



REQUEST FOR PROPOSALS
FOR
Professional Coating Inspection Services for the
Saddle Peak and Cordillera Tank Rehabilitation Project

PROPOSALS DUE December 19, 2019 at 12:00 p.m.

LAS VIRGENES MUNICIPAL WATER DISTRICT
4232 LAS VIRGENES ROAD
CALABASAS CA 91302
818.251.2100

Release Date: December 5, 2019

REQUEST FOR PROPOSALS
Las Virgenes Municipal Water District

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I. INTRODUCTION

The Las Virgenes Municipal Water District (LVMWD) invites your firm to submit a proposal to provide Professional Coating Inspection services for the (1) Saddle Peak and (2) Cordillera Tank Rehabilitation Project.

A scope of work is included to assist you in the preparation of your proposal. Failure to submit information in accordance with the requirements in this Request for Proposal (RFP) may be cause for disqualification.

A pre-proposal meeting will be at the request of the consultant, and is optional.

Questions regarding this Request for Proposal should be directed to Veronica Hurtado, Project Engineer at 818.251.2332 or vhurtado@lvmwd.com.

II. BACKGROUND INFORMATION

LVMWD is a special district established in 1958. The service area encompasses 122-square miles in western Los Angeles County and includes the incorporated cities of Hidden Hills, Calabasas, Agoura Hills and Westlake Village, as well as unincorporated areas. The District provides potable water, recycled water and wastewater service to a population of approximately 71,000. Triunfo Sanitation District (TSD) within Ventura County is a joint venture partner with LVMWD in wastewater and recycled water service which serves an additional 30,000 people.

Each year the District completes inspections and cleaning of 5 (of 26) potable water tanks and 3 (of 3) of the recycled water tanks. In February 2017 and February 2016, Potable Divers, Inc. conducted underwater inspections of Saddle Peak and Cordillera Tanks, providing recommendation for re-coating. From these inspection reports and input from operations, District Staff identified Saddle Peak and Cordillera Tanks as the highest priority tanks for coating repair. In October 2017, the District personnel from Technical Services, Operations, and Maintenance conducted field visits to identify other necessary improvements of the tanks for future operation.

Saddle Peak Tank is a 2.3-million-gallon potable water storage tank in the 2514-foot system that provides water supply and fire protection to the Stunt Road service area. The steel tank was installed in 1964. Cordillera Tank is a 3.0-million-gallon recycled water storage tank in the 1529-foot zone that supplies recycled water to eastern Calabasas. It is a steel tank and was constructed in 1991.

In 2018, Cannon Corporation (Cannon) was retained to provide engineering design and support during construction for the Saddle Peak and Cordillera Tank Rehabilitation Project. Cannon has completed the design plans and specifications and the tanks are currently being advertised for construction bids together as one project. The scope of work for the renovation of both tanks generally consists of the following: recoating the interior of the tank, recoating or touchup of the exterior, modifying the existing manways, reconfiguring the inlet/outlet piping to improve water circulation, replacing deteriorated valves, improving the vent systems, updating the roof hatches to current standards, replacing the ring seals, and repairing the access roads.

Rehabilitation work on the tanks is expected to be concurrent and begin in mid-January 2020 to be completed no later than April 30, 2020. The coating portion of the rehabilitation will include blasting, cleaning, sealing, patching, epoxy coating, and disinfecting the interior surface of the

potable water reservoir. LVMWD would like to ensure the maximum effective service life of the coatings applied to the tanks by retaining the services of a qualified professional coating inspector to conduct quality assurance inspections and testing throughout the various milestone stages of the work.

III. SCOPE OF WORK

This RFP includes the following milestone tasks:

- 1) **Pre-Surface Preparation:** Inspect reservoir interior surface prior to surface preparation to determine if the environmental conditions would be detrimental to surface preparation/coating application. Inspection should also determine if the substrate has defects and contamination that would adversely affect surface preparation/coating application.
- 2) **Post-Surface Preparation:** Verify the specified level of cleanliness, dryness and surface profile, for coating application, has been achieved.
- 3) **Coating Application Inspection:** Verify ambient conditions are within the required tolerances to ensure the work is done under proper conditions. Inspect coating for visual defects such as runs, sags, voids, holidays, pinholes, and presence of foreign matter. Verify dry film thickness has been achieved.
- 4) **Post Application Inspection:** Upon final cure of coating system, inspect for visual coating defects, measure coating system dry film thickness, perform cure evaluation testing, perform holiday detection testing, and perform adhesion testing.

Inspection field work is estimated at 6-8 weeks. Full-time presence of the Coating Inspector is required during key stages of the work described above, specifically during surface preparation and coating application process; attendance at the pre-construction meeting is mandatory and routine construction progress meetings are expected. The Coating Inspector shall prepare a thorough written report including photographic documentation of the inspections.

IV. MINIMUM CONSULTANT QUALIFICATIONS

Coating Inspector shall provide information to verify the following minimum qualifications:

- 1) Inspector(s) must be NACE International Certified Coatings Inspectors and their NACE number(s) must be provided.
- 2) Inspector(s) shall be NACE International Certified Level III Coatings Inspector(s) for at least 5 years and has the requisite experience described; or Inspector(s) have successfully completed a minimum Level II of the NACE Inspector training and has worked under the supervision and guidance of a NACE International Certified Level III Coatings Inspector for at least 5 years and has the requisite experience described.
- 3) Five (5) years of documentable experience as a coating inspector on relevant coating projects.
- 4) All required inspection tools, instruments, standards, and references as necessary to perform the inspection work shall be provided by inspection firm/individual and costs shall be included in bid. Documentation verifying routine calibration of instrumentation must be submitted to the District Project Manager.
- 5) Inspector must be Confined Space Entry trained and provide a certificate that verifies such training by a recognized safety training organization.
- 6) Professional liability insurance in the amount of \$1 million.

- 7) Project manager shall have sufficient experience in the planning, design and construction of similar projects that are proposed here, with a preferable minimum of 5 years' experience.
- 8) Ability to execute the standard Agreement for Professional Services (Appendix C).
- 9) Project manager must be a registered Civil Engineer in the State of California.

V. PROPOSAL REQUIREMENTS

- 1) Legal name of firm with address, telephone number and the name of at least one principal.
- 2) Project understanding and approach, including resource capacity to perform work on several projects simultaneously.
- 3) A recommended scope of work which clearly displays an understanding of the project, using as a basis the preliminary scope of work outlined above.
- 4) Names and résumés of individual(s) proposed to perform the services, including proof of professional registrations, as appropriate.
- 5) Names, qualifications and principals of any sub-consultants to be utilized in providing the service(s).
- 6) References for 3 recently completed or current projects of similar size and scope, including contact person and telephone number.
- 7) Sample of preliminary design report for a recently completed pipeline project.
- 8) Certificate of professional liability insurance.
- 9) Schedule of Rates and Fees.

Please submit an electronic proposal no later than 12:00pm on December 19, 2019 to Veronica Hurtado, Project Engineer at vhurtado@lvmwd.com

VI. EVALUATION CRITERIA

Proposals will be evaluated based upon the following:

- 1) The quality of performance on past projects, including those on which the proposed team has worked together.
- 2) Expertise in the field of steel tank coating inspection demonstrated by NACE certification level and years of experience.
- 3) The ability to meet time schedules and complete the work within established budgets.
- 4) The ability to provide a comprehensive and understandable scope of work.
- 5) Cost of proposal in terms of overall value to the District
- 6) The firm's history and resource capacity to perform the requested service.
- 7) The experience and qualifications of assigned personnel.

VII. SCHEDULE

Approval of Request for Proposals	December 5, 2019
Pre-proposal Meeting	By request (optional)
Proposal Due Date (12:00 p.m.)	December 19, 2019
Acceptance of Proposal (Board Meeting)	January 7, 2020

APPENDIX A

Figures

CONSTRUCTION NOTES

TEMPORARY TANK

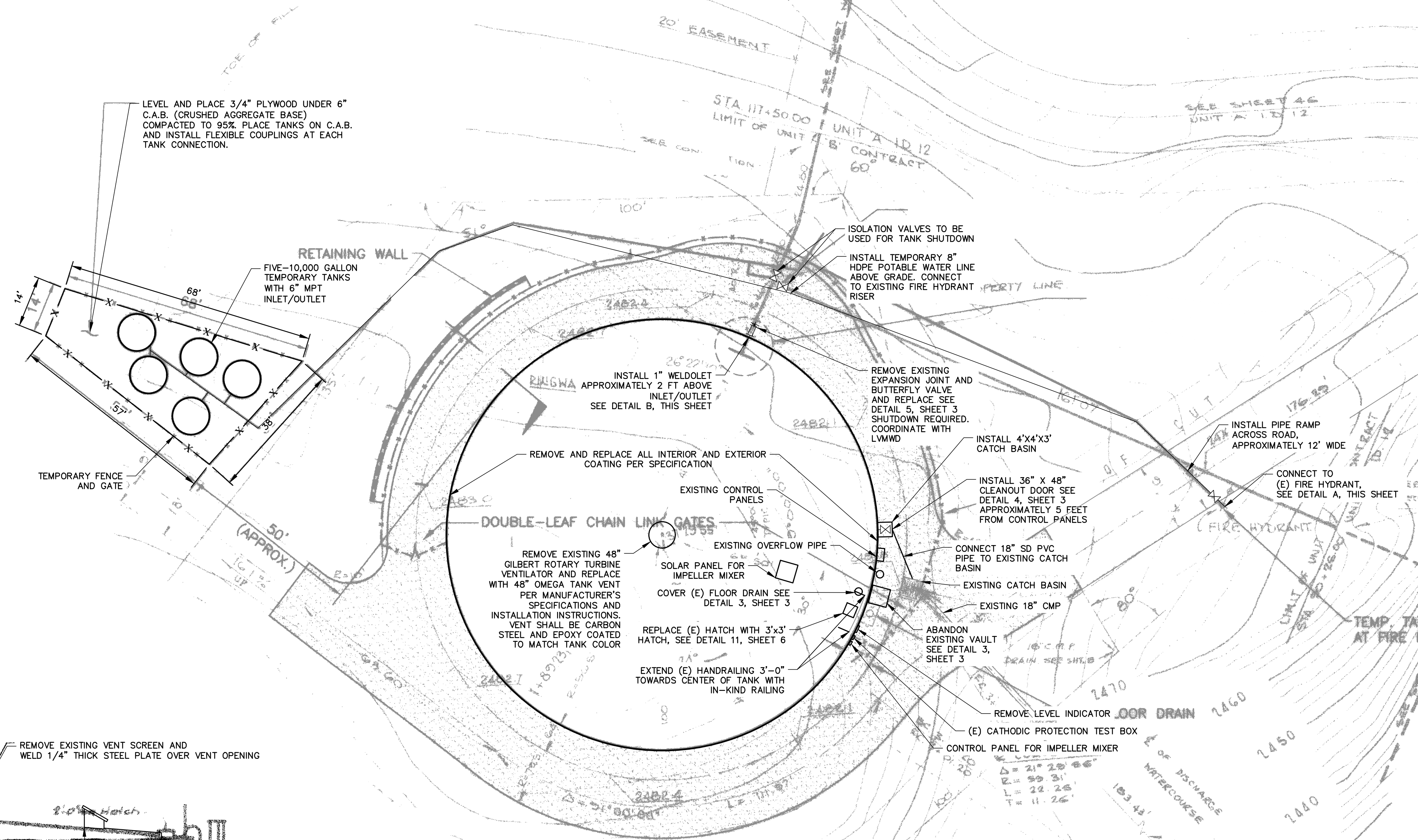
1. PROVIDE A TEMPORARY STORAGE CAPACITY OF 50,000 GALLONS, USING FIVE 10,000 GALLON TANKS FOR TIME WHEN SADDLE PEAK TANK IS OUT OF SERVICE. CONTRACTOR TO PICKUP TANKS FROM LVMWD RANCHO COMPOSTING FACILITY.
2. A TEMPORARY TANK LOCATION ON A RELATIVELY FLAT PAD, WEST OF TANK.
3. A 6-INCH GRAVEL BED IS REQUIRED UNDER THE TANK. 3/4" PLYWOOD IS REQUIRED UNDER THE GRAVEL BED. PROVIDE CRUSHED AGGREGATE BASE (C.A.B.) CONFORMING TO THE REQUIREMENT OF "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (SSPWC). BASE AND FOUNDATION SHALL CONFORM TO REQUIREMENTS OF TANK MANUFACTURER.
4. THE TANK SHALL BE EQUIPPED WITH A LEVEL TRANSMITTER. FINAL CONNECTION OF TRANSMITTER TO CONTROL SYSTEM TO BE MADE BY DISTRICT EMPLOYEES. WIRING OF LEVEL TRANSMITTER TO EXISTING CONTROL PANEL SHALL BE ENCASED IN ELEC CONDUIT (EMT OR SCHEDULE 80 PVC). CONDUIT MAY BE PLACED ON GROUND. WIRING AND CONDUIT TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
5. PRODUCT DATA FOR LEVEL TRANSMITTER, AND FLEXIBLE CONNECTION, SHALL BE SUBMITTED AND APPROVED BY THE DISTRICT PRIOR TO INSTALLATION.
6. AFTER SADDLE PEAK IS BACK IN SERVICE, REMOVE AND DISPOSE OF TEMPORARY PIPING, REMOVE AND RELOCATE THE TEMPORARY TANKS AND THE FENCING TO LVMWD RANCHO COMPOSTING FACILITY.
7. CONTRACTOR TO PROVIDE TEMPORARY FENCING. CONTRACTOR TO COMPLY WITH ALL APPLICABLE PERMIT REQUIREMENTS, INCLUDING BUT NOT LIMITED TO PROTECTIONS FOR EXISTING VEGETATION IN TEMPORARY TANK AREA.
8. AFTER CONSTRUCTION COMPLETION, CONTRACTOR WILL REMOVE AND DISPOSE OF ALL CRUSHED AGGREGATE BASE, SAND MATERIAL, AND PLYWOOD IN A LEGAL DUMP SITE. ALL TEMPORARY AND MAN-MADE MATERIALS SHALL BE REMOVED AND DISPOSED OF, AND THE SITE SHALL BE GRADED TO ITS ORIGINAL STATE.

TEMPORARY TANK TIE-IN

9. THE TEMPORARY TANKS SHALL BE FLUSHED, FILLED, DISINFECTED, TESTED FOR BACTERIA AND APPROVED PRIOR TO TIE IN PER DISTRICT STANDARD SPECIFICATIONS. DISTRICT WILL DO NECESSARY SAMPLING AND TESTING.
10. TIE-IN SHALL BE PLANNED SO THAT SYSTEM IS WITHOUT TANK STORAGE FOR LESS THAN 30 MINUTES. WORK SHALL TAKE PLACE BETWEEN THE HOURS OF 10:00 A.M. AND 2:00 P.M. THE CONTRACTOR SHALL SUBMIT THE TIE-IN PROCEDURE IN WRITING FOR DISTRICT APPROVAL. THESE REQUIREMENTS ALSO APPLY WHEN PERMANENT TANK IS RECONNECTED TO THE SYSTEM.
11. CONNECT THE PIPE TO THE 90-DEGREE ELBOW WITH STANDARD FITTINGS AND CONNECTIONS, INCLUDING REDUCER.
12. THE PIPE AND ALL APPURTENANCES SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST PRIOR TO PLACING IN SERVICE.
13. TIE-IN PIPING AND HOSES SHALL BE CLEAN, SANITIZED, AND TESTED FOR BACTERIA AND FLUSHED WITH CLEAN WATER, BEFORE PLACING IN SERVICE.

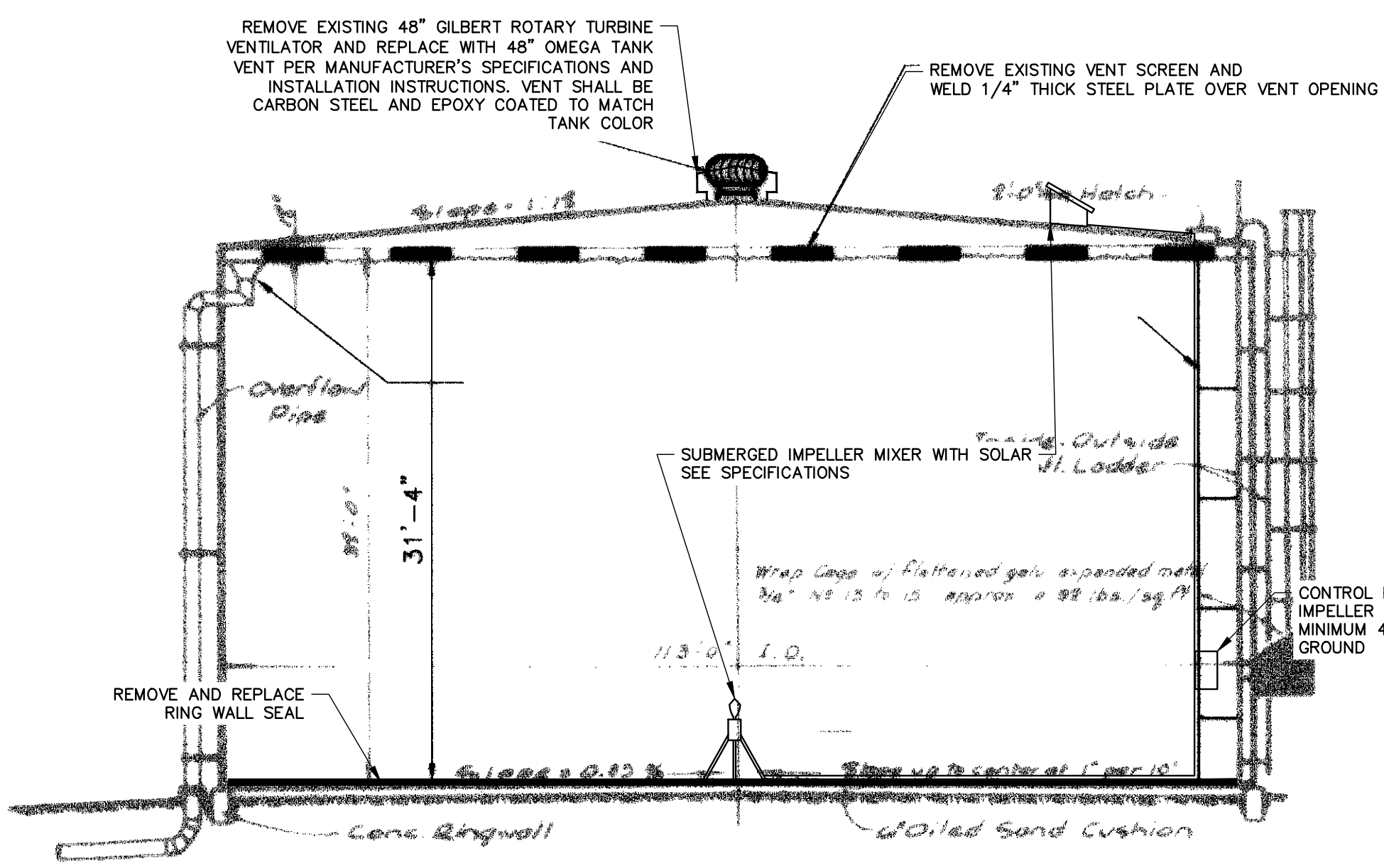
OTHER

14. LEAD IS PRESENT IN EXISTING COATING, REFER TO SPECIFICATIONS FOR MITIGATION AND REQUIREMENTS.
15. REPLACE ALL 28-6" COVER AND RUBBER GASKETS OF THE SUPPORT HANGER FOR THE CATHODIC PROTECTION PER DETAIL 1, SHEET 3.
16. REPLACE ALL 28 ANODES PER DETAIL 2, SHEET 3.
17. CHAINLINK FENCE SHALL BE 6 FOOT HIGH WITH 3 STRAND BARBED WIRE PER APWA STANDARD 600-0.
18. PRESSURE TEST ALL EXISTING ABOVE GROUND/TEMPORARY HDPE PIPING IN ACCORDANCE WITH LVMWD STANDARD 2.17 TO 50 PSI.



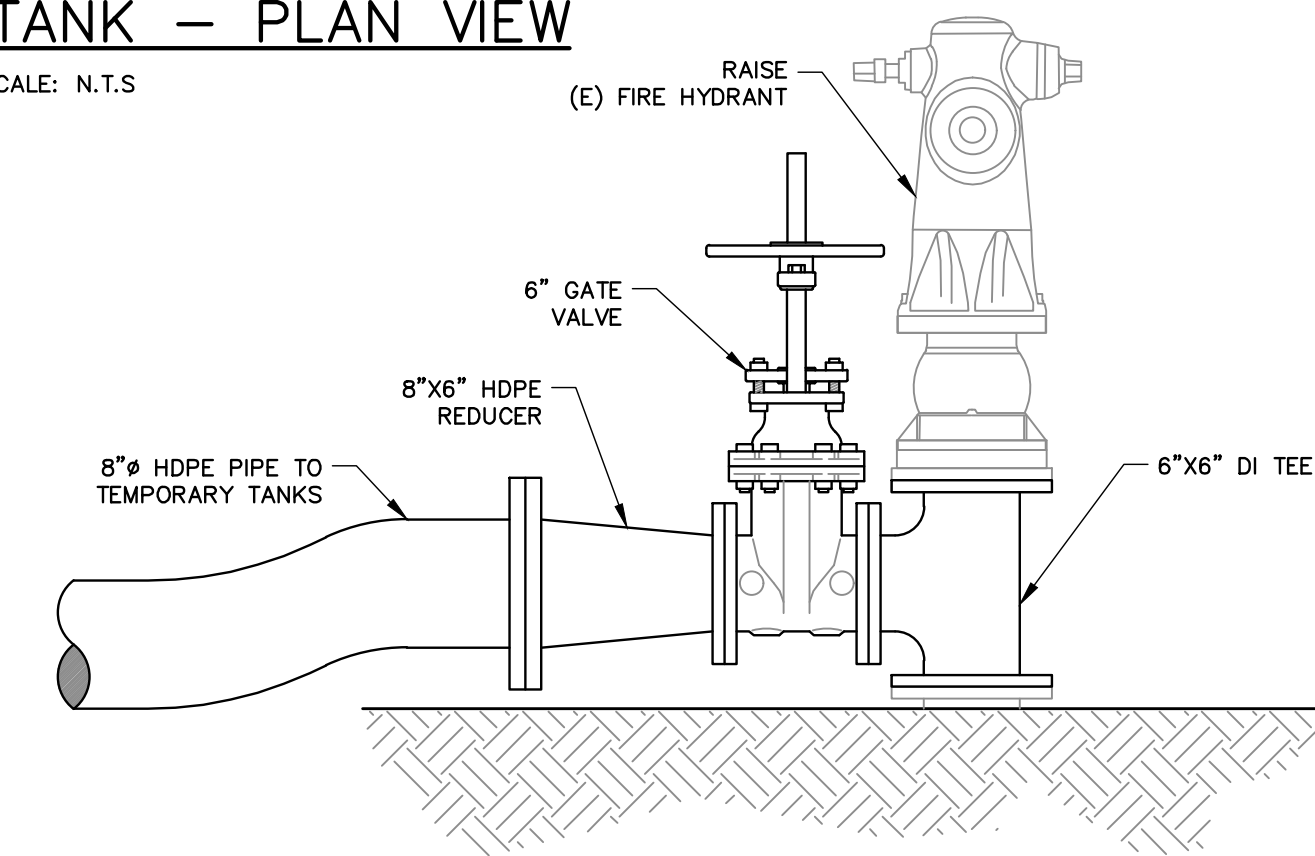
SADDLE PEAK TANK - PLAN VIEW

SCALE: N.T.S



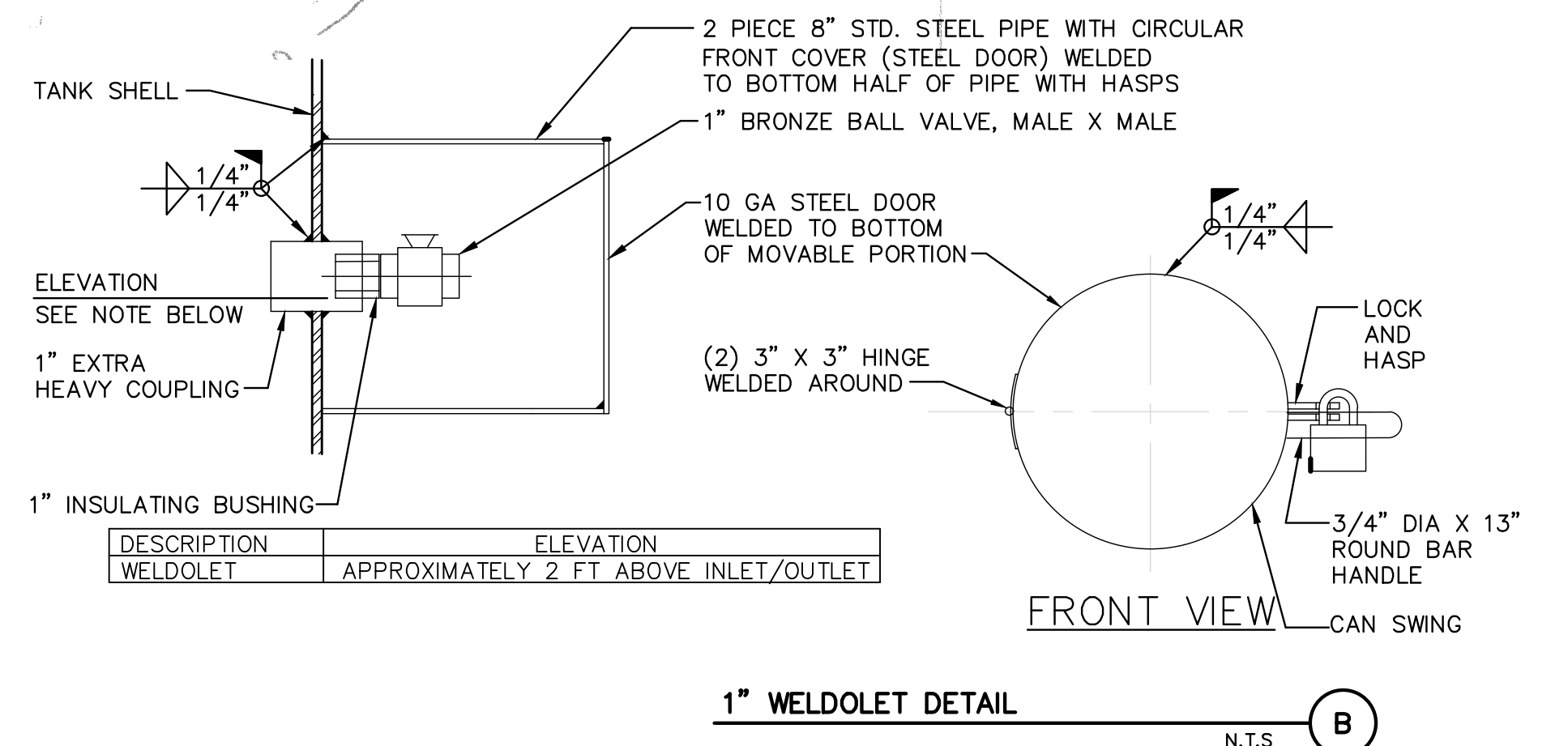
SADDLE PEAK TANK ELEVATION

SCALE: N.T.S



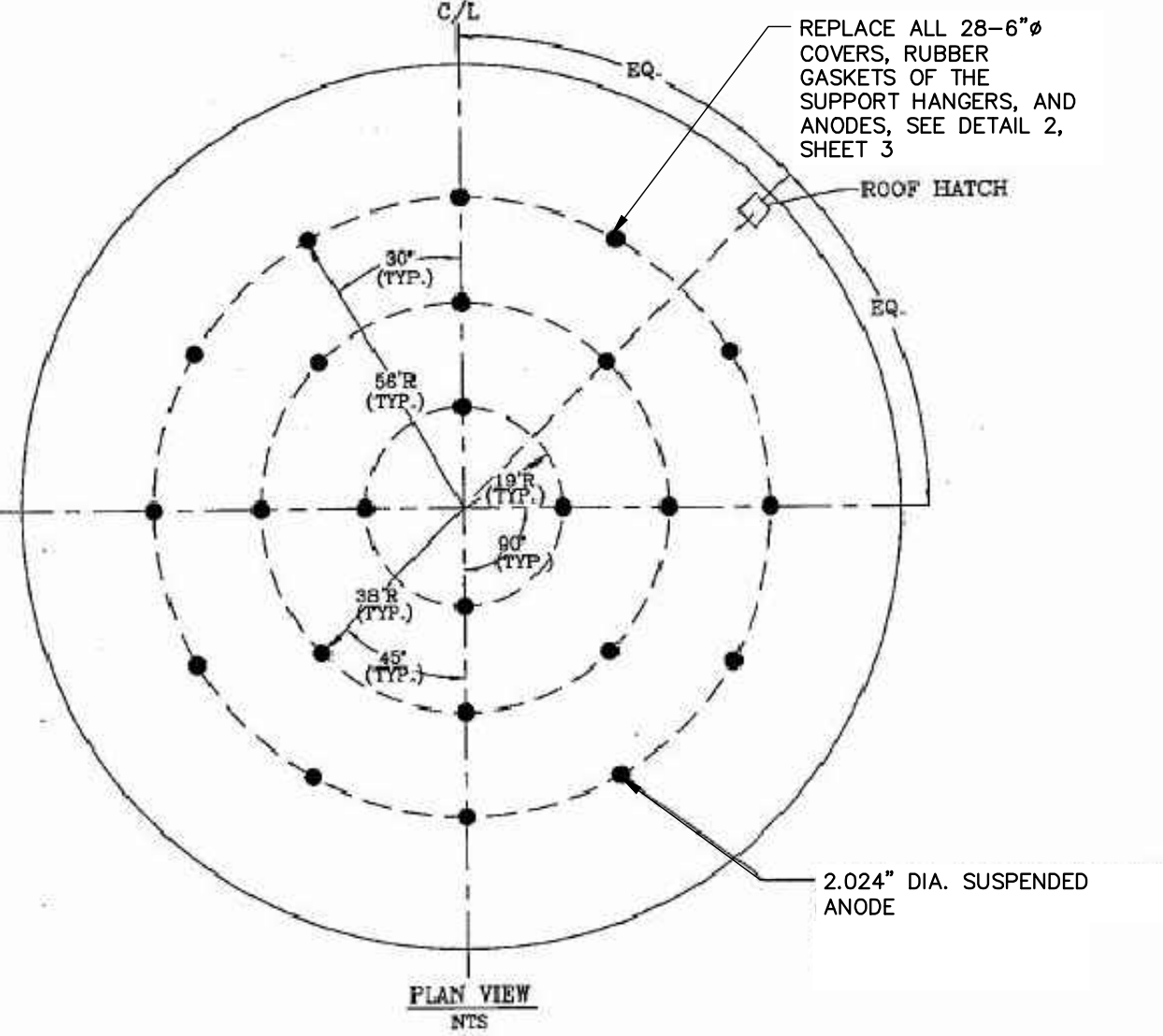
FIRE HYDRANT CONNECTION DETAIL

N.T.S



1\"/>

N.T.S



SADDLE PEAK TANK - ANODES

SCALE: N.T.S

ANODES		PLATINIZED NIOBIUM HOOP DIAMETER, DIAMETER AND LENGTH OF ALUMINUM OR NO. SECTIONS AND SPACING DIESEL/CON CAST IRON.
RING # 1	16	MAG. 1 1/2" ϕ x 20' ft. (Est.)
RING # 2	8	MAG. 1 1/2" ϕ x 20' ft. (Est.)
RING # 3	4	MAG. 1 1/2" ϕ x 20' ft. (Est.)
RING # 4	4	MAG. 1 1/2" ϕ x 20' ft. (Est.)

August 7, 2006 WATER TANK SERVICE REPORT

FOR: Las Virgenes Municipal Water District
 2222 Las Virgenes Road
 Calabasas, CA, 91302

CONTRACT TYPE: _____
 ANNIVERSARY DATE: _____
 TANK TYPE: Ground Storage
 TANK LOCATION: Saddle Peak
 CUSTOMER P.O.#: _____
 "SACRIFICIAL MAGNESIUM ANODE SYSTEM" HEATED TANK: YES ___ NO ___ X

Water Box: N/A, MANUFACTURED BY: Corpro, RATED AT: ___ D.C. VOLTS AND ___
 ON ARRIVAL RECTIFIER UNIT # _____
 D.C. AMP. TYPE: MANUAL ___ AUTOMATIC POTENTIAL CONTROL ___ AND/OR ___ AUTO CONTROLLED # ___ N/A ___
 WAS FOUND OPERATING AT: N/A ___ AMPS TO THE BOWL AND ___ AMPS TO THE RISER AT: N/A ___ D.C. VOLTS WITH TAP SETTING
 N/A ___ AND/OR ___ VOLTAGE POTENTIAL #1) 595 Volts *
 #2) 245 Volts *
 "Anode Current Set @ 100%"
 ALL ANODES, SUSPENSION, WIRING, ETC. WERE INSPECTED AND THE FOLLOWING REPAIRS OR REPLACEMENTS WERE MADE:

RECTIFIER: Water Box OK, Required Broken Shunt.
 WIRING: Good, Splices Good.
 SUSPENSION: Good, (Anodes Good 90%).
 OTHER: Cell To Cell Reading: Cell #1) 32 mV, Cell #2) 48 mV.

THE SYSTEM WAS LEFT OPERATING AT A TAP SETTING OF: N/A ___ AND/OR REFERENCE CELL SETTING OF: N/A ___ WITH
 0.2 D.C. AMPS TO THE BOWL AND ___ D.C. AMPS TO THE RISER AT: N/A ___ D.C. VOLTS, WITH THE TANK APPROXIMATELY
 75% FULL OF WATER. THE TANK TO WATER POTENTIAL PROVIDED AT THESE SETTINGS WAS: ___ VOLTS ON AND
 ___ VOLTS OFF.

TO INSURE CONTINUOUS CATHODIC PROTECTION OF MANUALLY OPERATED SYSTEMS, THE RECTIFIER OUTPUT SHOULD BE READ ONCE
 A MONTH AND ADJUSTMENTS MADE TO MAINTAIN THE BOWL CURRENT BETWEEN ___ AND ___ AMPS AND
 THE RISER CURRENT BETWEEN ___ AND ___ AMPS WHEN THE TANK IS FULL.

Anode Current Left Set @ 100%.

UNDERGROUND SERVICE ALERT

CALL TOLL FREE
1-800-227-2600

THREE WORKING DAYS BEFORE YOU DIG

DESIGN: TK/MK
 DRAWN: TK
 CHECKED: MK

10/31/19
 ENGINEER'S SEAL

11900 West Olympic Blvd, Suite 530
 Los Angeles, CA 90064
 P 310.664.1166 F 310.664.8877

REV. NO.	DATE	DESCRIPTION	APPVD.	DATE
	10/31/19	100% CONSTRUCTION DOCUMENTS ISSUED FOR CONSTRUCTION		

LAS VIRGENES MUNICIPAL WATER DISTRICT
 SADDLE PEAK AND CORDILLERA TANK
 REHABILITATION

SADDLE PEAK SITE PLAN

PREPARED BY: CANNON ENGINEERING
 11900 WEST OLYMPIC BLVD.,
 SUITE 530,
 LOS ANGELES, CALIFORNIA 90064

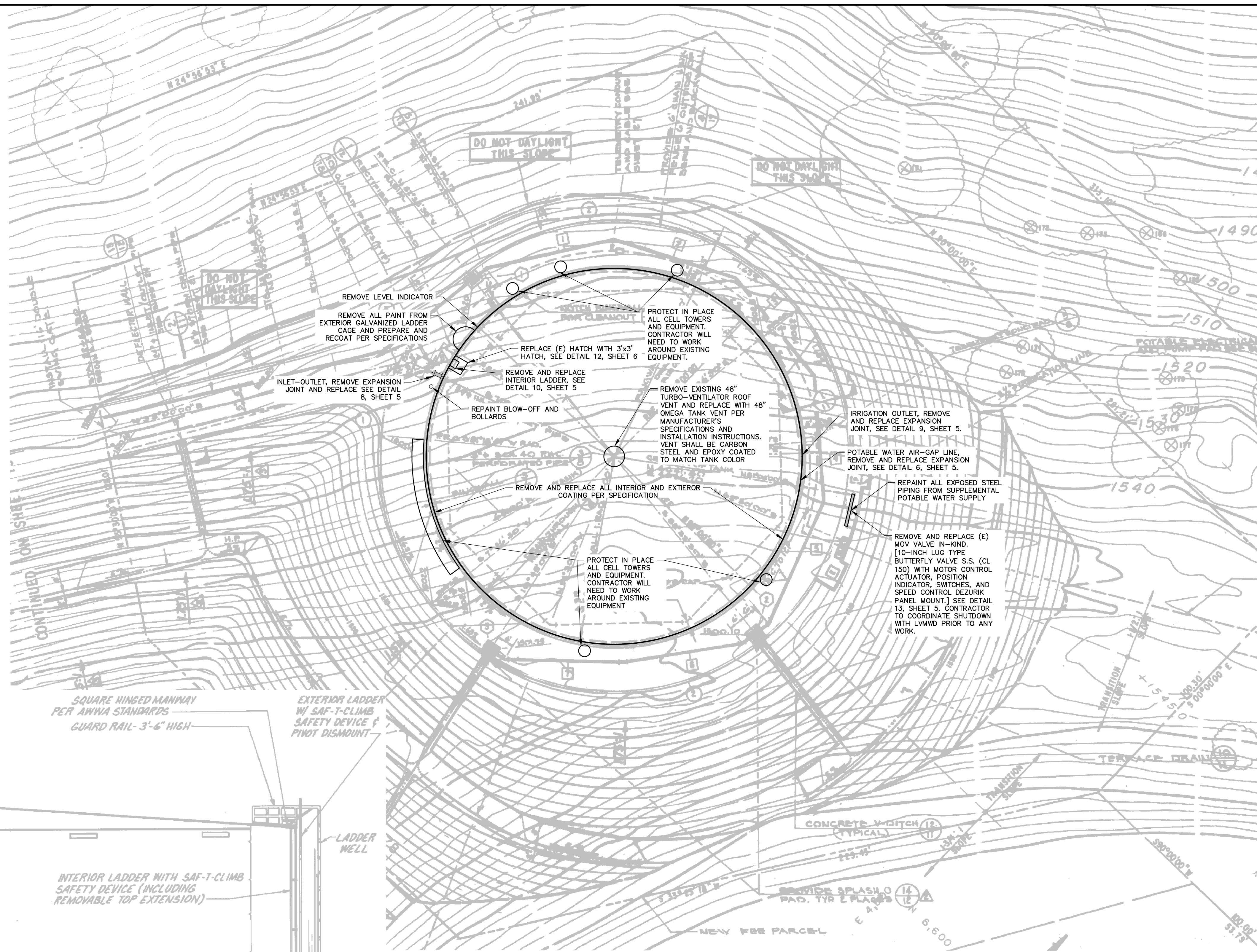
APPROVED FOR LAS VIRGENES MUNICIPAL WATER DISTRICT
 BY: _____
 DATE: 10/31/2019

SCALE: AS SHOWN

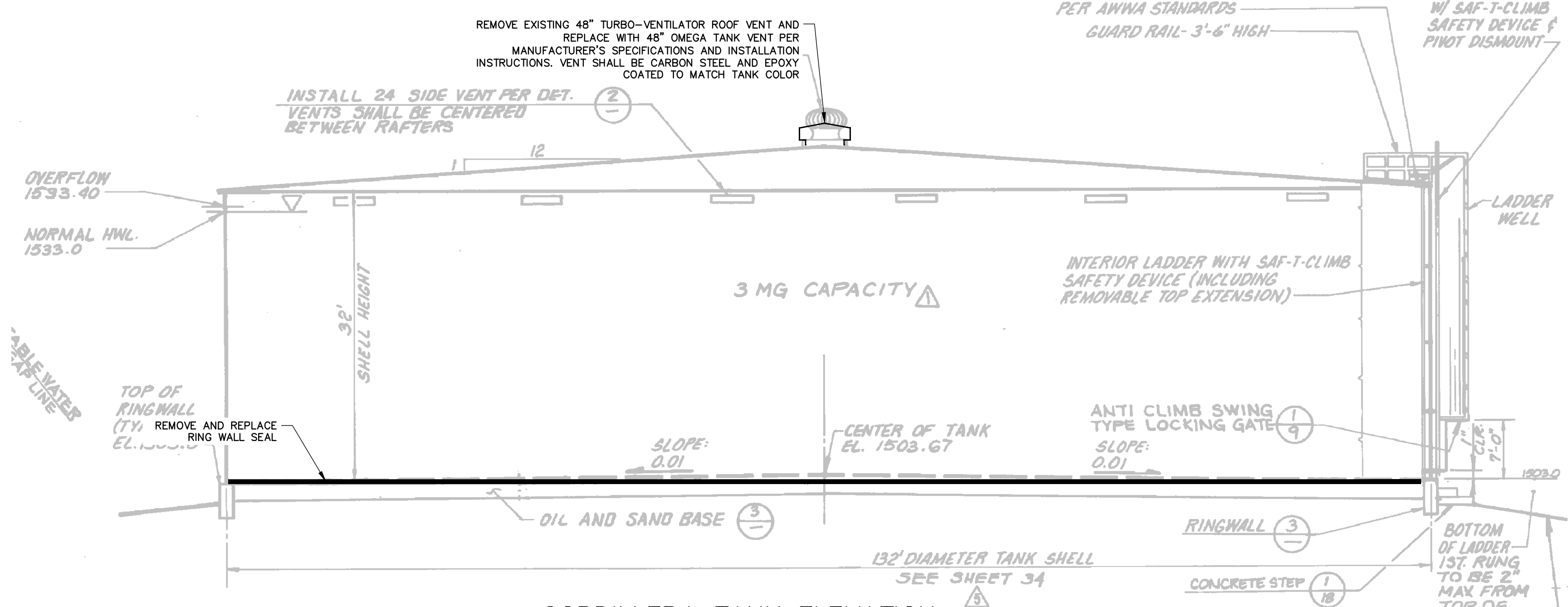
SHEET 2 OF 6

CONSTRUCTION NOTES

1. REPAINT ALL EXTERIOR VALVES, PIPING, AND APPURTENANCES PER SPECIFICATIONS.

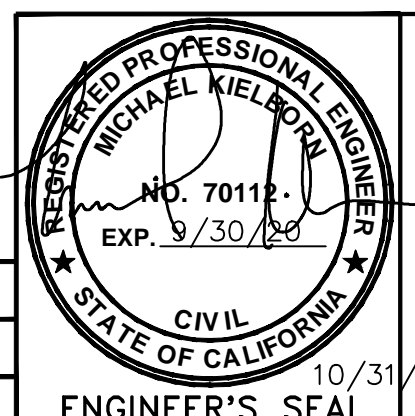


CORDILLERA TANK - PLAN VIEW
SCALE: N.T.S.



CORDILLERA TANK ELEVATION
SCALE: N.T.S.

UNDERGROUND SERVICE ALERT
CALL BEFORE YOU DIG
CALL TOLL FREE 1-800-227-2600
THREE WORKING DAYS BEFORE YOU DIG



DESIGN: TK/MK
DRAWN: TK
CHECKED: MK

REV. NO.	DATE	DESCRIPTION	APPVD.	DATE
	10/31/19	100% CONSTRUCTION DOCUMENTS ISSUED FOR CONSTRUCTION		
REVISIONS				

LAS VIRGENES MUNICIPAL WATER DISTRICT SADDLE PEAK AND CORDILLERA TANK REHABILITATION CORDILLERA SITE PLAN	
PREPARED BY: CANNON ENGINEERING 11900 WEST OLYMPIC BLVD., SUITE 530 LOS ANGELES, CALIFORNIA 90064	APPROVED FOR LAS VIRGENES MUNICIPAL WATER DISTRICT BY: _____ DATE: _____
SCALE: AS SHOWN	DATE: 10/31/2019 SHEET 4 OF 6

APPENDIX B

Coating Specifications

SECTION 09900

PAINTING AND COATING OF NEW PIPING AND VALVES

PART 1 - GENERAL

A. Description

This section includes materials and application of painting and coating systems to new piping and valves for the following surfaces:

1. Submerged metal.
2. Exposed metal.
3. Buried metal.

It does not include coating steel water tanks and reservoirs, which is covered by Section 09971, and Section 09973.

B. Submittals

1. Submit manufacturer's data sheets showing the following information:
 - a. Percent solids by volume.
 - b. Minimum and maximum recommended dry-film thickness per coat for prime, intermediate, and finish coats.
 - c. Recommended surface preparation.
 - d. Recommended thinners.
 - e. Statement verifying that the specified prime coat is recommended by the manufacturer for use with the specified intermediate and finish coats.
 - f. Application instructions including recommended equipment and temperature limitations.
 - g. Curing requirements and instructions.
2. Submit color swatches.
3. Submit certificate identifying the type and gradation of abrasives used for surface preparation.

4. Submit material safety data sheets for each coating.

C. Measurement and Payment

Payment for the work in this section shall be included as part of the lump-sum bid amount stated in the Proposal.

PART 2 - MATERIALS

A. Painting and Coating Systems

The following index lists the various painting and coating systems by service and generic type:

PAINT COATINGS SYSTEM INDEX

<u>No.</u>	<u>Title</u>	<u>Generic Coating</u>
7.	Submerged or Exposed Metal	Epoxy

B. Metal Coating Systems

System No. 7--Submerged or Exposed Metal:

Type: Epoxy.

Service Conditions: For use with structures, valves, piping, or equipment immersed in potable or nonpotable water or exposed to the atmosphere.

Surface Preparation: SSPC SP-10.

Coating System: Apply the manufacturer's recommended number of coats to attain the specified minimum coating thickness. 20 mils total. Color of topcoat: Selected by owner.

C. Abrasives for Surface Preparation

Abrasives used for preparation of ferrous surfaces shall be one of the following:

- a. 16 to 30 or 16 to 40 mesh silica sand or mineral grit.
- b. 20 to 40 mesh garnet.

- c. Crushed iron slag, 100% retained on No. 80 mesh.
- d. SAE Grade G-40 or G-50 iron or steel grit.

PART 3 - EXECUTION

A. Weather Conditions

- 1. Do not paint in the rain, wind, snow, mist, and fog or when steel or metal surface temperatures are less than 5°F above the dew point.
- 2. Do not apply paint when the relative humidity is above 85%.
- 3. Do not paint when temperature of metal to be painted is above 120°F.
- 4. Do not apply epoxy paints on an exterior or interior surface if air or surface temperature is below 60°F or expected to drop below 60°F in 24 hours.

B. Surface Preparation

- 1. Do not sandblast or prepare more surface area in one day than can be coated in one day; prepare surfaces and apply coatings the same day. Remove sharp edges, burrs, and weld spatter.
- 2. Do not sandblast PVC, CPVC, or FRP piping or equipment. Do not sandblast epoxy- or enamel-coated pipe that has already been factory coated, except to repair scratched or damaged coatings.
- 3. For carbon steel, do not touch the surface between the time of sandblasting and the time the coating is applied. Apply coatings within two hours of blasting or before any rust bloom forms.
- 4. Surface preparation shall conform with the SSPC specifications as follows:

Solvent Cleaning	SP-1
Hand Tool Cleaning	SP-2
Power Tool Cleaning	SP-3
White Metal Blast Cleaning	SP-5
Commercial Blast Cleaning	SP-6
Brush-Off Blast Cleaning	SP-7
Pickling	SP-8
Near-White Blast Cleaning	SP-10
Power Tool Cleaning to Bare Metal	SP-11
Surface Preparation of Concrete	SP-13

5. Wherever the words "solvent cleaning," "hand tool cleaning," "wire brushing," or "blast cleaning" or similar words are used in these specifications or in paint manufacturer's specifications, they shall be understood to refer to the applicable SSPC (Steel Structure Painting Council), surface preparation specifications listed above.
6. Remove weld spatter and weld slag from metal surfaces and grind smoothly rough welds, beads, peaked corners, and sharp edges including erection lugs in accordance with SSPC SP-2 and SSPC SP-3. Grind 0.020 inch (minimum) off the weld caps on pipe weld seams. Grind outside sharp corners, such as the outside edges of flanges, to a minimum radius of 1/4 inch.
7. Neutralize welds with a chemical solvent that is compatible with the specified coating materials. Use clean cloths and chemical solvent. Wipe dry with clean cloths. Do not leave a residue on the cleaned surfaces.
8. Remove oil and grease from metal surfaces in accordance with SSPC SP-1. Use clean cloths and cleaning solvents and wipe dry with clean cloths. Do not leave a film or greasy residue on the cleaned surfaces before abrasive blasting.
9. For carbon steel surfaces, after abrasive blast cleaning, the height of the surface profile shall be 2 to 3 mils. If this cannot be achieved with the surface preparation named in the painting system, SSPC SP-5 may be required. Verify the surface profile by measuring with an impresser tape acceptable to the Owner's Representative. Perform a minimum of one test per 100 square feet of surface area. Testing shall be witnessed by the Owner's Representative. The impresser tape used in the test shall be permanently marked with the date, time, and locations where the test was made. Test results shall be promptly presented to the Owner's Representative.
10. Do not apply any part of a coating system before the Owner's Representative has reviewed the surface preparation. If coating has been applied without this review, if directed by the Owner's Representative, remove the applied coating by abrasive blasting and reapply the coat in accordance with this specification.

C. Abrasive Blast Cleaning

1. Use dry abrasive blast cleaning for metal surfaces. Do not use abrasives in automatic equipment that have become contaminated. When shop or field blast cleaning with handheld nozzles, do not recycle or reuse blast particles.

2. After blast cleaning and prior to application of coating, dry clean surfaces to be coated by dusting, sweeping, and vacuuming to remove residue from blasting. Apply the specified primer or touch-up coating within the period of an eight-hour working day. Do not apply coating over damp or moist surfaces. Reclean prior to application of primer or touch-up coating any blast cleaned surface not coated within said eight-hour period.
3. Keep the area of the work in a clean condition and do not permit blasting particles to accumulate and constitute a nuisance or hazard.
4. During sandblast cleaning, prevent damage to adjacent coatings. Schedule blast cleaning and coating such that dust, dirt, blast particles, old coatings, rust, mill scale, etc., will not damage or fall upon wet or newly coated surfaces.

D. Procedures for Items Having Shop-Applied Prime Coats

1. After application of primer to surfaces, allow coating to cure for a minimum of two hours before handling to minimize damage.
2. When loading for shipment to the project site, use spacers and other protective devices to separate items to prevent damaging the shop-primed surfaces during transit and unloading. If wood spacers are used, remove wood splinters and particles from the shop-primed surfaces after separation. Use padded chains or ribbon binders to secure the loaded items and minimize damage to the shop-primed surfaces.
3. Cover shop-primed items 100% with protective coverings or tarpaulins to prevent deposition of road salts, fuel residue, and other contaminants in transit.
4. Handle shop-primed items with care during unloading, installation, and erection operations to minimize damage. Do not place or store shop-primed items on the ground or on top of other work unless ground or work is covered with a protective covering or tarpaulin. Place shop-primed items above the ground upon platforms, skids, or other supports.

E. Field Touch-Up of Shop-Applied Prime Coats

1. Remove oil and grease surface contaminants on metal surfaces in accordance with SSPC SP-1. Use clean rags wetted with a degreasing solution, rinse with clean water, and wipe dry.
2. Remove dust, dirt, salts, moisture, chalking primers, or other surface contaminants that will affect the adhesion or durability of the coating system. Use a high-pressure water blaster or scrub surfaces with a broom or brush wetted with a solution of trisodium phosphate, detergent, and water. Rinse scrubbed surfaces with clean water.

3. Remove loose or peeling primer and other surface contaminants not easily removed by the previous cleaning methods in accordance with SSPC SP-7. Take care that remaining primers are not damaged by the blast cleaning operation. Remaining primers shall be firmly bonded to the steel surfaces with blast cleaned edges feathered.
4. Remove rust, scaling, or primer damaged by welding or during shipment, storage, and erection in accordance with SSPC SP-10. Take care that remaining primers are not damaged by the blast cleaning operation. Areas smaller than 1 square inch may be prepared per SSPC SP-11. Remaining primers shall be firmly bonded to the steel surfaces with cleaned edges feathered.
5. Use repair procedures on damaged primer which protects adjacent primer. Blast cleaning may require the use of lower air pressure, smaller nozzles, and abrasive particle sizes, short blast nozzle distance from surface, shielding, and/or masking.
6. After abrasive blast cleaning of damaged and deflective areas, remove dust, blast particles, and other debris by dusting, sweeping, and vacuuming; then apply the specified touch-up coating.

F. Painting Systems

1. All materials of a specified painting system, including primer, intermediate, and finish coats, shall be produced by the same manufacturer. Thinners, cleaners, driers, and other additives shall be as recommended by the paint manufacturer for the particular coating system.
2. Deliver paints to the jobsite in the original, unopened containers.

G. Paint Storage and Mixing

1. Store and mix materials only in areas designated for that purpose by the Owner's Representative. The area shall be well-ventilated, with precautionary measures taken to prevent fire hazards. Post "No Smoking" signs. Storage and mixing areas shall be clean and free of rags, waste, and scrapings. Tightly close containers after each use. Store paint at an ambient temperature from 50°F to 100°F.
2. Prepare multiple-component coatings using all of the contents of the container for each component as packaged by the paint manufacturer. Do not use partial batches. Do not use multiple-component coatings that have been mixed beyond their pot life. Provide small quantity kits for touch-up painting and for painting other small areas. Mix only the components specified and furnished by the paint manufacturer. Do not intermix additional components for reasons of color or otherwise, even within the same generic type of coating.

H. Procedures for the Application of Coatings

1. Conform to the requirements of SSPC PA-1. Follow the recommendations of the coating manufacturer including the selection of spray equipment, brushes, rollers, cleaners, thinners, mixing, drying time, temperature and humidity of application, and safety precautions.
2. Stir, strain, and keep coating materials at a uniform consistency during application. Power mix components. For multiple component materials, premix each component before combining. Apply each coating evenly, free of brush marks, sags, runs, and other evidence of poor workmanship. Use a different shade or tint on succeeding coating applications to indicate coverage where possible. Finished surfaces shall be free from defects or blemishes.
3. Do not use thinners unless recommended by the coating manufacturer. If thinning is allowed, do not exceed the maximum allowable amount of thinner per gallon of coating material. Stir coating materials at all times when adding thinner. Do not flood the coating material surface with thinner prior to mixing. Do not reduce coating materials more than is absolutely necessary to obtain the proper application characteristics and to obtain the specified dry-film thicknesses.
4. Remove dust, blast particles, and other debris from blast cleaned surfaces by dusting, sweeping, and vacuuming. Allow ventilator fans to clean airborne dust to provide good visibility of working area prior to coating applications. Remove dust from coated surfaces by dusting, sweeping, and vacuuming prior to applying succeeding coats.
5. Apply coating systems to the specified minimum dry-film thicknesses as measured from above the peaks of the surface profile.
6. Apply primer immediately after blast cleaning and before any surface rusting occurs, or any dust, dirt, or any foreign matter has accumulated. Reclean surfaces by blast cleaning that have surface colored or become moist prior to coating application.
7. Apply a brush coat of primer on welds, sharp edges, nuts, bolts, and irregular surfaces prior to the application of the primer and finish coat. Apply the brush coat prior to and in conjunction with the spray coat application. Apply the spray coat over the brush coat.
8. Before applying subsequent coats, allow the primer and intermediate coats to dry for the minimum curing time recommended by the manufacturer. In no case shall the time between coats exceed the manufacturer's recommendation.
9. Each coat shall cover the surface of the preceding coat completely, and there shall be a visually perceptible difference in applied shade or tint of colors.

10. Applied coating systems shall be cured at 75°F or higher for 48 hours. If temperature is lower than 75°F, curing time shall be in accordance with printed recommendations of the manufacturer, unless otherwise allowed by the Owner's Representative.
11. Assembled parts shall be disassembled sufficiently before painting or coating to ensure complete coverage by the required coating.

I. Protection of Surfaces Not To Be Painted

Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted. Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors to prevent paint and other materials from entering the motors.

J. Surfaces To Be Coated

The exact coating to be applied in any location is not designated by the descriptive phrases in the coating system titles such as "corrosive environment," "buried metal," or "submerged metal." Coat surfaces with the specific coating systems as described below:

1. Coat mechanical equipment, such as pumps, blowers, clarifier mechanisms, as described below. Color of finish coat shall match the color of the connecting piping.
2. Coat aboveground and exposed piping or piping in structures as described below. Color of finish coat shall be as shown selected by owner.
3. Coat insulated steel and ductile-iron piping per System No. 7.
4. Coat submerged steel and ductile iron piping per System No. 7.
5. Coat valves the same as the adjacent piping. Aboveground valves, or valves in vaults and structures, shall match the color of the connecting piping.

K. Dry-Film Thickness Testing

1. Measure coating thickness specified for metal surfaces with a magnetic-type dry-film thickness gauge. Provide certification that the gauge has been calibrated by a certified laboratory within the past six months. Provide dry-film thickness gauge as manufactured by Mikrotest or Elcometer.
2. Test the finish coat of metal surfaces (except zinc primer and galvanizing) for holidays and discontinuities with an electrical holiday detector, low-voltage, wet-sponge type. Provide measuring equipment. Provide certification that the gauge has been calibrated by a certified laboratory within the past six months. Provide detector as manufactured by Tinker and Razor or K-D Bird Dog.
3. Check each coat for the correct dry-film thickness. Do not measure within eight hours after application of the coating.
4. For metal surfaces, make five separate spot measurements (average of three readings) spaced evenly over each 100 square feet of area (or fraction thereof) to be measured. Make three readings for each spot measurement of either the substrate or the paint. Move the probe or detector a distance of 1 to 3 inches for each new gauge reading. Discard any unusually high or low reading that cannot be repeated consistently. Take the average (mean) of the three readings as the spot measurement. The average of five spot measurements for each such 100 square foot area shall not be less than the specified thickness. No single spot measurement in any 100 square foot area shall be less than 80%, nor more than 120%, of the specified thickness. One of three readings which are averaged to produce each spot measurement may underrun by a greater amount.
5. Perform tests in the presence of the Owner's Representative.

L. Repair of Improperly Coated Surfaces

If the item has an improper finish color or insufficient film thickness, clean and topcoat the surface with the specified paint material to obtain the specified color and coverage. Sandblast or power-sand visible areas of chipped, peeled, or abraded paint, feathering the edges. Then prime and finish coat in accordance with the specifications. Work shall be free of runs, bridges, shiners, laps, or other imperfections.

M. Cleaning

1. During the progress of the work, remove discarded materials, rubbish, cans, and rags at the end of each day's work.

2. Thoroughly clean brushes and other application equipment at the end of each period of use and when changing to another paint or color.
3. Upon completion of painting work, remove masking tape, tarps, and other protective materials, using care not to damage finished surfaces.

END OF SECTION

SECTION 09971

TOTAL REMOVAL AND REPLACEMENT OF INTERIOR RESERVOIR COATINGS

PART 1 - GENERAL

A. PURPOSE

The purpose of this specification is to establish methods and procedures for the total removal and replacement of existing interior coating systems.

B. SCOPE OF WORK

Removal of existing coatings and replacement with an NSF-61 approved epoxy on interior surfaces. Operations shall include, but are not limited to, surface preparation, coating application, curing of coating, disinfection, final inspection and warranty inspection.

The Las Virgenes Municipal Water District (LVMWD) tanks addressed by this specification section are:

Tank Name	Size	Diameter (ft)	Height (ft)	Tank Interior Action
Saddle Peak	2.25 MG	113	32	Remove/Replace
Cordillera	3.0 MG	132	32	Remove/Replace

C. REFERENCE SPECIFICATIONS AND STANDARDS

1. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and ordinances governing the work, as specified by the owner, Steel Structures Painting Council, ASTM, NACE International, the California Administrative Code, 29 CFR, 40 CFR, and Manufacturer's printed instructions, subject to Engineer's approval.
2. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced code, laws, ordinances, specifications and standards contained herein.

D. DEFINITIONS

1. The following pairs of words shall be considered identical in meaning and may be used interchangeably: General Conditions and General Provisions; Special Conditions and Special Provisions; Drawings and Plans; Standard Drawings and Standard Plans.
2. The Owner referred to in these specifications is Las Virgenes Municipal Water District (LVMWD).
3. The definition of the word Engineer contained herein is: The person authorized by the Owner to oversee the execution of the contract, acting either directly or through his properly authorized agents, each agent acting only within the scope of authority delegated to him.
4. The term "paint," "coatings," or "finishes" as used herein, shall include surface treatments, emulsions, enamels, paints, epoxy resins, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pretreatment, primer, intermediate coat or finish coat.
5. The term "DFT" means dry film thickness.

E. CONTRACTOR SUBMITTALS

1. Submittals shall include the following information and be submitted at least 30 days prior to protective coating work
 - a. Submit shop drawings in accordance with the General Conditions section 00700.
 - b. Submit manufacturer's data sheets showing the following information for each coating system to be used:
 - (1) The most recent publication of the Paint Manufacturer's data sheet for each product proposed, including statements on the suitability of the material for the intended use.
 - (2) Technical and performance information that demonstrates compliance with the system performance and material requirements.
 - (3) Paint Manufacturer's instructions and recommendations on surface preparation and application.
 - (4) Colors available for each product (where applicable).
 - (5) Compatibility of shop and field applied coatings (where applicable).

- (6) Curing requirements and instructions.
 - (7) Material Safety Data Sheet for each product used.
- b. Samples of all paint, finishes, and other coating materials shall be submitted on 8.5-inch by 11-inch sheet metal. Each sheet shall be completely coated over its entire surface with one protective coating material, type, and color.
 - c. Two sets of color samples to match each color selected by the Owner's Representative from the Manufacturers standard color sheets. If custom mixed colors are indicated, the color samples shall be made using color formulations prepared to match the color samples furnished by the Owner's Representative. The color formula shall be shown on the back of each color sample.
2. Submit certificate identifying the type and gradation of each abrasives used for surface preparation.

PART 2 - MATERIALS

A. GENERAL

1. All surface preparation and coating application shall conform to applicable standards of the Society of Protective Coatings, ASTM, NACE International and the manufacturer's printed instructions. Material applied prior to approval of the surface, by the Engineer, shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor.
2. All work shall be accomplished by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Contractor shall provide documentation certifying that the company is QP-1/QP-2 Certified, or have been painting tanks for at least ten years and can give ten projects of similar scope for reference. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
3. The Contractor shall provide a supervisor to be at the work site during cleaning and application operations.
4. Dust, dirt, oil, grease or any foreign matter which will affect the adhesion or durability of the newly installed coating must be removed in accordance with SSPC SP-1 criteria and/or methods.
5. The Contractor's coating equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Blotter test shall be accomplished at each start-up period and

as deemed necessary by the Engineer. Contractor's equipment shall be subject to approval of the Engineer.

6. Where protective coatings are to be performed by a subcontractor, the subcontractor shall possess a valid state license as required for performance of the painting and coating work called for in this specification and shall provide 5 references which show that the painting subcontractor has previous successful experience with the indicated or comparable coating systems. Include the name, address, and the telephone number for the owner of each installation for which the painting subcontractor provided the protective coating.

B. SURFACE PREPARATION, GENERAL

1. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council shall form a part of this specification. (Note: An element of surface area is defined as any given square inch of surface).
 - a. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods, which involve a solvent or cleaning action.
 - b. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by hand chipping, scraping, sanding and wire brushing.
 - c. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by power wire brushing, power impact tools or power sanders.
 - d. White Metal Blast Cleaning (SSPC-SP5): Blast cleaning to white metal cleanliness removing all visible residues.
 - e. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element of surface area is free of all visible residue.
 - f. Brush-off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mill scale, and other detrimental foreign matter present to the degree specified.
 - g. Near-White Blast Cleaning (SSPC-SP10): Blast cleaning to near-white metal cleanliness, until at least ninety-five% of each element of surface area is free of all visible residues.
 - h. Power Tool Cleaning to Bare Metal (SSPC-SP11): Power tool cleaning to produce a bare metal surface and to retain or produce a surface profile of at least one mil.

- i. High- and Ultrahigh-Pressure Water Jetting (SSPC-SP12): Surface Preparation and Cleaning of Steel and Other Hard Materials Prior to Recoating.
 - j. Industrial Blast Cleaning (SSPC-SP14): Covers the use of blast cleaning abrasives to achieve a defined degree of cleaning of steel surfaces prior to the application of a protective coating or lining system.
 - k. Commercial Grade Power Tool Cleaning (SSPC-SP15): This standard covers the requirements for power tool cleaning to provide a commercial grade power tool cleaned steel surface, and to retain or produce a minimum 25 micrometer (1.0 mil) surface profile.
2. All blast hose connections shall be in proper working order and leak free.
 3. Particle size of abrasives used in blast cleaning shall be that which will produce an adequate surface profile in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied, subject to approval of the Engineer.
 4. Abrasive used in blast cleaning operations shall be new, and free of contaminants that would interfere with adhesion of coatings and paints and shall not be reused unless specifically approved by the Engineer. Abrasives shall be certified for unconfined dry blasting pursuant to the California Administrative Code, Section 92520 of Subchapter 6, Title 17, and shall appear on the current listing of approved abrasives.
 5. The Contractor shall keep the area of his work in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work of the operation of the existing facilities. All fugitive abrasives and associated nuisances used in surface preparation shall be confined to the project site. Any cost for clean up adjacent properties associated to surface preparation activities shall be borne by the contractor.

C. SURFACE PREPARATION, SPECIFIC

1. Abrasive blasting shall be performed on 100% of all interior surfaces.
 - a. All interior surfaces shall be abrasive blast cleaned in accordance with SSPC-SP10, Near White Metal Blast Cleaning. Profile shall be as specified by the approved coatings material manufacturer.
 - b. Galvanized steel flange bolts and nuts for circulation piping shall be cleaned in accordance with SSPC-SP 1 (Solvent Cleaning), SSPC-SP 2 (Hand Tool Cleaning), SSPC-SP 3 (Power Tool Cleaning) and/or a light sweep blast in accordance with SSPC SP-7 (Brush-off Blast Cleaning) to prepare for epoxy coating.

D. APPLICATION, GENERAL

1. Coating application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for Shop, Field and Maintenance Painting, the manufacturer of the coating materials printed literature and as specified herein.
2. Thinning shall only be permitted as recommended by the manufacturer and approved by the Engineer, and shall not exceed limits set by applicable regulatory agencies.

If Contractor applied any coatings that have been modified or thinned to such a degree as to cause them to exceed established VOC levels, Contractor shall be responsible for any fines, costs, remedies, or legal action and cost which may result.

3. Each application of coating shall be applied evenly, free of overspray, brush marks, sags, runs and no evidence of poor workmanship.
4. Protective coverings or drop cloths shall be used to protect floors, fixtures, equipment, prepared surface and applied coatings or paints. Personnel entering the tank shall take precautions to prevent damage or contamination of coated or painted surfaces. If required by Engineer, personnel shall wear soft soled shoes, or shoe coverings approved by Engineer. Care shall be exercised to prevent coating or paint from spattering onto surfaces which are not to be coated or painted. Surfaces from which such material cannot be removed satisfactorily shall be repainted or recoated as required to produce a finish satisfactory to the Engineer.
5. All material shall be applied as specified herein.
6. Suitability: The Contractor shall use suitable coating materials as recommended by the Manufacturer.
7. Compatibility: In any coating system only compatible materials from a single Manufacturer shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, a barrier coat shall be applied between existing prime coat and subsequent field coats to ensure compatibility.
8. Containers: Coating materials shall be sealed in containers that plainly show the designated Name, Formula or Specification number, Batch number, Color, Date of Manufacture, and Name of Manufacturer, all of which shall be plainly legible at the time of use.

9. Colors: All colors and shades of colors of all coats of paint shall be as indicated or selected by The Owner's Representative. Each coat shall be of a slightly different shade, to facilitate inspection of surface coverage of each coat. Finish colors shall be as selected from the Manufacturer's standard color samples by the Owner's Representative.
10. Substitute or "Or-Equal" Products
- a. Specified products are those manufactured by Tnemec Company, Inc., North Kansas City, Missouri and are specified as basis of design and standard of quality. Web site: www.tnemec.com Local contact: Tony Hobbs. 310-804-2326
 - b. Equivalent materials of other manufacturers may be substituted only by approval of the engineer. Equivalent products shall demonstrate equivalent or greater performance based on Tnemec performance criteria. Requests for substitution shall include manufacturer's literature for each product giving the name, generic type, descriptive information, solids by volume, recommended film thicknesses and a list of five projects where each product has been used and rendered satisfactory service. No request for substitution shall be considered that would decrease film thickness or offer a change in the generic type of coating specified.
 - c. Protective Coating Materials shall be standard products by recognized Manufacturers who are regularly engaged in production of such materials for essentially identical service conditions. Where requested, the Contractor shall provide the Owner's Representative with the names of not less than 10 successful applications of the proposed Manufacturer's products that comply with these requirements.
 - d. The cost of all testing and analyzing proposed substitute products which may be required By the Owner's Representative shall be paid by the Contractor at no additional cost to the Owner. If a proposed substitution requires changes in the Work, the Contractor shall bear all such costs involved and the costs of allied trades affected by the substitution at no additional cost to the Owner.
11. Material Sources: Each of the following manufacturers is capable of supplying many of the Industrial coating materials indicated herein.
- Tnemec Protective Coatings Company
 - Or approved equal.
12. Where manufacturers and paint numbers are listed, it is to show the type and quality of coatings that are required. Only materials that have a record of

satisfactory performance in industrial plants, manufacturing facilities, and water/wastewater treatment plants and storage reservoirs will be considered. Proposed substitute materials will be considered as indicated above.

E. APPLICATION, SPECIFIC

A. Interior Roof / Ceiling Surfaces:

1. System Type: Zinc / Epoxy
2. AWWA D102-11(ICS-5) Inside Coating System No.5
3. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP10 Near White Blast Cleaning / NACE 2. With a minimum 2 mil angular anchor profile.
4. Prime Coat: 94-H20 Hydro-Zinc @ 2.5 to 3.5 mils DFT.
5. Intermediate Coat: L140F Pota-Pox @ 4.0 to 6.0 mils DFT.
6. Finish Coat: L140F Pota-Pox @ 4.0 to 6.0 mils DFT.
7. Total System: The total dry film thickness shall be minimum 11.5 mils.

B. Interior Floor and Wall surfaces except Roof / Ceiling:

1. System Type: Zinc / 100% Solids Epoxy
2. AWWA D102-11(ICS-3) Inside Coating System No.3
3. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP10 Near White Blast Cleaning / NACE 2. With a minimum 2 mil angular anchor profile.
4. Prime Coat: 94-H20 Hydro-Zinc @ 2.5 - 3.5 mils DFT.
5. Finish Coat: Series FC22 or 22 Epoxoline @ 20.0 – 25.0 mils DFT.
6. Total System: The total dry film thickness shall be 22.5 mils minimum.

F. QUALITY CONTROL

1. All epoxy coating components shall be mixed in exact proportions specified by the manufacturer. Care shall be exercised to ensure all material is

removed from containers during mixing and metering operations. Manufacturer's published induction times and pot life requirements must be strictly adhered to.

2. All coatings shall be thoroughly mixed, in accordance with manufacturer's recommendations using an approved slow-speed power mixer until all components are thoroughly combined and are of a smooth consistency. Coatings shall not be applied beyond pot-life limits or recoat cycles specified by manufacturer.
3. Thinners shall be added to coating materials only as required in accordance with manufacturer's printed literature and in the presence of the Engineer.
4. Drying time between coats shall be strictly observed as stated in manufacturer's printed instructions.
5. Dry film thicknesses shall be taken in accordance with SSPC-PA2 criteria, and as recommended in manufacturer's printed instructions.
6. Upon completion of interior coating operations, after curing intervals in accordance with manufacturer's recommendations, holiday detection shall be accomplished in accordance with NACE RP 0188-99.
7. All mixing, thinning, application and holiday detection of coating shall be accomplished in the presence of the Owners Representative or Engineer.
8. Coatings shall not be applied unless the surface temperature of the air and substrate are a minimum of 5 degrees above the temperature of the dew point as measured by Sling Psychrometer and US Department of Commerce Psychrometric Tables.
9. Compressed air when used, shall be free of oils and other residues.
10. Anchor profile shall be performed by Replica Tape and Micrometer.
11. All inspections shall be performed by independent 3rd party Coatings Inspectors.
12. All costs associated with the correction and repairs of defective workmanship shall be borne by the contractor.

G. INSPECTION AND TESTING

1. The Contractor shall give the Owner's Representative a minimum of 3 days advance notice of the start of any field surface preparation work or coating application work.

2. All such work shall be performed only in the presence of the Owner's Representative, unless the Owner's Representative has granted prior approval to perform such work in its absence.
3. Inspection by the Owner's Representative, or the waiver of inspection of any particular portion of the Work, shall not relieve the Contractor of its responsibility to perform the work in accordance with these Specifications.
4. Scaffolding shall be erected and moved to locations where requested by the Owner's Representative to facilitate inspection. Additional illumination shall be furnished to cover all areas to be inspected.
5. Inspection Devices: The Contractor shall furnish, until final acceptance of such coatings, inspection devices in good working condition for the measurement of dry-film thicknesses of protective coatings. Dry-film thickness gages shall be made available for the Owner's Representative's use at all times while coating is being done, until final acceptance of such coatings.
6. Holiday Testing shall not be required on Protective coatings for atmospheric exposure. (External Coatings).
7. The dry film coating thickness (DFT) shall be measured in accordance with the SSPC "Paint Application Specification No.2" using a magnetic-type dry film thickness gage such as Mikrotest model FM, Elcometer model 111/1 EZ, or equal. Each coat shall be tested for the correct thickness. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using a wet film gage.
8. Evaluation of blast cleaned surface preparation work will be based upon comparison of the blasted surfaces with the standard samples available in SSPC VIS-1 89.

H. CLEANUP

Upon completion of the work, all removed coating, spent abrasive materials, other debris, and all containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating spots upon adjacent surfaces shall be removed and the entire jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired or refinished to the complete satisfaction of the Engineer at no cost to the Owner.

PART 3 - CORRECTION OF DEFECTS

A. WARRANTY INSPECTION

1. The Contractor shall conduct a warranty inspection between the eleventh and sixteenth months after the date when the reservoir was filled with water and placed into service. The Owner will establish the date for the inspection and will notify the Contractor at least 30 days in advance. The Owner, or the Owner's designated representative, shall be present during all warranty inspection activities. All coating defects shall be repaired in accordance with these specifications and to the satisfaction of the Owner. The Contractor shall provide, at its expense, suitable lighting, scaffolding and ventilation for the inspection as well as all inspection devices for holiday testing and film thickness testing.
2. If the Contractor fails to conduct the anniversary inspection for reasons not attributed to the Owner, the Contractor is not relieved of the warranty responsibilities under the Contract Documents, and the warranty period shall be extended until the first anniversary inspection is conducted and defective work is repaired.
3. Any warranty remedial work by the Contractor shall be accomplished to accommodate the owner's system operation and cause minimal inconvenience to the Owner.
4. Any location where coating has peeled off, bubbled, cracked, any location where rusting is evident, and any interior surfaces where pinholes are evident, shall be considered to be a failure of the paint system. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surface, and recoating with the same paint system. If the area of failures exceeds 25 percent of the area of a portion of the tank surface, then for that portion, the entire paint system shall be removed and repainted, base on the Owner's Representative's sole judgment in accordance with the requirements of this Section. For purposes of determining the need for complete reapply of the costing system, the following surfaces shall be considered separately. Inside roof; inside shell; inside attachments, accessories, and appurtenances.

5. All costs associated with the Contractor's warranty Inspection and all costs for repair, testing and disinfection (where applicable) shall be borne by the Contractor.

B. OMISSIONS

1. Care has been taken to delineate herein those surfaces to be coated. However, if coating requirements have been inadvertently omitted from this section or any other section of the specification, it is intended that all metal surfaces, unless specifically exempted herein, shall receive a first class protective coating equal to that given the same type surface pursuant to these specifications.
2. Due diligence has been exercised in the sampling for heavy metals at the time of the coatings investigating. Although this testing provides a representative window of the existing coatings, it is provided for informational purposes only and does not relieve the contractor from assuming or performing heavy metal testing and instituting comprehensive programs as prescribed by state and federal regulations.

END OF SECTION

SECTION 09973

TOTAL REMOVAL AND REPLACEMENT OF EXTERIOR RESERVOIR COATINGS

PART 1 - GENERAL

A. PURPOSE

The purpose of this specification is to establish methods and procedures for the total replacement of existing exterior coating systems.

Coating samples were analyzed for lead content by an outside laboratory for the Saddle Peak Tank by E.S. Babcock & Sons, Inc, and results were 100,000 mg/kg for the exterior tank shell and 34,000 mg/kg for the exterior roof. **This exceeds the action level of 1,000 mg/kg as outlined in the Code of Federal Regulations CFR Title 29, standard 1926.62.**

B. SCOPE OF WORK

Removal of existing coatings and replacement with an approved coating system on the exterior surfaces of above ground welded steel reservoirs. Operations shall include, but are not limited to, surface preparation, coating application, curing of coating and final inspection.

The Las Virgenes Municipal Water district (LVMWD) tank addressed by this specification section is:

Project Structure				
Tank Name	Size	Diameter (ft)	Height (ft)	Tank Exterior Action
Saddle Peak	2.25 MG	113	32	Remove / Replace
Cordillera	3.0 MG	132	32	Remove / Replace

The Coating System Schedule summarizes the surfaces to be coated, the required surface preparation, and the coating systems to be applied.

Coating System Schedule				
Surface to be Coated	Surface Preparation	Prime Coat	Intermediate Coat	Topcoat
Exterior Roof	SSPC-SP 6	Zinc 2.5-3.5 mils	Epoxy 2-4 mils	Urethane 2 – 4 mils
Exterior Shell	SSPC-SP 6	Zinc 2.5-3.5 mils	Epoxy 2-4 mils	Urethane 2 – 4 mils
Exterior Appurtenances	SSPC-SP 6	Zinc 2.5-3.5 mils	Epoxy 2-4 mils	Urethane 2 – 4 mils

As part of this work the contractor shall remove and replace caulking at the crevice between the tank and concrete ringwall.

The following surfaces shall not be protective coated hereunder unless indicated.

- Concrete
- Stainless steel
- Machined surfaces
- Grease fittings
- Glass
- Equipment nameplates
- Nameplates

C. REFERENCE SPECIFICATIONS AND STANDARDS

1. Without limiting the general aspects or other requirements of this specification, work and equipment shall conform to applicable requirements of municipal, state and federal codes, laws and ordinances governing the work, as specified by the owner, Steel Structures Painting Council, ASTM, NACE International, the California Administrative Code, 29 CFR, 40 CFR, and Manufacturer's printed instructions, subject to Engineer's approval.
2. The Engineer's decision shall be final as to interpretation and/or conflict between any of the referenced codes laws, ordinances, specifications and standards contained herein.
3. Exterior coatings per this specification may contain heavy metals, including lead, as defined per the State of California, Title 22. Any disturbance of these existing coatings will actuate the following regulatory standards:

- a. 29 CFR 1910 "OSHA General Industry Standards"
- b. 29 CFR 1910.134 "Respiratory Protection"
- c. 29 CFR 1910.1000 "Air Contaminants - Permissible Exposure Limits"
- d. 29 CFR 1910.1020 "Employee Access to Exposure and Medical Records"
- e. 20 CFR 1926 OSHA Construction Industry Standards"
- f. 29 CFR 1926.59 "Hazard Communication"
- g. 29 CFR 1926.62 "Lead Exposure in Construction; Interim Final Rule"
- h. 40 CFR 261 "Identification and Listing of Hazardous Waste"
- i. 40 CFR 262 "Standards Applicable to Generators of Hazardous Waste"
- j. 40 CFR 263 "Standards Applicable to Transporters of Hazardous Waste"
- k. 40 CFR 264 "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, & Disposal Facilities"

D. DEFINITIONS

1. The following pairs of words shall be considered identical in meaning and may be used interchangeably: General Conditions and General Provisions; Special Conditions and Special Provisions; Drawings and Plans; Standard Drawings and Standard Plans.
2. The Owner referred to in these specifications is Las Virgenes Municipal Water District (LVMWD).
3. The definition of the word Engineer contained herein is: The person authorized by the Owner to oversee the execution of the contract, acting either directly or through his properly authorized agents, each agent acting only within the scope of authority delegated to him.
4. The term "paint," "coatings," or "finishes" as used herein, shall include surface treatments, emulsions, enamels, paints, epoxy resins, and all other protective coatings, excepting galvanizing or anodizing, whether used as a pretreatment, primer, intermediate coat or finish coat.

5. The term "DFT" means dry film thickness.

E. CONTRACTOR SUBMITTALS

1. Submittals shall include the following information and be submitted at least 30 days prior to protective coating work:

a. Submit shop drawings in accordance with the General Conditions section 00700.

b. Paint Manufacturer's Information: For each coating system to be used, the following data:

(1) The most recent publication of the Paint Manufacturer's data sheet for each product proposed, including statements on the suitability of the material for the intended use.

(2) Technical and performance information that demonstrates compliance with the system performance and material requirements.

(3) Paint Manufacturer's instructions and recommendations on surface preparation and application.

(4) Colors available for each product (where applicable).

(5) Compatibility of shop and field applied coatings (where applicable).

(6) Curing requirements and instructions.

(7) Material Safety Data Sheet for each product used.

c. Samples

(1) Samples of all paint, finishes, and other coating materials shall be submitted on 8-1/2- inch by 11-inch sheet metal. Each sheet shall be completely coated over its entire surface with one protective coating material, type, and color.

(2) Two sets of color samples to match each color selected by the Owner's Representative from the Manufacturers standard color sheets. If custom mixed colors are indicated, the color samples shall be made using color formulations prepared to match the color samples furnished by the Owner's Representative. The color formula shall be shown on the back of each color sample.

- (3) Documentation from abrasive supplier for each abrasive proposed to be used for surface preparation.

PART 2 - MATERIALS

A. GENERAL

1. All surface preparation and coating application shall conform to applicable standards of the Steel Structures Painting Council, ASTM, NACE International and the manufacturer's printed instructions. Material applied prior to approval of the surface by the Engineer, shall be removed and reapplied to the satisfaction of the Engineer at the expense of the Contractor, as specified by the owner and subject to Engineer's approval.
2. All work shall be accomplished by skilled craftsmen qualified to accomplish the required work in a manner comparable with the best standards of practice. Contractor shall provide documentation certifying that the company is QP-1 and QP-2 Certified, or have been painting tanks for at least ten years and can give ten projects of similar scope for reference. Continuity of personnel shall be maintained and transfers of key personnel shall be coordinated with the Engineer.
3. The Contractor shall provide a supervisor to be at the work site during cleaning and application operations.
4. Dust, dirt, oil, grease or any foreign matter which will affect the adhesion or durability of the newly installed coating must be removed in accordance with SSPC SP-1 criteria and/or methods.
5. The Contractor's coating equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Blotter tests shall be accomplished at each start-up period and as deemed necessary by the Engineer. Contractor's equipment shall be subject to approval of the Engineer.
6. Where protective coatings are to be performed by a subcontractor, the subcontractor shall possess a valid state license as required for performance of the painting and coating work called for in this specification and shall provide 5 references which show that the painting subcontractor has previous successful experience with the indicated or comparable coating systems. Include the name, address, and the telephone number for the owner of each installation for which the painting subcontractor provided the protective coating.
7. Following all paint work, apply caulking to the gap between the exterior floor plate and concrete ring wall in accordance with the manufacturer's written

recommendations, using backing rod as required to provide suitable seal. Exterior caulking shall have a smooth clean finish that is applied to clean, sharp lines. Sealant color shall be selected and approved by the Owner.

8. Sealant shall be a flexible polyurethane or polysulfide product, similar or equal to Federal Specification TT-S-00230C, Type II, Class A (non-sag) and shall include Sikaflex 2C, Vulkem 921, Sonolastic NP1, or approved equal.

B. SURFACE PREPARATION, GENERAL

1. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council shall form a part of this specification. (Note: An element of surface area is defined as any given square inch of surface).
 - a. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods, which involve a solvent or cleaning action.
 - b. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by hand chipping, scraping, sanding and wire brushing.
 - c. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mill scale and other detrimental foreign matter present to degree specified by power wire brushing, power impact tools or power sanders.
 - d. White Metal Blast Cleaning (SSPC-SP5): Blast cleaning to white metal cleanliness removing all visible residues.
 - e. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element of surface area is free of all visible residue.
 - f. Brush-off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mill scale, and other detrimental foreign matter present to the degree specified.
 - g. Near-White Blast Cleaning (SSPC-SP10): Blast cleaning to near-white metal cleanliness, until at least ninety-five per-cent (95%) of each element of surface area is free of all visible residues.
 - h. Power Tool Cleaning to Bare Metal (SSPC-SP11): Power tool cleaning to produce a bare metal surface and to retain or produce a surface profile of at least one mil.

- i. High- and Ultrahigh-Pressure Water Jetting (SSPC-SP12): Surface Preparation and Cleaning of Steel and Other Hard Materials Prior to Recoating.
 - j. Industrial Blast Cleaning (SSPC-SP14): Covers the use of blast cleaning abrasives to achieve a defined degree of cleaning of steel surfaces prior to the application of a protective coating or lining system.
 - k. Commercial Grade Power Tool Cleaning (SSPC-SP15): This standard covers the requirements for power tool cleaning to provide a commercial grade power tool cleaned steel surface, and to retain or produce a minimum 25 micrometer (1.0 mil) surface profile.
2. All blast hose connections shall be in proper working order and leak free.
 3. Particle size of abrasives used in blast cleaning shall be that which will produce an adequate surface profile in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied, subject to approval of the Engineer.
 4. Abrasive used in blast cleaning operations shall be new, and free of contaminants that would interfere with adhesion of coatings and paints and shall not be reused unless specifically approved by the Engineer. Abrasives shall be certified for unconfined dry blasting pursuant to the California Administrative Code, Section 92520 of Subchapter 6, Title 17, and shall appear on the current listing of approved abrasives.
 5. The Contractor shall keep the area of his work in a clean condition and shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the prosecution of the work of the operation of the existing facilities. All fugitive abrasives and associated nuisances used in surface preparation shall be confined to the project site. Any cost for clean up adjacent properties associated to surface preparation activities shall be borne by the contractor.

C. SURFACE PREPARATION, SPECIFIC

1. Abrasive blasting shall be performed on 100% of all exterior surfaces.
2. All exterior surfaces shall be abrasive blast cleaned in accordance with SSPC-SP 6, Commercial Metal Blast Cleaning, with a minimum angular anchor profile of 2.0 mils.
3. Surface preparation requires lead abatement procedures in compliance with Code of Federal Regulations CFR Title 29, Standard 1926.62. This standard should be followed for the Saddle Peak Tank.

D. APPLICATION, GENERAL

1. Coating applications shall not commence concurrently with surface preparation. Surface preparation shall be complete and tanks must be completely cleaned out and dust free before coating process begins.
2. Coating application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for Shop, Field and Maintenance Painting, the manufacturer of the coating materials printed literature and as specified herein.
3. Thinning shall only be permitted as recommended by the manufacturer and approved by the Engineer, and shall not exceed limits set by applicable regulatory agencies.
 - a. If Contractor applies any coatings that have been modified or thinned to such a degree as to cause them to exceed established VOC levels, Contractor shall be responsible for any fines, costs, remedies, or legal action and cost which may result.
4. Each application of coating shall be applied evenly, free of brush marks, sags, runs and no evidence of poor workmanship.
5. Protective coverings or drop cloths shall be used to protect floors, fixtures, equipment, prepared surface and applied coatings or paints. Care shall be exercised to prevent coating or paint from spattering onto surfaces, which are not to be coated or painted. Overspray shall be confined to the project site by effective means. All costs for overspray removal of properties other than the reservoir shall be borne by the contractor. Surfaces from which such material cannot be removed satisfactorily shall be repainted or recoated as required to produce a finish satisfactory to the Engineer.
6. All material shall be applied as specified herein.
7. Suitability: The Contractor shall use suitable coating materials as recommended by the Manufacturer.
8. Compatibility: In any coating system only compatible materials from a single Manufacturer shall be used in the work. Particular attention shall be directed to compatibility of primers and finish coats. If necessary, a barrier coat shall be applied between existing prime coat and subsequent field coats to ensure compatibility.
9. Containers: Coating materials shall be sealed in containers that plainly show the designated Name, Formula or Specification number, Batch number, Color, Date of Manufacture, and Name of Manufacturer, all of which shall be plainly legible at the time of use.

10. Colors: All colors and shades of colors of all coats of paint shall be as indicated or selected by The Owner's Representative. Each coat shall be of a slightly different shade, to facilitate Inspection of surface coverage of each coat. Finish colors shall be as selected from the Manufacturer's standard color samples by the Owner's Representative.
11. Substitute or "Or-Equal" Products: To establish equality –
 - a. Specified products are those manufactured by Tnemec Company, Inc., North Kansas City, Missouri and are specified as basis of design and standard of quality. Web site: www.tnemec.com Local contact: Tony Hobbs. 310-804-2326
 - b. Equivalent materials of other manufacturers may be substituted only by approval of the engineer. Equivalent products shall demonstrate equivalent or greater performance based on Tnemec performance criteria. Requests for substitution shall include manufacturer's literature for each product giving the name, generic type, descriptive information, solids by volume, recommended film thicknesses and a list of five projects where each product has been used and rendered satisfactory service. No request for substitution shall be considered that would decrease film thickness or offer a change in the generic type of coating specified.
12. Protective Coating Materials shall be standard products by recognized Manufacturers who are regularly engaged in production of such materials for essentially identical service conditions. Where requested, the Contractor shall provide the Owner's Representative with the names of not less than 10 successful applications of the proposed Manufacturer's products that comply with these requirements.
13. The cost of all testing and analyzing proposed substitute products which may be required by the Owner's Representative shall be paid by the Contractor at no additional cost to the Owner. If a proposed substitution requires changes in the Work, the Contractor shall bear all such costs involved and the costs of allied trades affected by the substitution at no additional cost to the Owner.
14. Material Sources: Each of the following manufacturers is capable of supplying many of the Industrial coating materials indicated herein.
 - Tnemec Protective Coatings Company
 - Or approved equal.
15. Where manufacturers and paint numbers are listed, it is to show the type and quality of coatings that are required. Only materials that have a record of satisfactory performance in industrial plants, manufacturing facilities, and

water/wastewater treatment plants and storage reservoirs will be considered. Proposed substitute materials will be considered as indicated above.

E. APPLICATION, SPECIFIC –EXTERIOR SURFACES

1. System Type Zinc / Epoxy / Urethane
2. AWWA D102-11(OCS-5) Outside Coating System No.5
3. Surface Preparation: All surfaces shall be prepared in accordance with SSPC-SP10 Near White Blast Cleaning / NACE 2. With a minimum angular anchor profile of 2.0 mils.
4. Prime Coat: 94-H20 Hydro-Zinc @ 2.5 to 3.5 mils DFT.
5. Intermediate Coat: L140 Pota-Pox @ 2.0 to 4.0 mils DFT.
6. Finish Coat: 1095 Endura-Shield @ 2.0 to 4.0 mils DFT.
7. Total System: The total dry film thickness shall be minimum 6.5 mils.

F. QUALITY CONTROL

1. All epoxy coating components shall be mixed in exact proportions specified by the manufacturer. Care shall be exercised to ensure all material is removed from containers during mixing and metering operations. Manufacturer's published induction times and pot life requirements must be strictly adhered to.
2. All coatings shall be thoroughly mixed, using an approved slow-speed power mixer until all components are thoroughly combined and are of a smooth consistency. Coatings shall not be applied beyond pot-life limits or recoat cycles specified by manufacturer.
3. Thinners shall be added to coating materials only as required in accordance with manufacturer's printed literature and in the presence of the Engineer.
4. Drying time between coats shall be strictly observed as stated in manufacturer's printed instructions.
5. Dry film thicknesses shall be taken in accordance with SSPC-PA2 criteria
6. All mixing, thinning, application of coating shall be accomplished in the presence of the Owners Representative or Engineer.
7. Coatings shall not be applied unless the surface temperature of the air and substrate are a minimum of 5 degrees above the temperature of the dew

point as measured by Sling Psychrometer and US Department of Commerce Psychometric Tables.

8. Compressed air when used, shall free of oils and other residues.
9. Anchor profile shall be performed by Replica Tape and Micrometer.
10. All inspections shall be performed by independent 3rd party Coatings Inspectors.
11. All costs associated with the correction and repairs of defective workmanship shall be borne by the contractor.

G. INSPECTION AND TESTING

1. The Contractor shall give the Owner's Representative a minimum of 3 days advance notice of the start of any field surface preparation work or coating application work.
2. All such work shall be performed only in the presence of the Owner's Representative, unless the Owner's Representative has granted prior approval to perform such work in its absence.
3. Inspection by the Owner's Representative, or the waiver of inspection of any particular portion of the Work, shall not relieve the Contractor of its responsibility to perform the work in accordance with these Specifications.
4. Scaffolding shall be erected and moved to locations where requested by the Owner's Representative to facilitate inspection. Additional illumination shall be furnished to cover all areas to be inspected.
5. Inspection Devices: The Contractor shall furnish, until final acceptance of such coatings, inspection devices in good working condition for the measurement of dry-film thicknesses of protective coatings. Dry-film thickness gages shall be made available for the Owner's Representative's use at all times while coating is being done, until final acceptance of such coatings.
6. Holiday Testing shall not be required on Protective coatings for atmospheric exposure. (External Coatings).
7. The dry film coating thickness (DFT) shall be measured in accordance with the SSPC "Paint Application Specification No.2" using a magnetic-type dry film thickness gage such as Mikrotest model FM, Elcometer model 111/1 EZ, or equal. Each coat shall be tested for the correct thickness. On non-ferrous metals and other substrates, the coating thicknesses shall be measured at the time of application using a wet film gage.

8. Evaluation of blast cleaned surface preparation work will be based upon comparison of the blasted surfaces with the standard samples available in latest version of SSPC VIS-1.

H. CLEANUP

Upon completion of the work, all containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating spots upon adjacent surfaces shall be removed and the entire jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired or refinished to the complete satisfaction of the Engineer at no cost to the Owner.

PART 3 - CORRECTION OF DEFECTS

A. WARRANTY INSPECTION

1. The Contractor shall conduct a warranty inspection between the eleventh and sixteenth month after the date when the reservoir was filled with water and placed into service. The Owner will establish the date for the inspection and will notify the Contractor at least 30 days in advance. The Owner, or the Owner's designated representative, shall be present during all warranty inspection activities. All coating defects shall be repaired in accordance with these specifications and to the satisfaction of the Owner. The Contractor shall provide, at its expense, suitable lighting, scaffolding and ventilation for the inspection as well as all inspection devices for holiday testing and film thickness testing.
2. If the Contractor fails to conduct the anniversary inspection for reasons not attributed to the Owner, the Contractor is not relieved of the warranty responsibilities under the Contract Documents, and the warranty period shall be extended until the first anniversary inspection is conducted and defective work is repaired.
3. Any warranty remedial work by the Contractor shall be accomplished to accommodate the owner's system operation and cause minimal inconvenience to the Owner. Upon completion of warranty inspection and remedial work.
4. Any location where coating has peeled off, bubbled, cracked, any location where rusting is evident, and any interior surfaces where pinholes are evident, shall be considered to be a failure of the paint system. The Contractor shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surface, and recoating with the same paint system. For purposes of determining the need for reapplication of the coating system, the following surfaces shall be considered separately: Outside roof; outside shell; outside attachments, accessories, and appurtenances.

5. All costs associated with the Contractor's warranty Inspection and all costs for repair, testing and disinfection (where applicable) shall be borne by the Contractor.

B. OMISSIONS

Care has been taken to delineate herein those surfaces to be coated. However, if coating requirements have been inadvertently omitted from this section or any other section of the specification, it is intended that all metal surfaces, unless specifically exempted herein, shall receive a first class protective coating equal to that given the same type surface pursuant to these specifications.

Due diligence has been exercised in the sampling for heavy metals at the time of the coatings investigating. Although this testing provides a representative window of the existing coatings, it is provided for informational purposes only and does not relieve the contractor from assuming or performing heavy metal testing and instituting comprehensive programs as prescribed by state and federal regulations.

END OF SECTION

APPENDIX C

Professional Services Agreement

**Las Virgenes Municipal Water District
PROFESSIONAL SERVICES AGREEMENT**

This Professional Services Agreement (“Agreement”) is entered into this ____ day of _____, 20____, by and between Las Virgenes Municipal Water District (“Agency”), and Consultant (“Consultant”). Agency and Consultant are sometimes individually referred to as “Party” and collectively as “Parties.”

1. PURPOSE.

1.1 Project.

Consultant desires to perform and assume responsibility for the provision of certain professional services required by the Agency on the terms and conditions set forth in this Agreement and Agency desires to engage Consultant to render such services for project (“Project”) as set forth in this Agreement and its attached exhibits.

Now therefore, in consideration of the mutual covenants and agreements set forth herein, the Parties do contract and agree as follows:

2. TERMS.

2.1 Scope of Services.

2.1.1 General Scope of Services. Consultant promises and agrees to furnish to the Agency all labor, materials, tools, equipment, services, and incidental and customary work necessary to fully and adequately supply the professional services necessary for the Project (“Services”). The Services are more particularly described in the attached **Exhibit “A”** (“Scope of Services”). All Services shall be subject to, and performed in accordance with, this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state and federal laws, rules, and regulations.

2.1.2 Term. *[This Agreement shall commence on the date above written and shall continue until completion of the Services described above.]*

or

*The term of this Agreement shall be from Date to Date, as set forth in the attached **Exhibit “B”** (“Fee Schedule”) unless earlier terminated as provided herein. Consultant shall complete the Services within the term of this Agreement and shall meet any other established schedules and deadlines. The Parties may, by mutual, written consent, extend the term of this Agreement if necessary to complete the Services.]*

2.2 Consideration.

2.2.1 Compensation. *Consultant shall receive compensation, including authorized reimbursements, for all Services rendered under this Agreement at the rates set forth in the Fee Schedule. The total compensation shall not exceed written dollar value Dollars (\$XXX.00) without written approval by Agency. Extra Work may be authorized, as described below, and if authorized, will be compensated at the rates and manner set forth in this Agreement.*

Or

Agency agrees to pay Consultant compensation, including authorized reimbursements, in accordance with the completion and acceptance of the task, milestones, and Deliverables delineated in the Scope of Work and Fee Schedule.

2.2.2 Payment. Consultant shall submit to Agency a monthly itemized statement which indicates work completed and hours of Services rendered by Consultant. The statement shall describe the Services and supplies provided since the initial commencement date, or since the start of the subsequent billing periods, as appropriate, through the date of the statement. Agency shall pay all approved charges within forty-five (45) days of receiving such statement.

2.2.3 Extra Work. At any time during the term of this Agreement, Agency may request that Consultant perform Extra Work. As used herein, "Extra Work" means any work which is determined by Agency to be necessary for the proper completion of the Project, but which the Parties did not reasonably anticipate would be necessary at the execution of this Agreement. Consultant shall not perform, nor be compensated for, Extra Work without written authorization by Agency.

2.3 Responsibilities of Consultant.

2.3.1 Independent Contractor. The Services shall be performed by Consultant or under its supervision. Consultant will determine the means, methods and details of performing the Services subject to the requirements of this Agreement. Consultant is an independent contractor and not an employee of Agency. Except as Agency may specify in writing, Consultant shall have no authority, expressed or implied, to act on behalf of Agency in any capacity whatsoever as an agent. Any additional personnel performing the Services under this Agreement on behalf of Consultant shall also not be employees of Agency and shall at all times be under Consultant's exclusive direction and control.

2.3.2 Payment of Subordinates. Consultant shall pay all wages, salaries, and other amounts due such personnel in connection with their performance of Services under this Agreement and as required by law. Consultant shall be responsible for all reports and obligations respecting such additional personnel, including, but not limited to: social security

taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance.

2.3.3 Standard of Care. Consultant shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Consultant represents and maintains that it is skilled in the professional calling necessary to perform the Services. Consultant warrants that all employees and subconsultants shall have sufficient skill and experience to perform the Services assigned to them.

2.3.4 Licensing. Consultant represents that it, its employees and subconsultants have all licenses, permits, qualifications, and approvals of whatever nature that are legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement.

2.3.5 Conformance to Applicable Requirements. All work prepared by Consultant shall be subject to the approval of Agency.

2.3.6 Substitution of Key Personnel. Consultant has represented to Agency that certain key personnel will perform and coordinate the Services under this Agreement. Key Consultant personnel to be assigned to this Agreement are identified in the List of Key Consultant Personnel set forth in the attached **Exhibit "C"** ("Key Personnel"). Key Personnel shall be available to perform under the terms and conditions of this Agreement immediately upon commencement of the term of this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of Agency. The Agency shall have the right to approve or disapprove the reassignment or substitution of Consultant key personnel listed in Exhibit C for any reason at its sole discretion. In the event that Agency and Consultant cannot agree as to the substitution of key personnel, Agency shall be entitled to terminate this Agreement for cause.

2.3.7 Unavailability of Key Personnel. In the event individual key personnel listed in Exhibit C are terminated either by the Consultant or the individual, with or without cause, or if individual key personnel are otherwise unavailable to perform services for the Consultant, the Consultant shall provide to the Agency written notification detailing the circumstances of the unavailability of the individual key personnel and designating replacement personnel prior to the effective date of individual key personnel termination or unavailability date, to the maximum extent feasible, but no later than five (5) business days after the effective date of the individual key personnel termination or unavailability. The Consultant shall propose replacement personnel that have a level of experience and expertise equivalent to the unavailable individual key personnel for Agency review and approval.

2.3.8 Removal of Consultant Personnel. The Consultant agrees to remove personnel from performing work under this Agreement if reasonably requested to do so by the Agency within 24 hours or as soon thereafter as is practicable.

2.3.9 Laws and Regulations. Consultant shall keep itself fully informed of and in compliance with all local, state and federal laws, rules and regulations in any manner affecting the performance of the Project or the Services, including all Cal/OSHA requirements, and shall give all notices required by law. Consultant shall be liable for all violations of such laws and regulations in connection with Services. If the Consultant performs any work knowing it to be contrary to such laws, rules, and regulations, Consultant shall be solely responsible for all costs arising therefrom.

2.3.10 Labor Code Provisions.

(a) Prevailing Wages. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., (“Prevailing Wage Laws”), which require the payment of prevailing wage rates and the performance of other requirements on “public works” and “maintenance” projects. If the Services are being performed as part of an applicable “public works” or “maintenance” project, as defined by the Prevailing Wage Laws, and if the total compensation is \$1,000 or more, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall comply with all prevailing wage requirements under the California Labor Code and Consultant shall forfeit as penalty to the Agency a sum of not more than \$200.00 for each calendar day, or portion thereof, for each worker paid less than the prevailing rates. This penalty shall be in addition to any shortfall in wages paid. The Agency has obtained the general prevailing rate of wages, as determined by the Director of the Department of Industrial Relations, a copy of which is on file in the Agency’s office and shall be made available for viewing to any interested party upon request. Consultant shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Services available to interested parties upon request and shall post copies at the Consultant’s principal place of business and at the Project site.

(b) Registration and Labor Compliance. If the Services are being performed as part of an applicable “public works” or “maintenance” project, then, in addition to the foregoing, pursuant to Labor Code sections 1725.5 and 1771.1, the Consultant and all subconsultants must be registered with the Department of Industrial Relations (“DIR”). Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants. This Project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant’s sole responsibility to comply with all applicable registration and labor compliance requirements, including the submission of payroll records directly to the DIR.

(c) Labor Certification. By its signature hereunder, Consultant certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for Workers’ Compensation or to undertake self-insurance in accordance with the provisions of that Code and agrees to comply with such provisions before commencing the performance of the Services.

2.3.11 Accounting Records. Consultant shall maintain complete and accurate records with respect to all costs and expenses incurred under this Agreement. All such records shall be clearly identifiable. Consultant shall allow a representative of Agency during normal business hours to examine, audit, and make transcripts or copies of such records and any other documents created pursuant to this Agreement. Consultant shall allow inspection of all work, data, documents, proceedings, and activities related to the Agreement for a period of four (4) years from the date of final payment under this Agreement.

2.4 Representatives of the Parties.

2.4.1 Agency's Representative. The Agency hereby designates its General Manager, or his or her designee, to act as its representative for the performance of this Agreement ("Agency's Representative"). Consultant shall not accept direction or orders from any person other than the Agency's Representative or his or her designee.

2.4.2 Consultant's Representative. Consultant hereby designates XXXXXX, or his or her designee, to act as its representative for the performance of this Agreement ("Consultant's Representative"). Consultant's Representative shall have full authority to represent and act on behalf of the Consultant for all purposes under this Agreement. The Consultant's Representative shall supervise and direct the Services, using their best skill and attention, and shall be responsible for all means, methods, techniques, sequences, and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.

2.5 Indemnification.

To the fullest extent permitted by law, Consultant shall immediately indemnify and hold the Agency, its directors, officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage, or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any alleged acts, errors, or omissions of Consultant, its officials, officers, employees, subcontractors, consultants, or agents in connection with the performance of the Consultant's Services, the Project, or this Agreement, including without limitation the payment of all consequential damages, attorneys' fees and costs, including expert witness fees. Notwithstanding the foregoing, to the extent Consultant's Services are subject to Civil Code Section 2782.8, the above indemnity shall be limited, to the extent required by Civil Code Section 2782.8, to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant.

Consultant shall immediately defend, with Counsel of Agency's choosing and at Consultant's own cost, expense and risk, any and all claims, suits, actions, or other proceedings of every kind that may be brought or instituted against Agency or its directors, officials, officers, employees, volunteers, and agents. Consultant shall pay and satisfy any judgment, award, or decree that may be rendered against Agency or its directors, officials, officers, employees, volunteers, and agents as part of any such claim, suit, action, or other proceeding. Consultant

shall also reimburse Agency for the cost of any settlement paid by Agency or its directors, officials, officers, employees, agents, or volunteers as part of any such claim, suit, action, or other proceeding. Such reimbursement shall include payment for Agency's attorneys' fees and costs, including expert witness fees. Consultant's obligation to defend and indemnify shall survive expiration or termination of this Agreement, and shall not be restricted to insurance proceeds, if any, received by the Agency, its directors, officials, officers, employees, agents, or volunteers.

2.6 Insurance.

2.6.1 Time for Compliance. Consultant shall not commence Work under this Agreement until it has provided evidence satisfactory to the Agency that it has secured all insurance required under this section. In addition, Consultant shall not allow any subconsultant to commence work on any subcontract until it has provided evidence satisfactory to the Agency that the subconsultant has secured all insurance required under this section. Failure to provide and maintain all required insurance shall be grounds for the Agency to terminate this Agreement for cause.

2.6.2 Minimum Requirements. Consultant shall, at its expense, procure and maintain for the duration of the Agreement insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Agreement by the Consultant, its agents, representatives, employees, or subconsultants. Consultant shall also require all of its subconsultants to procure and maintain the same insurance for the duration of the Agreement. Such insurance shall meet at least the following minimum levels of coverage:

(a) Commercial General Liability. Coverage for commercial general liability insurance shall be at least as broad as Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001). Consultant shall maintain limits no less than \$2,000,000 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 general aggregate limit or product-completed operations aggregate limit is used, including but not limited to form CG 2503, either the general aggregate limit shall apply separately to this Agreement/location or the general aggregate limit shall be twice the required occurrence limit.

(b) Automobile Liability. Coverage shall be at least as broad as the latest version of the Insurance Services Office Business Auto Coverage form number CA 0001, code 1 (any auto). Consultant shall maintain limits no less than \$1,000,000 per accident for bodily injury and property damage. The automobile liability policy shall cover all owned, non-owned, and hired automobiles.

(c) Workers' Compensation and Employer's Liability Insurance. Consultant shall maintain Workers' Compensation insurance as required by the State of California and Employer's Liability Insurance in an amount no less than \$1,000,000 per accident

for bodily injury or disease. The insurer shall agree to waive all rights of subrogation against the Agency, its directors, officials, officers, employees, agents, and volunteers for losses paid under the terms of the insurance policy which arise from work performed by the Consultant.

(d) Professional Liability. Consultant shall procure and maintain, and require its subconsultants to procure and maintain, for a period of five (5) years following completion of the Project, errors and omissions liability insurance appropriate to their profession covering Consultant's wrongful acts, negligent actions, errors, or omissions. The retroactive date (if any) is to be no later than the effective date of this Agreement. Consultant shall purchase a one-year extended reporting period: i) if the retroactive date is advanced past the effective date of this Agreement; ii) if the policy is canceled or not renewed; or iii) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement. Such insurance shall be in an amount not less than \$2,000,000 per claim.

(e) Excess Liability (if necessary). The limits of Insurance required in this Agreement may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess coverage shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of the Agency (if agreed to in a written contract or agreement) before the Agency's own primary or self-Insurance shall be called upon to protect it as a named insured. The policy shall be endorsed to state that the Agency, its directors, officials, officers, employees, agents, and volunteers shall be covered as additional insured at least as broad a form as CG 20 10 11 85 or the latest versions of both CG 20 10 and CG 20 37. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its directors, officials, officers, employees, agents, and volunteers.

2.6.3 All Coverages. The general liability and automobile liability policy shall include or be endorsed to state that: (1) the Agency, its directors, officials, officers, employees, agents, and volunteers shall be covered as additional insured with respect to work by or on behalf of the Consultant, including materials, parts, or equipment furnished in connection with such work using as broad a form as CG 20 10 11 85 or the latest versions of both CG 20 10 and CG 20 37; and (2) the insurance coverage shall be primary insurance as respects the Agency, its directors, officials, officers, employees, agents, and volunteers using as broad a form as CG 20 01 04 13, or if excess, shall stand in an unbroken chain of coverage excess of the Consultant's scheduled underlying coverage. Any insurance or self-insurance maintained by the Agency, its directors, officials, officers, employees, agents, and volunteers shall be excess of the Consultant's insurance and shall not be called upon to contribute with it in any way.

(a) The insurance policies required above shall contain or be endorsed to contain the following specific provisions:

(i) The policies shall contain a waiver of transfer rights of recovery ("waiver of subrogation") against Agency, its board members, officers, employees, agents, and volunteers, for any claims arising out of the work of Consultant.

(ii) Policies may provide coverage which contains deductible or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to Agency under such policies. Consultant shall be solely responsible for deductible and/or self-insured retention and Agency, at its option, may require Consultant to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit. The insurance policies that contain deductibles or self-insured retentions in excess of \$25,000 per occurrence shall not be acceptable without the prior approval of Agency.

(iii) Prior to start of work under this Agreement, Consultant shall file with Agency evidence of insurance as required above from an insurer or insurers certifying to the required coverage. The coverage shall be evidenced on a certificate of insurance signed by an authorized representative of the insurer(s).

(iv) Each policy required in this section shall contain a policy cancellation clause that provides the policy shall not be cancelled or otherwise terminated by the insurer or the Consultant or reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the Agency, Attention: Director of Finance & Administration.

(v) Insurance required by this Agreement shall be placed with insurers licensed by the State of California to transact insurance business of the types required herein. Each insurer shall have a current Best Insurance Guide rating of not less than A: VII unless prior approval is secured from the Agency as to the use of such insurer.

(vi) Consultant shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein. Consultant shall maintain evidence of compliance with the insurance requirements by the subcontractors at the job site and make them available for review by Agency.

2.6.4 Reporting of Claims. Consultant shall report to the Agency, in addition to Consultant's insurer, any and all insurance claims submitted by Consultant in connection with the Services under this Agreement.

2.7 Termination of Agreement.

2.7.1 Grounds for Termination. Agency may, by written notice to Consultant, terminate the whole or any part of this Agreement without liability to the Agency if Consultant fails to perform or commits a substantial breach of the terms hereof. Either Party may terminate this agreement on thirty (30) days' written notice for any reason. Upon termination, Consultant shall be compensated only for those Services which have been adequately rendered to Agency, and Consultant shall be entitled to no further compensation. If the Agreement is

terminated by Consultant without cause, Consultant shall reimburse Agency for additional costs to be incurred by Agency in obtaining the work from another consultant.

2.8 Ownership of Materials and Confidentiality.

2.8.1 Documents & Data; Licensing of Intellectual Property. This Agreement creates a non-exclusive and perpetual license for Agency to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to be prepared by Consultant under this Agreement (“Documents & Data”). The Consultant shall deliver to Agency on demand or upon completion of the Project, all such Documents & Data which shall be and remain the property of the Agency. If the Agency uses any of the data, reports, and documents furnished or prepared by the Consultant for projects other than the project shown on Exhibit A, the Consultant shall be released from responsibility to third parties concerning the use of the data, reports, and documents. The Consultant may retain copies of the materials. The Agency may use or reuse the materials prepared by Consultant without additional compensation to Consultant.

2.8.2 Confidentiality. All Documents & Data, either created by or provided to Consultant in connection with the performance of this Agreement, shall be held confidential by Consultant. All Documents & Data shall not, without the prior written consent of Agency, be used or reproduced by Consultant for any purposes other than the performance of the Services. Consultant shall not disclose, cause, or facilitate the disclosure of the Documents & Data to any person or entity not connected with the performance of the Services or the Project. Nothing furnished to Consultant that is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use Agency’s name or insignia, photographs of the Project, or any publicity pertaining to the Services or the Project in any magazine, trade paper, newspaper, television, or radio production, or other similar medium without the prior written consent of Agency.

2.9 Subcontracting/Subconsulting.

2.9.1 Prior Approval Required. Consultant shall not subcontract any portion of the work required by this Agreement, except as expressly stated herein, without prior written approval of Agency. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement.

3. General Provisions.

3.1.1 Notices. All notices permitted or required under this Agreement shall be given to the respective parties at the following address, or at such other address as the respective parties may provide in writing for this purpose:

Agency:

Las Virgenes Municipal Water District
Attn: District Contact
4232 Las Virgenes Road
Calabasas, CA 91302

Consultant:

Consultant, Contact & Address

Such notice shall be deemed made when personally delivered or when mailed, upon deposit in the U.S. Mail, first class postage prepaid and registered or certified addressed to the Party at its applicable address. Actual notice shall be deemed adequate notice on the date actual notice occurred, regardless of the method of service.

3.1.2 Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subconsultant, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex, or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff, or termination.

3.1.3 Time of Essence. Time is of the essence for each and every provision of this Agreement. The acceptance of late performance shall not waive the right to claim damages for such breach nor constitute a waiver of the requirement of timely performance of any obligations remaining to be performed.

3.1.4 Agency's Right to Employ Other Consultants. Agency reserves the right to employ other consultants in connection with this Project.

3.1.5 Successors and Assigns. This Agreement shall be binding on the successors and assigns of the Parties.

3.1.6 Assignment or Transfer. Consultant shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without the prior written consent of the Agency.

3.1.7 Amendment. This Agreement may not be altered or amended except in a writing signed by both Parties.

3.1.8 Waiver. No waiver of any default shall constitute a waiver of any other default or breach, whether of the same or other covenant or condition.

3.1.9 No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

3.1.10 Invalidity; Severability. If any portion of this Agreement is declared invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect.

3.1.11 Governing Law. This Agreement shall be governed by the laws of the State of California. Venue shall be in Los Angeles County.

3.1.12 Attorneys' Fees. If either Party commences an action against the other Party, either legal, administrative or otherwise, arising out of or in connection with this Agreement, the prevailing party in such litigation shall be entitled to have and recover from the losing party reasonable attorneys' fees and all other costs of such action.

3.1.13 Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.

3.1.14 Counterparts. This Agreement may be signed in counterparts, each of which shall constitute an original.

3.1.15 Integration. This Agreement represents the entire understanding of Agency and Consultant as to those matters contained herein. No prior oral or written understanding shall be of any force or effect with respect to those matters covered hereunder.

[Signature Page following]

IN WITNESS WHEREOF, the Parties hereby have caused this Agreement to be executed the date first written above:

APPROVED:

Las Virgenes Municipal Water District

APPROVED:

CONSULTANT

David W. Pedersen
General Manager

Name
Title

EXHIBIT A
SCOPE OF SERVICES

**EXHIBIT B
FEE SCHEDULE**

EXHIBIT C
KEY PERSONNEL