To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: ***Addendum No. 1***
Lakeshore East Equalization Basin
City of Willoughby

Date: March 7, 2025

This Addendum forms a part of the contract documents and modifies the original bidding documents dated February 2025 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

BID OPENING DATE

The date of receiving and opening bids shall be changed from March 13, 2025 to March 27, 2025. The time and place shall remain the same.

COMPLETION DATES

COMPLETION DATE NO. 1 –
All Non-EQ Basin Site related Work Detailed in the Summary of Work – September 26, 2025

COMPLETION DATE NO. 2 –
All EQ Basin Site related Work Detailed in the Summary of Work – October 1, 2026

FINAL COMPLETION DATE –
All Site Restoration Work Detailed in the Summary of Work – November 27, 2026

QUESTIONS AND ANSWERS

Q1. Is the contractor or the owner responsible for contracting with a third-party materials testing firm for concrete, and compaction testing?

A1. The contractor is responsible for contracting a testing firm, please refer to Specification 013319 – Field Test Reporting, Item 1.3 A Selection & Payment..

Q2. Is the contractor or the owner responsible for private utility costs/fees in regards to relocation, removal and new infrastructure as it relates to Gas, Electric, Telecom or any other private utility?

A2. Any existing utilities that are encountered during excavation or other construction activities that require relocation shall be coordinated and paid for by the contractor. Contractor is responsible for coordination of new services with utility companies. The allowance on the bid form has been provided to pay for permit fees, inspections, service tie ins, and other fees required by the utility company. The allowance will not pay for the installation of the new services or cost associated with repairs or relocations of existing services. The cost associated with the installation of the new services shall be paid for under General Construction line item.

Q3. When is the pre-bid question cut-off date?

A3. March 20, 2025 is the last day for questions, allowing all received questions to be addressed by March 21, 2025.

Q4. Does the contractor owe a project sign?

A4. No sign is required.

Q5. Does the contractor owe the owner/owner representatives a project field office?

A5. Yes, a field office is required for the Owner/Owner's Representative. Refer to attached Specification 015213 – Field Offices. Cost is considered to be incidental to the cost of the project and paid for under Mobilization item.

Q6. When is the expected Award Date, and NTP Date?

A6. Expected award date would be in April 2025. Notice to proceed is expected to be in June 2025.

Q7. Ref Spec Section 030000 Part 1.1A – Specifications 033100 and 034300 are missing from the documents, please provide.

A7. Section 033100 and 034300 are not part of the contract documents.

Q8. What material shall be provided for pipe supports?

A8. Pipe supports shall be 304 stainless steel. Refer to included Specification 400507 – Process Pipe Hangers and Support. Pipe bracket detail on Sheet 21 shall meet the requirements of Specification 400507 for 304 stainless steel supports.

Q9. What material should the basin interior ladder be constructed of?

A9. Interior ladder shall be constructed of aluminum. Platforms shall be aluminum and designed and provided by the tank manufacturer.

Q10. On Sheet 31 of 46, there is an ultrasonic level sensor shown in the wet well. However, there is no specification for the ultrasonic level sensor.

A10. There are no ultrasonic level sensors as part of this project. There are three (3) level transmitters that are part of this project. They are located in the following locations;

1. Wet Well
2. EQ Tank
3. Regulator Structure

Each level transducer shall meet the requirements of Specification 409123.39. Each level transducer shall be placed within a stilling that is attached to the wall of the structure and meets the requirements of the attached details. Refer to Sketch SK-1 "Submersible Level/Pressure Transducer Installation Detail" for the Wet Well and Regulator Structure. Refer to Sketch SK-2 "Tank Submersible Level/Pressure Transducer Installation Detail" for the EQ Tank. The stilling well shall be constructed along the wall of the EQ Tank, next to the proposed 4'x8' platform. The wet well and Regulator Structure shall have a roof penetration to allow access to the level transducer from grade. The Tank shall have the stilling well located off the 4'x8' interior platform.

Q11. Is there a system integrator requirement for this project?

A11. Pro-Tech is the system integrator for this project. Contact information is as follows:

Chris Viar
Pro-Tech
123 East Waterloo Road
Akron, Ohio 44319
330-773-9828

Q12. Can a line item for Mobilization be added to the bid form?

A12. Refer to enclosed Bid Form, page BF.8A.

Q13. Please confirm the quantities of the pay items?

A13. Refer to attached bid proposal. Items listed on the bid proposal are for payment of work to be substantially complete by September 30, 2025 as described in Specification 011000 - Summary of Work. Item "General Construction" includes all work to be substantially complete by October 1, 2026 as described in Specification 011000 - Summary of Work.

Q14. Is this project BABA?

A14. Yes, this is a BABA project.

Q15. The 24-inch sanitary sewer that is to be abandoned, is the void space in the sewer to be filled.

A15 Sewers to be abandoned shall be plugged at both ends with brick and filled with grout or sand.

Q16. Can 15 horsepower pumps be provided?

A16. It is acceptable for the pumps to be 15 horsepower.

Q17. Is the pump supplier or the system integrator required to supply the pump control panels?

A17. It is anticipated that the electrical contractor would provide the required panels for this project.

Q18. Are different concrete tank construction methods meeting AWWA D115 acceptable?

A18. Tank construction that meets AWWA D115 is acceptable. Refer to included Specification Section 033800 – Circular Post-Tensioned Concrete Tanks.

Q19. Please confirm if there are any liquidated damages associated with the project.

A19. Liquidated damages are as shown on Page BF.9 of the contract documents.

Q20. Please confirm if this project is tax exempt.

A20. Yes, the project is tax exempt. A Tax exempt form may be obtained from the City's Finance Department.

Q21. The Contract Documents provide the Federal Prevailing Rates. Please confirm if the Ohio State Prevailing Rates, which are found on the Ohio State Government website, apply for this project.

A21. The Bid Set, Section 9 Wage Rates, includes the Federal Prevailing Wage Rate Schedule for Heavy Highway, General Decision Number OH20250001, Modification 2 dated 02/14/2025. *State Prevailing Wage Rates do not apply.*

Q22. Sheet 18 shows one interior ladder from a 4x4 hatch to the 4x8 platform. Please confirm a full-height FRP ladder shall be installed at the other 4x4 hatch to facilitate future access to the tank floor.

A22. An interior ladder shall be provided at the 4x4 hatch near the Control Building, that extends from the hatch opening to the 4'x8' platform. No additional ladder shall be provided from the platform to the tank floor shall be provided. No ladder shall be provided at the second 4'x4' hatch on the opposite side of the hatch.

Q23. Sheet 18 shows the 3-foot wide trough directly adjacent to the tank wall. Please confirm for the AWWA D110 type tank that the trough can begin approximately 1-foot interior of the tank wall to facilitate the interior cove and waterstop.

A23. It is acceptable to have an offset from the tank wall to the 3-foot perimeter drain.

Q24. Sheet 18 shows the roof plan with the 8'x8' hatch, 4'x4' hatch and stilling well grouped 12-degrees apart. Please confirm the tank designer does have some flexibility (especially with the 8'x8' hatch) to accommodate the columns needed.

A24. It is acceptable that accessories of the tank are adjusted to accommodate the structural design of the tank as approved by the Engineer and Owner.

Q25. Sheet 18 please confirm the penetration sizes required for the hydraulic hoses and sensor cables, only the 4" fill line size is called out.

A25. Please refer to Note 1 under Section B on Sheet 18. All disciplines and equipment manufacturers shall coordinate with the tank manufacturer for approval of requirements to allow all items to be part of the tank design.

Q26. Sheet 20 calls for two (2) 6-inch stainless steel dome sleeves; however, these are not shown on Sheet 18. Please confirm the requirement for dome sleeves.

A26. Sheets 19, 20, 21 are for information only and are subject to final design from the tank manufacturer.

Q27. Sheet 20 shows a membrane slab with column footings above the floor. Please confirm these details are just representation tank details and there should be no column footings and a structural slab (as shown in the other details and mentioned in the specifications) to facilitate the center flush system.

A27. Sheets 19, 20, 21 are for information only and are subject to final design from the tank manufacturer.

Q28. Sheet 22, design loads, differs in snow load and earthquake design occupancy category from the specification. Please confirm the project specification should be utilized.

A28. Refer to Sheet 19 for the structural requirements of the tank.

Q29. Sheet 23, precast concrete, calls for 5,000 psi concrete for precast panels. Please confirm a minimum 4,500 psi concrete as indicated in the tank specification is the requirement for this project.

A29. Refer to Sheet 19 for the structural requirements of the tank.

Q30. As this is an EQ tank, please confirm the unit weight of liquid that should be used for design, it is currently specified as 62.4 pcf.

A30.The flow that enters the EQ Tank is considered wastewater and can be considered to have similar properties as water. Pumps shall be designed based on pumping of standard wastewater flows.

Q31. Page BD.10, note 1.21 specifies all concrete surfaces to be sealed with an approved cure and seal. Please confirm the concrete tank floor does not need to be sealed.

A31. Sealer under this note is for concrete paved services only and not structures.

Q32. Can the structures be precast?

A32. It is acceptable for the wet well, valve vault, Regulator Structure, and Diversion Structure can be precast. However, the contractor is responsible for the design by an Ohio Professional Engineer of the structures and all cost and permits to transport the structures from the precast manufacture. The structures shall be of the same shape and size as per plan.

Q33. Who is responsible for designing tank buoyancy?

A33. The tank manufacturer shall design for buoyancy either in the design of the tank or the foundation. Buoyancy shall be considered with the tank being empty and the groundwater level as defined in the Geotechnical Subsurface Investigation Report, Section 5.3 Design Groundwater Table. In addition, refer to Section 4.4 Groundwater conditions and Section 5.4 Groundwater Control and Slab Subgrade Considerations in the Geotechnical Subsurface Investigation Report for additional information on the groundwater table.

Q34. As it currently stands, the only boring in the tank footprint is 13' above the finished floor elevation. The newer boring does show ground water level, but none of the borings go deep enough to show where the bedrock is and there is 20'+ of uplift. We've been working with a few deep foundation contractors, and ultimately, they don't have enough information to design a deep foundation or ground improvement system. I want to discuss if there are specific design values we can assume (i.e. bearing capacity of 4,000 psf) in order to pull together a design with the potential for a change condition assuming we can take additional borings and manage the geotechnical requirements post bid.

A34. Boring B-2 is within the tank footprint and has a depth of 30 feet. Borings B-1 and B-4 are in close proximity to the tank footprint, with B-4 having a depth of 65 feet.

Following satisfactory completion of the site preparation and excavation inspections, the proposed substructures may be supported on Strip foundations (i.e., slab with a continuous thickened edge). We recommend a gross allowable bearing capacity (qa) of 4,750 pounds per square foot (tsf). The bearing materials should be field-verified as being lean clay (CL) exhibiting an unconfined compressive strength of 4,000 psf or greater. If the hand penetrometer readings are marginal, a Shelby tube sample should be obtained and transported to a soils laboratory for minimum verification from a one-point unconsolidated-undrained (UU) triaxial compressive strength test resulting a minimum undrained shear strength of 2,000 psf.

Q35. What are the limits of restraint for the force main?

A35. Refer to Specification 333100 – Sanitary Sewers, 2.1.D.1. Pipe for the force main shall be boltless restrained joints. Gravity sewers with slopes that exceed 15% shall have thrust blocking provided at lower bend.

BID DOCUMENTS

1. **Replace** Prices to Include, Pages BD.9 to BD.17, with the enclosed Prices to Include, Pages BD.9A to BD.18A.

BID FORMS

Replace Bid Form, Pages BF.8 and BF.9, with the enclosed Bid Form, Pages BF.8A and 9A.

PLANS

1. On plan Sheet 31 of 46, **Delete** the additional pipe at the top of the valve vault shown in the "VALVE VAULT & WET WELL (TOP PLAN VIEW)".

2. On plan Sheet 32 of 46, **Replace** the weir elevation in "REGULATOR STRUCTURE (EL. 600.00) from 595.30 to 592.68.

3. On plan Sheet 32 of 46, the 16" base elbow shall be directed at a 45 degree angle towards stainless steel gate #LESG-1.

4. On plan Sheet 33 of 46, the floor of the Diversion Structure shall be sloped to allow water to drain to the 2" SCH 40 drain line.

5. **Replace** plan Sheets 41 to 46 with the attached Sheets 41 to 47.

SPECIFICATIONS

1. **Add** Specification Section 015213 – Field Offices.

2. In the Table of Contents, **Delete** Specification 262923 – Variable Frequency Drives from the table of contents.

3. In Specification Section 030000, **Replace** Part 1.1.A.3. with;

   333633.01 – Circular Prestressed Concrete Tanks

4. In Specification Section 030000, **Delete** Part 1.1.A.4.

5. **Add** Specification Section 033800 – Circular Post-Tensioned Concrete Tanks.

6. **Delete** Specification Section 262923 - Variable Frequency Drives from the Table of Contents.

7. **Delete** Specification Section 282000 - Telemetry Systems

8. In Specification Section 333100 – Sanitary Sewer System, **Add** the following Part 2.1.F:

   F. Ductile Cast Iron Pipe – Gravity Pipe

      1. Ductile cast iron pipe shall be designed in accordance with ANSI/AWWA C150/A21.50 and manufactured in accordance with ANSI/AWWA C151/A21.51, and shall be Thickness Class 52. Pipe shall be coated with a bituminous material on the outside and shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4. Joints shall be boltless restrained in conformance with ANSI/AWWA C111/A21.11 incorporating rubber gaskets, for buried applications.
      2. All pipe shall be marked or stenciled in conformance with ANSI/AWWA C151/A21.51. All gaskets shall be marked or stenciled with the ASTM specification designation, name or trademark of the manufacturer, and pipe size.
      3. Acceptable manufacturers are:
         a. Clow Pipe
         b. U.S. Pipe
         c. Or approved equal

9. In Specification Section 333633.01, **Replace** Part 2.1.A. with the following,

      1. DN Tanks
      2. Preload, LLC.
      3. Or Approved Equal.

10. In Specification Section 412200, **Delete** Part 3.6 Equipment Schedule.

11. **Add** Specification Section 400507 – Process Pipe Hangers and Support.

12. In Specification Section 400551 – Common Requirements for Process Valves, **Replace** Part 2.2.F.6 with the following;

    Each motor shall be 480 volts, 60 Hz, three phase, induction type or 240 volts, 60 Hz, single phase, induction type as designated on the electrical drawings and recommended by the operator manufacturer. Motors shall be designed specifically for actuator service.

13. In Specification Section 400551 – Common Requirements for Process Valves, **Replace** Part 2.2.F.7 with the following;

One (1) thermostat for each phase placed in the windings shall provide the motor with thermal protection. Sensors for multiple phases shall be wired in series. They shall interrupt the control circuit as soon as the temperature goes beyond the permissible winding temperature.

14. In Specification Section 400551 – Common Requirements for Process Valves, **Delete** Part 2.2.F.10.

PREVAILING WAGES

Section 9, Wage Rates - **Replace** the Wage Rate Schedule with the following:

Heavy and Highway – Decision No. OH20250001, Modification No. 4, dated 03/07/2025

Bidders shall utilize this revised decision when compiling their Bid.

TM/RS:mep

Enclosures

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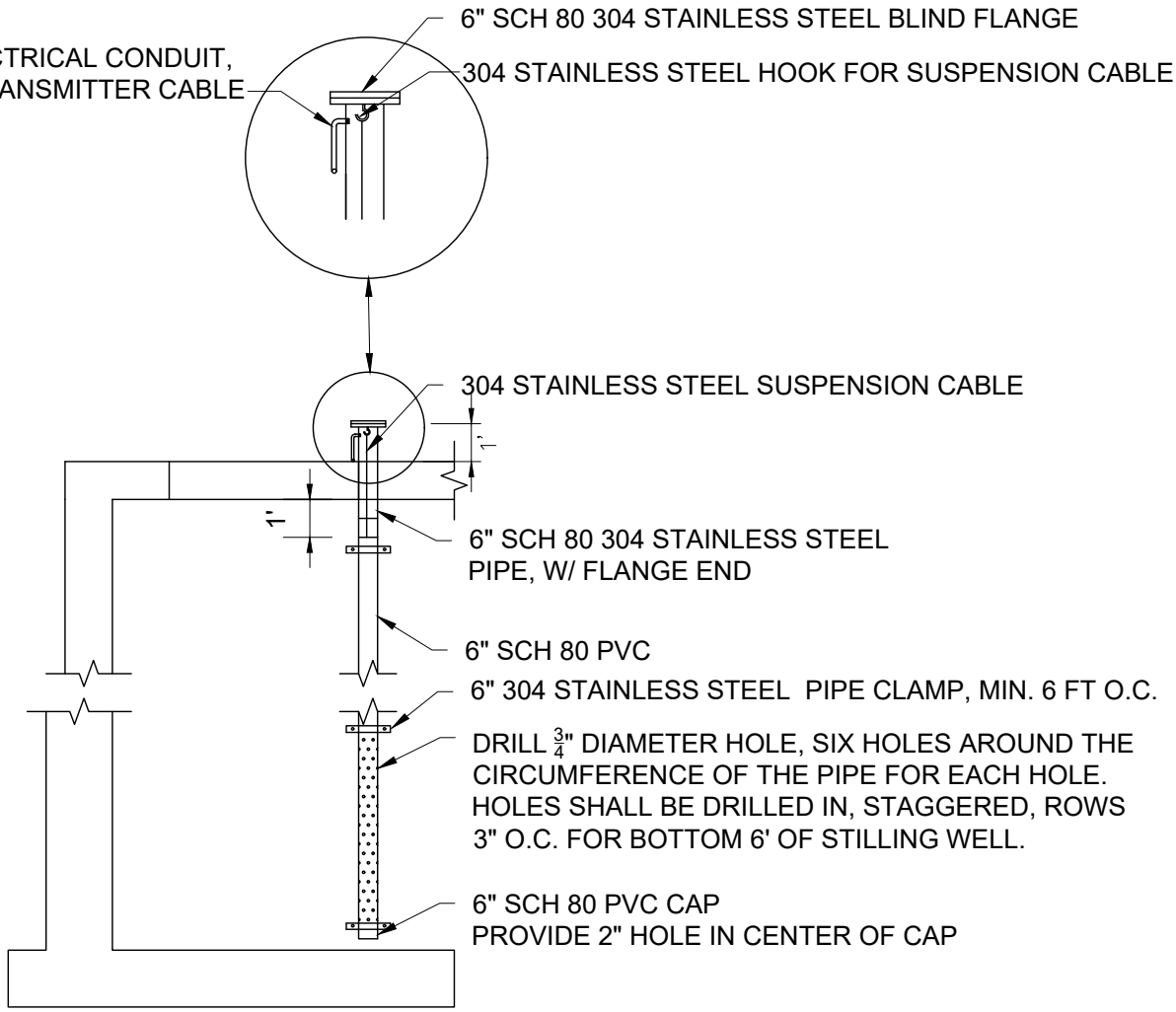


NOTES:

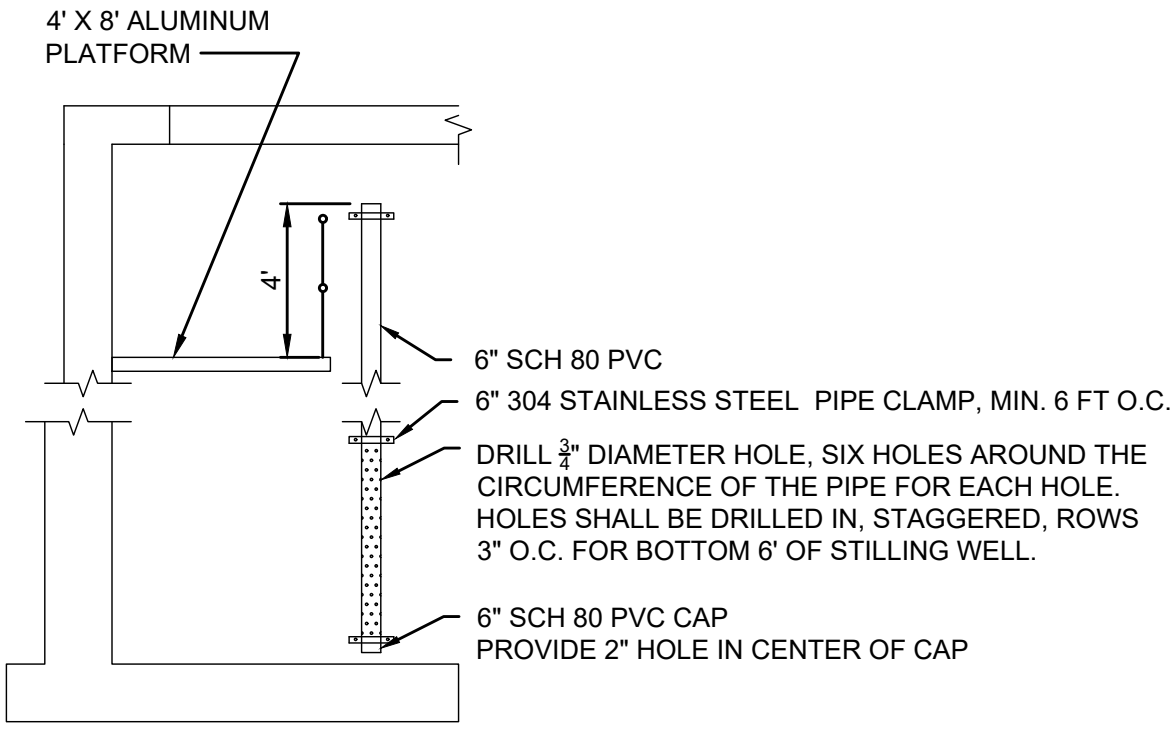
1. CONTRACTOR SHALL PROVIDE LEVEL TRANSDUCER AT THE BOTTOM OF THE 6" SCH 80 PVC STILLING WELL.
2. A 6" SCH 80 COUPLING SHALL BE PROVIDED TO CONNECT PVC PIPE AND STAINLESS STEEL PIPE TOGETHER.
3. CONTRACTOR SHALL DRILL HOLE THROUGH 6" STAINLESS STEEL PIPE. PROVIDE WATER TIGHT NON-METTALIC STRAIN RELIEF CORD CONNECTOR.
4. CORE HOLE TOP SLAB AND PROVIDE MODULAR PIPE SEALING SYSTEM, GARLOCK LINK-SEAL, OR APPROVED EQUAL.

SUBMERSIBLE LEVEL/PRESSURE TRANSDUCER INSTALLATION DETAIL

N.T.S.

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 37 OF 57.

ENGINEER'S PROJECT NO. 230264	THE CITY OF WILLOUGHBY	DATE	SCALE	ADDENDUM	DRAWING
verdantas	LAKESHORE EAST EQUALIZATION BASIN LAKE COUNTY, OHIO	3/5/25	N.T.S.	# 1	SK-1



NOTES:

1. CONTRACTOR SHALL PROVIDE LEVEL TRANSDUCER AT THE BOTTOM OF THE 6" SCH 80 PVC STILLING WELL.
2. A 6" SCH 80 COUPLING SHALL BE PROVIDED TO CONNECT PVC PIPE AND STAINLESS STEEL PIPE TOGETHER.
3. CONTRACTOR SHALL DRILL HOLE THROUGH 6" STAINLESS STEEL PIPE. PROVIDE WATER TIGHT NON-METTALIC STRAIN RELIEF CORD CONNECTOR.
4. CORE HOLE TOP SLAB AND PROVIDE MODULAR PIPE SEALING SYSTEM, GARLOCK LINK-SEAL, OR APPROVED EQUAL.

TANK SUBMERSIBLE LEVEL/PRESSURE TRANSDUCER INSTALLATION DETAIL

N.T.S.

NOTE: THIS DRAWING SHALL BE CONSIDERED TO BE PART OF SHEET 37 OF 57.

ENGINEER'S PROJECT NO. 230264	THE CITY OF WILLOUGHBY LAKESHORE EAST EQUALIZATION BASIN LAKE COUNTY, OHIO	DATE	SCALE	ADDENDUM	DRAWING
verdantas		3/5/25	N.T.S.	# 1	SK-2

PRICES TO INCLUDE

PART 1 - GENERAL

Any work shown on the plans or required in the specification but not paid for separately as a bid item shall be included in the cost of other bid items. The amount bid shall include the following:

1.1 All labor, materials, tools, equipment and transportation necessary for the proper execution of the work in accordance with Contract Documents.

1.2 All assistance required by the Engineer to verify compliance with the Contract Documents, including measuring for final pay quantities.

1.3 Completion and execution of all work shown, specified, or implied regardless of specific mention of such work in this section herein. Costs for all work items not specifically mentioned herein shall be included in the related items bid.

1.4 Project coordination and scheduling.

1.5 Detailed breakdown of lump sum bid items as requested by the Engineer.

1.6 All provisions necessary to protect workmen, the general public and property along the work in accordance with the Contract Documents and OSHA requirements.

1.7 Protection and/or replacement of existing property corner monuments.

1.8 Record drawings of all installed items detailed in the plans or that are performed over the during the course of the contract.

1.9 Reimbursement to Owner for costs for re-inspection or re-testing of any work not installed in compliance with the Contract Documents.

1.10 Material testing.

1.11 Clearing and grubbing

1.12 Lawn and landscaping restoration.

1.13 Removal and replacement of any mailboxes, street signs, above ground structures, or landscaping elements that are affected, damaged, or require temporary relocation due to the proposed improvements.

1.14 Mobilization of all equipment, work persons, tools, materials, and any items necessary to complete all work.

1.15 Bonds and insurances and/or endorsements required to fully comply with and adhere to the Contract specifications.

1.16 Preconstruction televising of entire project area prior to commencement of any work or mobilizing of equipment.

1.17 All erosion control measures needed commensurate with the contractor's means and methods.

1.18 Construction staking of all improvements.

1.19 The unit price shall include saw cutting, removal and disposal if the proposal item includes removal.

1.20 The unit price for surface courses shall include the cost to seal any cracks which may develop in the asphalt pavement during the Correction Period. The sealing shall be done just prior to the end of the Correction Period unless, due to the season and inclement weather, a time extension is granted and the Correction Period is extended.

1.21 All concrete utilized on this project: 1) All aggregate shall meet the requirements of ODOT 703.02, Loss, sodium sulfate soundness test, 12% maximum; 2) If #57 or #67 size coarse aggregate is used, it shall be tested in accordance with ASTM C 666, Procedure B, and meet the requirements of ODOT 703.13. Copies of actual test reports and manufacturers certifications are required and shall be representative of the aggregate source proposed for use and shall be no more than 6 months old to time of submittal; 3) Class C concrete - Options 1, 2, and 3 will not be allowed.; 4) All surfaces shall be sealed with an approved cure and seal, not standard ODOT curing compound.

1.22 Reference to ODOT 401.20 "Asphalt Binder Price Adjustment" is to be deleted and will not apply.

PART 2 - ITEMS

All work proposed by this contract shall be quantified and paid for in accordance with the pertinent O.D.O.T specification except as specifically altered by other provisions of this contract.

2.1 (253) ASPHALT PAVEMENT REPLACEMENT, TEMPORARY, AS PER PLAN

Method of Measurement

The method of measurement shall be as per ODOT 253 or 255 as applicable with the exception that lengths used for calculation of each individual repair area shall not exceed the maximum pay length indicated on the drawings.

Basis of Payment

The basis of payment shall be as per ODOT 253 or 255 applicable with the following additions:

The unit price shall also include saw cutting, integral or non-integral curb removal: integral curb replacement, furnishing, installation, maintenance, removal, and disposal of temporary road materials or temporary pavement courses: preparation for permanent pavement courses; and any additional expenses for cold weather protection.

2.2 (254) PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN

The work method of construction and materials for bituminous pavement planing shall conform to ODOT Item 254 with the following modification.

1. Bituminous pavement planing shall include planing of any existing concrete patches and/or trench caps whether exposed or covered by an asphalt layer to the depth to match existing concrete base elevation.

2. Pavement planing shall include cleaning and removal of debris and loose pieces of asphalt to the satisfaction of the Owner prior to the installation of the leveling course.

3. Unit price shall include the installation, maintenance, and removal of temporary apron wedges (ramps) as directed out of asphalt of asphalt millings for any apron lip greater than 3" after planning (as directed).

4. Unit price shall include the removal of all inlet grates, wrapping these grates with filter fabric and replacing the grates in place **prior** to the start of any planning. The Contractor shall maintain this filtering system throughout the project and remove the filtering system within 72 hours of the surface course placement.

All grindings shall be disposed of by the contractor except for up to 5 truckloads to be delivered to one location within the Owner's municipal limits.

Method of Measurement

The number of square yards of bituminous pavement planing shall be the actual square yards of pavement planed to the depth specified and disposed of as measured in the field.

Basis of Payment

The unit price stipulated per square yard for pavement planing of the thickness specified shall be full compensation for furnishing and placing all materials, disposal of removed material at a Owner site if specified and/or removal offsite, and furnishing of all labor, tools and equipment necessary to complete the work as specified or as shown on the contract drawings.

2.3 (301) ASPHALT CONCRETE BASE, PG64-22, AS PER PLAN

Method of Measurement

Measurement shall be in accordance with ODOT Item 301 with the exception to include removal of existing pavement and subgrade compaction.

Basis of Payment

Payment shall be made in accordance with ODOT Item 301 as applicable with the following additions:

The unit price shall also include furnishing, installation, maintenance, removal, and disposal of temporary road materials or temporary pavement courses; subgrade compaction and preparation for permanent pavement courses; traffic paint for the stop bars and crosswalks; and any additional expenses for cold weather protection. Any pavement damaged outside the contract pay limits shall be replaced at the contractor's expense.

2.4 (304) AGGREGATE BASE, AS PER PLAN

Method of Measurement

Measurement will be made on a volumetric basis for the actual number of cubic yards of aggregate base installed as measured in the field.

Basis of Payment

The unit price bid shall include labor, material and equipment necessary to install the aggregate base per ODOT Item 304 in place, including compaction and subbase preparation, completed and accepted in accordance with the plans and specification or as directed by the Engineer.

2.5 (407) TACK COAT, TRACKLESS TACK

The work, method of construction and materials for tack coat shall conform to ODOT Item 407 with the following modifications:

1. Tack coat shall be applied at a minimum rate as specified in ODOT Table 407.06-1.

2. Tack coat shall be non-tracking emulsified asphalt meeting the requirements of ODOT 702.12.

Method of Measurement

Bituminous material will be measured by the gallons furnished and placed. No measurement will be made for sand cover aggregate (if required).

Basis of Payment

The unit price stipulated per gallon of tack coat as directed for accepted quantities complete in place with no additional payment for sand cover aggregate and shall include the furnishing and placing of all materials; and furnishing of all labor, materials, tools and appliances necessary to complete the work as specified or as shown on the contract drawings.

2.6 (441) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), AS PER PLAN

The work, method of construction and materials for asphalt concrete surface course shall be in accordance with ODOT Item 448 with the following modifications:

A. Compacted thickness shall be as detailed on the plans.

B. Reclaimed or recycled material shall only be used per limits detailed in specifications and shall be approved by the Engineer before use.

Method of Measurement

The measurement of asphalt concrete intermediate course of the thickness specified shall be the number of cubic yards of asphalt concrete intermediate course completed and accepted in place. The area for measurements will be as shown on the plans, or as otherwise directed in writing by the Engineer. The plan quantities as adjusted for changes, errors and deviation in excess of allowable tolerances will be the method of measurement.

Basis of Payment

The accepted quantities of asphalt concrete intermediate course of the thickness specified shall be full compensation for furnishing and placing all materials, including furnishing all labor, tools, appliances, equipment and all other appurtenances necessary to complete the work as specified or as shown; including any necessary pavement saw cuts and pavement planing.

2.7 (441) ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22, AS PER PLAN

The work, method of construction and materials for asphalt concrete surface course shall be in accordance with ODOT Item 448 with the following modifications:

A. Compacted thickness shall be as detailed on the plans.

B. All gutters, street castings and joints shall be sealed with an approved liquid bituminous material 4 inches in width and the cost is to be included with the bid item.

C. Necessary butt or tapered edge joints and pavement saw cuts shall be considered incidental costs to be included in this bid item.

D. Where VRAM is not installed, hot applied asphalt joint adhesive is to be applied to cold longitudinal construction joints and shall conform to ODOT supplemental Specification 875. This item shall be included in the cost of Asphalt Concrete Surface Course.

E. Reclaimed or recycled material shall only be used per limits detailed in specifications and shall be approved by the Engineer before use.

F. Replacement of all pavement striping removed or marred on improvement and adjacent streets shall be considered incidental costs to be incurred in the Bid Item.

Method of Measurement

The measurement of asphalt concrete surface course of the thickness specified shall be the number of cubic yards of asphalt concrete surface course completed and accepted in place. The area for measurements will be as shown on the plans, or as otherwise directed in writing by the Engineer. The plan quantities as adjusted for changes, errors and deviation in excess of allowable tolerances will be the method of measurement.

Basis of Payment

The accepted quantities of asphalt concrete surface course of the thickness specified shall be full compensation for furnishing and placing all materials, including sealing materials, pavement striping, and furnishing all labor, tools, appliances, equipment and all other appurtenances necessary to complete the work as specified or as shown; including feathering at drives as necessary and butt or taped edge joints and necessary pavement saw cuts

2.8 (501) GENERAL CONSTRUCTION

The lump sum price bid shall include all work not specifically included under other bid items. This most notably includes, but is not limited to, all work on the EQ basin site which is to be completed by October 1, 2026 (See Sheet 6 of Plans). This includes any and all means and methods of construction, including any form or site dewatering, temporary shoring, staging and equipment setup, and means to install all improvements. Payment will be made in accordance with an approved schedule of values and agreed percent of completion of the scheduled work.

2.9 (452) 6-INCH NON-REINFORCED CONCRETE DRIVES AND APRONS, CLASS QC MS, INCL. FIBER REINFORCING, INCLUDING REMOVAL, AS PER PLAN
2.10 (608) 4 INCH CONCRETE WALK, INCLUDING REMOVAL, AS PER PLAN
2.11 (608) 6 INCH CURB RAMP, INCLUDING FIBROUS REINFORCING, INCLUDING REMOVAL, AS PER PLAN

The work, method of construction and materials for concrete walk, concrete curb ramps and concrete pavement for drives shall conform to ODOT Items 608, 452, 304, 203 and 202, except as modified herein or as shown on the contract drawings.

A. There will be no separate measurement or payment for removal and disposal of existing walk or concrete drives or subbase, crushed limestone base, and subgrade compaction. These items of work shall be included in the furnishing and installation of new walks or curb ramps or concrete pavement for drives.

B. Wire mesh reinforcing shall be furnished and installed if included in an existing apron. The cost of furnishing and installing the wire mesh reinforcing shall be included in the cost of this item of work.

C. The unit price shall include Fiber Reinforcement as indicated.

D. There will be no additional compensation for providing a thickened edge and/or integral curb, as detailed.

E. ODOT Item 499 Concrete, Class QCMS mix shall be used in drives and drive aprons.

F. ODOT Item 499 Concrete, Class QC1 shall be used for walks and curb ramps.

G. Each and every sidewalk, drive slab and joint shall be edge tooled after texturing surface to match existing.

H. ODOT 304 Aggregate Base, utilizing crushed limestone, shall be provided with these items.

I. The unit price for curb ramps shall include all labor and materials necessary to construct ramps compliant with the Americans with Disabilities Act (ADA) regulations.

Method of Measurement

The quantity to be paid of concrete walk, concrete curb ramps, and concrete for drives to the thickness and class of concrete specified shall be the actual square dimension, square feet or square yards as indicated in the Proposal of finished surface complete in place.

Basis of Payment

The unit price stipulated per square foot or square yards (as indicated in the Proposal) for concrete walk, concrete curb ramp and concrete pavement for drives or aprons of the thickness and class of concrete specified shall be full compensation for furnishing all materials, grading, forming, finishing of the walk, curb ramp and pavement including removal and disposal of existing grass, sod, topsoil, bushes, trees, walk or pavement and curbs, necessary pavement saw cutting, clearing and grubbing, excavation and/or backfill to required line and grade, subgrade compaction as required, furnishing and installing subbase or base material, integral curbing, adjustment of water/gas service valves, concrete, curing compound, and expansion joint material; wire and/or mesh reinforcing as required; furnishing of all labor, tools, materials and equipment necessary to complete the work as specified or as shown.

2.12 (611) 16 INCH FORCE MAIN, AS PER PLAN
2.13 (611) 24 INCH SANITARY SEWER, AS PER PLAN

The work, method of construction and materials for sewer construction shall be in accordance with ODOT Item 611 with the modifications shown on the plans and detailed in the specifications.

Method of Measurement

The quantity of sewer to be paid for shall be determined for force main by the liner feet difference in horizontal stationing from center of the diversion structure connection to the center of the equalization basin connection, the tie in to the existing sewer main, or the end of pipe for stub connections.

Basis of Payment

The unit price stipulated per lineal foot for sewer pipe of the various sizes and types specified shall be irrespective of class of pipe and depth and if not called out as a separate pay item, shall be full compensation for maintenance of traffic for the duration of the project; earth and/or rock excavation for the pipe and foundation for same, including clearing and grubbing; removal of all materials necessary for placing the pipe, the complete removal of the existing sanitary and storm sewers, manholes and catch basins except materials listed separately; furnishing and placing granular or concrete bedding and special backfill as required, testing of compaction, constructing and subsequently removing all necessary boring and receiving pits, cofferdams, cribs, sheeting and shoring; furnishing, installing and operating necessary pumps, pipes and appurtenances necessary for

flow bypassing and/or trench dewatering; sealing or banding all pipe joints where required; furnishing and installing of the pipe jointing materials and all necessary plugs, bulkheads, bends, fittings, specials and branches of a type at least equal to the conduit of which it becomes part; furnishing and installing concrete encasements, boring and steel casing pipe where required; protection, verification and/or replacement of all existing utilities, i.e., gas mains, gas connections water mains (including hydrants and their connections to the main), water connections, water wells, septic tanks, sanitary sewers, sanitary connections, storm sewers, storm connections, curb drains, catch basins, culverts, electric or telephone underground cables and/or underground connections if damaged by the Contractor; protection of existing trees or vegetation; joining of the pipe to existing and proposed manholes, catch basins, structures, and other appurtenances as required whether temporary or permanent; leakage testing or internal videotaping; disposal of all surplus and unsuitable materials; furnishing and installing temporary stone trench topping of pavement and driveways; removal and replacement of poles, posts, signs, mailboxes, paper boxes, fences, landscape timbers, guardrails, sign wiring, fixtures and other appurtenances; removal and replacement of any damaged curbing, sidewalk, driveways, parking lots and roadways as directed by the Engineer; and the furnishing of all labor, tools, materials and equipment necessary to complete the work as specified or as shown.

2.14 (611) CATCH BASIN, ADJUSTED TO GRADE, METHOD D.1, (BRICK), AS PER PLAN

2.15 (611) MANHOLE, ADJUSTED TO GRADE, METHOD D.1, (BRICK), AS PER PLAN

The work, method of construction and materials for various street castings adjusted to grade shall be in accordance with ODOT Item 611 with the following modifications:

A. Metal adjusting rings or castings shall not be used. Existing risers shall be removed during the casting adjustment.

B. Brick used shall be clay or shale brick meeting the requirements of ASTM C32 sewer brick, Grade SM.

C. Concrete brick or masonry block shall not be used.

D. The height limitation for additional compensation shall be revised from one (1) foot to two (2) feet.

E. Type QC MS concrete shall be used for fill around all castings.

F. All costs for work and material associated with incorporating a new style casting designated by the Owner which may include steel plates, corbelling, and/or shifting the casting to its proper location shall be included in this Item.

Method of Measurement

The quantity to be paid for of each, manholes, catch basins, water meter castings, monument boxes, gas valve boxes, water valve boxes, or service line valve boxes, adjusted to grade to be paid for shall be the actual number adjusted to grade in accordance with the contract, contract drawings and these specifications. Adjusting to grade of items proposed for new or replaced construction as part of the project will not be measured and shall be paid for in the cost of installation of that item.

Basis of Payment

The unit price stipulated, each, for manholes, catch basins, water meter castings, monument boxes, gas valve boxes, water valve boxes or service line valve boxes, adjusted to grade to be paid for under this Item shall be full compensation for furnishing and placing all material including removal, cleaning, storage and resetting of salvaged casting or new casting; pavement saw cutting, resetting of loose brick work if needed, 3/4-inch steel plates, and furnishing of all labor, tools, and necessary appurtenances to complete the work as specified or as shown on the contract drawings.

2.16 (611) TYPE "A" SANITARY MANHOLE, AS PER PLAN

Method of Measurement

The number of each (EA) type manhole or junction chamber to be paid for shall be the actual number furnished and built in place in accordance with the contract drawings and with these specifications.

Basis of Payment

The unit price bid for sanitary structures shall be irrespective of the depth of the manhole structures, and shall include the furnishing and construction in place of the manholes and junction chambers complete with excavation; foundation; backfill; frame and cover; steps; concrete; steel reinforcement; lining material; bricks; mortar; plastering; precast manhole sections; transition; flexible joints; granular backfill under proposed or existing pavements, walks, drives, existing drainage structures, and disposal of all undesirable material; testing and inspections; and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified or as shown. The unit price shall also include all sewer stubs and plugs or connection of existing sewers to the structure as indicated on the contract drawings or directed by the Engineer. Adjustments in final casting elevations of plus or minus one (1) foot shall be included in the price for each structure.

2.17 (611) FORCE MAIN DIVERSION STRUCTURE, AS PER PLAN

Basis of Payment

The lump sum price shall include the construction of the diversion structure and related site improvements as illustrated on the plan sheets and included in the Specifications. This item includes, but is not limited to, providing and constructing the following: diversion structure with all appurtenances, electric service, excavation, backfilling, sidewalks, fencing, site restoration, electrical control instrumentation, valves, supports, and interior piping. This item shall also include all pipe, couplers, fittings, materials, equipment, labor, and tools necessary to connect the existing force main. Payment will be made in accordance with an approved schedule of values and agreed percent of completion of the scheduled work.

2.18 (SPC) UTILITY COMPANY CHARGES ALLOWANCE

Basis of Payment

A Utility Allowance has been included in the bid proposal to be utilized as directed by the Engineer for direct costs charged by utility company(s) associated with the temporary removal, relocation or support of utility poles, existing overhead lights, utility wires overhanging the proposed sewer, cables, anchors, water main or service connections, gas main or service connections, or other work which can be performed only/exclusively by the utility company. Payment shall be made for only work which has the prior approval of the Engineer.

The amount to be paid to the Contractor and the amount utilized in the allowance shall be the invoice amount from the utility company plus 8% mark-up on the invoice amount for overhead and profit and per the contract provisions regarding retainer**.** ***Any costs to the Contractor due to this item for insurance, bonding, etc., shall be reflected in the cost of other items.***

Invoices for all for all work completed by the utility company(s) or others shall be submitted as evidence of the work completed on the project.

No payment for this item will be made to the Contractor for utility work required when resulting from the Contractor's construction methods or rework due to their negligence or construction methods.

Any portion of the allowance not utilized shall be credited to the Owner.

Proposal to City of Willoughby
For Lakeshore East Equalization Basin

Project No. 230264

REF. NO.	DESCRIPTION	QTY.	MEASURE UNITS	UNIT PRICE LABOR	UNIT PRICE MATERIAL	TOTAL UNIT PRICE	ITEM TOTAL
1	(SPC) ASPHALT PAVEMENT REPLACEMENT, TEMPORARY, AS PER PLAN	500.00	SY	$	$	$	$
2	(254) PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN	350.00	SY	$	$	$	$
3	(301) ASPHALT CONCRETE BASE, PG64-22, AS PER PLAN	730.00	CY	$	$	$	$
4	(304) AGGREGATE BASE, AS PER PLAN	730.00	CY	$	$	$	$
5	(407) TACK COAT, TRACKLESS TACK	735.00	GAL	$	$	$	$
6	(408) PRIME COAT	1,750.00	GAL	$	$	$	$
7	(441) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (446), AS PER PLAN	182.00	CY	$	$	$	$
8	(441) ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, AS PER PLAN	215.00	CY	$	$	$	$
9	(452) 6 INCH NON-REINFORCED CONCRETE DRIVES AND APRONS, CLASS QC MS, INCL. FIBER REINFORCING, AS PER PLAN	310.00	SY	$	$	$	$
10	(501) GENERAL CONSTRUCTION	1.00	LS	$	$	$	$
11	(608) 4 INCH CONCRETE WALK, INCLUDING REMOVAL, AS PER PLAN	275.00	SF	$	$	$	$
12	(608) 6 INCH CURB RAMP, INCLUDING FIBROUS REINFORCING, INCLUDING REMOVAL, AS PER PLAN	81.00	SF	$	$	$	$
13	(611) 24" SANITARY SEWER, AS PER PLAN	100.00	FT	$	$	$	$
14	(611) CATCH BASIN ADJUSTED TO GRADE, METHOD D.2 (metal riser), AS PER PLAN	3.00	EACH	$	$	$	$
15	(611) TYPE "A" SANITARY MANHOLE, AS PER PLAN	4.00	EACH	$	$	$	$
16	(611) MANHOLE ADJUSTED TO GRADE, METHOD D.1 (brick), AS PER PLAN	6.00	EACH	$	$	$	$
17	(611) FORCE MAIN DIVERSION STRUCTURE, AS PER PLAN	1.00	EACH	$	$	$	$
18	(624) MOBILIZATION	1.00	LS	$	$	$	$
19	(680) 16 INCH FORCE MAIN, AS PER PLAN	1,065.00	FT	$	$	$	$
20	(SPC) UTILITY COMPANY CHARGES ALLOWANCE	1.00	LS	$ ----------	$ ----------	$ 100,000.00	$ 100,000.00

INFORMAL TOTAL BID $ _____

BF.8A

The Bidder hereby acknowledges that they have reviewed the following addenda:

Addendum No.						
Date:						

The undersigned, having full knowledge of the plans and specifications for the improvements and the conditions of the Proposal hereby agree to furnish all the services, labor, materials, and equipment necessary to complete the work according to the plans and specifications and to accept as full compensation the lump sum or the unit prices specified serving as deduct or extra compensation rates.

And We (or I) do hereby agree that in the event of failure on OUR part to contract as aforesaid (provided this Proposal is accepted) the Bid Bond, Check or Letter of Credit accompanying this Proposal shall be forfeited to the Owner as liquidated damages for the difference between this bid and the awarded Contract price, not to exceed the amount of bond. We further agree that the Owner may reject any or all bids.

By signature below, I hereby certify that **I AND MY Insurance Agent have examined the insurance requirements** in the specifications and that the types and amounts of same are currently in effect or will be obtained and kept in effect for the project duration and that my Insurance Agent has assured that notification of non-renewal, policy modification, and/or cancellation to all certificate holders will occur per the contract requirements. Verification will be provided to the Owner subsequent to the issuance of a Notice of Award.

BF.9A

Submitted by,

Firm, Corporation, or Individual	Officer's Name and Title (typed)	Telephone Number
Street Address	Officer's Signature	Fax Number
City, State, Zip Code	Date	E-Mail Address
Unique Entity Identifier Number (UEI) SAM.gov	Ohio Secretary of State ID Number	Federal Tax ID Number

Note: Evidence of authority to sign must be affixed and attested by the Secretary.

COMPLETION DATES:
NO. 1 – ALL NON-EQ BASIN SITE RELATED WORK DETAILED IN THE SUMMARY OF WORK – SEPTEMBER 26, 2025
NO. 2 – ALL EQ BASIN SITE RELATED WORK DETAILED IN THE SUMMARY OF WORK – OCTOBER 1, 2026
FINAL COMPLETION DATE
– ALL SITE RESTORATION WORK DETAILED IN THE SUMMARY OF WORK – NOVEMBER 27, 2026

LIQUIDATED DAMAGES: $ 1000.00 PER DAY

SECTION 015213 - FIELD OFFICES

PART 1 - GENERAL

1.1 CONTRACTOR'S OFFICE

Each Contractor shall provide and maintain an office on the site of the work during the construction period of the contract, at which he or his authorized agent shall be present at all times while the work is in progress.

1.2 RESIDENT ENGINEER'S OFFICE

The General Construction Contractor shall be required to provide and maintain the herein described Resident Engineer's office, services and office equipment until completion of the contract including punch list. All equipment shall be provided with a maintenance contract which provides prompt service. During any time a service or equipment is non-operative, the Resident Engineer may utilize a commercial service or rental equipment at the Contractor's expense until the service or equipment is restored.

A. Office

1. The office shall have two doors minimum and adequate window area. All doors shall be fitted with identical cylinder locks for one key operation. Windows shall be fitted with venetian blinds and 1 in. mesh #12 wire (minimum) security screens.
2. The office shall be equipped with air conditioning, heating, electric lighting, and clothes closet.
3. Where water and sewage facilities are not available, the Contractor shall supply and maintain a portable chemical toilet and a water tank to supply the lavatory. Potable water shall be supplied to the lavatory tank.
4. The minimum floor space shall be 450 square feet. Minimum 10 feet width, at least one (1) office and one (1) meeting area.

B. Services

1. Fuel and electricity for heating, lighting, and equipment.
2. Potable water service with cooler and paper drinking cup supplies.
3. Daily janitorial services to maintain the office in a clean condition. These services shall include paper towels, toilet paper, soap, etc.
4. Internet service from a local provider with a minimum of 300 minutes per month access time.

C. Office Equipment

1. Two (2) Desks with Desk Chairs
2. One (1) Plan Rack
3. One (1) Plan Table
4. One (1) Conference Table (Approximately 3' x 6')
5. Eight (8) Chairs for Conference Table

6. Two (2) Four-Drawer Letter Size Lockable Filing Cabinets
7. One (1) Bookcase (36" x 30" x 10" each)
8. Four (4) Wastepaper Baskets
9. One (1) Current ODOT Specification Book
10. One (1) Two-Drawer Letter Size Lockable Filing Cabinet
11. Hardware, services and maintenance of a copier with collator and automatic feeder in the Resident Engineer's office. The copier shall be a plain paper copier, table top unit, capable of making 8-1/2 by 11 inches and 8-1/2 by 14 inches size for size copies. Also included shall be an allowance for copy materials (including paper supply) in the amount of 2,000 copies per month.

END OF SECTION 015213

SECTION 033800 – CIRCULAR, POST-TENSIONED CONCRETE TANKS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. This Section includes form materials, reinforcement, accessories, cast-in-place concrete, and slab finishing and curing for the base slabs of the precast post-tensioned concrete tanks for the entire project. The work performed under this Section includes all labor, material, equipment, related services, and supervision required for the mixing, placing and finishing of cast-in-place concrete.
2. The design of the tank shall conform to the requirements of AWWA D115 and ACI 350.

    a. The tank shall be below grade and be top and base slab shall be watertight and site cast.
    b. The tank will be used as an EQ tank and shall have an integral flushing system and collection trench.
    c. All appendages within the tank and within 6” of the floor shall be designed to minimize the collection of solids in conjunction with the flushing system.
    d. If columns are utilized to support the top slab, try to minimize the number while still being economic.

B. Related Requirements:

1. Section 333100 – Sanitary Sewer System.

2. Section 432139 – Submersible Pumps.

3. Section 464614 – Circular Tank Flushing System.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation (AASHTO)

1. AASHTO M 251, “Standard Specification for Plain and Laminated Elastomeric Bridge Bearings”

B. American Concrete Institute (ACI)

1. ACI 117, “Standard Specifications for Tolerances for Concrete Construction and Materials”
2. ACI 301, “Specifications for Structural Concrete”

3. ACI 318, “Building Code Requirements for Structural Concrete”
4. ACI 350, “Code Requirements for Environmental Engineering Concrete Structures”
5. ACI 350.1, “Specification for Tightness Testing of Environmental Engineering Concrete Containment Structures”
6. ACI 350.3, “Seismic Design of Liquid-Containing Concrete Structures”
7. ACI 350.4R, “Design Considerations for Environmental Engineering Concrete Structures”
8. ACI 350.5, “Specifications for Environmental Concrete Structures”

C. American Society of Civil Engineers (ASCE)

1. ASCE 7, “Minimum Design Loads for Buildings and Other Structures”

D. American Society for Testing and Materials

1. ASTM A 36, “Standard Specification for Carbon Structural Steel”
2. ASTM A 108, “Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished”
3. ASTM A 123, “Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products”
4. ASTM A 276, “Standard Specification for Stainless Steel Bars and Shapes”
5. ASTM A 416, “Standard Specification for Low-Relaxation, Seven-Wire Steel Strand for Prestressed Concrete”
6. ASTM A 615, “Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement”
7. ASTM A 666, “Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar”
8. ASTM A 706, “Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement”
9. ASTM A 775, “Standard Specification for Epoxy-Coated Steel Reinforcing Bars”
10. ASTM A 780, “Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings”
11. ASTM A 934, “Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars”
12. ASTM A 1064, “Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete”
13. ASTM C 31, “Standard Practice for Making and Curing Concrete Test Specimens in the Field”
14. ASTM C 33, “Standard Specification for Concrete Aggregates”
15. ASTM C 39, “Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens”
16. ASTM C 42, “Standard Test Method for Obtaining and Testing Drilled Cores and sawed Beams of Concrete”
17. ASTM C 94, “Standard Specification for Ready-Mixed Concrete”
18. ASTM C 143, “Standard Test Method for Slump of Hydraulic-Cement Concrete”
19. ASTM C 150, “Standard Specification for Portland Cement”

20. ASTM C 172, “Standard Practice for Sampling Freshly Mixed Concrete”
21. ASTM C 231, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method”
22. ASTM C 260, “Standard Specification for Air-Entraining Admixtures for Concrete”
23. ASTM C 295, “Standard Guide for Petrographic Examination of Aggregates for Concrete”
24. ASTM C 494, “Standard Specification for Chemical Admixtures for Concrete”
25. ASTM C 595, “Standard Specification for Blended Hydraulic Cements”
26. ASTM C 618, “Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete”
27. ASTM C 881, “Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete”
28. ASTM C 920, “Standard Specification for Elastomeric Joint Sealants”
29. ASTM C 989, “Standard Specification for Slag Cement for Use in Concrete and Mortars”
30. ASTM C 1012, “Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution”
31. ASTM C 1067, “Standard Practice for Conducting a Ruggedness Evaluation or Screening Program for Test Methods for Construction Materials”
32. ASTM C 1107, “Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)”
33. ASTM C 1116, “Standard Specification for Fiber-Reinforced Concrete”
34. ASTM C 1157, “Standard Performance Specification for Hydraulic Cement”
35. ASTM C 1218, “Standard Test Method for Water-Soluble Chloride in Mortar and Concrete”
36. ASTM C 1240, “Standard Specification for Silica Fume Used in Cementitious Mixtures”
37. ASTM C 1260, “Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
38. ASTM C 1567, “Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)”
39. ASTM C 1610, “Standard Test Method for Static Segregation of Self-Consolidating Concrete Using Column Technique”
40. ASTM C 1611, “Standard Test Method for Slump Flow of Self-Consolidating Concrete”
41. ASTM C 1621, “Standard Test Method for Passing Ability of Self-Consilidating Concrete by J-Ring”
42. ASTM C 1778, “Standard Guide for Reducing the Risk of Deleterious Alkali-Aggregate Reaction in Concrete”
43. ASTM D 412, “Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension”
44. ASTM D 2240, “Standard Test Method for Rubber Property-Durometer Hardness”

45. ASTM F 593, “Standard Specification for Stainless Steel Bolts, Hex Cap Screw, and Studs”

E. American Welding Society (AWS)

1. AWS D1.4, “Structural Welding Code – Reinforcing Steel”

F. American Water Works Association (AWWA)

1. AWWA D115, “Tendon-Prestressed Concrete Water Tanks”

G. Precast/Prestressed Concrete Institute (PCI)

1. PCI MNL-116, “Manual for Quality Control for Plants and Production of Structural Concrete Products”
2. PCI MNL-120, “PCI Design Handbook – Precast and Prestressed Concrete”
3. PCI MNL-135, “Tolerance Manual for Precast and Prestressed Concrete Construction”

H. Post-Tensioning Institute (PTI)
1. PTI TAB.1, “Post-Tensioning Manual”
2. PTI M50.1, “Acceptance Standards for Post-Tensioning Systems”
3. PTI M55.1, “Specification for Grouting of Post-Tensioned Structures”

1.3 SUBMITTALS

A. Prior to submitting a complete drawing package with calculations, submit a preliminary plan, elevation, and sections showing general layout, arrangement and thickness. Provide details to prevent floor appendages from collection of solids during the flushing cycles. The preliminary drawings shall be submitted, at least, 28 days prior to submitting the completed design.

B. Complete plan, elevation, and sectional views showing critical dimensions including:

1. Size, location and number of all reinforcing bars.
2. Thickness of all parts of the tank structure including floor connections, core wall and cover coat.
3. Post-tensioning schedule shall include numbers and placement of post-tensioning bars on the tank wall.
4. Location and details of all accessories required.
5. Complete tank design including top slab, top slab support elements, trench drain system, base slab, base materials, subbase enhancements (if required), and foundation systems utilizing either deep foundation elements or shallow mat/strip foundation.

C. Concrete design mixes including ingredient proportions, pozzolans, minimum Portland cements content, minimum cementitious content, and water/cementitious ratio without water reducing admixture in accordance with these specifications.

D. Warranty document in Owner's name in accordance with Contract Documents.

E. Test Reports: Submit concrete strength reports for 7-day and 28-day breaks.

F. Structural plans and calculations signed and sealed by a professional engineer registered in Ohio. Plans and calculations shall include all structural elements, base material, and sub-base enhancements, if needed.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Following completion of the tank, tank installer shall submit to the Engineer a full set of record drawings which shall include actual location layout and final configuration of tank and accessories. These Drawings shall be incorporated into the Engineers Record Drawings for the project.

1.5 QUALITY ASSURANCE

A. Singular Responsibility: It is the intent of this specification to require single party responsibility for the design and the construction of the tank. The tank design and construction shall be performed by an established Tank Contractor of recognized ability, having in its own name at least ten years of experience and a minimum of at least twenty AWWA D115 post-tensioned concrete wall tanks as specified herein. The design and construction of all aspects of the foundation, floor slab, wall, and post-tensioning shall be performed by the Tank Contractor. The Tank Contractor may subcontract labor for reinforcing steel installation and for concrete slab placement under the Tank Contractor’s direct supervision. The design, construction, testing and quality control of the deep foundation system shall be the responsibility of the Tank Contractor. The Tank Contractor may subcontract labor for the deep foundation installation under the Tank Contractor’s direct supervision.

1.6 QUALIFICATIONS

A. The firm shall have a minimum of 15 consecutive years in designing, producing and installing tanks of similar arrangement, size and complexity using the precast, post-tensioned concrete system.

B. The firm shall document the successful installation and performance of a minimum of ten similar facilities and certify compliance of those structures will all applicable provisions of AWWA D115 for a precast post-tensioned concrete structure.

C. The firm shall employ a full-time engineer on staff who meets the Precast Tank Engineer Qualifications listed above and who has served as the engineer in responsible charge of at least ten similar structures.

D. The firm shall submit with its bid a summary sheet documenting compliance with these qualifications.

E. The firm shall submit with its bid a reference sheet listing contact names and telephone numbers of at least five similar structures built by the firm.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle post-tensioning materials in accordance with AWWA D115.

B. Deliver all precast concrete members in such quantities and at such times to assure compliance with the agreed upon project schedule and setting sequence to ensure continuity of installation.

C. Handle and transport precast concrete members in a manner to avoid excessive stresses that could cause cracking or other damage.

D. Store precast concrete members with adequate dunnage and bracing, and protect units to prevent contact with soil, staining, and to control cracking, distortion, warping or other physical damage.

PART 2 - PRODUCTS

2.1 GENERAL

A. Manufacturers:

1. Dutchland Inc.
2. Or Approved Equal.

B. Design Criteria:

1. The prestressed concrete tank shall be designed and constructed in accordance with the provisions of AWWA D115 Tendon-Prestressed Concrete Water Tanks.
2. Requirements and Loadings:
   a. Capacity: 1.40 million gallons.
   b. Dimensions: 100 feet inside diameter, 23 feet side water depth.
   c. Dead Load: shall be the estimated weight of all permanent imposed loads. Unit weight of concrete: 150 pcf; steel: 490 pcf; refer to the soils report or Geotechnical Engineer for the saturation soil weight.

d. Live Load: 100 psf plus H-20 (AASHTO). Design roof per the requirements of ASCE 7.
e. Snow Load: Estimated at 40 psf including drifting
f. Effluent: Unit weight of liquid: 62.4 pcf.
g. Wind Loads: shall be as required by ASCE 7.
h. Walls shall be designed for surcharge(s) based on the top slab transient loads.
i. Geotechnical information: Lateral earth pressure, backfill density, bearing pressures, anticipated settlements, subbase coefficient of friction, ground water elevation and seismic site class per Geotechnical Report
j. Seismic Criteria:
    1) Seismic design shall be based on the applicable sections of AWWA D115, ASCE 7 and the local jurisdictional building code. Impulsive and convective forces, as well as fluid spectral velocity shall be calculated utilizing each code and the maximum value of each component shall be utilized.
    2) Risk Category: IV
    3) Sloshing: The sloshing height shall be calculated using AWWA D115 and ASCE 7.

2.2 FORM MATERIALS

A. Forms: Rigid, dimensionally stable, nonabsorptive material, warp and buckle free, that will provide precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required surface finishes.

1. Form-Release Agent: Commercially produced form-release agent that will not bond with, stain or affect hardening of precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.

2.3 NON-PRESTRESSED REINFORCING STEEL

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706, deformed.

C. Welded Wire Reinforcement: ASTM A 1064, plain or deformed, flat sheet.

D. Supports: Use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 116.

2.4 PRESTRESSING TENDONS

A. Bonded Prestressing Strand: ASTM A 416, Grade 270, 7-wire, low-relaxation, 0.6-inch-diameter strand.

B. Anchorage Device and Coupler Assembly: Assembly of strand, wedges, and anchorage device or coupler complying with static and fatigue testing requirements and capable of developing 95 percent of actual breaking strength of strand.

2.5 ACCESSORIES

A. Duct: Flexible, corrugated, high-density polyethylene.

2.6 CONCRETE MATERIALS

A. Hydraulic Cement:

1. Portland Cement: ASTM C 150, Type II or Type I/II.
2. Blended Cement: ASTM C 595 with (MS) designation for moderate sulfate resistance, excluding Type IS ≥70). Blended cements that include ASTM C 1157 cements shall not be permitted.
3. Concrete mixtures shall include fly ash as shown below, but within the limits stipulated, unless the proposed combination of cementitious materials has been tested in accordance with ASTM C 1012 and resulted in expansion of not more than 0.10 percent at 6 months.

    a. At least 15 percent fly ash replacement by mass.

4. Different types of cement shall not be mixed or used alternately. Different brands of cement may be used when authorized in writing by the Precast Tank Engineer. A resubmittal will be required if different brands are proposed during the Project.

B. Supplementary Cementitious Materials

1. Fly Ash: ASTM C 618, Class F with alkali content ($\%Na_2O_{eq}$) less than 3.0%.
2. Slag: Slag is not permitted within the work of this project.
3. Silica Fume: ASTM C 1240.

C. Fine and Coarse Aggregates: ASTM C33, 3/4-inch maximum size.

1. All aggregates shall be evaluated in accordance with ASTM C 1778 for potential alkali-silica reactivity (ASR). All aggregates shall be considered reactive unless they have been examined in accordance with ASTM C 295 and found to be non-reactive.
2. Concrete mixtures using potentially reactive aggregates, except as permitted, shall include fly ash as shown below, but within the limits stipulated.

a. At least 25 percent fly ash replacement by mass where Portland cement alkali content is less than 1.00%, or at least 35 percent fly ash replacement by mass where Portland cement alkali content is 1.00 to 1.25%, or
b. Portland cement alkali loading shall not exceed 3.0 lb/yd^3 (LBA). Alkali loading shall be calculated as shown below:

1) LBA = Portland cement content (lbs) x alkali content (% Na_2O_{eq}) / 100.

c. Aggregates meeting the requirements below may be considered non-reactive.

1) ASTM C 1260, Potential Alkali Reactivity of Aggregates (Mortar-Bar Method). Average expansion of less than 0.10 percent at 16 days after casting.
2) ASTM C 1567, Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregates (Accelerated Mortar-Bar Method). Average expansion of less than 0.10 percent at 16 days after casting.

d. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.

D. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.

E. Air Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride or more than 0.15 percent chloride ions or other salts by weight of admixture.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
4. Water-Reducing and Accelerating Admixture ASTM C494, Type E.
5. High Range, Water-Reducing Admixture: ASTM C 494, Type A and F.
6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
7. Plasticizing Admixture for Flowable Concrete: ASTM C 1017.

2.7 STEEL EMBEDDED MATERIALS

A. Carbon-Steel Shapes and Plates: ASTM A 36/A 36M

B. Carbon-Steel Headed Studs: ASTM A 108, Grades 1010 through 1020, cold finished, AWS D1.1/D1.1M, Type A or B, with arc shields and with the minimum mechanical properties of PCI MNL 116, Table 3.2.3.

C. Deformed-Steel Wire or Bar Anchors: ASTM A 1064 or ASTM A 706/A 706M.

D. Zinc-Coated Finish: For exterior steel items and items indicated for galvanizing, apply zinc coating by hot-dip process according to ASTM A 123, after fabrication.

1. Galvanizing Repair Paint: Zinc paint with dry film containing not less than 94 percent zinc dust by weight and complying with DOD-P-21035B or SSPC-Paint 20.

2.8 STAINLESS-STEEL EMBEDDED MATERIALS

A. Stainless-Steel Plate: ASTM A 666, Type 304, Type 316, or Type 201, of grade suitable for application.

B. Stainless-Steel Bolts and Studs: ASTM F 593, alloy 304 or 316, hex-head bolts and studs; stainless-steel nuts; and flat, stainless-steel washers.

C. Stainless-Steel Headed Studs: ASTM A 276, with minimum mechanical properties for studs as indicated under MNL 116, Table 3.2.3.

2.9 BEARING PADS AND OTHER ACCESSORIES

A. Provide one of the following bearing pads for structural precast concrete members as recommended by tank supplier for application:

1. Elastomeric Pads: AASHTO M 251, plain, vulcanized, 100 percent polychloroprene (neoprene) elastomer, molded to size or cut from a molded sheet, 50 to 70 Shore A durometer according to ASTM D 2240, minimum tensile strength 2250 psi per ASTM D 412.
2. Random-Oriented, Fiber-Reinforced Elastomeric Pads: Preformed, randomly oriented synthetic fibers set in elastomer. Surface hardness of 70 to 90 Shore A durometer according to ASTM D2240. Capable of supporting a compressive stress of 3000 psi with no cracking, splitting or delaminating in the internal portions of the pad.
3. High-Density Plastic: Multimonomer, nonleaching, plastic strip capable of supporting loads with no visible overall expansion.

B. Erection Accessories: Provide steel plates and brackets, clips, hangers, high density plastic shims, and other accessories required to install precast concrete members.

2.10 GROUT MATERIALS

A. Grout for Bonded Tendons: Provide cement grout for bonded tendons as indicated below:

1. Maximum Water-Cementitious Materials Ratio: 0.43
2. Add High-Range, Water-Reducing admixture on-site as necessary for placement.
3. Provide admixtures to prevent bleeding and grout settlement. Material shall be added to the mix on-site.

    a. Acceptable Products: Sika Intraplast-N®, or equal.

4. Grout shall not contain water-soluble chloride ions in excess of 0.06 percent by weight of cementitious materials.

B. Nonshrink Grout: Premixed, prepackaged, non-metallic, shrink-resistant grout complying with ASTM C 1107, Grade C. Grout shall not contain chlorides.

1. Acceptable Products:

    a. SikaGrout 212®, or equal.
    b. SikaGrout 328®, or equal.

2.11 PATCHING MATERIALS

A. One-component, polymer-modified, premixed patching material containing selected silica aggregates and portland cement, suitable for vertical and overhead applications. Do not use material containing chlorides or other chemicals known to be deleterious to prestressing steel or material that is reactive with prestressing steel, anchorage device material, or concrete.

1. Acceptable Products:

    a. ProSpec® BlendCrete, or equal.

2.12 CONCRETE MIXTURES

A. Prepare design mixtures for each type of concrete required.

1. The inclusion of either fly ash in the concrete mix is mandatory.
2. Where fly ash is used:

    a. The minimum fly ash content shall be 15 percent replacement of cementitious material by weight, and the maximum content shall be 35%.
    b. Additional fly ash shall not be included in concrete mixed with Type IS or IP cement.

3. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 350 when tested in accordance with ASTM C 1218.
4. Limit use of silica fume to 10 percent replacement of Portland cement by weight.

B. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at Tank Supplier's option.

C. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 350 or PCI MNL 116 when tested in accordance with ASTM C 1218/C 1218M.

D. Normalweight Concrete Mixtures: Proportion mixtures by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normalweight concrete.

E. Furnish precast concrete as indicated below:

1. Compressive Strength (28 Days): 5,000 psi minimum.
2. Maximum Water-Cementitious Materials Ratio: 0.40.
3. Slump Flow: 24 inches, ±4 inches
4. Minimum cementitious content: 610 pounds per cubic yard

F. Self-Consolidating Cast-in-Place Concrete for Vertical Wall Joints:

1. Compressive Strength (28 Days): 5,000 psi minimum.
2. Maximum Water-Cementitious Materials Ratio: 0.40.
3. Provide High-Range, Water-Reducing, polycarboxylate-based admixture to achieve a spread of 18 to 24 inches.

G. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 6%, ±1-1/2%.

H. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.

I. Concrete Mixture Adjustments: Concrete mixture design adjustments may be made if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

2.13 FORM FABRICATION

A. Form: Accurately construct forms, mortar tight, of sufficient strength to withstand pressures due to concrete placement and vibration operations and temperature changes, and for prestressing and detensioning operations. Coat contact surfaces of forms with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.

B. Maintain forms to provide completed structural precast concrete members of shapes, lines, and dimensions within fabrication tolerances specified.

1. Edge and Corner Treatment: Uniformly chamfered or as built-in on standard forms.

2.14 FABRICATION

A. Cast-in Plates, Inserts, Angles, and Other Hardware: Fabricate hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware and secure in place during precasting operations. Locate hardware where it does not affect position of main reinforcement or concrete placement.

1. Weld headed studs and deformed bar anchors used for anchorage according to AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."

B. Reinforcement: Comply with recommendations in PCI MNL 116 for fabricating, placing, and supporting reinforcement.

1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy coated reinforcing exceeds limits specified in ASTM A 775, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Locate and support reinforcement by plastic tipped or corrosion resistant metal or plastic chairs, runners, bolsters, spacers, hangers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 116.
3. Provide cover requirements in accordance with ACI 350. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete.
4. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces in accordance with ACI 350 and wire tie laps, where required by design. Offset laps of adjoining widths to prevent continuous laps in either direction.

C. Reinforce structural precast concrete members to resist handling, transportation, and erection stresses, and specified in-place loads, whichever governs.

D. Comply with requirements in PCI MNL 116 and in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.

E. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete members.

F. Place self-consolidating concrete with minimal vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 116.

G. Comply with PCI MNL 116 procedures for hot and cold-weather concrete placement.

H. Identify pickup points of precast concrete members and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each precast concrete member on a surface that will not show in finished structure.

I. Cure concrete, according to requirements in PCI MNL 116, by moisture retention without heat or by accelerated heat curing using live steam or radiant heat and moisture. Cure members until compressive strength is high enough to ensure that stripping does not have an effect on the performance of final product.

2.15 WATERSTOPS

A. Flexible PVC Waterstops: Corp of Engineers CRD-C 572 for embedding in concrete construction joints to prevent the passage of fluids through joints. Factory-fabricate corners, intersections and directional changes.

1. Profile: Ribbed without center bulb.
2. Dimensions: 9 inches by 3/8-inch-thick, non-tapered.
3. Acceptable Products:

    a. Greenstreak PVC Waterstop #646, or equal.

B. Self-Expanding Rubber Strip Waterstops: Manufactured circular or trapezoidal strip, bentonite-free, hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete.

1. Acceptable Products:

    a. Greenstreak Hydrotite® CJ-1030-4M, or equal.

C. Self-Expanding Extrudable Waterstops: Extrudable, swelling, bentonite-free, one-part polyurethane.

1. Acceptable Products:

    a. SikaSwell® S-2, or equal

2.16 RELATED MATERIALS

A. Joint/Crack Filler: ASTM C 920, Type S, Grade NS, Class 35 one-part polyurethane, elastomeric sealant, for sealing precast panel joints and minor cracks.

1. Acceptable Products:

a. Sikaflex®-1a, or equal

B. Sealant/Adhesive Primer: Specially-formulated primer to promote adhesion of sealants and adhesives to concrete.

1. Acceptable Products:

a. Sikaflex® 429/202, or equal

C. Joint Sealant, Epoxy: High-build, two-part, protective, solvent-free epoxy.

1. Acceptable Products:

a. Sikagard® 62, or equal

D. Joint Sealant, Urethane: Liquid-applied, elastomeric, urethane.

1. Acceptable Products:

a. CIM 1000, or equal

E. Epoxy Injection Adhesive: Two-part, moisture-tolerant, epoxy injection adhesive.

1. Acceptable Products:

a. Sikadur® 52, or equal.

F. Chemical Grout: Expanding, polyurethane, chemical grout.

1. Acceptable Products:

a. SikaFix® HH+, or equal
b. SikaFix® HH Hydrophilic, or equal

2.17 FABRICATION TOLERANCES

A. Fabricate structural precast concrete members of shapes, lines and dimensions indicated, so each finished member complies with PCI MNL 135 product tolerances as well as position tolerances for cast-in items.

2.18 FINISHES

A. Form Finish:

1. Standard Grade: Normal plant-run finish produced in forms that impart a smooth finish to concrete. Surface holes smaller than 1/2 inch caused by air bubbles, normal color variations, form joint marks, and minor chips and spalls are acceptable. Fill air holes greater than 1/4 inch in width that occur in high concentration (more than one per 2 square inches). Major or unsightly imperfections, honeycombs, or structural defects are not permitted. Allowable joint offset limited to 1/8 inch.

B. Smooth steel-trowel finish unformed surfaces. Consolidate concrete, bring to proper level with straightedge, float and trowel to a smooth, uniform finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive Work.

B. Tank Contractor to conform to and enforce all Local and Federal OSHA safety rules and regulations.

3.2 PREPARATION

A. The Site Work Contractor shall excavate to such depths and widths to provide adequate room for tank construction and as required in the geotechnical report. All trees, shrubs, brush, stumps, roots, and other unsuitable material shall be removed to a minimum distance of 12 feet outside the edge of the tank foundation, plus additional areas necessary for the tank construction. The working area surface shall be at an elevation of 12” below the top of foundation.

B. The excavation shall be dewatered as required during construction. The dewatering method used shall prevent disturbance of the tank foundation soils.

C. In the event the subgrade material is disturbed or over excavated by the Site Work Contractor during excavation, at the direction of the Engineer, it shall be removed and replaced with compacted select fill.

D. A leveling base material consisting of a minimum 6-inch-thick layer of compacted select fill shall be placed beneath the entire tank foundation. Select fill shall consist of a clean, well graded, angular or sub-angular, ¾” (maximum) base material. The base material shall permit free drainage without the loss of fines or intermixing with subgrade material by limiting the amount of material that passes the No. 200 sieve to a

maximum 8 percent by weight of the total base material. Select fill shall be placed in layers not exceeding 6 inches and compacted to a minimum density equal to 95% of the maximum laboratory density in accordance with ASTM D1557. Field testing for density achieved shall be in accordance with ASTM D1556 or D2922. In lieu of select fill, a uniformly graded ¾ inch minus crushed stone in accordance with ASTM C33 #67 stone may be used as the leveling base material. Crushed stone shall be placed in layers not exceeding 9 inches and compacted with at least two passes in each direction with vibratory roller compaction equipment. Compaction shall be inspected, and verification of compaction effort shall be documented by an approved testing agency. The surface elevation of the leveling base shall be fine graded to a tolerance of plus zero inches to minus ½ inch over the entire foundation areas. Fine grading tolerances for floor pipe encasements shall be plus zero inches to minus 6 inches.

E. All fill materials for backfill shall be approved by the Engineer and/or Owner.

1. Rock or concrete spoils (greater than 6 inches) shall not be used in backfill within 2 feet of the tank wall.
2. Earth moving equipment limits for tank backfill installation:

    a. Within 5 ft of tank wall, only hand operated equipment.
    b. Between 5 and 15 feet: Maximum weight of 40,000 lbs for non-vibratory and maximum weight of 20,000 lbs for vibratory machinery.

3.3 INSTALLATION

A. Erect structural precast concrete level, plumb and square within the specified allowable erection tolerances. Provide temporary bracing as required to maintain position, stability, and alignment of members until permanent connections are completed.

1. Install temporary plastic spacing shims as necessary as precast concrete members are being erected.
2. Use patching material to fill voids within recessed lifting devices flush with surface of adjacent precast concrete surfaces when recess is exposed.

B. Install post-tensioning tendons as soon as practical.

C. Place concrete in the vertical wall joints after installing post-tensioning tendons and duct connectors between wall panels.

D. Grouting or Dry-Packing Connections and Joints: Indicate joints to be grouted and any critical grouting sequences on Shop (Installation) Drawings. Grout open spaces at keyways where required or indicated with non-shrink, non-metallic grout. Retain flowable grout in place until it gains sufficient strength to support itself. Fill joints completely without seepage to other surfaces. Alternatively, pack spaces with stiff dry pack grout material, tamping until voids are completely filled. Promptly remove grout material from exposed surfaces before it hardens.

E. Field cutting of precast concrete members is not permitted without approval of the Precast Tank Engineer.

3.4 ERECTION TOLERANCES

A. Erect structural precast concrete members level, plumb, square and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135.

3.5 TENDON INSTALLATION

A. Inspect for damage before installing tendons.

B. Immediately replace tendons that have damaged strand.

3.6 TENDON STRESSING

A. Stressing jacks and gauges shall be individually identified and calibrated to known standards at intervals not exceeding six months. Exercise care in handling stressing equipment to ensure that proper calibration is maintained.

B. Stress tendons only under supervision of a qualified post-tensioning superintendent.

C. Tendon stressing shall not begin until concrete strength in the vertical wall joints has attained at least 2,500 psi compressive strength.

D. Tendon stressing shall be performed in the sequence indicated on the Shop (Erection) Drawings.

E. Mark and measure elongations to closest 1/8-inch.

F. Tendon elongations shall be recorded and compared to the theoretical elongations indicated on the Shop (Installation) Drawings. Prestressing will be considered acceptable if gage pressures shown on stressing record correspond to required stressing force and theoretical and measured elongations agree.

G. In the event that measured elongations exceed the tolerances indicated on the Shop (Installation) Drawings, the Precast Tank Engineer shall be notified for resolution.

3.7 TENDON FINISHING

A. Strand tails may be cut once prestressing has been deemed acceptable.

B. Do not cut strand tails or cover anchorages of tendons where elongations exceed tolerances until all discrepancies have been resolved to the satisfaction of the Precast Tank Engineer.

C. Cut tendon tails using hydraulic shears as soon as possible after approval of elongations.

3.8 GROUTING OF BONDED TENDONS

A. Execute grouting within 10 days after approval of tendon elongations. If grouting will not be performed within this time period, provide weather protection for the jacking access pockets.

B. Pump grout through ports into the ducts under pressure.

C. Temperature of concrete walls at time of grouting shall be above 35° F and shall be maintained above 35° F until field-cured 2-inch grout cubes reach a minimum of 800 psi.

D. Grout temperatures shall not be above 90° F during mixing and pumping.

E. Coat tendon anchor plates with epoxy coating after grouting is complete.

F. Patch jacking access pockets.

3.9 PROTECTION OF PRESTRESSED REINFORCEMENT

A. Do not expose tendons to electric ground currents, welding sparks, or temperatures that would degrade components.

B. Prevent water from entering tendons during installation and stressing.

C. Provide weather protection to stressing-end anchorages if strand tails are not cut within 10 days of stressing the tendons.

3.10 REPAIRS

A. Repairs will be permitted provided structural adequacy, serviceability and durability of members are not impaired.

B. Prepare and repair damaged galvanized coatings with galvanizing repair paint according to ASTM A 780.

C. Repair base slab shrinkage cracks as required for watertightness. Rout a ¼-inch vee-notch along the crack and fill the crack with epoxy injection adhesive.

D. Surface chips or spalls shall be cleaned and then patched with patching material.

E. Damage that occurs during the shipping, installation or construction process shall be brought to the attention of the Precast Tank Engineer for resolution.

F. Additional repairs, if necessary, shall be performed as directed by the Precast Tank Engineer.

G. Remove and replace damaged structural precast concrete members when repairs do not comply with specified requirements.

3.11 CLEANING

A. Clean grout and any other deleterious material from concrete surfaces and adjacent materials immediately.

B. Clean exposed surfaces of precast concrete members after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.

1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Protect adjacent work from staining or damage due to cleaning operations.
2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

3.12 TESTING

A. Prior to backfill placement and placing tank in service, the tank shall be leakage tested.

B. Testing shall require that the tank be filled with water furnished by the Contractor.

C. The tank shall remain filled for a period of at least 48-hours to allow for absorption and initial settlement.

D. The liquid volume loss for a period of 24 hours shall not exceed one-tenth of one percent on the tank capacity after accounting for evaporation and precipitation:

1. If the liquid volume loss exceeds this amount, leakage shall be considered excessive and the tank shall be repaired and retested.
2. Or, if during the testing, damp spots or seepage is present on areas exposed to view, the tank shall be repaired and retested.
3. All repair procedures shall be approved by the Engineer.

END OF SECTION 033800

SECTION 400507 - PROCESS PIPE HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes hangers and supports for process piping systems and equipment.

1.2 DEFINITIONS

A. Terminology used in this Section is defined in MSS SP-90.

1.3 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each type of hanger and support.

C. Submit pipe hanger and support schedule showing manufacturer's Figure No., size, location, and features for each required pipe hanger and support.

D. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

E. Shop Drawings shall be signed and sealed by a qualified professional engineer for multiple piping supports and trapeze hangers. Include design calculations and indicate size and characteristics of components and fabrication details. Shop drawings for each type of hanger and support, indicating dimensions, weights, required clearances, and methods of component assembly.

1.4 QUALITY ASSURANCE

A. Qualify welding processes and welding operators according to AWS D1.1 "Structural Welding Code--Steel."

1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

B. Qualify welding processes and welding operators according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

C. NFPA Compliance: Comply with NFPA 13 for hangers and supports used as components of fire protection systems.

D. Listing and Labeling: Provide hangers and supports that are listed and labeled as defined in NFPA 70, Article 100.

1. UL and FM Compliance: Hangers, supports, and components include listing and labeling by UL and FM where used for fire protection piping systems.
2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.5 PERFORMANCE REQUIREMENT

A. Design channel support systems for piping to support multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

B. Design heavy-duty steel trapezes for piping to support multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS

A. Hangers, Supports, and Components: Factory-fabricated according to MSS SP-58.

1. Pipe attachments include nonmetallic coating for electrolytic protection where supports are in direct contact with metallic pipe.

2.2 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM 304, stainless steel plates, shapes, and bars.

B. Bolts and Nuts: Stainless steel.

C. Washers: stainless steel, flat washers.

D. Grout: ASTM C 1107, Grade B, nonshrink, nonmetallic.

1. Characteristics include post-hardening, volume-adjusting, dry, hydraulic-cement-type grout that is nonstaining, noncorrosive, nongaseous and is recommended for both interior and exterior applications.
2. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
3. Water: Potable.
4. Packaging: Premixed and factory-packaged.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATION

A. Specific hanger requirements are specified in the Section specifying the equipment and systems.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping specification Sections,

3.2 HANGER AND SUPPORT INSTALLATION

A. General: Comply with MSS SP-69 and SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible.

C. Install supports with maximum spacings complying with MSS SP-69.

D. Where pipes of various sizes are supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.

E. Install building attachments within concrete or to structural steel. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional attachments at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert to forms. Install reinforcing bars through openings at top of inserts.

F. Install concrete inserts in new construction prior to placing concrete.

G. Install mechanical-anchor fasteners in concrete after concrete is placed and completely cured. Install according to fastener manufacturer's written instructions. Do not use in lightweight concrete slabs or in concrete slabs less than 4 inches (100 mm) thick.

H. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

I. Heavy-Duty Steel Trapezes: Field-fabricate from ASTM 304 stainless steel shapes selected for loads being supported. Weld steel according to AWS D-1.6.

J. Install hangers and supports to allow controlled movement of piping systems, permit freedom of movement between pipe anchors, and facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

K. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so that maximum pipe deflections allowed by ASME B31.9 "Building Services Piping" is not exceeded.

3.3 METAL FABRICATION

A. Cut, drill, and fit miscellaneous metal fabrications for pipe and equipment supports.

B. Fit exposed connections together to form hairline joints. Field-weld connections that cannot be shop-welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.6 procedures for manual shielded metal-arc welding, appearance and quality of welds, methods used in correcting welding work, and the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so that no roughness shows after finishing, and so that contours of welded surfaces match adjacent contours.

3.4 ADJUSTING

A. Hanger Adjustment: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.5 WARRANTY

A. The equipment supplier shall warrant for a period of 12 months that its equipment shall be free from defects in material and workmanship; and that it will replace or repair, F.O.B. its factory, any part or parts returned to it which examination shall show to have failed under normal use and service by the user. Warrantee period will commence upon completion of all project improvements.

END OF SECTION 400507

"General Decision Number: OH20250001 03/07/2025

Superseded General Decision Number: OH20240001

State: Ohio

Construction Types: Heavy and Highway

Counties: Ohio Statewide.

Heavy and 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)(1).

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:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 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 2025.
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:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 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 2025.

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 http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2025
1	02/07/2025
2	02/14/2025

3 02/28/2025
4 03/07/2025

BROH0001-001 06/01/2024

DEFIANCE, FULTON (Excluding Fulton, Amboy & Swan Creek Townships), HENRY (Excluding Monroe, Bartlow, Liberty, Washington, Richfield, Marion, Damascus & Townships & that part of Harrison Township outside corporate limits of city of Napoleon), PAULDING, PUTNAM and WILLIAMS COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0001-004 06/01/2023

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 32.40	19.30

BROH0003-002 06/01/2024

FULTON (Townships of Amboy, Swan Creek & Fulton), HENRY (Townships of Washington, Damascus, Richfield, Bartlow, Liberty, Harrison, Monroe, & Marion), LUCAS and WOOD (Townships of Perrysburg, Ross, Lake, Troy, Freedom, Montgomery, Webster, Center, Portage, Middleton, Plain, Liberty, Henry, Washington, Weston, Milton, Jackson & Grand Rapids) COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0005-003 06/01/2020

CUYAHOGA, LORAIN & MEDINA (Hinckley, Granger, Brunswick, Liverpool, Montville, York, Homer, Harrisville, Chatham, Litchfield & Spencer Townships and the city of Medina)

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS; CAULKERS; CLEANERS; POINTERS; & STONEMASONS	$ 36.64	17.13
SANDBLASTERS	$ 36.39	17.13
SEWER BRICKLAYERS & STACK BUILDERS	$ 36.64	17.13
SWING SCAFFOLDS	$ 37.14	17.13

BROH0006-005 06/01/2024

CARROLL, COLUMBIANA (Knox, Butler, West & Hanover Townships), STARK & TUSCARAWAS

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0007-002 06/01/2024

LAWRENCE

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0007-005 06/01/2023

PORTAGE & SUMMIT

	Rates	Fringes
BRICKLAYER	$ 32.40	19.30

BROH0007-010 06/01/2024

PORTAGE & SUMMIT

	Rates	Fringes
MASON - STONE	$ 33.39	20.06

BROH0008-001 06/01/2024

COLUMBIANA (Salem, Perry, Fairfield, Center, Elk Run, Middleton, & Unity Townships and the city of New Waterford), MAHONING & TRUMBULL

	Rates	Fringes
BRICKLAYER	$ 33.39	20.06

BROH0009-002 06/01/2024

BELMONT & MONROE COUNTIES and the Townships of Warren & Mt. Pleasant and the Village of Dillonvale in JEFFERSON COUNTY

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06
Refractory	$ 31.45	19.01

BROH0010-002 06/01/2024

COLUMBIANA (St. Clair, Madison, Wayne, Franklin, Washington, Yellow Creek & Liverpool Townships) & JEFFERSON (Brush Creek & Saline Townships)

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0014-002 06/01/2024

HARRISON & JEFFERSON (Except Mt. Pleasant, Warren, Brush Creek, Saline & Salineville Townships & the Village of Dillonvale)

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0016-002 06/01/2023

ASHTABULA, GEAUGA, and LAKE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 32.40	19.30

BROH0018-002 06/01/2024

BROWN, BUTLER, CLERMONT, HAMILTON, PREBLE (Gasper, Dixon, Israel, Lanier, Somers & Gratis Townships) & WARREN COUNTIES:

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0022-004 06/01/2024

CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HIGHLAND, LOGAN, MIAMI, MONTGOMERY, PREBLE (Jackson, Monroe, Harrison, Twin, Jefferson & Washington Townships) and SHELBY COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0032-001 06/01/2024

GALLIA & MEIGS

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0035-002 06/01/2024

ALLEN, AUGLAIZE, MERCER and VAN WERT COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0039-002 06/01/2024

ADAMS & SCIOTO

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0040-003 06/01/2024

ASHLAND, CRAWFORD, HARDIN, HOLMES, MARION, MORROW, RICHLAND, WAYNE and WYANDOT (Except Crawford, Ridge, Richland & Tymochtee Townships) COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

FOOTNOTE: Layout Man and Sawman rate: $1.00 per hour above journeyman rate.
Free standing stack work ground level to top of stack; Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: $1.50 per hour above journeyman rate.
""Hot"" work: $2.50 above journeyman rate.

BROH0044-002 06/01/2024

	Rates	Fringes
Bricklayer, Stonemason COSHOCTON, FAIRFIELD, GUERNSEY, HOCKING, KNOX, KICKING, MORGAN, MUSKINGUM, NOBLE (Beaver, Buffalo, Seneca & Wayne Townships) & PERRY COUNTIES:	$ 33.39	20.06

BROH0045-002 06/01/2023

FAYETTE, JACKSON, PIKE, ROSS and VINTON COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 35.39	17.47

BROH0046-002 06/01/2024

ERIE, HANCOCK, HURON, OTTAWA, SANDUSKY, SENECA, WOOD (Perry & Bloom Townships) and WYANDOT (Tymochtee, Crawford, Ridge & Richland Townships) COUNTIES & the Islands of Lake Erie north of Sandusky

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

FOOTNOTE: Layout Man and Sawman rate: $1.00 per hour above journeyman rate.
Free standing stack work ground level to top of stack; Sandblasting and laying of carbon masonry material in swing stage and/or scaffold; Ramming and spading of plastics and gunniting: $1.50 per hour above journeyman rate.
""Hot"" work: $2.50 above journeyman rate.

BROH0052-001 06/01/2024

ATHENS COUNTY

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0052-003 06/01/2024

NOBLE (Brookfield, Noble, Center, Sharon, Olive, Enoch, Stock, Jackson, Jefferson & Elk Townships) and WASHINGTON COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

BROH0055-003 06/01/2024

DELAWARE, FRANKLIN, MADISON, PICKAWAY and UNION COUNTIES

	Rates	Fringes
Bricklayer, Stonemason	$ 33.39	20.06

CARP0003-004 05/01/2017

MAHONING & TRUMBULL

	Rates	Fringes
CARPENTER	$ 26.20	17.42

CARP0069-003 05/01/2017

CARROLL, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
CARPENTER	$ 25.98	15.98

CARP0069-006 05/01/2017

COSHOCTON, HOLMES, KNOX & MORROW

	Rates	Fringes
CARPENTER	$ 24.04	15.29

CARP0171-002 05/01/2024

BELMONT, COLUMBIANA, HARRISON, JEFFERSON & MONROE

	Rates	Fringes
CARPENTER	$ 31.82	25.11

CARP0200-002 05/01/2024

ADAMS, ATHENS, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GUERNSEY, HIGHLAND, HOCKING, JACKSON, LAWRENCE, LICKING, MADISON, MARION, MEIGS, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, ROSS, SCIOTO, UNION, VINTON and WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER	$ 33.15	22.43
Diver	$ 39.41	10.40
PILEDRIVERMAN	$ 33.15	22.43

CARP0248-005 07/01/2008

LUCAS & WOOD

	Rates	Fringes

CARPENTER.....$ 27.27 14.58

CARP0248-008 07/01/2008

	Rates	Fringes
CARPENTER DEFIANCE, FULTON, HANCOCK, HENRY, PAULDING & WILLIAMS COUNTIES.....	$ 23.71	13.28

CARP0254-002 05/01/2017

ASHTABULA, CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
CARPENTER.....	$ 32.40	16.97

CARP0372-002 05/01/2024

ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM & VAN WERT

	Rates	Fringes
CARPENTER.....	$ 30.73	25.09

CARP0639-003 05/01/2017

MEDINA, PORTAGE & SUMMIT

	Rates	Fringes
CARPENTER.....	$ 30.42	16.99

CARP0735-002 05/01/2024

ASHLAND, ERIE, HURON, LORAIN & RICHLAND

	Rates	Fringes
CARPENTER.....	$ 33.43	22.31

CARP1311-001 05/01/2017

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY & WARREN

	Rates	Fringes
Carpenter & Piledrivermen.....	$ 29.34	15.95
Diver.....	$ 40.58	9.69

CARP1393-002 05/01/2024

CRAWFORD, DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
Piledrivermen & Diver's Tender...	$ 36.84	27.72

DIVERS - $250.00 per day

CARP1393-003 05/01/2024

ALLEN, AUGLAIZE, HARDIN, MERCER, PUTNAM, VAN WERT & WYANDOT

	Rates	Fringes
Piledrivermen & Diver's Tender	$ 34.68	27.60

DIVERS - $250.00 per day

CARP1871-006 05/01/2017

BELMONT, HARRISON, & MONROE

	Rates	Fringes
Diver, Wet	$ 48.11	17.33
Piledrivermen; Diver, Dry	$ 32.07	17.33

CARP1871-008 05/01/2017

ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, LORAIN, MEDINA, PORTAGE, RICHLAND & SUMMIT

	Rates	Fringes
Diver, Wet	$ 45.80	18.84
Piledrivermen; Diver, Dry	$ 30.53	18.84

CARP1871-014 05/01/2017

CARROLL, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
Diver, Wet	$ 38.34	16.95
Piledrivermen; Diver, Dry	$ 25.56	16.95

CARP1871-015 05/01/2017

COSHOCTON, HOLMES, KNOX & MORROW

	Rates	Fringes
Diver, Wet	$ 37.34	16.07
Piledrivermen; Diver, Dry	$ 24.89	16.07

CARP1871-017 05/01/2017

MAHONING & TRUMBULL

	Rates	Fringes
Diver, Wet	$ 40.65	17.62
Piledrivermen; Diver, Dry	$ 27.10	17.62

CARP2235-012 01/01/2014

COLUMBIANA & JEFFERSON

	Rates	Fringes

PILEDRIVERMAN.....$ 31.74 16.41

CARP2239-001 07/01/2008

CRAWFORD, OTTAWA, SANDUSKY, SENECA & WYANDOT

	Rates	Fringes
CARPENTER	$ 23.71	13.28

ELEC0008-002 05/27/2024

DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
CABLE SPLICER	$ 38.98	18.96
ELECTRICIAN	$ 48.40	4.5%+23.06

ELEC0032-003 12/02/2024

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY, VAN WERT & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Ridgeland, Ridge & Salem Townships)

	Rates	Fringes
ELECTRICIAN	$ 39.17	23.45

ELEC0038-002 04/29/2024

CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) & LORAIN (Columbia Township)

	Rates	Fringes
ELECTRICIAN		
Excluding Sound & Communications Work	$ 45.23	23.88

FOOTNOTES;
a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day
b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service

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ELEC0038-008 04/29/2024

CUYAHOGA, GEAUGA (Bainbridge, Chester & Russell Townships) & LORAIN (Columbia Township)

	Rates	Fringes
Sound & Communication Technician		
Communications Technician	$ 32.30	14.38
Installer Technician	$ 31.05	14.34

FOOTNOTES;

a. 6 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; & Christmas Day
b. 1 week's paid vacation for 1 year's service; 2 weeks' paid vacation for 2 or more years' service

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ELEC0064-003 11/25/2024

COLUMBIANA (Butler, Fairfield, Perry, Salem & Unity Townships) MAHONING (Austintown, Beaver, Berlin, Boardman, Canfield, Ellsworth, Coitsville, Goshen, Green, Jackson, Poland, Springfield & Youngstown Townships), & TRUMBULL (Hubbard & Liberty Townships)

	Rates	Fringes
ELECTRICIAN	$ 39.80	21.03

ELEC0071-001 01/06/2025

ASHLAND, CHAMPAIGN, CLARK, COSHOCTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HIGHLAND, HOCKING, JACKSON (Coal, Jackson, Liberty, Milton, Washington & Wellston Townships), KNOX, LICKING, MADISON, MARION, MONROE, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, Peepee, Perry & Seal Townships), RICHLAND, ROSS, TUSCARAWAS (Auburn, Bucks, Clay, Jefferson, Oxford, Perry, Salem, Rush, Washington & York Townships), UNION, VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships), and WASHINGTON COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operators	$ 40.44	4%+16.09
Groundmen	$ 29.07	4%+13.81
Linemen & Cable Splicers	$ 46.02	4%+17.20

ELEC0071-004 01/06/2025

AUGLAIZE, CLINTON, DARKE, GREENE, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, and SHELBY COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator	$ 40.44	4%+16.09
Groundman	$ 29.07	4%+13.81
Lineman & Cable Splicers	$ 46.02	4%+17.20

ELEC0071-005 01/06/2025

ASHTABULA, CUYAHOGA, GEAUGA, LAKE & LORAIN

	Rates	Fringes
LINE CONSTRUCTION: Equipment Operator		
DOT/Traffic Signal & Highway Lighting Projects	$ 39.97	27%+8.00
Municipal Power/Transit Projects	$ 49.46	27%+8.25

LINE CONSTRUCTION: Groundman
DOT/Traffic Signal & Highway Lighting Projects...$ 31.10 27%+8.00
Municipal Power/Transit Projects.....$ 38.47 27%+8.25
LINE CONSTRUCTION:
Linemen/Cable Splicer
DOT/Traffic Signal & Highway Lighting Projects...$ 43.89 27%+8.00
Municipal Power/Transit Projects.....$ 54.96 27%+8.25

ELEC0071-008 01/06/2025

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator	$ 40.44	4%+16.90
Groundman	$ 29.07	4%+13.81
Lineman & Cable Splicers	$ 46.02	4%+17.20

ELEC0071-010 01/06/2025

	Rates	Fringes
Line Construction		
Equipment Operator	$ 40.44	4%+16.09
Groundman	$ 29.07	4%+13.81
Lineman & Cable Splicers	$ 46.02	4%+17.20

ELEC0071-013 01/06/2025

BROWN, BUTLER, CLERMONT, HAMILTON, and WARREN COUNTIES

	Rates	Fringes
Line Construction		
Equipment Operator	$ 40.44	4%+16.90
Groundman	$ 29.07	4%+13.81
Lineman & Cable Splicers	$ 46.02	4%+17.20

ELEC0071-014 01/06/2025

ADAMS, ATHENS, GALLIA, JACKSON (Bloomfield, Franklin, Hamilton, Lick, Jefferson, Scioto & Madison Townships), LAWRENCE, MEIGS, PIKE (Camp Creek, Marion, Newton, Scioto, Sunfish & Union Townships), SCIOTO & VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships)

	Rates	Fringes
Line Construction		
Equipment Operator	$ 40.44	4%+16.09
Groundman	$ 29.07	4%+13.81
Lineman & Cable Splicers	$ 46.02	4%+17.20

ELEC0082-002 12/02/2024

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN (Wayne, Clear Creek & Franklin Townships)

	Rates	Fringes
ELECTRICIAN	$ 38.00	22.49

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* ELEC0082-006 11/25/2024

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE & WARREN
(Wayne, Clear Creek & Franklin Townships)

	Rates	Fringes
Sound & Communication Technician		
Cable Puller	$ 13.85 **	5.30
Installer/Technician	$ 27.70	15.71

ELEC0129-003 02/26/2024

LORAIN (Except Columbia Township) & MEDINA (Litchfield &
Liverpool Townships)

	Rates	Fringes
ELECTRICIAN	$ 41.40	18.36

ELEC0129-004 02/26/2024

ERIE & HURON (Lyme, Ridgefield, Norwalk, Townsend, Wakeman,
Sherman, Peru, Bronson, Hartland, Clarksfield, Norwich,
Greenfield, Fairfield, Fitchville & New London Townships)

	Rates	Fringes
ELECTRICIAN	$ 41.40	18.36

ELEC0141-003 06/02/2024

BELMONT COUNTY

	Rates	Fringes
CABLE SPLICER	$ 42.94	27.74
ELECTRICIAN	$ 39.04	27.62

ELEC0212-003 11/26/2018

BROWN, CLERMONT & HAMILTON

	Rates	Fringes
Sound & Communication Technician	$ 24.35	10.99

ELEC0212-005 06/03/2024

BROWN, CLERMONT, and HAMILTON COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 35.43	22.05

ELEC0245-001 08/26/2024

ALLEN, HARDIN, VAN WERT & WYANDOT (Crawford, Jackson, Marseilles, Mifflin, Richland, Ridge & Salem Townships)

	Rates	Fringes
Line Construction		
Equipment Operator	$ 32.95	28%+7.85
Groundman Truck Driver	$ 20.59	28%+7.85
Lineman	$ 47.07	28%+7.85

FOOTNOTE: a. Half day's Paid Holiday: The last 4 hours of the workday prior to Christmas or New Year's Day

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ELEC0245-003 01/01/2025

DEFIANCE, FULTON, HANCOCK, HENRY, HURON, LUCAS, OTTAWA, PAULDING, PUTNAM, SANDUSKY, SENECA, WILLIAMS, and WOOD COUNTIES

	Rates	Fringes
Line Construction		
Cable Splicer	$ 53.90	8.10+28%
Groundman/Truck Driver	$ 20.51	8.10+28%
Heli-arc Welding	$ 47.17	8.10+28%
Lineman	$ 46.87	8.10+28%
Operator - Class 1	$ 37.50	8.10+28%
Operator - Class 2	$ 32.81	8.10+28%
Traffic Signal & Lighting Technician	$ 42.18	8.10+28%

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

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* ELEC0245-004 01/01/2025

ERIE COUNTY

	Rates	Fringes
Line Construction		
Cable Splicer	$ 49.14	26.75%+6.75
Cablesplicer	$ 53.90	28%+8.10
Groundman/Truck Driver	$ 20.51	28%+8.10
Lineman	$ 46.87	28%+8.10
Operator - Class 1	$ 37.50	28%+8.10
Operator - Class 2	$ 32.81	28%+8.10

FOOTNOTE: a. 6 Observed Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; & Christmas Day. Employees who work on a holiday shall be paid at a rate of double their applicable classified straight-time rates for the work performed on such holiday.

ELEC0246-001 10/28/2024

	Rates	Fringes

ELECTRICIAN.....$ 44.00 30.38%+24.31

FOOTNOTE: a. 1 1/2 Paid Holidays: The last scheduled workday prior to Christmas & 4 hours on Good Friday.

ELEC0306-005 05/27/2024

MEDINA (Brunswick, Chatham, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Medina, Montville, Sharon, Spencer, Wadsworth, Westfield & York Townships), PORTAGE (Atwater, Aurora, Brimfield, Deerfield, Franklin, Mantua, Randolph, Ravenna, Rootstown, Shalersville, Streetsboro & Suffield Townships), SUMMIT & WAYNE (Baughman, Canaan, Chester, Chippewa, Congress, Green, Milton, & Wayne Townships)

	Rates	Fringes
CABLE SPLICER	$ 46.81	20.95
ELECTRICIAN	$ 42.55	20.95

ELEC0317-002 05/29/2023

GALLIA & LAWRENCE

	Rates	Fringes
CABLE SPLICER	$ 32.68	18.13
ELECTRICIAN	$ 37.15	28.48

ELEC0540-005 01/01/2024

CARROLL (Northern half, including Fox, Harrison, Rose & Washington Townhships), COLUMBIANA (Knox Township), HOLMES, MAHONING (Smith Township), STARK, TUSCARAWAS (North of Auburn, Clay, Rush & York Townships), and WAYNE (South of Baughman, Chester, Green & Wayne Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 36.96	28.18

ELEC0573-003 11/25/2024

ASHTABULA (Colebrook, Wayne, Williamsfield, Orwell & Windsor Townships), GEAUGA (Auburn, Middlefield, Parkman & Troy Townships), MAHONING (Milton Township), PORTAGE (Charlestown, Edinburg, Freedom, Hiram, Nelson, Palmyra, Paris & Windham Townships), and TRUMBULL (Except Liberty & Hubbard Townships)

	Rates	Fringes
ELECTRICIAN	$ 42.20	23.20

ELEC0575-001 05/29/2023

ADAMS, FAYETTE, HIGHLAND, HOCKING, JACKSON (Bloomfield, Franklin, Hamilton, Jefferson, Lick, Madison, Scioto, Coal, Jackson, Liberty, Milton & Washington Townships), PICKAWAY (Deer Creek, Perry, Pickaway, Salt Creek & Wayne Townships), PIKE (Beaver, Benton, Jackson, Mifflin, Pebble, PeePee, Perry,

Seal, Camp Creek, Newton, Scioto, Sunfish, Union & Marion Townships), ROSS, SCIOTO & VINTON (Clinton, Eagle, Elk, Harrison, Jackson, Richland & Swan Townships)

	Rates	Fringes
ELECTRICIAN	$ 37.00	22.26

ELEC0648-001 08/26/2024

BUTLER and WARREN COUNTIES (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union & Washington Townships)

	Rates	Fringes
CABLE SPLICER	$ 30.50	18.23
ELECTRICIAN	$ 36.00	23.06

ELEC0673-004 12/30/2024

ASHTABULA (Excluding Orwell, Colebrook, Williamsfield, Wayne & Windsor Townships), GEAUGA (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury & Thompson Townships) and LAKE COUNTIES

	Rates	Fringes
CABLE SPLICER	$ 33.81	21.47
ELECTRICIAN	$ 39.47	24.02

ELEC0683-002 05/27/2024

CHAMPAIGN, CLARK, DELAWARE, FAIRFIELD, FRANKLIN, MADISON, PICKAWAY (Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut & Washington Townships), and UNION COUNTIES

	Rates	Fringes
CABLE SPLICER	$ 41.50	24.19
ELECTRICIAN	$ 40.50	25.20

ELEC0688-003 05/30/2022

ASHLAND, CRAWFORD, HURON (Richmond, New Haven, Ripley & Greenwich Townships), KNOX (Liberty, Clinton, Union, Howard, Monroe, Middleberry, Morris, Wayne, Berlin, Pike, Brown & Jefferson Townships), MARION, MORROW, RICHLAND and WYANDOT (Sycamore, Crane, Eden, Pitt, Antrim & Tymochtee Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 32.30	21.83

ELEC0972-002 06/01/2023

ATHENS, MEIGS, MONROE, MORGAN, NOBLE, VINTON (Brown, Knox, Madison, Vinton & Wilkesville Townships), and WASHINGTON COUNITES

	Rates	Fringes
CABLE SPLICER	$ 35.70	30.26
ELECTRICIAN	$ 35.45	30.25

ELEC1105-001 05/27/2024

COSHOCTON, GUERNSEY, KNOX (Jackson, Clay, Morgan, Miller, Milford, Hilliar, Butler, Harrison, Pleasant & College Townships), LICKING, MUSKINGUM, PERRY, and TUSCARAWAS (Auburn, York, Clay, Jefferson, Rush, Oxford, Washington, Salem, Perry & Bucks Townships) COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 39.60	24.41

ENGI0018-003 05/01/2024

ASHTABULA, CUYAHOGA, ERIE, GEAUGA, LAKE, LORAIN, MEDINA, PORTAGE, and SUMMIT COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 45.63	16.41
GROUP 2	$ 45.53	16.41
GROUP 3	$ 44.49	16.41
GROUP 4	$ 43.27	16.41
GROUP 5	$ 37.98	16.41
GROUP 6	$ 46.63	16.41
GROUP 7	$ 46.63	16.41

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24"" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; Wheel Excavator; and Asphalt Plant Engineer (Cleveland District Only).

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48""; Bulldozer; Endloader; Horizontal Directional Drill (Over 50,000 ft lbs thrust); Hydro Milling Machine; Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24"" wide & under); Vermeer type Concrete Saw; and Maintenance Operators (Portage and Summit Counties Only).

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer (Portage and Summit Counties Only); Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4"" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); Welding Machines; and Railroad Tie Inserter/Remover; Articulating/straight bed end dumps if assigned (minus $4.00 per hour.

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48"" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Forklift; Form Trencher; Hydro Hammer expect masonary; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonry Fork Lift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4"" discharge); Signalperson; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chainmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0018-004 05/01/2024

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD,

FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, and YANDOT COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 44.14	16.41
GROUP 2	$ 44.02	16.41
GROUP 3	$ 42.98	16.41
GROUP 4	$ 41.80	16.41
GROUP 5	$ 36.34	16.41
GROUP 6	$ 45.14	16.41
GROUP 7	$ 45.14	16.41

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24"" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; and Wheel Excavator.

GROUP 2 - Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48""; Bulldozer; Endloader; Hydro Milling Machine; Horizontal Directional Drill (over 50,000 ft. lbs. thrust);Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Machine (24"" wide & under); and Vermeer type Concrete Saw.

GROUP 3 - A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills

(all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4"" & over discharge); Railroad Tie Inserter/Remover; Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); and Welding Machines; Artiaculating/straight bed end dumps if assigned (minus $4.00 per hour.

GROUP 4 - Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48"" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway); Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift; Form Trencher; Hydro Hammer expect masonary; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); and Vibratory Compactor with Integral Power.

GROUP 5 - Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt Plant); Generator; Masonary Forklift; Inboard-Outboard Motor Boat Launch; Oil Heater (asphalt plant); Oiler/Helper; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4"" discharge); Signalperson; Tire Repairperson; VAC/ALLS; Cranes - Compact, track or rubber under 4,000 pound capacity; fueling and greasing; and Chainmen.

GROUP 6 - Master Mechanic & Boom from 150 to 180.

GROUP 7 - Boom from 180 and over.

ENGI0066-023 06/01/2023

COLUMBIANA, MAHONING & TRUMBULL COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 1 - A & B	$ 44.63	24.30
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 2 - A & B	$ 44.30	24.30
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 3 - A & B	$ 38.47	24.30
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 4 - A & B	$ 34.52	24.30
ASBESTOS; HAZARDOUS/TOXIC WASTE PROJECTS		
GROUP 5 - A & B	$ 31.13	24.30
HAZARDOUS/TOXIC WASTE PROJECTS		

GROUP 1 - C & D.....$ 40.91 24.30
HAZARDOUS/TOXIC WASTE
PROJECTS
GROUP 2 - C & D.....$ 40.61 24.30
HAZARDOUS/TOXIC WASTE
PROJECTS
GROUP 3 - C & D.....$ 35.27 24.30
HAZARDOUS/TOXIC WASTE
PROJECTS
GROUP 4 - C & D.....$ 31.65 24.30
HAZARDOUS/TOXIC WASTE
PROJECTS
GROUP 5 - C & D.....$ 28.53 24.30
ALL OTHER WORK
GROUP 1.....$ 37.19 24.30
ALL OTHER WORK
GROUP 2.....$ 36.92 24.30
ALL OTHER WORK
GROUP 3.....$ 32.06 24.30
ALL OTHER WORK
GROUP 4.....$ 28.77 24.30
ALL OTHER WORK
GROUP 5.....$ 25.94 24.30

GROUP 1 - Rig, Pile Driver or Caisson Type; & Rig, Pile Hydraulic Unit Attached

GROUP 2 - Asphalt Heater Planer; Backfiller with Drag Attachment; Backhoe; Backhoe with Shear attached; Backhoe-Rear Pivotal Swing; Batch Plant-Central Mix Concrete; Batch Plant, Portable concrete; Berm Builder-Automatic; Boat Derrick; Boat-Tug; Boring Machine Attached to Tractor; Bullclam; Bulldozer; C.M.I. Road Builder & Similar Type; Cable Placer & Layer; Carrier-Straddle; Carryall-Scraper or Scoop; Chicago Boom; Compactor with Blade Attached; Concrete Saw (Vermeer or similar type); Concrete Spreader Finisher; Combination, Bidwell Machine; Crane; Crane-Electric Overhead; Crane-Rough Terrain; Crane-Side Boom; Crane-Truck; Crane-Tower; Derrick-Boom; Derrick-Car; Digger-Wheel (Not trencher or road widener); Double Nine; Drag Line; Dredge; Drill-Kenny or Similar Type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Frankie Pile; Gradall; Grader; Gurry; Self-Propelled; Heavy Equipment Robotics Operator/Mechanic; Hoist-Monorail; Hoist-Stationary & Mobile Tractor; Hoist, 2 or 3 drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal & Kuhlman; Land-Seagoing Vehicle; Loader, Elevating; Loader, Front End; Loader, Skid Steer; Locomotive; Mechanic/Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt Finishing Machine; Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar); Place Crete Machine with Boom; Post Driver (Carrier mounted); Power Driven Hydraulic Pump & Jack (When used in Slip Form or Lift Slab Construction); Pump Crete Machine; Regulator-Ballast; Hydraulic Power Unit not attached to Rig for Pile Drillings; Rigs-Drilling; Roto Mill or similar Full Lane (8' Wide & Over); Roto Mill or similar type (Under 8'); Shovel; Slip Form Curb Machine; Speedwing; Spikemaster; Stonecrusher; Tie Puller & Loader; Tie Tamper; Tractor-Double Boom; Tractor with Attachments; Truck-Boom; Truck-Tire; Trench Machine; Tunnel Machine (Mark 21 Java or similar); & Whirley (or similar type)

GROUP 3 - Asphalt Plant; Bending Machine (Pipeline or similar

type); Boring machine, Motor Driven; Chip Harvester without Boom; Cleaning Machine, Pipeline Type; Coating Machine, Pipeline Type; Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home building only); Fork lift & Lulls; Fork Lift Walk Behind (Hoisting over 1 buck high); Form Line Machine; Grease Truck operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Single Drum Hoist with or without Tower; Huck Bolting Machine; Hydraulic Scaffold (Hoisting building materials); Paving Breaker (Self-propelled or Ridden); Pipe Dream; Pot Fireperson (Power Agitated); Refrigeration Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Soil Stabilizer (Pump type); Spray Cure Machine, Self-Propelled; Straw Blower Machine; Sub-Grader; Tube Finisher or Broom C.M.I. or similar type; & Tugger Hoist

GROUP 4 - Air Curtain Destructor & Similar Type; Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder, self-propelled; Drill Wagon; Generator Set; Generator-Steam; Heater-Portable Power; Hydraulic Manipulator Crane; Jack-Hydraulic Power driven; Jack-Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Broom; Pulverizer; Pump; Road Finishing Machine (Pull Type); Saw-Concrete-Self-Propelled (Highway Work); Signal Person; Spray Cure Machine-Motor Powered; Stump Cutter; Tractor; Trencher Form; Water Blaster; Steam Jenny; Syphon; Vibrator-Gasoline; & Welding Machine

GROUP 5 - Brakeperson; Fireperson; & Oiler

IRON0017-002 05/01/2024

ASHTABULA (North of Route 6, starting at the Geauga County Line, proceeding east to State Route 45), CUYAHOGA, ERIE (Eastern 2/3), GEAUGA, HURON (East of a line drawn from the north border through Monroeville & Willard), LAKE, LORAIN, MEDINA (North of Old Rte. #224), PORTAGE (West of a line from Middlefield to Shalersville to Deerfield), and SUMMIT (North of Old Rte. #224, including city limits of Barberton) COUNTIES

	Rates	Fringes
IRONWORKER		
Ornamental, Reinforcing, & Structural	$ 36.83	29.01

IRON0017-010 05/01/2024

ASHTABULA (Eastern part from Lake Erie on the north to route #322 on the south to include Conneaut, Kingsville, Sheffield, Denmark, Dorset, Cherry Valley, Wayne, Monroe, Pierpont, Richmond, Andover & Williamsfield Townships)

	Rates	Fringes
IRONWORKER		
Structural, including metal building erection & Reinforcing	$ 36.83	29.01

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* IRON0044-001 06/01/2024

ADAMS (Western Part), BROWN, BUTLER (Southern Part), CLERMONT, CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) and WARREN (South of a line drawn from Blanchester through Morrow to the west county line) COUNTIES

	Rates	Fringes
IRONWORKER, REINFORCING	$ 35.37	23.00

IRON0044-002 06/01/2024

CLINTON (South of a line drawn from Blanchester to Lynchburg), HAMILTON, HIGHLAND (Excluding eastern one-fifth & portion of county inside lines drawn from Marshall to Lynchburg from the northern county line through E. Monroe to Marshall) & WARREN (South of a line drawn from Blanchester through Morrow to the west county line)

	Rates	Fringes
IRONWORKER		
Fence Erector	$ 33.60	23.00
Ornamental; Structural	$ 35.37	23.00

IRON0055-003 07/01/2024

CRAWFORD (Area Between lines drawn from where Hwy #598 & #30 meet through N. Liberty to the northern border & from said Hwy junction point due west to the border), DEFIANCE (S. of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), ERIE (Western 1/3), FULTON, HANCOCK, HARDIN (North of a line drawn from Maysville to a point 4 miles south of the northern line on the eastern line), HENRY, HURON (West of a line drawn from the northern border through Monroeville & Willard), LUCAS, OTTAWA, PUTNAM (East of a line drawn from the northern border down through Miller City to where #696 meets the southern border), SANDUSKY, SENECA, WILLIAMS (East of a line drawn from Pioneer through Stryker to the southern border), WOOD & WYANDOT (North of Rte. #30)

	Rates	Fringes
IRONWORKER		
Fence Erector	$ 26.40	24.62
Flat Road Mesh	$ 29.77	21.30
Tunnels & Caissons Under Pressure	$ 29.77	21.30
All Other Work	$ 35.50	29.20

IRON0147-002 06/01/2024

ALLEN (Northern half), DEFIANCE (Northern part, excluding south of a line drawn from where Rte. #66 meets the northern line through Independence to the eastern county border), MERCER (Northern half), PAULDING, PUTNAM (Western part, excluding east of a line drawn from the northern border down through Miller

City to where #696 meets the southern border), VAN WERT, and WILLIAMS (Western part, excluding east of a line drawn from Pioneer through Stryker to the southern border) COUNTIES

	Rates	Fringes
IRONWORKER	$ 34.20	26.39

IRON0172-002 06/01/2024

CHAMPAIGN (Eastern one-third), CLARK (Eastern one-fourth), COSHOCTON (West of a line beginning at the northwestern county line going through Walhonding & Tunnel Hill to the southern county line), CRAWFORD (South of Rte. #30), DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, HARDIN (Excluding a line drawn from Roundhead to Maysville), HIGHLAND (Eastern one-fifth), HOCKING, JACKSON (Northern half), KNOX, LICKING, LOGAN (Eastern one-third), MADISON, MARION, MORROW, MUSKINGUM (West of a line starting at Adams Mill going to Adamsville & going from Adamsville through Blue Rock to the southern border), PERRY, PICKAWAY, PIKE (Northern half), ROSS, UNION, VINTON and WYANDOT (South of Rte. #30) COUNTIES

	Rates	Fringes
IRONWORKER	$ 36.77	22.85

IRON0207-004 06/01/2024

ASHTABULA (Southern part starting at the Geauga County line), COLUMBIANA (E. of a line from Damascus to Highlandtown), MAHONING (N. of Old Route #224), PORTAGE (E. of a line from Middlefield to Shalersville to Deerfield) & TRUMBULL

	Rates	Fringes
IRONWORKER		
Layout; Sheeter	$ 35.83	27.41
Ornamental; Reinforcing; Structural	$ 34.83	27.41
Ornamental; Reinforcing	$ 28.92	25.61

IRON0290-002 06/01/2024

ALLEN (Southern half), AUGLAIZE, BUTLER (North of a line drawn from east to the west county line going through Oxford, Darrtown & Woodsdale), CHAMPAIGN (Excluding east of a line drawn from Catawla to the point where #68 intersects the northern county line), CLARK (Western two-thirds), CLINTON (Excluding south of a line drawn from Blanchester to Lynchburg), DARKE, GREENE, HIGHLAND (Inside lines drawn from Marshall to Lynchburg & from the northern county line through East Monroe to Marshall), LOGAN (West of a line drawn from West Liberty to where the northern county line meets the western county line of Hardin), MERCER (Southern half), MIAMI, MONTGOMERY, PREBLE, SHELBY & WARREN (Excluding south of a line drawn from Blanchester through Morrow to the western county line) COUNTIES

	Rates	Fringes

IRONWORKER.....$ 35.39 24.35

IRON0549-003 12/01/2022

BELMONT, GUERNSEY, HARRISON, JEFFERSON, MONROE & MUSKINGUM
(Excluding portion west of a line starting at Adams Mill going to Adamsville and going from Adamsville through Blue Rock to the south border)

	Rates	Fringes
IRONWORKER.....	$ 35.19	25.66

IRON0550-004 05/01/2024

ASHLAND, CARROLL, COLUMBIANA (W. of a line from Damascus to Highlandtown), COSHOCTON (E. of a line beginning at NW Co. line going through Walhonding & Tunnel Hill to the South Co. line), HOLMES, HURON (S. of Old Rte. #224), MAHONING (S. of Old Rte. #224), MEDINA (S. of Old Rte. #224), PORTAGE (S. of Old Rte. #224), RICHLAND, STARK, SUMMIT (S. of Old Rte. #224, Excluding city limits of Barberton), TUSCARAWAS, & WAYNE

	Rates	Fringes
Ironworkers:Structural, Ornamental and Reinforcing.....	$ 34.70	22.88

IRON0769-004 06/01/2024

ADAMS (Eastern Half), GALLIA, JACKSON (Southern Half), LAWRENCE & SCIOTO

	Rates	Fringes
IRONWORKER.....	$ 37.66	29.24

IRON0787-003 06/01/2024

ATHENS, MEIGS, MORGAN, NOBLE, and WASHINGTON COUNTIES

	Rates	Fringes
IRONWORKER.....	$ 33.00	24.25

LABO0265-008 05/01/2024

	Rates	Fringes
LABORER		
ASHTABULA, ERIE, HURON, LORAIN, LUCAS, MAHONING, MEDINA, OTTAWA, PORTAGE, SANDUSKY, STARK, SUMMIT, TRUMBULL & WOOD COUNTIES		
GROUP 1.....	$ 35.95	14.45
GROUP 2.....	$ 36.12	14.45
GROUP 3.....	$ 36.45	14.45
GROUP 4.....	$ 36.90	14.45
CUYAHOGA AND GEAUGA COUNTIES ONLY: SEWAGE PLANTS, WASTE PLANTS,		

WATER TREATMENT FACILITIES, PUMPING STATIONS, & ETHANOL PLANTS CONSTRUCTION	$ 38.56	14.45
CUYAHOGA, GEAUGA & LAKE COUNTIES		
GROUP 1	$ 37.18	14.45
GROUP 2	$ 37.35	14.45
GROUP 3	$ 37.68	14.45
GROUP 4	$ 38.13	14.45
REMAINING COUNTIES OF OHIO		
GROUP 1	$ 35.52	14.45
GROUP 2	$ 35.69	14.45
GROUP 3	$ 36.02	14.45
GROUP 4	$ 36.47	14.45

LABORER CLASSIFICATIONS

GROUP 1 - Asphalt Laborer; Carpenter Tender; Concrete Curing Applicator; Dump Man (Batch Truck); Guardrail and Fence Installer; Joint Setter; Laborer (Construction); Landscape Laborer; Mesh Handlers & Placer; Right-of-way Laborer; Riprap Laborer & Grouter; Scaffold Erector; Seal Coating; Surface Treatment or Road Mix Laborer; Sign Installer; Slurry Seal; Utility Man; Bridge Man; Handyman; Waterproofing Laborer; Flagperson; Hazardous Waste (level D); Diver Tender; Zone Person & Traffic Control

GROUP 2 - Asphalt Raker; Concrete Puddler; Kettle Man Pipeline); Machine Driven Tools (Gas, Electric, Air); Mason Tender; Brick Paver; Mortar Mixer; Power Buggy or Power Wheelbarrow; Paint Striper; Sheeting & Shoring Man; Surface Grinder Man; Plastic Fusing Machine Operator; Pug Mill Operator; & Vacuum Devices (wet or dry); Rodding Machine Operator; Diver; Screwman or Paver; Screed Person; Water Blast, Hand Held Wand; Pumps 4"" & Under (Gas, Air or Electric) & Hazardous Waste (level C); Air Track and Wagon Drill; Bottom Person; Cofferdam (below 25 ft. deep); Concrete Saw Person; Cutting with Burning Torch; Form Setter; Hand Spiker (Railroad); Pipelayer; Tunnel Laborer (without air) & Caisson; Underground Person (working in Sewer and Waterline, Cleaning, Repairing & Reconditioning); Sandblaster Nozzle Person; & Hazardous Waste (level B)

GROUP 3 - Blaster; Mucker; Powder Person; Top Lander; Wrencher (Mechanical Joints & Utility Pipeline); Yarner; Hazardous Waste (level A); Concrete Specialist; Concrete Crew in Tunnels (With Air-pressurized - $1.00 premium); Curb Setter & Cutter; Grade Checker; Utility Pipeline Tapper; Waterline; and Caulker

GROUP 4 - Miner (With Air-pressurized - $1.00 premium); & Gunite Nozzle Person

TUNNEL LABORER WITH AIR-PRESSURIZED ADD $1.00 TO BASE RATE

SIGNAL PERSON WILL RECEIVE THE RATE EQUAL TO THE RATE PAID THE LABORER CLASSIFICATION FOR WHICH HE OR SHE IS SIGNALING.

PAIN0006-002 05/01/2023

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE (N. of the East-West Turnpike) & SUMMIT (N. of the East-West Turnpike)

	Rates	Fringes
PAINTER		
COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS		
GROUP 1	$ 30.75	18.95
GROUP 2	$ 31.15	18.95
GROUP 3	$ 31.45	18.95
GROUP 4	$ 37.01	18.95
COMMERCIAL REPAINT		
GROUP 1	$ 29.25	18.95
GROUP 2	$ 29.65	18.95
GROUP 3	$ 29.95	18.95

PAINTER CLASSIFICATIONS - COMMERCIAL NEW WORK; REMODELING; & RENOVATIONS

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting; Closed Steel Above 55 feet; Bridges & Open Structural Steel; Tanks - Water Towers; Bridge Painters; Bridge Riggers; Containment Builders

GROUP 4 - Bridge Blaster

PAINTER CLASSIFICATIONS - COMMERCIAL REPAINT

GROUP 1 - Brush; & Roller

GROUP 2 - Sandblasting & Buffing

GROUP 3 - Spray Painting

PAIN0007-002 07/01/2024

FULTON, HENRY, LUCAS, OTTAWA (Excluding Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genova) & WOOD

	Rates	Fringes
PAINTER		
NEW COMMERCIAL WORK		
GROUP 1	$ 31.84	20.79
GROUP 2	$ 32.84	20.79
GROUP 3	$ 32.84	20.79
GROUP 4	$ 32.84	20.79
GROUP 5	$ 32.84	20.79
GROUP 6	$ 32.84	20.79
GROUP 7	$ 32.84	20.79
GROUP 8	$ 32.84	20.79
GROUP 9	$ 32.84	20.79

REPAINT IS 90% OF JR

PAINTER CLASSIFICATIONS

GROUP 1 - Brush; Spray & Sandblasting Pot Tender

GROUP 2 - Refineries & Refinery Tanks; Surfaces 30 ft. or

over where material is applied to or labor performed on above ground level (exterior), floor level (interior)

GROUP 3 - Swing Stage & Chair

GROUP 4 - Lead Abatement

GROUP 5 - All Methods of Spray

GROUP 6 - Solvent-Based Catalized Epoxy Materials of 2 or More Component Materials, to include Solvent-Based Conversion Varnish (excluding water based)

GROUP 7 - Spray Solvent Based Material; Sand & Abrasive Blasting

GROUP 8 - Towers; Tanks; Bridges; Stacks Over 30 Feet

GROUP 9 - Epoxy Spray (excluding water based)

PAIN0012-008 05/01/2019

BUTLER COUNTY

	Rates	Fringes
PAINTER		
GROUP 1	$ 21.95	10.20
GROUP 2	$ 25.30	10.20
GROUP 3	$ 25.80	10.20
GROUP 4	$ 26.05	10.20
GROUP 5	$ 26.30	10.20

PAINTER CLASSIFICATIONS

GROUP 1: Bridge Equipment Tender; Bridge/Containment Builder

GROUP 2: Brush & Roller

GROUP 3: Spray

GROUP 4: Sandblasting; & Waterblasting

GROUP 5: Elevated Tanks; Steeplejack Work; Bridge; & Lead Abatement

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PAIN0012-010 05/01/2019

BROWN, CLERMONT, CLINTON, HAMILTON & WARREN

	Rates	Fringes
PAINTER		
HEAVY & HIGHWAY BRIDGES-GUARDRAILS-LIGHTPOLES-STRIPING		
Bridge Equipment Tender and Containment Builder	$ 21.95	10.20
Bridges when highest point of clearance is 60 feet or more; & Lead Abatement Projects	$ 26.30	10.20

Brush & Roller	$ 25.30	10.20
Sandblasting & Hopper Tender; Water Blasting	$ 26.05	10.20
Spray	$ 25.80	10.20

PAIN0093-001 12/01/2024

ATHENS, GUERNSEY, HOCKING, MONROE, MORGAN, NOBLE and WASHINGTON COUNTIES

	Rates	Fringes
PAINTER		
Bridges; Locks; Dams; Tension Towers; & Energized Substations	$ 36.44	24.46
Power Generating Facilities.	$ 33.29	24.46

PAIN0249-002 05/01/2024

CLARK, DARKE, GREENE, MIAMI, MONTGOMERY & PREBLE

	Rates	Fringes
PAINTER		
GROUP 1 - Brush & Roller	$ 27.15	13.64
GROUP 2 - Swing, Scaffold Bridges; Structural Steel; Open Acid Tank; High Tension Electrical Equipment; & Hot Pipes	$ 27.15	13.64
GROUP 3 - Spray; Sandblast; Steamclean; Lead Abatement	$ 27.90	13.64
GROUP 4 - Steeplejack Work	$ 28.10	13.64
GROUP 5 - Coal Tar	$ 28.65	13.64
GROUP 6 - Bridge Equipment Tender & or Containment Builder	$ 35.86	13.64
GROUP 7 - Tanks, Stacks & Towers	$ 31.09	13.64
GROUP 8 - Bridge Blaster, Rigger	$ 38.86	13.64

PAIN0356-002 09/01/2009

KNOX, LICKING, MUSKINGUM, and PERRY

	Rates	Fringes
PAINTER		
Bridge Equipment Tenders and Containment Builders	$ 27.93	7.25
Bridges; Blasters; andRiggers	$ 34.60	7.25
Brush and Roller	$ 20.93	7.25
Sandblasting; Steam Cleaning; Waterblasting; and Hazardous Work	$ 25.82	7.25
Spray	$ 21.40	7.25
Structural Steel and Swing Stage	$ 25.42	7.25
Tanks; Stacks; and Towers	$ 28.63	7.25

PAIN0438-002 12/01/2023

BELMONT, HARRISON and JEFFERSON COUNTIES

	Rates	Fringes
PAINTER		
Bridges, Locks, Dams, Tension Towers & Energized Substations	$ 36.09	19.49
Power Generating Facilities	$ 32.94	19.49

PAIN0476-001 06/01/2024

COLUMBIANA, MAHONING, and TRUMBULL COUNITES

	Rates	Fringes
PAINTER		
GROUP 1	$ 28.39	17.14
GROUP 2	$ 35.02	17.14
GROUP 3	$ 28.60	17.14
GROUP 4	$ 28.89	17.14
GROUP 5	$ 29.04	17.14
GROUP 6	$ 29.29	17.14
GROUP 7	$ 30.39	17.14

PAINTER CLASSIFICATIONS:

GROUP 1: Painters, Brush & Roller

GROUP 2: Bridges

GROUP 3: Structural Steel

GROUP 4: Spray, Except Bar Joist/Deck

GROUP 5: Epoxy/Mastic; Spray- Bar Joist/Deck; Working Above 50 Feet; and Swingstages

GROUP 6: Tanks; Sandblasting

GROUP 7: Towers; Stacks

PAIN0555-002 11/01/2023

ADAMS, HIGHLAND, JACKSON, PIKE & SCIOTO

	Rates	Fringes
PAINTER		
GROUP 1	$ 32.18	20.29
GROUP 2	$ 33.81	20.29
GROUP 3	$ 35.44	20.29
GROUP 4	$ 38.63	20.29

PAINTER CLASSIFICATIONS

GROUP 1 - Containment Builder

GROUP 2 - Brush; Roller; Power Tools, Under 40 feet

GROUP 3 - Sand Blasting; Spray; Steam Cleaning; Pressure Washing; Epoxy & Two Component Materials; Lead Abatement;

Hazardous Waste; Toxic Materials; Bulk & Storage Tanks of 25,000 Gallon Capacity or More; Elevated Tanks

GROUP 4 - Stacks; Bridges

PAIN0639-001 05/01/2011

	Rates	Fringes
Sign Painter & Erector	$ 20.61	3.50+a+b+c

FOOTNOTES: a. 7 Paid Holidays: New Year's Day; Memorial Day; July 4th; Labor Day; Thanksgiving Day; Christmas Day & 1 Floating Day
b. Vacation Pay: After 1 year's service - 5 days' paid vacation; After 2, but less than 10 years' service - 10 days' paid vacation; After 10, but less than 20 years' service - 15 days' paid vacation; After 20 years' service - 20 days' paid vacation
c. Funeral leave up to 3 days maximum paid leave for death of mother, father, brother, sister, spouse, child, mother-in-law, father-in-law, grandparent and inlaw provided employee attends funeral

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PAIN0788-002 06/01/2024

ASHLAND, CRAWFORD, ERIE, HANCOCK, HURON, MARION, MORROW, OTTAWA (Allen, Bay, Bono, Catawba Island, Clay Center, Curtice, Danbury, Eagle Beach, Elliston, Elmore, Erie, Fishback, Gem Beach & Genoa), RICHLAND, SANDUSKY, SENECA & WYANDOT

	Rates	Fringes
PAINTER		
Brush & Roller	$ 29.13	17.52
Structural Steel	$ 30.73	17.52

WINTER REPAINT: Between December 1 to March 31 - 90%JR

$.50 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

While working swingstage, boatswain chair, needle beam and horizontal cable. While operating sprayguns, sandblasting, cobblasting and high pressure waterblasting (4000psi).

$1.00 PER HOUR SHALL BE ADDED TO THE RATE OF PAY FOR THE CLASSIFICATION OF WORK:

For the application of catalized epoxy, including latex epoxy that is deemed hazardous, lead abatement, or for work or material where special precautions beyond normal work duties must be taken. For working on stacks, tanks, and towers over 40 feet in height.

PAIN0813-005 12/01/2008

GALLIA, LAWRENCE, MEIGS & VINTON

	Rates	Fringes

PAINTER

Base Rate	$ 24.83	10.00
Bridges, Locks, Dams & Tension Towers	$ 27.83	10.00

PAIN0841-001 06/01/2023

MEDINA, PORTAGE (South of and including Ohio Turnpike), and SUMMIT (South of and including Ohio Turnpike) COUNTIES

	Rates	Fringes
Painters:		
GROUP 1	$ 30.18	15.50
GROUP 2	$ 30.83	15.50
GROUP 3	$ 30.93	15.50
GROUP 4	$ 31.03	15.50
GROUP 5	$ 31.43	15.50
GROUP 6	$ 39.20	11.75
GROUP 7	$ 31.68	15.50

PAINTER CLASSIFICATIONS:

GROUP 1 - Brush, Roller & Paperhanger

GROUP 2 - Epoxy Application

GROUP 3 - Swing Scaffold, Bosum Chair, & Window Jack

GROUP 4 - Spray Gun Operator of Any & All Coatings

GROUP 5 - Sandblast, Painting of Standpipes, etc. from Scaffolds, Bridge Work and/or Open Structural Steel, Standpipes and/or Water Towers

GROUP 6 - Public & Commerce Transportation, Steel or Galvanized, Bridges, Tunnels & Related Support Items (concrete)

GROUP 7 - Synthetic Exterior, Drywall Finisher and/or Taper, Drywall Finisher and Follow-up Man Using Automatic Tools

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PAIN0841-002 06/01/2023

CARROLL, COSHOCTON, HOLMES, STARK, TUSCARAWAS & WAYNE

	Rates	Fringes
PAINTER		
Bridges; Towers, Poles & Stacks; Sandblasting Steel; Structural Steel & Metalizing	$ 31.43	15.50
Brush & Roller	$ 30.18	15.50
Spray; Tank Interior & Exterior	$ 31.03	15.50

PAIN1020-002 07/01/2024

ALLEN, AUGLAIZE, CHAMPAIGN, DEFIANCE, HARDIN, LOGAN, MERCER, PAULDING, PUTNAM, SHELBY, VAN WERT, and WILLIAMS COUNTIES

	Rates	Fringes
PAINTER		
Brush & Roller	$ 26.54	17.66
Drywall Finishing & Taping	$ 27.29	17.66
Lead Abatement	$ 28.29	17.66
Spray, Sandblasting Pressure Cleaning, & Refinery	$ 27.29	17.66
Swing Stage, Chair, Spiders, & Cherry Pickers	$ 26.79	17.66
Wallcoverings	$ 27.29	17.66

All surfaces 40 ft. or over where material is applied to or labor performed on, above ground level (exterior), floor level (interior) - $.50 premium

Applying Coal Tar Products - $1.00 premium

PAIN1275-002 05/01/2024

DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, MADISON, PICKAWAY, ROSS & UNION

	Rates	Fringes
PAINTER		
Bridges	$ 36.26	14.91
Brush; Roller	$ 30.65	14.91
Sandblasting; Steamcleaning; Waterblasting (3500 PSI or Over)& Hazardous Work	$ 31.35	14.91
Spray	$ 31.15	14.91
Stacks; Tanks; & Towers	$ 33.46	14.91
Structural Steel & Swing Stage	$ 29.50	14.91

PLAS0109-001 06/01/2024

MEDINA, PORTAGE, STARK, and SUMMIT COUNTIES

	Rates	Fringes
PLASTERER	$ 31.70	23.63

PLAS0109-003 06/01/2024

CARROLL, HOLMES, TUSCARAWAS, and WAYNE COUNTIES

	Rates	Fringes
PLASTERER	$ 31.70	23.63

PLAS0132-002 07/01/2024

BROWN, BUTLER, CLERMONT, HAMILTON, HIGHLAND, WARREN COUNTIES

	Rates	Fringes
PLASTERER	$ 30.40	16.54

PLAS0404-002 05/01/2018

ASHTABULA, CUYAHOGA, GEAUGA, AND LAKE COUNTIES

	Rates	Fringes
PLASTERER	$ 29.63	17.11

PLAS0404-003 05/01/2018

LORAIN COUNTY

	Rates	Fringes
PLASTERER	$ 28.86	17.11

PLAS0526-022 05/01/2018

COLUMBIANA, MAHONING, and TRUMBULL COUNTIES

	Rates	Fringes
PLASTERER	$ 28.86	17.11

PLAS0526-023 05/01/2018

BELMONT, HARRISON, and JEFFERSON COUNTIES

	Rates	Fringes
PLASTERER	$ 28.21	17.11

PLAS0886-001 07/01/2024

FULTON, HANCOCK, HENRY, LUCAS, PUTNAM, and WOOD COUNTIES

	Rates	Fringes
PLASTERER	$ 33.73	23.25

PLAS0886-003 07/01/2024

	Rates	Fringes
PLASTERER	$ 33.73	23.25

PLAS0886-004 07/01/2024

	Rates	Fringes
PLASTERER	$ 33.73	23.25

PLUM0042-002 07/01/2024

ASHLAND, CRAWFORD, ERIE, HURON, KNOX, LORAIN, MORROW, RICHLAND & WYANDOT

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 40.62	25.67

PLUM0050-002 07/01/2024

DEFIANCE, FULTON, HANCOCK, HENRY, LUCAS, OTTAWA, PAULDING,

PUTNAM, SANDUSKY, SENECA, WILLIAMS & WOOD

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 49.70	30.76

PLUM0055-003 05/01/2024

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, MEDINA (N. of Rte. #18 & Smith Road) & SUMMIT (N. of Rte. #303, including the corporate limits of the city of Hudson)

	Rates	Fringes
PLUMBER	$ 42.36	29.90

PLUM0083-001 07/01/2023

BELMONT & MONROE (North of Rte. #78)

	Rates	Fringes
Plumber and Steamfitter	$ 35.94	37.35

PLUM0094-002 05/01/2024

CARROLL (Northen Half), STARK, and WAYNE COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 45.23	24.89

PLUM0120-002 04/29/2024

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN (the C.E.I. Power House in Avon Lake), MEDINA (N. of Rte. #18) & SUMMIT (N. of #303)

	Rates	Fringes
PIPEFITTER	$ 47.07	28.15

PLUM0162-002 06/01/2024

CHAMPAIGN, CLARK, CLINTON, DARKE, FAYETTE, GREENE, MIAMI, MONTGOMERY & PREBLE

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 43.05	27.18

PLUM0168-002 06/01/2024

MEIGS, MONROE (South of Rte. #78), MORGAN (South of Rte. #78) & WASHINGTON

	Rates	Fringes

PLUMBER/PIPEFITTER.....$ 39.43 37.29

PLUM0189-002 06/01/2024

DELAWARE, FAIRFIELD, FRANKLIN, HOCKING, LICKING, MADISON, MARION, PERRY, PICKAWAY, ROSS & UNION

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	$ 43.25	26.94

PLUM0219-002 06/01/2024

MEDINA (Rte. #18 from eastern edge of Medina Co., west to eastern corporate limits of the city of Medina, & on the county road from the west corporate limits of Medina running due west to and through community of Risley to the western edge of Medina County - All territory south of this line), PORTAGE, and SUMMIT (S. of Rte. #303) COUNTIES

	Rates	Fringes
Plumber and Steamfitter.....	$ 45.37	27.64

PLUM0392-002 06/01/2024

BROWN, BUTLER, CLERMONT, HAMILTON & WARREN

	Rates	Fringes
PLUMBER/PIPEFITTER.....	$ 40.65	26.75

PLUM0396-001 06/01/2024

COLUMBIANA (Excluding Washington & Yellow Creek Townships & Liverpool Twp. - Secs. 35 & 36 - West of County Road #427), MAHONING and TRUMBULL COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER.....	$ 38.45	28.96

PLUM0495-002 06/01/2024

CARROLL (Rose, Monroe, Union, Lee, Orange, Perry & Loudon Townships), COLUMBIANA (Washington & Yellow Creek Townships & Liverpool Township, Secs. 35 & 36, West of County Rd. #427), COSHOCTON, GUERNSEY, HARRISON, HOLMES, JEFFERSON, MORGAN (South to State Rte. #78 & from McConnelsville west on State Rte. #37 to the Perry County line), MUSKINGUM, NOBLE, and TUSCARAWAS COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter.....	$ 37.82	36.70

PLUM0577-002 06/01/2024

ADAMS, ATHENS, GALLIA, HIGHLAND, JACKSON, LAWRENCE, PIKE,

SCIOTO & VINTON

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 41.65	27.48

PLUM0776-002 07/01/2024

ALLEN, AUGLAIZE, HARDIN, LOGAN, MERCER, SHELBY and VAN WERT COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 42.07	29.35

TEAM0377-003 05/01/2024

STATEWIDE, EXCEPT CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1	$ 32.54	16.80
GROUP 2	$ 32.96	16.80

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Asphalt Distributor; Batch; 4- Wheel Service; 4-Wheel Dump; Oil Distributor & Tandem

GROUP 2 - Tractor-Trailer Combination: Fuel; Pole Trailer; Ready Mix; Semi-Tractor; & Asphalt Oil Spraybar Man When Operated From Cab; 5 Axles & Over; Belly Dump; End Dump; Articulated Dump; Heavy Duty Equipment; Low Boy; & Truck Mechanic

TEAM0436-002 05/01/2024

CUYAHOGA, GEAUGA & LAKE

	Rates	Fringes
TRUCK DRIVER		
GROUP 1	$ 32.25	18.95
GROUP 2	$ 33.75	18.95

GROUP 1: Straight & Dump, Straight Fuel

GROUP 2: Semi Fuel, Semi Tractor, Euclids, Darts, Tank, Asphalt Spreaders, Low Boys, Carry-All, Tourna-Rockers, Hi-Lifts, Extra Long Trailers, Semi-Pole Trailers, Double Hook-Up Tractor Trailers including Team Track & Railroad Siding, Semi-Tractor & Tri-Axle Trailer, Tandem Tractor & Tandem Trailer, Tag Along Trailer, Expandable Trailer or Towing Requiring Road Permits, Ready-Mix (Agitator or Non-Agitator), Bulk Concrete Driver, Dry Batch Truck, Articulated End Dump

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

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.75) or 13658 ($13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

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) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

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END OF GENERAL DECISION"

ELECTRICAL SYMBOLS - PLAN:

- HOME RUN TO PANEL
- MOTOR
- MOTOR CONTROLLER
- FUSIBLE SAFETY SWITCH
- NON-FUSIBLE DISCONNECT SWITCH
- SIMPLEX RECEPTACLE, EXPLOSION PROOF
- DUPLEX RECEPTACLE
- QUADPLEX RECEPTACLE
- DATA PORT, RJ45
- SPECIAL RECEPTACLE, NEMA TYPE NOTED
- SINGLE-POLE SWITCH, "3" INDICATES 3-WAY, "OS" INDICATES OCCUPANCY SENSING
- DRY-TYPE TRANSFORMER
- PUSHBUTTON STATION
- LOUVER OPERATOR
- JUNCTION BOX
- SOLENOID VALVE
- LIMIT SWITCH
- FLOW: SWITCH, SENSOR, TRANSMITTER W / DISPLAY
- LEVEL: SWITCH, SENSOR, TRANSMITTER W / DISPLAY
- PRESSURE: SWITCH, SENSOR, TRANSMITTER W / DISPLAY
- TEMPERATURE: SWITCH, SENSOR, TRANSMITTER W / DISPLAY
- OTHER SENSOR / INDICATING TRANSMITTER AS NOTED
- HAZARDOUS AREA LIGHT FIXTURE
- OUTDOOR CANOPY LIGHT FIXTURE
- EXTERIOR WALL-PACK LIGHT FIXTURE
- HIGH BAY LIGHT FIXTURE
- LINEAR LED LIGHT FIXTURE
- EXIT SIGN
- EMERGENCY REMOTE HEAD
- EMERGENCY WALL-PACK
- FIRE ALARM PULL STATION, STROBE, HORN-STROBE
- FIRE ALARM AREA SMOKE DETECTOR

ELECTRIC SYMBOLS - UTILITIES:

EX:	PR:	
AC	AC	AIR CONDITIONING UNIT
CB	CB	ELECTRIC CONTROL BOX
JB	JB	ELECTRIC JUNCTION BOX
PB	PB	ELECTRIC PULL BOX
RI	RI	ELECTRIC RISER BOX
VLT	VLT	ELECTRIC VAULT BOX
		ELECTRIC LIGHT - GROUND
		ELECTRIC LIGHT - POST
		ELECTRIC MARKER POST
EM	EM	ELECTRIC METER
		ELECTRIC MANHOLE - 48"
		ELECTRIC MANHOLE - 48" - ADJUST
		ELECTRIC MANHOLE - LID
		ELECTRIC PAINT MARK
EP	EP	ELECTRIC PEDESTAL
TR	TR	ELECTRIC TRANSFORMER

SINGLE LINE, ELEMENTARY, & INTERCONNECTION DIAGRAMS (ONLY) SYMBOLOGY:

- 30A 3P — DISCONNECT SWITCH - AMP RATING
- 30A 3P — FUSE - AMP RATING
- 30A [S] / 30A 3P — CIRCUIT BREAKER - AMP RATING
- 40 — MOTOR W / HORSEPOWER INDICATED
- AM — AMMETER
- VM — VOLT METER
- PF — POWER FACTOR METER
- GF — GROUND FAULT RELAY
- TRANSFORMER
- CR — RELAY COIL
- TR — TIMING RELAY COIL
- MS — MOTOR STARTER COIL
- ETM — ELAPSED TIME TOTALIZER
- G — GROUNDING BUS
- SPD — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- N.O. LIMIT SWITCH
- N.O. FLOW SWITCH
- N.O. LEVEL SWITCH
- N.O. PRESSURE SWITCH
- N.O. TEMPERATURE SWITCH
- N.O. TIME DELAY AFTER ENERGIZATION
- N.C. TIME DELAY AFTER ENERGIZATION
- N.C. TIME DELAY AFTER DE-ENERGIZATION
- N.O. TIME DELAY AFTER DE-ENERGIZATION
- N.O. SWITCH (GENERAL)
- START PUSHBUTTON NORMALLY OPEN
- STOP PUSHBUTTON NORMALLY CLOSED
- CONTACT - NORMALLY OPEN
- CONTACT - NORMALLY CLOSED
- SOLENOID COIL
- G — PILOT LIGHT - PUSH TO TEST (COLOR)
- GROUND
- CAPACITOR
- X0 / 0X — 2 POSITION SELECTOR SWITCH
- X00 / 00X — 3 POSITION SELECTOR SWITCH
- EQUIPMENT FIELD TERMINAL

ABBREVIATIONS:

A	AMPS
AF	AMPERE FRAME
AI	ANALOG INPUT (PLC)
AL	ALUMINUM
AM	AMMETER
AO	ANALOG OUTPUT (PLC)
AP	ALARM PANEL
AT	AMPERE TRIP
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CJB	CONTROL JUNCTION BOX
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CORROSION RESISTANT
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DB	DUCT BANK
DI	DIGITAL INPUT (PLC)
DO	DIGITAL OUTPUT (PLC)
EAG	ELECTRICALLY ACTUATED GATE
EAV	ELECTRICALLY ACTUATED VALVE
EF	EXHAUST FAN
ESPB	EMERGENCY STOP PUSHBUTTON (MAINTAINED)
ETT	ELAPSED TIME TOTALIZER
EWD	ELEMENTARY WIRING DIAGRAM
FDS	FUSED DISCONNECT SWITCH
FLA	FULL LOAD AMPERES
FS	FLOW SWITCH
FVC	FULL VOLTAGE CONTACTOR
FVNR-1	FULL VOLTAGE NON-REVERSING STARTER SIZE 1
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GFR	GROUND FAULT RELAY
HOA	HAND/OFF/AUTO SELECTOR SWITCH
HP	HORSEPOWER
HT	HIGH TORQUE SWITCH
HTR	HEATER
Hz	HERTZ
IAW	IN ACCORDANCE WITH
ICP	INSTRUMENTATION & CONTROL PANEL
IPP	INSTRUMENT POWER PANEL
JB	JUNCTION BOX
JBC	JUNCTION BOX-CONTROL
JBM	JUNCTION BOX-METERING
JBP	JUNCTION BOX-POWER
kCM	KILO (1000) CIRCULAR MILL
kVA	KILOVOLT AMPERES
kVAR	KILOVOLT AMPERES-REACTIVE
kW	KILOWATT
LA	LIGHTNING ARRESTOR
LGT	LIGHT
LOR	LOCAL/OFF/REMOTE SELECTOR SWITCH
LP	LIGHTING PANEL
LS	LEVEL SWITCH
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MJB	METERING JUNCTION BOX
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MFR ASSOC.
NEU	NEUTRAL
NFDS	NON-FUSED DISCONNECT SWITCH
OCSS	OPEN/CLOSE SELECTOR SWITCH
OL	OVERLOAD
OOSS	ON/OFF SELECTOR SWITCH
OS	OCCUPANCY SENSING
OT	OVER TORQUE SWITCH
P	POLE
PB	PUSHBUTTON
PBC	PULLBOX-CONTROL
PBM	PULLBOX-METERING
PBP	PULLBOX-POWER
PC	PHOTO CONTROL
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PJB	POWER JUNCTION BOX
PP	POWER PANEL
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
R	RELAY
RCP	REINFORCED CONCRETE PIPE
RL	RUN LIGHT
SCP	SURGE CONTROL PANEL
SCR	SILICON-CONTROLLED RECTIFIER
SEC	SECONDARY
SF	SUPPLY FAN
SHLD	SHIELDED
SP	SHEAR PIN SWITCH
SPK	SPEAKER
SS	SELECTOR SWITCH OR STAINLESS STEEL
SSOR	SOLID STATE OVERLOAD RELAY
SSPB	START/STOP PUSHBUTTON
SSS	SOLID STATE STARTER
STD	STANDARD
STP	SHIELDED TWISTED PAIR
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
T	TELEPHONE
TB	TERMINAL BOARD
TC	TIME CLOCK
TD	TRENCH DUCT
TEB	TELEPHONE EQUIPMENT BACKBOARD
TEMP	TEMPERATURE
TOR	THERMAL OVERLOAD RELAY
TR	TIMING RELAY
TSTAT	THERMOSTAT
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VC	VOLUME CONTROL
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
XP	EXPLOSION PROOF
XFMR	TRANSFORMER
WP	WATERPROOF
ZS	LIMIT SWITCH

ELECTRICAL LINE SYMBOLOGY:

PROPOSED:

- CONDUIT AND WIRE RUN EXPOSED
- CONDUIT AND WIRE BELOW GRADE
- ELEC — ELEC — ELECTRIC LINE
- ELEC-OH — ELEC-OH — ELECTRIC LINE - OVERHEAD
- ELEC-UG — ELEC-UG — ELECTRIC LINE - UNDERGROUND
- ELEC — ELEC — ELEC — ELEC SERVICE
- ELEC-OH — ELEC-OH — ELEC-OH — ELEC SERVICE - OVERHEAD
- ELEC-UG — ELEC-UG — ELEC-UG — ELEC SERVICE - UNDERGROUND
- LIGHT-OH — LIGHT-OH — LIGHT-OH — ELEC LIGHTING - OVERHEAD
- LIGHT-UG — LIGHT-UG — LIGHT-UG — ELEC LIGHTING - UNDERGROUND

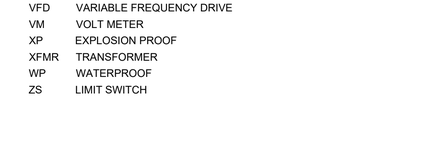
EXISTING:

- ELEC — ELEC — *ELECTRIC LINE*
- ELEC-ABAN — ELEC-ABAN — ELEC-ABAN — *ELECTRIC LINE - ABANDONED*
- ELEC-OH — ELEC-OH — *ELECTRIC LINE - OVERHEAD*
- ELEC-UG — ELEC-UG — *ELECTRIC LINE - UNDERGROUND*
- ELEC — ELEC — ELEC — ELEC — *ELECTRIC SERVICE*
- ELEC-OH — ELEC-OH — ELEC-OH — *ELECTRIC SERVICE - OVERHEAD*
- ELEC-UG — ELEC-UG — ELEC-UG — *ELECTRIC SERVICE - UNDERGROUND*
- LIGHT-OH — LIGHT-OH — LIGHT-OH — LIGHT-OH — *ELECTRIC LIGHTING - OVERHEAD*
- LIGHT-UG — LIGHT-UG — LIGHT-UG — *ELECTRIC LIGHTING - UNDERGROUND*
- *ELECTRIC DUCT*

ELECTRICAL CODED NOTES:

1 NEW WORK - NOTE 1	1 DEMOLITION - NOTE 1	1 REVISION - NOTE 1
2 NEW WORK - NOTE 1	2 DEMOLITION - NOTE 2	2 REVISION - NOTE 2
3 NEW WORK - NOTE 1	3 DEMOLITION - NOTE 3	3 REVISION - NOTE 3

ELECTRICAL DETAIL REFERENCE:



ELECTRICAL GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT AND MATERIALS WILL BE SELECTED AND INSTALLED IN COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL FIRE CODES, INCLUDING BUT NOT LIMITED TO ALL PERTINENT NFPA REGULATIONS. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPLIANCE WITH THESE CODES.
2. DO NOT INSTALL DEVICES SCALED FROM THESE DRAWINGS. ALL DEVICES SHALL BE INSTALLED AT LOCATIONS SHOWN IN THE APPROVED CONDUIT/DEVICE LAYOUT DRAWINGS AND WITH DIMENSIONS TAKEN IN THE FIELD.
3. ELECTRICIAN TO VISIT SITE AND VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
4. NO DUCTWORK OR PIPING TO BE RUN ABOVE ELECTRICAL PANELS OR THROUGH ELECTRICAL EQUIPMENT ROOMS. ELECTRICIAN SHALL COORDINATE WITH ALL TRADES FOR EQUIPMENT LAYOUTS PRIOR TO ROUGH-IN OF ALL SYSTEMS.
5. MANUFACTURERS AND CATALOG NUMBERS SHOWN IN THE LIGHT FIXTURE SCHEDULE ARE PROVIDED TO INDICATE DESIRED LIGHT FIXTURE CHARACTERISTICS. IT IS THE INTENT OF THE DOCUMENTS TO ALLOW ALTERNATE MANUFACTURERS TO PROVIDE LIGHTING PRODUCTS FOR THE PROJECT, AS LONG AS PROPOSED ALTERNATES PROVIDE THE SAME GENERAL DESIGN AND LIGHTING CHARACTERISTICS AS NOTED IN THE LIGHT FIXTURE DESCRIPTION.
6. ELECTRICIAN TO CONFIRM LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ELECTRICAL CHARACTERISTICS OF PROCESS EQUIPMENT PROVIDED BY OTHER TRADES PRIOR TO INSTALLING ROUGH-INS AS SHOWN ON THE ELECTRICAL PLANS. ALL SHOP DRAWING REQUIREMENTS WILL BE CONSIDERED AS THE MEANS AND METHODS OF INSTALLATION.
7. THIS PROJECT INVOLVES WORK AT AN INDUSTRIAL FACILITY AND THE CONTRACTOR IS EXPECTED TO PROVIDE CRAFTSMANSHIP REFLECTING THE NATURE OF THE FACILITY. CONDUITS IN PROCESS AREAS ARE TO BE SURFACE MOUNTED RIGID GALVANIZED STEEL (RGS). IN CLASSIFIED AREAS SEAL ALL CONDUITS TO RESTRICT THE PASSAGE OF GASSES AND VAPORS, AND ARRANGE SEALING FITTING DRAINS IN CONDUIT SYSTEMS TO PREVENT ACCUMULATION OF CONDENSATE ABOVE SEALS. ALL CONDUITS ENTERING OR LEAVING A MOTOR CONTROL CENTER, CONTROL PANEL, VALVE ACTUATOR, INSTRUMENT, A BUILDING, OR A PANELBOARD SHALL BE MADE WATERTIGHT USING AN INFLATABLE SEALED BLADDER DUCT SEALING SYSTEM, RAYCHEM 'RAYFLATE' DUCT SEALING SYSTEM RDSS OR APPROVED EQUAL. ALL HARDWARE IS TO BE STAINLESS STEEL UNLESS OTHERWISE DIRECTED.

   ALL ENCLOSURES ARE TO BE RATED AS FOLLOWS (UON):

   - OUTDOORS: NEMA 4X (STAINLESS STEEL)
   - CLASSIFIED AREAS: NEMA 7
   - INDOORS (CORROSIVE AREAS): NEMA 4X (STAINLESS STEEL)
   - INDOORS (CONTROLLED ENVIRONMENT) NEMA 12
8. ELECTRICIAN SHALL REVIEW ALL OTHER TRADES' CONSTRUCTION DOCUMENTS AND/OR COORDINATE WITH OTHER TRADES AND VERIFY IF THERE ARE ANY ADDITIONAL ELECTRICAL REQUIREMENTS NOT SHOWN ON ELECTRICAL DRAWINGS. COST FOR WORK SHOWN ON OTHER TRADES' DRAWINGS SHALL BE INCLUDED IN BASE BID. ALL FIELD WIRING AND TERMINATIONS OF PROCESS EQUIPMENT AND INSTRUMENTATION AND CONTROLS SHALL BE THE RESPONSIBILITY OF THE ELECTRICIAN. ALL CABLES AND WIRES PROVIDED BY VENDORS SHALL BE INSTALLED AND TERMINATED BY THE ELECTRICIAN. WIRE ALL MISCELLANEOUS POWER AND CONTROLS AS REQUIRED TO PROVIDE A COMPLETE FUNCTIONING SYSTEM
9. A 4-20mA SIGNAL IS AN ANALOG SIGNAL USED TO TRANSMIT DATA (LEVEL, FLOW, ETC.) FOR PROCESS CONTROLS. THE ELECTRICIAN SHALL PROVIDE, INSTALL, AND TERMINATE SHIELDED TWISTED PAIRS (STP) WIRING IN RIGID GALVANIZED STEEL CONDUIT (RGS). RGS IS USED IN AN ATTEMPT TO REDUCE THE DISTORTION AFFECT FROM EMI AND RFI. BELOW GRADE CONDUITS SHALL BE PVC SCHED-40. PARALLEL RUNS OF DATA CONDUITS AND POWER CONDUITS SHALL BE SEPARATED BY 2 FEET. THE STP SHIELD SHALL BE GROUNDED AT THE CONTROL PANEL ONLY (DO NOT GROUND AT BOTH ENDS).
10. THE ELECTRICIAN SHALL BE RESPONSIBLE FOR LAYOUT AND COORDINATION OF OPENINGS AND CHASES AND SHALL PERFORM ALL CUTTING AND PATCHING AS REQUIRED TO INSTALL THEIR WORK. ALL CONCRETE HOUSE KEEPING PADS SHALL BE FRAMED AND POURED BY THE ELECTRICIAN. PADS SHALL HAVE A 45 DEGREE, 1" CHAMFER AROUND UPPER EDGE.
11. THE ELECTRICIAN SHALL INSTALL & DISTRIBUTE TEMPORARY POWER SERVICE FOR THE DURATION OF THIS PROJECT AS DEFINED IN DIVISION 1 SPECIFICATIONS. ALL COSTS ASSOCIATED WITH THE INSTALLATION, DISTRIBUTION AND MAINTENANCE OF THE TEMPORARY POWER IS THE RESPONSIBILITY OF THE ELECTRICIAN. THERE SHALL BE 480/277V,3PH,4W; 208/120V,3PH,4W; AND 120/240V,1PH,3W POWER AVAILABLE AT ALL LOCATIONS OF CONSTRUCTION AS DIRECTED IN FIELD AND AS SPECIFIED. ALL TEMPORARY EQUIPMENT, CONDUITS & CONDUCTORS SHALL BE COMPLETELY REMOVED AT COMPLETION OF PROJECT.
12. ALL ELECTRICAL EQUIPMENT, DEVICES, LIGHTING FIXTURES, CONDUIT, AND WIRING SHOWN ON THE ELECTRICAL DRAWINGS IS NEW UNLESS CLEARLY CALLED OUT AS EXISTING. ALL EXISTING ELECTRICAL EQUIPMENT THAT IS CALLED OUT TO BE REUSED SHALL BE INSPECTED IN THE FIELD BY THE ELECTRICIAN AND THE CONSTRUCTION MANAGER TO DETERMINE ITS CONDITION PRIOR TO STARTING ANY WORK. PROVIDE DOCUMENTATION TO OWNER INDICATING CONDITION OF THE EXISTING EQUIPMENT, AND REUSE EXISTING EQUIPMENT ONLY IF ALL PARTIES AGREE THE CONDITION IS ACCEPTABLE. ALL EXISTING EQUIPMENT DETERMINED TO BE UNUSABLE SHALL BE REPLACED WITH LIKE KIND AS DIRECTED BY THE OWNER. ANY OF THE OWNERS EQUIPMENT DETERMINED TO BE REUSED THAT IS DAMAGED BY ANY CONTRACTOR DURING SWITCHOVER SHALL BE REPLACED BY THAT CONTRACTOR. ALL EXISTING EQUIPMENT IS THE PROPERTY OF THE OWNER (NOT THE CONTRACTOR) AND SHALL BE TREATED ACCORDINGLY.
13. THE ELECTRICIAN SHALL BE HELD RESPONSIBLE TO ENSURE ALL CONTROLLERS TO BE INSTALLED ARE CAPABLE OF LOCKOUT / TAGOUT PRIOR TO INSTALLATION.
14. CONFORM TO THE NEC, OSHA, FIRE MARSHAL, BUILDING DEPARTMENT AND OTHER APPLICABLE CODES AND REGULATIONS. OBTAIN PERMITS, PAY ALL FEES, AND ARRANGE FOR REQUIRED INSPECTIONS.
15. ALL LIGHTING AND RECEPTACLE WIRING TO BE #12 XHHW WITH EQUIPMENT GROUND IN 3/4" C UNLESS OTHERWISE NOTED.
16. DO NOT MOUNT ANY LIGHT FIXTURE DIRECTLY OVER PIPING OR EQUIPMENT THAT WILL INTERFERE WITH NORMAL LIGHTING DISTRIBUTION.
17. SIZE JUNCTION BOXES AS REQUIRED PER NEC. PROVIDE BARRIER TYPE TERMINAL STRIPS, AND ALL WIRING TO BE IN CONDUIT.
18. SIZE PULL BOXES (PB) AS REQUIRED PER NEC.
19. PROVIDE SEPARATE PB'S FOR CONTROL AND POWER.
20. MOTOR OVERLOAD SETTING SHALL BE FIELD SELECTED PER MOTOR NAME PLATE CURRENT AND INSTALLED ACCORDINGLY.
21. MOUNT LOCAL CONTROLS AND SERVICE DISCONNECTS ON WALL NEAREST EQUIPMENT WHERE POSSIBLE. (MAXIMUM 60" ABOVE FINISHED FLOOR OR FINAL GRADE, MAXIMUM LATERAL DISTANCE FROM WALL TO EQUIPMENT - 10 FEET).
22. ALL FEEDERS RUN BELOW GRADE SHALL BE RUN IN PVC CONDUIT AT MINIMUM 3'-0" BELOW FINISHED GRADE, TRANSITION TO ABOVE GRADE SHALL BE MADE USING FACTORY PVC COATED RIGID STEEL CONDUIT SWEEPS.

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3/5/2025

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NO	REVISION	DATE

ISSUED FOR:	BID
ISSUE DATE:	3/05/2025
SCALE:	N/A
DESIGNED BY:	ELE
DRAWN BY:	ELE
CHECKED BY:	JPB

CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
WILLOUGHBY, OHIO
LAKE COUNTY

ELECTRICAL - E SERIES

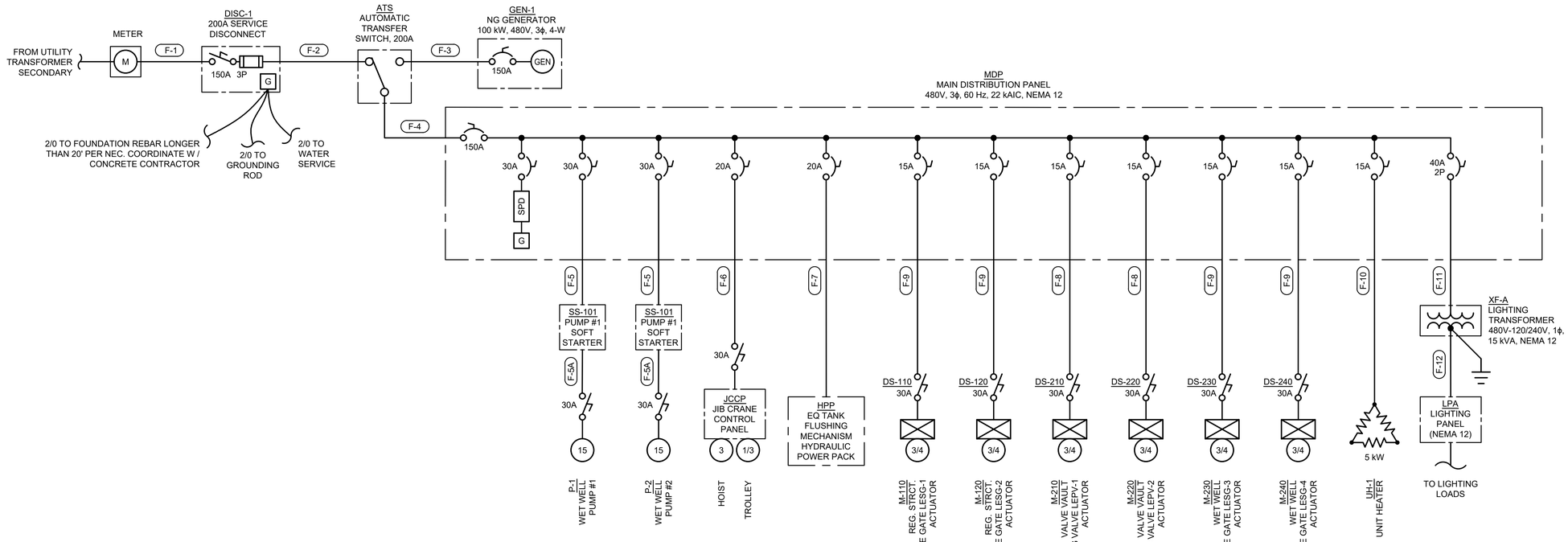
GENERAL NOTES & LEGEND

PROJECT NO.
230264

DISCIPLINE
ELECTRICAL

SHEET NAME
E-01

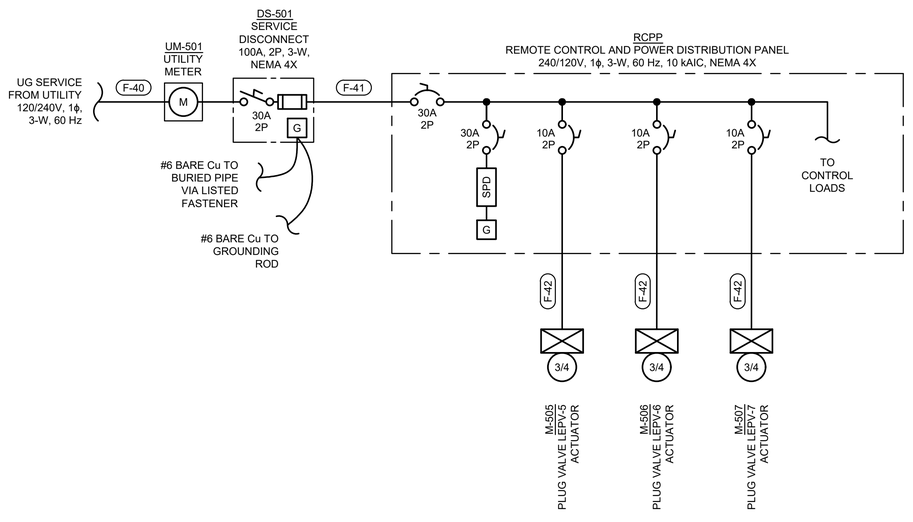
SHEET 41 OF 47



EQ BASIN ONELINE DIAGRAM

POWER & CONTROL FEEDER SCHEDULE

TAG	EQUIPMENT	POWER SOURCE	CONDUCTOR SIZE + GND	CONTROL WIRE DESTINATION	CONTROL WIRES
F-1	SERVICE DISCONNECT SWITCH, DISC-1	UTILITY TRANSFORMER	(3) 3/0 + (1)3/0 NEU IN 2 1/2"C	N/A	N/A
F-2	AUTTOMATIC TRANSFER SWITCH, ATS-1	DISC-1	(3) 3/0 + (1) 3/0 NEU + (1) #4 GND IN 2 1/2"C	N/A	N/A
F-3	AUTTOMATIC TRANSFER SWITCH, ATS-1	GEN-1	(3) 1/0 + (1)1/0 NEU IN 4"C + (1)#4 GND IN 2 1/2"C	GEN-1	(2) 2-CS RS-485 CABLE [1 SP] IN 3/4"C
F-4	MAIN DISTRIBUTION PANEL, MDP	ATS-1	(3) 1/0 + (1)1/0 NEU IN 4"C + (1)#4 GND IN 2 1/2"C	N/A	N/A
F-5 (TYP OF 2)	WET WELL PUMP SOFT STARTERS, SS-101 & SS-102	MDP	(3) #10 + (1) #12 GND IN 3/4"C	SCTP	(16) #14 IN 3/4"C
F-5A (TYP OF 2)	WET WELL PUMPS, P-1 & P-2	SS-101, SS-102	(3) #10 + (1) #12 GND IN 3/4"C	SS-101 & SS-102	(1) 2-CSC IN 3/4"C
F-6	JIB CRANE CONTROL PANEL, JCCP	MDP	(3) #12 + (1) #12 GND IN 3/4"C	N/A	N/A
F-7	EQ TANK HYDRAULIC POWER CENTER, HPP	MDP	(3) #12 + (1) #12 GND IN 3/4"C	N/A	N/A
F-8 (TYP OF 2)	PLUG VALVE ACTUATORS, M-210 & M-220	MDP	(3) #12 + (1) #12 GND IN 3/4"C	SCTP	(16) #14 IN 3/4" C
F-9 (TYP OF 4)	SLIDE GATE ACTUATORS REGULATOR STRUCTURE: M-101 & M-102; WET WELL: M-201 & M202	MDP	(3) #12 + (1) #12 GND IN 3/4"C	SCTP	(3) 2-CSC IN 3/4"C + (8) #14 IN 3/4"C
F-10	ELECTRICAL UNIT HEATER, UH-1	MDP	(3) #12 + (1) #12 GND IN 3/4"C	N/A	
F-11	LIGHTING TRANSFORMER, XF-1	MDP	(2) #8 + (1) #8 GND IN 3/4"C	N/A	N/A
F-12	LIGHTING PANEL - LPA	XF-1	(2) #4 + (1) #4 NEU+(1) #8 GND IN 1"C	N/A	N/A
F-40	DIVERSION STRUCTURE SERVICE DISCONNECT, DS-501	UTILITY TRANSFORMER	(2) #3 + (1) #3 NEU IN 2"C	N/A	N/A
F-41	REMOTE CONTROL & POWER DISTRIBUTION PANEL, RCPP	DS-501	(2) #10 + (1) #10 NEU+(1) #8 GND IN 3/4"C	N/A	N/A
F-42 (TYP OF 3)	DIVERSION STRUCTURE PLUG VALVE ACTUATORS - M-505, M-506, M-507	RCPP	(2) #12 + (1) #12 GND IN 3/4"C	N/A	(16) #14 IN 3/4"C



LAKESHORE BLVD DIVERSION STRUCTURE FIELD DISTRIBUTION DIAGRAM

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NO	REVISION	DATE

ISSUED FOR:	BID
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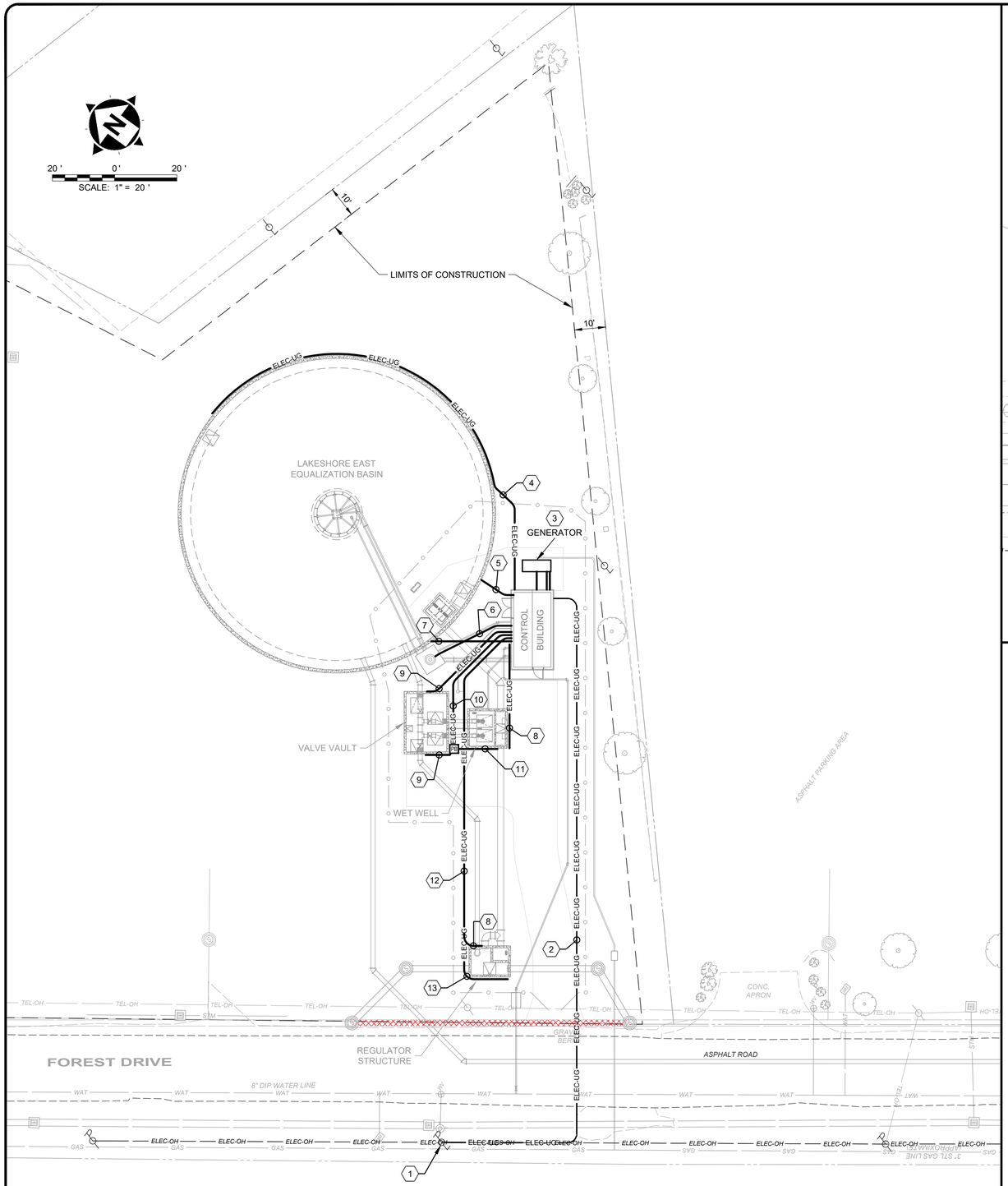
SCALE:	AS NOTED
DESIGNED BY:	ELE
DRAWN BY:	ELE
CHECKED BY:	JPB

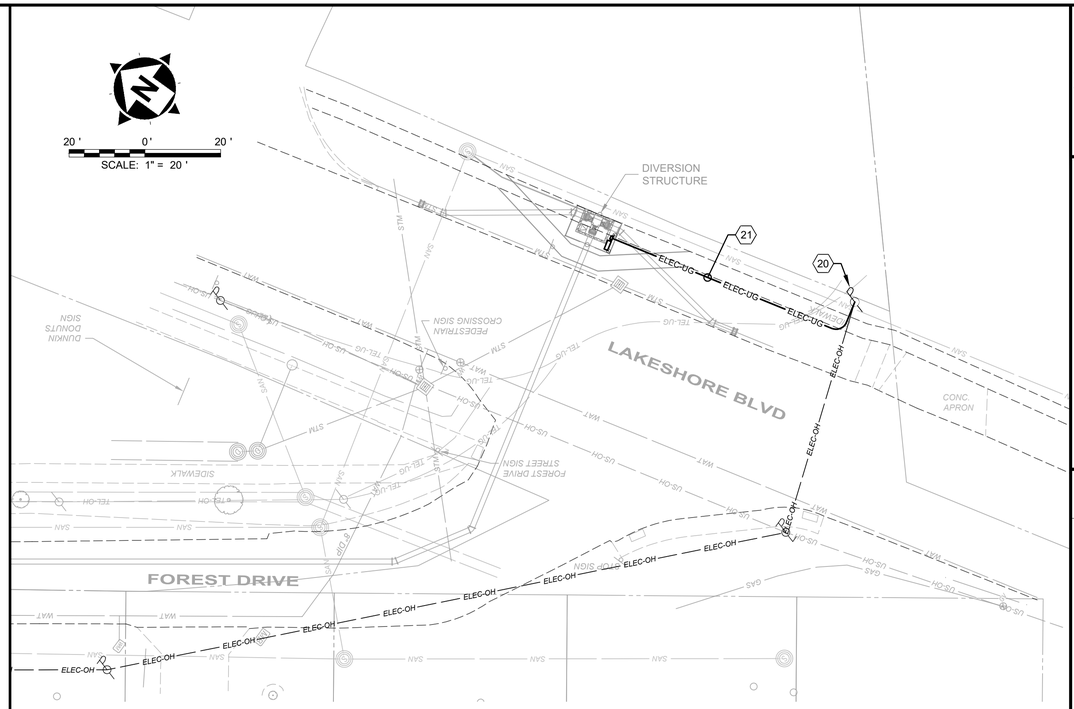
CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
LAKE COUNTY WILLOUGHBY, OHIO

ELECTRICAL - E SERIES
SINGLELINE DIAGRAM & SCHEDULES

PROJECT NO.
230264
DISCIPLINE
ELECTRICAL
SHEET NAME
E-02
SHEET 42 OF 47



EQ BASIN ELECTRICAL SITE PLAN



DIVERSION STRUCTURE ELECTRICAL SITE PLAN

GENERAL NOTES:

1. ELECTRICAL UTILITY OF RECORD IS THE ILLUMINATING COMPANY, A FIRSTENERGY COMPANY. ALL SERVICE EQUIPMENT AND INSTALLATION MEANS & METHODS TO MEET THEIR REQUIREMENTS.
2. PROPOSED UNDERGROUND SERVICE DUCT BANKS TO UTILIZE 36" SWEEPS, MINIMUM; ALL OTHERS TO UTILIZE 24" SWEEPS, MINIMUM.
3. ALL DUCT BANKS SHOWN ARE DIAGRAMMATIC AND SHOULD NOT BE USED SOLELY FOR INSTALLATION. SEE DETAIL DRAWINGS FOR FULL ACCOUNTING OF DUCT BANK CONDUIT & CONDUCTORS.
4. COORDINATE CONDUIT PENETRATIONS INTO CONTROL BUILDING WITH PROCESS AND MECHANICAL CONTRACTORS TO AVOID INTERFERENCES WITH UNDERGROUND PIPING, ESPECIALLY BETWEEN BUILDING AND EQ TANK.

(X) CODED NOTES:

1. EXISTING POWER POLE, UTILITY TO INSTALL TRANSFORMERS FOR 480V / 3ϕ / 4-W / 200A SERVICE. INSTALL 20' AERIAL CONDUIT WITH WEATHERCAP & SEAL, TRANSITION TO UNDERGROUND CONDUIT RUNNING PARALLEL TO FOREST DR. ROADWAY.
2. ELECTRICAL SERVICE FEEDER, CONTRACTOR TO INSTALL 2-1/2" SCH-40 PVC CONDUIT, UTILITY TO INSTALL (4) #3/0 CONDUCTORS. SECTION BENEATH FOREST DR. TO MEET ODOT STANDARDS, ALL OTHERS TO FOLLOW VERDANTAS SPECIFICATION DIVISION 26 REQUIREMENTS.
3. NATURAL GAS-FUELED BACKUP GENERATOR, 100 kW. SEE SHEET 01-E-04 FOR DETAILS.
4. DUCT BANK FOR CONVENIENCE RECEPTACLE INSTALLED AT EQ TANK NORTH ACCESS HATCH. FASTEN TO CONCRETE TANK WALL PER SPECIFICATIONS BEFORE VERTICAL TRANSITION AT HATCH.
5. EQ TANK LEVEL TRANSMITTER DUCT BANK, (2) 2-CSC IN 1-1/4"C. VERTICAL TRANSITION TO RUN ALONG TANK WALL FOR JUNCTION BOX INSTALLATION.
6. JIB CRANE FEEDER "F-6" DUCT BANK, (1) 1-1/4"C. COORDINATE WITH FOUNDATION CONTRACTOR TO INTEGRATE INTO JIB CRANE FOUNDATION IF POSSIBLE.
7. EQ TANK FLUSHING CHAMBER HIGH WATER LEVEL SWITCH DUCT BANK, (2) #14 IN 1-1/4C. VERTICAL TRANSITION TO RUN ALONG TANK WALL FOR JUNCTION BOX INSTALLATION.
8. SLIDE GATE ACTUATOR FEEDER "F-9" DUCT BANK, (3) 1-1/4"C. SEE FEEDER SCHEDULE ON SHEET 01-E-02 FOR CONDUCTORS, TYPICAL OF (3).
9. PLUG VALVE FEEDER "F-8" DUCT BANK, (2) 1-1/4"C. SEE FEEDER SCHEDULE ON SHEET 01-E-02 FOR CONDUCTORS. SEE SHEET 01-E-05 FOR INSTALLATION DETAILS. TYPICAL OF (2).
10. COMBINED DUCT BANK FOR FEEDERS (2) "F-5A" & (1) "F-8" + WET WELL SENSORS JUNCTION BOX, (8) 1-1/4"C.SEE FEEDER SCHEDULE ON SHEET 01-E-02 FOR CONDUCTORS. SEE SHEET 01-E-05 FOR INSTALLATION DETAILS.
11. WET WELL SENSORS JUNCTION BOX DUCT BANK, (12) #14 IN 1-1/4"C + (2) 2-CSC IN 1-1/4"C. SEE SHEET 01-E-05 FOR INSTALLATION DETAILS.
12. REGULATOR STRUCTURE DUCT BANK, (2) SLIDE GATE FEEDERS "F-9" + WATER LEVEL TRANSMITTER "LT-100", (4) 1-1/4"C
13. COMBINED SLIDE GATE LESG-1 FEEDER "F-9" & LEVEL TRANSMITTER LT-100 DUCT BANK, (3) #12 + (1) #12 GND & (4) 2-CSC, EACH IN (1) 1-1/4"C; (2) 1-1/4"C TOTAL.

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20. EXISTING POWER POLE, UTILITY TO INSTALL TRANSFORMER FOR 240-120V / 1ϕ / 2-W / 100A SERVICE. INSTALL 20' AERIAL CONDUIT WITH WEATHERCAP & SEAL, TRANSITION TO UNDERGROUND CONDUIT RUNNING PARALLEL TO LAKESHORE BLVD. ROADWAY.
21. ELECTRICAL SERVICE FEEDER, CONTRACTOR TO INSTALL 1-1/4" SCH-40 PVC CONDUIT, UTILITY TO INSTALL (3) #3 CONDUCTORS. SEE SHEET 01-E-05 FOR DIVERSION STRUCTURE DETAILS.

STATE OF OHIO
TROY
LYNN
DELZER
PE.91271
REGISTERED
PROFESSIONAL ENGINEER
3/5/2025

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	BID
ISSUE DATE:	3/05/2025
SCALE:	AS NOTED
DESIGNED BY:	JPB
DRAWN BY:	JPB
CHECKED BY:	RSS

CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
WILLOUGHBY, OHIO
LAKE COUNTY

ELECTRICAL - E SERIES
ELECTRICAL SITE PLANS

PROJECT NO.	
230264	
DISCIPLINE	
ELECTRICAL	
SHEET NAME	
E-03	
SHEET	OF
43	47

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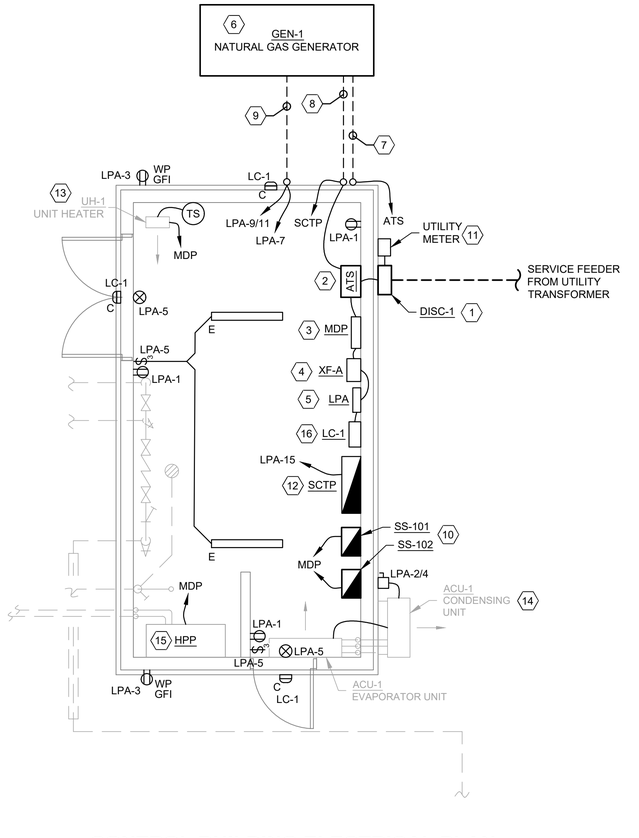

CONTROL BUILDING ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

CODED NOTES:

1. 480V, 3ϕ, 200A SERVICE DISCONNECT SWITCH DISC-1, FUSED AT 150A, NEMA 3R ENCLOSURE
2. 480V, 3ϕ, 200A AUTOMATIC TRANSFER SWITCH ATS, 3-POLE WITH SOLID NEUTRAL, NEMA 12 WALL-MOUNTED ENCLOSURE
3. 480V, 3ϕ, 200A MAIN DISTRIBUTION PANEL MDP, NEMA 12 FLOOR-MOUNTED ENCLOSURE
4. 480V - 120/240V, 15 kVA TRANSFORMER XF-A, 1ϕ, NEMA 12 FLOOR-MOUNTED ENCLOSURE
5. LIGHTING PANEL LPA, 120/240V, 1ϕ, 3-W, NEMA 12 WALL-MOUNTED ENCLOSURE. SEE SCHEDULE THIS SHEET FOR DETAILS.
6. NATURAL GAS FUELED BACKUP GENERATOR GEN-1, 100 kW, 480/277V, 3ϕ, 60 Hz, 150A LCB, W/SOUND ATTENUATING WEATHER PROOF ENCLOSURE. SEE SPECIFICATION SECTION 263213.16 FOR DETAILS.
7. UNDERGROUND FEEDER (F-3) FROM GENERATOR TO ATS. SEE SCHEDULE ON SHEET #42, E-02 FOR DETAILS.
8. UNDERGROUND GENERATOR CONTROL WIRING TO ATS & SCTP. SEE FEEDER (F-3) SCHEDULE ON SHEET 42, E-02 FOR DETAILS.
9. GENERATOR BLOCK HEATER & BATTERY CHARGER FEEDERS FROM LPA, (2) SETS OF (2) #12 + (1) #12 GND IN COMMON 1-1/4"C.
10. WET WELL PUMPS 1&2 SOFT STARTERS SS-101 & SS-102, WALL-MOUNTED NEMA 12 ENCLOSURE, 480V / 3ϕ / 60 Hz / 15 HP
11. 200A METER SOCKET PER UTILITY STANDARDS, NEMA 3R ENCLOSURE
12. SCADA/TELEMETRY PANEL SCTP, NEMA 12 WALL-MOUNTED ENCLOSURE, 10" TOUCHSCREEN HMI, 6-PORT (RJ45) ETHERNET SWITCH, AND RADIO COMMUNICATIONS DEVICES. SEE FEEDER SCHEDULE ON SHEET #42, E-02 FOR FIELD WIRING REQUIREMENTS
13. UNIT HEATER UH-1 WITH REMOTE TEMPERATURE SWITCH, 480V / 3ϕ / 60 Hz / 5 kW. SEE MECHANICAL PLAN & SCHEDULE SHEET #39, M-01 FOR DETAILS.
14. SPLIT AIR CONDITIONING UNIT ACU-1, 240V / 1ϕ / 60 Hz. INSTALL LOCAL DISCONNECT ON EXTERIOR WALL NEAR CONDENSING UNIT & EXTEND (2) #12 + (1) #12 GND IN 3/4"C TO INDOOR EVAPORATOR UNIT. SEE MECHANICAL PLAN & SCHEDULE SHEET #39, M-01 FOR DETAILS
15. EQ TANK HYDRAULIC POWER PACK HPP, VENDOR SUPPLIED, CONTRACTOR INSTALLED, 480V / 3ϕ / 60 Hz FEEDER (F-7). SEE SCHEDULE ON SHEET #42, E-02 FOR DETAILS. SEE CIRCULAR TANK FLUSHING SYSTEM SPEC SECTION 464614 FOR FIELD WIRING REQUIREMENTS. COORDINATE CONDUIT PENETRATIONS WITH GENERAL CONTRACTOR.
16. EXTERIOR LIGHTING CONTACTOR LC-1, WITH REMOTE PHOTOEYE CONTROLS, H-O-A SWITCH, AND OVERRIDE TIMER, WALL-MOUNTED NEMA 12 ENCLOSURE

LIGHT FIXTURE SCHEDULE

DESIGNATION	DESCRIPTION	MANUFACTURER/MODEL	NOTES
C	EXTERIOR LED WALL-PACK W/ COLD WEATHER EMERGENCY BATTERY BACKUP	HOLOPHANE W4PLED-10C-700-40K-T3M-120-ELCW-BKSDP	4000K COLOR, 2200 LUMENS, VERIFY FINISH WITH ARCHITECT
E	LINEAR LED FIXTURE, GASKETED, VAPOR-TIGHT, LOW PROFILE, FROSTED LENSE W/ EMERGENCY BATTERY BACKUP	HOLOPHANE EMS-L48-6000LM-LPPFL-WD-MVOLT-40K-80CRI-E10WMCP	4000K COLOR, 6000 LUMENS
EXIT	EXIT SIGN, WHITE THERMOPLASTIC BODY W/ RED LETTERS, NICKEL-CADMIUM EMERGENCY BATTTERY BACKUP	LITHONIA LHQM-LED-R-SD	SELF-DIAGNOSTICS

LIGHTING FIXTURE SCHEDULE

PANELBOARD	LPA		
PANEL TYPE	NQOD OR EQUAL		
NEMA TYPE	NEMA 12		
VOLTAGE	240V/120V	PHASE	1
OCPD	80A	WIRE	3
MOUNTING	SURFACE	BUSS	100A

LOAD DESCRIPTION	LOAD	BKR	CCT. NO.	PHASE	CCT. NO.	BKR	LOAD	LOAD DESCRIPTION
INTERIOR RCPTS (GFCI)	540	20/1G	1	A	2	25/2	4560	AC UNIT, ACU-1
EXTERIOR RCPTS (GFCI)	360	20/1G	3	B	4			
INTERIOR LIGHTS	85	15/1	5	A	6	15/1	300	SCADA PANEL, SCTP
GENERATOR BATTERY CHARGER	360	15/1	7	B	8	20/1	180	EQ TANK NORTH RCPT.
GENERATOR BLOCK HEATER	2000	20/2	9	A	10	15/1	78	EXTERIOR LIGHTS VIA LC-1
			11	B	12	20/1		SPARE

8463 VA CONNECTED
10143.75 VA DEMAND
42.27 A @ 240/120V, 1P, 3W

LIGHTING PANEL "LPA" SCHEDULE

GENERAL NOTES:

1. ALL INTERIOR EQUIPMENT ENCLOSURES TO BE NEMA 12, WALL-MOUNTED, UON.
2. ALL LIGHTING PANEL CIRCUITS TO BE (2) #12 + (1) #12 GND IN 3/4"C, UON.

STATE OF OHIO
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DESIGNED BY:	ELE
DRAWN BY:	ELE
CHECKED BY:	RSS

CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
LAKE COUNTY WILLOUGHBY, OHIO

ELECTRICAL - E SERIES

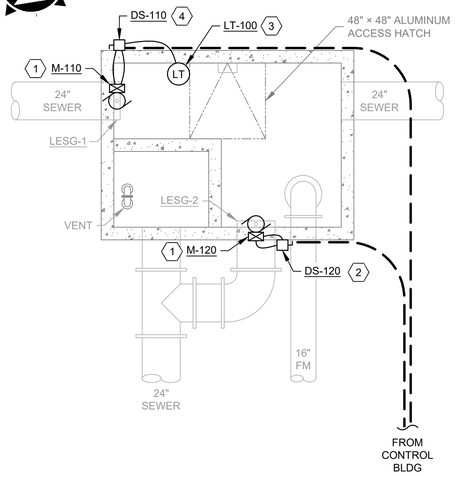
CONTROL BUILDING E-PLAN

PROJECT NO.
230264

DISCIPLINE
ELECTRICAL

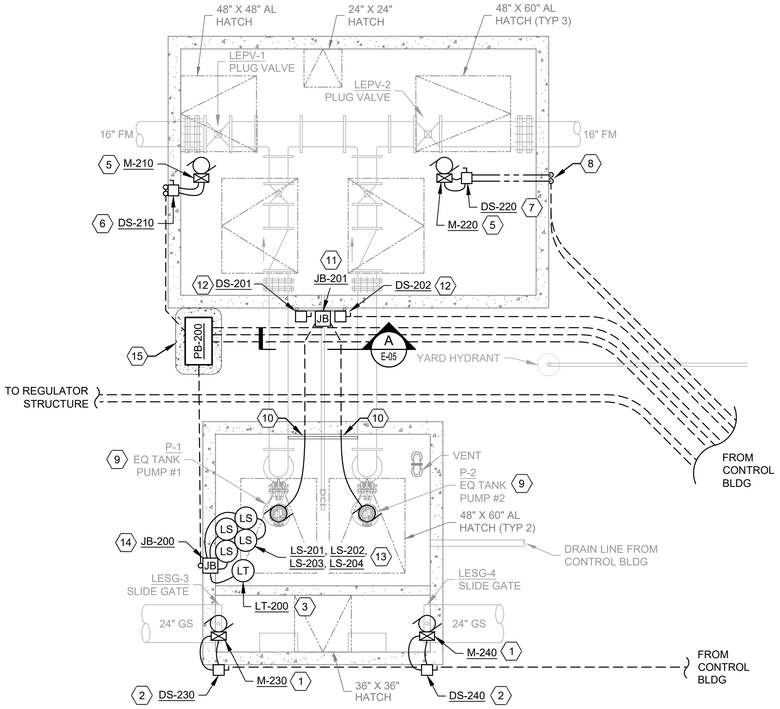
SHEET NAME
E-04

SHEET 44 OF 47



EQ BASIN REGULATOR STRUCTURE

SCALE: 1/4" = 1'-0"



EQ BASIN VALVE VAULT & WET WELL

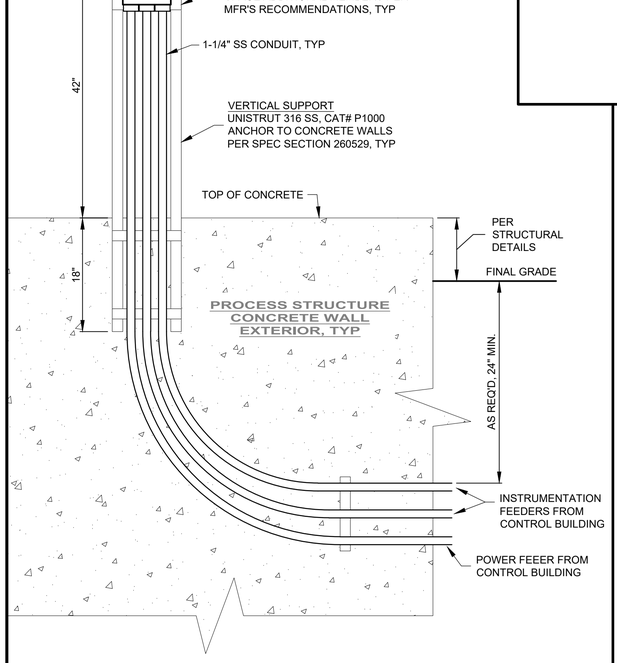
SCALE: 1/4" = 1'-0"

CODED NOTES:

1. SLIDE GATE ACTUATOR, 480V, 3ϕ, 60 Hz, 3/4 HP. SEE FEEDER "F-8" FOR POWER & CONTROL CONDUIT & CONDUCTORS.
2. SLIDE GATE ACTUATOR DISCONNECT SWITCH, 480V, 30A, 3-P W/GND, NEMA 4X. INSTALL PER DETAILS THIS SHEET.
3. KELLER LEVELRAT HYDROSTATIC LEVEL TRANSMITTERS, 4-20 mA LOOP POWERED, ORDER WITH MANUFACTURER'S CABLE LONG ENOUGH TO INSTALL 5', MIN. SERVICE LOOP FIXED TO SS CABLE RACK ANCHORED TO TOP OF RESPECTIVE WELL/TANK. USE SS EXPLOSION-PROOF CABLE GLAND TO ROUTE CABLE THROUGH GRATING BEFORE TERMINATING IN RESPECTIVE ENCLOSURE WITH NEMA 4X CABLE GLAND, TYP OF (3). SEE PROCESS SERIES FOR REQUIRED DEPTHS.
4. SLIDE GATE "LESG-1" ACTUATOR DISCONNECT SWITCH, 480V, 30A, 3-P W/GND, NEMA 4X. INSTALL PER DETAILS THIS SHEET. TERMINATE CABLE FOR LEVEL TRANSMITTER "LT-100" INSIDE VIA NEMA 4X CABLE GLAND.
5. PLUG VALVE ACTUATOR, 480V, 3ϕ, 60 Hz, 3/4 HP. SEE FEEDER "F-9" FOR POWER & CONTROL CONDUIT & CONDUCTORS.
6. PLUG VALVE "LEPV-1" ACTUATOR DISCONNECT SWITCH, 480V, 30A, 3-P W/GND, NEMA 4X. INSTALL PER DETAILS THIS SHEET BUT MODIFY ORIENTATION AND CONDUIT NUMBER & ROUTING TO FACE NORTHEAST WHILE MAINTAINING 42"D x 30"W CLEAR WORKING SPACE.
7. PLUG VALVE "LEPV-2" ACTUATOR DISCONNECT SWITCH, 480V, 30A, 3-P W/GND, NEMA 4X. INSTALL ON STAND USING SUPPORTS PER DETAILS THIS SHEET BUT ANCHOR TO GRATING INSTEAD OF SIDE OF CONCRETE WALL. MODIFY ORIENTATION AND CONDUIT NUMBER & ROUTING TO FACE NORTHEAST WHILE MAINTAINING 42"D x 30"W CLEAR WORKING SPACE.
8. INSTALL CONDUIT FOR DS-220 ALONG EXTERIOR OF NORTHEAST WALL OF VALVE VAULT BEFORE JOINING COMMON DUCT BANK RUNNING TO CONTROL BLDG.
9. SANITARY WET WELL SUBMERSIBLE PUMP, 480V, 3ϕ, 60 Hz, 15 HP. SEE FEEDER "F-5A" FOR CONDUIT & CONDUCTORS.
10. INSTALL SS CABLE RACK AT TOP OF WET WELL. SECURE 5' SERVICE LOOP OF MFR'S PUMP CABLE BEFORE ROUTING THROUGH CONDUIT TO PUMPS JUNCTION BOX JB-201.
11. WET WELL PUMPS JUNCTION BOX "JB-201", 10" x 8" x 4"D NEMA 4X, INSTALL PER "SECTION A" DETAILS ON THIS SHEET.
12. SUBMERSIBLE PUMP DISCONNECT SWITCHES "DS-201" & "DS-202", 480V, 30A, 3-P W/GND, NEMA 4X. INSTALL PER "SECTION A" DETAILS THIS SHEET.
13. WET WELL FLOATING LEVEL SWITCHES "LS-201, -202, -203, -204"; INSTALL AT ELEVATIONS PER PROCESS SHEETS. SECURE 5' SERVICE LOOP OF MFR'S CABLE TO SS CABLE RACK AT TOP OF WELL BEFORE ROUTING TO WET WELL JUNCTION BOX JB-200. USE SS EXPLOSION-PROOF CABLE GLANDS TO ROUTE CABLES THROUGH GRATING BEFORE TERMINATING IN JB-200.
14. WET WELL JUNCTION BOX "JB-200", NEMA 4X. INSTALL OUTSIDE OF CLASSIFIED AREA PER DISCONNECT SWITCH DETAILS THIS PAGE, ADJUST CONDUITS AND SUPPORTS AS NEEDED TO ORIENT FRONT OF BOX TO NORTHEAST. SECURE MFR'S SWITCH AND TRANSMITTERS CABLES VIA NEMA 4X CABLE GLANDS.
15. WET WELL / VALVE VAULT PULL BOX "PB-200", QUAZITE 17" x 30" x 24", TYPE PG OR APPROVED EQUAL. INSTALL PER HANDHOLE DETAILS ON SHEET #47, E-07.

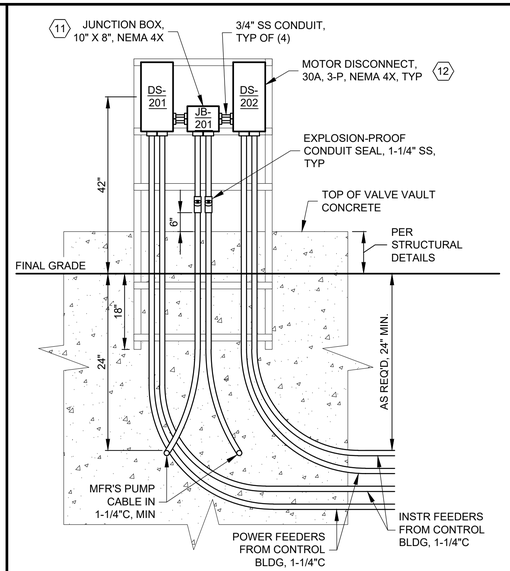
GENERAL NOTES:

1. ELECTRICAL UTILITY OF RECORD IS THE ILLUMINATING COMPANY, A FIRSTENERGY COMPANY. ALL SERVICE EQUIPMENT AND INSTALLATION MEANS & METHODS TO MEET THEIR REQUIREMENTS.
2. PROPOSED UNDERGROUND SERVICE DUCT BANKS TO UTILIZE 36" SWEEPS, MINIMUM; ALL OTHERS TO UTILIZE 24" SWEEPS, MINIMUM.
3. ALL UNDERGROUND CONDUIT TO BE SCH-40 PVC, 1-1/4" MINIMUM. ALL EXPOSED CONDUIT TO BE SS OR FLEXIBLE NON-METALLIC. WHEREVER CONDUIT TRANSITIONS TO ABOVE GRADE, UTILIZE A SS 90° SWEEP.
4. ALL DUCT BANKS SHOWN ARE DIAGRAMMATIC AND SHOULD NOT BE USED SOLELY FOR INSTALLATION. SEE DETAIL DRAWINGS FOR FULL ACCOUNTING OF DUCT BANK CONDUIT & CONDUCTORS.
5. COORDINATE CONDUIT PENETRATIONS INTO CONTROL BUILDING WITH PROCESS AND MECHANICAL CONTRACTORS TO AVOID INTERFERENCES WITH UNDERGROUND PIPING, ESPECIALLY BETWEEN BUILDING AND EQ TANK.
6. ALL OUTDOOR DISCONNECT SWITCHES TO BE NON-FUSED, 480V, 30A, 3-P W/ GND, NEMA 4X 316 SS ENCLOSURE WITH LOCKABLE EXTERNAL OPERATOR, UON. SQUARE D CAT# VHU361SSGL OR APPROVED EQUAL
7. HAZARDOUS AREA CLASSIFICATIONS:
   - 7.1. REGULATOR STRUCTURE
     - 7.1.1. INTERIOR: CLASS I, DIVISION 1
     - 7.1.2. VENT, WITHIN 3' RADIUS OF OPENING: CLASS I, DIVISION 1
     - 7.1.3. VENT, 2' RADIUS EXTENSION: CLASS I, DIVISION 2
     - 7.1.4. HATCH, WITHIN 3' OF EDGE TO HEIGHT OF 18": CLASS I, DIVISION 2
   - 7.2. WET WELL
     - 7.2.1. INTERIOR: CLASS I, DIVISION 1
     - 7.2.2. VENT, WITHIN 3' RADIUS OF OPENING: CLASS I, DIVISION 1
     - 7.2.3. VENT, 2' RADIUS EXTENSION: CLASS I, DIVISION 2
     - 7.2.4. HATCH, WITHIN 3' OF EDGE TO HEIGHT OF 18": CLASS I, DIVISION 2
   - 7.3. VALVE VAULT
     - 7.3.1. INTERIOR: CLASS I, DIVISION 2
   - 7.4. TANK
     - 7.4.1. INTERIOR: CLASS I, DIVISION 1
     - 7.4.2. VENT, WITHIN 3' RADIUS OF OPENING: CLASS I, DIVISION 1
     - 7.4.3. VENT, 2' RADIUS EXTENSION: CLASS I, DIVISION 2
     - 7.4.4. HATCH, WITHIN 3' OF EDGE TO HEIGHT OF 18": CLASS I, DIVISION 2



TYPICAL DISCONNECT & DUCT BANK INSTALLATION DETAIL

NOT TO SCALE



NOTES:
1. ADDITIONAL UNDERGROUND CONDUIT RUNS TO PB-200 NOT SHOWN FOR CLARITY.
2. SUPPORT HARDWARE IS THE SAME AS THE TYPICAL DISCONNECT.

SECTION A - WET WELL PUMPS ELECTRICAL BACKBOARD INSTALLATION DETAIL

NOT TO SCALE

STATE OF OHIO
TROY LYNN DELZER
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CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
WILLOUGHBY, OHIO
LAKE COUNTY

ELECTRICAL - E SERIES

EQ BASIN ELECTRICAL PLANS & DETAILS

PROJECT NO. 230264
DISCIPLINE: ELECTRICAL
SHEET NAME: E-05
SHEET 45 OF 47

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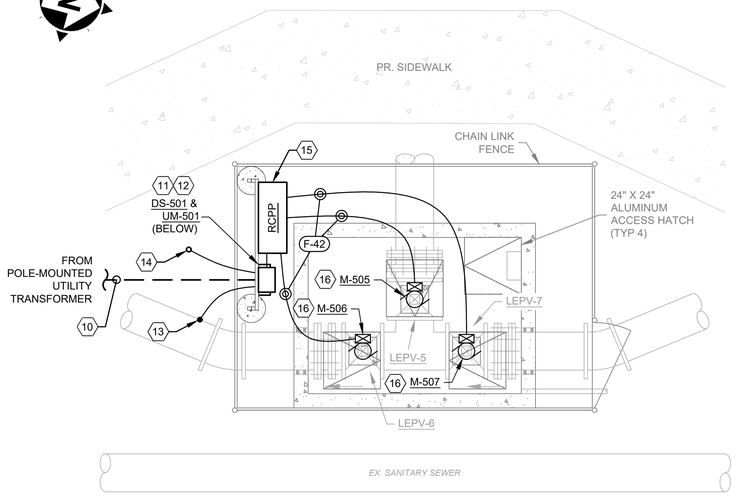
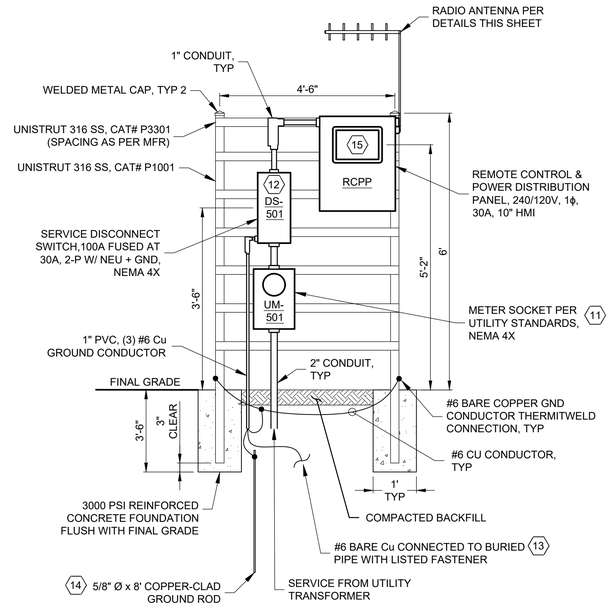


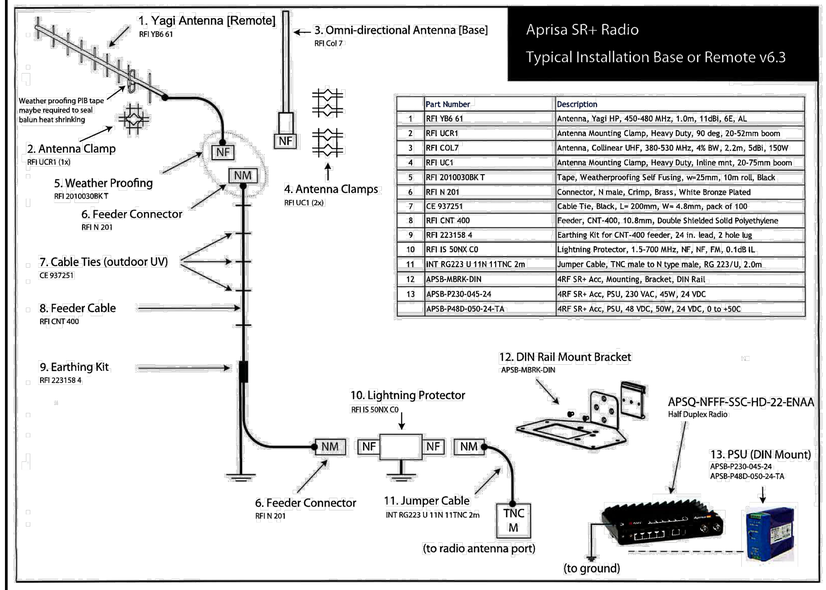
LAKESHORE BLVD. DIVERSION STRUCTURE PLAN

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



DIVERSION STRUCTURE ELECTRICAL BACKBOARD DETAIL

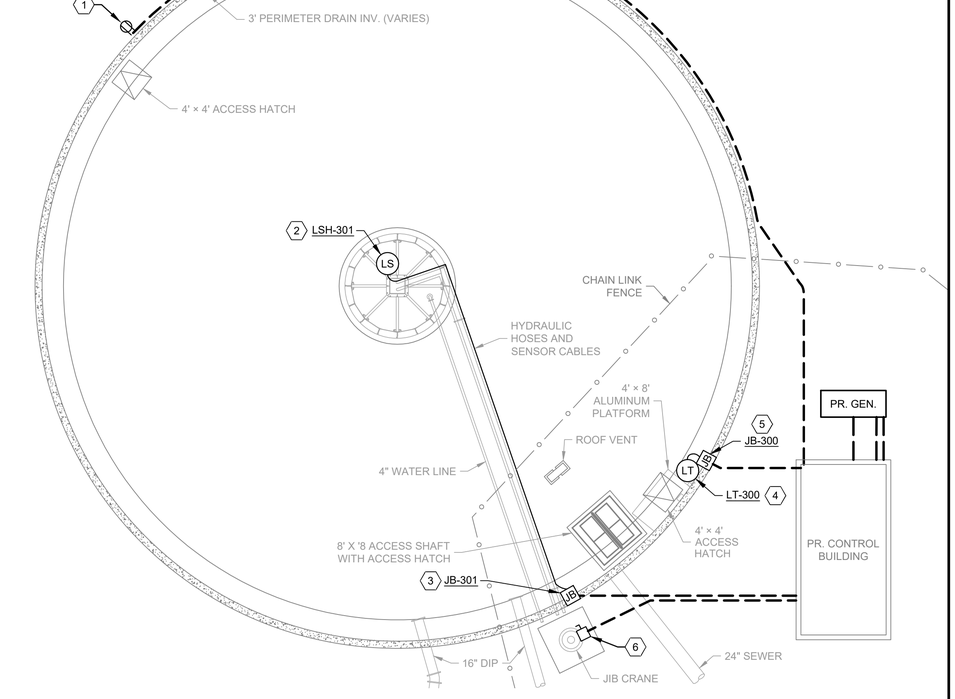
NOT TO SCALE



	Part Number	Description
1	RFI YB6 61	Antenna, Yagi HP, 450-480 MHz, 1.0m, 11dBi, 6E, AL
2	RFI UCR1	Antenna Mounting Clamp, Heavy Duty, 90 deg, 20-52mm boom
3	RFI COL7	Antenna, Collinear UHF, 380-530 MHz, 4% BW, 2.2m, 5dBi, 150W
4	RFI UC1	Antenna Mounting Clamp, Heavy Duty, Inline mnt, 20-75mm boom
5	RFI 20100308K T	Tape, Weatherproofing Self Fusing, w=25mm, 10m roll, Black
6	RFI N 201	Connector, N male, Crimp, Brass, White Bronze Plated
7	CE 937251	Cable Tie, Black, L= 200mm, W= 4.8mm, pack of 100
8	RFI CNT 400	Feeder, CNT-400, 10.8mm, Double Shielded Solid Polyethylene
9	RFI 223158 4	Earthing Kit for CNT-400 feeder, 24 in. lead, 2 hole lug
10	RFI IS 50NX C0	Lightning Protector, 1.5-700 MHz, NF, NF, FW, 0.1dB IL
11	INT RG223 U 11N 11TNC 2m	Jumper Cable, TNC male to N type male, RG 223/U, 2.0m
12	APSB-MBRK-DIN	4RF SR+ Acc, Mounting, Bracket, DIN Rail
13	APSB-P230-045-24	4RF SR+ Acc, PSU, 230 VAC, 45W, 24 VDC
	APSB-P48D-050-24-TA	4RF SR+ Acc, PSU, 48 VDC, 50W, 24 VDC, 0 to +50C

RADIO COMMINICATIONS EQUIPMENT SETUP DETAIL

NOT TO SCALE



EQ BASIN TANK

SCALE: 3/32" = 1'-0"

CODED NOTES:

1. EQ BASIN CONVENIENCE RECEPTACLE, GFCI, INSTALL CONDUIT AND SUPPORTS PER DETAILS THIS SHEET TO MAINTAIN 6" CLEARANCE FROM BOTTOM OF RECEPTACLE TO FINISHED GRADE. INSTALL IN NEMA 4X GANG BOX WITH WEATHERPROOF IN-USE COVER. MAINTAIN 3' CLEARANCE FROM HATCH EDGES TO AVOID HAZARDOUS AREA.

2. EQ TANK FLUSHING RESERVOIR HIGH WATER LEVEL SWITCH "LS-301", SUPPLIED BY VENDOR AND INSTALLED CONTRACTOR PER VENDOR'S REQUIREMENTS. RUN MFR'S CABLE THROUGH SS 3/4" CONDUIT WITH EXPLOSION-PROOF SEAL TO ABOVE-GRADE JUNCTION BOX.

3. EQ TANK FLUSHING RESERVOIR HIGH WATER LEVEL SWITCH JUNCTION BOX "JB-301", NEMA 4X, EXTEND SUPPORTS TO ANCHOR INTO CONCRETE TANK WALL. INSTALL EXPLOSION-PROOF SEAL IN SS 3/4"C FOR TRANSMITTER CABLE. MAINTAIN 3' CLEARANCE FROM HATCH EDGES TO AVOID HAZARDOUS AREA

4. KELLER LEVELRAT HYDROSTATIC LEVEL TRANSMITTERS, 4-20 mA LOOP POWERED, ORDER WITH MANUFACTURER'S CABLE LONG ENOUGH TO INSTALL 5', MIN. SERVICE LOOP FIXED TO SS CABLE RACK ANCHORED TO TOP OF RESPECTIVE WELL/TANK. USE SS EXPLOSION-PROOF CABLE GLAND TO ROUTE CABLE THROUGH GRATING BEFORE TERMINATING IN RESPECTIVE ENCLOSURE WITH NEMA 4X CABLE GLAND, TYP OF (3). SEE PROCESS SERIES FOR REQUIRED DEPTHS.

5. EQ TANK LEVEL TRANSMITTER JUNCTION BOX "JB-300", NEMA 4X, EXTEND SUPPORTS TO ANCHOR INTO CONCRETE TANK WALL. INSTALL EXPLOSION-PROOF SEAL IN SS 3/4"C FOR TRANSMITTER CABLE. MAINTAIN 3' CLEARANCE FROM HATCH EDGES TO AVOID HAZARDOUS AREA.

6. EQ TANK JIB CRANE DISCONNECT SWITCH "DS-302", 480V, 3ϕ, 3-P W/GND, 30A, NEMA 4X. REFERENCE VENDOR DRAWINGS TO INSTALL ON CRANE SUPPORT STRUCTURE. COORDINATE WITH FOUNDATION CONTRACTOR TO INTEGRATE UNDERGROUND CONDUIT FOR FEEDER "F-6" INTO CRANE BASE SLAB.

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10. UNDERGROUND SERVICE FEEDER "F-40", 240/120V, 1ϕ, 3-W, (2) #1 + (1) #1 NEU IN 1-1/2"C. CONDUIT AND AERIAL WITH WEATHER HEAD INSTALLED BY CONTRACTOR, CONDUCTORS INSTALLED BY UTILITY. SEE SITE PLAN ON SHEET #43, E-03 FOR UTILITY POLE LOCATION.

11. ELECTRICAL METERING SOCKET PER UTILITY REQUIREMENTS "UM-501", 240V, 100A, NEMA 4X, INSTALLED ON BACKBOARD BELOW SERVICE DISCONNECT. SEE DETAILS THIS SHEET.

12. SERVICE DISCONNECT SWITCH "DS-501", 240V, 100A, 2-P W/ NEU + GND, FUSED AT 30A, NEMA 4X ENCLOSURE. INSTALL ON BACKBOARD PER DETAILS ON THIS SHEET.

13. ELECTRICAL SERVICE GROUNDING ELECTRODE CONNECTION, #6 BARE COPPER FASTENED TO BURIED PIPE VIA LISTED CONNECTOR AND BONDED TO GROUND BUS INSIDE DS-501.

14. 5/8" Ø x 8' LG COPPER-CLAD STEEL GROUNDING ROD DRIVEN TO 36" BELOW FINISHED GRADE, MIN. AND BONDED TO GROUND BUS INSIDE DS-501 VIA EXOTHERMIC WELD TO #6 BARE COPPER CONDUCTOR.

15. REMOTE CONTROL & POWER DISTRIBUTION PANEL "RCPP". ACCEPTS 120/240V, 1ϕ, 3-W FROM "F-41". CONTAINS POWER DISTRIBUTION CIRCUIT BREAKERS AND CONTROL COMPONENTS FOR ALL FIELD DEVICES.

16. PLUG VALVE ACTUATOR, 240V, 1ϕ, 60 Hz, 3/4 HP, 6.9 FLA. SEE FEEDER "F-42" IN SCHEDULE ON SHEET #42, E-02 FOR POWER & CONTROL CONDUITS & CONDUCTORS.

GENERAL NOTES:

1. ELECTRICAL UTILITY OF RECORD IS THE ILLUMINATING COMPANY, A FIRSTENERGY COMPANY. ALL SERVICE EQUIPMENT AND INSTALLATION MEANS & METHODS TO MEET THEIR REQUIREMENTS.

2. PROPOSED UNDERGROUND SERVICE DUCT BANKS TO UTILIZE 36" SWEEPS, MINIMUM; ALL OTHERS TO UTILIZE 24" SWEEPS, MINIMUM.

3. ALL UNDERGROUND CONDUIT TO BE SCH-40 PVC, 1-1/4" MINIMUM. ALL EXPOSED CONDUIT TO BE SS OR FLEXIBLE NON-METALLIC. WHEREVER CONDUIT TRANSITIONS TO ABOVE GRADE, UTILIZE A SS 90° SWEEP.

4. ALL DUCT BANKS SHOWN ARE DIAGRAMMATIC AND SHOULD NOT BE USED SOLELY FOR INSTALLATION. SEE DETAIL DRAWINGS FOR FULL ACCOUNTING OF DUCT BANK CONDUIT & CONDUCTORS.

5. COORDINATE CONDUIT PENETRATIONS INTO CONTROL BUILDING WITH PROCESS AND MECHANICAL CONTRACTORS TO AVOID INTERFERENCES WITH UNDERGROUND PIPING, ESPECIALLY BETWEEN BUILDING AND EQ TANK.

6. HAZARDOUS AREA CLASSIFICATIONS:
   - 6.4. TANK
     - 6.4.1. INTERIOR: CLASS I, DIVISION 1
     - 6.4.2. VENT, WITHIN 3' RADIUS OF OPENING: CLASS I, DIVISION 1
     - 6.4.3. VENT, 2' RADIUS EXTENSION: CLASS I, DIVISION 2
     - 6.4.4. HATCH, WITHIN 3' OF EDGE TO HEIGHT OF 18": CLASS I, DIVISION 2
   - 6.5. VALVE VAULT
     - 6.5.1. INTERIOR: CLASS I, DIVISION 2

STATE OF OHIO
TROY LYNN DELZER
PE.91271
REGISTERED PROFESSIONAL ENGINEER
3/5/2025

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	BID
ISSUE DATE:	3/05/2025
SCALE:	AS NOTED
DESIGNED BY:	JPB
DRAWN BY:	JPB
CHECKED BY:	GTZ

CITY OF WILLOUGHBY
LAKESHORE EAST EQ BASIN
LAKE COUNTY WILLOUGHBY, OHIO

ELECTRICAL - E SERIES

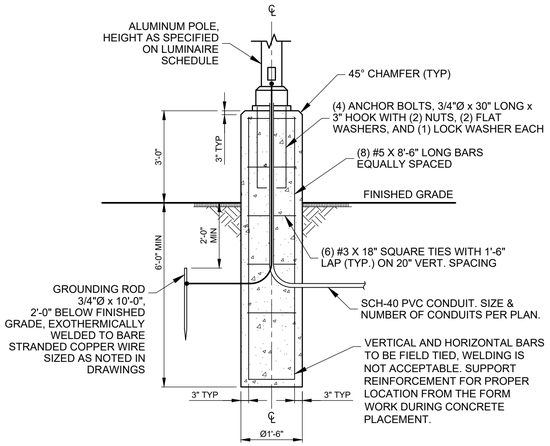
EQ TANK & DIVERSION STRUCT ELECTRICAL PLANS & DETAILS

PROJECT NO. 230264

DISCIPLINE: ELECTRICAL

SHEET NAME: E-06

SHEET 46 OF 47



TYPICAL BASE

NOTES:

1. 3500 PSI MIN 28 DAY COMPRESSIVE STRENGTH CONCRETE WITH GRADE 60 REINFORCING STEEL.

TYPICAL LIGHT STANDARD BASE DETAIL FOR AREAS SUBJECT TO VEHICULAR IMPACT

NOT TO SCALE

PLAN VIEW

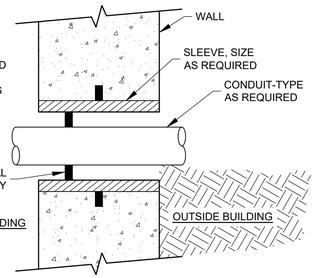
SECTION VIEW

GENERATOR PAD DETAIL

NOT TO SCALE

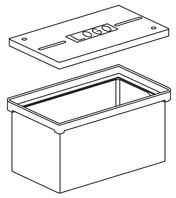
NOTES:

1. PROVIDE SEPARATE SLEEVE & LINK SLEEVE PER CONDUIT. FILL VOID AROUND CONDUIT ON EXTERIOR OF BUILDING WITH WATERPROOF SEALANT AS PER SPECIFICATIONS.



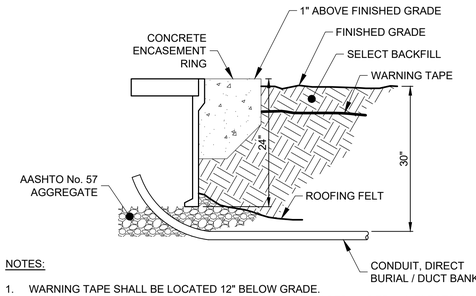
UNDERGROUND CONDUIT WALL PENETRATION BELOW GRADE TO INSIDE BUILDING/STRUCTURE

NOT TO SCALE



TYPICAL HANDHOLE

NOT TO SCALE



NOTES:

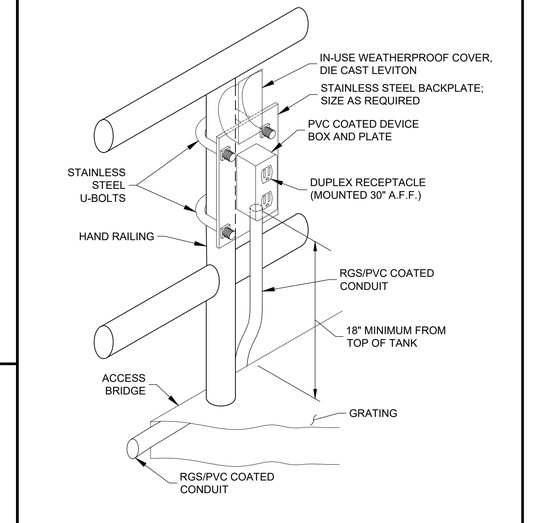
1. WARNING TAPE SHALL BE LOCATED 12" BELOW GRADE.
2. AN AASHTO No. 57 AGGREGATE DRAINAGE BED IS REQUIRED UNDER ALL ELECTRICAL HANDHOLES. THE DRAINAGE BED SHALL BE EQUAL TO THE HANDHOLE BASE DIMENSIONS PLUS 12" DEPTH.
3. THE ENCASEMENT RING SHALL BE 1" ABOVE FINISHED GRADE.
4. THE HANDHOLE COVER SHALL BE GRAY IN COLOR AND EMBOSSED WITH "ELECTRIC" OR "COMMUNICATIONS". THE COVER SHALL BE HEAVY DUTY TYPE WITH A DESIGN LOAD EQUAL OR EXCEEDING 15,000 LBS OVER A 10" SQUARE.

HANDHOLE (TYP) FOR NON-ROADWAY APPLICATIONS

NOT TO SCALE

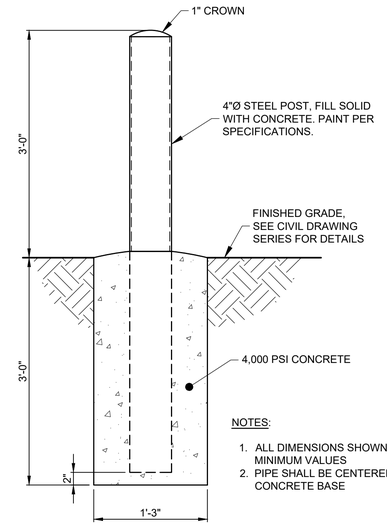
ELECTRICAL TRENCH DETAIL

NOT TO SCALE



HANDRAIL RECEPTACLE MOUNTING DETAIL

NOT TO SCALE



NOTES:

1. ALL DIMENSIONS SHOWN ARE MINIMUM VALUES
2. PIPE SHALL BE CENTERED IN CONCRETE BASE

TYPICAL BOLLARD INSTALLATION DETAIL

NOT TO SCALE

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LAKE COUNTY WILLOUGHBY, OHIO

ELECTRICAL - E SERIES

STANDARD ELECTRICAL DETAILS

PROJECT NO.
230264

DISCIPLINE
ELECTRICAL

SHEET NAME
E-07

SHEET 47 OF 47