICT. When two or more contracts are being executed at one time on the same or adjacent land in such a manner that work on one contract may interfere with that on another, the Engineer shall decide which contractor shall cease work, and which shall continue, or whether the work on both contracts shall progress at the same time and in what manner, and the decision of the Engineer shall be final and binding. When the territory of one contract is the necessary or convenient means of access for the performance of another contract, such privilege of access or any other reasonable privilege may be granted by the Engineer to the contractor so desiring, to the extent, amount, in the manner, and at the time

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

permitted. No such decision as to the method or time of conducting the work or the use of territory shall be the basis of any claim for delay or damage.

- b) Lands, easements or rights-of-way to be furnished by the DISTRICT for construction operations will be specifically shown on the Plans.
- c) The Contractor shall construct and maintain all roads necessary to reach the various parts of the Work and for the transportation thereto of construction material and personnel. The cost of constructing and maintaining such roads shall be borne by the Contractor.

B-33 District's Right to Audit and Preservation of Records

- a) The Contractor shall maintain books, records and accounts of all costs in accordance with generally accepted accounting principles and practices. The DISTRICT and its authorized representatives shall have the right to audit the books, records and accounts of the Contractor under any of the following conditions:
 - (i) The Contract is terminated for any reason in accordance with the provisions of the Contract Documents in order to arrive at equitable termination costs;
 - (ii) In the event of a disagreement between the Contractor and the DISTRICT over the amount due the Contractor under the terms of the Contract;
 - (iii) To check or substantiate any amounts invoiced or paid which are required to reflect the costs of the Contractor, or the Contractor's efficiency or effectiveness under this Contract or in connection with extras, changes, claims, additions, backcharges, or others, as may be provided for in this Contract; and/or
 - (iv) If it becomes necessary to determine the DISTRICT's rights and the Contractor's obligations under the Contract or to ascertain facts relative to any claim against the Contractor which may result in a charge against the DISTRICT;
 - (v) To determine any difference in cost occasioned by a permissible substitution;
 - (vi) To make audits, examinations, excerpts, and transcriptions pertinent to the loan financing on this project.
 - (vii) For any other reason in the DISTRICT's sole judgment.
- b) If any of the conditions stated in paragraph B-33(a) are satisfied, Contractor shall provide the DISTRICT (or its representatives), unlimited, reasonable access during working hours to the Contractor's books and records under the conditions stated above. The DISTRICT's audit rights shall be liberally construed in the DISTRICT's favor.
- c) The Contractor, from the effective date of final payment or termination hereunder, shall preserve and make available to the DISTRICT for a period of three (3) years thereafter, at all reasonable times at the office of the Contractor (but without any charge to the DISTRICT), all its books, records, documents, photographs, micro-photographs, and other evidence bearing on the costs and expenses of the Contractor under this Contract and relating to the Work hereunder.
- d) The DISTRICT will make all payments required of it under this Contract subject to audit, under circumstances stated above, which audit may be performed at the DISTRICT's option, either during the Contract time period or during the record retention time period. Regardless of authorization, approval or acceptance, signatures or letters which are given by the DISTRICT and are part of the DISTRICT's control systems or are requested by the Contractor, the payments made under this Contract shall not constitute a waiver or agreement by the DISTRICT that it accepts as correct the billings, invoices or other charges on which the payments are based. If the DISTRICT's audit produces a claim against the Contractor, the DISTRICT may pursue all its legal remedies even though it has made all or part of the payments required by this Contract.
- e) If any audit by the DISTRICT or its representative discloses an underpayment by the DISTRICT pursuant to the terms of the Contract Documents, the DISTRICT shall have the duty to pay any

amount found by the audit to be owed to the Contractor. If such audit discloses an overpayment, the Contractor shall have the obligation to reimburse the DISTRICT for the amount of the overpayment. The DISTRICT's right to claim reimbursement from the Contractor of any overpayment shall not be terminated or waived until three years after the completion of the DISTRICT's audit or upon the termination of audit rights under subparagraph B-33(c), whichever date is later. The obligation of the Contractor to make reimbursements hereunder shall not terminate except as provided by law.

The DISTRICT's right to audit and the preservation of records shall terminate at the end of three (3) years after the date final payment is made or termination of the Contract. The Contractor shall include this "Right to Audit and Preservation of Records" clause in all subcontracts issued by it shall require the same to be inserted by all lower tier Subcontractors in their subcontracts, for any portion of the Work. Should Contractor fail to include this clause in any such contract or lower tier contract, or otherwise fail to ensure the DISTRICT's rights hereunder, Contractor shall be liable to the DISTRICT for all costs, expenses and attorney's fees which the DISTRICT may have to incur obtaining or attempting to obtain an audit or inspection of or the restoration of records which otherwise have been available to the DISTRICT from said persons under this clause. Such audit may be conducted by the DISTRICT or its authorized representative.

ARTICLE III. PROGRESS AND COMPLETION OF WORK

B-34 Progress Schedule

The Contractor shall submit to the DISTRICT such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data, where applicable, as are required by the Contract Documents for the Work to be performed.

Prior to the first partial payment estimate, the Contractor shall submit construction progress schedules showing the order in which it proposes to carry on the Work, including dates at which it will start the various parts of the Work, estimated date of completion of each part and as applicable:

- a) The dates at which special detail drawings will be required; and
- b) Respective dates for submission of shop drawings, the beginning of manufacture, the testing and the installation of materials, supplies, and equipment.
- c) The Contractor shall also submit a schedule of payments that it anticipates it will earn during the course of the Work.

The progress schedules shall be submitted regularly and shall cover a time period satisfactory to the Engineer. The Contractor shall also forward to the Engineer, with the request for progress payment each month, a summary report of the progress of the various parts of the Work under the Contract in the shops and in the field, stating the existing status, rate of progress, estimated time of completion, and cause of delay, if any. If the Work is behind the submitted schedule, the Contractor shall submit in writing a plan acceptable to the DISTRICT and Engineer for bringing the Work up to schedule.

B-35 Commencement and Progress of the Work and Time of Completion

Prior to the start of construction, the DISTRICT will conduct a preconstruction conference. At the conference, the DISTRICT will review the planned development with the Engineer, Contractor, and other interested parties. Items to be reviewed include materials, equipment, rights-of-way, schedules and all arrangements for prosecuting the Work.

The Contractor shall begin work within twenty-one (21) calendar days after receiving a Notice to Proceed, or by April 1, 2017, whichever is later, and shall diligently prosecute the work to completion within ninety-one (91) calendar days. Engineer shall have the right to specify the locations where Contractor shall start and proceed with the Work. The intent is to complete the work by June 30, 2017.

B-36 Suspension of Work

- a) The Engineer may at any time, by notice in writing to the Contractor, suspend any part of the Work for such period of time as may be necessary to prevent improper execution of the Work on the project by the Contractor, its Subcontractors or agents, and the Contractor shall have no claim for damages or additional compensation on account of any such suspension.
- b) The DISTRICT may at any time suspend any part or all of the Work upon ten (10) calendar days written notice to the Contractor, who shall thereupon discontinue all Work suspended except for all operations to prevent loss or damage to Work already executed as may be directed by the Engineer. In the event a part of the Work is suspended, the Contractor, if the suspension is not through its fault or the fault of its Subcontractors or agents, shall be paid on the same basis as Extra Work for costs of work performed in accordance with such orders of the Engineer during such suspension, provided that this shall not include any cost pertaining to Work not suspended by said notice. Work shall be resumed by the Contractor after such suspension on written notice from the DISTRICT. In the event of suspension of the entire Work by the DISTRICT, the Contractor, if the suspension is not through fault of the Contractor or the fault of its Subcontractors or agents,

shall be paid the sum of \$500.00 for each calendar day during which the entire Work shall have been suspended. Said sum is hereby mutually agreed upon as fixed and liquidated damages in full settlement of all costs and expenses, losses and damages resulting to the Contractor from such suspension. Work shall be resumed by the Contractor after such suspension on written notice from the DISTRICT.

- c) In the event of any suspension of the Work in whole or in part under subsection (b) above, the Contractor shall be entitled to an extension of time wherein to complete the Work to the extent of the delay caused the Contractor thereby.
- d) In the event the entire Work shall be suspended by order of the DISTRICT, as hereinabove provided, and shall remain so suspended for a period of sixty (60) consecutive calendar days, through no fault of the Contractor, and notice to resume the Work shall not have been served on the Contractor as hereinabove provided, Contractor may, at its option, by written notice to the DISTRICT, terminate the Contract in the same manner as if the termination had been initiated by the DISTRICT, and the DISTRICT shall have no claim for damages because of such termination of the Contract.
- e) If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) calendar days by the DISTRICT or under an order of Court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) calendar days after it is submitted, or the DISTRICT fails to pay the Contractor substantially the sum approved by the Engineer or any final award by arbitration or litigation within thirty (30) calendar days of its approval and presentation, then the Contractor may, after ten (10) calendar days from delivery of a written notice to the DISTRICT and the Engineer, terminate the Contract and recover from the DISTRICT payment for all Work executed and all expenses sustained.

In addition and in lieu of terminating the Contract, if the Engineer has failed to act on a request for payment or if the DISTRICT has failed to make any payment as aforesaid, the Contractor may upon ten (10) calendar days written notice to the DISTRICT and the Engineer stop the Work until he has been paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued for adjusting the Contract Price or extending the Contract Time or both to compensate for the costs and delays attributable to the stoppage of the Work.

If the performance of all or any portion of the Work is suspended, delayed, or interrupted as a result of a failure of the DISTRICT or Engineer to act within the time specified in the Contract Documents, or if no time is specified, within a reasonable time, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the DISTRICT or Engineer.

If the Contractor intends to file a claim for additional compensation for a delay caused by the DISTRICT or Engineer at a particular time, he shall file a Notice of Claim with the DISTRICT within seven (7) calendar days of the beginning of the occurrence. The Notice of Claim shall be in duplicate, in writing, and shall state the circumstances and the reasons for the Claim, but need not state the amount. No Claim for additional compensation will be considered unless a Notice of Claim has been filed with the DISTRICT within the time and in the manner stated above. Contractor's failure to file a claim shall constitute a waiver.

B-37 Termination For Default - Damages For Delay - Timely Extension

- a) The Contractor shall at all times employ such force, plant, materials, and tools as will be sufficient, in the opinion of the Engineer, to prosecute the Work at not less than the rates fixed under the terms of the Contract and to complete the Work or any part thereof within the time limits fixed therein. If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

such diligence as will ensure the completion within the time specified in the Contract, or any extension thereof, or fails to complete said Work within such time, the DISTRICT may, after giving ten (10) calendar days written notice to the Contractor, terminate its right to proceed with the Work or such part of the Work as to which there has been delay.

- b) The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:
 - (i) The delay in the completion of the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to Acts of God, acts of the public enemy, acts of the DISTRICT, acts of another contractor in the performance of a Contract with the DISTRICT, fires, floods, excluding site flooding due to groundwater, epidemics, quarantine restrictions, unusually severe weather, as determined by the Engineer; and
 - (ii) The Contractor shall, within 48 hours of the start of the occurrence, give notice to the DISTRICT of the cause of the potential delay and an estimate of the possible time extension involved. The Contractor, within seven (7) calendar days from the beginning of any such delay (unless the Engineer grants further period of time before the date of final payment under the Contract), notifies the Engineer in writing of the causes of delay and requests an extension of time.
 - (iii) The Engineer shall ascertain the facts and the extent of the delay and extend the time for completing the Work when, in its judgment, the findings of fact justify such an extension, and its findings of fact shall be final and conclusive on the parties.
- c) A request for an extension of time, or the granting of an extension of time, shall not constitute a basis for any claim against the DISTRICT for additional compensation or damages unless caused by the DISTRICT or another contractor employed by the DISTRICT.
- d) If the Contractor should be adjudged bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed for the Contractor on account of its insolvency and not be discharged within ten (10) calendar days after its appointment, or if the Contractor should fail to make prompt payments to Subcontractors or suppliers, or should it persistently disregard laws, ordinances, or the instructions of the Engineer, or otherwise commit a substantial violation of any provisions of the Contract, the DISTRICT may, after giving ten (10) calendar days written notice to the Contractor, terminate the Contract and the Contractor's right to proceed with the Work.
- e) No extension of time will be considered for time lost due to weather conditions normal to the area. Unusual weather conditions, if determined by the Engineer to be of a severity that could not be predicted, may be considered as cause for an extension of Contract completion time.
- f) Delays in delivery of equipment or material purchased by the Contractor or his Subcontractors shall not be considered as a just cause for delay. The Contractor shall be fully responsible for the timely ordering, scheduling, expediting delivery, and installation of all equipment and materials.
- g) The rights and remedies of the DISTRICT provided in this section are in addition to any of the rights and remedies provided by law or under this Contract.
- h) In addition to the DISTRICT's rights under this section, if at any time before completion of the work under the Contract, it shall be determined by the DISTRICT that reasons beyond the control of the parties hereto render it impossible or against the interests of the DISTRICT to complete the Work, or if the Work shall be stopped by an injunction of a court of competent jurisdiction or by order of any competent authority, the DISTRICT may, upon ten (10) calendar days written notice to the Contractor, discontinue the Work and terminate the Contract. Upon service of such notice of termination, the Contractor shall discontinue the Work in such manner, sequence, and at such

times as the Engineer may direct. The Contractor shall have no claim for damages for such discontinuance or termination, nor any claim for anticipated profits on the Work thus dispensed with, nor any other claim except for the Work actually performed up to the time of discontinuance, including any extra work ordered by the Engineer to be done, nor for any claim for liquidated damages in accordance with the provisions of Section B-39.

B-38 Rights of DISTRICT Upon Termination

- a) In the event the right of the Contractor to proceed with the Work, or any portion thereof, has been terminated because of the fault of the Contractor and the Contractor has been given ten (10) calendar days' notice to cure such fault and has not done so, the DISTRICT may take over the Work and prosecute the same to completion by contract or any other method the DISTRICT deems expedient, and may take possession of and utilize in completing the Work such materials, appliances, equipment and plant as may be on the site of the Work and necessary therefor. Whether or not the Contractor's right to proceed with the Work is terminated, it and its sureties shall be liable for all damages including costs of managerial and administrative services, engineering, legal and other consultant fees, sustained or incurred by the DISTRICT in enforcing the provisions of Section B-37 and in completing or causing to complete the Contract Work.
- b) Upon termination the Contractor shall not be entitled to receive any further payment until the Work is finished. If upon completion of the Work the total cost to the DISTRICT, including engineering, legal and other consultant fees, costs of managerial and administrative services, construction costs, and liquidated damages shall be less than the amount which would have been paid if the Work had been completed by the Contractor in accordance with the terms of the Contract, then the difference shall be paid to the Contractor in the same manner as the final payment under the Contract. If the total cost incurred by the DISTRICT on account of termination of the Contract and subsequent completion of the Work by the DISTRICT by whatever method the DISTRICT may deem expedient shall exceed said amount which the Contractor would otherwise have been paid, the Contractor and its sureties shall be liable to the DISTRICT for the full amount of such excess expense.
- c) The rights and remedies of the DISTRICT provided in this section are in addition to any of the rights and remedies provided by the law or under this Contract.

B-39 Failure to Complete the Work in the Time Agreed Upon - Liquidated Damages

- a) Liquidated Damages - It is agreed by the parties to the Contract that time is of the essence; and that in case all the Work is not completed before or upon the expiration of the time limit as set in the Bid, Contract and Progress Schedule, or within any time extensions that may have been granted, damage will be sustained by the DISTRICT; and that it may be impracticable to determine the actual amount of damage by reason of such delay; and it is, therefore, agreed that the Contractor shall pay to the DISTRICT as damages the amount of \$500.00 per day for each and every day's delay in finishing the Work in excess of the number of days specified. The parties expressly agree that this liquidated damage clause is reasonable under the circumstances existing at the time the Contract was made. The DISTRICT shall have the right to deduct the amount of liquidated damages from any money due or to become due the Contractor.
- b) In addition, the DISTRICT shall have the right to charge to the Contractor and to deduct from the final or progress payments for the Work the actual cost to the DISTRICT of legal, engineering, inspection, superintendence, and other expenses, which are directly chargeable to the Contract and which accrue during the period of such delay, except that the cost of final inspection and preparation of the final estimate shall not be included in the charges.
- c) Exclusions - Notwithstanding the provisions of subsection (a), the Contractor shall not be liable for liquidated damages or delays caused by the removal or relocation of utilities when such removal or

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

relocation is the responsibility of the DISTRICT or the owner of the utility under Government Code Section 4215.

B-40 Clean-up

During the progress of the Work, the Contractor shall maintain the site and related structures and equipment in a clean, orderly condition and free from unsightly accumulation of rubbish. Upon completion of Work and before the final estimate is submitted, the Contractor shall at its own cost and expense remove from the vicinity of the Work all plants, buildings, rubbish, unused work materials, concrete forms, and temporary bridging and other like materials, belonging to it or used under its direction during the construction, and in the event of its failure to do so, the same may be removed by the DISTRICT after ten (10) calendar days' notice to the Contractor, such removal to be at the expense of the Contractor. Where the construction has crossed yards or driveways, they shall be restored by the Contractor to the complete satisfaction of the Engineer, at the Contractor's expense.

ARTICLE IV. LEGAL RELATIONS AND RESPONSIBILITY

B-41 Compliance with Laws - Permits, Regulations, Taxes

Contractor is an independent contractor and shall at its sole cost and expense comply with all laws, rules, ordinances and regulations of all governing bodies having jurisdiction over the Work, obtain all necessary permits and licenses therefor, pay all manufacturers' taxes, sales taxes, use taxes, processing taxes, and all Federal and State taxes, insurance and contributions for social security and unemployment which are measured by wages, salaries or any remuneration paid to Contractor's employees, whether levied under existing or subsequently enacted laws, rules, or regulations. Contractor shall also pay all property tax assessments on materials or equipment used until acceptance by the DISTRICT. If any discrepancy or inconsistency is discovered in the Plans or Specifications, or in this Contract in relation to any such law, rule, ordinance, regulation, order or decree, the Contractor shall forthwith report the same to the Engineer in writing. It shall also protect and indemnify the DISTRICT, the Engineer, and all of the DISTRICT's officers, agents, and servants against any claim or liability arising from or based upon the violation of any such law, rule, ordinance, regulation, order or decree, whether by the Contractor itself or by its employees. Particular attention is called to the following:

- a) Without limitation, materials furnished and performance by Contractor hereunder shall comply with Safety Orders of the Division of Industrial Safety, State of California, Federal Safety regulations of the Bureau of Labor, Department of Labor; and any other applicable Federal regulations.

The Contractor, upon request, shall furnish evidence satisfactory to the DISTRICT and Engineer that any or all of the foregoing obligations have been or are being fulfilled. The Contractor warrants to the DISTRICT that it is licensed by all applicable governmental bodies to perform this Contract and will remain so licensed throughout the progress of the Work, and that it has, and will have, throughout the progress of the Work, the necessary experience, skill and financial resources to enable it to perform this Contract.

B-42 Prevailing Wage

- a) The Contractor shall forfeit as penalty to the DISTRICT the sum of One Hundred Dollars (\$100) for each calendar day or portion thereof for each worker (whether employed by the Contractor or Subcontractor) paid less than the stipulated prevailing rates for any Work done under the Contract in violation of the provisions of the Labor Code and in particular, Section 1775.
- b) The DISTRICT will not recognize any claims for additional compensation because of the payment of the wages set forth in the Contract Documents. The possibility of wage increases is one of the elements to be considered by the Contractor in determining its proposal, and will not under any circumstances be considered as the basis of a claim against the DISTRICT or the Engineer.
- c) The Contractor shall at all times keep posted at the jobsite current wage rates in effect for this Work.
- d) Humboldt Bay Municipal Water District requires that all contractors and subcontractors working on this project keep certified payroll records in accordance with Labor Code 1776 and submit copies to the DISTRICT.
 - (i) In accordance with the provisions of section 1720 et seq. of the Labor Code, the Division of Labor Standards and Research has determined the general prevailing rates or wages and employer payments for health and welfare, pension, vacation, travel time, and subsistence pay as provided for in section 1773.8. The State and Federal prevailing wage sheets can be found on the DIR website.
 - (i) It shall be mandatory upon the Contractor herein and upon any Subcontractor to pay not less than the said specified rates to all laborers, workers and mechanics employed by them in the execution of the Agreement pursuant to CA Labor Code 1774.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- (ii) Attention is directed to the provisions in section 1777.5 and sections 1777.6 of the Labor Code concerning the requirement to employ apprentices by the Contractor or any Subcontractor under it. The Contractor shall submit documentation to the DISTRICT confirming compliance with these requirements.
- (iii) The Contractor shall comply with and shall cause his subcontractors to comply with all laws and regulations governing the contractor's and subcontractor's performance on this project including, but not limited to: anti-discrimination laws, workers' compensation laws, and prevailing wage laws as set forth in CA Labor Code, Sections 1720-1861 et seq. and licensing laws, as well as Federal Labor Standards set forth in the Davis-Bacon Act (40 USC 276(a-a5), the Copeland "Anti-Kickback" Act (40 USC 276(c); and the Contract Work Hours and Safety Standards Act (CWHSSA) (40 USC 327-333). The contractor is required to include the prevailing wage language in all subcontracts pursuant to CA Labor Code 1775(E)(b)(1). The Contractor shall post, at appropriate conspicuous points on the site of the Project, a schedule showing all the determined general prevailing wage rates.
- (iv) The Contractor agrees to comply with Labor Code Section 1775 (Payment of the Prevailing Wage Rates) and Labor Code 1776 (keeping accurate records) and Labor Code 1777.5, placing responsibility for compliance with the statutory requirements for all apprenticeable occupations on the prime contractor. The Contractor shall comply with the requirements imposed by the California Labor Code Sections 1720 through 1861 regarding public works projects and prevailing wage laws and sections 16000-16800 of the CA Code of Regulations.
- (v) Each worker needed to execute the work must be paid travel and subsistence payments as defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.
- (vi) Holiday and overtime work when permitted by law shall be paid for at a rate of at least one and one-half times the above specified rate of per diem wages, unless otherwise specified.
- (vii) Contractors and any Subcontractors shall be assessed penalties for violating the following labor codes; CA Labor Code 1813 for overtime, 1775 for underpayment of the prevailing wage, and 1776 for inaccurate or incomplete payroll records.

B-43 Labor Discrimination

Attention is directed to Section 1735 of the Labor Code, which reads as follows:

No discrimination shall be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every Contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter.

Federal Equal Opportunity Clauses from 41 CFR 60 1.4(b) also apply. See Part 4 for detailed outline of Federal requirements. See Part 5 for required Non-discrimination Form.

B-44 Eight-Hour Day Limitation

- a) In accordance with the provisions of the Labor Code, and in particular, Sections 1810 to 1815 thereof, inclusive, eight hours labor shall constitute a day's work, and no worker, in the employ of said Contractor, or any Subcontractor, doing or contracting to do any part of the Work contemplated by this Contract, shall be required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of those provisions; provided that subject to Labor Code Section 1815, a worker may perform work in excess of either eight (8) hours per day or forty (40) hours during any one week upon compensation for all hours worked in excess of eight (8) hours per day or forty (40) hours during any one week at not less than one and one-half times the basic rate of pay.
- b) The Contractor and each Subcontractor shall also keep an accurate record showing the names,

addresses, social security numbers, work classifications, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and by the Subcontractor in connection with the work specified herein, which record shall be open at all reasonable hours to the inspection of the DISTRICT, State and Federal officers and agents; and it is hereby further agreed that, except as provided in (a) above, the Contractor shall forfeit as a penalty to the DISTRICT the sum of one hundred dollars (\$100) for each worker employed in the performance of this Contract by it or by any Subcontractor under it for each calendar day during which such worker is required or permitted to labor more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of Sections 1810 through 1815.

B-45 Compliance with State Requirements for Employment of Apprentices

The Contractor's attention is directed to Section 1777.2 through 1777.5 of the Labor Code; provisions of those Sections pertaining to employment of registered apprentices are hereby incorporated by reference into these Specifications. As applicable, the Contractor or any Subcontractor employed by it in the performance of the Contract work shall take such actions as necessary to comply with the provisions of Section 1777.5. Contractor shall provide the DISTRICT copies of applicable forms or equivalent: DAS 140 – Public Works Contract Award Information; CAC2 – Training Fund Contributions; and any other communications relating to apprentices on public works projects. Contractor shall be solely liable for any and all fines assessed by the DIR or other agency or entity for non-compliance with any prevailing wage requirements.

B-46 Underground Utilities

In accordance with Government Code Section 4215, the Contractor shall be compensated for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating existing main or trunkline utility facilities not indicated in the Contract Plans and Specifications with reasonable accuracy, and for the equipment on the project necessarily idled during such work; provided that the Contractor shall first notify the Engineer before commencing work on locating, repairing damage to, removing or relocating such utilities.

B-47 Water Pollution

The Contractor shall exercise every reasonable precaution to protect streams, lakes, reservoirs, and other waters of the state and/or United States from pollution with fuels, oils, bitumens, calcium chloride, and other harmful materials and shall conduct and schedule its operations so as to avoid or minimize muddying and silting of said streams, lakes, reservoirs, and water bodies. Care shall be exercised to preserve vegetation beyond the limits of construction. The Contractor shall comply with Section 5650 of the California Fish and Wildlife Code, the National Pollution Discharge Elimination System (NPDES), State of California Construction General Permit, and all other applicable statutes and regulations relating to the prevention and abatement of water pollution.

B-48 Payment of Taxes

The Contract prices paid for the Work shall include full compensation for all taxes which the Contractor is required to pay, whether imposed by Federal, State, or local governments.

B-49 Permits and Licenses

Except as otherwise provided in this Contract, the Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the lawful prosecution of the Work.

Procurement procedures shall be in conformance with 44 CFR Section 13.36.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

B-50 Patents

The Contractor shall pay all applicable royalties and license fees and assume all costs arising from the use of patented materials, equipment and devices. The Contractor shall defend all suits or claims for infringement of any patent rights and save the DISTRICT and Engineer and their duly authorized representatives harmless from loss on account thereof, except that the DISTRICT shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified; however if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Engineer.

B-51 Public Convenience

- a) This section defines the Contractor's responsibility with regard to convenience of the public and public traffic in connection with its operations.
- b) The Contractor shall so conduct its operations as to offer the least possible obstruction and inconvenience to the public and it shall have under construction no greater length or amount of work than it can prosecute properly with due regard to the rights of the public.
- c) Unless otherwise provided in the Contract Documents, all public traffic shall be permitted to pass through the Work with as little inconvenience and delay as possible.
- d) Spillage resulting from hauling operations along or across any publicly traveled way shall be removed immediately by the Contractor at its expense.
- e) Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners.
- f) Convenient access to driveways, houses and buildings along the line of the Work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition. When the abutting property owner's access across the right-of-way line is to be eliminated, or to be replaced under the Contract by other access facilities, the existing access shall not be closed until the replacement access facilities are usable.
- g) Water shall be supplied if ordered by the Engineer for the alleviation or prevention of dust nuisance as provided in the Contract Documents.
- h) In order to expedite the passage of public traffic through or around the Work and where ordered by the Engineer, the Contractor shall install signs, lights, flares, barricades, and other facilities for the sole convenience and direction of public traffic. Also, where directed by the Engineer, the Contractor shall provide and station competent flagpersons whose sole duties shall consist of directing the movement of public traffic through or around the Work. The cost of furnishing and installing such signs, lights, flares, barricades, and other facilities, and the cost of providing and stationing such flagpersons, all for the convenience and direction of public traffic, will be considered as included in the Contract price and no additional compensation will be allowed.
- i) Flagpersons and guards, while assigned to traffic control, shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flagmen" of the California Department of Transportation. The equipment shall be furnished and kept clean and in good repair by the Contractor at its expense.

B-52 Safety

- a) General - The Contractor shall be solely and completely responsible for the conditions of the job site, including safety of all persons and property during performance of the Work. This requirement

shall apply continuously and not be limited to normal working hours. Safety provisions shall conform to all applicable Federal, State, and local laws, ordinances, and codes, and to the rules and regulations established by the California Division of Industrial Safety, and to other rules of law applicable to the Work.

- b) The services of the Engineer in conducting construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing or scaffolding or safety measures, in, on, or near the construction site, and shall not be construed as supervision of the actual construction nor make the Engineer or the DISTRICT responsible for providing a safe place for the performance of work by the Contractor, Subcontractors, or suppliers; or for access, visits, use work, travel or occupancy by any person.
- c) The Contractor shall carefully instruct all personnel working in potentially hazardous work areas as to the potential dangers and shall provide such necessary safety equipment and instruction as is necessary to prevent injury and damage to property. The Contractor shall appoint for the duration of this Contract, a qualified supervisor employee to develop and/or supervise the Contractor's job safety program that will effectively implement the safety provisions of the above agencies.
- d) The Contractor, as a part of his safety program, shall maintain at its office or other well-known place at the job site, safety equipment applicable to the Work as prescribed by the aforementioned authorities, all articles necessary for giving first aid to the injured, and shall establish the procedure for the immediate removal to a hospital or a doctor's care of persons (including employees) who may be injured on the job site.
- e) If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Engineer and the DISTRICT. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the Work whether on, or adjacent to, the site, giving full details and statements of witnesses.
- f) If any claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Engineer, giving full details of the claim.
- g) All work and materials shall be in strict accordance with all applicable State, Federal, and local laws, rules, regulations, and codes.
- h) Nothing in this Contract is to be construed to permit work not conforming to governing law. When Contract Documents differ from governing law, the Contractor shall furnish and install the higher standards called for without extra charge. All equipment furnished shall be grounded and provided with guards and protection as required by safety codes. Where vapor-tight or explosion-proof electrical installation is required by law, this shall be provided.
- i) Shoring and Trench Safety Plan - Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent support, and the Contractor shall comply with this law.
- j) Trenching and Worker Protection - In accordance with Section 6705 of the State Labor Code, the Contractor shall submit to the DISTRICT specific plans to show details of provisions for worker protection from caving ground. Not less than thirty (30) calendar days before beginning excavation for any trench or trenches five (5) feet or more in depth required under this Contract, the Contractor shall furnish to the Engineer working drawings of its trench safety plan. The trench safety plan working drawings shall be detailed plans showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such plan varies from the shoring system standards established by the Construction Safety Orders of the California Department of Industrial Relations or the Federal Safety and Health Regulations for Construction of

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

the Occupational Safety and Health Administration, Department of Labor, the plan shall be prepared by a registered civil or structural engineer. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders, or less effective than that required by said Federal Safety and Health Regulations for Construction. Submission of this plan in no way relieves the Contractor from the requirement to maintain safety in all operations performed by it or its Subcontractors.

- k) Hazardous Wastes and Unforeseen Conditions - In accordance with Section 7104 of the State Public Contract Code, if the Work contemplated hereunder involves digging trenches or other earthwork activities, the Contractor shall promptly, and before the following conditions are disturbed, notify the DISTRICT, in writing, of any: (i) material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law; (ii) Subsurface or latent physical conditions at the site differing from those indicated; or (iii) unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract. The DISTRICT shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work shall issue a change order under the procedures described herein. In the event that a dispute arises between the DISTRICT and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for herein, but shall proceed with all Work to be performed hereunder. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the DISTRICT and Contractor.
- l) The Contractor shall perform all Work in a fire-safe manner. He shall supply and maintain onsite adequate firefighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable Federal, State, and local fire prevention regulations and where the regulations do not cover, with applicable parts of the National Fire Prevention Standard for "Safeguarding Building Construction Operations," (NFPA No. 241).

B-53 Protection of Person and Property

- a) The Contractor shall take whatever precautions are necessary to prevent damage to all existing improvements, including above ground and underground utilities, trees, shrubbery that is not specifically shown to be removed, fences, signs, mailboxes, survey markers and monuments, buildings, structures, the DISTRICT's property, adjacent property, and any other improvements or facilities within or adjacent to the Work. If such improvements or property are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored, at the Contractor's expense, to a condition at least as good as the condition they were in prior to the start of the Contractor's operations.
- b) The Contractor shall adopt all practical means to minimize interference to traffic and public inconvenience, discomfort or damage. The Contractor shall protect against injury any pipes, conduits or other structures, crossing the trenching or encountered in the Work and shall be responsible for any injury done to such pipes or structures, or damage to property resulting therefrom. The Contractor shall support or replace any such structures without delay and without any additional compensation to the entire satisfaction of the Engineer. All obstructions to traffic shall be guarded by barriers illuminated at night. The Contractor shall be responsible for all damage to persons and property directly or indirectly caused by its operations and, under all circumstances, the Contractor must comply with the laws and regulations of the County and the State of California relative to safety of persons and property and the interruption of traffic and the convenience of the public within the respective jurisdictions.

- c) The Contractor is cautioned that it must replace all improvements in rights-of-way and within the public streets to a condition equal to what existed prior to the Contractor's entry onto the job.
- d) Type and time of construction required at any road subject to interference by Contract work will be determined by those authorities responsible for maintenance of said road. It shall be the responsibility of the Contractor to determine the nature and extent of all such requirements, including provision of temporary detours as required; however, the construction right-of-way obtained by the DISTRICT at affected roadways will be adequate for provision of all required detours. As required at any road crossing, the Contractor shall provide all necessary flagpersons, guardrails, barricades, signals, warning signs and lighting to provide for the safety of existing roads and detours. Immediately after the need for temporary detours ceases, or when directed, the Contractor shall remove such detours and perform all necessary cleanup work, including replacement of fences, and removal of pavement. Included shall be all necessary replacement of existing roadway appurtenances, grading work, soil stabilization and dust control measures, as required and directed. The cost of all work specified under this Section shall be borne by the Contractor.
- e) The Contractor shall examine all bridges, culverts, and other structures over which it will move its materials and equipment, and before using them, it shall properly strengthen such structures where necessary. The Contractor shall be responsible for any and all injury or damage to such structures caused by reason of its operations.

B-54 Responsibility for Repair of Facilities

All public or private facilities, including but not limited structures, telephone cables, roadways, parking lots, private drives, levees and embankments disturbed during construction of the Work shall be repaired and/or replaced by the Contractor to match facilities existing prior to construction. In addition, the Contractor shall be responsible for any settlement damage to such facilities or adjoining areas for a period of one year after acceptance of such required facilities.

B-55 Resolution of Construction Claims

- a) For any claim arising under this Contract, the following procedures will apply:
 - (i) The claim must be in writing and include the documents necessary to substantiate the claim. Claims must be filed on or before the day of final payment. Nothing in this subsection is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth elsewhere in this Contract.
- b) The Contractor shall proceed with the Work in accordance with the Plans and Specifications and determinations and instructions of the DISTRICT Engineer during the resolution of any claims disputes.

B-56 DISTRICT's Repair

In the event the Contractor refuses or neglects to make good any loss or damage for which the Contractor is responsible under this Contract, the DISTRICT may itself, or by the employment of others, make good any such loss or damage, and the cost and expense of doing so, including any reasonable engineering, legal and other consultant fees, and any costs of administrative and managerial services, shall be charged to the Contractor. Such costs and expenses may be deducted by the DISTRICT from claims for payment made by the Contractor for Work completed or remaining to be completed.

B-57 Antitrust Claim Assignment

In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to this Contract, the Contractor and all subcontractors shall offer and agree to assign to the DISTRICT all

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services or materials pursuant to the public works contract or subcontract. This assignment shall be made and become effective at the time the DISTRICT tenders final payment to the Contractor, without further acknowledgement by the parties.

B-58 Waiver of Right to Rescind For Material Breach

The Contractor agrees that it can be adequately compensated by money damages for any breach of this Contract which may be committed by the DISTRICT and hereby agrees that no default, act, or omission of the DISTRICT or the Engineer, except for failure to make progress payments as a required by Section B-67, shall constitute a material breach of the Contract entitling the Contractor to cancel or rescind the provisions of this Contract or (unless the DISTRICT shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. The Contractor hereby waives any and all rights and remedies to which it might otherwise be or become entitled, save only its right to money damages.

B-59 Contractor's License Notice

Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors of a complaint if filed within three (3) years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, 9835 Goethe Road, Sacramento, California. Mailing address: P.O. Box 26000, Sacramento, California 95826.

ARTICLE V. INSURANCE AND LIABILITY

B-60 Insurance

- a) Neither the Contractor nor any Subcontractors shall commence any work until all required insurance has been obtained at their own expense. Such insurance must have the approval of the DISTRICT as to limit, form, and amount, and shall be placed with insurers with a current A.M. Best's rating of no less than A-:VII.
- b) Any insurance bearing on adequacy of performance shall be maintained after completion of the project for the full guarantee period.
- c) Prior to execution of the Contract, the Contractor shall furnish the DISTRICT with original endorsements effecting coverage for all policies required by the Contract. The Contractor shall not permit any Subcontractor identified in the Designation of Subcontractors form to commence work on this project until such Subcontractor has furnished the DISTRICT with original endorsements effecting coverage for all insurance policies required by the Contract. The endorsements shall be signed by a person authorized by the insurer to bind coverage on its behalf. The Contractor's insurer shall provide complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by this paragraph. The Contractor agrees to furnish one copy of each policy to the DISTRICT, and additional copies as requested in writing, certified by an authorized representative of the insurer.
- d) All of the Contractor's policies shall contain an endorsement providing that written notice shall be given to the DISTRICT at least sixty (60) calendar days prior to termination, cancellation, or reduction of coverage in the policy.
- e) Any policy or policies of insurance that the Contractor elects to carry as insurance against loss or damage to its construction equipment and tools shall include a provision therein providing a waiver of the insurer's right to subrogation against the DISTRICT and the Engineer.
- f) The requirements as to the types, limits, and the DISTRICT's approval of insurance coverage to be maintained by the Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under the Contract.
- g) In addition to any other remedy the DISTRICT may have, if the Contractor or any of the Subcontractors fails to maintain the insurance coverage as required in this Section, the DISTRICT may obtain such insurance coverage as is not being maintained, in form and amount substantially the same as required herein, and the DISTRICT may deduct the cost of such insurance from any amounts due or which may become due the Contractor under this Contract.
- h) The Contractor and all Subcontractors shall, at their expense, maintain in effect at all times during the performance of work under the Contract not less than the following coverage and limits of insurance, which shall be maintained with insurers and under forms of policy satisfactory to the DISTRICT. The maintenance by the Contractor and all Subcontractors of the following coverage and limits of insurance is a material element of this Contract. The failure of the Contractor or any Subcontractor to maintain or renew coverage or to provide evidence of renewal may be treated by the DISTRICT as a material breach of this Contract.
 - (i) Worker's Compensation and Employer's Liability Insurance.
 - a. Worker's Compensation – The Contractor shall Provide, during the life of this Contract, workers' compensation insurance for all of the employees engaged in Work under this Contract, on or at the Project site, and, in case any of sublet Work, the Contractor shall require each subcontractor similarly to provide workers' compensation insurance for all the latter's employees as prescribed by State law. Any class of employee or employees not covered by a subcontractor's insurance shall be covered by the Contractor's insurance. In

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

case any class of employees engaged in work under this Contract, on or at the Project site, is not protected under the Workers' Compensation Statutes, the Contractor shall provide or shall cause a subcontractor to provide, adequate insurance coverage for the protection of such employees not otherwise protected. The Contractor is required to secure payment of compensation to his employees in accordance with the provisions of Section 3700 of the Labor Code. The Contractor shall file with the DISTRICT certificates of its insurance protecting workers and shall provide certificates at any time upon request. Company or companies providing insurance coverage shall be acceptable to the DISTRICT, if in the form and coverage as set forth in the Contract Documents.

- b. Contractor shall assume the immediate defense of and indemnify and save harmless the DISTRICT and its officers and employees, agents, and consultants from all claims, loss, damage, injury, and liability of every kind, nature, and description brought by any person employed or used by Contractor, or any subcontractor, to perform the Work under this contract regardless of responsibility or negligence. Contractor hereby agrees to waive rights of subrogation which any insurer of Contractor may acquire from Contractor by virtue of the payment of any loss. Contractor agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation. The Workers' Compensation Policy shall be endorsed with a waiver of subrogation in the favor of the DISTRICT for all work performed by the Contractor, its employees, agents and subcontractors.
 - c. The Contractor and all Subcontractors shall maintain insurance to protect the Contractor or Subcontractor from all claims under Worker's Compensation and Employer's Liability Acts, including Longshoremens and Harbor Worker's Act. Such coverage shall be maintained, in type and amount, in strict compliance with all applicable State and Federal statutes and regulations. The Contractor shall execute a certificate in compliance with Labor Code Section 1861.
- (ii) Claims Against DISTRICT - If an injury occurs to any employee of the Contractor or any of the Subcontractors for which the employee or its dependents, in the event of its death, may be entitled to compensation from the DISTRICT under the provisions of the said Acts, or for which compensation is claimed from the DISTRICT, there will be retained out of the sums due the Contractor under this Contract, an amount sufficient to cover such compensation as fixed by said Acts, until such compensation is paid or it is determined that no compensation is due. If the DISTRICT is required to pay such compensation, the amount so paid will be deducted and retained from such sums due, or to become due the Contractor.
- (iii) Commercial General Liability and Automobile Liability Insurance - the Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:
- a. Coverage – coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:
 - i. Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001)
 - ii. Insurance Services Office (ISO) Business Auto Coverage (Form CA 0001), covering Symbol 1 (any auto)
 - b. Limits – the Contractor shall maintain limits no less than the following:
 - i. General Liability - Five million dollars (\$5,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit or products-completed operations aggregate limit is used, either the general aggregate limit shall apply separately to the project/location (with the ISO CG 2503, or ISO CG 2504, or insurer's equivalent endorsement provided to DISTRICT) or the general aggregate limit and products-completed operations aggregate limit shall be twice the required occurrence limit.
 - ii. Automobile Liability - One million dollars (\$1,000,000) for bodily injury and property damage each accident limit.
 - c. Required Provisions - the general liability, auto liability and excess liability policies are to

contain, or be endorsed to contain, the following provisions:

- i. The DISTRICT, its directors, officers, employees, and authorized volunteers are to be given insured status at least as broad as ISO endorsement CG 2010 11 85; or both CG 20 10 10 01 and CG 20 37 04 13 (or the CG 20 10 04 13 (or earlier edition date) specifically naming all of the DISTRICT parties required in this agreement, or using language that states "as required by contract"). All Subcontractors hired by Contractor must also have the same forms or coverage at least as broad; as respects (via CG 20 38 04 13): liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; and automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the DISTRICT, its directors, officers, employees, or authorized volunteers.
 - ii. It is understood and agreed to by the parties hereto and the insurance company(s), that the Certificate(s) of Insurance and policies shall so covenant and shall be construed as primary, and the DISTRICT insurance and/or deductibles and/or self-insured retentions or self-insured programs shall not be construed as contributory using the ISO endorsement CG 20 01 04 13 or coverage at least as broad.
 - iii. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the DISTRICT, its directors, officers, employees, or authorized volunteers.
 - iv. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
 - v. Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the DISTRICT.
- d. Such liability insurance shall indemnify the Contractor and his/her sub-contractors against loss from liability imposed by law upon, or assumed under contract by, the Contractor or his/her sub-contractors for damages on account of such bodily injury (including death), property damage, personal injury, completed operations, and products liability.
 - e. The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation, and removal of lateral support.
 - f. The automobile liability policy shall cover all owned, non-owned, and hired automobiles.
 - g. All of the insurance shall be provided on policy forms and through companies satisfactory to the DISTRICT.
 - h. The comprehensive general and automobile liability insurance coverage shall also include the following:
 - i. Provision or endorsement naming the DISTRICT, the Engineer and its consultants, and each of their officers, employees, and agents, each as additional insureds in regards to liability arising out of the performance of any work under the Contract and providing that such insurance is primary insurance as respects the interest of the DISTRICT and Engineer and that any other insurance maintained by the DISTRICT and Engineer is excess and not contributing insurance with the insurance required hereunder.
 - ii. "Cross Liability" or "Severability of Interest" clause.
 - iii. Provision or endorsement stating that such insurance, subject to all of its other terms and conditions, applies to the liability assumed by the Contractor under the Contract, including, without limitation, that set forth in Section B-61, Indemnity and Litigation Costs.
 - iv. Provision or endorsement stating that any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

coverage provided to the DISTRICT, its officers, officials, employees, or volunteers.

- i) Deductibles and Self-Insured Retentions - Insurance deductibles or self-insured retentions must be declared by the Contractor, and such deductibles and retentions shall have the prior written consent from the DISTRICT. At the election of the DISTRICT the Contractor shall either 1) reduce or eliminate such deductibles or self-insured retentions, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses. Policies containing any self-insured retention (SIR) provision shall provide or be endorsed to provide that the SIR may be satisfied by either the named or additional insureds, co-insurers, and/or insureds other than the First Named Insured.
- j) Acceptability of Insurers - Any insurance carrier providing insurance coverage required by the Contract Documents shall be admitted to and authorized to do business in the State of California unless waived, in writing, by the DISTRICT Risk Manager. Carrier(s) shall have an A.M. Best rating of not less than an A-: VII or better.
- k) Responsibility for Work - Until the completion and final acceptance by the DISTRICT of all the work under and implied by this agreement, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erections, and repairs occasioned or rendered necessary by causes of any nature whatsoever.
 - a. The Contractor shall provide and maintain builder's risk insurance (or installation floater) covering all risks of direct physical loss, damage or destruction to the work in the amount specified in the General Conditions, to insure against such losses until final acceptance of the work by the DISTRICT. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The DISTRICT, its directors, officers, employees, and authorized volunteers shall be named insureds on any such policy. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the DISTRICT or be construed as relieving the Contractor or his/her subcontractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the DISTRICT.
 - b. The Contractor shall waive all rights of subrogation against the DISTRICT, its directors, officers, employees, or authorized volunteers.
- l) Evidences of Insurance - Prior to execution of the agreement, the Contractor shall file with the DISTRICT a certificate of insurance (Acord Form 25 or equivalent) signed by the insurer's representative evidencing the coverage required by this agreement. Such evidence shall include an additional insured endorsement signed by the insurer's representative and evidence of waiver of rights of subrogation against the DISTRICT (if builder's risk insurance is applicable). Such evidence shall also include (1) attached additional insured endorsements with primary & non-contributory wording, (2) Workers' Compensation waiver of subrogation, and (3) a copy of the CGL declarations or endorsement page listing all policy endorsements, and confirmation that coverage includes or has been modified to include Required Provisions 1-5 above. The DISTRICT reserves the right to obtain complete, certified copies of all required insurance policies, at any time. Failure to continually satisfy the Insurance requirements is a material breach of contract.
- m) Continuation of Coverage - The Contractor shall, upon demand of the DISTRICT deliver evidence of coverage showing continuation of coverage for at least (10) years after completion of the project. Contractor further waives all rights of subrogation under this agreement. When any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against the DISTRICT (if builder's risk insurance is applicable) to the DISTRICT at least ten (10) days prior to the expiration date.

- n) Subcontractors - In the event that the Contractor employs other contractors (Subcontractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above. The Contractor shall, upon demand of the DISTRICT, deliver to the DISTRICT copies such policy or policies of insurance and the receipts for payment of premiums thereon.
- o) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- p) The DISTRICT reserves the right to modify these insurance requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage or other circumstances.

B-61 Indemnity and Litigation Cost

- a) Promptly upon execution of the Contract, the Contractor specifically obligates itself and hereby agrees to protect, hold free and harmless, defend and indemnify the DISTRICT, the Engineer and its consultants, and each of their officers, officials, employees and agents, from and against any and all liability, penalties, costs, losses, damages, expenses, causes of action, claims or judgments, including without limitation attorneys' fees and other costs of litigation, which arise out of or are in any way connected with the Contractor's, or its Subcontractors' or suppliers', performance of Work under this Contract or failure to comply with any of the obligations contained in the Contract. This indemnity shall not extend, however, to attorney fees and costs incurred by the DISTRICT in prosecuting or defending against the Contractor in any proceeding under Section B-8, and shall imply no reciprocal right of the Contractor in any action on the contract pursuant to California Civil Code section 1717 or section 1717.5. To the extent legally permissible, this indemnity and hold harmless agreement by the Contractor shall apply to any acts or omissions, whether active or passive, on the part of the Contractor or its agents, employees, representatives, or Subcontractor's agents, employees and representatives, resulting in liability, irrespective of whether or not any acts or omissions of the parties to be indemnified hereunder may also have been a contributing factor to the liability, except such loss or damage which was caused by the active negligence, sole negligence or willful misconduct of the DISTRICT.
- b) In any and all claims against the DISTRICT or the Engineer and its consultants, and each of their officers, employees and agents by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this Section shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Worker's Compensation statutes, disability benefit statutes or other employee benefit statutes.
- c) Each party to this Contract has been represented by counsel in the negotiation and execution of this Contract.

B-62 Protection of Work

- a) The Contractor shall be responsible for the care of all work until completion and final acceptance; and the Contractor shall, at its own expense replace damaged or lost material and repair damaged parts of the Work or the same may be done at the Contractor's expense by the DISTRICT and the Contractor and its sureties shall be liable therefore. The Contractor shall make its own provisions for properly storing and protecting all material and equipment against theft, injury, or damage from any and all causes. Damaged material and equipment shall not be used in the Work. The Contractor shall take all risks from floods and casualties except as provided by law, and shall make no charge for the restoration of such portions of the Work as may be destroyed or damaged by flood or other casualties or because of danger from flood or other casualties or for delays from such causes. The Contractor may, however, be allowed a reasonable extension of time on account

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

of such delays, subject to the conditions hereinbefore specified. The Contractor shall not be responsible for the cost, in excess of five percent (5%) of the contracted amount, of repairing or restoring damage to the Work, if the damage was proximately caused by an earthquake in excess of a magnitude of 3.5 on the Richter Scale or by tidal waves; provided that the Work damaged was built in accordance with accepted and applicable building standards, and the Plans and Specifications of the DISTRICT.

- b) The Contractor shall effectively secure and protect adjacent property and structures, livestock, crops, and other vegetation. If applicable, the Contractor shall open fences on or crossing the right-of-way and install temporary gates of sound construction thereon so as to prevent the escape of livestock. Adjacent fence posts shall be adequately braced to prevent the sagging or slackening of the wire. Before such fences are opened, the Contractor shall notify the owner or tenant of the property and, where practicable, the opening of the fence shall be in accordance with the wishes of said owner or tenant. The Contractor shall be responsible that no loss or inconvenience shall accrue to the owner or tenant by virtue of its fences having been opened or the gate not having been either shut or attended at all times. Where special types of fences are encountered, the Contractor shall install temporary gates made of similar materials and of suitable quality to serve the purposes of the original fences. In all cases where the Contractor removes fences to obtain work room, it shall provide and install temporary fencing as required, and on completion of construction shall restore the original fence to the satisfaction of the Engineer. All costs of providing, maintaining and restoring gates and fencing shall be borne by the Contractor. It shall provide and maintain all passageways, guard fences, lights and other facilities for protection required by public authority or local conditions.
- c) The Contractor shall use extreme care during construction to prevent damage from dust to crops and adjacent property. The Contractor, at its own expense, shall provide adequate dust control for the right-of-way and take other preventive measures as directed by the Engineer.
- d) The Contractor shall be responsible for all damage to any property resulting from trespass by the Contractor or its employees in the course of their employment, whether such trespass was committed with or without the consent or knowledge of the Contractor.
- e) The Contractor shall see that the work site is kept drained and free of all ground water and any other water which may impede the progress or execution of the Contract work.
- f) The Contractor shall be responsible for any damage caused by drainage or water runoff from construction areas and from construction plant areas. In an emergency affecting the safety of life, or of the Work, or of adjoining property, the Contractor, without special instruction or authorization from the Engineer, is hereby permitted to act at the Contractor's discretion to prevent such threatened loss or injury, and it shall so act without appeal if so instructed or authorized. Any compensation claimed by the Contractor on account of emergency work shall be determined as specified under Section B-3. Should the Engineer deem an emergency condition to exist, the Contractor shall immediately do those things and take those steps ordered by the Engineer. The decision of the Engineer in this respect shall be final and conclusive. Any claims for compensation made by the Contractor on account of emergency work shall be determined as specified under Section B-3.
- g) Except as provided by Government Code Section 4215, the Contractor shall be responsible for the removal, relocation and protection of all public and private utilities, including irrigation facilities in the nature of utilities, located on the site of the construction project if and to the extent that the same are identified in the Contract Documents, and the Contractor shall not be entitled to any extension of time or claim for damages for extra compensation in connection therewith. If and to the extent that such utilities or facilities are not identified in the Contract Documents, as between the Contractor and the DISTRICT, the DISTRICT will be responsible for the cost of their removal, relocation or protection, as the case may be, but the Contractor shall perform any such work in

conformance with applicable provisions of Sections B-3 and B-4, if so directed by the Engineer and in such situation the Contractor shall not be responsible for delay in completion of the project caused by the failure of the DISTRICT or the owner of the utility to provide for such removal or relocation. If the Contractor, while performing the Contract, discovers utility or irrigation facilities not identified by the DISTRICT in the Contract Documents, it shall immediately notify the Engineer in writing.

- h) Subject to the provisions of this Section, where the Work to be performed under the Contract crosses or otherwise interferes with existing streams, watercourses, canals, farm ditches, pipelines, drainage channels, or water supplies, the Contractor shall provide for such watercourse or pipelines and shall perform such construction during the progress of the Work so that no damage will result to either public or private interests, and the Contractor shall be liable for all damage that may result from failure to so provide during the progress of the Work.

B-63 No Personal Liability

Neither the DISTRICT, the Engineer, nor any of their other officers, agents, or employees nor any other public office shall be personally responsible for any liability arising under the Contract, except such obligations as are specifically set forth herein.

ARTICLE VI. MEASUREMENT AND PAYMENT

B-64 Measurement of Quantities

- a) Where the Contract provides for payment on a lump sum price basis, the Contractor shall submit a price breakdown to the Engineer immediately after award of the Contract. The price breakdown as agreed upon between the Contractor and the Engineer shall be used for preparing future estimates for partial payments to the Contractor and shall list the major items of Work and a price for each item. Overhead and other general costs and profit shall be prorated to each item so that the total of all items equals the lump sum price. The price breakdown shall be subject to the approval of the Engineer and Contractor may be required to verify the prices for any or all items.

Where the Contract provides for payment on a unit price basis, the quantities of work performed will be computed by the Engineer on the basis of measurements taken by the Engineer.

- b) Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents including the Proposal, they are given for use in comparing bids and the right is especially reserved, except as herein or otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the DISTRICT to complete the Work contemplated by this Contract and such increase or diminution shall in no way violate this Contract, nor shall any such increase or diminution give cause for claims, liability for damage or adjustment to the Contract time bid price.

B-65 Scope of Payment

- a) The Contractor shall accept the compensation provided in the Contract as full payment for furnishing all labor, materials, tools, equipment, and incidentals necessary to the completed Work and for performing all Work contemplated and embraced under the Contract; also for loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the acceptance by the DISTRICT and for all risks of every description connected with the prosecution of the Work, also for all expenses incurred in consequence of the suspension or discontinuance of the Work as provided in the Contract; and for completing the Work according to the Specifications and Plans. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.
- b) No compensation will be made in any case for loss of anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as provided in such agreements.

B-66 Progress Estimate

At the end of each month where work was performed, the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial pay estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the DISTRICT, as will establish the DISTRICT'S title to the material, and equipment and protect its interest therein, including, applicable insurance. The Engineer will within seven (7) calendar days after receipt of each partial payment estimate either recommend payment to the DISTRICT or return the estimate to the Contractor indicating in writing its reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial pay estimate.

Payroll certification forms provided by the Contractor and fully executed shall be filed with the Engineer at the time of submission of each partial payment estimate and also when the claim for final payment is submitted. Wage Report forms shall be completed and submitted as set forth in Parts 4 and 5.

B-67 Progress Payments

- a) The Contractor is made aware that the DISTRICT will approve all partial payments.
- b) Upon receipt of an undisputed, properly submitted progress estimate from the Contractor, recommended by the Engineer, the DISTRICT shall act in accordance with the following:
 - (i) Each payment request shall be reviewed by the DISTRICT as soon as practicable after receipt for the purpose of determining that the progress estimate is a proper payment request.
 - (ii) Any payment request determined not to be a proper payment request suitable for payment shall be returned to the Contractor as soon as practicable but not later than seven (7) calendar days after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.
- c) The number of days available to the DISTRICT to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the DISTRICT exceeds the ten-day return requirement set forth herein.
- d) The DISTRICT will pay the Contractor ninety-five percent (95%) of the amount of each progress estimate within thirty (30) calendar days after receipt of an undisputed, properly submitted progress estimate from the Contractor, recommended by the Engineer. If the DISTRICT fails to pay an undisputed progress estimate within the allotted thirty (30) calendar days, the DISTRICT shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (s) of Section 685.010 of the Code of Civil Procedures. Five percent (5%) of amount of each estimate shall be retained by the DISTRICT until final completion and acceptance of all Work under Contract.
- e) When, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the Contract, or when in its judgment the total amount of the work done since the last estimate amounts to less than \$1,000, no pay estimate will be prepared and no progress payment will be made.
- f) No progress estimate or payment shall be considered to be an approval or acceptance of any work, materials, or equipment. Estimated amounts and values of work done and materials and equipment furnished will be confirmed with actual amounts and values as they become available in subsequent progress estimates, progress payments and the final estimate and payment. All estimates and payments will be subject to correction in subsequent progress estimates and payments and the final estimate and payment.
- g) The DISTRICT requires that any payments due to Subcontractors for a portion of the Work satisfactory completed shall be made by Contractor to Subcontractors within thirty (30) calendar days of DISTRICT's payment to Contractor. Failure to make such payments in a timely fashion may result in the DISTRICT issuing future progress payments by joint check to the Contractor and Subcontractors.
- h) It is mutually agreed between the parties to the Contract that no payments made under the Contract, including progress payments and the final payment, shall be evidence of the performance of the Contract, either wholly or in part, and no payment shall be construed to be an acceptance of any defective or incomplete work or improper materials.

B-68 Liens and Stop Notices

The Contractor agrees to keep the Work, the site of the Work and all monies held by the DISTRICT free and clear of all liens and stop notices related to labor and materials furnished in connection with the Work, if permitted by law. Furthermore, the Contractor waives any right it may have to file any type of lien or stop notice in connection with the Work. Notwithstanding anything to the contrary contained in the Contract documents, if any such lien or stop notice is filed or there is evidence to believe that lien or stop notice

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

may be filed at any time during the progress of the Work or within the duration of this Contract, the DISTRICT may refuse to make any payment otherwise due the Contractor or may withhold any payment due the Contractor a sum sufficient in the opinion of the DISTRICT to pay all obligations and expenses necessary to satisfy such lien or stop notice. The DISTRICT may withhold such payment unless or until the Contractor, within ten (10) calendar days after demand therefor by the DISTRICT, shall furnish satisfactory evidence that the indebtedness and any lien or stop notice in respect thereof has been satisfied, discharged and released of record, or that the Contractor has legally caused such lien or stop notice to be released of record pending the resolution of any dispute between the Contractor and any person or persons filing such lien or stop notice. If the Contractor shall fail to furnish such satisfactory evidence within ten days of the demand therefor, the DISTRICT may discharge such indebtedness and deduct the amount thereof, together with any and all losses, costs, damages and attorney's fees suffered or incurred by the DISTRICT from any sum payable to the Contractor under the Contract documents, including but not limited to final payment and retained percentage. This Section shall be specifically included in all Subcontracts and purchase orders entered into by the Contractor.

B-69 Final Acceptance and Date of Completion

Whenever the Contractor shall deem all Work under this Contract to have been completed in accordance therewith, it shall so notify the Engineer in writing, and the Engineer shall promptly ascertain whether the Work has been satisfactorily completed and, if not, shall advise the Contractor in detail and in writing of any additional work required. When all the provisions of the Contract have been fully complied with to the satisfaction of the Engineer, it shall proceed with all reasonable diligence to determine accurately the total value of all Work performed by the Contractor at the prices set forth in the Contract or fixed by Change Orders, and the total value of all extra work, all in accordance with the Contract. The Engineer will then certify to said final estimate and to the completion of the Work, and will file copies thereof with the DISTRICT and the Contractor. The date of completion shall be the date upon which the DISTRICT makes its formal written acceptance of the Work.

B-70 Final Payment

Within ten (10) calendar days after the date of completion, the DISTRICT will file in the Office of the County Recorder, a Notice of Completion of the Work herein agreed to be done by the Contractor. On the expiration of thirty-five (35) calendar days after the recordation of such Notice of Completion the difference between said final estimate and all payments theretofore made to the Contractor shall be due and payable to the Contractor, subject to any requirements concerning the furnishings of a maintenance bond, and excepting only such sum or sums as may be withheld or deducted in accordance with the provisions of this Contract. All prior certifications upon which partial payments may have been made, being merely estimates, shall be subject to correction in the final certificate.

B-71 Final Release

Final payment to the Contractor in accordance with the final estimate is contingent upon the Contractor furnishing the DISTRICT with a signed written release of all claims against the DISTRICT arising by virtue of the Contract. Disputed Contract claims in stated amounts may be specifically excluded by the Contractor from the operation of the release. The release shall be in substantially the following form:

WAIVER AND RELEASE UPON FINAL PAYMENT

The undersigned has been paid in full by the Humboldt Bay Municipal Water District (District) for all labor, services, equipment and material furnished to the District for the 1-MG Domestic Reservoir Roof Replacement and Painting Project located at Korblex, California, and does hereby waive and release the District, its officers, agents, and employees, from all claims and liability to the Contractor arising out of, or in any way connected with, the Contract, except for the disputed contract claims specified below:

Notice of Disputed Claim

Amount of Claim

\$ _____

Dated: _____

(Name of Contractor)

By: _____
(Title)

Any payment, however, final or otherwise shall not release the Contractor or its sureties from obligations under the Contract Documents or Performance and Payment Bonds.

B-72 Right to Withhold Payments

- a) In addition to all other rights and remedies of the DISTRICT hereunder and by virtue of the law, the DISTRICT may withhold or nullify the whole or any part of any partial or final payment to such extent as may reasonably be necessary to protect the DISTRICT from loss on account of:
 - (i) Defective work not remedied, irrespective of when any such work be found to be defective;
 - (ii) Claims or liens filed or reasonable evidence indicating probable filing of claims or liens including, but not limited to claims under Sections 1775, 1776, or 1777.7 of the Labor Code;
 - (iii) Failure of the Contractor to make payments properly for labor, materials, equipment, or other facilities, or to Subcontractors and/or suppliers;
 - (iv) A reasonable doubt that the Work can be completed for the balance then unearned;
 - (v) A reasonable doubt that the Contractor will complete the Work within the agreed time limits;
 - (vi) Costs to the DISTRICT resulting from failure of the Contractor to complete the Work within the proper time; or
 - (vii) Damage to Work or property.
 - (viii) Damage to another Contractor.
 - (ix) Performance of Work in violation of the Terms of the Contract Documents.
 - (x) Where work on unit items is substantially complete, but lacks cleanup and/or other corrections ordered by the Engineer, amounts shall be deducted from the unit prices in partial payment estimates to amply cover such cleanup and correction.
 - (xi) Failure to file required Equal Opportunity and Affirmative Action forms.

- b) Whenever the DISTRICT shall, in accordance herewith, withhold any monies otherwise due the Contractor, written notice of the amount withheld and the reasons therefore will be given the Contractor. After the Contractor has corrected the enumerated deficiencies, the DISTRICT will promptly pay to the Contractor the amount so withheld. When monies are withheld to protect the DISTRICT against claims or liens of mechanics, material men, Subcontractors, etc., the DISTRICT may at its discretion permit the Contractor to deliver a surety bond in terms and amount

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

satisfactory to the DISTRICT, indemnifying the DISTRICT against any loss or expense, and upon acceptance thereof by the DISTRICT, the DISTRICT shall release to the Contractor monies so withheld.

B-73 Waiver of Interest

The DISTRICT shall have no obligation to pay and the Contractor hereby waives the right to recover interest with regard to monies which the DISTRICT is required to withhold by reason of judgment, order, statute or judicial process.

B-74 Satisfaction of Claims and Liens

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the DISTRICT, a complete release of all liens and claims arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as it has knowledge or information the releases and receipts include all the labor and material for which a lien or claim could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Engineer, to indemnify the DISTRICT against any lien or claim. If any lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the DISTRICT all monies that the latter may be compelled to pay in discharging such a lien, or claim, including all costs and reasonable attorney's fees.

PART 4
TECHNICAL SPECIFICATIONS

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. General:

1. The Contract Documents describe the Work to be performed under this Contract which includes, but is not limited to, furnishing all plant, tools, equipment, materials, supplies, and manufactured articles for the Project. The Project generally consists of the replacement of the roof beams and cover plates for the 1-MG reservoir, as well as sandblasting and painting the interior of the tank and painting the exterior of the tank, spot prepping where applicable. It shall also include the furnishing of all transportation and services, including fuel, power, water, and essential communications necessary for the performance of all labor, work, or other operations required for the performance of the Contract in accordance with the Contract Documents.
2. The Contractor should carefully review all sections of the Specifications in order to completely understand the Work and all constraints including schedule, environmental, permit and material requirements.
3. The Contractor is encouraged to proceed in an orderly and expeditious manner based on the constraints shown on the Drawings and described in the Specifications. All Work is to be constructed in strict accordance with the Contract Drawings and Specifications and subject to the terms and conditions of the Contract. The intent is to perform the work as weather improves in the spring of 2017.

B. Location of the Work:

1. Humboldt Bay Municipal Water District's 1-MG reservoir is located at the District-owned Turbidity Reduction Facility (TRF), near Arcata, CA. The TRF is located at the southern end of Pipeline Road, which is accessed via Pipeline Road.
2. The Owner shall give right of way access to the work site. Work will be strictly confined to the designated areas.

C. Contractor's Duties:

1. Except as specifically noted, provide and pay for all:
 - a. Labor, materials, and equipment.
 - b. Tools, construction equipment, and machinery.
 - c. Water, heat, and utilities required for construction.
 - d. All other facilities and services necessary for proper execution and completion of Work.
2. Pay legally required sales, consumer and use taxes.
3. Secure and pay for, as necessary for proper execution and completion of the Work, all applicable permits and licenses, except when explicitly noted otherwise.
4. Give required notices.
5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the Work.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

6. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements.
 7. If any Subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he shall be discharged immediately on the requisition of the Engineer, and such person shall not again be employed on the Work.
 8. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with this project. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to all persons on the jobsite.
 9. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons (including employees) and property during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours.
 10. Safety provisions shall conform to U.S. Department of Labor (OSHA), the California Occupational Safety and Health Act, and all other applicable Federal, State, County, and local laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these Specifications.
 - a. The Contractor shall have at the worksite copies of suitable extracts of the Construction Safety Orders of Cal-OSHA.
 - b. All work shall comply with the provisions of these and all other applicable laws, ordinances, and regulations.
- D. All equipment shall be maintained in proper working order, including proper muffling.

1.02 CONTRACT DESCRIPTION

- A. Description:
1. The Contractor is advised to carefully review all sections of the Specifications in order to completely understand the Work and all constraints including the schedule, permit, and material requirements. The Work generally includes but is not limited to replacing the roof on the District's existing 1-MG Domestic Reservoir at the Turbidity Reduction Facility, prepping and painting the roof, sandblasting and painting the interior of the tank, painting the exterior of the tank (spot prepping where required), and all other Work required to complete modifications as shown in the Contract Drawings and described in the Specifications.
 2. All Work is contained in this Contract. The limits of Work are shown in the Contract Drawings and described in these Specifications. It will be the Contractor's responsibility to coordinate their activities to resolve conflicts.
 3. All risk of loss, damage or diminution to the Work shall rest with Contractor until final acceptance of the Work by the District.

1.03 WORK SEQUENCE AND CONSTRAINTS

- A. The Contractor shall note that only certain constraints are addressed in this section. All Work, whether or not addressed here, shall be governed by applicable parts of this section, and schedules and procedures further submitted for approval.

- B. The first order of business is submission of submittals. Complete submittals for all items to be incorporated into the Work shall be made no later than twenty (20) working days following receipt of Notice to Proceed.
- C. The Contractor shall submit a complete work schedule to be approved by the Owner and the Engineer. Contractor shall regularly update and submit updated copies of the schedule to adequately inform the Owner on the progress of the Work.
- D. The Contractor shall conduct work in an orderly sequence to assure efficient use of materials and equipment and so as to not cause unnecessary delays to other contractors who might be present on the jobsite.
- E. The Contractor shall be responsible for providing transportation of personnel, equipment, and materials to and from the site.
- F. The Contractor shall coordinate access to the site with the Owner.

1.04 CONTRACT METHOD

- A. This Contract is made up of lump sum bid items.
- B. The Contractor shall include the requirements of the General Conditions of the Contract as a part of all its subcontract agreements.

1.05 PROJECT MEETINGS

- A. See Section 01 30 00 – Administrative Requirements: Pre-construction Meeting, Progress Meetings, and Pre-Installation Meetings

1.06 CONTRACTOR USE OF PREMISES

- A. Staging and laydown areas at the site will be limited to those shown on the Drawings.
- B. Construction corporation yards and/or storage areas are the responsibility of the Contractor.
- C. Confine operations at the site to areas permitted by the Contract Documents.
- D. Do not encumber site with materials or equipment.
- E. Do not load structures or roadways with weight that will endanger or render unusable any structures or roadways.
- F. Assume full responsibility for protection and safekeeping of products stored on premises.
- G. Move any stored products which interfere with operations of the Owner or other contractors.
- H. Obtain and pay for use of additional storage of work area for operations.
- I. Return all surface areas, including vegetated areas, to their original condition upon completion of the work.

1.07 UTILITIES AND FACILITIES

- A. The Contractor may utilize Owner's existing electrical systems (as specified in Section 01 50 00 of these specifications). However, the Contractor is responsible for extending and supplementing with temporary devices as needed to maintain specified conditions for construction operations. Contractor is responsible for maintaining safe connections and shall coordinate initial establishment of connections with Owner. Contractor is responsible for all grounding, circuit breakers and other equipment necessary for the safe utilization of the Owner's electrical system. Contractor is responsible for all repairs caused by improper use of the Owner's systems.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- B. Restore existing utilities and facilities used during construction to original condition.
- C. The Contractor is responsible for locking the gate at the conclusion of each work day.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 15 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 GENERAL

- A. Unless otherwise specified in other individual sections of these Specifications, quantities of Work shall be determined from measurements or dimensions in horizontal planes.
- B. Units of measurement shall be in accordance with U.S. Standard Measures.
- C. See Section B-67 of the general conditions for special provisions related to progress payments and payment schedule to the Contractor.

1.02 MATERIALS

- A. The measurement and payment items are listed below:
 - 1. The payments to the Contractor are based on the following items. It is the intent that the scope of the description of the following items encompasses the entire scope of the Work as shown on the Plans and described in the Specifications. The bid amounts shall be for complete in place installations.

BID SCHEDULE

Item 1 – Mobilization/ Demobilization

Measurement for this item shall be on a lump sum basis. Payment shall correspond to percent complete as confirmed by the Engineer. This Work covers all Contractor costs and effort associated with mobilizing equipment, materials, and labor to the project site as well as demobilization of the same for both the Base Bid Schedule and any additive bid schedules if awarded. Items covered by this include, but are not limited to, bonds, insurance, attendance of Contractor's staff at meetings, contracting and administrative costs, preparation and administrative costs for processing cost proposals, preparation of project schedules, updates to project schedules, costs associated with temporary facilities and utilities, punch list items, repairs of damaged property, site cleanup, and project maintenance and warranty.

When 10 percent of the total original Contract amount is earned from bid items, excluding amounts paid for materials on hand, 90 percent of the amount of the bid price for mobilization, or 10 percent of the total Contract amount, whichever is least, will be paid for mobilization. Upon completion of all Work on the project, payment of the balance of the bid amount for mobilization/demobilization will be paid.

Item 2 – Deconstruct and Dispose of Existing Tank Roof

Measurement for this item shall be on a lump sum basis. Payment shall include full compensation for all materials, labor, equipment, and supervision necessary to deconstruct/demolish the existing roof as shown on the Contract Drawings and described in the Specifications, and dispose of the existing tank roof. The Work includes, but is not limited to, disassembling the existing roof components sufficient to remove the roof without causing damage to other tank components, removing the roof, and properly disposing of the roof materials offsite. Removed tank materials become property of the Contractor.

Item 3 – Provide, Install and Paint New Tank Roof

Measurement for this item shall be on a lump sum basis. Payment shall include full compensation for all materials, labor, equipment, and supervision necessary to provide, install, and paint the

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

new tank roof. The Work includes, but is not limited to, providing structural design of the new roof, providing design drawings and details of the new roof for review and approval, providing and installing roof beams and roof plates, new railing, landing, hatch, vents, ladder and other appurtenances detailed on plans, making new roof and connections water tight, cleaning and prepping the new tank roof in preparation for painting, and painting the new tank roof as shown on the Contract Drawings and described in the Specifications.

Item 4 – Prepare and Paint Interior and Spot Prep and Paint Exterior of Existing Tank

Measurement for this item shall be on a lump sum basis. Payment shall include full compensation for all materials, labor, equipment, and supervision necessary to sandblast and paint the interior of the tank, and paint the entire exterior of the tank, spot prepping where necessary. The Work includes, but is not limited to, sandblasting and painting the entire interior of the tank, and spot cleaning and painting the entire exterior of the tank as shown on the Contract Drawings and described in these Specifications.

Item 5 – Tank Disinfection and Disposal of Disinfection Water

Measurement for this item shall be on a lump sum basis. Payment shall include full compensation for all materials, labor, equipment, and supervision necessary to disinfect the tank. The Work includes, but is not limited to, disinfecting the tank per AWWA standards, properly disposing of disinfection water, and conducting bacteriological sampling and testing as described in the Specifications.

Item 6 – Remove and Replace Miscellaneous Metal and Electrical Items on the Outside of the Tank

Measurement for this item shall be on a lump sum basis. Payment shall include full compensation for all materials, labor, equipment, and supervision necessary to remove and replace miscellaneous metal and electrical items on the outside of the tank. The Work includes, but is not limited to, installation of new sample lines, removal of existing metal enclosures, fabrication/ordering/installation of new metal enclosures, removal of other miscellaneous metal items, preparation and painting of locations required due to removal/replacement of these items, and furnishing specified electrical items, all as shown on Drawing C101.

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Coordination and project conditions
- B. Field engineering
- C. Pre-bid meeting
- D. Preconstruction meeting
- E. Progress meetings

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Mobilization/Demobilization Bid Item. No additional measurement or payment will be included for the requirements of this section.

1.03 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of Project to ensure efficient and orderly sequence of installation of construction elements.

1.04 FIELD ENGINEERING

- A. Protect survey control points prior to starting site Work; preserve permanent reference points during construction.
- B. Promptly report to Engineer loss or destruction of reference point or relocation required for any reason.
- C. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Engineer. The surveyor shall comply with the California Professional Land Surveyors' Act in replacement of all permanent survey monuments.

1.05 PRECONSTRUCTION MEETING

- A. Engineer will schedule meeting after Notice of Award.
- B. Prior to the commencement of Work at the site, a Preconstruction meeting will be held at a mutually agreed time and place. The Preconstruction meeting shall be attended by the District representatives, District Engineer, Resident Engineer, Construction Foreman, Contractor's Construction Superintendent, key Subcontractors, and any other parties requested by the Contractor or the District Engineer.
- C. Unless previously submitted to the Engineer, the Contractor shall bring to the conference three (3) copies of each of the following:
 - 1. Draft Construction Schedule.
 - 2. Procurement schedule of major equipment and materials and items requiring long lead time.
 - 3. Shop Drawing/submittal schedule.
 - 4. Substitution Requests per Section 01 30 00, "Administrative Requirements."

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

5. Contact sheet listing primary contact information for Contractor's project manager, site superintendent, site foreman, and other key Contractor and Subcontractor personnel, and emergency contact information for after business hours (3 copies).
- D. At the Preconstruction meeting the District will provide the Contractor with three (3) sets of the Contract Documents. It shall be the Contractor's responsibility to arrange for pay all costs of additional reproduction required by the Contractor.
- E. The purpose of the meeting is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established.
- F. The Engineer will preside at the Preconstruction conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.
- G. Sample Agenda:
 1. Notice to Proceed date.
 2. Distribution of Contract Documents.
 3. Contractor's tentative schedules.
 4. Submission of list of Subcontractors, list of products, and progress schedule.
 5. Critical work sequencing.
 6. Designation of personnel representing parties in Contract and Engineer.
 7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 8. Scheduling.
 9. Major equipment deliveries and priorities.
 10. Use of premises by Owner and Contractor.
 11. Owner's requirements and occupancy.
 12. Site Safety: Contractor's assignments for safety and first aid.
 13. Construction facilities and controls provided by Owner.
 14. Temporary utilities provided by Owner.
 15. Application for payment procedures.
 16. Procedures for testing.
 17. Procedures for maintaining record documents.
 18. Requirements for system shut down.

1.06 PROGRESS MEETINGS

- A. The Engineer shall schedule, arrange and conduct progress meetings. These meetings shall be conducted once every other week, or as mutually agreed by Contractor and Owner, and shall be attended by the Contractor's superintendent and representatives of key Subcontractors, and others, who are active in the execution of the Work. The purpose of these meetings shall be to review the Contractor's schedule provided in accordance with this Section, resolve conflicts, and in general, coordinate and expedite the execution of the Work.

- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings and record the meeting minutes.
- C. Attendance Required: Job superintendent, key subcontractors, Owner, Engineer, as appropriate to agenda topics for each meeting.
- D. Sample Agenda:
 - 1. Review and acceptance of minutes of previous meeting.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Site Safety.
 - 5. Identification of problems impeding planned progress.
 - 6. Review of submittals schedule and status of submittals.
 - 7. Review of delivery schedules.
 - 8. Maintenance of progress schedule.
 - 9. Corrective measures to regain projected schedules.
 - 10. Planned progress during succeeding work period.
 - 11. Coordination of projected progress.
 - 12. Maintenance of quality and work standards.
 - 13. Effect of proposed changes on progress schedule and coordination.
 - a. Progress Payment.
 - b. Change Orders.
 - c. Claims.
 - 14. Other business relating to Work.
- E. The District shall record minutes and distribute copies within two days after meeting to participants, with one copy each to Engineer, Owner, and those affected by decisions made.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures
- B. Construction progress schedules
- C. Product data and shop drawings
- D. Test reports
- E. Certificates

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Bid Item to which it relates. No additional measurement or payment will be included for the requirements of this section.

1.03 SUBMITTAL PROCEDURES

- A. Submit on Submittal Form (format provided at the end of this Section) with information similar to the attached. Contractor shall submit one electronic version in PDF format.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, Subcontractor and supplier, pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Engineer at GHD Inc., 718 Third Street, Eureka, California, 95501, pat.kaspari@ghd.com. Coordinate submission of related items.
- F. For each submittal, allow fourteen (14) calendar days excluding delivery time to and from Contractor for review by Engineer/Owner.
- G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- H. When revised for resubmission, clearly identify changes made since previous submission.
- I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit an initial schedule electronically within twenty one (21) calendar days after date of Notice to Proceed. After review, resubmit required revised data within fourteen (14) calendar days.
- B. Submit revised Progress Schedules with each Application for Payment.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- C. Distribute copies of reviewed schedules to Project site file, Subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Revisions To Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
 - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

1.05 PRODUCT DATA AND SHOP DRAWINGS

- A. Product Data and Shop Drawings: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit a single re-producible copy or email an electronic version of the submittal to the Engineer.
- C. Mark submittal to clearly identify applicable products, models, options, and other data to be used on this project. Supplement manufacturers' standard data to provide information specific to this Project.

1.06 TEST REPORTS

- A. Submit for Engineer's knowledge as contract administrator.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.07 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.08 REQUESTS FOR SUBMITTALS

- A. Contractor is directed to each Specification section and the Drawings for required submittals, however, the anticipated Submittals shall consist of, but is not necessarily limited to, the following:

Section	Submittal Description
01 11 00	Complete work schedule
01 60 00	If the Contractor chooses to use additional laydown and storage area outside of what the District is providing, Contractor shall submit a signed statement from the property owner granting permission and holding the District harmless from any and all damages that may result from the Contractor's use of the site.
02 83 00	Detailed work plan describing the methods to be used including products, work procedures, tools and equipment, and lead containment and contamination controls and clean-up methods.
02 83 00	Cal/OSHA lead compliance plan for controlling worker exposure to lead.
02 83 00	Name and training documentation for the Competent Person responsible for lead compliance.
02 83 00	Plan for disposal of lead-contaminated wastes generated by this work in accordance with all applicable Federal, State and Local regulations.
02 83 00	Name and certification of laboratory to be used for waste characterization analysis.
09 91 00	Contractor shall be responsible for providing particulate or dust control measures. Include list of materials, suppliers, and product data. Design will be reviewed for the containment and disposal of spent abrasive material. Include application techniques in the submittal.
09 91 00	Manufacturer's data for abrasive blast material to be used including generic description, complete technical data, and instructions.
09 91 00	Manufacturer's most current product data for each coating, including generic description, complete technical data, surface preparation, and application instructions. Include schedule of material and thickness of each coat.
09 91 00	Material Safety Data Sheets (MSDS) for all applicable materials including coatings, thinners and abrasive materials.
09 91 00	Certification that materials in contact with potable water have been approved according to NSF/ANSI 61/Standards.
09 91 00	Manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.
09 91 00	Coating manufacturer's color samples showing full range of standard colors for selection by Owner.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

Section	Submittal Description
09 91 00	Coating manufacturer's and applicator's warranty statements for approval.
09 91 00	Storage and application temperature requirements for all coating system materials.
33 13 13	Disinfection procedure description including type of disinfectant and calculations indicating quantities of disinfectants required to produce specified chlorine concentration in accordance with Section 4.3 of AWWA C652
33 13 13	Results of bacteriological and residual chlorine laboratory test reports.
33 13 13	Manufacturer's certificate certifying that disinfectants meet or exceed AWWA Standards requirements
33 16 13	Roof material fabricator shall submit a certificate of compliance to the Owner stating that the fabrication work was performed in accordance with the approved construction documents per CBC Section 1704.2.5.2
33 16 13	Welding certifications.
33 16 13	Complete Shop Drawings for the tank roof and appurtenances.
33 16 13	Structural calculations of the roof and anchorage stamped and signed by a structural or professional engineer currently registered in the State of California.
33 16 13	Complete list of all materials and equipment proposed to be furnished and installed under this portion of the work.
33 16 13	Two copies of the manufacturer's current recommended method of installation for the roof work.
33 16 13	At the conclusion of the roof fabrication and installation work, the Contractor shall submit a written report containing the information outlined in AWWA D100-11, Section 11.2 – Inspection Report.
Drawing C101	Shop drawings of all new enclosures, including mounting method
Drawing C101	Shop drawing/cut sheets of new sample pump starter
Drawing C101	Cut sheets for all parts used for the new sample lines, including, but not limited to, pipe, fittings, thredolets, vibration damping clamps, ball valve, etc.

END OF SECTION

**Humboldt Bay Municipal Water District
SUBMITTAL TRANSMITTAL FORM**

Date:	Contract Title: 1-MG Domestic Reservoir Roof Replacement and Painting Project GHD Job #: 11125099
To: GHD, Inc. 718 Third Street Eureka, CA. 95501 pat.kaspari@ghd.com Attention: Patrick Kaspari, PE Phone: (707) 443-8326 Fax: (707) 267-2289	From: Submitted By: Signature:

Spec Section	Submittal No.	Rev. No.	Qty.	Subject of Shop Drawing or Submittal	Review Action

Engineer's Review Comments:

Signature: _____ **Date:** _____

Review Action Explanation:

NET: Reviewed, No Exceptions Taken MCN: Make Corrections Noted (no resubmission required) R&R: Revise/Resubmit REJ: Rejected

Shaded areas for Engineer use only.

This review is only for general conformance with the design concept and the information given in the Construction Documents. Notations made on the submittals during this review do not relieve the Contractor from compliance with the requirements of the construction documents, including without limitation, the plans and specifications, and all applicable laws and codes. Review of that specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods techniques, sequences and procedures of construction; and coordination of the Work with all other trades and performing all Work in a safe and satisfactory manner. This review is not for constructability or Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto. This review is subject to all provisions of the Contract Documents.

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SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Quality control and control of installation
- B. Tolerances
- C. References
- D. Labeling
- E. Testing and Inspection Services
- F. Manufacturers' field services
- G. Examination
- H. Preparation

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item will be included in the Bid Item to which it relates. No additional measurement or payment shall be made for the requirements of this section.

1.03 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request written clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.04 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

1.05 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on Notice to Proceed date of Contract Documents, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request written clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.06 LABELING

- A. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.

1.07 TESTING AND INSPECTION SERVICES

- A. Employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.
 - 1. Before starting Work, submit testing laboratory name, address, and telephone number, and names of full-time appropriately licensed or certified Professional Engineer and responsible officer.
 - 2. Submit copy of report of laboratory facilities' inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by the Engineer.
 - 1. Laboratory: Authorized to operate in State of California.
 - 2. Laboratory Staff: Maintain full-time appropriately licensed or certified Professional Engineer on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by the Engineer or Owner.
- D. Reports shall be submitted by independent firm to the Engineer, Contractor, and authorities having jurisdiction, in duplicate, indicating observations and results of tests and compliance or noncompliance with Contract Documents.
 - 1. Submit final report indicating correction of Work previously reported as noncompliant.

- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and independent firm twenty-four (24) hours before expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.
- G. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Engineer. Payment for retesting or re-inspection will be charged to Contractor.
- H. Testing Agency Responsibilities:
 - 1. Test Samples submitted by Contractor.
 - 2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 - 3. Perform indicated sampling and testing of products according to specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify Engineer and Contractor of observed irregularities or nonconformance of Work or products.
 - 6. Perform additional tests required by Engineer.
- I. Testing Agency Reports: After each test, promptly submit two (2) copies of report to Engineer, Contractor, and authorities having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and Specification Section.
 - 6. Location in Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- J. Limits on Testing Authority:
 - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency or laboratory may not approve or accept any portion of the Work.
 - 3. Agency or laboratory may not assume duties of Contractor.
 - 4. Agency or laboratory has no authority to stop the Work.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

1.08 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer thirty (30) calendar days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing site conditions and surfaces are acceptable for subsequent Work. Beginning new Work means Contractor acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.

PART 4 PREPARATION

4.01 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance per applicable section of these Specifications.
- B. Seal cracks or openings of substrate prior to applying next material or substance per applicable section of these Specifications.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond per applicable section of these Specifications.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities
- B. Temporary Field Office and Storage Facility
- C. Vehicular Access
- D. Parking
- E. Progress Cleaning and Waste Removal
- F. Barriers
- G. Security
- H. Removal of utilities, facilities, and controls

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Mobilization/ Demobilization Bid Item, or other appropriate Bid Item. No additional measurement or payment will be included for the requirements of this section.

1.03 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures
- B. Section 01 57 00 – Environmental Requirements

1.04 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.

1.05 PRODUCT HANDLING

- A. Protection:
 - 1. Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.

1.06 TEMPORARY UTILITIES

- A. General:
 - 1. The Contractor is responsible for coordinating all onsite utility connections and usage with the Owner.
- B. Temporary Water
 - 1. Potable water is generally available at the site for the Contractor's use.
- C. Temporary Electricity
 - 1. The owner has electric power at the site that is available to the Contractor for use. The Contractor shall coordinate with Owner personnel to identify points of electrical connections and for the shutdown and de-energizing of the necessary components of the electrical system. Contractor is responsible for confirming the

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

suitability of all service connections and for making these connections. The Contractor shall be solely responsible for repair of any damage to the Owner's or Contractor's equipment resulting from the connection and operation of electrical equipment connected to the Owner's electrical system. The Contractor shall repair or replace all damaged equipment required to return the system to original condition.

2. Contractor will pay cost of energy used and is responsible for all necessary permits, permissions, code and regulatory compliance associated with such use.

D. Temporary Ventilation

1. Ventilate enclosed areas, such as the inside of the tank, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
2. Contractor shall comply with all applicable OSHA requirements for working in confined spaces.

E. Temporary Sanitary Facilities

1. Provide and maintain required facilities and enclosures sufficient to accommodate Contractor and Subcontractor personnel at locations easily accessible from work. Existing facility use is not permitted. Provide facilities at time of project mobilization.
2. Contractor is responsible for cleaning, maintenance, security, placement, and removal of facilities.

1.07 TEMPORARY FIELD OFFICE AND STORAGE FACILITY

A. Contractor and Subcontractors:

1. The Contractor and their Subcontractors shall make arrangements for and maintain temporary field offices and storage facilities as may be necessary for the proper conduct of the Work. These shall be located so as to cause no interference with any Work to be performed on the site. It shall be the responsibility of the Contractor to coordinate with the owner on the location of offices or storage facilities.
2. Upon completion of the project, or as directed by the Owner or Engineer, the Contractor shall remove all such temporary structures and facilities from the site, and leave the premises in the condition required by the Owner.

1.08 VEHICULAR ACCESS

- A. Provide unimpeded access for Owner's vehicles.
- B. Provide means of removing mud from vehicle wheels before entering streets.
- C. Use existing on-site roads for construction traffic.

1.09 PARKING

- A. Arrange for temporary surface parking areas to accommodate construction personnel.
- B. When site space is not adequate, provide additional off-site parking.
- C. Use of designated existing on-site streets and driveways used for construction traffic is permitted.
- D. Tracked vehicles not allowed on paved areas.
- E. Maintenance

1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, and mud.
2. Maintain existing areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain surface course and drainage in original, or specified, condition.

1.10 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.11 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Protect vehicular traffic, stored materials, site, and structures from damage.

1.12 SECURITY

- A. Security Program
 1. Protect Work, existing premises and Owner's operations from theft, vandalism, and unauthorized entry.
 2. Initiate security program in coordination with Owner's existing security system at project mobilization.
 3. If existing chain link security fence around the site is removed for the performance of the work, the Contractor shall provide temporary fencing to prevent access to the site during the performance of the work and shall return security fencing back to existing or better condition upon project completion.
 4. Maintain program throughout construction period until Owner acceptance precludes need for Contractor security.
- B. Entry Control
 1. Pipeline road has existing electronically operated gates. Owner will check out two (2) copies of the electronic controller to the Contractor at the start of the job for their use. The gates can also be locked open during the day if required. It is the Contractor's responsibility that all gates are closed at the end of each work day. Contractor shall return controllers at the end of the work.
 2. Restrict entrance of persons and vehicles into Work site.
 3. Owner will control entrance of persons and vehicles related to Owner's operations.

1.13 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 56 00

SITE AND AREA CLEANUP

PART 1 GENERAL

1.01 DESCRIPTION

- A. Maintain work areas free from accumulations of waste, debris, dust and mud caused by Contractor's operations.
- B. Upon completion of Work, remove all waste materials, tools, equipment, machinery, and surplus materials. Leave the property clean. Leave all rights of way in a condition equal to that at the beginning of Work.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Mobilization/ Demobilization Bid Item. No additional measurement or payment will be included for the requirements of this section.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION

- A. The Contractor shall be solely responsible for the protection of adjacent properties, structures, streets and utilities. Any damage shall be repaired to its original condition or better, as determined by the Engineer, at the Contractor's expense.
- B. The Contractor shall protect benchmarks, survey control points, and existing structures not identified for removal from damage or displacement.

3.02 REMOVAL

- A. Remove all components associated with the existing tank roof from the site.
- B. Do not burn or bury materials on site. Leave site in clean condition.

3.03 DURING CONSTRUCTION

- A. Execute cleaning to ensure that any private property, grounds, and especially access roads and public properties, are maintained free from accumulation of waste materials, dust, mud, and debris.
- B. Loose and removed paint flecks, sand blast material, demolition debris, and all other dust, debris and materials generated during the performance of the work shall be contained at all times during the performance of the work and not allowed to be blown, tracked, or otherwise dispersed across the site and shall be removed and properly disposed of at regular intervals during the performance of the work and shall be completely removed and properly disposed of upon project completion.
- C. The Contractor shall keep all access roads clean and free of dust, mud and debris resulting from the Contractor's operations.
- D. All waste materials, debris and rubbish shall be disposed of at sites to be chosen by Contractor.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- E. If, in the opinion of the Engineer, the Contractor has not sufficiently cleaned the project area, the Engineer shall issue a written notice to the Contractor stating that the Contractor shall clean the project area to the satisfaction of the Engineer within forty-eight (48) hours. If the Contractor does not properly clean up (in the opinion of the Engineer or the Owner), then either the Engineer or the Owner shall have the option of using outside equipment to perform the Work and such cost will be withheld from the Contract.

3.04 AFTER CONSTRUCTION

- A. After construction is complete, all sanitary and other temporary facilities, construction materials, equipment, and other debris shall be completely removed from the site and recycled or disposed of properly by the Contractor.
- B. If, in the opinion of the Engineer, the Contractor has not sufficiently cleaned the project area, the Engineer shall issue a written notice to the Contractor stating that the Contractor shall clean the project area to the satisfaction of the Engineer within forty-eight (48) hours. If the Contractor does not properly clean up (in the opinion of the Engineer or the Owner), then either the Engineer or the Owner shall have the option of using outside equipment to perform the Work and such cost will be withheld from the Contract. Site shall be left in a condition equal to or better than existed prior to construction.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Products
- B. Product delivery requirements
- C. Product storage and handling requirements
- D. Product options

1.02 PRODUCTS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- C. Furnish interchangeable components from same manufacturer for components being replaced.

1.03 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item shall be included in the Bid Item to which it relates. No additional measurement or payment will be included for the requirements of this section.

1.04 PRODUCT DELIVERY REQUIREMENTS

- A. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Deliver products or equipment in manufacturer's original unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.
- D. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Clearly and fully mark and identify as to manufacturer, item and installation location.

1.05 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturer's instructions. Provide manufacturer's instructions for storage and handling.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.06 STORAGE FACILITIES

- A. Contractor shall obtain all necessary laydown and storage areas necessary for the execution of the Work. The District has space available for laydown and storage near the Project site as shown on the Drawings. However, the Contractor shall satisfy themselves as to whether there is adequate staging area at the site for construction materials and equipment. Contractor shall obtain all necessary permissions and approvals for use of other laydown and storage areas and shall submit a signed statement from the property owner granting permission and holding the District harmless from any and all damages that may result from the Contractor's use of the site.

1.07 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed, except as provided for in the General Provisions.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.08 PRODUCT SUBSTITUTION PROCEDURES

- A. General Conditions, Section B-14 – Conformity with Contract Documents and Allowable Deviations.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Protecting installed construction.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance products.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for this item will be included in the Bid Item to which it relates. No additional measurement or payment will be made for the requirements of this section.

1.03 CLOSEOUT PROCEDURES

- A. Completion Submittal:
 - 1. File Contractor's Notice of Completion and Request for Final Inspection.
- B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- C. Provide submittals to Engineer required by authorities having jurisdiction.
- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.04 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- C. Clean site; sweep paved areas, rake clean landscaped surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.05 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at pipe and conduit openings.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

1.06 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 2. Field changes of dimension and detail.
 - 3. Details not on original Contract drawings.
- G. Submit Record Documents to Engineer with claim for final Application for Payment.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit data bound and organized in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable cloth covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, date of submittal.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by specification 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 [special] finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
3. Part 3: Project documents and certificates, including the following:
- a. Shop drawings and product data.
 - b. Certificates.
 - c. Photocopies of warranties and bonds.

1.08 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 02 83 00

REMOVAL AND DISPOSAL OF MATERIAL CONTAINING LEAD

PART 1 GENERAL

1.01 SUMMARY OF LEAD-RELATED WORK

A. General

1. This work may involve disturbance of finishes at the project site that are known or assumed to contain very low levels of lead.
 - a. Surface coatings generally representative of paint present at the project site were collected to evaluate specific painted project site features for the presence of cadmium, chromium, and lead. Various sampled surface coatings were reported to contain very low levels of lead (highest level measured = 57 mg/kg, which does not meet the definitions of lead-based paint or lead-containing paint) and/or chromium (highest level of Total Chromium Detected = 180 mg/kg. No hexavalent Chromium detected greater than 4 mg/kg).
 - b. For testing performed and analytical results, see *Humboldt Bay Municipal Water District, 1MG Reservoir Roof Replacement Project, Hazardous Materials Assessment Survey Report, Revision 0* prepared by GHD Inc. (GHD) and dated September 12, 2016. This document can be found as Part 5 of these Specifications.
 - c. Surface coatings at the project site shall be understood to be subject to applicable governmental regulations concerning lead.
2. The Contractor is solely responsible for determining and implementing applicable California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) worker protection requirements, including Title 8 of the California Code of Regulations, Section 1532.1 (8 CCR 1532.1) in a manner that protects Contractor personnel, District personnel, the public, and the environment from potential lead or other hazardous material exposure resulting from Contractor work in association with this project.
3. Contractor shall furnish all labor, materials, services, insurance and equipment which are specified, shown or reasonably implied for effective containment, dust suppression, cleaning, impaction, transport, and disposal of lead from the project site including the following work:
 - a. Removal of the sand/paint waste stream generated by sandblasting the existing tank coating.
4. The work includes the proper containment, removal, transport, and disposal of the following lead-contaminated materials associated with lead-related construction activities including, but not limited to, the following:
 - a. All materials used for work area preparation
 - b. All discarded personal protective equipment
 - c. All other potentially contaminated materials
 - d. All lead contaminated waste and debris

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- B. Upon completion of Contractor's work, all interior and exterior surfaces located within the Contractor's scope of work are to be free of visible lead-containing debris and/or lead-dust hazards.
- C. All work shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of lead containing material impaction, proper handling, disposal requirements and the subsequent cleaning of lead-contaminated areas.

1.02 RELATED SECTIONS

- A. Section 09 91 00 – Tank Preparation and Coating

1.03 RELATED DOCUMENTS

- A. *Humboldt Bay Municipal Water District, 1MG Reservoir Roof Replacement Project, Hazardous Materials Assessment Survey Report, Revision 0* prepared by GHD Inc. (GHD) and dated September 12, 2016. This document can be found as Part 5 of these Specifications.

1.04 MEASUREMENT AND PAYMENT

- A. Measurement and Payment for this item will be included in the Prepare and Paint Interior and Spot Prep and Paint Exterior of Existing Tank Bid Item. Measurement and Payment shall include all equipment, tools, labor and materials required to abate, contain, test, containerize, transport and dispose of any material containing lead or other hazardous waste generated during the performance of this work. Work included in this Bid Item shall also include any Administrative, worker protection, environmental protection, reporting, medical surveillance, or other measures required for the performance of the work detailed in this section.

1.05 REFERENCES

- A. Work at the project site is understood to meet the Cal/OSHA definition of construction work [1532.1(a)] and includes the planned impaction of paint that has detectable levels of lead, thus, is subject to regulation by governmental agencies and standards, including those denoted below.
 - 1. Code of Federal Regulations (CFR)
 - a. 29 CFR 1926, Construction Standards
 - b. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
 - c. 40 CFR Part 745, Lead: Identification of Dangerous Levels of Lead
 - d. 40 CFR Part 745, Subpart E Lead Renovation, Repair and Painting Program
 - e. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation
 - 2. California Code of Regulations (CCR)
 - a. 8 CCR Division 1, Chapter 4, Construction Safety Orders
 - b. 8 CCR 1532.1, Lead in Construction
 - c. 8 CCR 1537, Welding, Cutting, and Heating of Coated Metals
 - d. 8 CCR 1531, Respiratory Protection
 - e. 17 CCR Division 1, Chapter 8, Accreditation/Certification, and Work Practices in Lead-Related Construction

- f. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste

1.06 DEFINITIONS

A. Definitions specific to the work of this section:

1. Abatement – Hazardous materials related construction undertaken for the purpose of eliminating or reducing existing recognized hazardous materials related hazards. Title 17 CCR, Division 1, Chapter 8 defines abatement as any set of measures designed to reduce or eliminate lead hazards or lead-based paint for public and residential buildings, but does not include containment or cleaning.
2. Accreditation – Accreditation means that California Department of Public Health (CDPH) has reviewed and finds acceptable a training provider's written application for accreditation, and has conducted and finds acceptable, an on-site audit as specified in Title 17 CCR, Division 1, Chapter 8, subsection 35078(e). Accredited training provider means any individual, corporation, partnership or other unincorporated association or public entity to which the Department has granted accreditation or provisional accreditation to offer lead-related construction courses and continuing education instruction.
3. Action Level (AL) – Cal/OSHA employee exposure level for airborne concentrations of lead of 30 micrograms per cubic meter of air (30 µg/m³) calculated as an eight-hour time-weighted average (TWA) per CCR Title 8, Section 1532.1 Lead (8 CCR 1532.1[b]).
4. Air Monitoring – The process of measuring the air contaminant (e.g. lead) content of a specified volume of air in a stated period of time. The purpose of air monitoring is to determine compliance with regulatory occupational and specified environmental exposure limits for airborne contaminants.
5. Cal/OSHA – The State of California Department of Industrial Relations, Division of Occupational Safety and Health.
6. CDPH – The State of California Department of Public Health.
7. Certified Lead Supervisor – A certified lead supervisor is an individual who has received a certificate or an interim certificate from CDPH as a "certified lead supervisor."
8. Certified Lead Worker– A certified lead supervisor is an individual who has received a certificate or an interim certificate from CDPH as a "certified lead worker."
9. Clearance Inspection – A clearance inspection means an on-site limited investigation, as described in Chapter 15: Clearance, sections II-VI, "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing," U.S. Department of Housing and Urban Development, June 1995.
10. Competent Person – An onsite supervisor who has been formally trained in lead-related construction and who is capable of identifying lead hazards, substandard and improper lead hazard controls, procedures, practices, and conditions and who has sufficient experience and authority to take prompt corrective measures to take corrective action.
11. Containment – Protective physical barriers and associated means and methods used to contain airborne contaminant dust within the work area and prevent contamination of surfaces and grounds below and adjacent to areas where a hazardous material is being disturbed.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

12. Contractor – the appropriately-licensed contractor, including contractor personnel and/or affiliates, selected to remove the hazardous materials at the project site.
13. Hazardous Lead Waste – Lead-containing debris shall be classified as hazardous due to the characteristic of toxicity, as determined by testing in accordance with the California Code of Regulations, Title 22, Division 4.5. Any substance(s) listed in Chapter 11 Section 66261.24 at concentrations greater than the applicable listed Soluble Threshold Limit Concentration (STLC) or Total Threshold Limit Concentration (TTLC) is considered hazardous waste and may need to be further characterized by the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261 and other tests prior to disposal as a hazardous waste.
14. Hazardous Waste – Waste material that is listed or meets the criteria for hazardous waste as set forth in California Code of Regulations (CCR), Title 22, and Article 9 (see below). At minimum, with regard to the work project, the following shall be considered to be hazardous wastes associated with lead containing paint with respect to this section:
 - a. Paint waste or other debris that has been classified as hazardous due to the characteristics of toxicity, as determined by testing in accordance with CCR, Title 22, Div. 4.5.
 - b. Any substance listed in Chapter 11, Section 66261.24 at concentrations greater than its listed Soluble Threshold Limit Concentration (STLC) of 5.0 part per million (ppm) or Total Threshold Limit Concentration (TTLC) of 1000 ppm. If the STLC or TTLC values are exceeded, the lead related waste will need to be further characterized by the Toxicity Characteristics Leaching Procedure (TCLP) in accordance with 40 CFR 261.
15. HEPA Vacuum Equipment – High efficiency particulate air (HEPA) filtered vacuuming equipment with a filter system capable of collecting and retaining lead dust. Filters shall be certified to be of 99.97% efficiency for retaining particles of 0.3 microns diameter or larger.
16. HUD – United States Department of Housing and Urban Development.
17. Intact LCP/LBP Components – LCP/LBP components (including equipment) removed substantially intact with LBP firmly adhering to the surface.
18. Lead Based Paint (LBP) – Paint that contains greater than or equal to 0.5 percent lead by weight, or 5,000 ppm, when analyzed by atomic absorption spectroscopy (AAS) or inductively coupled plasma-atomic emissions spectroscopy (ICP-AES) or 1.0 milligrams of lead per square centimeter (mg/cm²) as determined by x-ray fluorescence (XRF) testing or laboratory analysis, or as identified by plan. Untested paints or coatings must be presumed to contain LBP. The presence of LBP triggers specific CDPH rules for residential and public buildings. LBP triggers certain Cal/OSHA pre-job notification requirements, if quantity thresholds are exceeded.
19. Lead Containing Paint – Consumer Product Safety Commission (CPSC) definition of a paint or finish coating with a lead content of greater than 0.009 percent by weight (90 ppm). Note: Cal/OSHA regulation requires compliance with worker protection rules when impacting paint or material containing lead at any detectable level. Untested paints must be presumed to contain lead at Lead Based Paint (LBP) levels (see LBP definition, below).
20. Lead Containing Material – Any material, other than a paint or coating, with a lead content of 0.5 percent (5,000 ppm) or greater. Lead containing material may pose occupational and environmental hazards depending on lead content (level), operation or process, amount of disturbance, and other factors.

21. Lead Contaminated Dust – Lead-contaminated dust means dust that contains an amount of lead equal to, or in excess of:
 - a. Forty micrograms per square foot (40 µg/ft²) for interior floor surfaces; or
 - b. Two hundred and fifty micrograms per square foot (250 µg/ft²) for interior horizontal surfaces; or
 - c. Four hundred micrograms per square foot (400 µg/ft²) for exterior floor and exterior horizontal surfaces.
22. Lead Contaminated Soil – Lead-contaminated soil means bare soil that contains an amount of lead equal to, or in excess of, four hundred parts per million (400 ppm) in children’s play areas and one thousand parts per million (1000 ppm) in all other areas.
23. Lead Hazard – Lead hazard means deteriorated lead-based paint, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.
24. Lead Paint Surface Preparation – The process of conducting surface preparation by means of sandblasting prior to selective or general work or painting. Where the surface is being prepared for painting, lead-related work controls apply for any additional surface preparation required for painting. Also referred to as lead paint stabilization.
25. Lead Related Construction – Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and clean-up, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead.
26. Lead Related Waste – Paint chips, vacuum dust, and debris, used cleaning articles, wastewater, plastic sheets and other disposable items used during lead/chromium containing paint impaction are considered lead contaminated waste or suspect hazardous waste pending further characterization.
27. Parts Per Million (ppm) – A common unit used to denote the lead concentration of surface coatings. Note: ppm is equivalent to milligrams per kilogram (mg/kg).
28. Permissible Exposure Limit (PEL) – This is the highest level of a regulated contaminant in air that an employee can be permitted to be exposed to in an eight hour work day without respiratory protection. For longer work days, the PEL is lowered and can be determined by dividing 400 by the number of hours worked per day. When the PEL is exceeded, action must be taken to lower the exposure level and protect the worker per the applicable regulation.
 - a. PEL (lead) – An exposure to airborne lead of 50 micrograms of lead per cubic meter of air (50 µg/m³), averaged over an 8-hour workday referred to as a time weighted average (TWA).
29. Personal Protective Equipment (PPE) – Coveralls, respirators, gloves, eye and hearing protection, hardhats and/or other personal equipment worn by individuals for the purpose of shielding from exposure to potentially hazardous materials or site conditions.
30. Presumed Lead-Based Paint – Presumed lead-based paint means paint or surface coating affixed to a component in or on a structure constructed prior to January 1, 1978. Presumed lead-based paint does not include paint or surface coating that has been tested and found to contain an amount of lead less than one milligram per square centimeter (1.0 mg/cm²) less than half of one percent (0.5%) by weight, or less than 5,000 ppm.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

31. Qualified Person – The specially trained individual to be responsible for conducting air sampling, calibration of air sampling pumps, evaluating sampling results, and conducting respirator fit tests. This role is often assigned to the Competent Person.
32. Regulated Area – A designated and controlled area in which hazardous material impaction or hazardous materials–impacted work activities are undertaken or which may become contaminated as a result of such actions. A regulated area, also known as a work area, is a controlled area delineated by barrier tape (or similar means) at minimum and signage to restrict access to Authorized Personnel. In some instances, a higher degree of physical isolation and control may be required and specified.
33. Removal – Procedures specified as necessary to remove and clean–up hazardous materials, paint and debris with heavy metal contamination or components with heavy metal containing coatings from the designated areas and to dispose of these materials at an acceptable site in accordance with Federal, State and Local Regulations.
34. Trigger Task – Operation, process or task specifically identified by Cal/OSHA Lead Standard - 8 CCR 1532.1 as a potential lead exposure hazard requiring certain protective measures to be implemented prior to obtaining the results of an initial exposure assessment. Trigger tasks include, but are not limited to, any of the following tasks when materials or paints that contain lead are present and will be disturbed:
 - a. Manual work
 - b. Manual scraping or sanding
 - c. Heat gun applications
 - d. Use of power tools for cleaning or removal
 - e. Rivet busting
 - f. Abrasive blasting and clean-up of spent abrasive
 - g. Welding, cutting or torch burning
35. Transportation Storage Disposal (TSD) Facility – An USEPA or State permitted facility for transportation, storage, and disposal of hazardous wastes.
36. USEPA – United States Environmental Protection Agency.
37. USEPA RRP – United States Environmental Protection Agency Lead Renovation, Repair and Painting Program (RRP) regulation (40 CFR 745, Subpart E) establishes standard lead-safe work practices, training/certification requirements for entities conducting renovation and/or demolition work within pre-1978 housing, child care facilities and kindergartens.
38. Visually Clean – Free of visible dust, paint chips, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or paint debris, chips or dust distinguishable from the initial soil or ground conditions.
39. Washroom – A room or area established outside the work area for hand washing at minimum. Where the lead PEL is exceeded, the washroom shall contain a shower facility with hot and cold water and a water filtering system.

1.07 SUBMITTALS AND NOTICES

Requirements are as set forth in the contract for items required to be submitted under this section. Prior to the start of work at the project site, but not fewer than 14 calendar days prior to the planned commencement of work, the Contractor shall submit copies of the following documentation to the Engineer:

- A. Work Procedure and Lead Compliance Submittal
 - 1. Contractor shall submit the following to the Engineer prior to the start of work applicable to these specifications and in conjunction with the submittals required under Section 099100-Tank Preparation and Coating:
 - a. Detailed work plan describing the methods to be used including products, work procedures, tools and equipment, and lead containment and contamination controls and clean-up methods.
 - b. Cal/OSHA lead compliance plan for controlling worker exposure to lead.
 - c. Name and training documentation for the Competent Person responsible for lead compliance.
 - d. Plan for disposal of lead-contaminated wastes generated by this work in accordance with all applicable Federal, State and Local regulations
 - e. Name and certification of laboratory to be used for waste characterization analysis.

1.08 CONTRACTOR'S COMPLIANCE AND QUALITY ASSURANCE

- A. Competent Person
 - 1. The Contractor shall have a Competent Person onsite at all times while Lead-Related Construction involving a trigger task is in progress. The Contractor's Competent Person shall communicate and coordinate with the Owner with regard to work schedules, inspections, daily submittals, and compliance issues.

PART 2 PRODUCTS

2.01 PROTECTIVE COVERING

- A. Polyethylene sheets (poly) used onsite shall be fire resistant and of 6 mil thickness.
- B. Other reinforced impervious plastic sheeting products (10 mil thickness minimum) as may be required for use as drop cloths protection of deck, grounds, flatwork and other surfaces.

2.02 TAPE

- A. Self-adhesive tape capable of sealing joints of adjacent sheets of polyethylene sheeting and for attachment of polyethylene sheeting to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions.

2.03 DISPOSAL CONTAINERS FOR HAZARDOUS WASTE

- A. Provide six (6) mil thick polyethylene sheeting, six (6) mil leak-tight polyethylene bags and other impervious containers or drums as required by applicable regulations.
- B. Provide labels for all waste container as all waste shall be labeled as hazardous or presumed hazardous waste unless proven otherwise by appropriate sampling and laboratory analysis unless otherwise noted.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- C. All hazardous waste shipping containers shall meet applicable DOT requirements.

2.04 WARNING SIGNS AND LABELS

A. Caution Signs

- 1. Signs are to be large enough to be readable from a distance and include the following phrase in minimum two-inch high letters:

CAUTION LEAD HAZARD

KEEP OUT UNLESS AUTHORIZED

- 2. Signs shall be posted at each approach to each lead or abatement regulated area or area where lead-related construction work is conducted.

B. Cal/OSHA Lead Warning Signs

- 1. Signage including the following phrase shall be posted at the entrance to each regulated area:

DANGER

LEAD WORK AREA

MAY DAMAGE FERTILITY OR THE UNBORN CHILD

CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM

DO NO EAT, DRINK OR SMOKE IN THIS AREA

C. Labels

- 1. Hazardous waste shall be labeled according to Federal, State and Local regulations including but not limited to the California Code of Regulations, Title 22, Chapter 30 and the United States Department of Transportation 49 CFR Parts 172, 173, 178 and 179.

2.05 PERSONAL PROTECTIVE EQUIPMENT

- A. Personal protective equipment shall comply with the requirements of 8 CCR 1532.1, Lead.
- B. Minimum protective clothing and equipment for trigger tasks pending initial exposure monitoring and any operation known to exceed the PEL shall consist of disposable, full-body coveralls, disposable boots, gloves, or equivalent in accordance with ANSI Z41. Sleeves at wrists and cuffs at ankles shall be secure.
- C. All disposable clothing worn during each work shift shall be removed prior to exiting the regulated area and shall be properly segregated and placed in containers for proper waste characterization. The Contractor shall bear full responsibility for additional costs associated with waste profiling and disposal if wastes are not properly segregated.
- D. Eye protection and hard hats shall be available and worn at all times and shall conform to ANSI 87.1 and ANSI 89.1
- E. The Contractor shall provide Authorized Visitors with suitable disposable protective clothing, headgear, respirators, and footwear whenever authorized visitors are required to enter the regulated area.

2.06 RESPIRATORS

- A. For trigger tasks pending initial exposure assessment results and any operation known to exceed the PEL, provide workers with personally issued respiratory equipment approved

by NIOSH and suitable for the lead exposure level in the regulated area and any other airborne contaminant hazards present.

2.07 TOOLS AND EQUIPMENT

- A. Provide suitable tools for the removal of LCP and lead contamination including HEPA vacuums, HEPA exhaust units, ground fault circuit interrupters (GFCIs), ladders, scaffold, and garden sprayers.
- B. All tools and equipment brought onsite shall be clean and free of lead and other hazardous material contaminants. HEPA vacuums shall be labeled with a lead warning label and dedicated to lead-impacted construction work to prevent commingling of lead wastes with asbestos or other vacuum wastes.
- C. Provide enough support equipment, including but not limited to lumber, nails, hardware, shower stalls, hoses, plumbing, drain pans, sump pumps, and waste water storage drums to construct and operate the required hand washing system and, where required, a portable Wash Room with showers.

PART 3 EXECUTION

3.01 GENERAL

- A. All work impacting known or presumed lead containing material must be accomplished in conformance with these specifications, applicable regulations and provisions of the contract documents. Contractor shall be solely responsible for compliance with applicable State and Federal lead and hazardous waste exposure, containment and disposal requirements. In addition to the lead hazard controls of these specifications, the applicable requirements for selective demolition, surface preparation, painting, restoration, patching, and repair shall be adhered to.
- B. Public and worker warning and safety information to be posted: Inside the designated construction area, post signs at all approaches to the lead removal or trigger task regulated area entrance to read:

CAUTION LEAD HAZARD

KEEP OUT UNLESS AUTHORIZED
- C. In addition, post the Cal/OSHA Lead Hazard Warning Poster at the immediate regulated area entrance where trigger tasks are conducted unless monitoring results show airborne exposure levels to be below PEL.

3.02 GENERAL WORK AREA PREPARATION

- A. The following requirements apply to lead-impacted work involving trigger tasks or other work that is likely or known to disturb material containing lead in a manner that will generate lead containing dust and debris within the regulated area.
 - 1. Exterior Areas:
 - a. For demolition, debris clean-up, and paint stabilization activities:
 - 1) Cover and protect ground and/or horizontal surfaces within regulated area as to contain the lead hazard within the established work area.
 - 2) Extend groundcover from a sufficient distance beyond the work activity, as needed, to contain all lead-related construction debris within the containment.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

2. Seal all seams and secure plastic to prevent undesired movement. Where lead-containing material removal is likely to generate airborne dust or paint chips, devise a suitable containment to control such dust and prevent dispersal by wind.
3. Provide a designated entry/exit point to regulated areas suitable for workers to properly decontaminate and exit from the regulated area as specified herein. Install lead caution and warning signage as specified above and provide at minimum a hand washing facility.
4. Lead-related construction work shall not initially proceed until the Engineer or Inspector has checked and approved regulated area preparations.

3.03 WORKER PROTECTION AND DECONTAMINATION

- A. The Contractor shall use only workers trained and medically qualified for the assigned lead work and respirator usage for trigger tasks or other work known or reasonably expected to generate airborne exposures to lead in excess of the AL or PEL.
- B. Medically-qualified shall mean that the worker who perform trigger tasks, abatement or other Lead-Related Construction tasks likely to exceed the AL, has had at minimum biological monitoring and a medical evaluation for use of respiratory protection in accordance with 8 CCR 1532.1 (j).
- C. If the AL is anticipated to exceeded on any project for 30 days or more per year, the employee shall be enrolled in an occupational medical exam for lead exposure and periodic biological monitoring per 8 CCR 1532.1 (j) (2) and (3).
- D. Each worker shall have successfully completed lead training in accordance with 8 CCR 1532.1 (l). All workers shall have had a minimum lead hazard communication training tailored to their particular job assignments.
- E. All workers and their supervisors performing lead-related construction work anticipated or determined to exceed the AL are required to have formal documented training in lead hazards meeting 8 CCR 1532.1 (l) (2).
- F. Where the workers and their supervisors are assigned work that is determined or reasonably expected to exceed the PEL, both the workers and their supervisors shall be trained by a Department of Public Health (CDPH) accredited training provider for lead related construction and certified as lead workers and supervisors by CDPH.
- G. All tools and equipment shall be decontaminated by HEPA vacuuming and/or wet wiping prior to being taken out of the regulated area. Tools and equipment with inaccessible internals shall be externally wet-wiped, bagged and sealed prior to being removed from the regulated area.
- H. Workers shall not eat, drink, smoke, apply cosmetics or chew gum or tobacco within the work area.

3.04 SURFACE PREPARATION

- A. Prepare the surface for the primer coating in accordance with the painting specifications of this contract.
- B. Feather the coating edge transitions from substrate to coatings and from one coat to the next to obtain a smooth, clean, adhered surface for painting.

3.05 CLEANING AND DECONTAMINATION OF WORK AREAS

- A. Perform the following clean-up procedures daily:
 1. Clean regulated areas until they are free of loose dust and debris using HEPA and/or wet-wiping after pick-up of large debris.

2. Wet debris with a fine mist of water and collect and containerize the material. All material to be properly segregated, double bagged or containerized, sealed, and moved to a designated, secure, waste storage area for waste characterization.
 3. At the end of each work day the Contractor's Competent Person shall inspect work performed to ensure the work has been completed and no visible dust or residue remains on the areas removed and/or in the regulated area. OWNER's Representative shall be included in that inspection process when and if they request inclusion.
- B. Final Clean up and Decontamination of Regulated Areas:
1. At completion of lead-related construction work involving trigger tasks or task which produce lead-containing dust and debris, perform cleaning as follows:
 - a. Clean all regulated areas where lead-related construction was performed by vacuuming all surfaces with a HEPA vacuum followed by wet-wiping using methods and materials sufficient to prevent cross contamination.
 - b. Disassemble and remove containment barriers at each regulated area location after cleaning as specified above. Place containment construction material debris into waste bags and remove to the temporary waste storage area.
 - c. Place containment membranes and plastic sheeting and waste rags in labeled six mil plastic bags or containers, seal and store in a designated, secure, waste storage area for waste characterization.
 - C. The cleaning procedure employed by the Contractor shall prevent spread of contamination and effectively clean surfaces, while producing minimal waste.
 - D. All tools and equipment potentially contaminated with lead shall be decontaminated prior to exiting the regulated area and/or appropriately containerized to avoid dispersion of lead to other areas of the project site.

3.06 LEAD CONTAMINATION OF THE ENVIRONMENT

- A. In the event that removed lead-containing material, dust, or debris is not properly contained within the regulated area and thereby migrates outside established barriers, the Contractor shall stop work immediately, notify OWNER immediately, and commence clean-up and decontamination procedures as described herein or directed by OWNER.

3.07 WASTE STORAGE, SEGREGATION, AND CHARACTERIZATION

- A. The Contractor shall provide for secure onsite temporary storage of lead-containing material and/or related waste. Waste storage location, equipment, containers and methods are subject to prior approval by OWNER.
- B. Intact LCP components are not normally considered to be hazardous wastes and may often be removed and disposed of as non-hazardous construction wastes. However, it is the Contractor's sole responsibility to ensure the waste produced by the Contractor's means and methods is properly characterized and disposed of.
- C. The Contractor shall be responsible for secure onsite temporary storage for known or suspect hazardous LBP paint chip, dust/debris, and clean-up related waste. Contractor is also responsible for segregating wastes into appropriate waste streams based on waste characterization, sampling, and disposal requirements.
- D. As needed, and as determined by Contractor according to applicable State and Federal regulatory requirements, waste streams shall be tested by the Contractor using the following lead testing protocol thresholds for determination of hazardous waste characterization:

Table 1 – California Environmental Protection Agency (Cal/EPA) Testing Protocol for Lead

Laboratory Analytical Method for Determination of Lead Content	Hazardous Waste Threshold	Waste Characterization
Total Threshold Limit Concentration (TTLC)	≤50 ppm	Non-Hazardous Waste
Total Threshold Limit Concentration (TTLC)	>50 ppm - ≤1,000 ppm	Run STLC
Total Threshold Limit Concentration (TTLC)	>1,000 ppm	California Hazardous Waste, Run TCLP
Soluble Threshold Limit Concentration (STLC)	≤5 mg/L	Non-Hazardous Waste
Soluble Threshold Limit Concentration (STLC)	>5 mg/L	California Hazardous Waste, Run TCLP

Table 2 – USEPA Testing Protocol for Lead

Laboratory Analytical Method	Hazardous Waste Threshold	Waste Characterization
Toxicity Characteristic Leaching Procedure (TCLP)	>5 mg/L	RCRA Hazardous Waste
Toxicity Characteristic Leaching Procedure (TCLP)	≤5 mg/L	Non-RCRA Hazardous Waste

- E. Based on the above testing protocols, any representative waste stream having a soluble lead concentration greater than or equal to five ppm lead as determined by STLC or TCLP analyses or any waste greater than or equal to 1,000 ppm lead using the TTLC analysis shall be considered a lead hazardous waste. If the TTLC result for a waste stream is less than 50 ppm lead, then no further testing is required for the sampled waste stream unless the waste changes in character or composition.
- F. Composite representative samples shall be taken of each waste stream category generated and shall be composited into one sample for analysis. A minimum of four composite samples shall be taken to represent each category of waste generated. It will be the responsibility of the Contractor to ensure representative samples are taken from each category of segregated waste.
- G. Each category of suspect hazardous waste shall be tested and characterized according to requirements of the selected permitted waste disposal site.
- H. If other hazardous constituents are known or suspected to be present, the testing shall also include those substances or conditions.
- I. The waste shall be packaged, stored, handled, transported and disposed of for each category of waste generated based on the testing results and regulatory protocol.
- J. All testing shall be performed by a laboratory that complies with and is certified under the Environmental Laboratory Accreditation Program (ELAP) established by CDPH.

- K. The cost of all waste characterization or waste profiling required by the approved landfill will be the responsibility of the Contractor.
- L. In the event that OWNER determines that the waste is not properly segregated, the mixed waste stream shall be considered hazardous. The Contractor shall be responsible for the costs associated with any additional testing required.
- M. The Contractor shall bear full responsibility for additional costs associated with waste disposal and characterization if waste is not properly segregated as required herein.

3.08 HAZARDOUS WASTE DISPOSAL

- A. Site Storage and Handling
 - 1. The Contractor shall pay strict attention to the requirements of 40 CFR 262 and 265 and Title 22, Division 4.5 for the onsite handling of hazardous waste, with special attention given to the time of storage, amount of material stored at any one time, use of proper containers, and personnel training
 - 2. All hazardous waste shall be stored in secure, locked, labeled, sealed impervious containers and not placed on the unprotected ground.
 - 3. All containers shall be shielded adequately to prevent dispersion of the debris by wind or rain and shall be labeled as hazardous waste.
 - 4. Any evidence of improper storage shall be cause for immediate shutdown of the project until a corrective action is taken.
- B. The exterior of waste containers shall be cleaned using a HEPA vacuum and/or wet-wiping prior to removing them from the work area.
- C. Wastes shall not be treated or processed in an attempt to mitigate the waste streams hazardous characteristics; as such treatment is prohibited by RCRA.
- D. The Contractor shall arrange to have the lead hazardous waste transported from the site in accordance with the requirements of 40 CFR 263 and 264, and disposed of properly in accordance with 40 CFR 268, 8 CCR Articles 40 and 41, 49 CFR Parts 172, 173, 178, and 179 and Title 22, Chapter 30, Articles 5, 6, 6.5 and 8.
- E. The Contractor shall submit to OWNER the Name, Class, and USEPA ID Number of the waste disposal site(s) to be used for each waste category that has been determined by testing to exceed the hazardous waste thresholds provided in State and Federal regulations.
- F. The Contractor shall prepare hazardous waste shipping manifests for review by OWNER. Upon waste or material pickup by the selected waste transporter, manifests shall be signed by OWNER and copies retained to verify that all steps of the handling and disposal process have been completed properly.
 - 1. Copies of the fully completed manifests and landfill weight tickets shall be provided to OWNER.
- G. The Contractor shall be responsible for all costs associated with transportation and disposal of all wastes generated as the result of this work.
- H. No waste characterized as hazardous waste or originating from a waste stream characterized as hazardous shall be stored onsite for more than 90 days prior to being properly transported for disposal.
- I. All equipment, materials, and waste generated on this project must be removed offsite to their proper locations by the Contractor within 7 calendar days from completion of all abatement and lead-impacted construction work.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- J. Containers to be loaded for transportation from the storage area must be removed by workers who have entered from uncontaminated areas, dressed in clean coveralls.

3.09 ALTERNATIVE PROCEDURES

- A. If specified procedures cannot be utilized, a request shall be made in writing to OWNER providing details of the problem encountered and recommended alternatives.
- B. Alternative procedures shall provide equivalent or greater employee protection than procedures that are replaced.

3.10 STOP WORK ORDERS

- A. OWNER has the authority to stop work if it is determined that conditions or procedures are not in compliance with the specifications and/or applicable regulations; to the extent of potential endangerment of state employees, the public or environment.
- B. The work stoppage shall remain in effect until conditions have been corrected, corrective measures have been taken to the satisfaction of OWNER and the Contractor has received written approval from OWNER to recommence work.
- C. All standby time and testing costs required to correct the above mentioned problems shall be borne solely at the Contractor's expense.
- D. Examples of conditions that might result in a work stoppage include but are not limited to:
 - 1. Uncontrolled visible emissions which escape the established regulated area or breach physical protective barriers within the regulated area.
 - 2. Ambient airborne levels of lead outside the construction area at more than 15 µg/m³ of lead averaged over an eight-hour work period. Measurement of the ambient airborne lead levels may be made outside the immediate regulated area and at the nearest areas occupied by unprotected personnel or the public.
 - 3. Waste storage area left unsecured and/or improper containment of lead hazardous waste.
 - 4. Lead surface contamination outside the regulated area above clearance or pre-start background levels, whichever is higher as determined by wipe tests.

3.11 PROJECT CLOSEOUT

- A. Prior to approval of final payment request, the Contractor must provide the following information:
 - 1. Copies of all hazardous waste manifests, profile sheets and weight tickets for all hazardous wastes.
 - 2. Copies of all required environmental air monitoring results.
 - 3. Copies of all outstanding daily submittals not previously submitted to OWNER.

END OF SECTION

SECTION 09 91 00

TANK PREPARATION AND COATING

PART 1 GENERAL

1.01 SUMMARY

- A. The Work performed under this section includes removal, containment and disposal of existing internal and external tank coating systems and related debris; surface preparation and coating of the existing one million-gallon steel water storage tank interior and exterior metallic tank surfaces, including the new roof; furnishing all coating systems and related products, labor, equipment, materials, removal of residue, touch-up paint, protection of uncoated surfaces, worker safety, environmental and regulatory compliance, and performing all operations required for satisfactory completion of the Work specified herein.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and Payment for the items detailed in this section shall be on a lump sum basis under Bid Item #4, Prepare and Paint Interior and Spot Prep and Paint Exterior of Existing Tank. Payment shall include all equipment, labor, and materials to perform the work detailed in this section.

1.03 REFERENCES

- A. Reference Standards: Obtain and use the most current specified reference standards, coating manufacturer's product data sheets and application guides.
 - 1. 29 CFR, Code of Federal Regulations
 - a. Title 29 Occupational Safety and Health Administration (OSHA), U.S. Department of Labor
 - b. Title 40 Environmental Protection Agency
 - 2. National Sanitation Foundation (NSF)
 - 3. ANSI/NSF 61 - Drinking Water System Components - Health Effects
 - 4. American Society for Testing and Materials (ASTM)
 - 5. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products
 - 6. ASTM D 4417 Method B - Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
 - 7. ASTM D 3359 Method A - Measure Adhesion by Tape Test
- B. American Water Works Association (AWWA)
 - 1. AWWA C 652 - Disinfection of Water-Storage Facilities
 - 2. AWWA D 102 - Painting Steel Water Storage Tanks
- C. SSPC
 - 1. SSPC Painting Manual Volume 1 - Good Painting Practice
 - 2. SSPC Guide 6 - Containing Debris Generated During Paint Removal Operation
 - 3. SSPC-SP1 Solvent Cleaning

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

4. SSPC-SP2 Hand Tool Cleaning
 5. SSPC-SP3 Power Tool Cleaning
 6. SSPC-SP6 Commercial Blast Cleaning
 7. SSPC-SP10/NACE 2 Near-White Metal Blast Cleaning
 8. SSPC-VIS 1 - Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
 9. SSPC-PA 2 – Measurement of Dry Coatings Thickness with Magnetic Gages
 10. SSPC-PA3 A Guide to Safety in Paint Applications
- D. National Association of Corrosion Engineers (NACE)
1. NACE – SP0188 (Standard Practice Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates)
 2. NACE Publication 6D-173 A Manual for Painter Safety
- E. Only use the most current reference standards.

1.04 SUBMITTALS

- A. Shop Drawings
1. Contractor shall be responsible for providing particulate or dust control measures. Include list of materials, suppliers, and product data. Design will be reviewed for the containment and disposal of spent abrasive material. Include application techniques in the submittal.
- B. Product Data:
1. Submit manufacturer's data for abrasive blast material to be used including generic description, complete technical data, and instructions.
 2. Submit manufacturer's most current product data for each coating, including generic description, complete technical data, surface preparation, and application instructions. Include schedule of material and thickness of each coat.
 3. Material Safety Data Sheets (MSDS) for all applicable materials including coatings, thinners and abrasive materials.
 4. Certification that materials in contact with potable water have been approved according to NSF/ANSI 61/Standards.
- C. Certificates: Submit manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.
- D. Color Samples: Submit manufacturer's color samples showing full range of standard colors for selection by Owner.
- E. Applicator's Qualifications Statement: Submit list of a minimum of three (3) completed projects over the last 5 years of similar size and complexity to this Work. Include for each project:
1. Project name and location
 2. Name of owner with contact number
 3. Name of contractor with contact number
 4. Name of engineer with contact number
 5. Name of coating manufacturer with contact number

6. Approximate area (square footage) of coatings applied.
7. Date of completion.

F. Qualifications of Coating Contractor. Submit the following:

1. Copy of California Contractor's license.
2. Department of Industrial Relations registration number.
3. Written certification that each applicator performing Work on the projects is trained and qualified to perform the Work.
4. Written certification from the Contractor that they are qualified to apply the coating system specified.

G. Warranty: Submit manufacturer's and applicator's warranty statements for approval.

1.05 PERMITS, CERTIFICATES, LAWS AND ORDINANCES

- A. The Contractor shall, at their own expense, procure all permits, certificates, and licenses required of by law for the execution of the work. The Contractor shall comply with all Federal, State, Air Quality District, County, City or District laws, ordinances, or rules and regulations relating to the performance of the work.
- B. Without limiting the general aspects or other requirements of this specification, all surface preparation, coating and painting of surfaces shall conform to applicable standards and practices as set forth by the National Association of Corrosion Engineers (NACE), Steel Structures Painting Council (SSPC), American Water Works Association (AWWA), and coating manufacturer's printed instructions. If any requirements of this specification conflict with a referenced standard, the more stringent requirement shall apply.

1.06 QUALITY ASSURANCE

- A. Do not use or retain contaminated, outdated, or diluted materials for coating operations. Do not use materials from previously opened containers.
- B. Use only products of the approved Manufacturers. Use products of one manufacturer in any one resurfacing system with compatible materials. Provide same material product for touch up as for original material.
- C. Make available all locations and phases of the work for access by the Owner, Inspector, or other personnel designated by the Owner. The Contractor shall provide ventilation and egress to safely access the coating work areas for inspection.
- D. Conduct work so that the coating systems are installed as specified herein. Work will be continually available to the Inspector to ensure that the coating systems are installed as specified herein. The Inspector shall inspect the work to determine conformance with the specifications and referenced documents. Any nonconforming coating system work shall be corrected as specified herein or as recommended by the Manufacturer.
- E. The specified coating system products manufactured by PPG, Tnemec, Devoe and Carboline have been approved. Submissions of alternative coating systems / manufacturers shall be submitted with all documents to the Engineer in writing. The Contractor's bid shall accommodate the specified systems and submittal of an equal system does not guarantee its approval.
- F. Samples and Tests:
 1. New materials:
 - a. Owner reserves right to select unopened containers of materials on job and submit independent laboratory for testing.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- b. Costs for all tests shall be borne by Contractor.
- c. Retests of rejected materials shall be paid for by Contractor.
- d. Remainder of contents of container not required for testing will be returned to Contractor.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Purchase and deliver materials for preparation and painting of the tank at one time. Submit shipping invoices at time of delivery. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
 1. Coating or material name.
 2. Manufacturer.
 3. Color name and number.
 4. Batch or lot number.
 5. Date of manufacture. Materials older than one year from the date of manufacture shall not be allowed.
 6. Mixing and thinning instructions.
 7. Federal Specification Number if applicable.
 8. Application and mixing instructions.
 9. Hazardous material identification label.
 10. Shelf life date.
 11. Storage requirements. Submit storage and application temperature requirements for all coating system materials.
- B. Storage:
 1. Coatings shall be stored in original unopened containers in clean, dry, weather tight spaces where the temperature is maintained between 40 °F and 100 °F (4 °C and 38 °C) unless otherwise recommended in writing by the manufacturer. The coating temperature shall be brought to the coating manufacturer's most current written recommended application temperature before use.
 2. Store all materials only in area or areas designated by the Owner. Confine mixing, thinning, clean up, and associated operations, as well as storage of materials related debris before authorized disposal, to these areas. All materials are to be stored on pallets or similar storage handling skids off the ground.
 3. Guard against fire. Flammable materials shall be stored according to state and local codes. Provide fire extinguishers of the type recommended by the manufacturer for the coatings in the areas of storage and areas being painted.
 4. Deposit cleaning rags and waste material in metal containers having tight covers.
 5. Keep containers sealed until ready for use.
 6. Do not use materials beyond manufacturer's shelf life limits.
 7. All coating shall be delivered to the shop or job site in original, unopened containers with labels intact. Minor damage to containers is acceptable provided the container has not been punctured or the lid seal broken.
 8. Each container of coating shall be clearly marked or labeled to show coating identification, date of manufacture, batch number, and other information as

needed to meet regulatory requirements. Each type of coating shall be accompanied by the manufacturer's Material Safety Data Sheet (MSDS) and product data sheet containing information such as basic chemical composition, acceptable weather conditions for application, and proper storing and mixing.

9. All containers of coating shall remain unopened until required for use. No more containers of coating shall be opened than will be applied that day. The label information shall be legible and shall be checked at the time of use.
 10. Coating which has livered, gelled, or otherwise deteriorated during storage shall not be used; however, thixotropic materials which can be stirred to attain normal consistency may be used.
 11. The oldest coating of each kind that is in acceptable condition shall be used first. In every case, the coating is to be used before its shelf life has expired. Materials exceeding storage life recommended by the Manufacturer shall be removed from the site.
 12. Mix all lining materials in an enclosed mixing area designated by the Owner. This enclosed area must protect the mixing operation and materials from direct sunlight, inclement weather, freezing, or other means of damage or contamination. Protect all other concrete and metallic surfaces and finishes from any spillage of material(s) within the mixing area. The material temperature should be between 70° F and 90° F before application, unless noted otherwise on the manufacturer's product data sheet.
 13. Do not use floor drains, dikes or storm drains for disposal of coating system materials. Contractor shall be responsible for the safe removal and lawful disposal of all waste materials.
 14. The Contractor shall take all precautions and implement all measures necessary to avert potential hazards associated with the resurfacing system materials as described on the pertinent Material Safety Data Sheets or container labels.
- C. Handling: Protect materials during handling and application to prevent damage or contamination.

1.08 SAFETY

- A. The Contractor is responsible for providing a safe working environment for anyone entering the area at all times.
- B. The Contractor shall provide and require use of personal protective life saving equipment for persons working in or about project site in accordance with requirements set forth in the latest revisions of OSHA Regulations for Construction, AWWA, Section 7, or other regulatory agencies applicable to the construction industry. The manufacturer's printed instructions, appropriate technical bulletins and manuals, including SSPC-Paint Application Guide No. 3, shall apply.
- C. No work shall be performed until the Contractor's appropriate Work Requests and Lockout Systems have been coordinated with the Owner and are in place. The Work Request system provides a mechanism to advise plant staff of a Contractor's work activities. The Lockout system is a safety procedure to prevent unintended equipment activation.
- D. Keep any flammable materials such as cleaning solvents, thinners, or resurfacing materials away from open flames, sparks or temperatures higher than 150° F. Drums containing flammable materials shall be grounded. Flammable materials not being used shall be maintained in their onsite storage area.
- E. Power tools are to be in good working order to avoid open sparking. No spark producing tools shall be used in restricted areas as indicated herein.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- F. The Contractor shall maintain a clean work area and have Underwriter's Laboratories approved fire extinguishers on-hand. The Contractor shall furnish these fire extinguishers.
- G. Workers performing abrasive blasting operations shall wear a fresh air supplied protective helmet and hood and personal protective clothing acceptable to industry standards and all government regulations. Workers engaged in or near work during abrasive blasting shall wear eye and face protection devices and air purifying respirators with appropriate filters. Barrier creams shall be used on any exposed skin.
- H. Workers performing coating operations shall wear the appropriate personal protective equipment, clothing, and NIOSH approved respirator acceptable to industry standards and all government regulations. When paints or coatings are applied in confined areas, all persons exposed to toxic vapors or atomized coatings shall wear air-supplied masks. Equipment shall also include protective helmets that shall be worn by all persons while in the vicinity of the work area.
- I. Dispose of rags used for wiping up resurfacing materials, solvents, and thinners by drenching them with water and placing in a metal container with a tight fitting metal cover. Complete this disposal process at the end of each day. Final disposal of these materials is the Contractor's responsibility.
- J. Matches, flames, or sparks resulting from any source including welding, must be removed from the work area during coating work. Smoking is NOT permitted in any areas where flammable materials are present.
- K. Sound Levels: Whenever occupational noise exposure exceeds maximum allowable sound levels, Contractor shall provide and require the use of approved ear protection devices.
- L. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected.
- M. Temporary Ladders and Scaffolding: All temporary ladders and scaffolding shall conform to applicable safety standards. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.
- N. Grounding: Blasting and painting hoses shall be grounded to prevent accumulation of a charge of static electricity.
- O. Fire Hazard: Flammable, volatile solvents in paint and coating constitute a major hazard with regard to fire and explosions wherever flame or spark exposure is possible. All flames, smoking, and welding, etc., are strictly prohibited. Fire abatement devices shall be readily available and in operating condition. All paints and coatings shall be stored in conformance with applicable State, County and/or Local Fire Codes pertaining to flammable materials.
- P. The Contractor shall take necessary precautions to keep fire hazard to a minimum, removing from the area daily all oily rags, waste, and other combustibles not in covered containers.

1.09 PROJECT CONDITIONS

- A. The Contractor shall at all times conduct the work so as to assure the least possible inconvenience to the general public and adequate protection of persons and property in the work vicinity. Attention shall be paid to prevailing winds to reduce drifting of abrasive blast residue, dust, and paint or coating overspray. At no time should drifting materials

exceed any governmental agency's laws, codes, or guidelines. Public noise exposure shall be limited to hours of operation specified and delineated by the Owner.

B. Weather:

1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range according to manufacturer's published instructions.
2. Surface Temperature: Minimum of 5°F (3°C) above dew point and rising.
3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range according to manufacturer's instructions. The use of dehumidification equipment and procedures may be required depending on the time of year the work is being accomplished and the coating manufacturer relative humidity requirements for their particular coating system. The Contractor must be aware of these conditions and requirements and arrange to comply with these measures. Dehumidification equipment shall be used for the duration of the interior blasting, coating, and curing process.
4. Precipitation: Do not prepare surfaces or apply coatings in rain, snow, fog, or mist.
5. Wind: Do not spray exterior coatings if wind velocity is above manufacturer's limit.

C. Ventilation:

1. Provide ventilation during coating evaporation stage in confined or enclosed areas according to AWWA D 102.
2. Ventilation must be maintained as directed by the Coating Manufacturer following the completion of application to facilitate cure of the materials.
3. Ventilation: All solvent vapors shall be completely removed by suction type, explosion-proof exhaust fans and blowers, as described in AWWA Section 7- Safety precautions. Air shall not be forced from the outside into the enclosure. Care should be taken to remove toxic vapors and atomized particles with special attention given to the lowest and coolest areas.
4. Ventilation systems shall remain in service during coating application and for a minimum of seven days after completion of final coating application or coating repair, or until coating has fully cured, whichever is longer. Fuel or electricity costs, general maintenance and operations, shall be the responsibility of the Contractor unless specified otherwise. Dehumidification equipment shall run seven (7) days minimum for curing. Data recorders shall be used to track the interior climatic conditions, including surface temperatures. The instruments shall be provided by the Contractor.

D. Dust and Contaminants:

1. Schedule coating work to avoid excessive dust and airborne contaminants.
2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.
3. All substrates to be coated must be clean, dry, and sound before the application of any coatings.

1.10 WARRANTY

- A. Manufacturer Warranty:** Coating manufacturer shall provide a 2-year-minimum material warranty for interior and exterior coating systems.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- B. Applicator Warranty: Coating applicator shall provide a 2-year-minimum application and labor warranty for interior and exterior coating systems.
- C. Warranty/Maintenance Inspections: Interior and Exterior Coating Systems.
 - 1. First inspection will take place twelve (12) months after satisfactory completion and acceptance of application of coatings.
 - 2. The Contractor shall coordinate and facilitate first year anniversary inspection of the interior and exterior of the tank coating.
 - 3. Provide suitable interior lighting and ventilation for the tank inspection.
 - 4. Repair any coating failures due to faulty workmanship or material.
 - 5. Provide the Engineer's approval of proposed methods to repair coating system.
- D. Inspection shall be attended by Owner or Owners Representative, Applicator, Engineer, and manufacturer's representative.
- E. Within the 2 year warranty period, Applicator shall repair all deficiencies in coating systems as determined by the Engineer according to Manufacturer's instructions.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. PPG, Tnemec, Devoe and Carboline have been approved.
- B. Approved Equals: Submit system proposed as "Equal" for review and approval or revision as required by the Engineer. If other manufacturers are proposed and accepted, manufacturer's requirements shall be followed, but in no case may thickness or coverage be less.

2.02 COATING SYSTEMS FOR STEEL – EPOXY SYSTEM

- A. Interior
 - 1. Interior Primer: Generic Classification: Polyamidoamine Epoxy or Cycloaliphatic Amine Epoxy, applied to a DFT of 4 to 5 mils in one coat (NSF-approved zinc prime coat).
 - 2. Interior Intermediate: Generic Classification: Polyamidoamine Epoxy or Cycloaliphatic Amine Epoxy, applied to a DFT of 4 to 6 mils in one coat.
 - 3. Interior Finish: Generic Classification: Polyamidoamine Epoxy or Cycloaliphatic Amine Epoxy, applied to a DFT of 4 to 6 mils in one coat.
 - A. Notes: Use contrasting colors to differentiate coats. Interior coating systems shall be approved for use on potable water projects by National Sanitation Foundation (NSF).
- B. Exterior
 - 1. Exterior Primer: Generic Classification: Zinc-Rich, Aromatic Urethane, applied to a DFT of 2.5 to 5 mils in one coat
 - 2. Exterior Intermediate: Generic Classification: Polyamidoamine Epoxy or Cycloaliphatic Amine Epoxy applied to a DFT of 4.0 to 6.0 mils in one coat.
 - 3. Exterior Finish: Generic Classification: Aliphatic Acrylic Polyurethane, applied to a DFT of 2.0 to 3.0 mils in one coat
 - a. Notes: Use contrasting colors to differentiate coats
- C. Coating Application Accessories:
 - 1. Accessories required for application of specified coatings according to manufacturer's instructions, including thinners.

- D. Colors
 - 1. Interior finish coat shall be white or off-white as available from selected manufacturer.
 - 2. Exterior colors will be selected by Owner. The Contractor shall submit manufacturer's color samples showing full range of standard colors for selection by Owner.
 - 3. Each coat shall be slightly lighter than preceding coat. Example, Red, Beige, White. Colors to be approved by Owner.

2.03 ABRASIVES

- A. The type and size of abrasive shall be selected to produce a surface profile that meets the coating manufacturer's recommendations. All abrasives shall be new, clean, and delivered to the project in unopened, weather resistant containers. Abrasive materials shall not be recycled for further use on this project unless approved by the Inspector.
- B. All abrasives shall meet the requirements of the North Coast Unified Air Quality Management District. At no time will abrasives containing more than 1% free silica be allowed on the job site.
- C. All abrasives shall be disposed of in accordance with all federal, state, and local laws at no cost to the Owner.
- D. Abrasive material used for areas other than tank interiors shall be Kleen-Blast, or approved equal. Abrasive shall produce a profile as recommended by the paint manufacturer.
- E. The abrasive to be used shall be sharp, angular, properly graded and brought to the job site in moisture-proof bags or airtight bulk containers, and shall be capable of producing the depth of profile specified by the paint manufacturer. Copper slag abrasives are not suitable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. The Owner or the Owner's representative shall examine areas and conditions under which coating systems are to be applied. Notify Engineer of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.

3.02 PREPARATION

- A. Protection of Surfaces Not Scheduled to be Coated
 - 1. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
 - 2. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.
- B. Surface Preparation of Steel
 - 1. Prepare steel surfaces according to manufacturer's instructions.
 - 2. Prepared areas should be blown down with clean compressed air and vacuumed to remove any remaining abrasive residue.
- C. Fabrication Defects:

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

1. Correct steel and fabrication defects revealed by surface preparation. (If steel substrate conditions are questionable obtain direction and clarification in writing from the Engineer before continuing)
2. Remove all weld spatter and slag.
3. Round all sharp edges and corners of welds to a smooth contour
4. Smooth all weld undercuts, recesses or reverse ridges
5. Grind all down porous welds to pinhole-free metal.
6. Remove all weld flux from surface.
7. Ensure surfaces are dry, sound and free of foreign matter before proceeding with coating.
8. Remove visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter according to SSPC-SP10/NACE 2 AND SSPC-SP6/NACE 3
9. Abrasive Blast-Cleaned Surfaces: Coat abrasive blast-cleaned surfaces with primer before visible rust forms on surface. These areas should be completely clean, free of all residues contaminates etc, inspected by the Inspector and immediately coated following the inspection.

3.03 SURFACE PREPARATION - INTERIOR OF TANK

- A. Comply with all confined space requirements.
- B. Owner shall perform draining and initial removal of debris and sediment from the bottom of the tank. Contractor shall remove any residual debris and sediment from bottom of tank. Provide restrained temporary cover plate and seal over pipe to water main to prevent contamination of water system.
- C. Blast Cleaning:
 1. Abrasive blast tank surfaces without damage to structure to expose surface condition of existing steel. Abrasive blasting may be done in sections.
 2. Surface preparation shall conform to:
 - a. Interior Surfaces: SSPC SP10 - Near White Blast with a minimum angular anchor profile of 1.5 mils.
 3. Entry points to be covered during cleaning to contain all blasting material.
- D. Examination:
 1. Notify Engineer after abrasive blasting and cleaning each section of tank.
 2. Inspector will inspect existing conditions to determine extent of repairs and weld deposits required. If required, Owner will develop details for needed restoration.
 3. After repairs are complete in each section, Inspector will inspect section to determine if additional blasting is required.
- E. If surfaces to be painted cannot be put into proper condition for finishing by blasting procedure specified, report to Engineer, in writing, or assume total responsibility and correct unsatisfactory finish which results. Proceeding with work past preparation of surface shall indicate acceptance of improper surfaces.
- F. Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.
- G. Prepare welds and adjacent areas so there is:

1. No undercutting or reverse ridges on weld bead.
 2. No weld spatter on or adjacent to weld or other areas.
 3. No sharp peaks or ridge along weld bead.
- H. Perform pit welding repair as necessary per AWWA D101-53.
- I. Perform patching and spot repairs by welding repair plates over weak points and areas for potential leaks.
- J. Cleaning:
1. Surfaces shall be clean, dry, and free of foreign matter before painting.
 2. Remove sand from metal surfaces prior to coating by means of brush or industrial vacuum. Surfaces not prime coated same day as sandblasted shall be reblasted prior to coating.
 3. The surface cleanness and profile will be measured and recorded according to ASTM D4417 Method B.

3.04 SURFACE PREPARATION - EXTERIOR OF TANK

- A. Previously coated tank exterior and other miscellaneous metals.
1. Spot clean all rusted / damaged bare metal areas per SSPC-SP2 Hand Tool and/or SSPC- SP3 Power Tool Cleaning
 2. Where coatings are removed, all surrounding areas of the tightly adhering remaining coating shall be feather edged minimum 1" in. to provide a tightly adhering, sound and smooth transition from the exposed bare metal area to the remaining tightly adhering coating.
- B. Round or chamfer sharp edges and grind smooth burns, jagged edges, and surface defects.
- C. Prepare welds and adjacent areas so there is:
1. No undercutting or reverse ridges on weld bead.
 2. Remove all weld spatter on or adjacent to any other area. This includes all previous non-removed weld spatter.
 3. No sharp ridges or peaks along weld bead.
- D. Surfaces shall be sound, dry, and free of foreign matter. Nothing can remain on the surface to be coated that could interfere with the penetration and adhesion of any of the applied coatings which could result in a premature coatings problem.
- E. Sand out scratches and dings per SSPC SP2 and/or SP3
- F. Spot prime by brush or roller any deficient or bare areas. Make flush and feathered with existing coating.

3.05 CONTAINMENT OF MATERIALS

- A. Provide temporary wind shield to contain spent abrasive and paint to area immediately beneath structure.

3.06 APPLICATION

- A. Apply materials by workers experienced in use of product involved.
- B. Apply materials under adequate illumination, spread evenly, and flow on smoothly without runs or sags. Use SSPC Guide 12 Guide for Illumination of Industrial Projects.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- C. Cure under conditions eliminating possibility of dust becoming impregnated into finish.
- D. Use good painting practices according to SSPC Painting Manual Volume 1 Fourth Edition (Good Painting Practice).
- E. Before the application of any coating, ensure that the surface to be coated is dry, sound and free from any detrimental contamination that will prevent satisfactory penetration and/or adhesion of any of the applied coatings. Thus affecting the longer term protection and performance of the applied coating system
- F. Apply coatings according to manufacturer's most current written instructions.
- G. Mix and thin coatings, including multi-component materials, according to manufacturer's most current instructions.
- H. Keep containers closed when not in use to avoid contamination.
- I. Do not use mixed coatings beyond pot life limits.
- J. Use application equipment, tools, pressure settings, and techniques according to manufacturer's most current instructions.
- K. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- L. All coatings shall be applied in a monolithic uniform manner that is free of any conditions which can adversely affect the overall performance or appearance of the coating system. These conditions include but are not limited to the following: discontinuities, runs, sags, drips, paint splatter, and imbedded foreign materials.
- M. Stripe coat each application with a brush in critical locations on all steel such as welds, corners, bolts, and edges. One stripe coat shall be applied between the first and second coat. Two stripe coats will apply too thick and risks solvent entrapment.
- N. Coating will be inspected for aesthetics as well as for performance.
- O. Noise dampening procedures such as hay bales should be employed around equipment such as sand pots and compressors. 110 dB shall be the maximum allowed sound level at a distance of 20 feet from equipment.
- P. Comply with all ambient conditions requirements established by manufacturer's most current printed documents.
- Q. The entire tank interior shall be holiday tested according to NACE – SP0188 (Standard Practice Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates)

3.07 REPAIR

- A. Damaged Materials: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: Touch up or repair damaged coatings. Touch up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Re-coat the entire surface where the touch up result is visibly different, either in sheen, texture, or color.
- C. Coating Defects: Repair coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems per manufacturer's instructions.

3.08 FIELD QUALITY CONTROL

- A. Contractors QA/QC Responsibilities: Contractor will provide full-time, continuous, field quality control of Work. This includes, but is not limited to:
 - 1. Maintain permanent written records of daily Work activities.
 - 2. Verify and record that the coatings and other materials are as specified (i.e., manufacturer, product name & product batch dates).
 - 3. Verify and record condition of coatings and material along with their storage procedures
 - 4. Verify and record surface preparation and application of coatings are as specified.
 - 5. Verify and record environmental conditions one half hour before work starting, then every 4 hours afterwards and once upon completion of work that day. Environmental readings shall be immediately taken should a sudden change in the climate be observed. Record results using sample forms or similar approved forms. The use of data loggers that capture temperature, humidity, dew point, and surface temperature, such as the Onsat HOBO portable data logger, or equal, shall be required. A minimum of three data loggers shall be used inside the tank. The Inspector shall upload data on a daily basis for recordkeeping. Data loggers shall be supplied by the Contractor.
 - 6. Verify and record WFT and DFT of each coat of the coating system are as specified using new wet film gauges and certified dry film thickness gauges. DFT readings shall be done according to SSPC-PA 2.
 - 7. All testing will be performed with Owner or Owner's Representative present.
- B. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.
- C. If coverage does not meet thickness specified, Owner reserves the right to require extra application to no extra cost to the Owner prior to the application of the succeeding coat.

3.09 CLEANING

- A. Remove temporary coverings and protection of surrounding areas and surfaces.
- B. Allow time according to manufacturer's instructions and as directed by Engineer for full cure of coating systems on water contact surfaces before flushing, disinfecting, or filling with water.
- C. Contractor shall then clean and disinfect the interior of the tank according to AWWA C652 (see Section 33 13 13 – Water Reservoir Disinfection).

3.10 TESTING

- A. When disinfection and flushing are complete, the Contractor shall arrange for odor, chemical and bacteriological testing as described in AWWA C652. If any of these tests fail, the Contractor shall take action to correct the problem and retest. This process shall be repeated at the Contractor's sole expense until acceptable test results are achieved. The Contractor shall pay for the water that is drained if the taste and odor testing fails.
- B. Testing Firm: Company specializing in testing potable water systems, certified by the State of California.
 - 1. Submit bacteriologist's signature and authority associated with testing.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

3.11 PROTECTION OF COATING SYSTEMS

- A. Protect surfaces of coating systems from damage from any possible surrounding activity.

END OF SECTION

SECTION 33 13 13

WATER RESERVOIR DISINFECTION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Water reservoir disinfection
 - 2. Bacteriological testing

1.02 REFERENCES

- A. American Water Works Association:
 - 1. AWWA C652 - Disinfection of Water Storage Facilities.

1.03 SUBMITTALS

- A. Make all submittals in accordance with Section 01 33 00 - Submittal Procedures
- B. Disinfection Procedure: Submit procedure description including type of disinfectant and calculations indicating quantities of disinfectants required to produce specified chlorine concentration in accordance with Section 4.3 of AWWA C652.
- C. Test Reports: Indicate results of bacteriological and residual chlorine laboratory test reports.
- D. Manufacturer's Certificate:
 - 1. Certify disinfectants meet or exceed AWWA Standards requirements.

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with AWWA C652.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store disinfectants in cool, dry place away from combustibles such as wood, rags, oils and grease.
- B. Handle disinfectants with caution; protect skin and eyes from contact; avoid breathing vapors; wear gloves, aprons, goggles, and vapor masks.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. Furnish personnel working inside reservoir during disinfection with equipment to comply with Federal and State regulations for work conducted in hazardous atmosphere.
- B. Neutralize disinfectant solution before disposal.
- C. Legally dispose of disinfection solution off Project site.
 - 1. If a chlorination method is selected that requires the reservoir to be drained in order to dispose of highly chlorinated water, thorough consideration should be given to the effect on the receiving environment. If there is any question as to whether a chlorinated-waste discharge may cause damage to fish life, plant life, physical installations, or other downstream water uses of any type, an adequate amount of reducing agent should be applied to the discharged water in order to thoroughly neutralize the chlorine residual.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- D. Repair damage caused by disinfectant solution and disinfection procedures.

PART 2 PRODUCTS

2.01 DISINFECTANTS

- A. Chlorine Forms: In accordance with AWWA C652, Section 4.2.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Conduct inspection of reservoir interior before beginning disinfection.
 - 1. Verify reservoir is clean and free of polluting materials.
 - 2. Verify reservoir pipe and vent connections are properly made and clear of obstructions.

3.02 APPLICATION

- A. Disinfection of the reservoir shall take place after all other items of work relating to the tank have been completed, inspected, and declared sufficient by the NACE certified inspector, the Engineer, and the Owner.
- B. Use any one or a combination of the three methods for disinfecting reservoir, including the roof, specified in Section 4 of AWWA C652:
 - 1. Chlorination Method 1.
 - 2. Chlorination Method 2.
 - 3. Chlorination Method 3.
- C. Contractor responsible for proper disposal of disinfection water.
- D. Contractor responsible for protection of aquatic life and vegetation from damage from disinfectant solution purged from reservoir.

3.03 FIELD QUALITY CONTROL

- A. Conduct bacteriological sampling and testing in accordance with AWWA C652.

END OF SECTION

SECTION 33 16 13

STEEL TANK ROOF

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish all materials, equipment, tools, labor, and supervision required for the replacement of the roof on the District's 1-million-gallon domestic water tank as shown on the Drawings and as described in these Specifications.
- B. Related work specified elsewhere:
 - 1. Tank Preparation and Coating Section 09 91 00
 - 2. Water Reservoir Disinfection Section 33 13 13

1.02 MEASUREMENT AND PAYMENT

- A. The work included in this section shall be measured and paid for on a lump sum basis under Bid Item 3 –Provide, Install and Paint New Tank Roof. Payment shall include all equipment, labor and materials required to perform the work detailed in this section.

1.03 QUALITY ASSURANCES

- A. Qualifications of Fabricators:
 - 1. The materials shall be furnished by one supplier who is regularly engaged in the manufacture of steel water storage tanks and has experienced, factory-qualified representatives that will be on site to supervise the field assembly.
 - a. Fabricator shall be registered and approved to perform work without special inspection for work performed at the shop. At completion of fabrication, the fabricator shall submit a certificate of compliance to the Owner stating that the work was performed in accordance with the approved construction documents per CBC Section 1704.2.5.2.
 - 2. All materials shall be new and of current manufacture and shall be guaranteed against defects in workmanship.
- B. Qualification of Installers:
 - 1. For the erection and testing of the work in this Section, use only thoroughly trained and experienced personnel who are completely familiar with the requirements for this work and with the installation recommendations of the manufacturer and these Specifications.
 - 2. All welders shall be certified for the particular type of welding required prior to starting welding on the site, including equipment to be used, positions, procedures, base metals and electrodes or base filler wires from the same specifications, classifications, or group number that will be used.
 - 3. Welding certification testing shall be performed by an approved testing laboratory. Costs of such testing shall be borne by the Contractor. The Contractor shall maintain current records of all welding certifications. A copy of each welding certification shall be submitted to the Engineer for approval a minimum of 48 hours in advance of performing any welding.
 - 4. Qualifications of welding procedures, welders and welding operators shall comply with Section 8 of AWWA D100-11.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

- C. Inspection and Testing of Welds
 - 1. All inspection and testing of welds shall be completed before application of protective coatings.
 - 2. On joints where radiography is required, the welding of each worker shall be radiographed on the worker's first joint, before work begins on subsequent joints.
 - 3. The Engineer shall be furnished certified copies of all radiography reports. Welds shall be radiographed using the procedures described in Section 11.6 of AWWA D100-11.
- D. Disinfection
 - 1. Disinfection procedures shall be conducted in accordance with Section 33 13 13 – Water Reservoir Disinfection. The District will furnish enough water for one (1) filling of the tank for disinfection. The Contractor shall continuously monitor the filling operation to control the rate and level to avoid overflow.

1.04 SUBMITTALS

- A. General:
 - 1. Make all submittals and resubmittals in strict accordance with the provisions of Section 01 33 00.
 - 2. Make all submittals listed in Part 1.04B, and any others required to fully describe what is to be furnished and/or installed under this Section.
- B. Required Submittals:
 - 1. Shop drawings: Within 60 days after award of contract and before any of the materials are delivered to the job site, submit complete Shop Drawings for the tank roof and appurtenances. Owner reserves the right to review and comment and require changes to the roof design to facilitate future maintenance.
 - 2. Structural calculations: Submit structural calculations of the roof and anchorage stamped and signed by a structural or professional engineer currently registered in the State of California.
 - 3. Detailed drawings and structural analyses shall include:
 - a. Plate thickness and width
 - b. Number and size of structural members
 - c. Construction and erection details of structural members and all other accessories and related work
 - d. Structural details of connection points between new roof and existing tank members
 - e. All other pertinent data concerning the construction of the roof
 - 4. Materials list: Submit a complete list of all materials and equipment proposed to be furnished and installed under this portion of the work.
 - 5. Manufacturer's recommendations: Submit two copies of the manufacturer's current recommended method of installation for the work in this section.
 - 6. At the conclusion of the roof fabrication and installation work, the Contractor shall submit a written report containing the information outlined in AWWA D100-11, Section 11.2 – Inspection Report.

PART 2 PRODUCTS

2.01 DESIGN CRITERIA

A. General:

1. The steel roof shall meet the requirements of AWWA Specifications D100-11, including Section 13 for seismic design, and the 2013 California Building Code, and these shall be made a part of this Specification. Roof design calculations shall consider seismic sloshing wave
2. Design shall provide for easy painting of structural and appurtenant members after erection. Where design for ease of painting after erection is not feasible, steel shall be shop sand blasted and shall receive shop applied primer, intermediate, and finish coatings in accordance with Section 09 91 00 – Tank Preparation and Coating.

B. Roof Criteria:

1. The tank dimensions and capacity (in million U.S. gallons) are as follows: 70 feet inside diameter, flat bottom, 1.0 million gallons nominal capacity.
2. Provide a 3/16-inch thick roof, minimum, with a slope of 1 inch in 12 inches.
3. The roof shall be cone type with a 3-foot radius knuckle between the roof and shell.
4. The details shall be designed to eliminate unwelded joints that will promote corrosion, pockets that will accumulate rain water, and attachments to the shell which result in excessive localized stresses due to welding or imposed loads. The roof rafters shall be fully seal welded to the roof plates or one-piece rafter and roof panel break shapes. Internal roof plate lap joints shall be fully seal welded.
5. All welds joining roof plates shall have complete joint penetration and fusion, and shall be double-welded from both sides. The use of low hydrogen electrodes is mandatory for the manual welding of plates.

C. Structural Design Criteria:

1. Roof Live Load: 20 psf (no reduction allowed)
2. Wind Velocity: 115 miles per hour
3. Snow Load: none
4. Lowest One-day Mean Temperature: 32°F

D. Seismic Design Criteria:

1. Site Coordinates: 40.907321, -124.064376
2. Site Class: D
3. Risk Category: IV (essential facilities)
4. Response Modification Coefficient, R: 3 (anchored tank)
5. Overstrength Factor, Ω_0 : 2
6. Spectral Response Acceleration, S_{DS} : 1.91g
7. Spectral Response Acceleration, S_{D1} : 1.14g
8. Simultaneous combination of horizontal and vertical loads: Yes
9. Minimum Freeboard: 3.0 feet

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

10. Roof Live Load (for Earthquake Design): 20 psf
 11. Seismic Design: Per AWWA D100-11, Section 13
- E. Accessories: All accessories shall be in accordance with AWWA D100-11, Cal OSHA, and the Division of Industrial Safety, and as shown on the Drawings or described below:
1. General
 - a. Accessories shall have surface preparation and be coated in accordance with Section 09 91 00 – Tank Painting.
 2. Ladders:
 - a. For the exterior, Contractor shall furnish and install a steel ladder as shown in the Drawings, with cages around the ladders, along with roof-top landing platforms.
 - b. All interior ladders and connections shall be Type 316 stainless steel with stainless steel cages around the ladders, and a stainless steel mid-level diving platform.
 - c. The ladders shall begin at the tank bottom and extend along the height of the tank to the roof top. Ladder rungs shall be one-inch diameter SLIPNOT skid resistant steel or stainless steel, or approved equal. The ladder cage shall have a hinged access guard door with protected padlock on the exterior of the tank as shown on the Contract Drawings.
 - d. Cages shall not extend less than 27 nor more than 28 inches from the centerline of the rungs of the ladder. Cage shall not be less than 27 inches in width. Vertical bars shall be located at a maximum spacing of 40 degrees around the circumference of the cage; this will give a maximum spacing of approximately 9.5 inches, center to center.
 - e. All exterior ladders shall be equipped with fall prevention device as specified for interior ladders except that exterior ladder and device may be galvanized steel. The minimum ladder design loading shall be 100 psf and 300 pounds concentrated load.
 3. Roof Hatch:
 - a. Contractor shall furnish and install weather-tight roof hatches as shown on the Contract Drawings.
 - b. The cover shall have automatic hold-open lockable arm, with compression spring operator for easy opening and closing, with inside and outside handles and locking hasp on the top side, and ladder rungs on inside face for use as access to the interior tank ladder.
 - c. The hatch shall be hot dip galvanized after fabrication.
 - d. Rubber gasket sealant shall be installed on roof hatches. The seal material should be safe to use in drinking water tanks and must be NSF 61 approved.
 - e. Roof hatches shall be manufactured by the Bilco Company, New Haven Connecticut, model E-20 Roof Hatch or approved equal.
 - f. Roof hatches shall be welded to tank and completely sealed against any water penetration.
 4. Vents:
 - a. Mushroom type vents shall be constructed and installed as shown on the Drawings and fitted with replaceable 2 x 2 (2 openings per linear inch)

stainless steel backer mesh and #3 stainless steel insect mesh. The vent assembly shall be hot dip galvanized after fabrication.

- b. Type 316 stainless steel nuts and bolts shall be used to install roof vents and screens.
5. Tie-off points:
- a. Contractor shall install OSHA compliant tie-off points on the tank roof as shown in the Contract Drawings. Shop drawings and structural calculations are required for the tie-off points and shall be part of the shop drawing submittals per requirements of Section 1.04 of this document.
6. Manways
- a. Manways shall be 30-inch diameter clear opening and shall be located as shown on the Contract Drawings.
 - b. Manway shall be inward opening with davit arm and include a cover plate and easy lock system.
 - c. Manway shall be installed and furnished per OSHA standards for drinking water storage tanks.
 - d. Nuts and bolts shall be Type 316 stainless steel.
 - e. Provide and install gasket suitable for potable water service.
7. Roof Platform
- a. A roof platform shall be provided extending from the external ladder past the hinged roof hatch as shown on the Drawings. The platform shall be constructed from structural steel shapes with a steel grate deck, and shall be hot dipped galvanized after fabrication. The minimum platform loading shall be 100 psf.
8. Handrail
- a. Handrail shall be installed on tank roof as shown on Contract Drawings. Handrail assembly shall meet all OSHA, Federal and State regulations. Handrail shall be coated per Section 09910, Tank Painting.
9. Cathodic Protection
- a. Hand holes and appurtenances for cathodic protection system anodes shall be cut into the roof as shown on the Drawings.
 - b. Cathodic protection anodes shall be removed by the Owner prior to the start of the project, and replaced by the Owner upon project completion.
 - c. Hand holes shall be sealed with Divecorr grommets and covers.

2.02 DIELECTRIC BARRIERS:

- A. There shall be a dielectric barrier wherever stainless steel and carbon steel are in contact.
- B. No welding of stainless steel to carbon steel will be permitted below the water level.

Humboldt Bay Municipal Water District

1-MG Domestic Reservoir Roof Replacement and Painting

PART 3 EXECUTION

3.01 INSTALLATION:

- A. Inspection and Testing shall conform to Section 11 or Section 14 of AWWA D100-11. Testing equipment and cost thereof shall be furnished by the Contractor.
 - 1. Roof:
 - a. Welds in the tank shall be tested by the Contractor by means of spot radiographic inspection where required by AWWA D100-11 and as directed by the Engineer or Inspector.
 - b. All radiographs shall be performed by an independent testing laboratory approved by the Engineer. The radiographs shall become the property of the Owner, and the Engineer shall have the right to review all information obtained.
 - c. The first 10 feet of each welder's work shall be checked, and then up to 5 percent of all the welding shall be radiographed as directed by the Engineer or Inspector.
 - d. The Contractor shall provide logs of each welder's work through the project.

3.02 PAINTING:

- A. Painting and exterior color shall be in accordance with Section 09 91 00 – Tank Painting.

END OF SECTION

PART 5
HAZARDOUS MATERIALS ASSESSMENT
SURVEY REPORT



Humboldt Bay Municipal Water District

1MG Reservoir Roof Replacement Project Hazardous Materials Assessment Survey Report

Revision 0

September 12, 2016

Executive Summary

On August 19, 2016, GHD Inc. (GHD) coordinated a limited hazardous material survey at the Humboldt Bay Municipal Water District (HBMWD) one million gallon domestic reservoir water tank (1MG Reservoir) located at the Turbidity Reduction Facility (TRF) site in Arcata, California. The survey was conducted in association with the 1MG Reservoir Roof Replacement Project (project) by GHD, on behalf of HBMWD.

The hazardous material survey included evaluation and collection of samples solely from the specific areas of the project site to be impacted by demolition and/or renovation work as defined by HBMWD. The project site survey included two components: a limited asbestos sampling survey and a limited metals sampling survey. The limited metals survey included analysis of sampled paints for cadmium, chromium and lead.

A plan-view schematic depicting the project site, Figure 1 – Project Site Sample Location Map (Figure 1), is located in Appendix A. Figure 1 denotes the extent of the project site sampling area and depicts the approximate location of bulk samples collected for this survey. Photographs of the project site generally depicting the hazardous materials identified during this survey are located in Appendix B.

Samples collected from the project site were not reported to contain asbestos. As described in Table 2 Asbestos Laboratory Data Summary located in Section 5, no homogeneous building materials sampled for this survey were reported by the analyzing laboratory to contain asbestos fibers via polarized light microscopy (PLM) analysis methodology.

Surface coatings generally representative of paint present at the project site were collected to evaluate specific painted project site features for the presence of cadmium, chromium and lead. As summarized in Table 3 Metals Laboratory Data Summary located in Section 6, various sampled surface coatings were reported to contain lead and/or chromium. Surface coatings at the project site should be understood to be subject to applicable governmental regulations concerning lead, including those summarized in Section 7 of this report.

The asbestos and lead laboratory analytical reports and associated chain of custody documentation produced in association with this sampling survey are appended to this report. Asbestos laboratory analytical data is located in Appendix C. Metals laboratory analytical data is located in Appendix D.

Certifications of key project personnel are included with this report in Appendix E. This report is subject to, and must be read in conjunction with the limitations and the assumptions and qualifications contained throughout the report.

Table of contents

Executive Summary	i
1. Introduction.....	1
1.1 Client.....	1
1.2 Project Details	1
1.3 Project Site Address	1
1.4 Air Quality Management District Jurisdiction	1
2. Purpose of this Report	2
2.1 Assumptions	3
3. Project Description	4
3.1 Project Site Description.....	4
3.2 Survey Description.....	4
4. Survey Methodology	5
5. Findings for Asbestos.....	6
6. Findings for Cadmium, Chromium and Lead	9
6.1 Surface Coatings Containing Lead	9
6.2 Surface Coatings Containing Chromium	10
7. Regulatory Overview for Lead & Chromium	12
7.1 Code of Federal Regulations (CFR)	12
7.2 California Code of Regulations (CCR).....	12
7.3 Competent Person Designation	12
7.4 Personal Air Monitoring.....	12
7.5 Personnel Training.....	14
7.6 Medical Surveillance Compliance	15
7.7 Lead Based Paint.....	16
7.8 Trigger Tasks and Lead Impaction Activities	16
7.9 Requirements for Lead and Chromium Impaction.....	17
8. Conclusion.....	17

Tables

Table 1 Asbestos Regulatory Notifications	2
Table 2 Asbestos Laboratory Data Summary	7
Table 3 Metals Laboratory Data Summary	11
Table 4 Cal/OSHA Airborne Exposure Limits for Lead and Chromium	13

Figures

Figure 1 Project Site Sample Location Map – 1 MG Reservoir Roof..... Appendix A

Appendices

Appendix A – Figures

Appendix B – Site Photographs

Appendix C – Asbestos Laboratory Reports and Chains of Custody

Appendix D – Metals Laboratory Report(s) and Chain(s) of Custody

Appendix E – Certifications for Key Personnel

Appendix F – Laboratory Accreditations

1. Introduction

GHD Inc. (GHD) is pleased to provide Humboldt Bay Municipal Water District (HBMWD) with the following report detailing the findings of limited hazardous material surveys conducted at the roof of the HBMWD one million gallon domestic water storage reservoir tank (1MG Reservoir) located at the Turbidity Reduction Facility (TRF) site in Arcata, California.

The following subsections provide pertinent contextual information regarding the project.

1.1 Client

The following entity requested GHD to perform the survey described by this report and shall herein be defined as the client:

Humboldt Bay Municipal Water District
828 Seventh Street
Eureka, California 95501

1.2 Project Details

Project Title: 1MG Reservoir Roof Replacement Project
Project Owner: Humboldt Bay Municipal Water District

1.3 Project Site Address

The project site shall be defined as the HBMWD facility located at the following street address:

Humboldt Bay Municipal Water District
1 MG Reservoir
Pipeline Road
Arcata, California 95521

The existing conditions encountered at the project site are described in Section 3.1.

1.4 Air Quality Management District Jurisdiction

The asbestos survey consisted of the collection of suspect Asbestos Containing Material (ACM) and was completed for the purpose of identifying ACM, Asbestos Containing Construction Material (ACCM), and/or Regulated Asbestos Containing Material (RACM) at the project site. The limited asbestos survey was conducted to assist the client with compliance with the United States Environmental Protection Agency (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements.

The USEPA local authority with responsibility for administering the NESHAP regulations within the project site jurisdiction is the North Coast Unified Air Quality Management District (NCUAQMD). The contact information for NCUAQMD is provided below:

North Coast Unified Air Quality Management District
 707 L Street
 Eureka California 95501
 Phone: (707) 443-3093

Work meeting the NESHAP definition of a demolition and/or work impacting RACM in quantities above specific size thresholds necessitates the submittal of a NESHAP notification and associated fee to the NCUAQMD. The NCUAQMD RACM quantity thresholds necessitating NESHAP notification are greater than, or equal to 160 square feet, 260 linear feet and/or 35 cubic feet. The NCUAQMD regulations stipulate that the project owner shall notify the NCUAQMD prior to the commencement of a demolition project, or work that impacts RACM in excess of the above-noted quantities. No RACM is expected to be impacted during the course of this project, however, since this is a partial demolition project, the NCUAQMD must still be notified at least 10 days prior to the commencement of the demolition.

The following table, Table 1 – Asbestos Regulatory Notifications, summarizes the agency notifications anticipated to be required for this project.

Table 1 Asbestos Regulatory Notifications

Governing Agency	Type of Notification	Anticipated Notification Requirements	Submittal Timeline
NCUAQMD	NESHAP Renovation/Demolition Notification	<input checked="" type="checkbox"/> Notification is anticipated ¹	≥10 Business Days Prior to Work Start
Cal/OSHA	Temporary Worksite Notification	<input type="checkbox"/> Notification not anticipated ²	≥24 Hours Prior to Work Start

Notes:

- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- NCUAQMD = Local USEPA-delegated authority with jurisdiction over the project site
- USEPA = United States Environmental Protection Agency
- ¹ = Assumption: Impaction of structural members (demolition work) and/or disturbance of RACM, in quantities equal to or greater than NCUAQMD thresholds is expected to occur during this project. Note: a NESHAP notice is required for demolition work, even if no asbestos work is to occur.
- ² = Assumption: asbestos-related work in excess of 100 square feet and/or impaction of Lead Based Paint (LBP) is not expected to occur

2. Purpose of this Report

GHD, under contract with the Client, coordinated a survey to identify the presence of lead, ACM, ACCM, RACM and/or universal waste at the project site. The purpose of this report is to transmit to

the Client the laboratory findings, observations, and recommendations resultant from the survey performed at the project site on August 19, 2016. It is also anticipated that this report will be included with the project specifications and contract documents submitted to the Contractor for the implementation of the 1MG Reservoir Roof Replacement Project.

This report has been prepared by GHD for the Client and may only be used and relied on by the Client for the purpose agreed between GHD and the Client as set out in this report and the established contracting documents. GHD otherwise disclaims responsibility to any person other than the Client arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

The opinions, conclusions, and recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points from the areas of the project site denoted in Figure 1 (Appendix A) and the materials as described by the chain of custody documentation (Appendix C and Appendix D). Site conditions at other parts of the project site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services, and vegetation. As a result, some relevant site features and conditions may not have been identified in this report, thus this report should not be used to evaluate the potential disturbance of suspect hazardous materials in association with unsurveyed area(s), structure(s), and/or future renovation or Infrastructure Improvement Projects.

Suspect ACM, suspect RACM, and/or Presumed Asbestos Containing Material (PACM) present at the project site that is not identified in this report shall be assumed to contain asbestos in a concentration of greater than one percent, unless such suspect material is sampled by a certified individual and determined by an accredited laboratory to be otherwise. Paint present onsite should be assumed to contain lead, unless appropriately sampled, analyzed by an accredited laboratory and determined not to contain lead. Universal waste may be present at the project site that is not identified herein, thus appropriate handling and disposal requirements should be adhered to when removing any potentially hazardous components or materials.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, change to the site conditions. GHD is not responsible for updating this report if the site conditions change.

2.1 Assumptions

The sampling survey performed at the project site is governed by the following assumptions that additionally define GHD's scope of work for this project:

1. The project included the sampling of suspect asbestos materials associated with the project site, specifically the areas to be impacted during work planned in association with the 1MG Reservoir Roof Replacement Project as defined by GHD's scope of work.
2. GHD did not collect samples from the following areas and/or materials, as materials were not safely accessible, components to be removed prior to demolition and/or impaction of energized systems would have been required to obtain sufficient quantity of material for PLM analysis:
 - a. Walls, foundation of 1 MG Reservoir, and/or other areas located below the level of the main roof plane
 - b. Electrical systems, including wiring

3. Project Description

3.1 Project Site Description

The surveyed portions of the following water storage tank shall be defined as the project site for the purpose of this report. The specific project site structures surveyed in association with this project are shown on Figure 1 (Appendix A) and listed below and described in the laboratory analytical reports (Appendix C).

1. The survey included the roof of the cylindrical one million gallon metal water storage reservoir, specifically the exterior plane and interior (underside) of the roof. The survey excluded the lower portions of the structure and excluded ancillary equipment and infrastructure below the plane of the roof.

3.2 Survey Description

For the August 19, 2016 survey, the following number of bulk samples were collected from the project site and submitted under chain of custody to AmeriSci Laboratories (AmeriSci), for analysis via the referenced methodology:

- Six (6) bulk material samples were analyzed for asbestos content via polarized light microscopy (PLM) methodology, following USEPA method 600/R-93-116
- Paint layers from five (5) of the above six (6) bulk material samples were additionally analyzed for cadmium, chromium and lead content via inductively coupled plasma (ICP) methodology following Method SW-846 6010C/3050B
- Paint from three (3) of the above five (5) bulk samples reported to contain chromium were additionally analyzed for hexavalent chromium (chromium (VI)) via inductively coupled plasma (ICP) methodology following Method SW-846 3060A/7196.

The August 19, 2016 project site sampling survey was performed on behalf of HBMWD. The onsite surveys were conducted by GHD. The survey scope of work associated with this report included solely the suspect hazardous materials located at the project site which are planned to be impacted during the renovation and/or demolition of the project site structures/features as defined by GHD's scope of work for this survey. The sampling survey methodology employed at the project site is further described in Section 4.

Multiple samples were taken of some materials found to be distributed throughout the sampling area per USEPA regulatory guidance. See Figure 1 located in Appendix A for the approximate location of bulk samples collected at the project site.

Photographs of the project site generally depicting the homogeneous areas of ACM identified during this survey are located in Appendix B. Samples were submitted via overnight shipment to the laboratory for analysis of asbestos or metals content. The laboratory analytical reports and chain of custody documentation associated with this survey are located in Appendix C (asbestos data) and Appendix D (metals data).

Key project personnel included the following State of California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) Certified Asbestos Consultant (CAC) and California Department of Public Health (CDPH) Lead Inspector/Assessor (I/A) certified personnel:

1. GHD onsite sampler: Scott Harris, CAC and CDPH I/A
2. GHD project reviewer: Misha Schwarz, CAC and CDPH I/A
3. GHD project manager: Pat Kaspari, Professional Engineer

This report was produced by GHD for HBMWD. This report was authored by Mr. Harris and was reviewed by Mr. Schwarz. Copies of the applicable professional certifications for key project personnel are included with this report in Appendix E.

4. Survey Methodology

The following sampling protocol generally describes the sampling methodology employed for the asbestos and metals sampling surveys conducted at the project site. Representative suspect asbestos-containing and metals-containing materials were collected in general accordance with NESHAP sampling guidelines as enforced by NCUAQMD. The following list summarizes the sampling procedures utilized:

1. Suspect ACM and metals-containing surface coatings were visually identified at the project site.
2. Suspect ACM was categorized into homogeneous materials. A homogeneous material is defined as being uniform in texture, color, and date of application.
3. A sampling scheme was developed based upon the location and quantity of the identified homogeneous materials. Sample numbers were recorded on associated chain of custody documentation.
4. Bulk samples were collected using appropriate sampling tools.
5. Samples were placed in leak-tight containers and labeled with a unique numerical identifier, or sample number.
6. The general location and sample number of each bulk sample was denoted on a corresponding project site plan-view diagram.
7. Friability, the susceptibility of the dry material to be crumbled, pulverized or reduced to a powder using hand pressure, was determined for each sampled suspect ACM.

8. The sample number, collection location and a description of the physical attributes of each bulk sample were recorded on a Chain of Custody form which accompanied each sample sent to the analyzing laboratory.
9. Decontamination of sampling tools was employed to prevent the spread of secondary contamination to subsequent bulk samples.
10. The bulk samples were submitted under chain of custody to the following laboratory for analysis of asbestos content via PLM analysis following USEPA method 600/R-93-116 or analysis of metals content via inductively coupled plasma (ICP) via Method SW-846 6010C/3050B and SW-846 3060A/7196:
 - a. AmeriSci Laboratories (AmeriSci) located in Carson, California.
 - b. Copies of the AmeriSci accreditations and certifications are included with this report in Appendix F.

5. Findings for Asbestos

No materials collected as part of the August 19, 2016 asbestos sampling survey were reported by the analyzing laboratory to contain asbestos fibers via PLM analysis. As such, the homogeneous materials sampled at the project site are not regulated by the USEPA and/or Cal/OSHA for asbestos content.

The materials sampled at the project site are described in Table 2 Asbestos Laboratory Data Summary (Table 2) located on the subsequent pages. Table 2 provides the physical description, the approximate location and the laboratory-identified asbestos concentration for each of the sampled materials. Photographs of the project site generally depicting the homogeneous areas of ACM identified during this survey are located in Appendix B.

Building materials sampled at the project site are described in Table 2, as well as the laboratory analytical report and chain of custody documentation included in Appendix C. Table 2 and the documentation in Appendix C denote the physical description, the approximate location and the laboratory-identified asbestos concentration for each of the sampled materials (denoted as nondetect [ND], or no asbestos detected [NAD]).

Materials denoted as ND or NAD on the laboratory analytical report are not subject to regulation by USEPA as ACM or RACM. Additionally, the ND/NAD materials are not characterized by Cal/OSHA as ACM or ACCM and are not assigned a Cal/OSHA asbestos work class designation.

Table 2 Asbestos Laboratory Data Summary

Humboldt Bay Municipal Water District 1MG Reservoir Roof Replacement Project

Sample Number(s)	Material Description	Location	Asbestos %/Type	Estimated Quantity*	USEPA Material Category**	Cal/OSHA Work Class	Projected Waste Designation**
11125099-1	Paint (Cream)	1MG Reservoir – Interior of Tank at I-Beam at Access Hatch	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA
11125099-2	Paint (White (Top Layer)/ Light Orange (Base Layer))	1MG Reservoir – Exterior at Northeast Center of Roof	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA
11125099-3	Paint (White (Top Layer)/ Light Orange (Base Layer))	1MG Reservoir – Exterior at South-Center Section of Roof	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA
11125099-4	Paint (White (Top Layer)/ Light Orange (Base Layer))	1MG Reservoir – Exterior at Western Edge of Roof	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA
11125099-5	Paint (White (Top Layer)/ Light Orange (Base Layer))	1MG Reservoir –Loose Debris at Southwest Section of Roof	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA
11125099-6	Resin Cap (Grey) + Paint (White/Orange)	1MG Reservoir – Exterior Cathodic Protection Cap at South Section of Roof	NAD	NA	Not ACM or RACM	Not Class I, II, III or IV Work	NA

Notes:

- Work impacting suspect asbestos material that is not homogeneous to those noted in Table 2 shall be presumed to impact asbestos, unless additional sampling proves otherwise.

Annotations:

- * =The asbestos material quantities provided are estimates of the amount of material within the project scope as described to GHD. The quantities are estimates only and the actual amount of asbestos material to be removed should be verified by the contractor prior to bid.
- ** =USEPA Category I and II nonfriable ACM that remains nonfriable during impaction shall be characterized as non-hazardous asbestos-containing waste. USEPA RACM shall be characterized as a non-RCRA California hazardous waste. The waste designation denoted herein assumes that nonfriable material will not become friable due to contractor removal practices. If nonfriable ACM is rendered friable (such as through the use mechanical removal means), then such material shall be reclassified as RACM.

Table 2 Asbestos Laboratory Data Summary

Humboldt Bay Municipal Water District 1MG Reservoir Roof Replacement Project

Sample Number(s)	Material Description	Location	Asbestos %/Type	Estimated Quantity*	USEPA Material Category**	Cal/OSHA Work Class	Projected Waste Designation**
Acronyms:							
<ul style="list-style-type: none">• ACM = Asbestos Containing Material• ACCM = Asbestos Containing Construction Material• Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health• RACM = Regulated Asbestos Containing Material• RCRA = Resource Conservation and Recovery Act• SF = Square feet• USEPA = United States Environmental Protection Agency							

6. Findings for Cadmium, Chromium and Lead

Surface coatings (paint) collected from the project site during the August 19, 2016 limited bulk sampling survey were reported to contain chromium and/or lead by the analyzing laboratory. No sample was reported to contain cadmium or hexavalent chromium (chromium (VI)) above the laboratory detection limit. **Work at the project site which involves disturbance of painted coatings shall be understood to impact lead and chromium.**

The analyzing laboratory, AmeriSci, examined each sample using Method SW-846 6010C/3050B. Samples reported to contain chromium were additionally analyzed for chromium (VI) via Method SW-846 3060A/7196. The analytical results for the materials sampled at the project site are summarized in Table 3 Metals Laboratory Data Summary (Table 3). Table 3 provides the physical description, the approximate location, sample substrate and the identified cadmium, chromium and/or lead content for each of the sampled materials.

Material reported to contain detectable levels of chromium and/or lead is subject to regulation by governmental authorities as summarized herein. Unsampled surface coatings to be impacted in association with site work should be presumed to contain lead and chromium, unless appropriately tested and determined to be nondetect.

6.1 Surface Coatings Containing Lead

Specific regulations and definitions apply to lead materials as determined by the reported lead concentration of those materials. The regulatory requirements governing the specific lead materials identified at the project site, as listed in Table 3, are generally based on the amount of lead reported in each sample. The paints denoted in Table 3 are subject to specific lead regulations as summarized in Section 7.

No surface coatings were reported to contain lead at a concentration near 5,000 milligrams per kilogram¹ (mg/kg) which is the regulatory definition of Lead Based Paint (LBP), thus the sampled paints are not defined as LBP. As the concentration of lead reported by the laboratory is below 90 mg/kg, the samples do not meet the regulatory definition of Lead Containing Paint (LCP). Employee protection and material handling requirements apply to work impacting lead in any detectable quantity, thus paint denoted in Table 3 containing low levels of lead is subject to regulations including those summarized in Sections 7.1 and 7.2.

The general lead regulatory environment is further discussed in Section 7. Unsampled surface coatings or surface coatings that contain lead in concentrations that approach or exceed the LBP regulatory threshold should be understood to be subject to rules governing LBP.

Cal/OSHA regulates worker impaction of paint containing any detectable quantity of lead, thus work impacting lead material, presumed lead material and/or material that has not been analyzed for lead content shall be understood to trigger compliance with applicable regulations, including 8 CCR 1532.1.

¹ Note: milligrams per kilogram is equivalent to parts per million (ppm), thus mg/kg is converted to ppm using a one to one (1:1) ratio.

6.2 Surface Coatings Containing Chromium

Paint at the project site was reported to contain chromium, thus impaction of such paint shall be in compliance with applicable regulations. It is recommended that the contractor perform work in general compliance with 8 CCR 1532.2 until air monitoring for chromium shows no exposure above the chromium occupational exposure limits. Paint that is homogeneous to the chromium-containing paint noted in Table 3 is subject to chromium regulations, including those summarized in Section 7.

The collected samples reported to contain chromium were specifically analyzed for hexavalent chromium, known as chromium (VI). Chromium (VI) is chromium in any form or compound that has a valence of positive six. Chromium (VI) was not reported above the detection limit in the analyzed samples.

Table 3 Metals Laboratory Data Summary

Humboldt Bay Municipal Water District 1MG Reservoir Roof Replacement Project

Sample Number	Sample Description	Color	Substrate	Sample Location	Lead Content (mg/kg)	Triggers Cal/OSHA 1532.1	Classified as Lead Based Paint (LBP)	Chromium Content (mg/kg)	Chromium (VI) (mg/kg)	Cadmium Content (mg/kg)
11125099-1	Paint	(Cream)	Metal	1MG Reservoir – Interior of Tank at I-Beam at Access Hatch	26	Yes	No	180	<1.0	<2.5
11125099-2	Paint	White (Top)/ Light Orange (Base)	Metal	1MG Reservoir – Exterior at Northeast Center of Roof	6	Yes	No	<5.0	NA	<2.5
11125099-3	Paint	White (Top)/ Light Orange (Base)	Metal	1MG Reservoir – Exterior at South-Center Section of Roof	<5.0	Yes*	No	<5.0	NA	<2.5
11125099-4	Paint	White (Top)/ Light Orange (Base)	Metal	1MG Reservoir – Exterior at Western Edge of Roof	57	Yes	No	9.1	<2.0	<2.5
11125099-5	Paint	White (Top)/ Light Orange (Base)	Metal	1MG Reservoir – Loose Debris at Southwest Section of Roof	<5.0	Yes*	No	6.3	<4.0	<2.5
<p>Annotations:</p> <ul style="list-style-type: none"> * = This material is homogeneous with other paint samples determined to contain lead. As such, compliance with applicable Cal/OSHA regulations governing lead should be understood to apply to impaction of this material. 										
<p>Notes:</p> <ul style="list-style-type: none"> Samples containing detectable quantities of lead and/or chromium, if applicable, are noted in bold Milligrams per kilogram (mg/kg) is equivalent to parts per million (ppm), thus mg/kg is converted to ppm using a one to one (1:1) ratio 										
<p>Acronyms:</p> <ul style="list-style-type: none"> Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health NA = Not analyzed LBP = Lead Based Paint = Paint containing lead in a concentration of greater than or equal to 5,000 ppm or 0.5 percent by weight ppm = Parts per million (laboratory units of measurement) USEPA = United States Environmental Protection Agency 										

7. Regulatory Overview for Lead & Chromium

Work at the project site is understood to meet the Cal/OSHA definition of construction work (1532.1[a]) and includes the planned impaction of known lead and chromium containing surface coatings. Work impacting lead and/or chromium is subject to regulation by governmental agencies and standards, including those denoted below. For the purpose of this report, lead and chromium shall mean lead and chromium compounds as relevant to occupational exposures in construction.

7.1 Code of Federal Regulations (CFR)

1. 29 CFR 1926, Construction Standards
2. 29 CFR 1926. 1126 Chromium (VI)
3. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
4. 40 CFR Part 745, Lead: Identification of Dangerous Levels of Lead
5. 40 CFR Part 745, Subpart E Lead Renovation, Repair and Painting Program
6. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

7.2 California Code of Regulations (CCR)

1. 8 CCR Division 1, Chapter 4, Construction Safety Orders
2. 8 CCR 1532.1, Lead in Construction
3. 8 CCR 1532.2, Chromium (VI)
4. 8 CCR 1537, Welding, Cutting, and Heating of Coated Metals
5. 8 CCR 1531, Respiratory Protection
6. 17 CCR Division 1, Chapter 8, Accreditation/Certification, and Work Practices in Lead-Related Construction
7. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste
8. 22 CCR Division 4.5, Chapter 16, Recyclable Materials (Recyclable Hazardous Waste)

7.3 Competent Person Designation

The Contractor shall designate, in writing, one or more individuals as Competent Persons(s) when tasking individuals to perform work at the project site that may impact lead and/or chromium containing surface coatings. Written designation shall certify that each designated Competent Person has the appropriate training and knowledge required of a Competent Person under Article 6 of the construction Safety Orders, Title 8, California Code of Regulations.

7.4 Personal Air Monitoring

The Contractor should conduct worker breathing zone exposure monitoring (also known as personal air monitoring) to determine the airborne concentration of lead and chromium present

within the work environment as required by Cal/OSHA. Air monitoring of Contractor personnel performing paint impaction work is required by Cal/OSHA and is the obligation of the Contractor.

The Contractor is responsible for providing daily Cal/OSHA compliance monitoring for lead and chromium exposure. Air monitoring should continue for each task for the duration of the project, unless a negative exposure assessment is achieved. The following airborne concentrations should dictate which administrative practices, work practices and PPE are required:

Table 4 Cal/OSHA Airborne Exposure Limits for Lead and Chromium

Material	Action Level (AL) (8-hr TWA)	Permissible Exposure Limit (PEL) (8-hr TWA)
Lead	30 µg/m ³	0.05 mg/m ³ (50 µg/m ³)
Chromium, including Cr (II) and Cr (III)	NA	0.5 mg/m ³
Chromium (VI) (Hexavalent Chromium)	2.5 µg/m ³	0.005 mg/m ³ (5.0 µg/m ³)

Notes:

- µg/m³ = Micrograms per cubic meter of air
- mg/m³ = Milligrams per cubic meter of air
- 8-hr TWA = Eight hour time-weighted average
- NA = Not Applicable
- Action Limit (AL): When employee exposure levels exceed the AL, specific administrative, engineering and work practice controls must be implemented.
- Permissible Exposure Limit (PEL): Employer must ensure no employee is exposed above this level based on an 8 hour TWA. When employee exposure levels exceed the PEL, all applicable administrative, engineering and work practice controls must be implemented. Respiratory protection and other protective measures are required pending feasible engineering controls. Other training, monitoring, and medical surveillance requirements apply for exposure levels exceeding PEL.
- Note: Chromium (VI) has a PEL ceiling of 0.1 mg/m³ (100 µg/m³) above which employee occupational exposure may not exceed.

The Contractor should conduct representative breathing zone personal air monitoring of its employees (25 percent of the work crew) once each shift and repeated daily or until a NEA showing airborne lead exposure below each of the Permissible Exposure Limit (PEL) or Action Level (AL) noted in Table 4, as established in accordance with and 8 CCR 1532.1 (d) and 1532.2 (d). Monitoring should be conducted by an individual experienced and knowledgeable about the methods of air monitoring and in accordance with 8 CCR 1532.1 and 1532.2. Exposure monitoring should document the source of lead and/or chromium emissions. If exposures are determined to be above the PELs and/or ALs noted in Table 4, appropriate worker protections should be instituted per 8 CCR 1532.1 and 1532.2.

Until an employee exposure assessment is completed and it has been determined and documented that the employee is not exposed above any applicable PEL or AL, the Contractor should treat the employee as if the employee were exposed above the PEL and should implement employee protective measures per 8 CCR 1532.1 and 1532.2.

7.5 Personnel Training

Employees performing work at the project site, including foreman, supervisor, and any other company personnel or agents who may be exposed to any airborne concentrations of lead, should receive training which includes, at a minimum, lead and chromium awareness training, also known as Hazard Communication (HAZCOM) training. Individuals engaged in lead and/or chromium-related work activities should attend hazard training appropriate to their assignments. All training should be in accordance with the worker training provisions enforced by Cal/OSHA and CDPH.

If air monitoring demonstrates an exposure above the AL or PEL for lead, the Contractor should maintain documentation that employees receiving this exposure level have received Action Level training if exposed above AL. The Contractor should maintain documentation affirming that employees have appropriate CDPH lead worker certification if exposed above PEL while working at a public building.

7.5.1 Hazard Communication Training

All workers who may be exposed to hazardous materials at the project site should receive HAZCOM training prior to the commencement of work that may disturb painted surfaces known or presumed to contain lead and/or chromium in accordance with 8 CCR 5194 – Hazard Communication. Such training should be documented in writing and this documentation shall be retained onsite by the contractor for review.

Training should include, but may not be limited to: the locations and presence of lead and chromium containing material at the project site, the potential hazards of lead and chromium exposure, the purpose and meaning of warning signage, the isolation (using signage and barrier tape) of potentially hazardous debris/waste streams, the required procedures and training necessary to impact lead and chromium-containing material and prohibited practices regarding hazardous material at the project site, the content of 8 CCR 1532.1 and 1532.2, the specific nature of operations which could expose employees to lead above the action level, the proper use of respirators, the purpose and a description of the medical surveillance program, the content of the Contractor Lead Compliance Plan, and the proper use/restrictions on chelating agents.

7.5.2 Lead Action Level Training

The Contractor should provide training for all workers who may be exposed to lead in excess of the AL or PEL in accordance with Title 8 CCR 1532.1, Subsection (I), Parts (1) and (2) Awareness Training and 8 CCR 1532.2 . Contractor should maintain up-to-date documentation that employees receiving exposure above the AL have received the appropriate level of training.

The Contractor should itself establish, or have site personnel attend, an Action Level Training program. Such a training program should assure that each employee is trained in the following:

1. The content of 8 CCR 1532.1 and 1532.2 and all applicable appendices.
2. The specific nature of the operations which could result in exposure to lead above the action levels.
3. The purpose, proper selection, fitting, use, and limitations of respirators.
4. The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse

reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant).

5. The engineering controls and work practices associated with the employee's job assignment including training of employees.
6. The contents of any compliance plan and the location of regulated areas in effect.
7. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used except under the direction of a licensed physician.
8. The employee's right of access to records under CCR Section 3204.

7.6 Medical Surveillance Compliance

The Contractor should utilize only workers who are medically qualified for the assigned work and approved for respirator usage for tasks known, or reasonably expected, to generate airborne exposures in excess of the lead AL or lead and/or chromium PELs. Workers conducting trigger tasks in the absence of an established NEA, shall be trained and medically qualified for work generating exposures above applicable PELs.

Contractor employees shown to be exposed above the lead AL or lead/chromium PELs, and/or engaged in Trigger Tasks in the absence of a NEA, must be medically-qualified to do so and have the appropriate medical examinations as specified in 8 CCR 1532.1. Medically-qualified should mean that the worker who performs trigger tasks, or other lead-related construction tasks likely to exceed the AL or PEL, has received, at minimum, lead biological monitoring and medical evaluation for use of respiratory protection in accordance with 8 CCR 1532.1(j).

Medical requirement for lead-related construction work compliance should include:

1. Documentation of medical surveillance examination by a licensed medical physician prior to commencement of onsite Lead-Related Construction "trigger task" work. Documentation should include baseline blood lead levels. The baseline blood lead should have been within 30 days in advance of starting work.
2. Documentation from physician that all employees or agents who may be exposed to airborne lead in excess of background levels have received medical examination to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health effects in accordance with 8 CCR 153. Medical exams should have been performed not more than 12 months prior to the completion of Contractor work at the project site. Biological monitoring records documenting employee blood lead level test results should be kept for 30 years. The Contractor must be aware of and provide information to the examining physician about unusual conditions in the workplace environment (e.g., high temperatures, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.
3. Documentation that each employee required to wear respirators has passed a respirator fit test within the past 12 months and has been assigned an individual respirator based on the fit test.
4. Methods, procedures and plan for monitoring employee airborne lead exposure as required by Cal/OSHA during lead component removal, clean-up and surface preparation activities. Methods and procedures, at a minimum, should comply with requirements outlined in 8

CCR 1532.1 Lead. Include Name, address and certification information for laboratory to be used for air sample analysis.

7.7 Lead Based Paint

The USEPA, CDPH and Cal/OSHA define Lead Based Paint (LBP) as a surface coating containing lead in a concentration of equal to or greater than 0.5 percent by weight, 5,000 milligrams per kilogram (mg/kg), 5,000 ppm, or 1.0 milligram per square centimeter (mg/cm²). In addition, Cal/OSHA regulates worker impaction of paint containing any detectable quantity of lead, thus such work triggers compliance with applicable regulations, including 8 CCR 1532.1.

The United States Consumer Product Safety Commission defines Lead Containing Paint (LCP) as a surface coating containing lead in a concentration of equal to or greater than 0.009 percent by weight or 90 ppm (90 mg/kg).

7.8 Trigger Tasks and Lead Impaction Activities

Specific construction tasks, known as Trigger Tasks, when performed on material(s) known to contain detectable quantities of lead, should be understood to expose employees above the lead PEL and thus necessitate specific employee protection measures per 8 CCR 1532.1. A Trigger Task or Activity is defined herein as a construction operation, process or task specifically identified by the Cal/OSHA lead standard (8 CCR 1532.1) as a potential lead exposure hazard requiring certain protective measures to be implemented prior to obtaining the results of an initial exposure assessment.

Performing a Trigger Task should be understood to expose employees above the Permissible Exposure Limit (PEL) and should thus necessitate employee protection measures, including the following: wearing of respirators and protective clothing, action level training (at a minimum) and initial employee biological medical monitoring (blood tests), until personal air sampling proves otherwise. Untrained and/or unprotected workers should not perform trigger tasks. Specific trigger tasks and their expected resultant airborne exposure levels are described below.

7.8.1 Trigger Task I

The following trigger task I activities are expected to create airborne lead concentrations of 50 to 500 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$):

1. Manual demolition
2. Paint preparation (scraping and sanding)
3. Using heat guns
4. Using HEPA-filtered equipment
5. Debris clean-up

7.8.2 Trigger Task II

The following trigger task II activities are expected to create airborne lead concentrations of 500 to 2,500 $\mu\text{g}/\text{m}^3$:

1. Lead mortar work
2. Lead burning

3. Rivet busting
4. Use of non-HEPA-filtered equipment
5. Dry abrasive blast debris clean-up or containment movement

7.8.3 Trigger Task III

The following trigger task II activities are expected to create airborne lead concentrations of greater than 2,500 $\mu\text{g}/\text{m}^3$:

1. Welding
2. Abrasive blasting
3. Torch cutting/burning

7.9 Requirements for Lead and Chromium Impaction

Surface coatings (paint) applied to interior and exterior surfaces at the project site have been reported to contain lead and chromium. Employers whose personnel impact paint at the project site should monitor their employees for airborne lead and chromium exposure and institute necessary employee protection precautions when conducting work at the project site.

Employee protection measures are mandated by Cal/OSHA when workers impact lead and/or chromium. The scope and magnitude of personnel protective measures are generally dependent on the amount of airborne contaminant present in the work area. At a minimum, work impacting lead and/or chromium must include the following protocols:

1. Establishment of a regulated work area (posting of warning signage)
2. Establishment of hygiene controls (hand washing facilities)
3. Use of wet methods (water) to mitigate airborne dust generation
4. Use of HEPA filter-equipped vacuums and tools
5. Use of PPE, including respirators, as appropriate

If air monitoring demonstrates an employee exposure to lead above 30 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$), a threshold known as the Cal/OSHA Action Level, or 50 $\mu\text{g}/\text{m}^3$, a threshold known as the PEL, the employer must maintain documentation that employees receiving such exposure(s) have received Action Level training (if exposed above the Action Level or PEL) and have appropriate CDPH certification. It is noted that individual CDPH certification is applicable if employees are exposed above the PEL in a building generally accessible to the public as defined by 17 CCR, Division 1, Chapter 8, Article 1.

8. Conclusion

Samples collected from the HBMWD project site were not reported to contain asbestos. As described in Section 5, material identified in Table 2 was not reported by the analyzing laboratory to contain asbestos fibers. As such, work at the project site impacting the sampled materials is not applicable to asbestos regulations, including 8 CCR 1529.

As noted in Table 3 located in Section 6, sampled surface coatings were reported to contain lead and/or chromium. No sample was reported to contain hexavalent chromium. Surface coatings

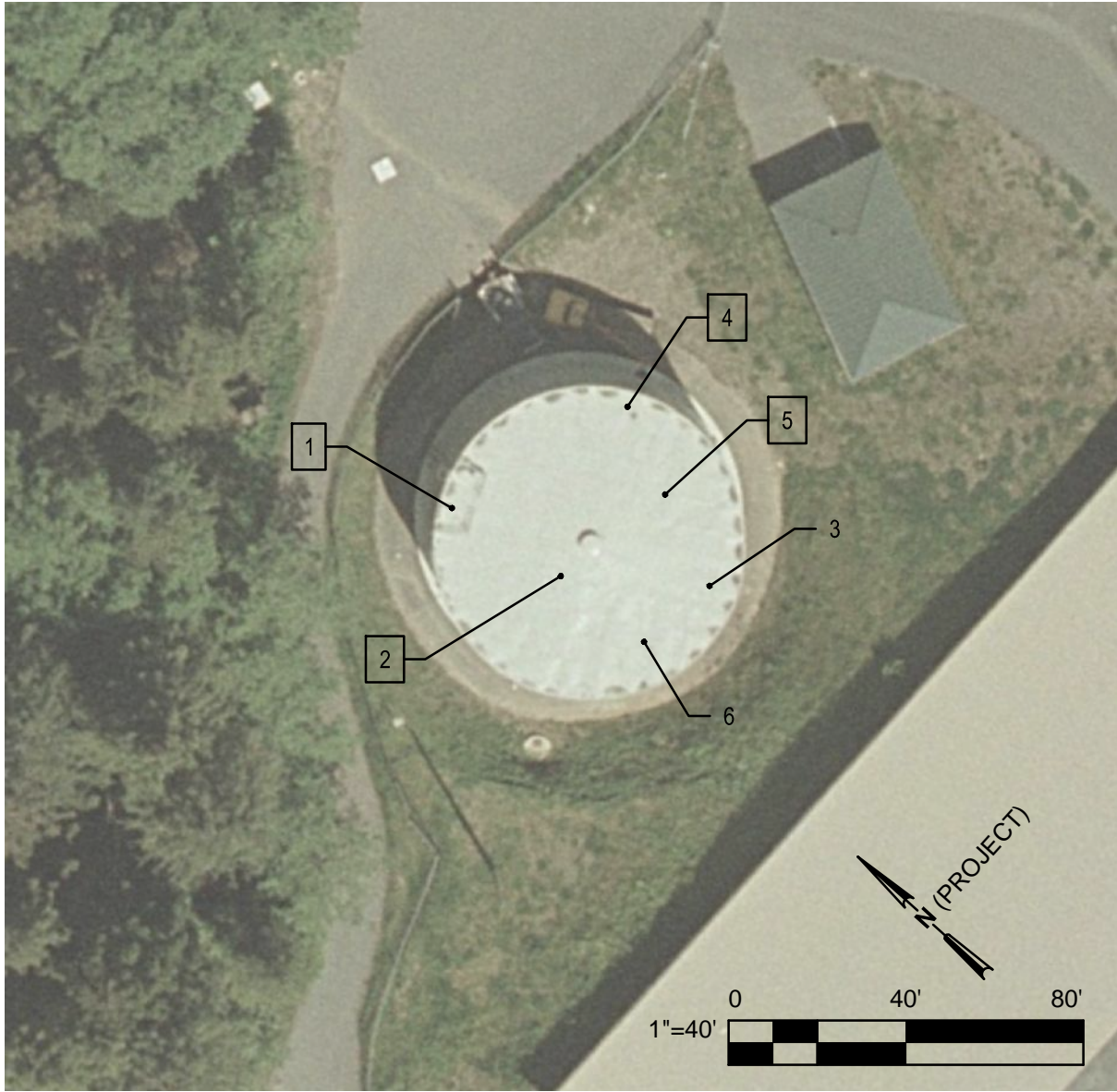
reported or presumed to contain lead and/or chromium are subject to applicable governmental regulations, including those summarized in Section 7 of this report. Suspect lead and chromium material not identified in this report should be assumed to contain lead and chromium, unless appropriately sampled, analyzed and determined to be nondetect.

It is recommended that this report be provided to contractors and personnel who may conduct work at the project site potentially impacting hazardous materials, including those described herein. It is recommended that HBMWD maintain copies of this report for as long as the hazardous materials identified herein are present at the project site.

Appendices

Appendix A – Figures

Humboldt Bay Municipal Water District Project Site Location Maps Figure Denoting Bulk Sample Locations



SHEET GENERAL NOTES	
1. All locations shown are approximate.	
LEGEND	
#	Bulk Sample Location
#	Sample Determined to Contain Lead and/or Chromium



Humboldt Bay Municipal Water District
1MG Reservoir Roof Replacement Project

Project Site Sample Location Map

Job Number 11125099
Revision 0
Date 9/2/2016

Figure 1

Appendix B – Site Photographs

Photographs of the Humboldt Bay Municipal Water District 1MG Reservoir Roof Replacement Project Site

Site Photographs

The following photographs generally depict the materials reported to contain asbestos as a result of the Humboldt Bay Municipal Water District 1MG Reservoir Roof Replacement Project survey described by this report.



Photograph 1 – 1MG Reservoir interior – metal I-beam with paint (typ., indicated with red arrow) determined to contain lead and chromium.



Photograph 2 – 1MG Reservoir exterior – detail view of metal roof with paint (typ., indicated with red arrow) determined to contain lead and chromium.

Appendix C – Asbestos Laboratory Reports and Chains of Custody

Asbestos (PLM) Laboratory Analytical Reports and Associated GHD Chains of Custody Documentation



Please Reply To:

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24416 S. Main Street, Ste 308

Carson, California 90745

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FACSIMILE TELECOPY TRANSMISSION

To: Scott Harris
GHD

Fax #:

Email: scott.harris@ghd.com

From: Paola Ducoing
AmeriSci Job #: 916081782
Subject: PLM 5 day Results
Client Project: 11125099.01; HBMWD - 1MG
Reservoir Roof, Arcata, CA

Date: Monday, August 29, 2016

Time: 08:12:07

Comments:

Number of Pages: 4

(including cover sheet)

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PLM Bulk Asbestos Report

GHD
Attn: Scott Harris
718 3rd Street

Eureka, CA 95501

Date Received 08/22/16 **AmeriSci Job #** 916081782
Date Examined 08/29/16 **P.O. #**
Page 1 of 2
RE: 11125099.01; HBMWD - 1MG Reservoir Roof, Arcata, CA

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
11125099-1 Location: 1MG Reservoir - Interior I-Beam At Access / Paint / Metal / Cream	916081782-01	No	NAD (by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Paint Asbestos Types: Other Material: Non-fibrous 100 %			
11125099-2 Location: 1MG Reservoir Roof - Exterior At NE Ctr. / Paint (Multi-Layered) / Metal / White (Top) / Lt. Orange (Base)	916081782-02	No	NAD (by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Paint Asbestos Types: Other Material: Non-fibrous 100 %			
11125099-3 Location: 1MG Reservoir Roof - Exterior At S. Ctr. / Paint (Multi-Layered) / Metal / White (Top) / Lt. Orange (Base)	916081782-03	No	NAD (by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Paint Asbestos Types: Other Material: Non-fibrous 100 %			
11125099-4 Location: 1MG Reservoir Roof - Exterior At W. Edge / Paint (Multi-Layered) / Metal / White (Top) / Lt. Orange (Base)	916081782-04	No	NAD (by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Paint Asbestos Types: Other Material: Non-fibrous 100 %			
11125099-5 Location: 1MG Reservoir Roof - Loose Debris At SW / Paint / Metal / White (Top) / Lt. Orange (Base)	916081782-05	No	NAD (by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige, Homogeneous, Non-Fibrous, Paint Asbestos Types: Other Material: Non-fibrous 100 %			

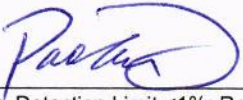
Client Name: GHD

PLM Bulk Asbestos Report

11125099.01; HBMWD - 1MG Reservoir Roof, Arcata, CA

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
11125099-6	916081782-06	No	NAD
Location: 1MG Reservoir Roof Exterior Cathodic Protection Cap / Resin Cap & Paint (White/Orange) / Metal / Grey White / Orange			(by CVES) by Paola Ducoing on 08/29/16
Analyst Description: Beige/Clear, Heterogeneous, Non-Fibrous, Paint/Resin Asbestos Types: Other Material: Non-fibrous 100 %			

Reporting Notes:

Analyzed By: Paola Ducoing ; Date Analyzed: 8/29/2016 8/29/16
 *NAD = no asbestos detected; Detection Limit <1%; Reporting Limits: CVES = 1%, 400 Pt Ct = 0.25%, 1000 Pt Ct = 0.1%; NA = not analyzed; NA/PS = not analyzed / positive stop; NVA = No Visible Asbestos; PLM (polarized light microscopy) Bulk Asbestos Analysis by EPA 600/R-93/116, including requirements for EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #200346-0, CA ELAP lab #2322); Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar NOB materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). NIST Accreditation requirements mandate that this report must not be reproduced except in full with the approval of the laboratory. This PLM report relates ONLY to the items tested.

Reviewed By: 

Appendix D – Metals Laboratory Report(s) and Chain(s) of Custody

Metals (ICP) Laboratory Analytical Reports and Associated GHD Chains of Custody Documentation



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FACSIMILE TELECOPY TRANSMISSION

To: Scott Harris
GHD
Fax #:

Email: scott.harris@ghd.com

From:
AmeriSci Job #: 416081276
Subject: Lead (paint) 5 day Results
Client Project: 11125099.01; HBMWD - 1MG
Reservoir Roof, Arcata, CA

Date: Tuesday, August 30, 2016
Time: 12:25:35
Comments:

Number of Pages: 04
(including cover sheet)

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Laboratory Report

Report Date: 8/30/2016
Workorder No: 416081276

Customer: **GHD**
718 Third Street
Eureka, CA 95501

Attention: Scott Harris

Subject: **11125099.01; HBMWD-1MG Reservoir Roof, Arcata, CA**

Sample 1: 11125099-1 Description: 1MG Reservoir - Interior I-Beam At Access / Paint / Metal / Cream
Collection Date: 08/19/16 Received Date: 8/22/2016 Time: 10:05
Matrix: Solid

<u>Parameter</u>	<u>Method</u>	<u>Results</u>	<u>Unit</u>	<u>PQL</u>	<u>Tech</u>	<u>Analysis Date</u>	<u>Qual</u>
Lead, Solid, ICP	SW-846 6010C/3050B	26	mg/kg	5.0	MP	8/25/2016	
Chromium, Solid, ICP	SW-846 6010C/3050B	180	mg/kg	5.0	MP	8/25/2016	
Cadmium, Solid, ICP	SW-846 6010C/3050B	<2.5	mg/kg	2.5	MP	8/25/2016	

Sample 2: 11125099-2 Description: 1MG Reservoir Roof - Exterior At NE Ctr. / Paint (Multi-Layered) / Metal / Whi
Collection Date: 08/19/16 Received Date: 8/22/2016 Time: 10:05
Matrix: Solid

<u>Parameter</u>	<u>Method</u>	<u>Results</u>	<u>Unit</u>	<u>PQL</u>	<u>Tech</u>	<u>Analysis Date</u>	<u>Qual</u>
Lead, Solid, ICP	SW-846 6010C/3050B	6	mg/kg	5.0	MP	8/25/2016	
Chromium, Solid, ICP	SW-846 6010C/3050B	<5.0	mg/kg	5.0	MP	8/25/2016	
Cadmium, Solid, ICP	SW-846 6010C/3050B	<2.5	mg/kg	2.5	MP	8/25/2016	

Sample 3: 11125099-3 Description: 1MG Reservoir Roof - Exterior At S. Ctr. / Paint (Multi-Layered) / Metal / Whi
Collection Date: 08/19/16 Received Date: 8/22/2016 Time: 10:05
Matrix: Solid

<u>Parameter</u>	<u>Method</u>	<u>Results</u>	<u>Unit</u>	<u>PQL</u>	<u>Tech</u>	<u>Analysis Date</u>	<u>Qual</u>
Lead, Solid, ICP	SW-846 6010C/3050B	<5.0	mg/kg	5.0	MP	8/25/2016	
Chromium, Solid, ICP	SW-846 6010C/3050B	<5.0	mg/kg	5.0	MP	8/25/2016	
Cadmium, Solid, ICP	SW-846 6010C/3050B	<2.5	mg/kg	2.5	MP	8/25/2016	

Sample 4: 11125099-4 Description: 1MG Reservoir Roof - Exterior At W. Edge / Paint (Multi-Layered) / Metal / W
Collection Date: 08/19/16 Received Date: 8/22/2016 Time: 10:05
Matrix: Solid

<u>Parameter</u>	<u>Method</u>	<u>Results</u>	<u>Unit</u>	<u>PQL</u>	<u>Tech</u>	<u>Analysis Date</u>	<u>Qual</u>
Lead, Solid, ICP	SW-846 6010C/3050B	57	mg/kg	5.0	MP	8/25/2016	
Chromium, Solid, ICP	SW-846 6010C/3050B	9.1	mg/kg	5.0	MP	8/25/2016	
Cadmium, Solid, ICP	SW-846 6010C/3050B	<2.5	mg/kg	2.5	MP	8/25/2016	



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Customer: **SCA/LA** Workorder No: **416081276**

Sample 5: 11125099-5 Description: 1MG Reservoir Roof - Loose Debris At SW / Paint / Metal / White (Top) / Lt.
 Collection Date: 08/19/16 Received Date: 8/22/2016 Time: 10:05
 Matrix: Solid

<u>Parameter</u>	<u>Method</u>	<u>Results</u>	<u>Unit</u>	<u>PQL</u>	<u>Tech</u>	<u>Analysis Date</u>	<u>Qual</u>
Lead, Solid, ICP	SW-846 6010C/3050B	<5.0	mg/kg	5.0	MP	8/25/2016	
Chromium, Solid, ICP	SW-846 6010C/3050B	6.3	mg/kg	5.0	MP	8/25/2016	
Cadmium, Solid, ICP	SW-846 6010C/3050B	<2.5	mg/kg	2.5	MP	8/25/2016	

AmeriSci Reporting Limit is represented by the PQL. The analytical results within this report relate only to the specific compounds and samples investigated, and may not necessarily reflect other apparently similar material from a similar location. This report shall not be reproduced, except in full, without the written approval of AmeriSci Los Angeles. All analytical Batch data met quality control criteria unless other wise noted.

To the best of my knowledge this report is true and accurate.

Authorized by/Title: for  Minh Phung / Metal Superv. Date: 8/30/2016

Appendix E – Certifications for Key Personnel

DEPARTMENT OF INDUSTRIAL RELATIONS

Division of Occupational Safety and Health

Asbestos Unit

2424 Arden Way, Suite 495

Sacramento, CA 95825-2417

(916) 574-2993 Office (916) 483-0572 Fax

<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov

102084713C

347

February 01, 2016

GHD

Scott S Harris

718 Third Street

Eureka

' CA 95501

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address, fax number or email; of any changes in your contact/mailling information within 15 days of the change.

Sincerely,

Jeff Ferrell

Senior Safety Engineer

Attachment: Certification Card

cc: File



Renewal - Card Attached (Revised 10/24/2012)

State of California Department of Public Health

Lead-Related Construction Certificate	Certificate Type	Expiration Date
	Inspector/Assessor	11/26/2016
	Project Monitor	11/26/2016

Scott S. Harris ID # **21408**

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health
Asbestos Unit
2424 Arden Way, Suite 495
Sacramento, CA 95825-2417
(916) 574-2993 Office (916) 483-0572 Fax
<http://www.dir.ca.gov/dir/databases.html> actu@dir.ca.gov



704072151C

139

April 07, 2016

GHD, Inc.
Misha B Schwarz
718 3rd Street
Eureka CA 95501

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

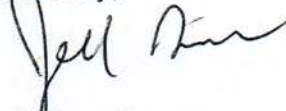
Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

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Sincerely,


Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal - Card Attached (Revised 10/24/2012)



State of California Department of Public Health

Lead-Related
Construction
Certificate

Certificate
Type

Expiration
Date



Inspector/Assessor	05/28/2017
Project Monitor	05/28/2017



Misha B. Schwarz

ID #: 7504

Appendix F – Laboratory Accreditations



CALIFORNIA
Water Boards

STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS



CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

AmeriSci Los Angeles

24416 South Main Street Suite 308

Carson, CA 90745

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site,
proficiency testing studies, and payment of applicable fees.

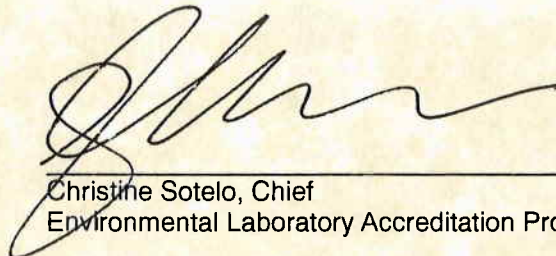
This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2322**

Expiration Date: **09/30/2016**

Effective Date: **10/01/2014**

Sacramento, California
subject to forfeiture or revocation



Christine Sotelo, Chief
Environmental Laboratory Accreditation Program



**CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing**



AmeriSci Los Angeles

24416 South Main Street Suite 308
Carson, CA 90745
Phone: (310) 834-4868

Certificate No.: 2322
Renew Date: 9/30/2016

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.030 001	Mercury	SM3112B
103.040 002	Antimony	SM3113B
103.040 003	Arsenic	SM3113B
103.040 010	Lead	SM3113B
103.040 013	Selenium	SM3113B
103.060 001	Aluminum	SM3120B
103.060 007	Chromium	SM3120B
103.060 008	Copper	SM3120B
103.060 009	Iron	SM3120B
103.060 011	Manganese	SM3120B
103.060 015	Silver	SM3120B
103.060 017	Zinc	SM3120B
103.130 001	Aluminum	EPA 200.7
103.130 007	Chromium	EPA 200.7
103.130 008	Copper	EPA 200.7
103.130 009	Iron	EPA 200.7
103.130 011	Manganese	EPA 200.7
103.130 012	Nickel	EPA 200.7
103.130 015	Silver	EPA 200.7
103.130 017	Zinc	EPA 200.7
103.130 018	Boron	EPA 200.7
103.150 002	Antimony	EPA 200.9
103.150 003	Arsenic	EPA 200.9
103.150 009	Lead	EPA 200.9
103.150 012	Selenium	EPA 200.9
103.150 014	Thallium	EPA 200.9
103.160 001	Mercury	EPA 245.1
103.300 001	Asbestos	EPA 100.1
103.301 001	Asbestos	EPA 100.2

Field of Testing: 108 - Inorganic Chemistry of Wastewater

108.112 001	Boron	EPA 200.7
108.447 001	Boron	SM3120B-1999
108.490 001	Hydrogen Ion (pH)	SM4500-H+ B-2000

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010 001	Aluminum	EPA 200.7
109.010 002	Antimony	EPA 200.7
109.010 003	Arsenic	EPA 200.7

As of 2/25/2015, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.190	001	Mercury	EPA 245.1
109.430	001	Aluminum	SM3120B-1999
109.430	002	Antimony	SM3120B-1999
109.430	003	Arsenic	SM3120B-1999
109.430	004	Barium	SM3120B-1999
109.430	005	Beryllium	SM3125B-2009
109.430	007	Cadmium	SM3120B-1999
109.430	009	Chromium	SM3120B-1999
109.430	010	Cobalt	SM3120B-1999
109.430	011	Copper	SM3125B-2009
109.430	012	Iron	SM3120B-1999
109.430	013	Lead	SM3120B-1999
109.430	015	Manganese	SM3120B-1999
109.430	016	Molybdenum	SM3120B-1999
109.430	017	Nickel	SM3120B-1999
109.430	019	Selenium	SM3120B-1999
109.430	021	Silver	SM3120B-1999
109.430	023	Thallium	SM3120B-1999
109.430	024	Vanadium	SM3120B-1999
109.430	025	Zinc	SM3120B-1999
109.809	002	Chromium (VI)	SM3500-Cr B (20th)

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010B
114.010	002	Arsenic	EPA 6010B
114.010	003	Barium	EPA 6010B
114.010	004	Beryllium	EPA 6010B
114.010	005	Cadmium	EPA 6010B
114.010	006	Chromium	EPA 6010B
114.010	007	Cobalt	EPA 6010B
114.010	008	Copper	EPA 6010B
114.010	009	Lead	EPA 6010B

As of 2/25/2015 , this list supersedes all previous lists for this certificate number.
 Customers: Please verify the current accreditation standing with the State.

114.010	010	Molybdenum	EPA 6010B
114.010	011	Nickel	EPA 6010B
114.010	012	Selenium	EPA 6010B
114.010	013	Silver	EPA 6010B
114.010	014	Thallium	EPA 6010B
114.010	015	Vanadium	EPA 6010B
114.010	016	Zinc	EPA 6010B
114.130	001	Lead	EPA 7420
114.140	001	Mercury	EPA 7470A
114.141	001	Mercury	EPA 7471A

Field of Testing: 115 - Extraction Test of Hazardous Waste

115.021	001	TCLP Inorganics	EPA 1311
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
115.040	001	Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312

Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020
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GHD Inc.

718 Third Street
Eureka, CA 95501

T: 1 707 443 8326 F: 1 707 444 8330 E: eureka@ghd.com

G:\111\11125099 HBMWD-1MG Reservoir Roof Replace\04-Technical Work\Hazardous Materials
Sampling\GHD SURVEY REPORT - HBMWD 1MG Reservoir Roof - 08302016 - Draft.docx

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Draft	Scott Harris	Misha Schwarz		Scott Harris		09/12/2016

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www.ghd.com



PART 6
PROJECT SITE PHOTOS



Photo 1: Tank Exterior (facing southeast)

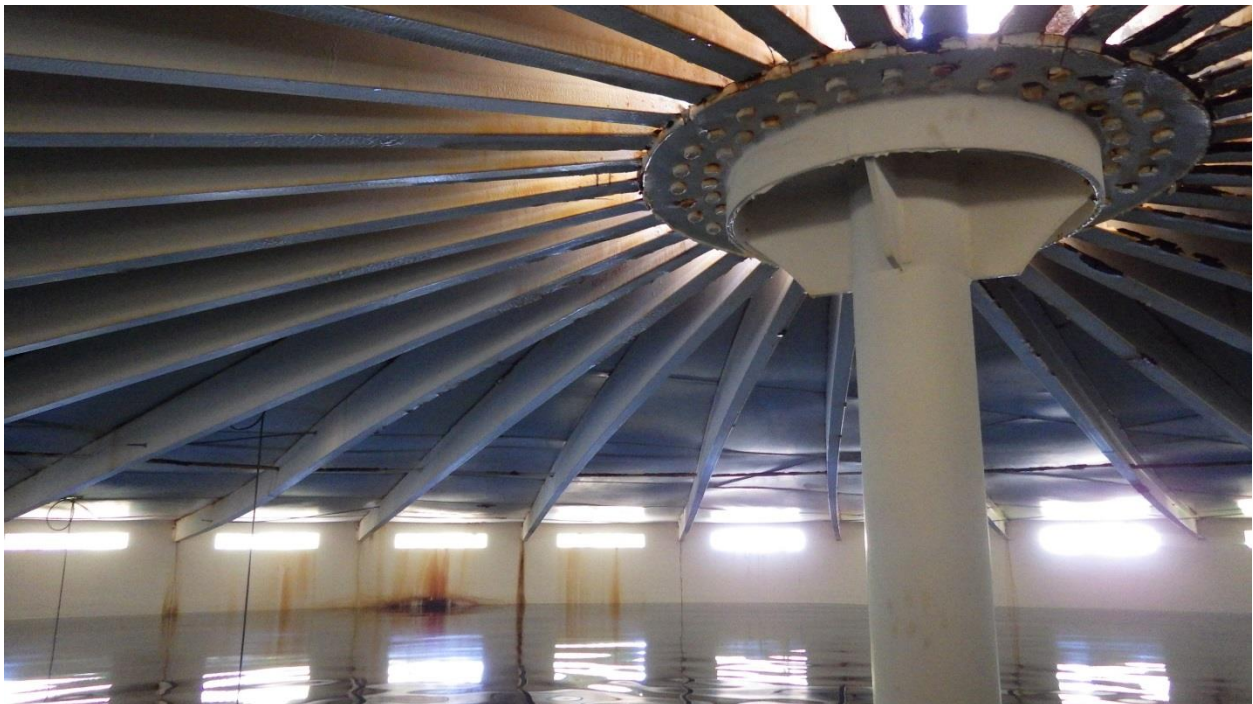


Photo 2: Tank Interior / Center Column Support

Humboldt Bay Municipal Water District
1-MG Domestic Reservoir Roof Replacement



Photo 3: Exterior of Tank Roof



Photo 4: Typical Air Vent at Interior Side



Photo 5: Typical Channel Rafter at Perimeter



Photo 6: Tank Exterior (facing northeast)

Humboldt Bay Municipal Water District
1-MG Domestic Reservoir Roof Replacement



Photo 7: Tank Exterior (facing southwest)



Photo 8: Exterior



Photo 9: Former Inlet Pipe Support Structure



Photo 10: Sample Pump Enclosure (1 of 2)



Photo 11: Sample Pump Enclosure (2 of 2)



Photo 12

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PART 7

PROJECT PLANS

