PUBLIC WORKS DEPARTMENT

CONTRACT DOCUMENTS

FOR

CATHODIC PROTECTION SYSTEM IN FOUR STEEL WATER RESERVOIRS

PROJECT NO. W1039

AUGUST 2022

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 20__, between the City of Camas under and by virtue of Title 35A RCW (cities and towns), as amended

And, **FARWEST CORROSION CONTROL COMPANY** hereinafter called the Contractor.

WITNESSETH:

That in consideration of the terms and conditions contained herein and attached and made a part of this agreement, the parties hereto covenant and agree as follows:

I. The Contractor shall do all work and furnish all tools, materials and equipment for **Cathodic Protection System in Four Steel Water Reservoirs, City of Camas Project Number W1039**, in accordance with and as described in the attached plans and specifications, and the standard specifications of the Washington State Department of Transportation which are by the reference incorporated herein and made part hereof and, shall perform any changes in the work in accord with the Contract Documents.

The Contractor shall provide and bear the expense of all equipment, work and labor, of any sort whatsoever that may be required for the transfer of materials and for constructing and completing the work provided for in these Contract Documents except those items mentioned therein to be furnished by the City of Camas. In all respects, the Contractor is an independent Contractor, and not an employee of the City of Camas.

II. The City of Camas hereby promises and agrees with the Contractor to employ, and does employ the Contractor to provide the materials and to do and cause to be done the above described work and to complete and finish the same in accord with the attached plans and specifications and the terms and conditions herein contained and hereby contracts to pay for the same according to the attached specifications and the schedule of unit or itemized prices at the time and in manner and upon the conditions provided for in this contract.

III. The Contractor for himself/herself, and for his/her heirs, executors, administrators, successors, assigns, does hereby agree to the full performance of all the covenants herein contained upon the part of the Contractor.

IV. The Contractor shall defend, indemnify and hold the City of Camas, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with the performance of this Agreement, except for injuries and damages caused by the sole negligence of the City of Camas.

However, should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Contractor and the City, its officers, officials, employees, and volunteers, the Contractor's liability hereunder shall be only to the extent of the Contractor's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Contractor's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Agreement.

V. The Contractor shall provide a material, labor, and equipment guarantee for the work performed under this contract for a period of one year from the Date of Acceptance as shown on the Notice of Completion for Public Works Projects. All work shall be free of defect in workmanship or materials. Upon notice, the

Contractor shall make all repairs promptly at no cost to the City. Failure to repair or replace defects in a manner satisfactory to the Engineer will constitute a breach of this contract.

VI. **The Contractor is obligated to pay Prevailing Wages as determined by the Washington State Department of Labor and Industries Prevailing Wages, Rates for Clark County effective April 22, 2022.**

VII. As provided by Title VI of the Civil Rights Act of 1964, and the Civil Rights Restoration Act of 1987, the contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex or national origin in the selection and retention of sub-contractors, including procurement of materials and leases of equipment.

City of Camas, Washington in accordance with the provisions of Title VI of the Civil Rights Act of 1964 {78 Stat. 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notified all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, all contractors will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of the owner's race, color, national origin, sex, age, disability, income-level, or LEP in consideration for an award.

VIII. The Contractor shall certify that they are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any State or Federal department or agency.

IX. The Contractor shall not propose or contract with any person or entity that is currently debarred, suspended, and ineligible contractors and grantees.

X. It is further provided that no liability shall attach to the City of Camas by reason of entering into this contract, except as provided herein.

XI. The Contractor shall maintain its records and accounts so as to facilitate audit requirements as established by the Office of the State Auditor and shall require subcontractors to do the same.

IN WITNESS WHEREOF, the Contractor has executed this instrument, on the day and year first below written and the Mayor of the City of Camas has caused this instrument to be executed by and in the name of the said City of Camas the day and year first above written.

Executed by the Contractor _____, 202___.

_____

_____

_____

Contractor

Executed by the Local Agency _____, 202___.

_____
Mayor, City of Camas

Approved as to form:

_____
City Attorney

CONTRACT BOND

CATHODIC PROTECTION SYSTEM IN FOUR STEEL WATER RESERVOIRS
CITY PROJECT NO. W1039

KNOW ALL PERSONS BY THESE PRESENTS, That _____

of _____, as Principal, and _____

as Surety, are jointly and severally held and bound unto the City of Camas, Washington,

in the penal sum of Dollars ($_____), for the payment of which we jointly and severely bind ourselves, our heirs, executors, administrators, and assigns, and successors and assigns, firmly by these presents.

THE CONDITION of this bond is such that whereas, on the _____

day of _____ A.D., 20___, the said _____,

Principal, herein, executed a certain contract with the City of Camas, Washington,

by the terms, conditions and provisions of which contract the said _____,

Principal, herein, agree to furnish all material and do certain work, to wit: That

_____ will undertake and

complete the construction of these **Cathodic Protection System in Four Steel Water Reservoirs,** according to the maps, plans and specifications made a part of said contract, which contract as so executed, is hereunto attached, is now referred to and by reference is incorporated herein and made a part hereof as fully for all purposes as if here set forth at length. The bond shall cover all approved change orders as if they were in the original contract.

NOW, THEREFORE, if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of said contract in all respects and shall well and truly and fully do and perform all matters and things by **November 30, 2022,** unless amended by change order, undertaken to be performed under said contract, upon the terms proposed therein, and within the time prescribed therein, and until the same is accepted, and shall pay all laborers, mechanics, subcontractors and material men, and all persons who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and shall in all respects faithfully perform said contract according to law, then this obligation to be void, otherwise to remain in full force and effect.

WITNESS our hands this _____ day of _____, 20___

_____

_____

_____
PRINCIPAL

_____
ATTORNEY-IN-FACT, SURETY

_____
NAME AND ADDRESS, LOCAL OFFICE OF AGENT

APPROVED:

CITY OF CAMAS, WASHINGTON

BY: _____
MAYOR, CITY OF CAMAS

DATE: _____, 20___

SURETY BOND NUMBER _____

The United States Department of Transportation
Appendix A of the
Standard Title VI/ Non-Discrimination Assurances
DOT Order No. 1050.2A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income-level, or Limited English Proficiency (LEP) in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations as set forth in Appendix E, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 C.F.R. Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, national origin, sex. Age, disability, income-level or LEP.
4. Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

The United States Department of Transportation
Appendix E of the
Standard Title VI/ Non-Discrimination Assurances
DOT Order No. 1050.2A

During the performance of this contract, the contractor, for itself, its assignees, and succors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

Pertinent Non-Discrimination Authorities:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat.252), prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq*.), prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, prohibits discrimination on the basis of disability; and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 U.S.C. § 471, Section 47123, as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination of the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations 49 C.F.R. parts 37 and 38.
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq).*

Prepared for:
City of Camas
Attention: Allen Nelson
Water Supply Operator
1620 SE Eighth Ave
Camas, WA 98607
Email: anelson@cityofcamas.us

Project:
Cathodic Protection System
18th Avenue Reservoir
City of Camas, WA

Date: April 22, 2022

FARWEST CORROSION CONTROL COMPANY

Northwest Regional Office
4640 Campus Place, Suite 105, Mukilteo, WA 98275
425.290.8832 | PNWSales@FarwestCorrosion.com

Farwest Job No.: W-243

April 22, 2022 *Farwest Job No.: W-243*

Allen Nelson
Water Supply Operator
City of Camas
1620 SE Eighth Ave
Camas, WA 98607
Email: anelson@cityofcamas.us

Subject: Internal Inspection
Cathodic Protection Systems
Four (4) Steel Water Reservoirs

Dear: Mr. Nelson,

On March 22-23, 2022, Farwest Corrosion Control Company (Farwest) personnel conducted a site visit to evaluate the existing internal corrosion and cathodic protection (CP) systems in the four steel water reservoirs listed below. Authorization to perform this work was issued on January 14, 2022.

Upper Prune Hill Booster Station	2.4 MG MG	2822 NW 18th Ave
Upper Prune Hill Booster Station	0.75 MG	2822 NW 18th Ave
Lacamas Reservoir	2.0 MG	1520 NW 41st Circle
Gregg Reservoir	0.10 MG	1709 SE 270th Place

Scope of Work

Fieldwork was performed by John Keppler, PE, AMPP certified CP Specialist and Coating Inspector (Level 2). Inspection work was generally visual noting the condition inside each tank as viewed from the roof top manways. Details regarding existing CP equipment was noted.

Farwest's inspection included visual inspection and electrical measurements. Structure-to-electrolyte potential measurements were recorded to evaluate the level of CP or document the depolarized potential of each tank. Testing was performed in accordance with AMPP Standard Test Method TM0497 "Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems". Electrical measurements were recorded using a Fluke Model 28 digital multi-meter in conjunction with a portable copper- copper sulfate half-cell (CSE). Prior to recording potential measurements, the portable half-cells were calibrated per AMPP TM0113 titled "Evaluating the Accuracy of Field-Grade Reference Electrodes".

Results and Conclusions

A description of each tank system along with the existing CP and general coating condition is noted in attached data sheets. The potential measurements recorded indicate that none of the tanks have a functioning CP system. all the tank quickly polarized to a protected level. The good news, it is relatively easy to provide CP in each of these tanks as summarized below.

Gregg Reservoir

Gregg is a relative tall narrow tank with an internal platform. Farwest recommends installing several magnesium anode rods supported from the rail of the internal platform. This requires three men, one inside the confined space to complete the installation, one on top as a man watch to hand equipment in, and one on the ground as a safety watch who can also pass equipment up. The anodes need to be lifted to the top and installed from above. The anodes can be connected to a common wire and connection made just inside the manway where accessible from the roof without entry.

Lacamas Reservoir

This reservoir was installed with thirty-six access holes with ceramic pin insulators intended to support galvanic anodes. Unfortunately, anodes were never installed, though the existing system provides ready access for the installation of a galvanic CP system. Again, the anode header cable may be brought to the manway where it should be secured and connected to the tank using a mechanical connection. Galvanic CP systems are typically monitored annually by dropping a portable half-cell in the tank, thus no permanent half-cells are recommended.

2.4 MG Upper Prune Hill Reservoir

The existing stairway provides easy and safe access. The tank roof has four raised flange type CP access holes located near center for anodes. Two additional hand holes along the edge for half-cells are not required. Anodes could also be installed at the internal platform below the north accessway. A galvanic anode CP system is recommended to avoid the necessity of running ac power to the tank and conduit on the tank. As with the other galvanic systems, the anode header cable may be connected mechanically within the manway, which is commonly open during CP inspections for potential monitoring in the tank.

0.76 MG Upper Prune Hill Reservoir

This tank has an impressed current type CP system installed, which converted ac power to dc, driving current from several wire anodes suspended in the tank from the roof. Half-cells were installed to monitor the CP system. The potential controlled rectifier was set to maintain a potential set point, adjusting the system current output as needed. This in part adjusts for water level changes. The CP system 36 years old and beyond its service life. Farwest recommends this system be replaced with a new impressed current CP system.

The good news is that ac power is provided to the existing rectifier location, the access hand holes are installed in the roof, and conduit is run up the tank. The rectifier mounting, structure connections and conduit at the base of the tank require some improvements, but overall replacement should be straight forward. Considering the tank has its original coating, the ICCP system is preferred over a galvanic system because a higher level of CP may be derived relatively easily. Worth noting, though the tank could not be inspected visually aside form a camera, assuming the existing CP system operated for a number of years, it should have helped maintain the coating system.

General Recommendations

As an overall "cost estimate", Farwest has assumed the CP as described above in all four tanks being completed as a single design build project with a two-man construction crew (and City assistance) over two weeks.

1.0	Design Submittal to include Basis of Design, Drawings, Matl Submittals, and Firm Cost Proposal	$7,040.00
2.0	CP Materials (estimated)	$31,000.00
3.0	CP Construction (estimated)	$17,000.00
4.0	Commissioning and Inspection	$5,525.00
5.0	Optional – O&M Manuals	$1,285.00
Total Budgetary Cost		$61,850.00

The tanks would be designed per applicable AMPP (NACE) and AWWA CP standards, using NSF-61 approved materials, and installed by experienced CP installers.

General Recommendations

Post installation of CP, Farwest recommends an annual survey be performed to assure proper and continued operation of the CP systems on your five (5) tanks. That would be a two-day effort with cost on the order of $6000.

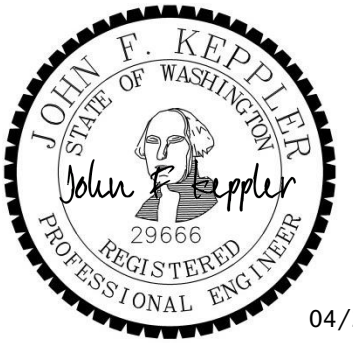
The impressed current CP system recommended on the 0.75 MG tank should be monitored monthly by City personnel to assure it remains operating within the set limit.

Overall, the tanks appeared to be secure and free of problems.

Prior to further work on the tanks, the City should locate or purchase at least one ascender device of each type required for climbing these tanks (rod and cable). Consider having two of each, in case of emergency. I believe two styles will serve all your tanks. If Farwest provides additional services, we will appreciate the use of these aids.

We appreciate the opportunity to have served City of Camas. Please feel free to contact our office should you have any questions or concerns.

Regards,
Farwest Corrosion Control Company



04/22/2022

John F. Keppler, P.E.
Principal Corrosion Engineer
AMPP CP Specialist No. 3884

W-243_Camas_4WaterTks_Eval.docx
A Nelson, Ph. 360.817.7287, Mob.: 360.690.5095
encl. (2: data, photos)
cc: J Flake, Farwest Eng. Mgr; AKarmil, Farwest PNW Mgr
www.farwestcorrosion.com

GREGG RESERVOIR

Structure

Location:	1709 SE 270th Place, Camas, WA
Capacity:	0.10 MG
Diameter:	16 feet
Height:	71 feet
Constructed:	1978
Coating:	Assume coal tar epoxy, original, black

Structure-to-Electrolyte Potential Measurements

Location	Potential (V dc ref. CSE)
Manway	
0 ft - bottom	-0.521
Mid tank	-0.523
Surface	-0.523

Construction: This is a relatively narrow stand pipe with an enclosed external ladder and ascender bar. The roof is moderately domed with a railing enclosure around the manway located off center. An internal ladder drops to an internal platform. One overflow pipe of about 8" Ø is located off center adjacent the platform.

Comments: The internal coating appeared to be in reasonably good condition considering type and age. Potential measurements indicated the tank does not have CP.

Recommendation: Farwest recommends a galvanic CP system be installed utilizing extruded magnesium anode rods suspended from the internal platform rail at multiple locations. The tank is reasonably accessible to climb and does not warrant permanent half-cells. Instead, the CP system may be monitored from the manway on top using a portable cell without entry.

Surface area (ft2):	3388
Coating effectiveness (% bare):	2%
Estimated CP current:	0.169 A
Estimated CP cost:	$6400

Note: Installation requires confined space entry, with second man on top and third man on bottom (potentially a Camas employee).

LACAMAS RESERVOIR

Structure

Location:	1520 NW 41st Circle, Camas, WA
Capacity:	2.0 MG
Diameter:	84 feet
Height:	43 feet
Constructed:	1992
Coating:	Light colored thin film epoxy

Structure-to-Electrolyte Potential Measurements

Location	Potential (V dc ref. CSE)
Manway	
0 ft - bottom	-0.522
Mid tank	-0.522
Surface	-0.512

Construction: This tank has an enclosed ladder and ascender bar. The roof is flat and has a safety rail in the vicinity of the ladder and manway. The tank has a center vent and support post. There is an internal ladder at the single manway. There is also a painter's ring on the interior. One overflow pipe of approximately 10" Ø is located adjacent the interior ladder off center. CP hand holes are already installed on the roof including adjacent ceramic insulators. There are a total of 36 hand holes on concentric circles of 64' (20 ea.), 36' (12) and 7' (4) hand holes.

Comments: The internal coating appeared to be in excellent condition. Potential measurements indicated the tank does not have CP.

This tank had galvanic anode CP for the buried water lines, though it appears the anodes have been consumed and minimal CP is being received.

Recommendation: Farwest recommends a galvanic CP system be installed utilizing extruded magnesium anode rods suspended from the existing ceramic insulators. The tank is accessible to climb and does not warrant permanent half-cells. Instead, the CP system may be monitored from the manway on top using a portable cell without entry.

Estimates

Surface area (ft^2):	16,324
Coating effectiveness (% bare):	1.25
CP current:	0.408 Amp
CP cost:	$10,600

UPPER PRUNE HILL RESERVOIR – 2.4 MG

Structure

Location:	2822 NW 18th Ave, Camas, WA
Capacity:	2.4 MG
Diameter:	80 feet
Height:	67 feet
Constructed:	2001
Coating:	Light colored thin film epoxy

Structure-to-Electrolyte Potential Measurements

Location	Potential (V dc ref. CSE)
Manway	
0 ft - bottom	-0.532
Mid tank	-0.535
Surface	-0.532

Construction: This tank has an exterior stairway with safety rail around the entire roof. The tank has a center vent and support post. There is an internal ladder and platform at the north manway. There is also a south manway and painter's ring on the interior. One overflow pipe of approximately 10" Ø is located on the northwest, with most of that pipe mounted externally. There are four (4) raised / flange lid type hand holes approximately 15 feet off center, with two additional holes located N and NE along the tank perimeter for half-cell installations.

Comments: The internal coating appeared to be in excellent condition, with exception of some corrosion damage on the ladder and above the water line. Potential measurements indicated the tank does not have CP.

Recommendation: Farwest recommends a galvanic CP system be installed utilizing extruded magnesium anode rods suspended from the existing ceramic insulators. The tank is accessible to climb and does not warrant permanent half-cells. Instead, the CP system may be monitored from the manways on top using a portable cell without entry.

Estimates

Surface area (ft^2):	20,332
Coating effectiveness (% bare):	1.00
CP current:	0.203 Amp
CP cost:	$9,700

UPPER PRUNE HILL RESERVOIR – O.75 MG

Structure

Location:	2822 NW 18th Ave, Camas, WA
Capacity:	0.75 MG
Diameter:	36 feet
Height:	100 feet
Constructed:	1972
Coating:	Black heavy bodied, likely coal tar epoxy

Structure-to-Electrolyte Potential Measurements

Location	Potential (V dc ref. CSE)
Manway	
0 ft - bottom	-0.516
Mid tank	-0.524
Surface	-0.520

Construction: This tank is somewhat unique in that it is constructed as a stand pipe, but the top has a walkway and domed roof similar to an elevated bowl. The roof ladder rotates around the vent allowing it to be positioned over about 320° of the roof, aside from the manway. The exterior ladder has a cable style ascender system for climbing safety. Although the walkway around the tank below the roof provides a stable work platform, the domed roof has no rail.

Comments: Farwest was unable to open the manway lock. Inspection could only be performed by holding a camera inside the tank at an access hole. The tank is internally coated with a black coating further making inspection difficult. Because this tank had a functional CP system at one time, the coating is likely in better condition than the life may otherwise indicate.

Potential measurements indicated the tank does not have a functioning CP system.

CP System: There is a non-functional impressed current system on the tank. The rectifier located adjacent the bottom of the ladder was turned off. That unit was constructed in 1986, indicating it is approximately 36 years old. Units typically provide 20 to 25 years of service in our area. The roof has approximately 15 CP hand hole on two concentric circles with access covers for half-cell and anode installations. In photos it appeared much of the wiring requires replacement. The conduit entry at the base was simply open. An LB fitting near the manway on top provides wire access.

Recommendation: Farwest recommends a new impressed current CP system be installed utilizing suspended MMO anodes and permanent half-cells. The rectifier requires replacement. Considering the age, the entire wiring system should be removed and replaced. The good news is, the existing hand holes in the roof and conduit provide good access for replacement.

Estimates

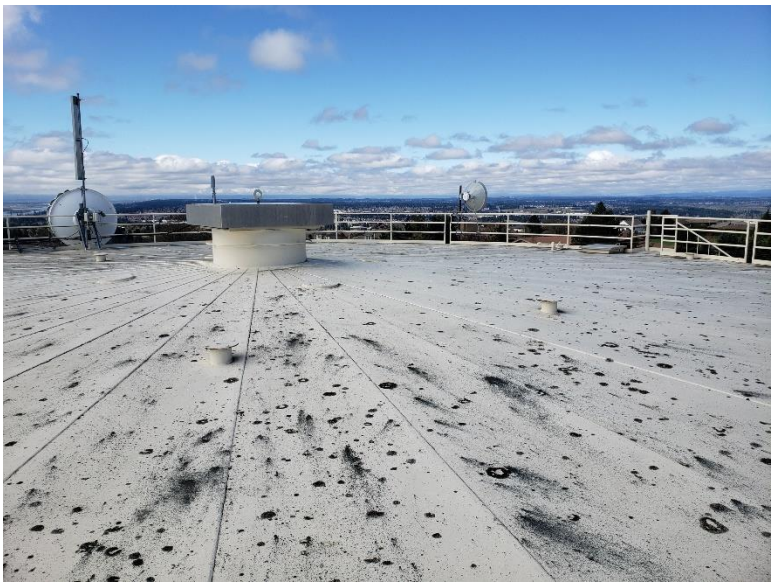
Surface area (ft^2):	12,040
Coating effectiveness (% bare):	3
CP current:	0.900 Amp
CP cost:	$21,300

PHOTOS

Gregg Reservoir

Lacamas Reservoir

UPPER PRUNE HILL RESERVOIR – 2.4 MG



UPPER PRUNE HILL RESERVOIR – 0.75 MG

Top of the 0.75 MG tank from the 2.4 MG tank roof (~60 ft and up).

Conduit penetration adjacent ladder at edge.

It appeared they may be an internal platform, though difficult to make out.

Redo negative connections to tank.

*** End of Report ***