

**TOWN OF FRANKLIN
PENDLETON COUNTY, WEST VIRGINIA**

CONTRACT 1: WATER TREATMENT SYTEM IMPROVEMENTS

ADDENDUM #1

DECEMBER 8, 2022

THRASHER PROJECT #D10-11026.00 (Dunn 1901)

TO WHOM IT MAY CONCERN:

A Pre-Bid Conference was held on Tuesday, November 15, 2022 on the above-referenced project, a copy of the sign in sheet is included in this Addendum. The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. All Bids for this project shall be due at 2:00 P.M. L.P.T., on Thursday, December 15, 2022, at the Town of Franklin, located at 305 N. High Street, Pendleton County, West Virginia 26807. **ALL BIDS MUST BE RECEIVED BY 2:00 P.M. FOR BOTH CONTRACTS.**

B. SPECIFICATIONS

DELETE Section 11042 - IN-RESERVOIR WATER TREATMENT EQUIPMENT

REPLACE Section 15168 - AQUARIUS® WATER TREATMENT SYSTEM RENOVATIONS

REMOVE Section 16231 - PACKAGED ENGINE GENERATORS and **REPLACE** with Section 16233 - NATURAL GAS/PROPANE PACKAGED ENGINE GENERATORS

REMOVE Section 20120 - GLASS LINED WASTEWATER TREATMENT TANKS and **REPLACE** with Section 11800 - GLASS LINED WATER TREATMENT TANKS

C. DRAWINGS

REPLACE Drawing 1901-16C with the attached Drawing 1901-16C – POWER PLAN, PLAN NOTES AND DETAILS dated 12-06-2022.

REPLACE Drawing 1901-16G with the attached Drawing 1901-16G – PANEL SCHEDULES dated 12-06-2022

ADD Drawing 1901- 9H CLEARWELL BAFFLE AND GENERATOR PAD

D. QUESTIONS AND RESPONSES

QUESTION

1. Is the intention to re-use existing conduit and wiring for lighting upgrade?

RESPONSE

The intention is to reuse existing conduit and wiring, if possible. New conduit and wiring will be needed for new equipment at locations where there is currently no equipment. The Contractor shall visit the site to determine what additional conduit and wiring will be required to render all items existing and proposed complete and operational, in accordance with N.E.C. No additional payment will be made to the Contractor for new conduit and wiring.

QUESTION

2. Is the intention to re-use the wiring and boxes for device change out?

RESPONSE

The intention is to re-use wiring and boxes, if possible, for device change out. The Contractor shall visit the site to determine what new wiring and boxes will be required to maintain compliance with N.E.C. and render all existing and proposed items complete and operational. No additional payment shall be made to the Contractor for new wiring and boxes required to make the equipment operational.

QUESTION

3. Are all devices listed currently in place or are some new?

RESPONSE

All devices listed on Plan Sheet 16B legend list are typical. Please refer to note below legend list “Legend list is typical; some may not be used on this sheet”. There are new devices.

QUESTION

4. Does the Town have B&O Taxes?

RESPONSE

The project is not located within city limits; thus B&O Taxes are not applicable.

QUESTION

5. Does the Town require a City Contractors License?

RESPONSE

The project is not located within city limits; thus, no City Contractors License is required.

QUESTION

6. Is the project located within city limits?

RESPONSE

No, the Water Treatment Plant is located outside of city limits.

QUESTION

7. Do Davis Bacon Wages apply to this project?

RESPONSE

Yes. Wage Rates are included as a part of this Addendum.

QUESTION

8. Is American Iron and Steel Compliance required?

RESPONSE

Yes. Any materials used on this project must Comply with the AIS Act.

QUESTION

9. Is the project sales tax exempt?

RESPONSE

Yes, the project is sales tax exempt.

QUESTION

10. What is the Engineer's Estimate for this Contract?

RESPONSE

The Engineer's Estimate is \$2,030,000.00.

QUESTION

11. Who is the administrator on the project?

RESPONSE

Region 8 will be administering the project.

QUESTION

12. What are the funding sources for this project?

RESPONSE

West Virginia Infrastructure & Jobs Development Council and West Virginia Drinking Water State Revolving Fund.

QUESTION

13. Is flood insurance a requirement for this project as referenced in SC5.06.A.3?

RESPONSE

DELETE Section SC5.06.A.3 - Supplementary Conditions.

QUESTION

14. Is Builders Risk required as per SC5.06.A.2?

RESPONSE

Yes.

QUESTION

15. What type of fuel will be used in the proposed emergency generator?

RESPONSE

Generator shall be Propane.

QUESTION

16. What is the location of the ATS (indoor and outdoor) and enclosure rating type?

RESPONSE

The Automatic Transfer Switch will be installed in the same location as the existing Automatic Transfer Switch. Refer to Section 16415 – Transfer Switches – for enclosure type.

QUESTION

17. For the tank foundation, do you want us to use the one on your drawing or use what the manufacturer comes back with?

RESPONSE

The foundation shown on the drawing is the minimum requirement.

QUESTION

18. Can we use Fiberglass Baffles in lieu of HDPE for the Clearwells?

RESPONSE

Fiberglass Panels that are NSF61 approved may be used.

QUESTION

19. Is Buy American Build American required?

RESPONSE

No, but AIS compliance is required.

QUESTION

20. Is Cobalt Blue acceptable for the color of the Clearwell Tanks?

RESPONSE

Yes, Cobalt Blue is an acceptable color for the Clearwell Tanks.

QUESTION

21. For the tank foundation, do you want us to use the one on your drawing or use what the manufacturer comes back with?

RESPONSE

The foundation shown on the drawings is the minimum requirement.

QUESTION

22. Can you confirm the size of the two Clearwell Tanks?

RESPONSE

The size of the Clearwell Tanks shall be 25'2" and the height may be 12' or 15', as long as the overflow elevation remains the same as noted in the Contract Drawings.

QUESTION

23. Can CIM 1061 coating be used in lieu of AR425 coating?

RESPONSE

Yes. NSF approved CIM 1061 is considered equal.

QUESTION

24. Will C111 Standard Bolts and Nuts will be acceptable?

RESPONSE

High strength low alloy weathering steel bolts and nuts are acceptable.

QUESTION

25. Can we get specifications for the Chem Feed Pumps, mixers and solution tanks shown on Plan Sheet 9?

RESPONSE

The equipment is to be replaced in kind. The Contractor may visit the site to determine the manufacturer and model number.

QUESTION

25. How many new chem feed pumps and mixers are required?

RESPONSE

See Sheet 1901-9.

QUESTION

26. Sheet 9D. Is all the materials listed on this sheet to be provided by the WesTech?

RESPONSE

No.

QUESTION

27. Sheet 7 Spring Box shows the installation of a 120V GFI Outlet and Ultrasonic Algae Control Unit. Specification 11042 lists an In-Reservoir Water Treatment Equipment. How is this equipment to be installed and where is it tapping power?

RESPONSE

The spring box will use an ultrasonic algae control unit. See Drawing 1901-16A and be powered out of circuit No. 29 in Panel A. The equipment shall be installed per manufacturer's recommendations.

QUESTION

29. Spec 15136 Are Disposable Liners to be used for the filter media and if so how many. < Flo Trend The Manufacturer.

RESPONSE

A 25,000 gallon dewatering dumpster with disposable dewatering bags will be an acceptable alternate to the dumpster shown on the plans, provided the height of the dumpster is no greater than that shown on the drawings and the connections are in the same location. Twenty (20) extra dewatering bags shall be supplied. 21 bags total.

QUESTION

30. Can excess excavation material be lost on site?

RESPONSE

The final grading is shown on Drawing 1901-3. Any additional spoil will be the Contractor's responsibility to dispose.

QUESTION

31. Please verify tank size for Glass Fused to Steel Tank. (Part 2.1 of specs show (2)-10921 SSWT Tanks, and the drawings show (2)- 2512 SSWT Clearwell Tanks.) I am assuming it's the 2512 SSWT based on the gallons.

RESPONSE

Please refer to Question No. 22.

QUESTION

32. A standard size for the Clearwell Tanks is a 2515 Tank. The actual dimensions would be 25.2' Diameter by 14.68' in height which would get you 54,000 Gallons. To get the 12' high dimension, we would need to use two full sheets and one 24" Extension Sheet. Do you want to go with the 12' height with Extension Sheet or the Standard Size with a height of 15'?

RESPONSE

Please refer to Question No. 22.

QUESTION

33. Can you provide values for the following items:

Specific Gravity: _____

Design Freeboard: _____ inches

Wind velocity: _____ mph per AWWA D103

1. Exposure Value _____

Risk Category: _____

Allowable Soil Bearing: _____ psf (refer to geotechnical report)

Roof Snow Load: _____ (Min 20 psf)

Earthquake Seismic, AWWA D103

Site Class _____

Importance factor _____

Ss _____

S1 _____

RESPONSE

See Revised Specification Section 11800.

QUESTION

34. On Sheet #1, note C under the Construction Activities Schedule lists a secondary containment to be installed associated with the chlorine feed. I cannot find the details of the containment required in the drawings.

RESPONSE

The Contractor shall install one row of 8-inch limestone block across the chemical/storage room 7.5 ft. from the face of the back wall and the closest edge of the limestone block. The floor and wall of the chemical storage room and limestone block shall be cleaned and coated with AR425 polyurea by Sherwin Williams, or equal. The back wall is the wall opposite the entrance door.

QUESTION

35. Is it possible to use a 14.68 ft. tank and hold the overflow down?

RESPONSE

Yes, using a slightly taller tank and keeping the overflow at the elevation shown for the 12 ft. nominal sidewall tank is acceptable.

QUESTION

36. Is the foundation design that is shown on the drawings a minimum requirement design?

RESPONSE

Yes.

QUESTION

37. Would the Engineer consider moving the bid date?

RESPONSE

No.

QUESTION

38. Is the Aurora for potable water?

RESPONSE

Yes.

QUESTION

39. LH is not part of Aurora pump nomenclature. I am guessing that is for left hand rotation?

RESPONSE

The call out came directly from the label on the existing pump.

E. CLARIFICATIONS

1. The bidding process is a two (2) envelope system. Envelope No. 1 shall be labeled Bid Opening Requirements and must have the following information presented on the front:

Name and address of Bidder
Bid on Contract #1 – Water Treatment System Improvements
Received by the Town of Franklin

Envelope No. 1 will be opened first and the Bid Opening Requirement items will be checked for compliance as outlined on the Bid Opening Checklist (BOR-1). If such documents are found to be in order, Envelope No. 2 “Bid Proposal”, will be opened and will be publicly read aloud. If the documents required to be contained in Envelope No. 1 **are not in order**, Envelope No. 2 “Bid Proposal”, **will not be opened** and the Bid will be considered non-responsive.

Envelope No. 2 labeled “Bid Proposal” shall be placed inside of Envelope No. 1 or separate from Envelope No. 1.

2. When necessary, the Contractor shall drain existing plant basins/structures to perform the work. The Contractor shall coordinate the work with the water treatment plant operator. When draining basins, the Contractor shall comply with all environmental regulations.
3. The Contractor shall verify all dimensions prior to ordering shop drawings. No change orders will be issued for issues resulting from unverified dimensions.

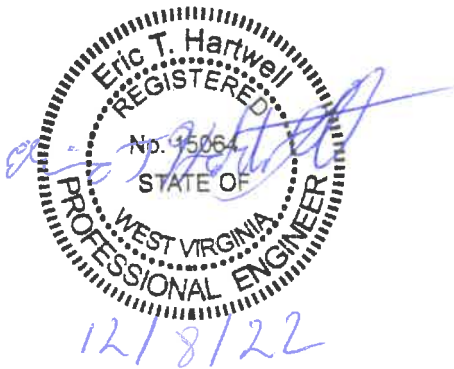
4. The algae control device for the spring box shall be as shown on the plans.
5. A copy of the Prebid sign-in sheet is attached.
6. Contractor shall remove dewater and dispose of all solids in the existing backwash tank and sediment basins.
7. One of the 3-inch suction hoses called for on Sheet 1901-12 is for loading the dewatering dumpster, the other is for draining the dumpster.
8. A VFD capable of 1-phase to 3-phase conversion shall be provided for the backwash pump. The VFD shall be supplied in a separate enclosure.

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 2:00 p.m. on Thursday, December 15, 2022, at Town of Franklin, located at 305 N. High Street, Pendleton County, West Virginia 26807. Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.

Eric T. Hartwell, P.E.
Project Manager



- Enclosures:
- Pre-Bid Sign-In Sheet
 - Wage Rates
 - Drawing No. 16C
 - Drawing No. 16G
 - Drawing No. 1901-9H
 - Specification 11800
 - Specification 15168
 - Specification 16233

TOWN OF FRANKLIN
PENDLETON COUNTY, WEST VIRGINIA
Contract 1: Water Treatment System Improvements
Contract 3: Hanover Water Storage Tank Repainting

MANDATORY PRE-BID CONFERENCE
Tuesday, November 15, 2022

Thrasher Project # D10-11026.00 (Dunn 1901)

(PLEASE PRINT)

Name	Representing	Phone #	Email Address
Logan Davis	WVDHHR BPH	304 380 7301	logan.r.davis@wv.gov
Kathleen Anderson	D: M Painting Corp	724-229-0440	kathleen@dmpaintingcorp.com
Mike Ritterbeck	Central Painting + Sandblasting	330-756-2043	mritterbeck@cpstankassist.com
Eric Andrew	Breckenridge Corp.	301 472 3350	eric@breckenridgecorp.com
JOHN BRADFORD	M & DEAN	340-905-0307	john.bradfield@mcran.com
Vincente Moreno	DC53	304 993 5872	vmoreno@upat DC53.ORG
Eugene J. Triverson	M+A Co.	724-554-1375	jaredblough@mandacasting.net

Name	Representing	Phone #	Email Address
Griffin McCabe	ORDER'S Construction	304 400 7170	griffin.mccabe@construction.com
Bob Moran	Mayor of Franklin	304-668-3639	
Joe Piegley	MASSI	740 604-9479	joe@midatlanticstorage.com
John Rose	TRETONI CONSTRUCTION	304 590 2449	john.rose@TRETONI WV.COM

"General Decision Number: WV20220033 09/02/2022

Superseded General Decision Number: WV20210033

State: West Virginia

Construction Type: Building

Counties: Barbour, Calhoun, Pendleton, Roane and Wyoming
Counties in West Virginia.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 14026 generally applies to the contract.. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 13658 generally applies to the contract.. The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/18/2022
2	02/25/2022

3 03/18/2022
 4 06/10/2022
 5 09/02/2022

ASBE0080-002 03/07/2022

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$ 34.00	27.92

BOIL0667-005 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 41.63	26.38

BRWV0009-001 12/01/2021

	Rates	Fringes
BRICK POINTER/CAULKER/CLEANER....	\$ 30.15	25.24

BRWV0015-010 06/01/2021

	Rates	Fringes
MASON - STONE.....	\$ 30.25	24.58

CARP0443-009 05/01/2021

	Rates	Fringes
MILLWRIGHT.....	\$ 35.50	26.75

* CARP1024-001 06/01/2022

	Rates	Fringes
CARPENTER (Scaffold Builder Only).....	\$ 30.65	25.48

CARP1911-004 12/01/2020

	Rates	Fringes
CARPENTER (Floor Laying - Carpet, Hardwood, Resilient and Vinyl Only).....	\$ 30.03	23.65

ENGI0132-007 12/01/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
GROUP 1.....	\$ 39.56	19.95
GROUP 2.....	\$ 39.21	19.95
GROUP 3.....	\$ 38.21	19.95
GROUP 4.....	\$ 27.71	19.95

GROUP 1: All Friction Cranes, Tower Cranes and all Cranes with 180 ft. or more of boom including mast and jibs or lifting capacity of 100 tons or more and hoists with 30,000 pound line pull or more

GROUP 2: Operating Cranes and Tower Cranes with a lifting capacity of 15 tons and over

GROUP 3: Backhoe, all other Cranes

GROUP 4: Bobcat/Skid Steer/Skid Loader, Roller, Oiler

IRON0549-006 12/01/2021

	Rates	Fringes
IRONWORKER (Ornamental).....	\$ 34.44	24.61

IRON0787-006 06/01/2022

	Rates	Fringes
IRONWORKER (Reinforcing).....	\$ 31.50	23.75

LAB00379-019 12/01/2020

	Rates	Fringes
LABORER Wacker Roller Operator.....	\$ 26.32	16.50

LAB00453-009 12/01/2017

	Rates	Fringes
LABORER Chipping Guns.....	\$ 22.76	16.75
Concrete Saw (Hand Held/Walk Behind).....	\$ 22.76	16.75
Grouting.....	\$ 22.76	16.75

LAB00543-003 06/01/2020

	Rates	Fringes
LABORER.....	\$ 25.41	16.75

LABORER CLASSIFICATIONS

Asphalt Raker, Jack Hammer, Motorized Buggy Operator, Water Boy

LAB00984-005 12/01/2020

	Rates	Fringes
LABORER Group 2.....	\$ 21.94	15.75

LABORER CLASSIFICATIONS

GROUP 2: Airtool Operator, Asbestos Abatement (Removal from Floors, Walls, and Ceiling), Bobcat Operator (Clean up/Demolition), Dewatering, Rodman, Skytrak Forklift Operator

PAIN0970-007 12/01/2021

	Rates	Fringes
PAINTER (Drywall Finishing/Taping).....	\$ 29.85	17.70

PAIN1195-002 12/01/2021

	Rates	Fringes
GLAZIER.....	\$ 31.50	11.38

PLAS0926-007 06/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...\$	31.63	21.26

PLAS0926-008 06/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...\$	31.63	21.26
PLASTERER.....\$	30.06	20.36

* UAVG-WV-0001 01/01/2021

	Rates	Fringes
CARPENTER (Form Work Only).....\$	29.81	23.45

* UAVG-WV-0009 01/01/2019

	Rates	Fringes
LABORER (Carpenter Tender).....\$	23.69	16.12
LABORER (Concrete Worker).....\$	23.57	16.17
LABORER (Grade Checker).....\$	23.45	16.16
LABORER (Landscape).....\$	22.99	16.35
LABORER (Mortar Mixer).....\$	23.35	16.06
LABORER (Pipelayer).....\$	24.06	16.34
LABORER (Scaffold Builder).....\$	23.63	16.12
LABORER (Tamper - Hand Held).....\$	23.33	16.04

* UAVG-WV-0028 01/01/2019

	Rates	Fringes
PLUMBER.....\$	32.54	24.58

SUWV2012-031 08/13/2012

	Rates	Fringes
BRICKLAYER.....\$	27.50	12.35
CARPENTER (Drywall Hanging Only).....\$	25.08	12.58
CARPENTER, All other work.....\$	25.62	11.90
ELECTRICIAN.....\$	28.16	15.11
IRONWORKER, STRUCTURAL.....\$	26.01	12.18

LABORER: Common or General.....	\$ 20.66	8.78
LABORER: Demolition.....	\$ 20.58	9.47
LABORER: Mason Tender - Brick...	\$ 21.47	8.29
LABORER: Mason Tender - Cement/Concrete.....	\$ 22.05	8.54
OPERATOR: Bulldozer.....	\$ 30.24	10.26
OPERATOR: Excavator.....	\$ 30.31	10.81
OPERATOR: Forklift.....	\$ 33.09	3.00
PAINTER: Brush, Roller and Spray.....	\$ 22.03	9.95
PIPEFITTER, Includes HVAC Pipe Installation.....	\$ 27.64	18.09
ROOFER.....	\$ 24.28	9.32
SHEET METAL WORKER, Includes HVAC Duct Installation.....	\$ 25.61	15.68
Truck Driver: Single and Double Axle Dump Trucks.....	\$ 28.52	3.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the

cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

Superseded General Decision Number: WV20210061

State: West Virginia

Construction Type: Heavy

Counties: Barbour, Braxton, Calhoun, Fayette, Gilmer, Greenbrier, Jackson, Lewis, Mason, McDowell, Mingo, Monroe, Nicholas, Pendleton, Pocahontas, Randolph, Ritchie, Roane, Summers, Tucker, Upshur, Webster and Wyoming Counties in West Virginia.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 14026 generally applies to the contract.. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
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The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

0	01/07/2022
1	02/18/2022
2	02/25/2022
3	08/05/2022

CARP0443-008 05/01/2021

	Rates	Fringes
MILLWRIGHT.....	\$ 35.50	26.75

* ELEC0307-008 05/30/2022

	Rates	Fringes
ELECTRICIAN.....	\$ 36.25	18.73

ENGI0132-014 12/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
GROUP 1.....	\$ 38.95	19.55
GROUP 2.....	\$ 36.19	19.55
GROUP 3.....	\$ 35.08	19.55
GROUP 4.....	\$ 31.62	19.55

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Cranes (All types), Boom trucks, Loaders of six (6) cubic yard capacity and over, Excavators and shovels with an operating weight of one hundred ten thousand (110,000) pounds and over.

GROUP 2: Loaders up to six (6) cubic yard capacity, Backhoe, Bulldozers, Bobcat/Skid Steer/Skid Loader, Forklift, Drill, Excavators and shovels with an operating weight of up to one hundred ten thousand (110,000) pounds

GROUP 3: Roller.

GROUP 4: Oiler

ENGI0132-027 12/01/2021

	Rates	Fringes
POWER EQUIPMENT OPERATOR:		
(PIPELINE)		
GROUP 1.....	\$ 38.95	19.55
GROUP 2.....	\$ 36.19	19.55

POWER EQUIPMENT OPERATOR PIPELINE CLASSIFICATIONS

GROUP 1: Boom, Bulldozer, Excavator, Mechanic, Pipe Bending Machine

GROUP 2: Oiler.

ENGI0132-029 12/01/2021

Rates	Fringes
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POWER EQUIPMENT OPERATOR:
 Single and Double Axle
 Dump Trucks.....\$ 36.19 19.55

 IRON0549-011 12/01/2021

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 34.44	24.61

 IRON0568-020 12/01/2020

	Rates	Fringes
IRONWORKER, REINFORCING AND STRUCTURAL.....	\$ 33.70	22.04

 LAB00379-040 12/01/2020

	Rates	Fringes
LABORER: (PIPELINE).....	\$ 25.26	16.50

LABORER CLASSIFICATIONS:

Chain Saw, Common, Flagger, Landscape, Pipelayer, Sandblaster

 LAB00379-043 12/01/2021

	Rates	Fringes
LABORER:		
GROUP 1.....	\$ 27.35	16.50
GROUP 2.....	\$ 26.32	16.50
GROUP 3.....	\$ 25.26	16.50

GROUP 1: Tunnel Driller, Tunnel Miner.

GROUP 2: Air Tool Operator, Chain Saw, Compactor (Dirt) Hand Held, Concrete Worker, Hand Held Drill, Form Work Only, Grade Checker, Grouting, Pipelayer, Skytrak Forklift Operator, Tamper (Hand Held), Wacker Roller Operator.

GROUP 3: Carpenter Tender, Common or General, Flagger, Landscape

 PLAS0926-001 06/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 31.63	21.26

 * UAVG-WV-0010 01/01/2019

	Rates	Fringes
LABORER (Mason Tender - Cement/Concrete).....	\$ 26.17	16.50

 * UAVG-WV-0012 01/01/2019

	Rates	Fringes
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POWER EQUIPMENT OPERATOR
(Mechanic).....\$ 35.45 18.30

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations

Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

"General Decision Number: WV20220080 02/25/2022

Superseded General Decision Number: WV20210080

State: West Virginia

Construction Type: Highway

Counties: West Virginia Statewide.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 14026 generally applies to the contract.. The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 13658 generally applies to the contract.. The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

* SUWV2015-001 01/01/2014

	Rates	Fringes
BRICKLAYER		
Barbour, Berkeley, Doddridge, Gilmer, Grant, Hampshire, Hardy, Harrison, Jefferson, Lewis, Marion, Mineral, Monongalia, Morgan, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur, Webster.....	\$ 30.74	18.21
Boone, Braxton, Clay, Fayette, Greenbrier, Kanawha, Logan, McDowell, Mercer, Monroe, Nicholas, Putnam, Raleigh, Summers, Wyoming.....	\$ 29.66	20.20
Brooke, Hancock.....	\$ 29.94	16.22
Cabell, Lincoln, Mason, Mingo, Wayne.....	\$ 30.61	20.88
Calhoun, Jackson, Pleasants, Ritchie, Roane, Wirt, Wood.....	\$ 30.33	15.27
Marshall, Ohio, Tyler, Wetzel.....	\$ 30.01	16.26
CARPENTER		
Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton.....	\$ 31.26	15.90
Brooke, Hancock, Marshall, Ohio.....	\$ 27.86	19.30
Remaining Counties.....	\$ 27.72	19.44
CEMENT MASON/CONCRETE FINISHER		
All Counties.....	\$ 28.67	18.85
DIVER		
Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton Diver Tender.....	\$ 31.26	15.90
Diver.....	\$ 32.25	15.90
Brooke, Hancock, Marshall, Monongalia, Ohio, Wetzel Diver Tender.....	\$ 32.01	16.76
Diver.....	\$ 48.02	16.76
Remaining Counties Diver Tender.....	\$ 27.72	19.44
Diver.....	\$ 28.27	19.44
ELECTRICIAN (SIGNAL & LIGHTING)		
Equipment Operator.....	\$ 23.30	17.99
Flagger.....	\$ 17.00	7.39
Groundman/Truck Driver.....	\$ 20.79	17.89

Installer.....	\$ 26.21	18.11
Technician.....	\$ 29.12	18.22

ELECTRICIAN

Barbour, Doddridge, Harrison, Lewis, Marion, Monongalia, Pendleton, Pocahontas, Preston, Randolph, Taylor, Tucker, Upshur.....	\$ 30.14	21.14
Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan..	\$ 30.50	15.78
Boone, Braxton, Calhoun, Clay, Fayette, Gilmer, Kanawha, Nicholas, Putnam, Raleigh, Roane, Summers, Webster, Wyoming.....	\$ 35.34	16.62
Brooke, Marshall, Ohio, Wetzel.....	\$ 28.35	22.74
Cabell, Lincoln, Logan, Mason, Mingo, Wayne.....	\$ 32.62	21.70
Greenbrier, McDowell, Mercer, Monroe.....	\$ 25.05	16.32
Hancock.....	\$ 34.00	29.10
Jackson, Pleasants, Ritchie, Tyler, Wirt, Wood..	\$ 31.56	21.43

IRONWORKER

Barbour, Brooke, Hancock, Harrison, Marion, Marshall, Monongalia, Ohio, Taylor, Tyler, Wetzel..	\$ 35.74	22.84
Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan, Pendleton, Preston, Tucker.....	\$ 33.29	17.39
Boone, Braxton, Clay, Fayette, Kanawha, Lincoln, Logan, McDowell, Mingo, Nicholas, Putnam, Raleigh, Randolph, Webster, Wyoming..	\$ 34.87	19.50
Cabell, Wayne.....	\$ 33.89	21.98
Calhoun, Doddridge, Gilmer, Jackson, Lewis, Mason, Pleasants, Ritchie, Roane, Upshur, Wirt, Wood...\$	33.02	20.10
Greenbrier, Mercer, Monroe, Pocahontas, Summers..\$	35.43	16.13

LABORER

Class 1.....	\$ 26.95	16.30
Class 2.....	\$ 25.92	16.30
Class 3.....	\$ 24.86	16.30

LABORER CLASSIFICATIONS:

GROUP 1: Powderman, Laser Screed Operator, and GPS Operator.
 GROUP 2: Pipelayer (Including Laser Beam Set Up), Form Setter (Road), Drill Operator, Air Tool Operator, Grade Checker and Asphalt Raker, Vibrator Man, Whacker, Chainsaw Operator, Mortarman, Brick Mason Tender, Cement Finisher Tender, Drill Tender, Powderman Tender, Water Proofer, Sheeter & Shorer, Placement of Lagging, Pipelayer Tender, Bull-Float Man, Pavement Reinforcing Placer, Handyman, Signal Man, Greencutter, Georgia Power Buggie, Burner, Cement Blower Man,

Bituminous Hand Sprayer, Bork 250 Remote Control Ditch Witch and Walk Behind Concrete Saw, Mulcher and Seeder (hand and machine), Installation of Ground Mounted Beams and Signs including Concrete Footers, Installation of Overhead Sign Supports and Signs including Concrete Footers, Installation of Guardrail and Anchors Assemblies, Tree Trimmer, Caisson Bottom Man, Bush Hammering, Core Drilling, Placement and Mixing of Grout and Bridge Demolition Specialist.**

GROUP 3: Flag Person, Traffic Control Maintenance Person, Carpenter's Tender, and General Laborer.

PAINTER

Barbour, Berkeley,		
Doddridge, Gilmer, Grant,		
Hampshire, Hardy,		
Harrison, Jefferson,		
Lewis, Marion, Mineral,		
Monongalia, Morgan,		
Pendleton, Preston,		
Randolph, Taylor, Tucker,		
Upshur, Webster.....\$ 31.87		14.20
Boone, Braxton, Cabell,		
Calhoun, Clay, Fayette,		
Greenbrier, Kanawha,		
Lincoln, Logan, Mason,		
McDowell, Mercer, Mingo,		
Monroe, Nicholas,		
Pocahontas, Putnam,		
Raleigh, Summers, Wayne,		
Wyoming.....\$ 32.05		14.30
Brooke, Hancock, Marshall,		
Ohio, Wetzel.....\$ 30.95		14.36
Jackson, Pleasants,		
Ritchie, Roane, Tyler,		
Wirt, Wood.....\$ 30.84		14.30

PILEDRIVERMAN

Berkeley, Grant,		
Hampshire, Hardy,		
Jefferson, Mineral,		
Morgan, Pendleton.....\$ 32.25		15.90
Brooke, Hancock, Marshall,		
Monongalia, Ohio, Wetzel....\$ 32.01		16.76
Remaining Counties.....\$ 28.27		19.44

POWER EQUIPMENT OPERATOR:

Class 1.....\$ 33.25		18.60
Class 2.....\$ 30.49		18.60
Class 3.....\$ 29.38		18.60
Class 4.....\$ 25.92		18.60
Class 5A.....\$ 26.04		18.60
Class 5B.....\$ 28.64		18.60
Class 5C.....\$ 26.94		18.60

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Cranes, tower cranes, derricks, derrick boats, draglines, clamshells, cableways, boom truck, loaders of 6 cubic yard capacity and over, excavators and shovels with an operating weight of 110,000 pounds and over.

GROUP 2: Loaders up to 6 cubic yard capacity, gradall, hoist 2 drums or more, mixer plant (2 or more mixers including batch control), pile driver operator, core drill, trencher, backhoe, asphalt paver, cement paver, rotary drill, bulldozers, concrete pump, controlled fine grade machine, slip form paver, log loader, log skidder, motor grader, rubber tired scraper, tractor pan, Roto Miller, tow or work boat, mobile conveyer,

transloader, articulating equipment, material hauler, carry deck, compactor with blade, skidsteer including attachments, fork lift, self-propelled concrete spreader, concrete finishing machine, derrick (single drum), hoist (single drum), single drum paver, air tugger, Ross Carrier, multiple concrete saw, hydraulic post driver, horizontal road-boring machine, tie distributor, track lining machine, ballast tamper, anchor application machine, ribbon rail puller, ballast regulator, auto sled, turn table, pavement breaker, asphalt batch plant, concrete batch plant, crushing plant, compactor with blade, power broom, vac-all truck, self-propelled concrete spreader and concrete finishing machine, mechanics with tools and greasers, excavators, and shovels with an operating weight of up to 110,000 pounds.

GROUP 3: Asphalt roller

GROUP 4: Air compressor, concrete mixer (under 1 cubic yard), light plant, mechanic's tender, assistant engineer, screedman, spreader box man, joint sealer and pump, steam jenny, stationary conveyor (belt or bucket), A-frame, tire man, screening and washing plant, form sub-grader, power form handling equipment, burlap and curing machine, form grader, bull float, bar and joint installing machine, roller and compactor, hydroblaster, concrete mixer (single drum, 1 cu. yd. or over), portable concrete saw and highway striping operator. Utility operators shall be paid Group 2 rate when operating 1 to 5 air compressors, pumps, stationary conveyors (belt or bucket), light plants, and gasoline or diesel powered welders and all farm type tractors.

GROUP 5A: Those operating off-road trucks in the following counties: Barbour, Braxton, Boone, Calhoun, Clay, Doddridge, Fayette, Gilmer, Greenbrier, Harrison, Jackson, Kanawha, Lewis, Marion, Mercer, McDowell, Monongalia, Monroe, Nicholas, Pleasants, Pocohontas, Preston, Putnam, Raleigh, Randolph, Roane, Ritchie, Summers, Taylor, Tucker, Tyler, Upshur, Webster, Wirt, Wood, and Wyoming.

GROUP 5B: Those operating off-road trucks in the following counties: Cabell, Lincoln, Logan, Mason, Mingo, and Wayne.

GROUP 5C: Those operating off-road trucks in the following counties: Berkeley, Grant, Hampshire, Hardy, Jefferson, Mineral, Morgan and Pendleton.

FOOTNOTE: \$2.00 per hour shall be added to the Group 1 rate for individuals operating a lattice boom crane with a fixed boom of 150 feet or more. \$0.25 per hour shall be added to all of the above schedules for underground work.

TRUCK DRIVER

Berkeley, Grant,		
Hampshire, Hardy,		
Jefferson, Mineral,		
Morgan, Pendleton		
Class 1.....	\$ 25.72	18.11
Class 2.....	\$ 26.61	18.11
Class 3.....	\$ 27.38	18.11
Brooke, Hancock		
Class 1.....	\$ 29.17	13.86
Class 2.....	\$ 30.92	13.86
Class 3.....	\$ 31.71	13.86
Cabell, Lincoln, Logan,		
Mason, Mingo, Wayne		
Class 1.....	\$ 29.79	15.60
Class 2.....	\$ 30.76	15.60
Class 3.....	\$ 31.55	15.60
Marshall, Ohio, Wetzel		
Class 1.....	\$ 26.26	16.81
Class 2.....	\$ 27.16	16.81

Class 3.....	\$ 27.76	16.81
Remaining Counties		
Class 1.....	\$ 26.97	16.15
Class 2.....	\$ 27.76	16.15
Class 3.....	\$ 28.44	16.15

TRUCK DRIVER CLASSIFICATIONS:

GROUP 1: Single Axle Trucks used as Dumps, Supply, Fuel, Water, Van, Flatbody, Monorail, Distributor (other than Bituminous Distributors) including Towed Single Units, Material Checkers and Receivers, Greasers, Tireman and Mechanic Tenders (Trucks), Warehouse, Yardmen and Pick-up trucks.

GROUP 2: Tandem and Tri-Axle Trucks used as Dumps, Supply, Fuel, Water, Van, Flatbody, Monorail and including Towed Single Units, Truck Tractors used in combination with Dump, Van, Tank, Flatbed, Low platform or Pole Trailers, Bituminous Distributors, Agitator or Mixer Trucks (up to 20 cubic-yards), Rubber-tired tractors (towing and pushing), Drag and Tag-alongs.

GROUP 3: Mobile Metered Mixer, Agitator or Mixer Trucks (over 20 cubic yards), & Mechanic Truck.

A. Double Hitch equipment operated by 1 driver shall pay 50% more than the wages set out above.

B. \$0.25 per hour shall be added for tunneling and all other underground work.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular

rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

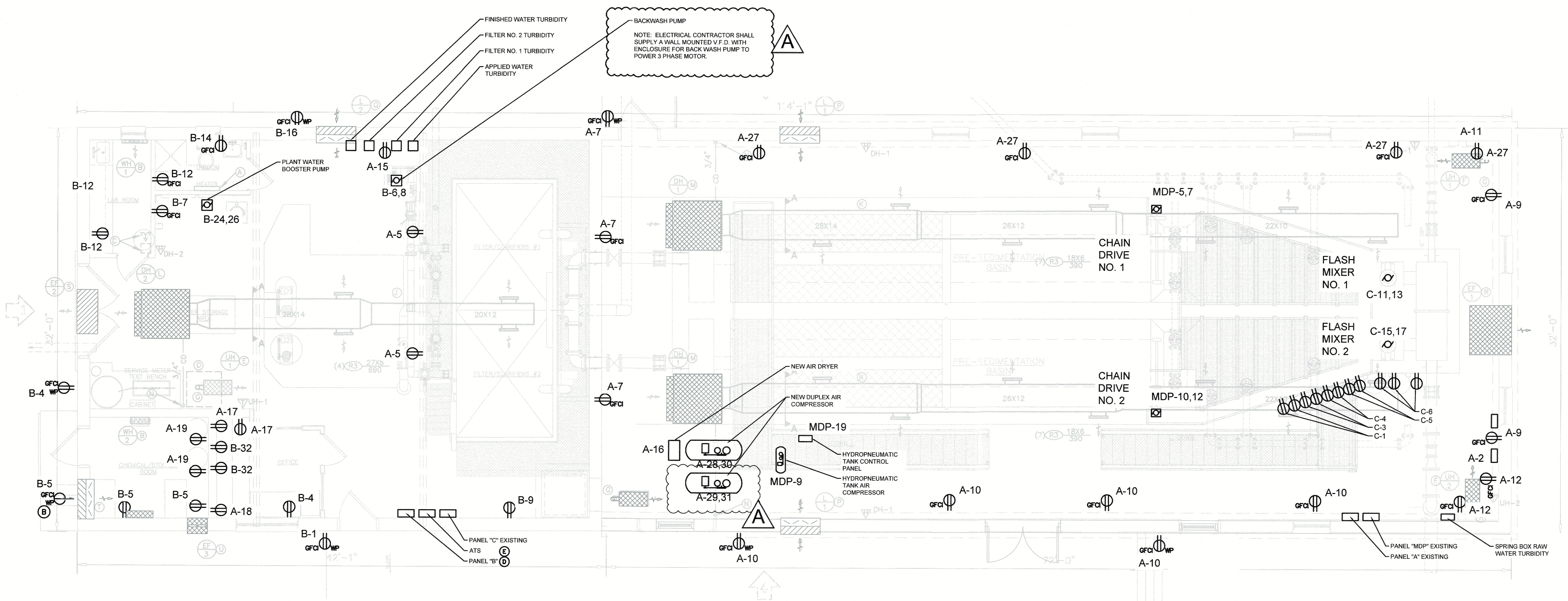
3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

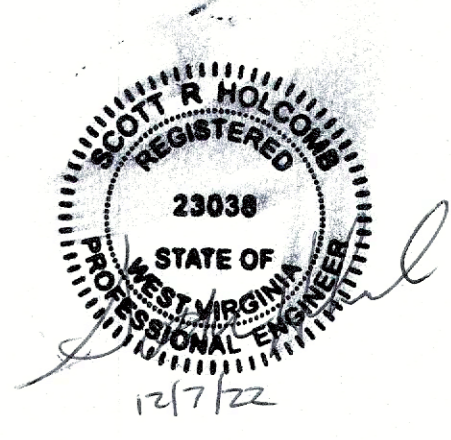


NOTES:

1.) EXISTING DRAWINGS TAKEN FROM "RECORD DRAWINGS", TOWN OF FRANKLIN, WATER TREATMENT PLANT IMPROVEMENTS, "CONSTRUCTION PLANS" CONTRACT 3, DATED FEB. 2003 BY THRASHER ENGINEERING

SYMBOLS	DESCRIPTIONS	PLAN NOTES
	DUPLEX RECEPTACLE	(A) REPLACE EXISTING RECEPTACLES AND SWITCHES WITH NEW. INSTALL GFCI OUTLETS AS INDICATED. (B) REPLACE EXISTING WITH 120V WP-GFCI SINGLE RECEPTACLE (C) ALL CIRCUITS NEED TO BE VERIFIED AND MARKED SO THEY CAN BE REFLECTED ON AS-BUILT DRAWINGS (D) REPLACE EXISTING PANEL (E) REPLACE EXISTING ATS
	DUPLEX RECEPTACLE, WEATHERPROOF	
	DUPLEX RECEPTACLE, GFCI PROTECTED	
	DUPLEX RECEPTACLE, GFCI / WEATHERPROOF	
	QUAD RECEPTACLE	
	240 VOLT RECEPTACLE	
	WALL SWITCH, SINGLE POLE, SINGLE THROW	
	WALL SWITCH, THREE WAY	
	WALL SWITCH, WEATHERPROOF	
	EXHAUST FAN, CEILING MOUNTED	
	MOTORIZED DAMPER	
A-n, B-n, C-n, MDP-n	CIRCUIT BREAKER NUMBERS	
	PLAN NOTE	
	DETAIL REFERENCE	
	FUSED DISCONNECT	
	NON-FUSED DISCONNECT	
	MOTOR CONNECTION	

LEGEND LIST IS TYPICAL. SOME MAY NOT BE USED ON THIS SHEET



CONTRACT 1

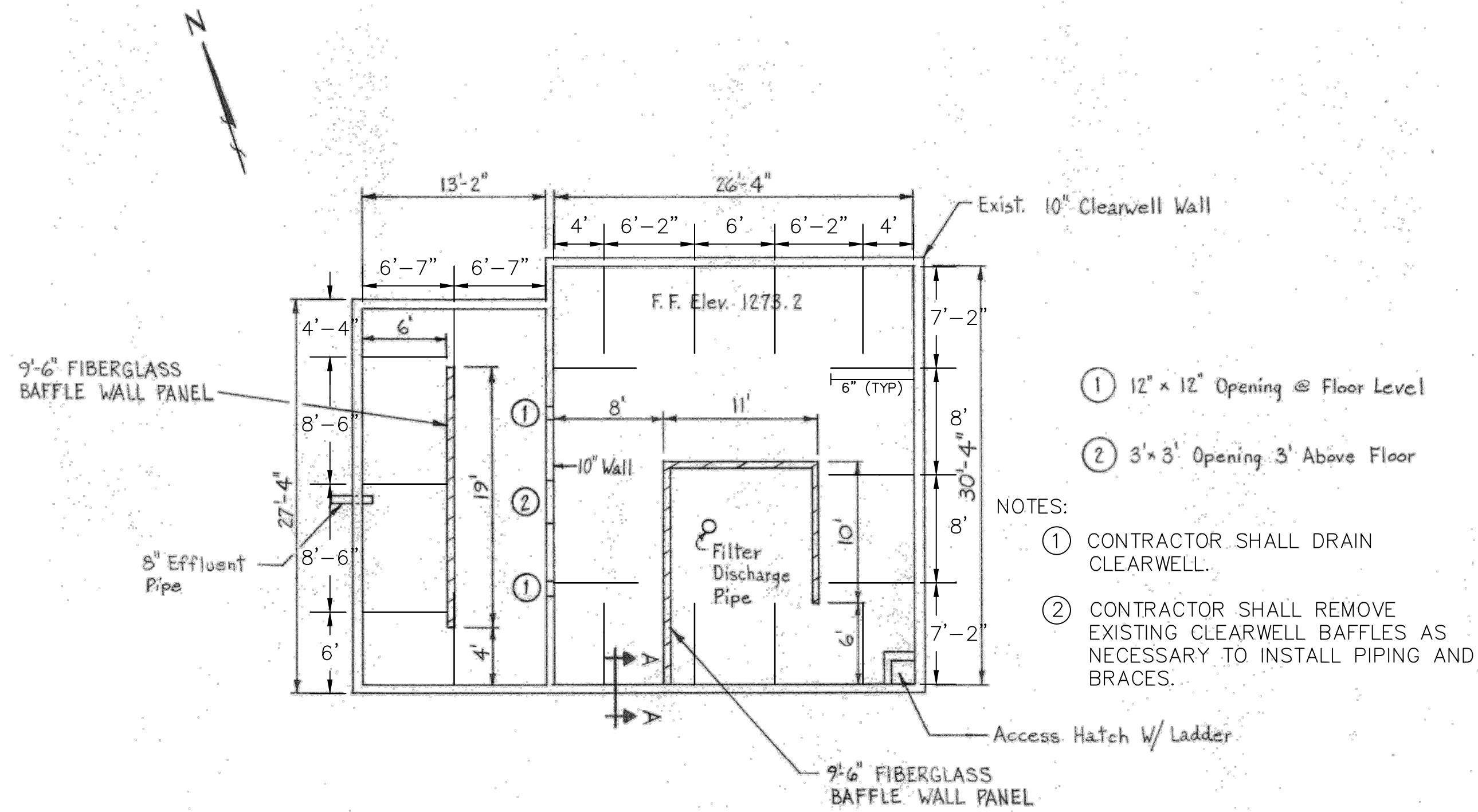
NO.	DATE	REV.	PER REQUEST	DESCRIPTION
A	12/06/22			REV. PER REQUEST

Town of Franklin WATER TREATMENT SYSTEM IMPROVEMENTS
Pendleton County, West Virginia

POWER PLAN, PLAN NOTES AND DETAILS

DRAWN BY: MM	CHECKED BY: SRH	DRAWING 1901
SCALE: AS SHOWN	DATE: JULY 2022	16C

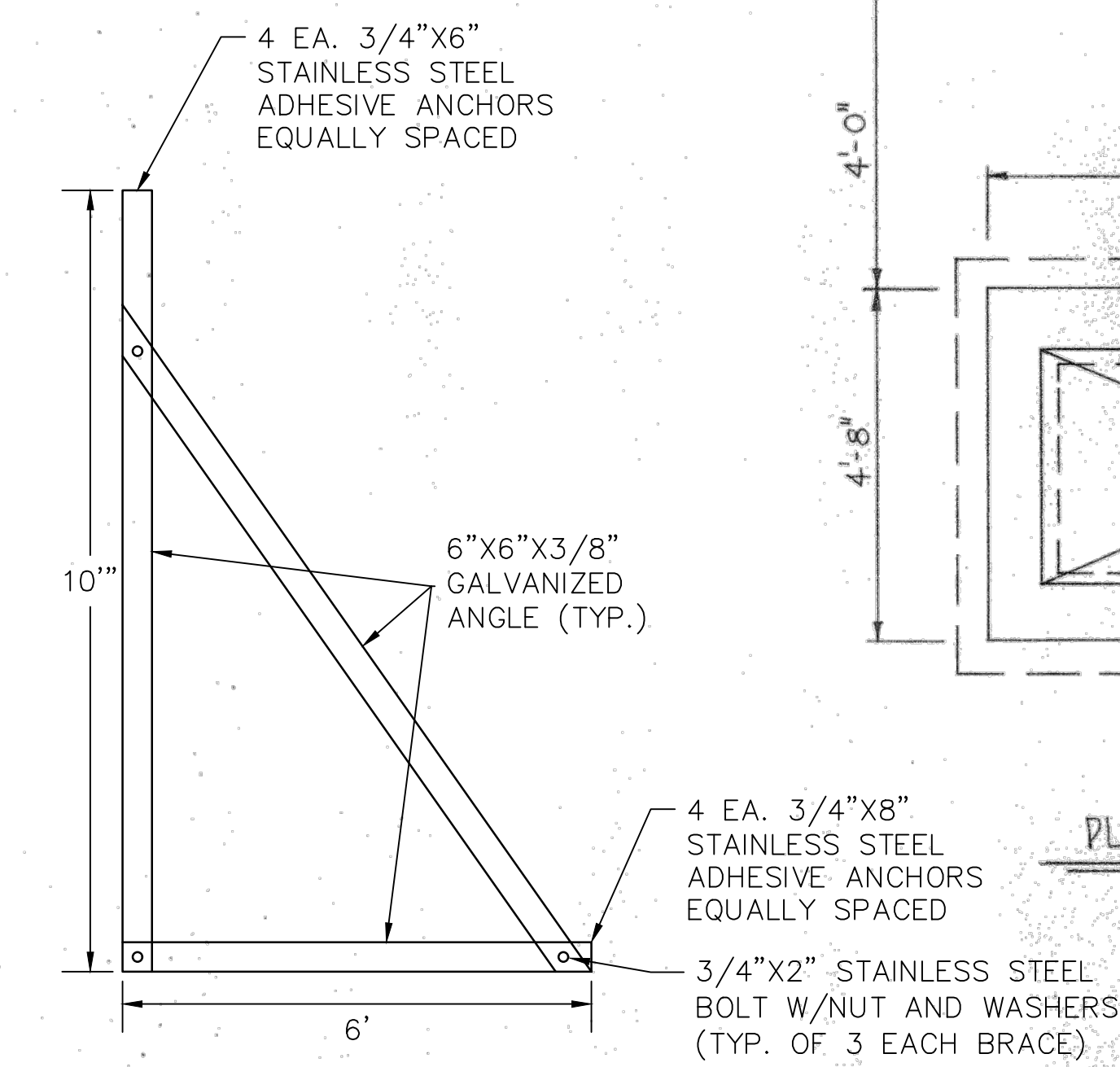
DUNN ENGINEERS, INC.
400 SOUTH RUFFNER ROAD
CHARLESTON, W.V. 25314



EXISTING CLEARWELL WALL BRACE LAYOUT

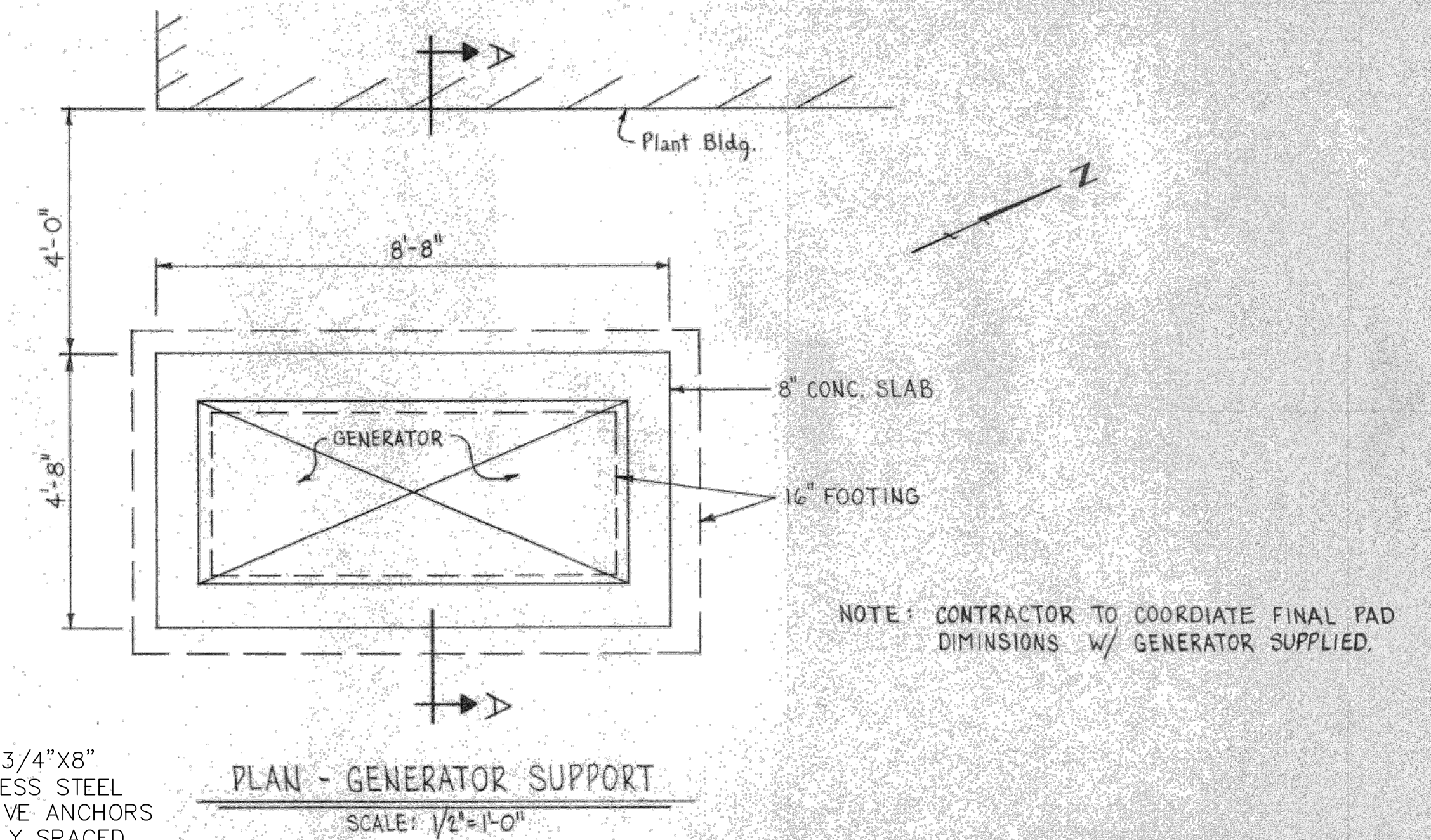
SCALE: 1/8"=1'-0"

- NOTES:
- ① 12' x 12' Opening @ Floor Level
 - ② 3' x 3' Opening 3' Above Floor
 - ① CONTRACTOR SHALL DRAIN CLEARWELL.
 - ② CONTRACTOR SHALL REMOVE EXISTING CLEARWELL BAFFLES AS NECESSARY TO INSTALL PIPING AND BRACES.



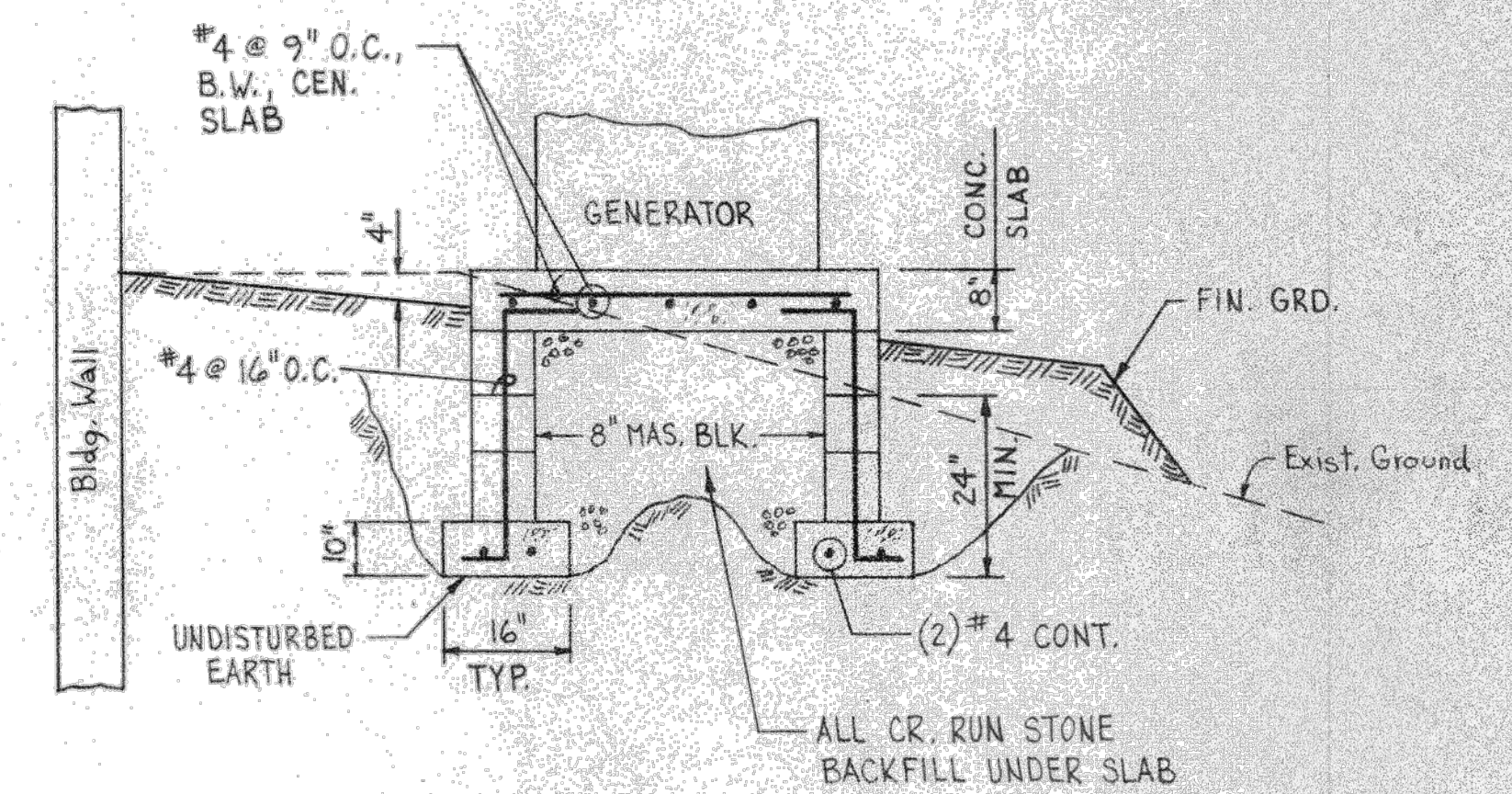
EXISTING CLEARWELL WALL BRACE

(TYP. OF 18)
SCALE: 1/2"=1'



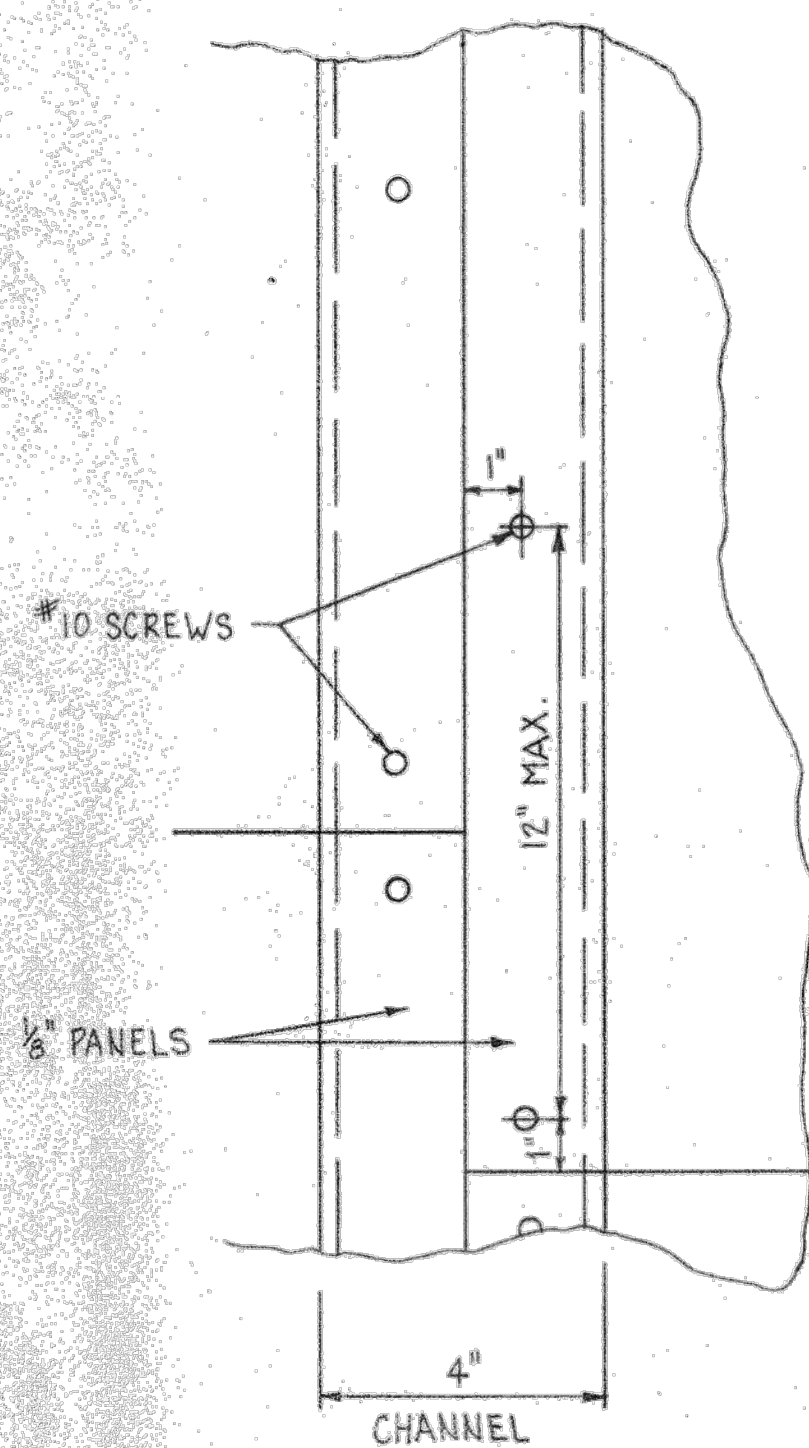
PLAN - GENERATOR SUPPORT

SCALE: 1/2"=1'-0"

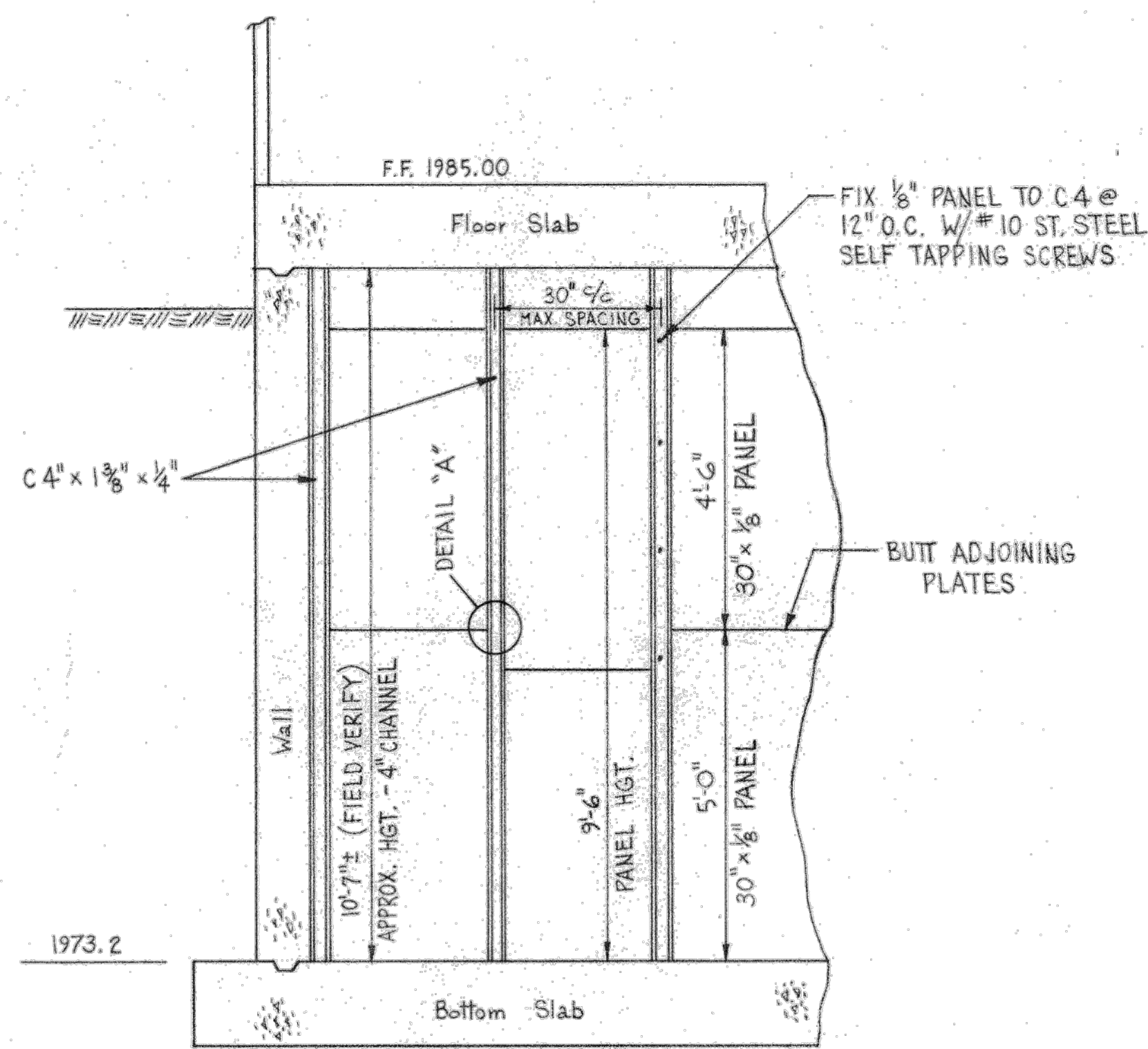


SECTION A-A

SCALE: 1/2"=1'-0"



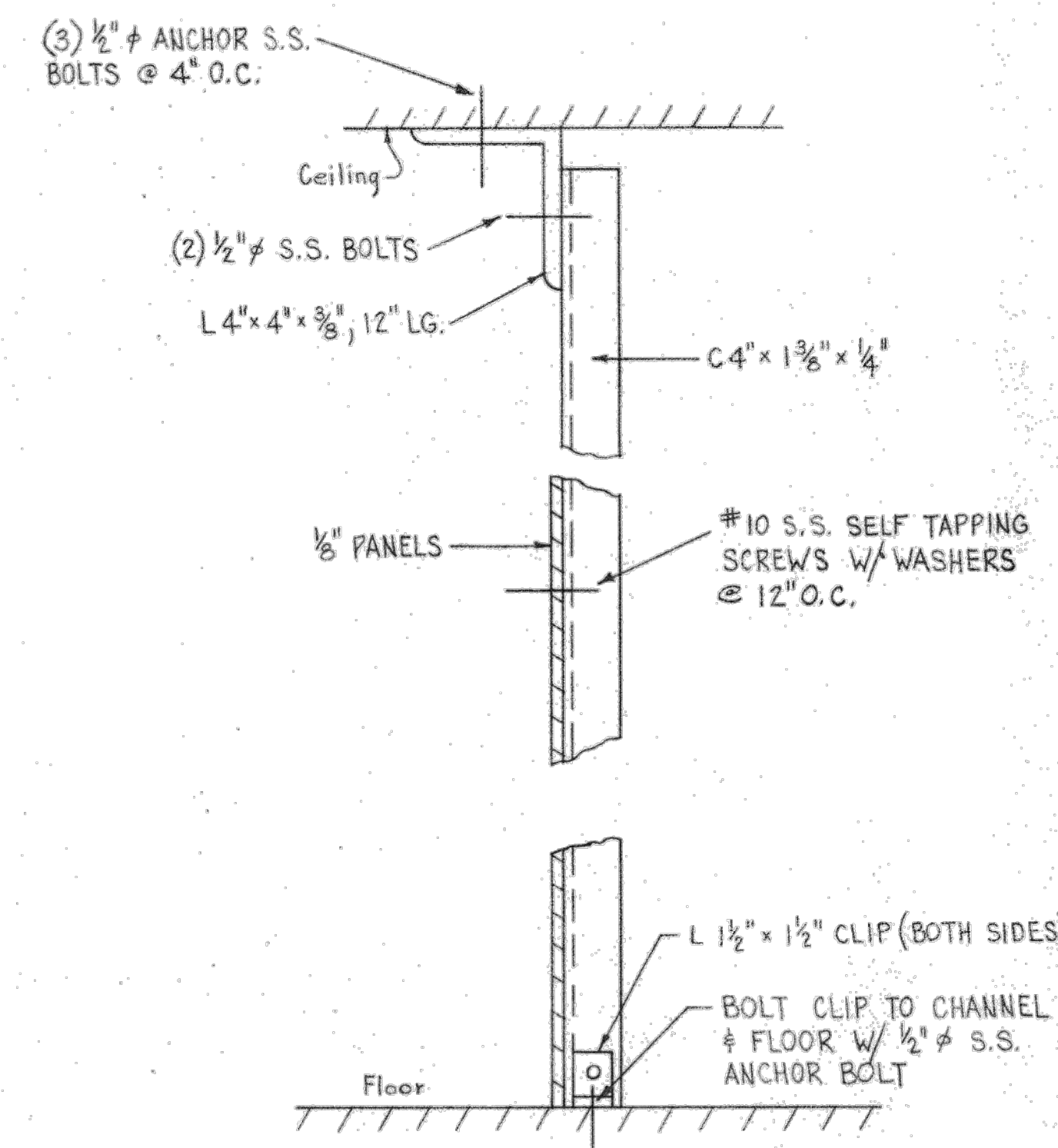
DETAIL "A"
NO SCALE



SECTION A-A

SCALE: 1/2"=1'-0"

- NOTES:
- 1. ALL STRUCTURAL MEMBERS TO BE EXTREN 500 FIBERGLASS.
 - 2. ALL METAL BOLTS AND FASTENINGS TO BE STAINLESS STEEL.
 - 3. ALL BOLTS TO HAVE STAINLESS STEEL WASHERS ON BOTH SIDES.



TYPICAL SECTION

SCALE: 3/8"=1'-0"

NOTE:

BASE SHEET PROVIDED BY WILLIAM PALLAVICINI ENGINEERING DRAWINGS 3-1-93.

CONTRACT 1

NO.	DATE	DESCRIPTION
REVISIONS		

Town of Franklin WATER TREATMENT SYSTEM IMPROVEMENTS
Pendleton County, West Virginia

CLEARWELL BAFFLE & GENERATOR PAD

DRAWN BY: DR CHECKED BY: E.T.H. DRAWING 1901
SCALE: AS SHOWN DATE: DEC. 2022 **9H**

DUNN ENGINEERS, INC.
400 SOUTH RUFFNER ROAD
CHARLESTON, W.V. 25314

R:\Dum\Projects\1901-Franklin\Production Drawings\Plant Contract\1901-A.09H Clearwell Baffle & Generator Pad.dwg, 12/8/2022 1:40:59 PM, DWG To PDF.pc3

SECTION 11800 - GLASS LINED WATER TREATMENT TANKS

PART 1 – GENERAL

1.1 SCOPE OF WORK

- A. The work called for in this section shall consist of all necessary materials, tools, equipment, and all labor for the construction of two (2) glass-fused to steel water storage tanks, tank foundations, valving, piping, tank erection, site work, and all necessary appurtenances as shown on the plans. All tanks supplied by the specification must meet AWWA Standard D103 or latest revision and be approved by the West Virginia Bureau of Public Health.
- B. All required labor, materials and equipment shall be included to complete the work shown on the plans and described herein.

1.2 RELATED WORK

- A. Section 02200 - Earthwork
- B. Section 03300 - Cast In Place Concrete

1.3 QUALIFICATIONS OF TANK SUPPLIER

- A. The Engineer's selection of factory applied glass- fused-to-steel bolt together tank construction for this facility has been predicated upon the design criteria, construction methods specified, and optimum coating for resistance to internal and external tank surface corrosion. Deviations from the specified design, construction or coating details, will not be permitted.
- B. The bidder shall offer a new tank structure as supplied from a manufacturer specializing in the design, fabrication and erection of factory applied glass- fused-to-steel, bolt together tank systems. The manufacturer shall own and operate its production plant, fabricate and glass coat the tank at one location.
- C. The tanks shown on the contract drawings and specified herein are based on tanks as manufactured by Engineered Storage Products Company of DeKalb, Illinois (previously A.O. Smith, Harvestore, Inc.) or equal.
- D. Approved alternate glass-fused-to-steel tank products, as provided by other manufacturers, will be considered for prior approval by the Engineer. Manufacturers lacking the experience requirement will not be considered. The Owner's decision or judgement on these matters will be final, conclusive and binding.

- E. Strict adherence to the standards of design; fabrication; erection; product quality; and long-term performance, established in this Specification will be required by the Owner and Engineer.
- F. Tank substitutions which cause engineering and contract changes - the tank installation as shown on the plans and specified herein, is based on the equipment furnished by one manufacturer. A tank which is offered as a substitute to the specific requirements of these Specifications and which differs in detail and arrangement from that shown may require changes in design and construction. All costs which result from such changes in design and construction are to be borne entirely and unconditionally by the Contractor; said costs to included but not be limited to structural, piping, mechanical and electrical changes and all engineering costs incurred as a result of the substitution, in the revision of Plans and Specifications, review of design changes by others, preparation of change orders, and any other costs directly resulting from said substitution.
- G. Tank suppliers wishing to pre-qualify shall submit the following to the Engineer/Owner for consideration no later than 21 days prior to bid date.

1.4 TYPICAL STRUCTURE AND FOUNDATION DRAWING(S).

- A. List of tank materials, appurtenances and tank coating specs.
- B. List of five (5) tanks presently in municipal or industrial water treatment service, of size and character specified herein, operating satisfactorily for a minimum of five (5) years, including the name and telephone number of Owner and Engineer.
- C. Certification from tank manufacturer that tank meets all of tank design standards listed in Section 2.0.

PART 2 - DESIGN CRITERIA

2.1 TANK SIZE

- A. The factory coated glass-fused-to-steel, bolt together tanks shall have the following:
 - 1. Clearwell (X 2)
 - a. Tank shall be 40,000 gallon (nominal, US gallons).
 - b. Tank size shall have a nominal diameter of 25' – 2", with a nominal sidewall height of 14.68 feet. However, the overflow elevation shall be as shown on the plans.

2.2 TANK CAPACITY

- A. Tank capacity shall allow one (1) foot freeboard minimum.

2.3 TANK DESIGN STANDARDS

- A. The tank structural design conforms to AWWA D103 Specification, latest revision.
- B. The materials, fabrication and erection of the bolt together tank shall conform to the general principles of the AWWA Standard for "Factory-Coated Bolted Steel Tanks For Water Storage" - ANSI/AWWA D103, latest revision.
- C. The tank coating system shall conform solely to Section 10.4 of ANSI/AWWA D103 latest revision.
- D. The vitreous coating on the tank, bolt head encapsulation material, and joint sealant shall have been approved for listing under ANSI/NSF Standard 61 for Indirect Additives.
- E. The tank manufacturer shall be ISO 9001 certified to assure product quality.

2.4 DESIGN LOADS

- A. Specific Gravity 1 (Min. design shall be 1.0)
- B. Wind Velocity 100 mph (ANSI 100 mph Std.) Risk Category IV
- C. Shape Factor 0.5
- D. Allowable Soil 2,000 psf (Per Eng.'s Bearing Capacity Soils Report)
- E. Roof Snow Load 40 psf
- F. Earthquake Seismic Zone, AWWA D103 (Check See Sec. 2.5.6.1 or See Sec. 2.5.6.2)

PART 3 - MATERIALS SPECIFICATIONS

3.1 PLATES AND SHEETS

- A. Plates and sheets used in the construction of the tank shell, tank floor (if shown on the plant) or tank roof, shall comply with the minimum standards of AWWA D103, Section 2.4.
- B. Design requirements for mild strength steel shall be ASTM A570 Grade 30 with an allowable tensile stress of 18,000 psi per AISC Specification.

- C. Design requirements for high strength steel shall be ASTM A607 Grade 50 with an allowable tensile stress of 30,000 psi per AISC Specification.
- D. The annealing effect created from the glass coated firing process shall be considered in determining ultimate steel strength. In no event shall a yield strength greater than 50,000 psi be utilized for calculations detailed in AWWA D103, Sections 3.4 and 3.5.
- E. Multiple vertical bolt line sheets and plates of ASTM A607 Grade 50 only shall be manufactured such that holes are staggered in the vertical bolt lines and that no two adjacent holes are in-line horizontally, except at the center of the sheet or plate.

3.2 ROLLED STRUCTURAL SHAPES

- A. Material shall conform to minimum standards of ASTM A36 or AISI 1010.

3.3 HORIZONTAL WIND STIFFENERS

- A. Design requirements for intermediate horizontal wind stiffeners shall be of the "web truss" design, with extended tail to create multiple layers of stiffener, permitting wind load transfer around the tank.
- B. Web truss stiffeners shall be of steel with hot dipped galvanized coating.
- C. Rolled steel angle stiffeners are not permitted for intermediate stiffeners.

3.4 BOLT FASTENERS

- A. Bolts used in tank lap joints shall be ½" - 13 UNC- 2A rolled thread.

3.5 BOLT MATERIAL

- A. AE Grade 2
- B. Tensile Strength - 74,000 psi Min.
- C. Proof Load - 55,000 psi Min.
- D. Allowable shear stress - 18,164 psi (AWWA D103).
- E. SAE grade 8/ASTM A325 heat treated to:
 - 1. Tensile Strength - 150,000 psi Min.
 - 2. Proof Load - 120,000 psi Min.
 - 3. Allowable shear stress - 36,818 psi (AWWA D103).

4. Bolt Finish - Zinc, mechanically deposited.
5. 2.0 mils Min - under bolt head, on shank and threads.
6. Bolt Head Encapsulation

7. High impact polypropylene encapsulation of entire bolt head up to the splines on the shank.
8. Natural Resins only.
9. All bolts shall be installed such that the head portion is located inside the tank, and the washer and nut are on the exterior.
10. All lap joint bolts shall be properly selected such that threaded portions will not be exposed in the "shear plane" between tank sheets. Also, bolt lengths shall be sized as to achieve a neat and uniform appearance. Excessive threads extending beyond the nut after torquing will not be permitted.
11. All lap joint bolts shall include a minimum of four (4) splines on the underside of the bolt head at the shank in order to resist rotation during torquing.
12. All washers and nuts shall be capped with a co-polymer cap.

3.6 SEALANTS

- A. The lap joint sealant shall be a one component moisture cured polyurethane compound. The sealant shall be suitable for contact with potable water and meet applicable FDA Title 21 regulations, as well as, ANSI/NSF Additives Standard 61.
- B. The sealant shall be used to seal lap joints, bolt connections and sheet edges. The sealant shall cure to a rubber-like consistency, have excellent adhesion to the glass coating, have low shrinkage, and be suitable for interior and exterior exposure.
- C. Sealant curing rate at 73 °F and 50% RH
- D. Tack-free time: 6 to 8 hours.
- E. Final cure time: 10 to 12 days.
- F. The sealant shall be Harvestore Products, Inc. System Sealer No. 79.
- G. Neoprene gaskets and tape type sealer shall not be used.

PART 4 - GLASS COATING SPECIFICATION

4.1 SURFACE PREPARATION

- A. Following the decoiling and shearing process, sheets shall be steel grit-blasted on both sides to the equivalent of SSPC-10. Sand blasting and chemical pickling of steel sheets is not acceptable.

- B. The surface anchor pattern shall be not less than 1.0 mil.
- C. These sheets shall be evenly oiled on both sides to protect them from corrosion during fabrication.

4.2 CLEANING

- A. After fabrication and prior to application of the coating system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
- B. Inspection of the sheets shall be made for traces of foreign matter or rust. Any such sheets shall be re-cleaned or grit-blasted to an acceptable level of quality.

4.3 COATING

- A. Sheet edges of sidewall and floor plates shall be mechanically rounded and flame coated with stainless steel prior to glass coating. Glass coating of the sheet edges shall be similar to the flat panel surfaces. The process shall be equal to Edgecoat™ by Engineered Storage Products Company.
- B. After edgecoating and prior to application of the coating system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
- C. Inspection of the sheets shall be made for traces of foreign matter or rust. Any such sheets shall be re-cleaned or grit-blasted to an acceptable level of quality.
- D. All sheets shall be primed with a catalytic nickel oxide glass pre-coat on both sides, and then air dried per section 10.4.2.1 of AWWA D103; latest revision.
- E. A final coat to both sides of the sheets, of cobalt blue glass frit, shall be made.
- F. The sheets shall then be fired at a minimum temperature of 1500°F in strict accordance with quality process control procedures, including firing time, furnace humidity, temperature control, etc.
- G. Minimum dry coating thickness shall be 6.0 mils. The finished color shall be cobalt blue.

4.4 INSPECTION

- A. All coated sheets shall be inspected for mil thickness (Mikrotest or equal).
- B. All coated sheets shall be checked for color uniformity by an electronic colorimeter.

- C. An electrical leak detection test shall be performed on the inside surface after fabrication of the sheet. Sheets with excessive electrical leaks shall be rejected so as to minimize field touch up (See Sec. 5.3.4).

4.5 PACKAGING

- A. All approved sheets shall be protected from damage prior to packing for shipment.
- B. Heavy paper or plastic foam sheets shall be placed between each panel to eliminate sheet-to-sheet abrasion.
- B. Individual stacks of panels will be wrapped in heavy mil black plastic and steel banded to special wood pallets built to the roll-radius of the tank panels. This procedure eliminates contact or movement of finished panels during shipment.
- D. Shipment from the factory to the jobsite will be by truck, hauling the tank components exclusively.

PART 5 - ERECTION

5.1 FOUNDATION

- A. The tank foundation is a part of this contract.
- B. The tank foundation shall be designed by the manufacturer to safely sustain the structure and its live loads.
- C. Tank footing design shall be based on 2000 (maximum) psf soil bearing capacity or greater as determined by geotechnical analysis performed by a licensed soils engineer. The cost of this investigation and analysis is not to be included in the bid price. Copies of the soils report are to be provided to the bidder prior to bid date by the Owner or Engineer.
- D. The tank manufacturer shall design the tank and foundation in accordance with AWWA Standard D100-05 or latest revision and submit the design drawings to the Engineer. All drawings must be signed and sealed by a Professional Engineer registered in the State of West Virginia. The construction of the foundation and erection of the steel shall be in strict compliance with the approval design drawings and in accordance with AWWA Standard D100-05 or latest revision. A National Sanitation Foundation Std. 61 Certificate must be supplied with the bid for the interior paint coating.

PART 6 - TANK FLOOR

6.1 CONCRETE FLOOR

- A. The floor design shall be reinforced concrete with an embedded glass coated steel starter sheet per the manufacturer's design, and is an integral element of the tank assembly; therefore, the tank floor slab with embedded starter sheet shall be constructed by the tank supplier using manufacturer trained personnel regularly engaged in this type of tank construction.
- B. Leveling of the starter ring shall be required and the maximum differential elevation within the ring shall not exceed one-eighth (1/8) inch, nor exceed one-sixteenth (1/16) inch within any ten (10) feet of length.
- C. A leveling plate assembly (per Harvestore Products, Inc. - U.S. Patent No. 4,483,607 or equal), consisting of two 18" anchor rods (3/4" dia.) and a slotted plate (3 1/2" X 11" X 3/8" thk) shall be used to secure the starter ring, prior to encasement in concrete. Installation of the starter ring on concrete blocks or bricks, using shims for adjustment, is not permitted.
- D. Two water stop seals made of a butyl rubber elastomer special for this application shall be placed on the inside surface of the starter ring below the concrete floor line. These materials shall be installed as specified by the tank manufacturer.
- E. The concrete floor shall be coated with 60 wet mils layer of series AR 425 polyurea as manufactured by Sherwin Williams or equal.

6.2 ACCESS DOORS

- A. One (1) bottom access door(s) shall be provided as shown on the contract drawings.
- B. Such doors shall be a minimum of 24 inches diameter, shall include a properly designed reinforcing frame and cover plate, and provide a hinged opening mechanism for cover opening.
- C. Identification Plate A manufacturer's nameplate shall list the tank serial number, tank diameter and height, maximum design capacity, intended storage use and date of installation. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5') feet from grade elevation in a position of unobstructed view.

6.3 CATHODIC PROTECTION

- A. A passive sacrificial zinc anode cathodic protection system shall be supplied as standard by tank manufacturer. The responsibility for providing a system which will not interfere with process piping shall be the responsibility of the tank manufacturer.
- B. Electrical continuity between all tank sidewall or floor panels shall be the responsibility of the tank manufacturer.

6.4 ROOF

- A. Tank with diameter of 14 to 31 ft. shall include a radially sectioned roof fabricated from glass-coated, bolted steel panels, as produced by the tank manufacturer, and shall be assembled in a similar manner as the sidewall panels utilizing the same sealant and bolting techniques, so as to assure a water / air tight assembly. The roof shall be clear-span and self-supporting. Both live and dead loads shall be carried by the tank walls. The exterior coating finish shall include a white glass fired over the cobalt blue glass. The manufacturer shall furnish a roof opening which shall be placed near the outside tank ladder and which shall be provided with a hinged cover and a hasp for locking. The opening shall have a clear dimension of at least twenty-four (24") inches in one direction and fifteen (15") inches in the other direction. The opening shall have a curb at least four (4") inches in height, and the cover shall have a downward overlap of at least two (2") inches, or a gasketed weathered-tight cover in lieu of the four (4") inch curb and two (2") inch overlap.
- B. Roofs (where applicable) for tanks greater than 31 ft. diameter shall be constructed of non-corrugated triangular aluminum panels which are sealed and firmly clamped in an interlocking manner to a fully triangulated aluminum space truss system of wide flange extrusions, thus forming a spherical dome structure.
- C. The dome shall be clear-span and designed to be self-supporting from the periphery structure with primary horizontal thrust contained by an integral tension ring. The dome dead weight shall not exceed 3 pounds per square foot of surface area.
- D. The dome and tank shall be designed to act as an integral unit. The tank shall be designed to support an aluminum dome roof including all specified live loads.
- E. Triangulated space truss: 6061-T6 aluminum struts and gussets.
- F. Triangular closure panels: .050"t 3003-H16 aluminum sheet.
- G. Tension ring: 6061-T6 aluminum.

- H. Fasteners: 7075-T73 anodized aluminum or series 300 stainless steel.
- I. Sealant and gaskets: silicone rubber.
- J. Dormers, doors, vents and hatches: 6061-T6, 5086H34 or 3003-H16 aluminum.
- K. Supplier shall be TEMCOR of Torrance, California or equal.

6.5 ROOF VENT

- A. A properly sized vent assembly in accordance with AWWA D103 shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum possible rate of water fill or withdrawal, there will be no resulting interior pressure or vacuum.
- B. The overflow pipe shall not be considered to be a tank vent.
- C. The vent shall be constructed of aluminum.
- D. The vent shall be so designed in construction as to prevent the entrance of birds and/or animals by including an expanded aluminum screen (1/2 inch) opening. An optional insect screen of 23 to 25 mesh polyester monofilament should be available if so specified.

6.6 APPURTENANCES (PER AWWA D103, SECTION 5)

A. Pipe Connections

- 1. Where pipe connections are shown to pass through tank panels, they shall be field located, saw cut, (acetylene torch cutting or welding is not permitted), and utilize an interior and exterior flange assembly. ESPC Sealer No. 98 shall be applied on any cut panel edges or bolt connections.
- 2. Overflow piping shall be Q inch(es) diameter schedule 80 PVC.

B. Outside Tank Ladder

- 1. An outside tank ladder shall be furnished and installed as shown on the contract drawings.
- 2. Ladders shall be fabricated of aluminum and utilize grooved, skid-resistant rungs.
- 3. Safety cage and step-off platforms shall be fabricated of galvanized steel.
- 4. A hinged, lockable gate shall be installed at the base of the ladder safety cage to deter unauthorized access to the to of the tank. The owner shall provide and install the lock.

C. Sidewall Access Manway

1. One sidewall access manway shall be provided as shown on the contract drawings in accordance with AWWA D-103 for each tank.
2. Such manways shall be a minimum of 24 inches in diameter and shall include a properly designed reinforcing frames and cover plates. A davit to hold the cover plate, when opened, is required.

D. Identification Plate A manufacturer's nameplate shall list the tank serial number, tank diameter and height, and maximum design capacity. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5') feet from grade elevation in a position of unobstructed view.

PART 7 - FIELD TESTING

7.1 HYDROSTATIC

- A. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling tank to its overflow elevation.
- B. Any leaks disclosed by this test shall be corrected by the erector in accordance with the manufacturer's recommendations.
- C. Water required for testing shall be furnished by the owner at the time of tank erection completion, and at no charge to the tank erector.
- D. Labor and equipment necessary for tank testing is to be included in the price of the tank.

PART 8 - WARRANTY

8.1 STRUCTURE

- A. If within a period of one (1) year from the date on the Certificate of Substantial Completion, the water treatment tank, or any part thereof, shall prove to be defective in material or workmanship upon examination by the manufacturer, the manufacturer will supply an identical or substantially similar replacement part f.o.b. the manufacturer's factory, or the manufacturer, at its option, will repair or allow credit for such part.

8.2 GLASS COATING SYSTEM

- A. If within a period of five (5) years from date of completion of the tank the coating on the tank chips, cracks, or under-cuts during normal municipal water treatment storage service, the manufacturer shall (after examination by the manufacturer) supply an identical or substantially similar replacement part f.o.b. the

manufacturer's factory, or, at the manufacturer's option, repair or allow credit for such part. Coating system warranty for industrial water storage applications is one (1) year from date of tank completion contingent on manufacturer's written acceptance of stored contents compatibility.

8.3 INSPECTION

- A. On or near the one-year anniversary date of initial tank use the manufacturer's authorized dealer shall make a visual inspection of the tank interior coating and appurtenances; tank exterior coating and appurtenances; and the immediate area surrounding the tank. A written summary of this inspection will be filed with the tank owner and the tank manufacturer

PART 9 - MEASUREMENT AND PAYMENT

9.1 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work covered under this item.

9.2 BASIS FOR PAYMENT

- A. Payment for work performed under this item shall be included in the Form of Proposal, payment shall be included in the Lump Sum and/or Unit Bid items to which work under this item is incidental.

In either situation, payments shall be full compensation for furnishing all the materials and performing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies and incidentals necessary to complete the work and make it fully operational.

END OF SECTION 11800

Rev. 12-08-22

Franklin

SECTION 16233 – NATURAL GAS/PROPANE PACKAGED ENGINE GENERATORS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes packaged natural gas/propane-engine generator sets with the following features and accessories:

1. Engine generator set.
2. Muffler.
3. Outdoor enclosure.
4. Starting battery.

1.2 DEFINITIONS

- A. Standby Rating: Power output rating equal to the power the generator set delivers continuously under normally varying load factors for the duration of a power outage.
- B. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- C. Steady-State Voltage Modulation: The uniform cyclical variation of voltage within the operational bandwidth, expressed in Hertz or cycles per second.

1.3 SUBMITTALS

- A. Product Data: Include data on features, components, ratings, and performance. Include the following:
1. Dimensioned outline plan and elevation drawings of engine generator set and other components specified.
 2. Thermal damage curve for generator.
 3. Time-current characteristic curves for generator protective device.
- B. Shop Drawings: Indicate fabrication details, dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
1. Wiring Diagrams: Detail wiring for power and control connections and differentiate between factory-installed and field-installed wiring.
- C. Field Test and Observation Reports: Test results and inspection records as specified in Part 3.
- D. Certified summary of prototype-unit test report.

- E. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
- F. Certified Summary of Performance Tests: Demonstrate compliance with specified requirement to meet performance criteria for sensitive loads.
- G. Factory Test Reports: For units to be shipped for this Project, showing evidence of compliance with specified requirements.
- H. Sound measurement test report.
- I. Maintenance Data: For each packaged engine generator and accessories. Include the following:
 - 1. Detail operating instructions for both normal and abnormal conditions.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of emergency maintenance and repairs at the Project with eight hours' maximum response time.
- B. Source Limitations: Obtain packaged engine generator and auxiliary components specified in this Section through one source from a single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
- D. Comply with NFPA 70.
- E. Comply with NFPA 99.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver engine generator set and system components to their final locations in protective wrappings, containers, and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards.

1.6 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace packaged engine generator and auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

1.7 MAINTENANCE SERVICE

- A. Maintenance: At Substantial Completion, begin 12 months' full maintenance by skilled employees of the manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Maintenance agreements shall include parts and supplies as used in the manufacture and installation of original equipment.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Caterpillar, Inc.; Engine Div.
 2. Kohler Co; Generator Division.
 3. Onan Corp; Industrial Business Group.

2.2 ENGINE GENERATOR SET

- A. Furnish a coordinated assembly of compatible components.
- B. Output Connections: Three phase, four wire.
- C. Safety Standard: Comply with ASME B15.1.
- D. Nameplates: Each major system component is equipped with a conspicuous nameplate of component manufacturer. Nameplate identifies manufacturer of origin and address, and model and serial number of item.
- E. Limiting dimensions indicated for system components are not exceeded.
- F. Skid: Adequate strength and rigidity to maintain alignment of mounted components without depending on a concrete foundation. Skid is free from sharp edges and corners. Lifting attachments are arranged to facilitate lifting with slings without damaging any components.

2.3 GENERATOR-SET PERFORMANCE

- A. Steady-State Voltage Operational Bandwidth: 4 percent of rated output voltage from no load to full load.
- B. Steady-State Voltage Modulation Frequency: Less than 1 Hz.
- C. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage recovers to remain within the steady-state operating band within three seconds.
- D. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
- E. Steady-State Frequency Stability: When system is operating at any constant load within rated load, there are no random speed variations outside the steady-state operational band and no hunting or surging of speed.
- F. Transient Frequency Performance: Less than 5 percent variation for a 50 percent step-load increase or decrease. Frequency recovers to remain within the steady-state operating band within five seconds.
- G. Output Waveform: At no load, harmonic content measured line to line or line to neutral does not exceed 5 percent total and 3 percent for single harmonics. The telephone influence factor, determined according to NEMA MG 1, shall not exceed 50.
- H. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, the system will supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to any generator system component.

2.4 SERVICE CONDITIONS

- A. Environmental Conditions: Engine generator system withstands the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: 5 to 40 deg C.
 - 2. Relative Humidity: 0 to 95 percent.
 - 3. Altitude: Sea level to 1,000 feet.

2.5 ENGINE

- A. Comply with NFPA 37.
- B. Fuel: Natural gas/propane.
- C. Rated Engine Speed: 1800 rpm.

- D. Lubrication System: Pressurized by a positive-displacement pump driven from engine crankshaft. The following items are mounted on engine or skid:
1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 2. Thermostatic Control Valve: Controls flow in system to maintain optimum oil temperature. Unit is capable of full flow and is designed to be fail-safe.
 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps or siphons or special tools or appliances.
- E. Engine Fuel System: Comply with NFPA 37. System includes the following:
1. Natural Gas/Propane System.
 - a. Carburetor.
 - b. Secondary Gas Regulator.
 - c. Fuel-Shutoff Solenoid Valve.
 - d. Flexible Fuel Connectors.
- F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment.

2.6 GOVERNOR

- A. Type: Adjustable isochronous, with speed sensing.

2.7 ENGINE COOLING SYSTEM

- A. Description: Closed loop, liquid cooled, with radiator factory mounted on engine generator-set skid and integral engine-driven coolant pump.
- B. Radiator: Rated for specified coolant.
- C. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
- D. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
- E. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
1. Rating: 50-psig maximum working pressure with 180 deg F coolant, and noncollapsible under vacuum.
 2. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

2.8 FUEL SUPPLY SYSTEM

- A. Comply with NFPA 30 and NFPA 37.

2.9 ENGINE EXHAUST SYSTEM

- A. Muffler: Residential type, sized as recommended by engine manufacturer. Measured sound level at a distance of 10 feet from exhaust discharge, is 95 dBA or less.
- B. Connections from Engine to Exhaust System: Flexible section of corrugated stainless-steel pipe.

2.10 STARTING SYSTEM

- A. Description: 12 or 24-V electric, with negative ground and including the following items:
 1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above.
 2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
 3. Cranking Cycle: As required by NFPA 110 for system level specified.
 4. Cranking Cycle: 60 seconds.
 5. Battery: Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above to provide specified cranking cycle at least twice without recharging.
 6. Battery: Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above to provide specified cranking cycle at least three times without recharging.
 7. Battery Cable: Size as recommended by generator set manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
 8. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater is arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article above. Include accessories required to support and fasten batteries in place.
 9. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.

2.11 CONTROL AND MONITORING

- A. Functional Description: When the mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic-transfer switches initiate starting and stopping of the generator set. When the mode-selector switch is switched to the on position, the generator set manually

starts. The off position of the same switch initiates generator-set shutdown. When the generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down the generator set.

- B. Functional Description: Switching on-off switch on the generator control panel to the on position starts the generator set. The off position of the same switch initiates generator-set shutdown. When the generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms.
- C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages are grouped on a common control and monitoring panel mounted on the generator set. Mounting method isolates the control panel from generator-set vibration.
- D. Indicating and Protective Devices and Controls: Include the following:
 - 1. AC voltmeter.
 - 2. AC ammeter.
 - 3. AC frequency meter.
 - 4. DC voltmeter (alternator battery charging).
 - 5. Engine-coolant temperature gage.
 - 6. Engine lubricating-oil pressure gage.
 - 7. Running-time meter.
 - 8. Ammeter-voltmeter, phase-selector switch(es).
 - 9. Generator-voltage adjusting rheostat.
 - 10. Start-stop switch.
 - 11. Overspeed shutdown device.
 - 12. Coolant high-temperature shutdown device.
 - 13. Coolant low-level shutdown device.
 - 14. Oil low-pressure shutdown device.
 - 15. Generator overload.
- E. Supporting Items: Include sensors, transducers, terminals, relays, and other devices, and wiring required to support specified items. Locate sensors and other supporting items on engine, generator, or elsewhere as indicated. Where not indicated, locate to suit manufacturer's standard.

2.12 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.
 - 1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
 - 2. Trip Settings: Matched to generator thermal damage curve as closely as possible.

3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 4. Mounting: Adjacent to or integrated with control and monitoring panel.
- B. Generator Protector: Microprocessor-based unit that continuously monitors current level in each phase of generator output, integrates generator heating effect over time, and predicts when thermal damage of the alternator will occur. When signaled by the protector or other generator-set protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from the load circuits. Protector performs the following functions:
1. Initiates a generator overload alarm when the generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms.
 2. Under single or three-phase fault conditions, regulates the generator to 300 percent of rated full-load current for up to 10 seconds.
 3. As heating effect on the generator of overcurrent approaches the thermal damage point of the unit, the protector switches the excitation system off, opens the generator disconnect switch, and shuts down the generator set.
 4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.

2.13 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1 and specified performance requirements.
- B. Drive: Generator shaft is directly connected to engine shaft. Exciter is rotated integrally with generator rotor.
- C. Electrical Insulation: Class H or Class F.
- D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.
- E. Construction prevents mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Excitation uses no slip or collector rings, or brushes, and is arranged to sustain generator output under short-circuit conditions as specified.
- G. Enclosure: Drip-proof.
- H. Instrument Transformers: Mounted within generator enclosure.
- I. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.

1. Adjusting rheostat on control and monitoring panel provides plus or minus 5 percent adjustment of output- voltage operating band.

J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

K. Subtransient Reactance: 12 percent, maximum.

2.14 OUTDOOR GENERATOR-SET ENCLOSURE

A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph. Multiple panels are lockable and provide adequate access to components requiring maintenance. Panels are removable by one person without tools. Instruments and control are mounted within enclosure.

B. Muffler Location: External to enclosure.

C. Engine Cooling Airflow through Enclosure: Adequate to maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.

2.15 FINISHES

A. Outdoor Enclosures: Manufacturer's standard enamel over corrosion-resistant pretreatment and compatible standard primer.

2.16 SOURCE QUALITY CONTROL

A. Factory Tests: Include prototype testing and Project-specific equipment testing (testing of equipment manufactured specifically for this Project).

B. Prototype Testing: Performed on a separate engine generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with those required for Level 1 energy converters in Paragraphs 3.2.1, and 3.2.1.1 of NFPA 110.

2. Generator Tests: Comply with IEEE 115.

3. Components and Accessories: Items furnished with installed unit that are not identical to those on tested prototype have been tested to demonstrate compatibility and reliability.

C. Project-Specific Equipment Tests: Factory test engine generator set and other system components and accessories before shipment. Perform tests at rated load and power factor. Include the following tests.

1. Full load run.

2. Maximum power.

3. Voltage regulation.

4. Transient and steady-state governing.
5. Single-step load pickup.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment foundations, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Examine roughing-in of cooling-system piping systems and electrical connections. Verify actual locations of connections before packaged engine generator installation.

3.2 INSTALLATION

- A. Set packaged engine generator set on concrete bases.
 1. Support generator-set mounting feet on rectangular metal blocks and shims or on metal wedges having small taper, at points near foundation bolts to provide 3/4- to 1-1/2-inch gap between pump base and foundation for grouting.
 2. Adjust metal supports or wedges until generator is level.
- B. Install packaged engine generator to provide access for periodic maintenance, including removal of drivers and accessories.
- C. Install cooling-system piping, accessories, hangers and supports, and anchors for complete installation.
 1. Extend drain piping from heat exchangers to point of disposition.
- D. Install exhaust-system piping for diesel engines. Extend to point of termination outside structure. Size piping according to manufacturer's written instructions.
- E. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.
 1. Verify that electrical wiring is installed according to manufacturers' submittal and installation requirements in Division 16 Sections. Proceed with equipment startup only after wiring installation is satisfactory.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in Division 15 Sections. Drawings indicate general arrangement of piping and specialties. The following are specific connection requirements:

1. Install piping adjacent to packaged engine generator to allow service and maintenance.
2. Connect water supply to cooling system.
3. Connect cooling-system water supply and drain piping to diesel-engine heat exchangers. Install flexible connectors at connections to engine generator and remote radiator.
4. Connect exhaust-system piping to natural gas/propane engines.

B. Electrical wiring and connections are specified in Division 16 Sections.

C. Ground equipment.

1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 IDENTIFICATION

A. Identify system components according to Division 15 Section "Mechanical Identification" and Division 16 Section "Basic electrical Materials and Methods."

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections, and to assist in testing. Report results in writing.

B. Testing: Owner will engage a qualified testing agency to perform field quality-control testing.

C. Testing: Perform field quality-control testing under the supervision of the manufacturer's factory-authorized service representative.

D. Tests: Include the following:

1. Tests recommended by manufacturer.
2. InterNational Electrical Testing Association Tests: Perform each visual and mechanical inspection and electrical and mechanical test stated in NETA ATS for emergency engine generator sets, except omit vibration baseline test. Certify compliance with test parameters for tests performed.
3. Battery Tests: Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery. Verify acceptance of charge for each element of battery after discharge. Verify measurements are within manufacturer's specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.

5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
- E. Coordinate tests with tests for transfer switches and run them concurrently.
- F. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
- G. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- H. Test instruments shall have been calibrated within the last 12 months, traceable to standards of the National Institute for Standards and Technology, and adequate for making positive observation of test results. Make calibration records available for examination on request.

3.6 COMMISSIONING

- A. Battery Equalization: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

3.7 CLEANING

- A. On completion of installation, inspect system components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish. Clean components internally using methods and materials recommended by manufacturer.

3.8 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators as specified below:
 1. Coordinate this training with that for transfer switches.
 2. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment.
 3. Review data in maintenance manuals.
 4. Schedule training with Owner, through Engineer, with at least seven days' advance notice.
 5. Minimum Instruction Period: Eight hours.

END OF SECTION 16231

Added 12-07-2022

SECTION 15168 - AQUARIUS® WATER TREATMENT SYSTEM RENOVATIONS

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. This specification covers the refurbishment of existing Westech Engineering, Inc. (Westech) packaged water treatment equipment with specific materials, equipment, and construction methods that comprise the base bid exclusive of any alternate bids. The equipment and material specified is deemed most suitable for the proposed water treatment system.

The contractor shall prepare his bid on the basis of the materials and equipment listed herein. Any bid using other than the specified equipment will be considered an alternate and must comply with Section 01650 Alternates of the specifications. The contract will be awarded to the lowest responsible bidder incorporating the Base Bid equipment.

- B. The Base Bid Equipment shall be for the existing Microfloc products Aquarius - Model AQ-70A Water Treatment System as manufactured by WesTech Engineering, Inc. All products shall be compatible with existing treatment equipment.

- C. The naming of a manufacturer of equipment in this specification is to establish:

1. A standard of excellence for the material used
2. To maintain a level of experience and understanding with existing treatment plant operators who are familiar with the equipment
3. To incorporate operational improvements and product upgrades resulting from the years of installed experience and to indicate a principle of operation desired.

This manufacturer being the original supplier and has all the drawings and designs for the existing equipment and is best suited to provide replacement parts or make design modifications

1.2 WORK INCLUDED

- A. The Contractor shall provide all labor, materials, equipment and incidentals as shown, specified and required to refurbish, install and test the treatment equipment complete with piping, internals and appurtenances.

- B. In order to assure the highest quality control, the equipment supplier and Manufacturer shall be one in the same to ensure a properly designed and integrated water treatment system.

- C. The following items are a part of this section and shall be furnished by one manufacturer to ensure a properly designed and integrated water treatment system.

1. Refurbishing/repair/replace various ancillaries of the factory built steel modular tanks.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Comply with the pertinent provisions of the delivery schedule.
- B. Equipment and materials to be shipped F.O.B. shipping points, with freight prepaid to the jobsite. Fabricated parts when delivered to the site shall be stored off the ground and protected from weather and damage. Control and electrical devices shall be stored indoors.
- C. Ship fabricated assemblies in largest sections permitted by carrier regulations. Match-mark all sections for ease of field installation
- D. Handle so as to prevent damage to equipment during handling and transportation.
- E. Equipment supplied under this section shall not be delivered to the site until construction has progressed to the point where installation may properly commence.

1.4 JOB CONDITIONS

- A. All work must be accomplished within the constraints of the construction schedule as specified. One of the filters must be in operation at all times during construction.
- B. All work shall be scheduled with the Owner and Engineer.
- C. The contractor, equipment supplier shall both visit the site prior to bidding and have all questions answered prior to bidding.

1.5 SUBMITTALS

- A. Approval Drawings: Submit for approval and comply with Section 01300-Submittals of the specifications.
- B. Installation, Operation & Maintenance Manuals: Submit in accordance with Section 01730 - Operation and Maintenance Data.

1.6 GENERAL REQUIREMENTS

- A. Refurbishment of multiple units shall be coordinated with the Owner and Engineer to allow plant to continue to produce water during the refurbishment phase.
- B. Communicate delivery requirements to manufacture and owner as to not unnecessarily clutter the facility or disrupt operations.
- C. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- D. Protect operating equipment and operations while performing work on other units.

- E. New controls to operate the equipment shall be phased in so that existing units might run on existing controls and new units can operate on new control panel.
- F. Final operational performance is determined when all units are operation on new system.
- G. Locate all equipment described herein or as indicated on the Drawings.
- H. Snug down anchor bolt nuts in concrete bases as necessary.
- I. Erect each component assembly in the field in accordance with the manufacturer's installation drawings.
- J. The field installation shall be approved by the equipment manufacturer's personnel, directly employed by the equipment manufacturer and normally engaged in the field installation of the equipment specified herein.
- K. The manufacturer's authorized personnel shall be present during the placement of filter Mixed Media to instruct and observe installation for the first unit rehabilitated.
- L. The manufacturer shall inspect all equipment in this section prior to start-up to confirm that all equipment is properly installed and working, both individually and as a system.
- M. The manufacturer will be responsible for calibration of equipment specified herein.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Teardown/refurbish two (2) identical tanks, tube settling and integral filters each capable of 175 GPM. The following pre-engineered treatment system reflects the equipment already on site:

Model	Nominal
Number	Capacity Per Tank (GPM)
AQ-70A	175

2.2 SETTLING SECTION REPAIRS:

- A. The contractor shall refurbish/repair two compartments for tube clarification as shown on the contract drawings.

1. The existing tube settling modules shall be replaced, including supports.
2. The tube settling modules shall consist of a multitude of 2' 0"W x 10' 1"L x 4' 10"H per section settling tubes inclined 7 1/2 degrees from the horizontal in the direction of flow.

2.3 FILTER SECTION REPAIRS:

- A. The contractor shall refurbish/repair two integral filter compartments (i.e. Patch holes with 1/4" steel plate welded on all sides).

1. The level controller and other instrumentation shall be removed.
2. The surface wash sweeps and pipework removed from the washtrough.
3. The coupling in the washtrough shall be plugged.
4. The filter media and support gravel shall be removed.
5. The interior shall be cleaned, inspected, repaired (if necessary) and scratched or scraped areas primed and painted (price for this by Change Order) repainted as noted per the interior finish coating specification.
 - a. Replacing gravel support and filter media

- B. Replacing Filter Mixed Media and gravel support:

1. The gravel support shall be 15.5 inches in depth and composed of four varying layers, each with a different size and specific gravity. The gravel support media shall consist of four (4) layers each installed per the filter manufacturer's specifications.
2. The filter media shall be a 30 inch deep Mixed Media separation bed composed of three materials, each of different size and specific gravity, providing uniform void distribution from coarse to fine in the direction of flow. The Mixed Media shall consist of the following as noted in the original equipment bills of material:
 - a. 18 inches of anthracite coal
 - b. 9 inches of silica sand
 - c. 3 inches of garnet sand

2.4 PLANT PROCESS VALVES

- A. The treatment plant manufacturer shall provide all process control valves for the existing Aquarius modular water treatment units in the sizes shown on the drawings and as listed below:

VALVE LOCATION	QTY	VALVE TYPE	VALVE SIZE	OPERATOR	ON/OFF or MODULATING
Backwash Inlet	2	Butterfly Flanged	6"	Pneumatic	ON/OFF
Effluent	2	Butterfly Flanged	4"	Electro-Pneumatic	Modulating
Filter-to-Waste	2	Butterfly Flanged	4"	Electro-Pneumatic	Modulating
Effluent	2	Butterfly Flanged	4"	Electro-Pneumatic	Modulating
Backwash Rate Set	1	Butterfly Wafer	5"		Maual
Backwash Check Valve	1	Check Wafer	5"	Check	N/A

- C. The automatic valves shall be wafer-type butterfly valves with electro-pneumatic actuators. The modulating filter effluent and filter-to-waste valves shall have positioners to accept a 4 to 20 mA signal. The open/close valves shall be pilot solenoid controlled and arranged so that the valves shall automatically return to the closed position should power fail. The control system shall return the open/close valves to the closed position on impending air failure or power loss.
- D. All automatic and manual butterfly valves shall be of wafer construction with nylon coated ductile iron disc, EPDM seat, 416SS stem and cast iron body.
- E. Manual valves shall be provided complete with handwheel operator.
- F. Solenoid valves required for operation of manufacturer's treatment plant, process valves and instrumentation shall be provided by the treatment plant manufacturer.
- G. All other valves shall be provided by the contractor.

2.5 INTERCONNECTING PIPING

- A. The installing contractor shall furnish and install all interconnecting hydraulic and pneumatic piping and wiring and valves not furnished by the plant supplier as shown on the plans. This item to include couplings, check and isolation valves, and all other manual valves for pneumatic or hydraulic service.

2.6 PROCESS AND CONTROL INSTRUMENTATION

A. Ultrasonic Level Transmitter:

1. Remove existing and install new level transmitter on each filter unit.

B. Filter Headloss Transmitter and Switch:

1. Remove existing and install new pressure indicating transmitter and gauge assembly on each filter unit.

C. Backwash water temperature Sensor

1. Install backwash water temperature sensor.

D. Effluent Flow Meter:

1. Remove existing 8" effluent flow meter and replace with new magnetic flow meter and necessary piping modifications.

2.7 UNIT CONTROL

A. General

1. The treatment plant manufacturer shall furnish a control panel containing all necessary control functions and internal wiring for the existing modular Aquarius units. The controls shall be completely assembled and mounted in a NEMA 3R painted steel enclosure. The control panel shall provide automatic starting and stopping of the unit, based on clear well level.
2. The control panel shall be a NEMA 3R painted steel, single door enclosure containing a programmable logic controller (PLC), input and output modules, power supplies, circuit breakers, surge arrestors, relays, etc., all shop wired to a marked terminal strip and tested before shipment. Mounted on the front of the control panel shall be an operator interface terminal (OIT) and ON-OFF power switch with light. The PLC shall have an interface port and be capable of future interface to a SCADA system utilizing Ethernet/IP. The PLC shall be equal to an Allen Bradley Compact Logix. The OIT shall be equal to an Allen Bradley PanelView plus color Touchscreen.
3. The control system shall provide means for initiating an automatic backwash each Mixed Media Filter by elapsed run time, filter headloss switch or push button. An interlock shall be provided so that only one filter can backwash at a time. The control system shall automatically sequence valves, and pumps during the backwash cycle. Return to service shall be automatic. A selector switch shall be provided for selecting either automatic or manual operation of each unit.

4. The system manufacturer shall furnish, for installation by the contractor, control devices and equipment for each tank as follows: filter pressure transmitter with local display, backwash supply flow meter, inlet flow meter, ultrasonic liquid level transmitter to control filter effluent flow control valve.
5. All interconnecting wiring and piping is by the contractor.
6. Note: A three-point clear well level switch supplied by the installing contractor will stop production of water upon high level, prevent backwash on low level, and cancel backwash on low-low level.
7. The panel shall include the VFD for the air scour blower and include all necessary heaters and air conditioners for the VFD to operate, provide cabling from control panel to office and provide the computers per Section 11032 of the specifications.

B. Automatic Chemical Control

1. Chemical addition for the Aquarius units shall be provided by the Aquaritrol® PLC Program portion of the control program. The controller shall be capable of automatically changing chemical dosage by pacing chemical feeders to maintain plant effluent turbidity at an established setpoint. The Contractor shall provide for the services of the supplier of this equipment to check out installation prior to plant start-up and to accurately calibrate related equipment.

2.8 CATHODIC PROTECTION

- A. The equipment supplier shall supply and contractor install a passive zinc anode cathodic protection system. The responsibility for providing a system which will not interfere with process piping shall be the responsibility of the filter equipment supplier.

2.9 AIR COMPRESSORS

- A. Provide and install two (2) 1 hp, 240V, 60 hz, single phase, duplex air compressors - each with a 60 gallon tank, intake filter, automatic pressure switch, safety relief valves (ASME code compliant), in-tank check valve, automatic tank drain, manual tank drain, air dryer, compressed air filter, vibration isolation pads and alternator starter package. Alternator starter package shall include two (2) definite purpose magnetic starters and an alternator mounted between the two (2) starter enclosures. All three (3) enclosures are NEMA 1. Each starter shall have a separate power source.

PART 3 - EXECUTION

3.1 INSTALLATION INSPECTION, START-UP AND OPERATOR TRAINING:

- A. The Modular Water Treatment System, modifications shall be installed as shown on the Contract Drawings and specified herein.

- B. The Manufacturer shall be present during placement of filter Mixed Media that is not pre-installed.
- C. The Manufacturer shall inspect the installation of all equipment in this section prior to start-up in order to verify that the equipment has been properly installed and operates properly as a system and individually.
- D. The Manufacturer after the equipment has been properly installed shall calibrate the equipment with the Owner's operator present.
- E. The Manufacturer's representative shall be present for ten (10) - ten (10) hour days (onsite exclusive of travel) in three (3) trips minimum of installation assistance described above.
- F. Effluent quality laboratory analysis shall be provided by the Owner.
- G. All components replaced as part of this contract shall be complete, wired, plumbed and operating.

3.2 WARRANTY

- A. A warranty shall be provided covering all materials and workmanship for twelve months from the initial startup or eighteen months from delivery, whichever occurs first.

PART 4 - MEASUREMENT AND PAYMENT

4.1 METHOD OF MEASUREMENT

- A. No separate measurement shall be made for work covered under this item.

4.2 BASIS FOR PAYMENT

- A. Payment for work performed under this item shall be included in the Form of Proposal, payment shall be included in the Lump Sum and/or Unit Bid items to which work under this item is incidental.

In either situation, payments shall be full compensation for furnishing all the materials and performing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies and incidentals necessary to complete the work and make it fully operational.

END OF SECTION 15168

REV 12-07-22