ADDENDUM NO. 1

TO

PROCUREMENT AND CONTRACTING REQUIREMENTS

FOR

Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station

FOR

WHEATLAND, INDIANA

Issue Date: January 27th, 2023

BIDS ARE DUE BY

Tuesday January 31st, 2023

9:00 AM (Local Time)

Attn. Clerk Treasurer, Wheatland Water Department– 121 IN-550. P.O. Box 219 Wheatland, IN 47597

This addendum consists of five (5) pages and the following attachments:

Attachment No. 1:	Replaced Specifications
Attachment No. 2:	Added Specifications
Attachment No. 3:	Revised Plan Sheets
Attachment No. 4:	Added Plan Sheets
Attachment No. 5:	Supplementary Documents

The following, as additions to and modifications in the Bidding Requirements and Contract Documents, will be included in, and become a part of the **Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station**. This Addendum forms a part of the Contract Documents. Bidders are, therefore, instructed to take the following into account in rendering any Bid for this work. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

CHANGES TO PRIOR ADDENDA: (N/A)

CHANGES TO PROCUREMENT REQUIREMENTS: (N/A)

CHANGES TO CONTRACTING REQUIREMENTS: (N/A)

CHANGES TO SPECIFICATIONS:

1. ***PLEASE NOTE:*** *"Or equal" items will be considered for all products, including products not explicitly stated. We acknowledge that lead times are volatile and that certain product types may be more readily available or cost effective. If exceptions are needed to standards, they will be considered for approval on a case-by-case basis.*
2. Replace the following specifications in their entirety with **Attachment No. 1** of this addendum:
    a. "Specification 00 11 13 – Invitation for Bids" (Updated closing time for receipt of bids from 60 days to 90 days)

b. "Specification 00 41 13 – Bid Form" (Updated Article 2 – Bidders Acknowledgements, Section 2.01 to state "Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **90 days** after the Bid opening, or for such longer period that Bidder may agree to in writing upon request of Owner.
c. "Specification 00 52 00 – Standard Form or Agreement" (Updated Substantial Completion to 540 calendar days and Final Completion to 600 calendar days)
d. "Specification 00 52 00 – Standard Form or Agreement" (Liquidated Damages for contractor not meeting intermediate milestone of installing lift station is at $500/day.)
e. "Specification 00 55 00 – Notice to Proceed" (Updated Substantial Completion to 540 calendar days and Final Completion to 600 calendar days)
f. "Specification 01 20 00 – Contract Items" (Updated definition of 1.2 Contract Item 1-Wastewater Treatment Plant and Regional Lift Station Complete)
g. "Specification 01 79 00 – Demonstration and Training" (Corrected specification numbers on training schedule.)
h. "Specification 22 11 16 - Domestic Water Piping and Devices" (Sec 2.01.C Revised piping materials.)
i. "Specification 22 11 99 - User PEX Piping" (Sec 1.02 Updated related sections names and numbers)
j. "Specification 23 37 01 - Extruded Aluminum Stationary Louvers" (Replace in its entirety)
k. "Specification 26 56 00 – Exterior Lighting" (Revise 2.2.F. to read as follows: 2.2.F Poles: Poles for grade level mounted LED luminaires shall be aluminum or as indicated on the drawings with factory finish. Poles for luminaries mounted on the concrete walls of the WWTP shall be stainless steel with factory finish. Poles shall be factory wrapped with heavy weatherproof paper for protection during handling and shipping. Add 3.2 INSTALLATION OF EXTERIOR LIGHTING FIXTURES paragraph F. as follows: 3.2.F. Lighting fixtures mounted above the concrete wall of the WWTP tanks shall have a stainless-steel pole base or foundation bracket securely mounted to the concrete wall – such as a Davit Crane base socket or a base plate socket or similar. Note that the open tanks on the WWTP are classified Class 1, Division 1, Group D: all wiring and conduit shall comply.)
l. "Specification 31 25 00 – Erosion and Sedimentation Controls" (Updated 1.1 B related Documents specification section.)
m. "Attachment C – Wage Rates" (Up-to-date wage rates for project per Labor Standard guidelines.)

3. Add the following specifications in their entirety (**Attachment No. 2** of this addendum):
    a. Specification 05 12 00 - CSI - Structural Steel – Specification Added.
    b. Specification 05 51 00 - CSI - Metal Stairs – Specification Added.
    c. Specification 09 96 00 - CSI - High Performance Coatings – Specification Added.
    d. Specification 25 13 00 - Instrumentation and Control
    e. Specification 25 30 00 - Field Mounted Instruments
    f. Specification 25 30 10 - Instrument Panel Construction
    g. Specification 25 30 20 - Process Controllers and Computer System

CHANGES TO DRAWINGS:

1. Revised Plan Sheets – **Attachment No. 3** of this addendum:
    a. Sheet C-200. Added water and sewer services to pole barn.
    b. Sheet C-300. Added water and sewer services to pole barn.
    c. Sheet C-400. Added slope information and lowered site manhole.
    d. Sheet C-502. Updated side water depths on hydraulic profile.
    e. Sheet C-600. Revised cross section of stone parking area detail.
    f. Sheet S-100 Updated General Notes – Design Loads.
    g. Sheet S-101 Added wall notch and penetration locations and details.
    h. Sheet S-102 Updated wall penetration information.
    i. Sheet S-301 Updated section labels and corrected over posting of text.
    j. Sheet S-302 Updated connection note updated bent plate call-outs, corrected top of steel elevation.
    k. Sheet E-211 Added power for overhead garage door.
    l. Sheet E-302 See revised drawing E302. Add specification for Duke Energy Standard for Transformer Pad – reference E312
    m. Sheet E-303 See revised drawing E303. Note details were not consistent regarding the New Generator. Corrected. Note 35, Panel P-1 Details were corrected. Note 57 had slipped into the margin, it is now shown on the drawing.
    n. Sheet E-304 See revised drawing E304. Added detail to show stilling well for submersible pressure transducer.
    o. Sheet E-312 See revised drawing E312. New general electrical detail added for Duke Energy Standard Pad detail.
    p. Sheet E-600 Added circuits for various equipment.

2. Add the following plan sheets in their entirety (**Attachment No. 4** of this Addendum):
    a. Sheet C-401 – Profile Layout
    b. Sheet S-101A – Additional structural details

CHANGES TO MISCELLANEOUS DOCUMENTS:

1. Included as an attachment this addendum (**Attachment No. 5**) is the Pre-Bid Conference Meeting Minutes and Sign-In Sheet.

SUBMITTED QUESTIONS/REQUESTS & RESPONSES:

1. **Pre-Bid Meeting Questions**
    a. Q: Wabash - Any thoughts of extending the bid?
        i. A: RQAW - That conversation is in progress.
    b. Q: SBL - Could the septic systems be staked?
        i. A: RQAW – The Town and RQAW can ask residents to do so after bid-award and along with complete survey results.
    c. Q: Wabash - Any thoughts of extending the bid?
        i. A: RQAW: The Bid date will not be extended for Division I.
    d. Q: Graves - If the Division I contractor is required to have the wet well installed in 60 days, whose responsibility is it to get that [the wet well] built out and cleaned out?
        i. A: RQAW – That is the Division I contractor responsibility for the final cleanout prior to pumps being installed. Further clarification on lift station wet well cleaning requirements can be found in Specification 01 20 00 – Contract Items.
    e. Q: Graves – In response to the wet well conversation, is there a manhole near the LS?
        i. A: RQAW -Yes, just upstream of the wet well, Division II contractor is responsible for setting that manhole.
    f. Q: Graves - What type of holding capacity does the upstream sewer have? We are concerned that attempting to pump out of this manhole will cause backups of the sewer system.
        i. A: RQAW – The upstream flow capacity of the pipe flowing into the MH is 8.47 Gallons/second.
    g. Q: Wabash – Do you have any suggestions on insurance requirements for the boring under the railroad?
        i. A: RQAW/Town – No suggestions at this time.
    h. Q: Wabash - Will INDOT require settlement monitoring plan prior to approving the right-of-way permit? Whose responsibility is it to pay for the settlement plan?
        i. A: RQAW - Paid for by contractor under contract item Construction Engineering, as shown in the project manual.
    i. Q: SBL – Did Center Point say when they will be replacing gas main throughout Town?
        i. A: Dashiell – Has not confirmed this timeline while working on the ongoing water project.
    j. Q: SBL - Will flaggers be needed for the jack and bore?
        i. A: Town - We did not need a flagger but did need an inspector – the Town pays for inspectors' costs.
    k. Q: Graves – Is there a Green Project Reserve (GPR) requirement on this project?
        i. A: RQAW – There is a GPR Form provided in the Bid Documents, but we will not be pursuing GPR for Division I or Division II.
    l. Q: SBL - Will compaction testing be required [for pipe bedding and backfill within 5' or under pavement]? What is the frequency of testing?
        i. A: RQAW – In Division II Drawings Sheet C501 Detail 1 PLASTIC (PVC OR HDPE) PIPE TRENCH the Detail states the following about Compaction Testing requirements:
            1. All backfill placed within traffic influence zones shall conform to the following criteria:
                a. Installed in lifts not exceeding six (6) inches
                b. Compacted to 95% maximum dry density in accordance with AASHTO T 99 as specified in INDOT SS section 203 or as directed by the city engineering or county engineering department.

c. Shall consist of manufactured, clean, angular, granular material such as crushed stone, with gradation between ¼" to 1 ½" (6 to 40 mm) in size.

ii. In The Division II Project Manual Specification 31 23 23 FILL - Section 3.12 Inspection and Testing of Filling, Part A states the following about Compaction Testing frequency:

1. Sampling and Testing: Engage an independent testing laboratory to perform all sampling, testing, and laboratory analysis in accordance with the appropriate ASTM Standard Specification. Provide compaction testing of all in-place backfill after every 400 feet of pipe installation. Record in-place fill compaction values at 50-foot intervals. Additionally, record compaction values at a minimum of 10 feet and 5 feet below final surface elevation and at the surface at each location. Record in-place fill compaction values at a minimum of 10 feet and 5 feet below final surface elevation and at the surface at all road/driveway crossings. Record in-place fill compaction values a minimum of 10 feet and 5 feet below final surface elevation and at the surface at 25-foot intervals through roadway/parking areas. Submit copies of all fill tests to the Engineer. If testing reveals non-compliance with Contract requirements, all additional testing and placement of adequately compacted fill will be made at the Contractor's expense.

+ + END OF ADDENDUM + +

PLEASE ACKNOWLEDGE THIS ADDENDUM IN THE BID FORM YOU SUBMIT.

Aaron Crew

Certified:_____
Engineer

Date: 01/27/2023

ATTACHMENT #1

Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station
Invitation for Bid Publication

Notice is hereby given, that the Town of Wheatland, in Knox County, Indiana, by and through its Town Council, hereinafter referred to as the Owner, will receive sealed bid packets for the construction of the Wheatland Wastewater System Improvements Project.

Sealed bids must be received by the Town no later than 9:00 A.M. (Local Time) on January 31st, 2023. Bids received after such hour will be returned unopened. Bids received prior to this time shall be opened at a public meeting scheduled to take place on January 31st, 2023 at 9:00 A.M. at the Wheatland Water Department, 121 IN-550, Wheatland, IN 47597. All interested citizens are invited to attend. Should any citizens require special provisions, such as handicapped modifications or non-English translation personnel, the Town will provide such provisions as long as the request is made by January 20th, 2023. The last day for questions is January 25th, 2023.

A pre-bid meeting will be held at 10:00 A.M. (Local Time) on January 23rd, 2023 at the Wheatland Water Department, 121 IN-550, Wheatland, IN 47597. All prime contractors, subcontractors, small, minority or women owned enterprises and other interested parties are invited to attend.

A final addendum will be issued no later than January 27th, 2023.

The Project will be constructed in two (2) contract divisions which are defined and outlined as follows:

Division I includes the installation of a complete lift station, construction and startup of a AeroMod brand package extended aeration plant with a design flow of 58,600 gallons per day, construction and startup of a UV disinfection system and post-aeration system, refinishing an existing pole barn space to outfit it with necessary equipment, various potential alternates, and all other associated work as required by the Contract Documents to provide a fully operational wastewater treatment system within the Town of Wheatland, IN.

Division II includes the installation of approximately 27,000 feet of 8-inch gravity sanitary sewer, the installation of approximately 100 48-inch manholes, and the installation of laterals for all indicated residents, along with all associated work as required by the Contract Documents to provide a fully operational sewer system within the Town of Wheatland, IN.

Copies of the Plans and Contract Documents and Specifications for each division of work may be obtained from the “Public Documents” section of the RQAW website at https://rqaw.com/public-documents/.

The work to be performed and the bid to be submitted shall include sufficient and proper sums for all general construction, mechanical installation, labor, materials, permits, licenses, insurance, and so forth incidental to and required for the construction of the facilities.

Each bid must be enclosed in a sealed envelope bearing the title of the Project and the name and address of Bidder. All bids must be submitted on the bid forms as identified in the Contract Documents and Specifications.

Each bid shall be accompanied by a certified check or acceptable bidder's bond made payable to the Owner, in a sum of not less than five percent (5%) of the total amount of the highest aggregate bid, which check or bond will be held by the Owner as evidence that the bidder will, if awarded the contract, enter into the same with the Owner upon notification from him to do so within ten (10) days of said notification.

Approved performance and payment bonds guaranteeing faithful and proper performance of the work and materials, to be executed by an acceptable surety company, will be required of the Contractor at the time of contract execution. The bonds will be in the amount of 100% of the Contract Price and must be in full force and effect throughout the term of the Construction Contract plus a period of twelve (12) months from the date of substantial completion.

The Owner reserves the right to reject any bid, or all bids, or to accept any bid or bids, or to make such combination of bids as may seem desirable, and to waive any and all informalities in bidding. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bid may be withdrawn after the scheduled closing time for receipt of bids for at least ninety (90) days.

A conditional or qualified Bid will not be accepted.

Award will be made to the low, responsive, responsible bidder. The low, responsive, responsible bidder must not be debarred, suspended, or otherwise be excluded from or ineligible for participation in federally assisted programs under Executive Order 12549.

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

Bids shall be properly and completely executed on bid forms included in the Specifications. Bids shall include all information requested by Indiana Form 96 (Revised 2013) included with the Specifications. Under Section III of Form 96, the Bidder shall submit a financial statement. A copy of the proposed Financial Statement to be submitted with the bid is included in the bid documents section to these specifications. The Owner may make such investigations as deemed necessary to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

Each Bidder is responsible for inspecting the Project site(s) and for reading and being thoroughly familiar with the Contract Documents and Specifications. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation with respect to its Bid.

Wage rates on the project shall not be less than the federal wage scale published by the U.S. Department of Labor.

Bidders on this work shall be required to comply with the provisions of the President's Executive Order No. 11246, as amended. The Bidders shall also comply with the requirements of 41 CFR Part 60 - 4 entitled Construction Contractors - Affirmative Action Requirements. A copy of 41 CFR Part 60 - 4 may be found in the Supplemental General Conditions of the Contract Documents and Specifications.

The Bidders' attention is also called to the "Minority/Women Business Participation" requirements contained in the Project Specifications.

Contract procurement is subject to the federal regulations contained in the OMB Circular A-102, Sections B and O and the State of Indiana requirements contained in IC-36-1-9 and IC-36-1-12.

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BID FORM

Town of Wheatland, Indiana

Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Town of Wheatland

P.O. Box 219

Wheatland, IN 47597

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	**Addendum, Date**
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent

to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at

artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Description	Unit	Estimated Quantity	Unit Price
Wastewater Treatment Plant and Regional Lift Station, Complete	LS	1	$

Total Base Bid Price $ _____

BID ALTERNATE

Item No.	Description	Unit	Estimated Quantity	Total Add or Deduct (Write-In)
1	Bid Alt 1 – Pole Barn Roof and Rafter Repairs	LS	1	$
2	Bid Alt 2 – Pole Barn Office and Restroom Buildout	LS	1	$
3	Bid Alt 3 - Sludge Drying Bed	LS	1	$
4	Bid Alt 4 - WWTP Site Fencing and Slide Gate	LS	1	$

Total Base Bid Price – Bid Alternate $ _____

Proposed increase or decrease in price for the Bid Alternates listed above will be considered in determination of the lowest responsive and responsible bid.

The undersigned understands that after a contract is awarded, the Owner may select items of the Alternate Bids listed above. If awarded the contract, the Bidder agrees to furnish and install any Owner selected Alternate items for the add or deduct indicated. The total base bid will then be adjusted accordingly. The add or deduct amounts listed above are "installed" prices and take into consideration and include any cost of the design or construction changes that may be required as a result of selecting the Alternate.

Alternate Contract Item prices are subject to acceptance by the Owner, and rejection of one or more Alternate Contract Item prices will not invalidate acceptance of this Bid.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. List of Project References;

E. Bidder's License No.: _____ demonstrating evidence of authority to do business in the state of Indiana.

F. Required Bidder Qualification Statement (Form 96) with supporting data;

G. Wage/Fringe Benefit Certification (Exhibit C);

H. GPR Bid Breakdown (Exhibit E);

I. American Iron and Steel Certification (Exhibit F);

J. Form OEE-1 (Exhibit G);

K. Form OEE-2 (Exhibit G);

L. Good Faith Efforts Worksheet (Exhibit G);

M. E-Verify Affidavit

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____
(where applicable)

(NO TEXT FOR THIS PAGE)

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between Town of Wheatland, IN ("Owner") and

("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

A. Installation of a complete lift station, construction and startup of a n AeroMod brand package extended aeration plant with a design flow of 58,600 gallons per day, construction and startup of a UV disinfection system and post-aeration system, refinishing an existing pole barn space to outfit it with necessary equipment, various potential alternates, and all other associated work as required by the Contract Documents to provide a fully operational wastewater treatment system within the Town of Wheatland, IN.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station**

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by RQAW Corporation.

3.02 The Owner has retained RQAW Corporation ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. Liquidated Damages for contractor not meeting intermediate milestone of installing lift station is at $500/day.

B. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed within **540 calendar days** after the date when the Contract Times commence to run as provided in paragraph 4.01 of the General Conditions (Lift Station Wet Well must be substantially completed within **60 calendar days** after the Contract Times commence to run), and completed and ready for final payment in accordance with paragraph 15.06 of the General Conditions within **600 calendar days** after the date when the Contract Times commence to run.

B. It is expressly understood and agreed, by and between the Contractor and Owner that the Contract Time for completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work and excludes the time for unavoidable delays which were beyond the control and without the fault of the Contractor.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $1,500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $750.00 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and Final Completion are not additive and will not be imposed concurrently.

4.04 *Special Damages*

A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract, a amount of: _____ ($).

The above amount is based on the unit price bid determined by the Contractor. Final adjustments of quantities may affect this price.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment after the **1st** or **3rd** Tuesday of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract:

a. 10 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage.

2. At Contractor's option, the Contractor may set-up an escrow account and enter into a separate escrow agreement with the Owner and an escrow agent. Anytime retainage is withheld, it shall be placed into the agreed upon escrow account. Set-up escrow

account such that once retainage is withheld, it can only be released once written consent is provided by both the Owner and Contractor.

B. Upon Substantial Completion, Owner may pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less 200 percent of Engineer's estimate of the value of Work to be completed or corrected attached to the certificate of Substantial Completion and such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraphs, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement, identified as Section 00 52 00.
2. Addenda (numbers ___ to ___, inclusive).
3. Notice of Award, identified as Section 00 51 00.
4. Notice to Proceed, identified as Section 00 55 00.
5. Performance bond, identified as Section 00 61 13.13.
6. Payment bond, identified as Section 00 61 13.16.
7. Maintenance bond, identified as Section 00 61 19.
8. General Conditions, identified as Section 00 72 00.
9. Supplementary Conditions, identified as Section 00 73 00.
10. Specifications bearing the title Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station as listed in the table of contents of the Project Manual.
11. Drawings (not attached but incorporated by reference) bearing the title Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station
12. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages ___ to ___, inclusive).
    b. Documentation submitted by Contractor prior to Notice of Award.
13. Governing Order of Contract Documents – In the event that any provision in any of the above component parts of this Agreement conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically except as may be otherwise specifically stated.

14. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Work Change Directives.
    b. Change Orders.
    c. Field Orders.

B. The documents listed in Paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 8.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

9.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 9.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

9.06 *Other Provisions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
Town of Wheatland, IN	
By:	By:
Title: Town Council President	Title:
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	Attest:
Title:	Title:
Address for giving notices:	Address for giving notices:
Town of Wheatland	
P.O. Box 219	
Wheatland, IN 47597	
	License No.: *(where applicable)*

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

NOTICE TO PROCEED

Owner: Town of Wheatland	Owner's Contract No.: N/A
Contractor:	Contractor's Project No.:
Engineer: RQAW Corporation	Engineer's Project No.: 21-400-194-1
Project: Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station	Contract Name: Wheatland Wastewater System Improvements Division I – Wastewater Treatment Plant and Regional Lift Station
	Effective Date of Contract:

TO PROVIDER:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 2023]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, the date of Substantial Completion is 540 days from notice to proceed, and the date of readiness for final payment is 600 days from notice to proceed.

Before starting any Work at the Site, Contractor must comply with the following:
Comply with all requirements as stated in the Contract Documents.

Owner**:** Town of Wheatland, Indiana

By: Brett Dawson

Title: Town Council President

Date Issued:

Copy: Engineer

(NO TEXT FOR THIS PAGE)

SECTION 01 20 00 - CONTRACT ITEMS

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Section includes the Contract Items for the Project.

1.2 CONTRACT ITEM 1 – WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION, COMPLETE

A. Description: The Work under this Contract Item includes providing all labor, materials, equipment, supplies and services, and performing all Work for installation, maintenance, testing, and placing into the trouble-free operation the designed Wastewater Treatment Plant along with all associated equipment, UV disinfection unit, post-aeration unit, renovated pole barn building, and regional lift station. The contractor will be responsible for prepping the lift station wet well to receive intermediate flows during the project as well as pumping and cleaning the lift station wet well upon such a time the pumps are to be placed. They will also be responsible for coordinating outage time with the Division II contractor but not from pumping or treating sewage sent from Division II contract prior to the WWTP going live. The Work includes, but may not be limited to, all general, architectural, structural, mechanical, plumbing, electrical and instrumentation and control work complete in place, together with all appurtenant Work as shown and specified.

B. Payment: Payment under Item 1 will be made as a Contract Lump Sum Price.

1.3 CONTRACT ITEM 2 – MANDATORY BID ALTERNATE NO. 1 – POLE BARN ROOF AND RAFTER REPAIRS

A. Description: The work under this Contract Item includes demolition of decaying rafters, removing the existing metal roof structure, and installing replacement rafters and a new roof structure as indicated on the plans and specified herein.

B. Payment: Payment under Item 2 will be made as a Contract Lump Sum Price.

1.4 CONTRACT ITEM 3 - MANDATORY BID ALTERNATE NO. 2 – POLE BARN OFFICE AND

RESTROOM BUILDOUT

A. Description: The Work under this Contract Item includes additional walls, plumbing, and furnishing as described in the architectural, plumbing, mechanical, and electrical drawings and as specified herein. The work includes but may not be limited to installing walls and finishes for an office space, storage closet, and restroom within the existing pole barn site building.

B. Payment: Payment under Item 3 will be made as a Contract Lump Sum Price.

1.5 CONTRACT ITEM 4 – MANDATORY BID ALTERNATE NO. 3 – SLUDGE DRYING BED

A. Description: The Work under this Contract Item includes the construction of a sludge drying bed as depicted and specified on the drawings. The work includes, but may not be limited to, the installation of the section of pipe connecting the sludge storage tank to the sludge drying bed, pumps to move sludge to drying bed, sludge drying bed effluent structure, sludge drying bed base, walls, and prefabricated metal building.

B. Payment: Payment under Item 4 will be made as a Contract Lump Sum Price.

1.6 CONTRACT ITEM 4 – MANDATORY BID ALTERNATE NO. 4 – WWTP SITE FENCING AND SLIDE GATE

A. Description: The Work under this Contract Item includes the construction of a proposed fence and slide gate for second entrance as depicted and specified on the drawings. The work includes, but may not be limited to, the demolition of portions of the existing fence.

B. Payment: Payment under Item 4 will be made as a Contract Lump Sum Price.

END OF SECTION 01 20 00

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Instruction in operation and maintenance of systems, subsystems, and equipment
2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: Submit for approval, credentials of equipment manufacturer representatives who are to be course instructors at least 15 days prior to the training sessions.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit one copy within seven days of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

   a. Name of Project.
   b. Name and address of videographer.
   c. Name of Engineer.
   d. Name of Contractor.
   e. Date of video recording.

2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
3. At completion of training, compile transcripts and submit complete training manual(s) for Owner's use prepared in both hard copy and electronic format required for operation and maintenance manuals specified in Section 01 78 23 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events.

1.6 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Engineer.

1.7 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Systems and equipment operation manuals.
    c. Systems and equipment maintenance manuals.
    d. Product maintenance manuals.
    e. Project Record Documents.
    f. Identification systems.
    g. Warranties and bonds.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.

b. Instructions on stopping.
c. Shutdown instructions for each type of emergency.
d. Operating instructions for conditions outside of normal operating limits.
e. Sequences for electric or electronic systems.
f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.
f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner, through Owner's operations staff with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and give to Owner unless instructed otherwise. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.
2. Perform hands-on training with operations staff to facilitate understanding of operation and maintenance activities. Hands-on training does not need to be recorded.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.

1. Submit video recordings on a USB thumb drive and upload a copy to the project ShareFile/FTP website.
2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each contractor involved on the Project, arranged according to Project Manual table of contents:

    a. Name of Contractor/Installer.
    b. Business address.
    c. Business phone number.
    d. Point of contact.
    e. Email address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

1. Film training session(s) in segments not to exceed 15 minutes.

    a. Produce segments to present a single significant piece of equipment per segment.
    b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.

c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming, and pause training session. Begin training session again upon commencement of new filming segment.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.

E. Transcript: Provide a transcript of the instruction module. Display images and running time captured from videotape opposite the corresponding training segment.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

3.1 TRAINING SESSIONS

A. Conduct all training during regular hours on weekdays and coordinate the scheduling of all training with the Owner.

B. Perform training utilizing actual equipment in service. Use of equipment for training will not void manufacturers' or contract warranties.

C. Provide training for the following:

Specification Section	Equipment Name	Minimum Training Hours
26 24 16	Panelboards	8
26 28 26	Transfer Switches	4
26 29 23	Variable Frequency Drives	4
26 28 26	Transfer Switches	4
26 32 13	Engine Generators	4
33 32 19	Public Utility Wastewater Pumping Stations	8
46 07 53	Wastewater Treatment Package Plant	50
46 66 56	UV Disinfection Equipment	8

END OF SECTION 01 79 00

CERTIFICATE OF INSTRUCTIONAL SERVICES

Project: _____

Equipment: _____

Specification Section: _____

I hereby certify the equipment Manufacturers' Representative has instructed Owner's personnel in startup operation and maintenance of this equipment as required in the Contract Documents.

Manufacturer's Representative

Signature _____

Name: (print) _____

Title: _____

Representing _____

Contractor

Signature _____ Date _____

Name (print) _____

Title _____

Owner

Signature _____ Date _____

Name (print) _____

Title _____

Comments:

Complete and submit this form to Engineer upon completion of training as required by Specification Section 01 79 00.

SECTION 221116
DOMESTIC WATER PIPING AND DEVICES

PART 1 - GENERAL

1.01 REFERENCE

A. All applicable requirements of other portions of the Contract Documents apply to the work of this Section, including, but not limited to, Division 01, General Requirements.

1.02 DESCRIPTION OF WORK

A. This Section applies to:
   1. Potable Cold Water Piping
   2. Hot Water Piping
   3. Hot Water Recirculation Piping
   4. Raw Cold Water Piping
   5. Exterior Wall Hydrants (WH-1)
   6. Water Meter
   7. Strainers
   8. Water Hamer Arrestors
   9. Vacuum Breaker
   10. Drain Valves
   11. Temperature and Pressure Relief Valves
   12. Pressure Reducing Valve
   13. Escutcheons
   14. Backflow Preventors

1.03 QUALITY ASSURANCE

A. General: Provide all supervision, labor, tools, materials, equipment, accessories and specialties necessary to completely install, clean and test the plumbing systems. All materials shall be free from defects impairing strength and durability and shall be of the best quality for the indicated purposes. All Work shall have structural properties sufficient to solely sustain or withstand strain and stresses to which it is normally subjected; all Work shall be true to detail.

B. Codes and Standards (Division 22 Section “Common Work Results for Plumbing” Listings and the following).
   1. Plumbing installation shall be in accordance with the state and local plumbing code, and all other codes having jurisdiction.
   2. American Standard Code for Pressure Piping ANSI B31.1
   3. National Association of Corrosion Engineers
   4. American National Standards Institute (ANSI)
   5. American Society of Mechanical Engineers (ASME)
   6. American Society for Testing and Materials (ASTM)
   7. American Water Works Association
   8. Manufacturer's Standardization Society of the Valve and Fitting Industry
   9. Plumbing and Drainage Institute
   10. State Plumbing Code
   11. State Building Code

C. Material Standards
   1. ASTM B32-94: Specification for Solder, Metal Sizes.
   2. ASTM B42-93: Specification for Seamless Copper Pipe, Standard Size.
   3. ASTM B75-93: Specification for Seamless Copper Tube.
   4. ASTM B88-93a: Specification for Seamless Copper Water Tube.
   5. ASTM B251-93: Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube.
   6. ASTM B302-92: Specification for Threadless Copper Pipe.

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7. ASTM A53-94: Specification for Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless.
8. AWWA C651-92: Standard for Disinfecting Water Mains.

1.04 SUBMITTALS

A. Shop Drawings" Valves: Submit in separate packages for each service/schedule as specified.

B. Product Data: Catalog cuts.

C. Samples: Not required for review.

D. Reference Submittals: Not required for review.

1.05 HANDLING, DELIVERY, AND STORAGE

A. General: Handling, delivery, and storage shall be in accordance with the manufacturer's recommendations. No extra cost shall be charged the Owner for handling, delivery, or storage. In no case shall the pipe or appurtenance be dumped, dropped, or thrown.

PART 2 - PRODUCTS

2.01 PIPING

A. General: The outside of all piping and fittings shall bear the Manufacturer's standard marking for type, pressure, etc. The A/E does not guarantee the accuracy of the figure numbers as listed.

B. Pipe - General
1. All carbon steel pipe shall be fabricated from open hearth or electrical furnaces. No Bessemer pipe shall be installed.
2. All pipe and fittings shall be equal to or better than the grade specified.
3. Whenever Specifications call for close bending or coiling, use Grade B pipe.
4. All piping material shall be new and free from defects and shall be subject to standard mill test before being shipped.
5. Pipe shall be labeled.
6. Fittings and valves shall have the Manufacturer's name or trademark legibly raised or cut into each piece.
7. All pipe shall be cut off even and reamed full bore. Threads shall be cut smooth, true and to full standard size. Piping shall be installed clean of chips, burrs or oil.
8. No salvaged or used pipe shall be used without the written approval of the A/E or Owner. Wherever such approval is given, recut the ends of the pipe, square, cut new threads on screwed pipe, and thoroughly clean the pipe of all rust, dirt, scale and foreign matter before installation.

C. Domestic Water Pipe 2-inch Size and Smaller
1. **Pipe:**
Water Service:
a) Copper or copper-alloy tubing, type K, ASTM B-75, ASTM B-88, ASTM B-251, ASTM B-447.
b) Ductile iron pipe, AWWA C151/A21.51, AWWA C115/A21.15
Water Distribution:
a) Copper or copper-alloy tubing, type L, ASTM B-75, ASTM B-88, ASTM B-251, ASTM B-447.
b) Cross-linked polyethylene (PEX) plastic tubing, ASTM F-876, ASTM F-877, CSA B137.5
2. **Fittings:** Cast brass or wrought copper, solder type, ASTM 75, ANSI B16.22.
3. **Joints:** Soldered, 95-5 tin-antimony solder above ground, and silver solder below ground.
4. **Unions:** Sweat-end, 150 lb. cast brass, ground joint.
5. **Press Fittings**
a. Manufacturers: Pro-Press, Apollo, Streamline, Viega

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b. Pipe: Copper press fittings may be used as an option, per ASTM B16.18 or ASTM B16.22.
c. Fittings: Press-Type fittings shall be joined using appropriate sized Tools per ASTM B88. Manufacturers: ProPress

6. Mechanically formed tee connections and couplings, such as T-drill, are NOT acceptable.

2.02 PIPING AUXILIARIES / SPECIALTIES

A. General: All auxiliaries and specialties shall be guaranteed by the manufacturer for the pressure, temperature and materials being handled. All auxiliaries and specialties shall be suitable for the piping to which they are attached.

B. Wall Hydrants (WH-1): Manufacturers: Josam, J.R. Smith, Wade, Woodford, Mifab or Zurn.

C. Water Meter: Meter is purchased from the utility company and installed by the Plumbing Contractor. Provide meter installation meeting utility company requirements.

D. Strainers: Manufacturers: Sarco, Anderson, Armstrong, Crane, or Watts. Sarco type BT or BF-150, bronze body with stainless steel screen. Provide drain valve on strainer.Furnish and Install a “line-size” Y-Strainer on the inlet side of the backflow preventor.
1. Furnish and Install a “line-size” Y-Strainer on the inlet side of the backflow preventor.

E. Vacuum Breakers
1. Manufacturers: Watts, Chicago Faucet, Febco, Wilkins, Conbraco, or Woodford.
2. Hose Connections: ASSE 1011, Watts #8A, 3/4-inch hose thread. (#8AC in finished areas).
3. Pressure Type Vacuum Breaker: ASSE 1020, Watts #800QT with ball valves and gauge cocks for 1-1/4 inch thru 2 inch size. ASSE 1056, Watts #008QT anti-spill-type for 1/2 inch through 1 inch size.

F. Drain Valves: Powell 502-HS with cap and chain, or equal by Hammond, Keystone, or Watts.

G. Temperature and Pressure Relief Valves: ASME-coded, All-bronze construction with seat-to-disc alignment that will not stick or freeze. Shall start to open at 230 deg F and shall be fully open at 240 deg F. Shall have snap action thermostat and sensing bulb sized to water heater Manufacturer's recommendations. Manufacturers: Watts, McDonnel, Wilkins, Conbraco.

H. Pressure Reducing Valve: Valve shall automatically reduce a higher inlet pressure to a steady lower downstream pressure. Must meet “Reduction of Lead in Drinking Water Act”. All bronze body and cover. Outlet pressure shall be set to 65.0 psi
Manufacturer: Cla-Val Model CRD-L for sizes 1/2” to 2-1/2” pipe sizes

I. Escutcheons shall be one-piece, steel type with polished, chrome-plated finish and setscrew fastener. Install pipe escutcheons at ALL pipe penetrations thru walls that are visible by public view.

J. Backflow Preventor: Where indicated on the plumbing drawings furnished and install a Reduced Pressure Zone Assembly to prevent backsiphonage and backpressure conditions. The Lead-Free assembly shall consist of two shut-off valves, relief valve and two check valves.
1. Provide with Air-Gap device and route drain piping to floor drain.
2. Furnish and Install a “line-size” Y-Strainer on the inlet side of the backflow preventor.
a. Sizes 2” and larger shall be a flanged, Wye Pattern cast-iron strainer similar to Watts # 77F-DI-FDA-125
b. Sizes less than 2” in size shall be Wye-Pattern, lead free cast strainer Watts # LF777SI
3. Install center-line of backflow preventor + 24” A.F.F.
4. Backflow Assemblies less than 2” in size shall be similar to Watts # LF909
5. Backflow Assemblies 2-1/2” and larger in size shall be similar to Watts # LF909
6. Approved Manufacturers: Watts, Wilkens

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PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. General

1. Comply with Division 22 Section “Common Work Results for Plumbing”, as well as the requirements of Division 22 Sections “Hangers and Supports for Plumbing Piping, and “Plumbing Insulation”.
2. Piping shall be installed in a manner which permits easy removal of valves and disconnection of equipment. Unions or flanged joints shall be installed for this purpose.
3. Piping shall be installed, supported, guided, and anchored to properly provide for movement due to expansion and contraction without undue strains on the joints and in such a manner that it will not sag, buckle or sway.
4. Piping shall not be supported from other pipes, conduits, ducts or similar installations.
5. No piping shall be supported by the equipment to which it is connected. Install base elbows, hangers or other approved independent method of support for the pipe.
6. Connections to equipment shall be arranged to facilitate ease of removal and service without dismantling of the run-outs of main piping, and shall be installed by the use of multiple elbows or other similar methods to minimize strain on the equipment connections.
7. No field-fabricated welding fittings shall be permitted. All welding tees, elbows, reducers, and caps shall be commercially manufactured products.
8. Do not obstruct passageways, headroom, door and window operation, and similar areas with the installation of the piping.
9. All open ends of pipes, including equipment connections, shall be properly sealed at all times during installation to keep dirt and all foreign material out of the piping. Plugs used shall be commercially manufactured products.
10. Pipe size reductions shall be made with factory-fabricated eccentric reducers or reducing fittings and shall be installed in a manner which does not cause pocketing or inhibit the flow of the material.
11. Install shut-off service valves with unions on all connections to equipment and on each side of control valves as required for ease of proper servicing and maintenance; see Division 22 Section “General Duty Valves for Plumbing Piping”.
12. Unless otherwise indicated, the discharge from pressure-and temperature-relief valves and equipment drains shall be piped to the nearest floor drain, hub drain, or mop sink, installed with an approved air gap as required, and arranged for safe discharge.
13. No pipe shall penetrate any structural member without the written approval of the A/E. Where such penetration is allowed, the structural member shall be reinforced subject to the approval of the A/E.
14. Dielectric Separation: Provide dielectric separation at all copper piping and valves connected to ferrous piping. Brass or bronze valves installed in ferrous piping shall not require dielectric separation. Connections between copper piping and ferrous flanged piping and equipment connections shall be with a bronze companion flange with dielectric separation for flanges and bolts. Connections between copper piping and screwed ferrous piping shall be Clearflow Dielectric Waterway fittings.
15. Movement: Mains: Provide adequate offsets, bends, loops, flexible joints and guides as required to prevent over-stressing of piping and/or the structure. Branches: Provide for expansion and contraction by means of offsets, swings, joints or loops to eliminate stress on connected piping, valves or equipment. Provide for proper drainage as required. Maintain a free floating, properly braced and supported piping system.
16. Provide all rough-in and final connections to equipment and services indicated in the Contract Documents for equipment and services to be functional.
17. Pipe Sleeves shall be installed at ALL pipe penetrations of floors.

B. Cross Connections and Interconnections: No plumbing fixtures, devices, equipment or pipe connections shall be installed that will provide a cross-connection or interconnection between a potable water supply and any source of nonpotable water such as a drainage system, a soil or waste pipe, or a boiler or cooling tower where the water may be chemically treated.

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C. Painting of Piping: Refer to Division 09 Section “Interior Painting”.

3.02 BUILDING PIPING SYSTEM: INSTALLATION

A. Domestic Water: Cold, Hot, Recirculating: All piping shall be installed and pitched to provide proper drainage. Install drain valves at all low points and as required to provide drainage facilities for the piping. Wherever system is sectionalized, install drain valves between each sectional shut-off valve. All hot water piping shall be pitched to provide natural gravity recirculation regardless of a recirculation pump. Install pressure gauge in domestic cold water main at water entrances to building.

B. Shock Elimination: All piping shall be protected against water shock. Install a water hammer arrestor of the proper size at the end of the main, at the end of all branch lines, and at the end of lines serving groups of fixtures. Water hammer arrestors shall be sized and installed as recommended by the Plumbing and Drainage Institute (PDI) and shall eliminate water hammer. All water hammer arrestors shall be installed in locations where they are readily accessible for service. Where required, provide suitable access doors. Note: Install water hammer arrestors on each water line serving laundry clothes washers.

C. Contamination Protection: Provide an approved in-line double check backflow preventer at each connection to a fixture where indicated or required by code. Such fixtures shall include coffee makers, ice makers, clothes washers, etc.

D. Backflow Prevention: Install a code approved backflow preventer unit in the service main, where indicated on the Drawings, or as required by code. Include in-line strainer, dual-service shut-off valves, double-check valves, and check cocks. Install pressure gauge on inlet and outlet side of backflow preventor. Properly support unit, independent of the piping, with union connections.

E. Water Meter: Arrange for and pay all costs involved in the installation of a water meter in the building service line, where indicated. Support independent of the piping with union connections. Installation and meter shall be in accord with and approved by the water utility company. The Contractor is responsible for contacting the local water utility for meter setting and coordination of work.

END OF SECTION

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SECTION 221199
PEX PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Domestic water piping and fittings for the following applications:
   1. Domestic cold water piping
   2. Domestic hot water piping
   3. Domestic hot water recirculation piping

1.02 RELATED SECTIONS

A. Section 22 11 16 — Domestic Water Piping and Devices

B. Section 22 07 00 — Plumbing Pipe Insulation

C. Section 22 05 29 — Hangers and Supports for Plumbing Piping and Equipment

1.03 REFERENCES

A. ASTM International (ASTM)
   1. ASTM D 2765 Test Methods for Determination of Gel Content and Swell Ratio of Crosslinked Ethylene Plastics.
   2. ASTM D 3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
   3. ASTM D 6394 Specification for Sulfone Plastics (SP).
   4. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
   5. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
   6. ASTM F714 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
   7. ASTM E814 Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
   8. ASTM F876 Standard Specification for Crosslinked Polyethylene (PEX) Tubing.
   9. ASTM F877 Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems.
   10. ASTM F1960 Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Crosslinked Polyethylene (PEX) Tubing.
   11. ASTM F2023 Standard Test Method for Evaluating the Oxidative Resistance of Crosslinked Polyethylene (PEX) Pipe, Tubing and Systems to Hot Chlorinated Water
   12. ASTM F2657 Standard Test Method for Outdoor Weathering Exposure of Crosslinked Polyethylene (PEX) Tubing

B. American Water Works Association
   1. AWWA C904 Standard for Crosslinked Polyethylene (PEX) Pressure Pipe, 1/2 in. Through 3 in., for Water Service.

C. American National Standards Institute (ANSI)/National Sanitation Foundation (NSF)
   1. ANSI/NSF Standard 14 Plastics Piping System Components and Related Materials
   2. ANSI/NSF Standard 61 Drinking Water System Components - Health Effects
   3. ANSI/NSF Standard 359 Valves for Crosslinked Polyethylene (PEX) Water Distribution Tubing Systems
   4. ANSI/NSF Standard 372 Drinking Water System Components – Lead Content

D. American National Standards Institute (ANSI)/Underwriters Laboratories, Inc. (UL)
   1. ANSI/UL 263 Standard for Safety for Fire Tests of Building Construction and Materials.
   2. ANSI/UL 2846 Standard for Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics.

E. American Society of Mechanical Engineers (ASME)

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1. ASME B 16.5 Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard.
2. ASME B16.51 Copper and Copper Alloy Press-Connect Pressure Fittings.

F. International Code Council (ICC)
1. International Plumbing Code (IPC)
2. Evaluation Service Report PMG-1006 and PMG-1412
3. ICC-ES PMG — 1106
4. International Association of Plumbing Officials (IAPMO)
5. Uniform Plumbing Code (UPC)
6. Evaluation Report 253

G. Plastics Pipe Institute (PPI)
1. PPI Technical Report TR-4

H. Underwriters Laboratories (UL)
1. UL 2846 Standard for Fire Tests of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics.

I. Uponor Inc.
1. Uponor Piping Systems Installation Guide, current edition.
2. Uponor Plumbing Design Assistance Manual, current edition.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 30 00 — Administrative Requirements.

B. Product data: Provide manufacturer's product submittal data.

C. Shop drawings: Provide installation drawings indicating piping layout, size dimension by installation segment, vault locations, support fixtures and schedules with all details required for installation of the system.

D. Samples: Submit selection and verification samples of piping.

E. Quality assurance/control submittals
1. Test reports: Upon request, submit test reports from recognized testing laboratories.
2. Submit the following documentation.
a. Manufacturer's certificate stating that products comply with specified requirements.

F. Closeout submittals: Submit the following documents.
1. Warranty documents specified herein.
2. Operation and maintenance data.
3. Manufacturer's field reports specified herein.
4. Final as-built piping layout drawing.

1.05 QUALITY ASSURANCE

A. Installer qualifications: Installer shall have successfully completed the Uponor Piping Systems Training Course and is able to provide proof/verification. Course shall be conducted by the manufacturer or a manufacturer's representative.
1. Regulatory requirements and approvals: Ensure the piping distribution system complies with all applicable codes and regulations.
2. Certifications: Provide letters of certification indicating: Installer uses skilled workers holding a trade qualification license or equivalent, or apprentices under the supervision of a licensed tradesperson.
3. Pre-installation meetings:
a. Verify project requirements, excavation conditions, system performance requirements, manufacturer's installation instructions and warranty requirements.
b. Review project construction timeline to ensure compliance or discuss modifications as required.
c. Interface with other trade representatives to verify areas of responsibility.

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d. Establish the frequency and construction phase the project engineer intends for site visits and inspections by the tubing manufacturer's representative.

1.06 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Division 1 Product Requirement Section.

B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

D. Storage and protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
   1. Store PEX piping in cartons or under cover to avoid dirt or foreign material from entering the piping.
   2. Do not expose white PEX tubing to direct sunlight for more than one month or red or blue PEX tubing to direct sunlight for more than 6 months. If construction delays are encountered, cover the tubing to prevent exposure to direct sunlight.
   3. Store piping on a flat surface to prevent unwanted deformation.

1.07 WARRANTY

A. Project warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's warranty: PEX-a manufacturer system warranty shall cover piping and fittings for a duration of 25 years from the date of installation. Piping system warranty shall apply to potable water distribution and water service systems constructed of pipe and fitting products sourced from the same manufacturer.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufacturer: Uponor, Rehau, Viega Pureflow

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 — Product Requirements.

2.02 DOMESTIC WATER PIPING AND FITTINGS

A. Performance requirements:
   1. PEX-a piping and fittings shall meet the following pressure and temperature ratings per ASTM F876:
      a. 200 degrees F (93 degrees C) at 80 psi (551 kPa).
      b. 180 degrees F (82 degrees C) at 100 psi (689 kPa).
      c. degrees F (23 degrees C) at 160 psi (1,102 kPa).
   2. PEX-a piping and fittings shall be tested for compliance by an independent third-party agency.
   3. Minimum bend radius (cold bending): Six times the outside diameter.
   4. Show compliance with ASTM E119 and ANSI/UL 263 through certification listings through UL.
      a. UL Design No. L557 1 hour wood frame floor/ceiling assemblies.
      b. UL Design No. K913 2 hour concrete floor/ceiling assemblies.
      c. UL Design No. U372 1 hour wood stud/gypsum wallboard wall assemblies.
      d. UL Design No. V444 1 hour steel stud/gypsum wallboard wall assemblies.
   5. PEX-a piping shall be tested to comply with the ASTM F2023 requirement for minimum chlorine resistance at the end use condition of 100% of the time at 140°F (60°C) at 80 psi (0.55 MPa) gauge pressure.
      a. PEX-a piping and tubing material designation codes shall be PEX 5106 or PEX 5306.

B. Piping:
   1. Uponor AquaPEX®

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a. PEX-a (Engel-method crosslinked polyethylene), ASTM F876 and F877 (CAN/CSA-B137.5), SDR 9, CTS, 1/2 inch (16mm) through 3 inch (75mm) nominal pipe size.

2. Uponor AquaPEX pre-sleeved piping
   a. High-density polyethylene (HDPE) corrugated sleeved PEX-a (Engel-method crosslinked polyethylene), ASTM F876 and F877 (CAN/CSA-B137.5), SDR 9, CTS, 1/2 inch (16mm) and 3/4 inch (19 mm) nominal pipe size.
3. Uponor pre-insulated piping
   a. Factory fabricated and assembled Uponor AquaPEX PEX-a piping with a closed-cell polyethylene foam insulation, 1/2 inch (16mm) through 2 inch (51mm) nominal pipe size.
      1) Insulation shall not be exposed to groundwater

C. Fittings:
1. Uponor ProPEX®
   a. Third-party certified to NSF 14 and ASTM F1960 cold-expansion with PEX reinforcing ring and shall comply with ASTM F876 and ASTM F877, 1/2 inch through 3 inch nominal pipe size fittings manufactured from the following material types:
   b. Reinforcing cold-expansion rings shall be manufactured from the same source as PEX-a piping manufacturer and marked “F1960”.
2. Uponor multiport tees and elbows: Multiple-outlet fitting complying with ASTM F877 (CAN/CSA B137.5); with ASTM F1960 inlets and outlets.
3. Uponor manifolds: Multiple-outlet assembly with ASTM F 1960 outlets.
   a. Type L copper branch manifold with lead-free brass valve outlets.
   b. Type L copper branch manifold without valves, with lead-free brass outlets.

2.03 TRANSITION FITTINGS

A. PEX-to-metal transition fittings:
1. Manufacturers: Provide fittings from the same manufacturer of the piping.
2. Third-party certified to NSF 14 and ASTM F1960 cold-expansion with PEX reinforcing ring and shall comply with ASTM F876 and ASTM F877, 1/2 inch through 3 inch nominal pipe size fittings manufactured from the following material types:
3. PEX-a to thread transition: One-piece Lead free (LF) brass fitting with male or female threaded adapter and ASTM F 1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.
4. PEX-a to copper sweat transition: One-piece lead free (LF) brass fitting with sweat adapter and ASTM F 1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.
5. PEX-a to copper press transition: One-piece lead free (LF) brass fitting with one ASME B16.51 copper press end and one ASTM F1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.
6. PEX-a to flange transition: Two-piece fitting with one steel flange conforming to ASME B 16.5 and one lead free (LF) brass adapter conforming to ASTM F1960.
7. PEX-a to groove transition: One-piece lead free (LF) brass fitting with one CSA B242-05 groove end in either iron pipe size (IPS) or copper tube size (CTS) and one ASTM F1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.
8. PEX-a to water meter transition: Two-piece fitting with one NPSM union thread and one ASTM F 1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.

B. PEX-to-thermoplastic transition fittings:
1. PEX-a to CPVC transition: Thermoplastic fitting with one spigot or socket end and one ASTM F1960 cold-expansion end, with PEX-a reinforcing cold-expansion ring.

2.04 VALVES

A. PEX-to-PEX, lead-free (LF) brass ball valves (1/2 inch (13 mm) through 2 inch (50 mm) nominal pipe size)
1. Manufacturers: Provide ball valve(s) from the same manufacturer as the piping system.

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2. Full-port ball valve: two-piece, ASTM F1960 cold-expansion ends, with PEX-a reinforcing cold-expansion ring.
3. LF brass valve with a positive stop shoulder.
4. In compliance with 250 CWP, ANSI/NSF 359, ANSI/NSF 372, ANSI/NSF 14/61, cNSF-us-pw_G lead free 0.25% lead maximum, ASTM F1960, ASTM F877 (CAN/CSA B137.5).
5. Provide stem extension kits for insulated piping.

B. PEX-to-NPSM, lead-free (LF) full-port brass water meter service valve
1. 3/4 inch PEX x 1 inch NPSM straight and elbow
2. 1 inch PEX x 1-1/4 inch NPSM straight and elbow
3. Metal and polypropylene NPSM union nut
4. In compliance with 250 CWP, ANSI/NSF 359, ANSI/NSF 14/61, cNSF-us-pw_G lead free 0.25% lead maximum, ASTM F1960, ASTM F877 (CAN/CSA B137.5).

PART 3 – EXECUTION

3.01 EXAINATION

A. Site verification of conditions: Verify that site conditions are acceptable for installation of the domestic water piping. Do not proceed with installation until unacceptable conditions are corrected.

3.02 INSTALLATION

A. Install domestic water piping according to approved shop drawings and coordination drawings.

B. Comply with manufacturer's product data, including product technical bulletins, installation instructions and design drawings, including the following.
1. Install PEX piping system in compliance with the Uponor Plumbing Design Assistance Manual (PDAM), current edition, and the Uponor Piping Systems Installation Guide, current edition.
2. PEX shall not be installed in areas within five feet of a UV light source, such as LED and fluorescent light fixtures or other UV generating devices.
3. White PEX shall not be installed outdoors where it is exposed to direct sunlight light for more than one month; red or blue PEX shall not be installed outdoors where it is exposed to direct sunlight for more than six months.
4. PEX piping shall be installed per ASTM E84 requirements for plenum applications.
5. Install PEX-a Pipe Support and provide all required hangers and supporting strapping as required by manufacturer to provide a code compliant installation.
6. Install PEX piping in straight runs free of sags and kinks and provide bend supports at all 1/2 inch and 3/4 inch drops.
7. All PEX piping penetrations through wall plates shall be protected or shielded as required to prevent damage to piping.
8. PEX tubing passing through metal studs shall use grommets or sleeves at the penetration.
9. Install PEX piping from the multiport tee or manifold to each fixture as a home run.
10. Install PEX-a Pipe Support, fixed anchor points and hangers in compliance with Uponor Plumbing Design Assistance Manual (PDAM) to minimize expansion and contraction.
11. Install PEX piping at each fixture with out of the wall support bracket to secure piping and prevent excess movement when water stops or shut valves are operated.
12. Install all PEX manifolds centered in access panels to permit servicing.

C. Below-ground and in-slab installation
1. Install PEX piping system in compliance with the Uponor Plumbing Design Assistance Manual (PDAM), current edition and the Uponor Piping Systems Installation Guide, current edition.
2. White PEX shall not be installed outdoors where it is exposed to direct sunlight light for more than one month; red or blue PEX shall not be installed outdoors where it is exposed to direct sunlight for more than six months.
3. Install support strapping as required by manufacturer to provide a code-compliant installation.

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4. Install PEX piping free of kinks.
5. PEX piping penetrations through slabs shall be protected by PEX stand-up brackets or PVC bend supports to prevent damage to piping.
6. Install PEX piping from the manifold as a home run. No joints shall be installed in the slab.
7. Insulation shall not be exposed to groundwater.
8. The piping system will be installed with the fewest number of underground joints as possible.

D. Backfill
   1. The piping system will be backfilled with clean sand material.
      a. Minimum vertical distance from the bottom of the tubing to the trench floor is 4 inches (100 mm).
      b. Minimum lateral distance from the side of the tubing to the trench wall is 6 inches (150 mm).
      c. Install a minimum of 12 inches (300 mm) of clean fill over the top of the piping.
   2. The balance of the trench can be backfilled with native soil void of stone greater than 2 inches (50m) in diameter.

E. Comply with manufacturer's product data, including product technical bulletins, installation instructions and design drawings, including the following:
   1. Uponor Piping Systems Installation Guide, current edition.
   2. Uponor Plumbing Design Assistance Manual, current edition.

F. PEX-a hangers and supports
   1. Horizontal PEX-a piping: Install supports suitable for PEX-a piping in compliance with local codes and the Uponor Piping Systems Installation Guide, current edition.
      a. Note: Per ICC PMG-1006, the above maximum hanger spacing requirements may be extended with the use of a continuous support channel such as Uponor PEX-a Pipe Support.
   2. Horizontal PEX-a piping with PEX-a Pipe Support: Install supports for PEX-a piping with horizontal support channel in accordance with manufacturer's recommendations and the following maximum spacing:
      a. 3 inch nominal and smaller: Maximum span, 8 feet (2.4 m).
      b. Support 1-1/2 inch and smaller fittings within 12 inches (0.3 m).
      c. Install clamps and fixed points per the Uponor Piping Systems Installation Guide, current edition.
   3. Vertical PEX-a piping: Install supports suitable for PEX-a piping in compliance with local codes and the Uponor Piping Systems Installation Guide, current edition:
      a. Support vertical in-wall piping every 5 feet (1.5 m).
      b. Support riser piping at the base of each floor and every 5 feet (1.5 m) vertically.
         1) Refer to the Uponor Piping Systems Installation Guide, current edition, for additional requirements.

G. Piping schedule
   1. Above ground domestic water piping shall be the following:
      a. 3 inch (75mm) and smaller
         1) PEX-a piping with engineered polymer (EP) or lead-free brass ASTM F1960 cold-expansion fittings.
      b. 2 inch (51mm) and smaller:
         1) Pre-Insulated PEX-a piping with engineered polymer (EP) or lead-free brass ASTM F1960 cold-expansion fittings.
   2. Domestic water piping installed below ground shall be any of the following:
      a. 3 inch (75mm) and smaller:
         1) PEX-a piping with engineered polymer (EP) or lead-free brass ASTM F1960 cold-expansion fittings. No joints or fittings shall be installed under slab. Protect all slab penetrations.
      b. 2 inch (51mm) and smaller, not exposed to groundwater:

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1) Pre-Insulated PEX-a piping with engineered polymer (EP) or lead-free brass ASTM F1960 cold-expansion fittings. No joints or fittings shall be installed under slab. Protect all slab penetrations.

3. Domestic water piping installed within slabs shall be the following:
   a. 3 inch (75mm) and smaller:
      1) PEX-a piping. No joints or fittings shall be installed within slab. Protect all slab penetrations.
   b. 1/2 inch (13 mm) and 3/4 inch (19 mm):
      1) Pre-sleeved PEX-a piping. No joints or fittings shall be installed within slab. Protect all slab penetrations.
   c. 2 inch (51mm) and smaller:
      1) Pre-Insulated PEX-a piping. No joints or fittings shall be installed within slab. Protect all slab penetrations.

H. Pipe joint construction
   1. PEX-a connections:
      a. Install per manufacturer's recommendations.
      b. Use manufacturer-recommended cold-expansion ProPEX tool for ASTM F1960 connections.

3.03 FIELD QUALITY CONTROL

A. Pressure testing PEX pipe and fittings: Pressure test PEX-a piping systems in accordance with local code and manufacturer’s requirements.

B. System flushing, pressure testing and system conditioning procedure:
   1. Hydrostatic pressure testing shall be completed in accordance with local Codes and the Uponor Plumbing Design Assistance Manual (PDAM).
   2. Leave joints uninsulated and exposed for the duration of the test.
   3. Flush the domestic water system with ambient temperature, clean, potable water unless there is a risk of damage due to freezing.
   4. After completing each hydrostatic leak testing procedure, drain the system until empty.
   5. If testing with compressed air, do not exceed 120 psi.

3.04 CLEANING

A. Remove temporary coverings and protection of adjacent work areas.

B. Repair or replace damaged installed products.

C. Clean the installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

D. Water system disinfection
   1. Uponor AquaPEX piping should be disinfected in accordance with AWWA C651, Standard for Disinfecting Water Mains, or local codes.
   2. Use non-petroleum-based cleaners
   3. Not exceed a pH of 11
   4. Have water temperatures less than 140°F (60°C)
   5. Use a chlorine solution of 50 parts per million (ppm) for 24 hours or 200 ppm for three hours for disinfection.
   6. To prevent reduced service life of system components, disinfection solutions should not stand in the system longer than 24 hours. Flush the system with potable water after disinfection.

3.05 PROTECTION

A. Protect installed work from damage caused by subsequent construction activity on the site.

END OF SECTION

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SECTION 23 37 01

EXTRUDED ALUMINUM STATIONARY LOUVERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Extruded aluminum stationary louvers with drainable blades.

1.2 REFERENCES

A. AAMA 605.2 - High Performance Organic Coatings on Architectural Extrusions and Panels.

B. AMCA 500 - Test Methods for Louvers, Dampers and Shutters.

C. AMCA 511 - Certified Ratings Program for Air Control Devices.

1.3 SUBMITTALS

A. Comply with requirements of Section 01330 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data including performance data.

C. Shop Drawings: Submit shop drawings indicating materials, construction, dimensions, accessories, and installation details.

D. Samples: Submit sample of louver to show frame, blades, bird screen, gutters, downspouts, vertical supports, sill, accessories, finish, and color.

1.4 QUALITY ASSURANCE

A. Louvers licensed to bear AMCA Certified Ratings Seal. Ratings based on tests and procedures performed in accordance with AMCA 511 and comply with AMCA Certified Ratings Program. AMCA Certified Ratings Seal applies to air performance and water penetration ratings.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

B. Storage: Store materials in a dry area indoors, protected from damage and in accordance with manufacturer's instructions.

C. Handling: Protect materials and finishes during handling and installation to prevent damage.

PART 2 PRODUCTS

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2.1 MANUFACTURER

A. Ruskin Manufacturing

B. Arrow

C. Cesco

D. Greenheck

E. Pottorff

F. Approved Equal

2.2 EXTRUDED ALUMINUM STATIONARY LOUVERS

A. Fabrication:
1. Performance Ratings: AMCA licensed.
2. Frame:
    a. Material: Extruded aluminum, Alloy 6063-T5.
    b. Wall Thickness: 0.125 inch (3.2 mm), nominal.
    c. Depth: 6 inches (152 mm).
    d. Downspouts and caulking surfaces.
3. Blades:
    a. Style: Drainable.
    b. Material: Extruded aluminum, Alloy 6063-T5.
    c. Wall Thickness: 0.125 inch (3.2 mm), nominal.
    d. Angle: 37.5 degrees.
    e. Centers: 5-29/32 inches (150 mm), nominal.
4. Bird Screen:
    a. Material: Aluminum, [3/4 inch x 0.051 inch (19 mm x 1.3 mm), expanded, flattened] [1/2 inch mesh x 0.063 inch (13 mm mesh x 1.6 mm), intercrimp].
    b. Frame: Removable, rewireable.
5. Gutters: Drain gutter in head frame and each blade.
6. Downspouts: Downspouts in jambs to drain water from louver for minimum water cascade from blade to blade.
7. Vertical Supports: Hidden vertical supports to allow continuous line appearance up to 120 inches (3,048 mm).
8. Sill: Steeply angled integral sill eliminating areas of standing or trapped moisture where mold or mildew may thrive and effect indoor air quality.
9. Assembly: Factory assemble louver components. All welded construction.

B. Design Load: Incorporate structural supports required to withstand wind load of 20.

2.3 ACCESSORIES

A. Bird Screens:

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B. Insect Screens:

C. Extended Sills: Extruded aluminum, Alloy 6063-T5. Minimum nominal wall thickness 0.060 inch (1.5 mm).

D. Visible Mullions: Manufacturer's standard horizontal or vertical visible mullions for architectural accent as indicated on drawings.

2.4 FACTORY FINISH

A. Color Anodize Finish:
1. Comply with Aluminum Association AA-C22A44.
2. Apply finish following chemical etching and pretreatment.
3. Electrolytically deposited color anodized finish.
4. Minimum Thickness: 0.7 mils (0.018 mm).

B. Clear Anodize Finish:
1. Comply with Aluminum Association AA-C22A31. Clear anodize finish 204-R1.
2. Apply finish following chemical etching and pretreatment.
3. Minimum Thickness: 0.4 mils (0.01 mm), 30 minute anodizing process.

PART 3 EXECUTION

3.1 EXAMINATION

A. Inspect areas to receive louvers. Notify the Architect of conditions that would adversely affect the installation or subsequent utilization of the louvers. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Install louvers at locations indicated on the drawings and in accordance with manufacturer's instructions.

B. Install louvers plumb, level, in plane of wall, and in alignment with adjacent work.

C. Install joint sealants as specified in Section 07920.

3.3 CLEANING

A. Clean louver surfaces in accordance with manufacturer's instructions.

B. Repair minor damaged surfaces as directed by Architect.

END OF SECTION

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SECTION 26 56 00 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of all trades apply to work of this section. Communicate with the other trades regarding final locations of exterior lighting fixtures with equipment locations, walkways, drives, etc.

B. Division - 26 Basic Electrical Materials and Methods sections apply to work specified in this section.

1.2 SUMMARY

A. Extent of exterior lighting fixture work is indicated by drawings and schedules.

B. Types of exterior lighting fixtures in this section include the following:

1. LED, unless otherwise indicated.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions on each type exterior building lighting fixture.

1.4 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of exterior building lighting fixtures of types and ratings required, whose products have been in satisfactory use in similar service for not less than 3 years.

B. Installer's Qualifications: Firm with at least 3 years of successful installation experience on projects with exterior lighting fixture work similar to that required for project.

C. Codes and Standards:

1. Electrical Code Compliance: Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 225, 250, 410, and 501 as applicable to installation and construction of exterior building lighting fixtures.
2. NEMA Compliance: Comply with applicable requirements of NEMA Stds. Pub/No. LE 2 pertaining to lighting equipment.
3. UL compliance: Comply with requirements of UL standards, including Stds. 486A and B, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures and components which are UL-listed and labeled.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver exterior lighting fixtures in factory-fabricated containers or wrappings, which properly protect fixtures from construction debris and physical damage.

B. Store exterior lighting fixtures in original wrappings in a clean dry space. Protect from weather, dirt, fumes, water, construction debris and damage.

C. Handle exterior lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged fixtures or components; remove units from site and replace with new.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate with other electrical work including wires/cables, electrical boxes and fittings, and raceways, to properly interface installation of exterior lighting fixtures with other work.

B. Sequence exterior lighting installation with other work to reduce possibility of damage and soiling of fixtures during remainder of construction period.

1.7 MAINTENANCE

A. Maintenance Data: Submit maintenance data and parts list for each exterior lighting fixture and accessory; including "trouble-shooting" maintenance guide. Include that data, product data, and shop drawings in a maintenance manual; in accordance with requirements of division 1.

B. Extra Stock: Furnish stock or replacement lamps amounting to 10 percent (but not less than one lamp in each case) of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owner's storage space.

1.8 WARRANTY

A. For LED fixtures, lamps, drivers, and components, provide a complete warranty for parts and labor for a minimum of five years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work are listed on the fixture schedule.

2.2 EXTERIOR LIGHTING FIXTURES

A. General: provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not limited to, housings, poles, drivers, energy efficient ballasts, starters, lamps and wiring.

B. Wiring: Provide electrical wiring within fixtures which is suitable for connection to branch circuit wiring as follows:

1. NEC Type AF for 120-volts, minimum no. 18 AWG.; NEC Type SF-2 for 208-volts or 277-volts, minimum No. 18 AWG.

C. High-Intensity-Discharge Lamp Ballasts (Not used for this Project): Provide HID lamp ballasts, of ratings, types and makes as recommended by lamp manufacturer, which properly mates and matches lamps to electrical supply by providing appropriate voltages and impedances for which lamps are designed. Design ballasts to operate lamp within the lamp's power trapezoid requirements. Ballasts shall be high power factor type and primary shall be fused.

D. Lamps: Provide clear metal halide in wattage indicated (Not used for this Project).

E. Fusing: Provide Primary Fusing in all phase conductors.

F. Poles: Poles for grade level mounted LED luminaires shall be aluminum or as indicated on the drawings with factory finish. Poles for luminaries mounted on the concrete walls of the WWTP shall be stainless steel with factory finish. Poles shall be factory wrapped with heavy weatherproof paper for protection during handling and shipping.

G. LED Drivers: Luminaires shall be equipped with an LED driver(s) that accepts the voltage as indicated on the “Luminaire (Lighting Fixture) Schedule”. Individual driver(s) shall be replaceable. Drivers shall comply with the following requirements:

1. Drivers shall be UL 8750 class 2 listed for their intended purpose.
2. Drivers shall have a minimum efficiency of 85%
3. Drivers shall reliably start at minimum ambient temperatures from -40^{0}C with to 40^{0}C with THD of <=20%.
4. Drivers shall deliver full-range from 0-10V control signal (not used).
5. Provide 120VAC drivers.

H. LED Light Source (Light engine): All Led light engines shall be set to achieve IES, Type III, Type IV or Type V distribution as shown on the “Luminaire (Lighting Fixture) Schedule”. Individual light engines shall be replaceable. LED Light sources shall comply the following conditions: requirements:

1. LED light engines shall have a minimum lifetime of 50,000+ hours at 40^{0}C and shall have a minimum efficacy of 80 lumens per watt.
2. All LEDs shall be installed with 0 lumens above 90^0 up from nadir (full cut-off) performance.
3. LED dies shall be tested in accordance with I.E.S.N.A. LM-80-08 standards.

I. Dimming Controls: Dimming controls shall be compatible with the lighting control system (Not used).

2.3 PHOTOCELL CONTROLLERS

A. 2000 watt, 120 VAC rated, conduit pedestal mounted, used to control an individual circuit or a lighting contactor; Tork Model #2101 or approved equal.

B. Provide a programmable 7-day time clock/time switch.

C. Provide an H-O-A selector switch.

D. Provide panel enclosed control system.

E. Design controls to provide “ON” signal at dusk, and “Off” signal at Dawn or at a pre-determined time by the Time Clock.

F. In the Hand position, all fixtures shall be “On” for maintenance check.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions under which lighting fixtures are to be installed, and substrate which will support lighting fixtures. Notify Contractor in writing of conditions detrimental to proper completion of the Work. Do not proceed with the Work until satisfactory conditions have been corrected in a manner acceptable to Installer.

3.2 INSTALLATION OF EXTERIOR LIGHTING FIXTURES

A. Install exterior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry requirements.

B. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standards 486A and B, and the National Electrical Code.

C. Fasten lighting fixtures and brackets securely to structural supports and ensure that installed fixtures are plumb and level.

D. For grade level area fixtures construct reinforced concrete bases flush with grade, with conduits, anchor bolts and ground wire. Provide six-foot minimum ground rod located six foot distant from pole, 24" below finished grade to top of ground rod; provide #4 ground wire.

E. Install poles on bases and adjust to provide plumb installation.

F. Lighting fixtures mounted above the concrete wall of the WWTP tanks shall have a stainless-steel pole base or foundation bracket securely mounted to the concrete wall – such as a Davit Crane base socket or a base plate socket or similar. Note that the open tanks on the WWTP are

classified Class 1, Division 1, Group D : all wiring and conduit shall comply.

3.3 GROUNDING

A. Provide equipment grounding connections for exterior lighting fixtures. Tighten connections to comply with tightening torques specified in UL Std. 486A to assure permanent and effective grounds.

3.4 FIELD QUALITY CONTROL

A. At the Date of Substantial Completion, replace lamps in exterior lighting fixtures which are observed to be noticeably dimmed as judged by the Architect/Engineer.

3.5 ADJUSTING AND CLEANING

A. Aim adjustable lighting fixtures and lamps in night test of system.

B. Clean lighting fixtures of dirt and debris upon completion of installation.

C. Protect installed fixtures from damage during construction period.

3.6 DEMONSTRATION

A. Upon completion of installation of exterior lighting fixtures, and associated electrical supply circuitry, apply electrical energy to circuitry to demonstrate compliance with requirements. Where possible correct any malfunctions at the site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

END OF SECTION 26 56 00

(NO TEXT FOR THIS PAGE)

SECTION 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. The following Sections and general provisions apply to this Section.

1. 31 10 00 “Site Clearing”.
2. 31 23 16.13 “Trenching”.
3. 31 23 23 “Fill”.

1.2 SUMMARY

A. Section includes Temporary control measures as shown on the plans or as ordered by the Owner during the life of the Contract to control water pollution, soil, erosion, and siltation using berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

1.3 DESCRIPTION

A. This item shall consist of temporary control measures as shown on the Drawings or as ordered by the Owner during the life of the Contract to control water pollution, soil erosion, and siltation using berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

B. Temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this Contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

C. Temporary control may include work outside the construction limits such as borrow put operations, equipment, and material storage sites, waste areas, and temporary plant sites.

1.4 SUBMITTALS

A. Submit Erosion Control Plan Product Cut Sheets to Engineer for review and approval.

B. Prior to start of construction, Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work, as are applicable for clearing and grubbing, grading, and construction. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operations for the applicable construction have been accepted by the Engineer.

PART 2 - PRODUCTS

2.1 MULCHES

A. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials.

B.

2.2 STRAW BALE DIKE

A. Straw bale dikes shall be used as needed to prevent soil erosion at all stream or ditch crossings.

2.3 OTHER

A. All other materials shall meet commercial grade standards and shall be approved by the engineer before being incorporated into the project.

PART 3 - EXECUTION

3.1 GENERAL

A. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

B. The Contractor shall be responsible for compliance to the extent that construction practices, construction operations, and construction work are involved.

3.2 AUTHORITY OF OWNER

A. The Owner and the Owner's authorized Representatives have the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, to limit the surface area of erodible earth material exposed by excavation, borrow, and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams.

3.3 CONSTRUCTION DETAILS

A. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the accepted schedule. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding, mulching, and other specified slope protection work in stages as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design state; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices but are not associated with permanent control features on the project.

B. Where erosion is likely to be a problem, clearing and grubbing operations should be scheduled and performed so that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise, temporary erosion control measures may be required between successive construction stages.

C. The Owner will limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current in accordance with the accepted schedule. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified.

D. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or as ordered by the Owner, such work shall be performed by the Contractor at his/her own expense.

E. The Owner may increase or decrease the area of erodible earth material to be exposed at one time as determined by analysis of project conditions.

F. The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the construction period.

G. Whenever construction equipment must cross watercourses at frequent intervals, and such crossings will adversely affect the sediment levels, temporary structures must be provided and not alter watercourse flow or sedimentation

H. Pollutants including fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or manmade channels leading thereto.

END OF SECTION 31 25 00

"General Decision Number: IN20230006 01/06/2023

Superseded General Decision Number: IN20220006

State: Indiana

Construction Types: Heavy and Highway

Counties: Adams, Allen, Bartholomew, Benton, Blackford, Boone, Brown, Carroll, Cass, Clark, Clay, Clinton, Crawford, Daviess, Dearborn, Decatur, DeKalb, Delaware, Dubois, Elkhart, Fayette, Floyd, Fountain, Franklin, Fulton, Gibson, Grant, Greene, Hamilton, Hancock, Harrison, Hendricks, Henry, Howard, Huntington, Jackson, Jasper, Jay, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lagrange, Lawrence, Madison, Marion, Marshall, Martin, Miami, Monroe, Montgomery, Morgan, Newton, Noble, Ohio, Orange, Owen, Parke, Perry, Pike, Posey, Pulaski, Putnam, Randolph, Ripley, Rush, Scott, Shelby, Spencer, Starke, Steuben, Sullivan, Switzerland, Tippecanoe, Tipton, Union, Vanderburgh, Vermillion, Vigo, Wabash, Warren, Warrick, Washington, Wayne, Wells, White and Whitley Counties in Indiana.

* EXCEPT LAKE, LAPORTE, PORTER AND ST. JOSEPH COUNTIES 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)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $16.20 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 2023.
If the contract was awarded on	. Executive Order 13658

or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	generally applies to the contract. . The contractor must pay all covered workers at least $12.15 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 2023.

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	01/06/2023

ASBE0008-004 03/01/2022

DEARBORN, FAYETTE, FRANKLIN, OHIO, RIPLEY SWITZERLAND AND UNION COUNTIES

	Rates	Fringes
Asbestos Workers/Insulator (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems)	$ 32.33	20.19
HAZARDOUS MATERIAL HANDLER (Includes preparation, wettings, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	$ 25.00	13.70

ASBE0017-008 06/01/2022

NEWTON COUNTY:

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR	$ 52.80	32.30
HAZARDOUS MATERIAL HANDLER (INCLUDES PREPARATION, WETTING, STRIPPING REMOVAL SCRAPPING, VACUUMING, BAGGING AND DISPOSAL OF ALL INSULATION MATERIALS, WHETHER THEY CONTAIN ASBESTOS OR NOT, FROM MECHAINCAL SYSTEMS)	$ 38.85	24.60

ASBE0018-005 06/01/2021

BROWN, BARTHOLOMEW, BENTON, BOONE, CARROLL, CASS, CLAY, CLINTON, DECATUR, DELAWARE, ELKHART. FOUNTAIN, FULTON, GREENE, HAMILTON, HANCOCK, HENDRICKS, HENRY, HOWARD, JASPER, JOHNSON, KOSCIUSKO, LAGRANGE, MARSHALL, MADISON, MARION, MONROE, MONTGOMERY, MORGAN, OWEN, PARKE, PULASKI, PUTNAM, RUSH, SHELBY, STARKE, TIPPECANOE, TIPTON, VERMILLION, VIGO, WARREN and WHITE Counties

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems)	$ 33.90	21.38
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	$ 23.00	14.40

ASBE0037-004 04/02/2022

DAVIESS, DUBOIS, GIBSON, KNOX, MARTIN, PIKE, POSEY, SPENCER, SULLIVAN, VANDERBURGH AND WARRICK COUNTIES

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials protective coverings, coatings an finishes to all types of mechanical systems. Also the application of firestopping, material openings and penetrations in walls, floors, ceilings, curtain walls and all lead abatement.)	$ 32.84	22.09
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging and disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	$ 23.00	14.40

ASBE0041-002 07/01/2022

ADAMS, ALLEN, BLACKFORD, DE KALB, GRANT, HUNTINGTON, JAY, MIAMI, NOBLE, STEUBEN, WABASH, WELLS AND WHITLEY COUNTIES:

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems)	$ 31.45	22.38
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vaccuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	$ 23.00	14.40

ASBE0051-003 03/01/2022

CLARK, CRAWFORD. FLOYD, HARRISON, JACKSON, JEFFERSON, JENNINGS, LAWRENCE, ORANGE, PERRY, SCOTT, and WASHINGTON Counties

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems)	$ 27.10	18.38
HAZARDOUS MATERIAL HANDLER (includes preparation, wettings, stripping, removal, scrapping, vaccuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems)	$ 19.80	13.30

ASBE0079-002 07/01/2017

RANDOLPH AND WAYNE COUNTIES

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes application of all insulating materials, protective coverings, coatings & finishings to all types of mechanical systems)	$ 22.25	8.89
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems))	$ 25.00	13.70

BRIN0003-001 06/01/2021

INDIANAPOLIS
BOONE, HANCOCK, HENDRICKS, JOHNSON, MARION, MONTGOMERY, MORGAN and SHELBY COUNTIES

	Rates	Fringes
Bricklayer, Stone Mason, Pointer, Caulking	$ 33.59	15.89
TERRAZZO FINISHER	$ 20.74	11.98
TERRAZZO WORKER/SETTER	$ 33.36	15.74
Tile & Marble Finisher	$ 21.69	11.99
Tile, Marble Setter	$ 32.61	15.73

BRIN0004-004 06/01/2021

FORT WAYNE
ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WELLS AND WHITLEY COUNTIES:

	Rates	Fringes
BRICKLAYER (STONE MASON, MARBLE MASONS, POINTER, CLEANER, AND CAULKER)	$ 31.50	18.96
Terrazzo Grinder Finisher	$ 28.00	14.84
Terrazzo Worker Mechanic	$ 32.37	18.76
Tile Setter & Marble Mason Mechanic	$ 28.00	16.36
Tile, Marble & Terrazzo Finisher	$ 25.00	13.78

BRIN0004-005 06/01/2020

CRAWFORD, DUBOIS, PERRY, POSEY, SPENCER, VANDERBURGH, and WARRICK Counties

	Rates	Fringes
BRICKLAYER	$ 30.00	14.71
TILE FINISHER	$ 20.31	12.00
TILE SETTER	$ 27.19	13.85

BRIN0004-009 06/01/2021

BARTHOLOMEW, BROWN, DEARBORN, DECATUR, JENNINGS, MONROE, OHIO, OWENS, RIPLEY and SWITZERLAND COUNTIES

	Rates	Fringes

Bricklayer, Stonemason.....$ 30.53 15.95
TERRAZZO FINISHER.....$ 21.69 11.99
TERRAZZO WORKER/SETTER.....$ 33.36 15.74
Tile & Marble Finisher.....$ 21.69 11.99
Tile, Marble Setter.....$ 32.61 15.73

BRIN0004-010 06/01/2021

CLARK, FLOYD, and HARRISON Counties

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, STONEMASONS AND CEMENT MASONS	$ 29.57	15.10

BRIN0004-015 06/01/2021

TERRE HAUTE
CLAY, DAVIESS, GIBSON, GREENE, KNOX, MARTIN, PARKE, PIKE, PUTNAM, SULLIVAN, VERMILLION and VIGO COUNTIES

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, STONE MASONS and POINTER/ CLEANER/CAULKER	$ 33.59	15.97
CEMENT MASON (Greene and Sullivan Counties)	$ 27.78	11.02
CEMENT MASON (REMAINING COUNTIES)	$ 33.59	15.97
TERRAZO FINISHER	$ 20.74	11.98
TERRAZZO WORKER	$ 33.36	15.74
TILE LAYER, MARBLE MASON, MOSAIC WORKER	$ 32.61	15.73

BRIN0004-016 06/01/2021

MUNCIE
BLACKFORD, DELAWARE, FAYETTE, FRANKLIN, HAMILTON, HENRY, JAY, MADISON, RANDOLPH, RUSH, TIPTON, UNION and WAYNE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner	$ 31.75	18.07
TERRAZZO FINISHER	$ 20.74	11.98

TERRAZZO WORKER/SETTER.....$ 33.36 15.74
Tile & Marble Finisher.....$ 20.74 11.98
Tile & Marble Setter; Mosaic
Worker.....$ 32.61 15.73

BRIN0006-001 06/01/2021

JASPER, NEWTON & STARKE COUNTIES

	Rates	Fringes
BRICKLAYER (Including Stonemason, and Pointer, Caulker & Cleaner)	$ 38.85	27.17
Tile, Marble & Terrazzo Worker	$ 37.05	21.64

BRIN0011-001 06/01/2021

LAFAYETTE
BENTON, CARROLL, CLINTON, FOUNTAIN, TIPPECANOE, WARREN and
WHITE COUNTIES

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner	$ 30.75	18.97
TERRAZZO FINISHER	$ 21.69	11.99
TERRAZZO WORKER/SETTER	$ 33.36	15.74
Tile & Marble Finisher	$ 21.69	11.99
Tile & Marble Setter; Mosaic Worker	$ 32.61	15.73

BRIN0018-002 06/01/2021

CASS, ELKHART, FULTON, GRANT, HOWARD, KOSCUISKO, LAGRANGE,
MARSHALL, MIAMI, PULASKI, WABASH

	Rates	Fringes
Bricklayer, Caulker, Cleaner, Pointer	$ 31.11	18.40

CARP0002-023 04/01/2022

DEARBORN, JACKSON, JENNINGS, OHIO, RIPLEY AND SWITZERLAND
COUNTIES

	Rates	Fringes
CARPENTER	$ 26.95	26.11

CARP0133-001 04/01/2021

BOONE, CLAY, FOUNTAIN, MONROE, MONTGOMERY, MORGAN, OWEN, PARKE, PUTNAM, VERMILLION AND VIGO COUNTIES

	Rates	Fringes
CARPENTER	$ 28.71	23.36

CARP0133-003 04/01/2021

HAMILTON, HANCOCK, HENDRICKS, JOHNSON (Townships of Clark, Camp Atterbury north of Hospital Road, Pleasant, White River), and MARION Counties

	Rates	Fringes
CARPENTER	$ 29.82	23.36

CARP0175-004 04/01/2021

CLARK, FLOYD, HARRISON, JEFFERSON,SCOTT AND WASHINGTON COUNTIES

	Rates	Fringes
CARPENTER	$ 25.82	25.59

CARP0215-002 04/01/2022

BENTON, CARROLL, CLINTON, PULASKI, TIPPECANOE, WARREN AND WHITE COUNTIES

	Rates	Fringes
CARPENTER	$ 30.53	23.04

CARP0224-011 04/01/2021

CRAWFORD, DUBOIS, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH AND WARRICK COUNTIES:

	Rates	Fringes

CARPENTER.....$ 25.89 25.52

CARP0224-012 04/01/2021

DAVIESS, GIBSON, GREENE, KNOX, LAWRENCE, MARTIN, ORANGE AND SULLIVAN COUNTIES:

	Rates	Fringes
CARPENTER	$ 26.24	25.57

CARP0232-003 04/01/2022

ALLEN, DEKALB, LAGRANGE, NOBLE, STEUBEN and WHITLEY COUNTIES

	Rates	Fringes
CARPENTER	$ 29.14	23.87

CARP0301-001 04/01/2022

BARTHOLOMEW, BROWN,(Camp Atterbury south of Hospital Road), DECATUR, FRANKLIN, JOHNSON (Townships of Blue River, Franklin, Hensley, Needham, Nineveh, Union) , RUSH AND SHELBY COUNTIES

	Rates	Fringes
CARPENTER	$ 29.26	23.87

CARP0413-003 04/01/2022

ADAMS, CASS, ELKHART, FULTON, GRANT, HOWARD, HUNTINGTON, KOSCIUSKO, MARSHALL, MIAMI, TIPTON, WABASH AND WELLS COUNTIES:

	Rates	Fringes
CARPENTER	$ 29.46	23.70

CARP0999-001 06/01/2017

JASPER, NEWTON, AND STARKE COUNTIES

	Rates	Fringes
CARPENTER	$ 37.56	26.42

CARP1016-001 04/01/2022

BLACKFORD, DELAWARE, FAYETTE, HENRY, JAY, MADISON, RANDOLPH, UNION AND WAYNE COUNTIES

	Rates	Fringes
CARPENTER	$ 29.56	24.01

CARP1076-004 04/01/2016

HAMILTON and MARION Counties, and the following Townships in JOHNSON County: Camp Atterbury (North of Hospital Rd.), Clark, Pleasant, and White River

	Rates	Fringes
MILLWRIGHT	$ 26.81	19.28

CARP1076-005 06/01/2017

JASPER, NEWTON, PULASKI, and STARKE Counties

	Rates	Fringes
MILLWRIGHT	$ 37.66	26.42

CARP1076-006 06/01/2018

BARTHOLOMEW, BLACKFORD, BOONE, BROWN, CLAY, DECATUR, DELAWARE, FAYETTE, FOUNTAIN, FRANKLIN, HAMILTON, HANCOCK, HENDRICKS, HENRY, JAY, JOHNSON, MADISON, MARION, MONROE, MONTGOMERY, MORGAN, OWEN, PARKE, PUTNAM, RANDOLPH, RUSH, SHELBY, UNION, VERMILLION, VIGO, AND WAYNE COUNTIES

	Rates	Fringes
MILLWRIGHT	$ 28.18	22.39

CARP1080-001 04/01/2021

GIBSON, GREENE, POSEY, SULLIVAN, VANDERBURGH and WARRICK COUNTIES

	Rates	Fringes

MILLWRIGHT
ZONE 1
POSEY, VANDERBURGH and
WARRICK COUNTIES.....$ 30.92 24.83
ZONE 2
GIBSON, GREENE AND
SULLIVAN COUNTIES.....$ 29.64 25.77

ELEC0016-003 04/01/2022

CRAWFORD, DAVIESS, DUBOIS, GIBSON, LAWRENCE, MARTIN, ORANGE, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH, WARRICK

	Rates	Fringes
ELECTRICIAN	$ 40.88	18.62

ELEC0016-006 08/31/2020

CRAWFORD, DAVIESS, DUBOIS, GIBSON, LAWRENCE, MARTIN, ORANGE, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH, WARRICK

	Rates	Fringes
ELECTRICIAN (Communication Technician Only)	$ 29.15	15.40

ELEC0071-006 01/02/2019

DEARBORN, OHIO, and SWTIZERLAND COUNTIES

	Rates	Fringes
Line Construction:		
Equipment Operator	$ 33.62	13.46
Groundman	$ 24.17	11.38
Lineman & Cable Splicers	$ 38.27	14.48

ELEC0153-003 06/01/2021

ELKHART, KOSCIUSKO and MARSHALL COUNTIES

	Rates	Fringes
Communication Technician	$ 26.50	18.33
ELECTRICIAN	$ 36.50	25.98

Includes the installation, operation, inspection,

modification, maintenance and repair of systems used for the transmission and reception of signals of any nature, for any purpose, including but not limited to , sound and voice transmission/transference systems, communication systems that transmit or receive information and /or control systems, television and video systems, micre-processor controlled fire alarm systems, and security systems and the performance of any task directly related to such installation or service. The scope of work shall exclude the installation of electrical power wiring and the installation of conduit raceways exceeding fifteen (15) feet in length.

ELEC0212-002 11/30/2021

DEARBORN, OHIO, and SWITZERLAND COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication Technician Only)	$ 25.95	12.27

ELEC0212-009 06/07/2022

DEARBORN, OHIO, and SWITZERLAND COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 33.29	20.05

ELEC0305-003 05/01/2022

ADAMS, ALLEN, DE KALB, HUNTINGTON, LAGRANGE, NOBLE, STEUBEN, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 35.71	10.14+26.14%

ELEC0305-004 08/31/2020

ADAMS, ALLEN, DE KALB, HUNTINGTON, LAGRANGE, NOBLE, STEUBEN, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication		

Technician Only).....$ 29.25 16.85

ELEC0369-005 05/31/2021

CLARK, FLOYD, HARRISON, JACKSON, JEFFERSON, SCOTT, and
WASHINGTON Counties

	Rates	Fringes
ELECTRICIAN.....	$ 33.85	18.72

ELEC0481-003 03/31/2022

BARTHOLOMEW, BOONE, DECATUR, HAMILTON, HANCOCK, HENDRICKS,
JENNINGS, JOHNSON, MADISON, MARION, MONTGOMERY, MORGAN, PUTNAM,
RIPLEY, RUSH AND SHELBY COUNTIES

	Rates	Fringes
ELECTRICIAN.....	$ 38.20	25.56

ELEC0481-004 01/01/2022

BARTHOLOMEW, BOONE, DECATUR, HAMILTON, HANCOCK, HENDRICKS,
JENNINGS, JOHNSON, MADISON, MARION, MONTGOMERY, MORGAN, PUTNAM,
RIPLEY, RUSH AND SHELBY COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication Technician Only).....	$ 33.83	17.32

ELEC0531-002 05/31/2021

JASPER, PULASKI, and STARKE COUNTIES

	Rates	Fringes
ELECTRICIAN.....	$ 41.50	28.26

ELEC0531-003 05/28/2018

JASPER, PULASKI, and STARKE COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication		

Technician Only).....$ 27.64 13.23

ELEC0538-005 01/01/2022

FOUNTAIN, VERMILLION, and WARREN Counties

	Rates	Fringes
ELECTRICIAN	$ 37.80	22.66

ELEC0538-009 09/01/2018

FOUNTAIN, VERMILLION, and WARREN Counties

	Rates	Fringes
ELECTRICIAN (Communication Technician Only)	$ 32.82	16.28

ELEC0668-001 06/01/2019

BENTON, CARROLL, CASS, FULTON, TIPPECANOE and WHITE COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication Technician Only)	$ 28.90	14.53

ELEC0668-002 01/01/2022

BENTON, CARROLL, CASS, FULTON, TIPPECANOE and WHITE COUNTIES

	Rates	Fringes
ELECTRICIAN	$ 36.17	21.40

FOOTNOTE: a. PAID HOLIDAYS: New Years Day, Memorial Day, July 4th, Labor Day, Veterans Day Thanksgiving Day and Christmas Day

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ELEC0697-003 08/31/2022

NEWTON COUNTY

	Rates	Fringes
ELECTRICIAN (Communication Technician Only)	$ 37.15	28.77

ELEC0697-006 06/01/2022

NEWTON COUNTY

	Rates	Fringes
ELECTRICIAN	$ 45.25	30.13

ELEC0702-003 12/30/2019

DUBOIS, GIBSON, PERRY, PIKE, POSEY, SPENCER AND VANDERBURGH COUNTIES

	Rates	Fringes
Line Construction:		
GROUNDMAN, Class A	$ 28.58	29% + 7.75
GROUNDMAN-EQUIPMENT OPERATOR (All other equipment)	$ 36.35	29% + 7.75
HEAVY-EQUIPMENT OPERATOR (All crawler type equipment D-4 and larger)	$ 41.49	29% + 7.75
LINEMAN	$ 50.63	29% + 7.75

ELEC0725-007 06/01/2022

BROWN, CLAY, GREENE, KNOX, MONROE, OWEN, PARKE, SULLIVAN AND VIGO COUNTIES

	Rates	Fringes
Communication Technician	$ 30.00	18.07

Includes the installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound and vision production and reproduction apparatus, equipment and appliances used for domestic, commercial, education, entertainment and private telephone systems.

ELEC0725-014 10/01/2022

BROWN, CLAY, GREENE, KNOX, MONROW, OWEN, PARKE, SULLIVAN AND VIGO COUNTIES

	Rates	Fringes
ELECTRICIAN.....	$ 40.00	21.96

ELEC0855-002 06/01/2018

BLACKFORD, DELAWARE, FAYETTE, FRANKLIN, HENRY, JAY, RANDOLPH, UNION and WAYNE Counties

	Rates	Fringes
ELECTRICIAN (Communication Technician Only).....	$ 27.64	14.15

ELEC0855-004 06/01/2022

BLACKFORD, DELAWARE, FAYETTE, FRANKLIN, HENRY, JAY, RANDOLPH, UNION and WAYNE Counties

	Rates	Fringes
ELECTRICIAN.....	$ 34.77	19.18

ELEC0873-001 06/01/2021

CLINTON, GRANT, HOWARD, MIAMI, TIPTON, AND WABASH COUNTIES

	Rates	Fringes
ELECTRICIAN (Communication Technician Only).....	$ 30.08	17.23

ELEC0873-002 03/01/2022

CLINTON, GRANT, HOWARD, MIAMI, TIPTON AND WABASH COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	$ 36.59	20.12

ELEC1393-001 12/02/2020

REMAINING COUNTIES

	Rates	Fringes
Line Construction:		
EQUIPMENT OPERATOR 1:		

Diggers, 5th wheel type
trucks, crawler type, D-4
and smaller, bucket trucks
and live boom type line
trucks.....$ 32.91 29%+6.75
EQUIPMENT OPERATOR 3
(Backhoes over 1/2 yard
bucket capacity, cranes
rated at 15 ton or more
capacity) 95% J.L. rate.....$ 39.19 29%+6.75
GROUNDMAN TRUCK DRIVER.....$ 26.14 29%+6.75
GROUNDMAN.....$ 25.04 29%+6.75
LINEMAN.....$ 41.61 29%+6.75

ENGI0103-003 04/01/2021

INCLUDING UNDERGROUND AND UTILITY CONSTRUCTION

ADAMS, ALLEN, BENTON, BLACKFORD, CARROLL, CASS, CLINTON, DEKALB, DELAWARE, FAYETTE, GRANT, HAMILTON, HANCOCK, HENRY, HOWARD, HUNTINGTON, JAY, JOHNSON, MADISON, MARION, MIAMI, RANDOLPH, RUSH, SHELBY, STEUBEN, TIPPECANOE, TIPTON, UNION, WABASH, WAYNE, WELLS, WHITE AND WHITLEY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 37.75	20.21
GROUP 2	$ 36.03	20.21
GROUP 3	$ 35.11	20.21
GROUP 4	$ 33.61	20.21

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Air compressors in manifold with throttle valve; Asphalt plant engineer; Auto grade or similar type machine; Auto patrol; Backhoe or farm-type tractor, 45 hp and over; Ballast regulator (RR); Bituminous mixer; Bituminous paver; Bituminous plant engineer; Bulldozer; Caisson drilling machine; Cherry picker, 15 ton or over; Chip spreader; Concrete mixer 21 cu. ft. or over; Core drilling machine; Crane or derrick with any attachment (including clamshell, dragline, shovel, backhoe, etc.); Dredge engineer; Dredge operator; Drilling machine on which the drill is an integral part; Earth mover, rubber-tired (paddle wheel, 616, 631, TS-24 or similar type); Earth mover, rubber-tired, tandem ($0.50 per hour additional for each bowl); Elevating grader; Fork lift, 10 ton or over; P.C.C. formless paver post driver; Highlift shovel, 1 1/2 cu. yd. or over; Hoist,

2 drums and over; Helicopter, crew; Hydraulic boom truck; keystone, skimmer scoop; Loader, self-propelled (belt, chain, wheel); Locomotive operator; Mechanic; Mucking machine; Panel board concrete plant, central mix type; Paver, Hetherington; Pile driver, skid or crawler; Road paving mixer; Rock breaking plant; Rock crushing plant, portable; Roller (asphalt, waterbound macadam, bituminous macadam, brick surface); Roller with dozer blade; Root rake, tractor-mounted; Self-propelled widener; Stump remover, tractor-mounted; Surface heater and planer; Tandem push tractor ($0.50 per hour additional); Tractor, boom; Winch or hoe head; Tractor, push; Tractor with scoop; Tractor-mounted spreader; Tree mover; Trench machine, over 24""; Tug boat operator; Well drilling machine; Winch truck with A-frame

GROUP 2: Air compressor with throttle valve or clever brooks-type combination; Backfiller; Backhoe on farm-type tractor, under 45 hp; Bull float; Cherry picker under 15 ton; Chip spreader, self-propelled; Concrete pump; Concrete mesh depressor, independently
operated; Concrete spreader, power-driven; End loader under 1 1/2 cu. yd.; Excavating loader, portable; Finishing machine and bull float; Gunite machine; Head greaser; Mesh or steel placer; Multiple tamping machine (RR); P.C.C. concrete belt placer; Pull grader, power control; Refrigerating machine, freezing operation; Ross carrier; Sheepfoot roller (self-propelled); Tamper (multiple vibrating, asphalt, waterbound macadam, bituminous macadam, brick surface); Trench machine, 24"" and under; Tube float; Welder

GROUP 3: Assistant plant engineer; Base paver (Jersey or similar type machine); Concrete finishing machine; Concrete mixer, less than 21 cu. ft.; Curb machine; Farm tractor, including farm tractor with all attachments except backhoe and including high lift end loaders of 1 cu. yd. capacity or less; Fire tender on boiler; Hoist, 1 drum; Operator, 5 pieces of minor equipment; Paving breaker; Power broom, self-propelled; Roller, earth and sub-base material; Slurry seal machine; Spike machine (RR); Tamper (multiple vibrating, earth and sub-base material); Throttle valve and fire tender combination on horizontal or upright boiler; Tractaire with drill; Tractor, 50 h.p. or over; Well point system; Widener, APSCO or similar type

GROUP 4: Air compressor; Assistant to engineer, oiler; Automatic dry batch plant; Bituminous distributor; Bituminous patching tamper; Belt spreader; Broom and belt machine; Chair cart, self-propelled; Coleman-type screen; Conveyor, portable; Digger post hole, power-driven; Fork

lift, under 10 ton; Form grader; Form tamper, motor-driven; Generator; Hetherington driver; Hydra seeder; Operator, 1 through 4 pieces of minor equipment; Outboard or inboard motor boat; Power curing spraying machine; Power saw, concrete, power-driven; Pug mill; Pull broom, power-type; Seaman tiller; Straw blower or brush mulcher; Striping machine paint, motor-driven; Sub grader; Tractaire, tractor, below 50 h.p.; Truck crane oiler, driver; Spreader; Water pump; Welding machine, 2 of 300 amps or over

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ENGI0150-009 04/01/2022

HEAVY, HIGHWAY AND RAILROAD CONSTRUCTION

ELKHART, FULTON, JASPER, KOSCIUSKO, LAGRANGE, MARSHALL, NEWTON, NOBLE, PULASKI, and STARKE COUNTIES

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 32.85	32.30
GROUP 2	$ 31.25	32.30
GROUP 3	$ 29.95	32.30
GROUP 4	$ 28.55	32.30
GROUP 5	$ 24.30	30.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Air compressors in manifold with throttle valve; Asphalt plant engineer; Auto grade or similar type machine; Auto patrol; Automatic Sub-Grade; Backhoe or farm type tractor, 45 hp and over; Ballast regulator (RR); Barrier Wall Machine; Batch Plants (Concrete & Asphalt); B ituminous mixer; Bituminous paver; Bituminous plant engineer; Boring Machine; Bulldozer; Caisson drilling machine; Cherry picker, 15 ton or over; Chip spreader; Concrete mixer, 21 cu. ft. or over; Concrete Belt Placer; Concrete Paver; Concrete Pump (Truck Mounted); Concrete Saw (track mounted); Concrete Spreader (power driven); Core drilling machine; Crane or derrick with any attachment (including clamshell, dragline, shovel, backhoe, etc.); Curb Machine; Gutter Machine; Dredge engineer; Dredge operator; Drilling machine on which the drill is an integral part; Earthmover, rubber-tired (paddle wheel, 616, 631, TS-24 or similar type); Earthmover, rubber-tired, tandem (.50 per hr. additional for each bowl); Elevating Grader; Forklift (10 ton or over); P.C.C. Formless Paver; Gradall; Gravel Processing Plant (portable); Operator of

Guard Rail Post Driver; Highlift Shovel 1-1/2 cu.yd. or over) Frame; Hoist (2 drum & over); Helicopter crew; Hydraulic boom truck; Hydraulic Excavator; Loaded-Self propelled (belt chain wheel); Laser Screed; Locomotive operator; Mechanic; Mucking machine; P.C.C. Concrete Belt Placer; Panel board concrete plant (central mix type); Paver (Hetherington); Pavement Breaker; Pile driver, skid or crawler; Road paving mixer; Rock breaking plant; Rock crushing plant (portable); Roller (asphalt, waterbound macadam, bituminous macadam, brick surface); Roller with dozer blade; Road Widener; Root rake (tractor-mounted); Roto Mill Grinder; Self-propelled widener; Stump remover; Surface heater and planer; Tandem push tractor ($0.50 per hour additional); Tractor, boom; Winch or hoe head; Tractor (push); Tractor with scoop; Tractor-mounted spreader; Tree mover; Trench machine, over 24""; Tug boat operator; Well drilling machine; Widener (Apsco or similar type); Winch truck with A-frame

GROUP 2: Air compressor with throttle valve or Clever Brooks type combination; Backfiller; Farm type tractor (under 45 H.P.); Cherry picker under 15 ton; Chip spreader (self-propelled); Concrete pump (trailer type); Concrete mesh depressor, independently operated; End loader under 1 1/2 cu. yd.; Excavating loader (portable); Finishing machine and bull float; Gunite machine; Hydraulic Power unit; Head greaser; Mesh or
steel placer; Multiple tamping backhoe on machine (RR); Bull float (bidwell Machine); Refrigerating machine-operation; Ross Carrier; Sheepfoot roller (self-propelled); Tamper-Multiple Vibrating (Asphalt, Waterbound, Macadam, Bituminous Macadam, Brick Surface); Trench machine (24"" and under); Tube float; Water Pull/Wagon; Welder

GROUP 3: Plant engineer; Base paver (Jersey or similar type machine); Concrete finishing machine; Concrete mixer, less than 21 cu. ft.; Curb machine; Farm tractor, including farm tractor with all attachments except backhoe and including high lift end loaders of 1 cu. yd. capacity or less; Fireman, on boiler; Hoist, 1 drum; Operator, 3-5 pieces of minor equipment; Paving breaker; Power broom, self-propelled; Roller, earth and sub-base material; Power Saw-Concrete (Power Driven); Slurry seal machine; Spike machine (RR); Sub-surface Material Distributor; Tamper (multiple vibrating, earth and sub-base material); Throttle valve; Throttle Valve and fireman combination on horizontal or upright boiler; Tractaire with drill; Well Point

GROUP 4: Air compressor; Assistant to engineer, oiler; Bituminous patching tamper; Belt spreader; Broom and belt

machine; Chair cart, self-propelled; Coleman-type screen; Conveyor, portable; Deck-hand Digger post hole, power-driven; Forklift, under 10 ton; Form grader; Form tamper, motor-driven; Generator; Hetherington driver; Hydra seeder; Mechanic heater; Operator, 2 pieces of minor equipment; Outboard or inboard motor boat; Power curing spraying machine; Pug mill; Pull broom, power type; Seaman tiller; Skid steer loader over 3/4 cu. yd.; Straw blower or brush mulcher; Striping machine paint, motor-driven; Sub-grader; Tractaire; Tractor, below 50 h.p.; Truck crane oiler; Spreader; Water pump

GROUP 5: Skid steer loader under 3/4 cu. yds

ENGI0150-039 06/01/2021

UNDERGROUND & UTILITY CONSTRUCTION:

JASPER, NEWTON, PULASKI AND STARKE COUNTIES:

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1	$ 42.00	39.68
GROUP 2	$ 41.20	39.68
GROUP 3	$ 36.90	39.68
GROUP 4	$ 34.70	39.68
GROUP 5	$ 29.25	39.68

POWER EQUITMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plants (construction), Asphalt plant (permanent), Auto Patrol (Maintainer), Automatic Dry Batch Plant, Automated Concrete Placer, Automated Sub-Grader, Automated Slip Form Paver, Automated Finish Machine, Combination Backhoe Front, End Loader Machine (1/2 cu. yd.), Backhoe bucket or over or with attachments), Combination backhoe 1 cu yd, Backhoe bucket or over or with attachments, Ballast Regulator (RR), Belt Loader (stationary), Boring Machine (road), Bulldozer, Concrete Mixer(27 cu. ft. or over), Concrete Pump (truck mounted), Concrete Breaker (truck mounted and self-propelled), Core Drilling Machine, Cranes and Backhoes (all attachments), Cranes, Hammerhead, Creter Crane, Crushers (concrete, rock, recycling, etc.), Derricks , Derricks (traveling), Dredge Operator, Formless Curb and Gutter Machine (36 inches and over), Formless Curb and Gutter Machine under 36 inches, Gradall and Machines (of a like nature), Guardrail Post Driver (truck mounted), Lead Greaser, Helicopter, Highlift

Shovel (3 yd. and over), Hoist (1 drum), Hoist (2, and 3 drums), Hydraulic Power Units (grouting, piledriving and extracting) Hydro or water blaster (self-propelled), Locomotive Operators, Mechanic, Welder, Mucking Machine, Panelboard Concrete Plant (central mix type), Paver (Hetherington), Pile Driver (Skid or Crawler), Road Paving Mixer, Rock Drill Crawler or Skid Rig, Rock Drill (truck Mounted), Ross Carrier, Roto Mill Grinder (36"" and over), Roto mill grinder (less than 36""), Throttle Valve and Compressor or Clever Brooks Type Combination, Throttle Valve and Fireman Combination or Horizontal or Upright Boiler, Tournapull or similar type equipment, Tractor (boom), Tractor Drawn Belt Loader with attached Pusher (requires two engineers), Trench Machine, Tug Boat Operator, Wheel Excavator, Winch Tractor with ""a"" frame, Scoops, Turnapull or similar types machine used in Tandem (add $1.00 to class l hourly rate for each machine attached there to).

GROUP 2: Combination Backhoe Front End Loader Machine with less than 1/2 cu. yd., Backhoe Bucket or with attachments, Bituminous Mixer, Bituminous Paver, Bridge Deck Finisher, Concrete Mixer (less than 27 cu. ft.), Compressor and throttle valve, Compressor (common receiver 3), Greaser, Highlift Shovels (under 3 cu. yds.), Jersey Spreader or Base Paver, Pavement Bump Grinder (self-propelled), Roller (Asphalt, waterbound, Macadam, Bituminous Macadam, Brick Surface, Sheepfoot Roller (self- propelled with blade), Surface Heater and Planer, Tamper (mutiple vibrating, asphalt waterbound macadam, bituminouus macadam, brick surface), Tractor (push), Tractor with scoop, Widener, Apsco or similar type.

GROUP 3: Back Filler, Bituminous Distributor, Broom and Belt Machine, Bull Float, Compressor (common receiver 2), Concrete cutter wheel type (rockwell), Concrete Finishing Machine, Concrete Spreader (power driven), Digger, Post Hole (power driven), Finishing Machine and Bull Float, Forklift, Form Grader, Form Tamper (motor driven), Hydraulic (boom truck) when used for hauling materials, Laser screed, Mutiple Tamping Machine, Paving Breaker, Roller (earth and subbase material), Roller sheepfoot (self-propelled), Sub-grader, Tamper, Mutipile Vibrating (earth and subbase material), Tractaire with Drill, Tractor (with all drawn attachements except backhoe and including Highlift, Endloader of 1 cu. yd. capacity and less.

GROUP 4: Air Compressors, Conveyor (all), Fireman on Boiler, Generator, Grout Machine, Power curing Spraying Machine (self-propelled), Broom (self-propelled), Seaman Tiller,

Skid steer loaders, Spike Machine (RR), Stripping Machine (paint, self-propelled), Throttle Valve, Welding Machine, Well Points System.

GROUP 5: Deck Hand, Hetherington Driver, Mechanical Heater (1 to 5), Outboard or Inboard Motor Boat, Oiler, Power Saw (Concrete Power Driven), Water Pump, Grasscutter.

ENGI0181-014 04/01/2022

HEAVY AND HIGHWAY CONSTRUCTION:

BARTHOLOMEW, BROWN, CLARK, CRAWFORD, DEARBORN, DECATUR, DUBOIS, FLOYD, FRANKLIN, GIBSON, HARRISON, JACKSON, JEFFERSON, JENNINGS, LAWRENCE, MARTIN, OHIO, ORANGE, PERRY, PIKE, POSEY, RIPLEY, SCOTT, SPENCER, SWITZERLAND, VANDERBURGH, WARRICK, and WASHINGTON COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP A	$ 39.50	18.56
GROUP B	$ 36.85	18.56
GROUP C	$ 34.72	18.56

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP A: Air compressor in manifold with throttle valve; Asphalt plant engineer; Auto grade or similar type machine; Bituminous mixer; Bituminous paver; Bituminous plant engineer; Bulldozer; Caisson drilling machine; Cherry picker, all; Ballast regulator (RR); Chip spreader, self-propelled; Cold grinder or similar type equipment; Concrete mixer, 21 cu. ft. or over; Concrete pump, truck-mounted; Core drilling machine; Crane or derrick with any attachment (including clamshell, dragline, shovel, backhoe, etc.); Dredge operator; Drilling machine on which the drill is an integral part; Earth mover, rubber-tired, tandem 0.50 per hour additional; Elevating grader; Endloader, Hi- lift shovel; P.C.C. formless paver; Gradall; Gravel processing plant, portable; Guardrail post driver operator; Head greaser; Hi-lift shovel, endloader; Hoist (2 drums and over); Helicopter crew; Hydraulic boom truck, Keystone, Skimmer Scoop; Loader, self-propelled (belt, chain wheel); Locomotive operator; Mechanic; Mucking machine; Multi-bank drill operator; Panel board concrete plant, central mix type; Paver, Hetherington; Pile driver, skid or crawler; Road paving mixer; Rock breaking plant;

Rock crushing plant, portable; Roller (asphalt, waterbound, macadam, bituminous macadam, brick surface); Roller, with dozer blade; Root rake, tractor-mounted; Stump remover, tractor- mounted; Surface heater and planer; Tandem push tractor, $0.50 per hour additional; Tractor, boom winch or hoe head; Tractor, push; Tractor with scoop; Tractor-mounted spreader; Tree mover; Trench machine, over 24""; Tug boat operator; Welder; Well drilling machine; Self-propelled widener.

GROUP B: Air compressor with throttle valve or clever brooks-type combination; Backfiller, base paver, Jersey or similar type machine; Bull float; Concrete finishing machine; Concrete mesh depressor, independently operated; Concrete spreader, power- driven; Dredge engineer; Excavator loader, portable; Fire tender on boiler; Forklift, regardless of ton; Hoists, 1 drum; Mesh or steel placer; Minor equipment operator, 5 pieces; Multiple tamping machine (RR); P.C.C. concrete placer; Paving breaker; Power broom, self-propelled; Pull grader, power-controlled; Refrigerating machine, freezing operation; Roller, earth and sub- base material; Ross carrier (Straddle buggy); Sheepfoot roller, self-propelled without blade; Tamper, multiple\vibrating (asphalt, waterbound macadam, bituminous macadam, brick surface); Tamper, multiple vibrating (earth and sub-base material); Trench machine, 24"" and under; Tube float; Well point system; Widener, Apsco or similar type; Winch truck with A-frame.

GROUP C: Air compressor, oiler; Automatic dry batch plant; Bituminous distributor; Bituminous patching tamper; Belt spreader; Broom and belt machine; Brush burner; Chair cart, self- propelled; Coleman-type screen; Cold grinder oiler; Concrete mixer, less than 21 cu. ft.; Conveyor, portable; Curb machine; Deckhand; Digger (post hole, power-driven); Farm tractor, including farm tractor with all attachments (except backhoe, Hi- lift endloaders); Form grader; Form tamper, motor-driven; Generator; Gunite machine; Hetherington driver; Hydra seeder; Mechanical heater; Minor equipment operator, 1 through 4 pieces; Curing spraying machine; Power saw, concrete (power-driven); Pug mill pull broom, power type; Seaman tiller; Slurry seal machine; Spike machine; Straw blower or brush mulcher; Stripping machine (paint, motor-driven); Sub grader; Throttle valve; Tractaire with drill; Truck crane and multi-drill oiler, driver; Spreader; Water pump.

SEWER WATERLINE & UTILITY CONSTRUCTION:

BARTHOLOMEW, BROWN, CLARK, CRAWFORD, DEARBORN, DECATUR, DUBOIS, FLOYD, FRANKLIN, GIBSON, HARRISON, JACKSON, JEFFERSON, JENNINGS, LAWRENCE, MARTIN, OHIO, ORANGE, PERRY, PIKE, POSEY, RIPLEY, SCOTT, SPENCER, SWITZERLAND, VANDERBURGH, WARRICK, and WASHINGTON COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP A	$ 39.50	19.28
GROUP B	$ 36.85	19.28

SEWER WATERLINE & UTILITY CONSTRUCTION

GROUP A: A-frame winch truck; Air compressor 900 cu. ft. and over; Air tugger; Autograde (CMI); Auto patrol; Backhoe; Ballast regulator (RR); Batch plant (electrical control concrete); Bending machine (pipe); Bituminous plant (engineer); Bituminous plant; Bituminous mixer travel plant; Bituminous paver; Bituminous roller; Buck hoist; Bulldozer; Cableway; Chicago boom; Clamshell; Concrete mixer, 21 cu. ft. or over; Concrete paver, concrete pump, crete; Crane; Craneman; Crusher plant; Derrick; Derrick boat; Dinky; Dope pots (pipeline); Dragline; Dredge operator; Dredge engineer; Drill operator; Elevator grader; Elevator; Ford hoe, or similar type equipment; Forklift; Formless paver; Gantry crane; Gradall; Grademan; Hopto; Hough loader or similar type; Hydro crane; Motor crane; Mucking machine; Multiple tamping machine (RR); Overhead crane; Pile driver; Pulls; Push dozer; Push boats; Roller (sheep foot); Ross Carrier; Scoop; Shovel; Side boom; Swing crane; Trench machine; Welder (heavy duty; Truck-mounted concrete pump; Truck-mounted drill; Well point; Whirleys.

GROUP B: Air compressor, up to 900 cu. ft.; Brakeman; Bull float; Concrete mixer, over 10S and under 21S; Concrete spreader or puddler; Deck engine; Electric vibrator compactor (earth or rock); Finishing machine; Fireman; Greaser, on grease facilities servicing heavy equipment; Material pump; Motor boats; Portable loader; Post hole digger; Power broom; Rock roller; Roller, wobble wheel (earth and rock); Spike machine (RR); Seaman tiller; Spreader rock; Sub grader; Tamping machine; Welding machine; Widener, Apsco or similar type: Bituminous distributor; Cement gun; Concrete saw; Conveyor; Deckhand oiler; Earth roller; Form grader; Generator; Guard rail

driver; Heater; JLG lifts; Oiler; Paving joint machine; Power traffic signal; Scissor lift; Steam Jennyu; Truck crane oiler; Vibrator; Water pump.

ENGI0841-011 04/01/2020

HEAVY, HIGHWAY AND UTILITY CONSTRUCTION

BOONE, CLAY, DAVIESS, FOUNTAIN, GREENE, HENDRICKS, KNOX, MONROE, MONTGOMERY, MORGAN OWEN, PARKE, PUTNAM, SULLIVAN, VERMILLIAN, VIGO, and WARREN COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 33.75	23.00+a
GROUP 2	$ 27.50	23.00+a

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Air Compressor Over 600 CU FT, Air Compressors (2), Compressors hooked in Manifold, Asphalt Plant Engineer, Auto Grade and/or C.M.I. or similar type Machine, Auto Patrol, Motor Patrol, Power Blade, Aspco Paver, Asphalt Planer, Asphalt Rollers, Asphalt Paver Operator, Concrete or Asphalt Milling Machine, Self Propelled Widener, Backhoe and/or Pavement Breaker Attachment, Self Propelled Pavement Breaker, Ballast Regulator (R.R), Bituminous Mixer, Bituminous Paver, Bituminous Plant Engineer, Bulk Cement Plant Engineer, Bulldozer, One Drum Hoist with Tower or Boom, Cableways, Tower Machines, Back Filler, Boom Tractor, Boom or Winch Truck, Winch or Hydraulic Boom Truck, Boring Machine, Bolier Operator, Brush Mulcher, Bull Float, Finishing Machine, Power Cranes, Overhead Cranes, Truck cranes, Piledriver, Skid or Crawler, Guard Rail Post Driver, Tower Cranes, Hydro Crane, Cherry Picker, Draglines, Derricks, Shovels, Clam, Gradalls, Two Drum Machine, Concrete or Asphalt Curb Machine, Self Propelled, Concrete Mixers with Skid, Tournamixer, Concrete Pump (Truck or Skid Mounted), Concrete Plant Engineer, Soil Cement Machine, Formless Paver, Concrete Spreader, Span Saw (and similar types), Chip Spreader, Mesh Placer, Dredging Equipment or Dredge Engineer or Dredge Operator, Tug Boat Operator, Marine Scoops, Ditching Machine with Dual Attachment, Standard or Dinkey Locomotives, Drilling Machine, including Well Testing, Caissons, Shaft or any similar type Drilling Machine (Well Point Systems), 4 Point Life System (Power Lift or similar type), Mud Cat, Mucking

Machine, Sull-Air, Mechanics, Welder, Head Equipment Greaser, Tournapull, Tractor Operating Scoops, Push Tractors, Large Rollers on Earth, Loaders (Track or Rubber Mounted), or similar type Machine, Lull, Tournadozer, Scoopmobiles, Elevating Machines, Power Broom (Self Propelled), Power Sub Grader, Hydra Ax, Farm Tractor with Attachments, Soil Stabilizer (Seaman Tiller, Bo mag, Rago Gator and similar types of equipment), Tree Mover, Stump Remover, Root Rake, Hydra Seeder, Straw Blower, Refrigerating Machine, Freezing Operator, Chair Cart-Self Propelled, Helicopter Crew (3), Ross Carrier or Straddle Buggy or similar Machine, Rock Crusher Plant, Gravel Processing Machine, Pipe Cleaning Machine, Pipe Wrapping Machine, Pipe Bending Machine, Pug Mill, Concrete Bump Grinder Machine, Power Curing Spray Machine, Forklift (except when used for landscaping), Snooper Truck Operator.

GROUP 2: Air Compressor 600 cu. ft. and under, Air Tugger, Air Valves, Assistant Concrete Plant Engineer, Assistant Asphalt Plant Engineer, Asphalt Plant Fireman, Bulk Cement Plant Equipment Greaser, Concrete Mixers without Skips, Curbing Machine, Concrete Saw (Self Propelled), Conveyors,Cement Blimps, Ditching Machine under 6"", Distributor Operator On trucks, Deck Hands, Elevators when used for hoisting material, Engine Tenders, Fork Lift (when used for landscaping), Farm Tractor, Fireman, Fireman on Paint or Dope Pots, Form Tamper, Form Grader, Flex Plane, Generators (two to four), or Welding Machines or Water Pumps, within 400 feet, Gunite Machine, Machine Mounted Post Hole Digger, Mude Jack, One Drum Machines without Tower or Boom, One Water Pump, One Welding Machine, Outboard or Inboard Motor Boat, Pull Broom (Power Type, Siphons and Pulsometer, Switchman, Striping and or Painting Machine (motor driven), Slurry Seal Machine, Track Jack, Temporary Heat, Throttle Valve, Tube Float, Tractaire, Wagon Drill, Multiple Tamping Machine (R.R.), Spike Machine (R.R.), Mechanical Heaters, Brush Burner, Vacuum Truck (Super Sucker and similar types).

FOOTNOTES:

A. Employees operating booms from 149Ft. to 199 Ft. including jib, shall receceive an additional seventy-five Cents (.75) per hour above the rate. Employees operating booms over 199 Ft. including jib, shall receive an additional one dollar and twenty- five cents ($1.25) per hour above the regular rate.

B. Employees operating scoops, pulls, or tractors hooked in tandem shall receive an additional one dollar ($1.00) per

hour above the regular rate.

C. Employees operating scoops, pulls, or tractors pulling any other hauling unit in tandem shall receive an additional one dollar ($1.00) per hour above the regular rate.

D. Underground work - Employees working in tunnels, shafts, etc. shall be paid a thirty percent (30%) premium above the wage rate.

IRON0022-001 06/01/2022

BARTHOLOMEW, BENTON, BOONE, BROWN, CARROLL, CASS, CLAY, CLINTON, DAVIESS (REMAINDER OF COUNTY), DECATUR (W 3/4), DELAWARE (REMAINDER OF COUNTY), FAYETTE (W 1/3), FOUNTAIN,FRANKLIN (NW TIP), FULTON (REMAINDER OF COUNTY), GRANT (REMAINDER OF COUNTY), GREENE, HAMILTON, HANCOCK, HENDRICKS, HENRY, HOWARD, JACKSON, JASPER (SOUTHEASTERN 1/2), JENNINGS (NORTHWEST 2/3), JOHNSON, KNOX (REMAINDER OF COUNTY), LAWRENCE, MADISON, MARION, MARTIN (NW 2/3), MIAMI (REMAINDER OF COUNTY), MONROE, MONTGOMERY, MORGAN, NEWTON (SOUTHERN 1/2), OWEN, PARKE, PULASKI (REMAINDER OF COUNTY), PUTNAM, RANDOLPH (SW TIP), RUSH (REMAINDER OF COUNTY), SHELBY, SULLIVAN, TIPPECANOE, TIPTON, VERMILLION, VIGO, WAYNE, WARREN AND WHITE COUNTIES:

	Rates	Fringes
IRONWORKER	$ 34.24	25.11

The following holidays shall be observed: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after Thanksgiving and Christmas Day. Any holiday which occurs on a Sunday shall be observed the following Monday, unless the legal observance of these holidays is changed by law.

IRON0044-010 06/01/2022

DEARBORN, DECATUR (REMAINDER OF COUNTY), FAYETTE (REMAINDER OF COUNTY), FRANKLIN (REMAINDER OF COUNTY), JEFFERSON (REMAINDER OF COUNTY), JENNINGS (REMAINDER OF COUNTY), OHIO, RIPLEY, RUSH (SOUTHEASTERN TIP), SWITZERLAND, AND UNION (SOUTHERN 1/3)

	Rates	Fringes

Ironworkers:
     FENCE ERECTORS.....$ 30.28 22.30
     ORNAMENTAL.....$ 31.87 22.30
     STRUCTURAL, MACHINERY
     MOVERS, RIGGERS.....$ 31.87 22.30

IRON0070-002 06/01/2022

CLARK, CRAWFORD, FLOYD, HARRISON, JACKSON (SOUTHERN 3/4); JEFFERSON (EXCLUDING NORTHEASTERN TIP); JENNINGS (SOUTHERN 3/4), LAWRENCE (SOUTHERN 2/3), MARTIN (SOUTHEASTERN 2/3), ORANGE, PERRY (EASTERN 3/4); SCOTT AND WASHINGTON COUNTIES:

	Rates	Fringes
IRONWORKER.....	$ 31.79	24.62

IRON0070-016 06/01/2022

DEARBORN, DECATUR (REMAINDER OF COUNTY), FAYETTE (SE CORNER), FRANKLIN (S 3/4), OHIO, RIPLEY (REM. OF COUNTY), SWITZERLAND (REMAINDER OF COUNTY) and JENNINGS (NE TIP) COUNTIES

	Rates	Fringes
IRONWORKER (Reinforcing).....	$ 31.79	24.62

IRON0103-001 04/01/2022

DAVIESS (S 1/2), DUBOIS, GIBSON, KNOX (S 1/2), MARTIN (SW 1/3), PERRY (W 1/4), PIKE, POSEY, SPENCER, VANDERBURGH, AND WARRICK

	Rates	Fringes
IRONWORKER.....	$ 30.59	25.66

IRON0147-004 06/01/2022

ADAMS, ALLEN, BLACKFORD, DEKALB, DELAWARE (NORTHEAST THIRD OF COUNTY), FULTON (EASTERN PART), GRANT (EXCLUDING SOUTHWEST PORTION), HUNTINGTON, JAY, MIAMI (NORTHEAST HALF), NOBLE (EXCLUDING NORTHEAST TIP), STEUBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes

IRONWORKER.....$ 31.20 25.12

IRON0290-004 06/01/2022

FAYETTE (NE 1/4), RANDOLPH (S. PART OF COUNTY EXCLUDING WINCHESTER BUT INCLUDING UNION CITY) UNION (NORTHERN 2/3) AND WAYNE (REMAINDER OF COUNTY) COUNTIES

	Rates	Fringes
Ironworkers:.....	$ 31.59	24.40

IRON0292-005 06/01/2022

ELKHART, FULTON (North 2/3), KOSCIUSKO (Remainder of County), LAGRANGE (West 1/3), MARSHALL, MIAMI (Northwestern Tip), NOBLE (Northwestern Tip), PULASKI (Northeast Half), and STARKE COUNTIES

	Rates	Fringes
IRONWORKER.....	$ 33.62	24.25

IRON0395-002 06/01/2022

JASPER (NORTHERN 1/2), NEWTON (NORTHERN 1/2), PULASKI (NORTHWESTERN TIP) COUNTIES

	Rates	Fringes
IRONWORKER		
IRONWORKERS.....	$ 43.00	37.24
SHEETER.....	$ 41.75	34.54

LABO0041-003 04/01/2022

HEAVY & HIGHWAY CONSTRUCTION

NEWTON COUNTY

	Rates	Fringes
LABORERS		
Group 1.....	$ 31.74	23.63
Group 2.....	$ 32.04	23.63
Group 3.....	$ 32.74	23.63

LABORERS CLASSIFICATIONS (HEAVY AND HIGHWAY)

GROUP 1: Construction Laborer, Carpenter Tender, Fence Erector, Grade Checker, Guard Rail Erector, Continuous Steel Rod or Mat Installer, Wire Mesh Layer, Joint Man (Mortar, Mastic, and all other types), Lighting Installer (Permanent or Temporary), Lineman for Automatic Grade Maker on Paving Machines, Mortar Man, Multi-Plant Erector, Rip-rap Installer (all Products and Materials), Road Marking and Delineation Laborer, Setting and Placing of all Precast Concrete Products, Sing Installation including supporting structure, Spraying of all Epoxy, Curing Compound, or Like Material, Flagperson, Air Tool, Power Tool Operator, Asphalt Raker Man, Batch Truck Dumper, Bridge Hand Rail ERector, Handler (bulk or bag cement), Chain Saw Man, Concrete Puddler, Concrete Rubber, Concrete Saw Operator, Core Drill Operator, Eye Level, Hand Blade Operator Hydro Seeder Man, Motor Driven Georgia Buggy Operator, Power Driven Compactor or Taper Operator, Power Saw Operator, Pump Crete Assembly Man, Sreed Man or Screw Man on Asphalt Paver, Regar Installer, Sandblaster Man, Sealer Applicator for Asphalt (toxic), Setting and Placing pre-stressed on Pre-cast Concrete Structural Members, Side Rail Setters (for Sidewalk, Side Ditches, Radii, and Pavement), Spreader Box Tender (manua or power driven), Straw Blower Man, Subsureface Drain and Culvert Pipe Layer, Concrete Conveyor, Horizonal Boring and Jackman and Sheetman, Pipe Greade Man, Winch and Windless Operator Conduit Installer, Sod Layer

GROUP 2: Cutting Torch Burner, Laser Beam Aligner, Manhole Erector, Sewer Pipe Layer, Water Line Installer, Temporary or Permanent Welders (electric or Oxy Acetylene)

GROUP 3: Air Track and Wagon Drillman, Dynamite and Powder Man, Concrete Barrier Rail Form Setter, Concrete Saw Joint Control Cutting

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LABO0041-005 04/01/2022

UTILITY CONSTRUCTION

JASPER & NEWTON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 31.74	23.63
GROUP 2	$ 32.04	23.63

GROUP 3.....$ 32.74 23.63

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Concrete Saw Joint Control cutting

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LABO0041-006 04/01/2022

HEAVY & HIGHWAY CONSTRUCTION

JASPER & STARKE COUNTIES

	Rates	Fringes
LABORERS		
Group 1	$ 28.97	23.63
Group 2	$ 29.27	23.63
Group 3	$ 29.97	23.63

LABORERS CLASSIFICATIONS (HEAVY AND HIGHWAY)

GROUP 1: Construction Laborer, Carpenter Tender, Fence Erector, Grade Checker, Guard Rail Erector, Continuous Steel Rod or Mat Installer, Wire Mesh Layer, Joint Man (Mortar, Mastic, and all other types), Lighting Installer (Permanent or Temporary), Lineman for Automatic Grade Maker on Paving Machines, Mortar Man, Multi-Plant Erector, Rip-rap Installer (all Products and Materials), Road Marking and Delineation Laborer, Setting and Placing of all Precast Concrete Products, Sing Installation including supporting structure, Spraying of all Epoxy, Curing Compound, or Like Material, Flagperson, Air Tool, Power Tool Operator, Asphalt Raker Man, Batch Truck Dumper, Bridge Hand Rail ERector, Handler (bulk or bag cement), Chain Saw Man, Concrete Puddler, Concrete Rubber, Concrete Saw Operator, Core Drill Operator, Eye Level, Hand Blade Operator Hydro Seeder Man, Motor Driven Georgia Buggy Operator, Power Driven Compactor or Taper Operator, Power Saw Operator, Pump Crete Assembly Man, Sreed Man or Screw Man on Asphalt Paver, Regar Installer, Sandblaster Man, Sealer Applicator for Asphalt (toxic), Setting and Placing pre-stressed on Pre-cast Concrete Structural Members, Side Rail Setters (for Sidewalk, Side Ditches, Radii, and Pavement), Spreader Box Tender (manua or power driven), Straw Blower Man, Subsureface Drain and Culvert Pipe Layer, Concrete Conveyor, Horizonal Boring and Jackman and Sheetman, Pipe Greade Man, Winch and Windless Operator Conduit Installer, Sod Layer

GROUP 2: Cutting Torch Burner, Laser Beam Aligner, Manhole Erector, Sewer Pipe Layer, Water Line Installer, Temporary or Permanent Welders (electric or Oxy Acetylene)

GROUP 3: Air Track and Wagon Drillman, Dynamite and Powder Man, Concrete Barrier Rail Form Setter, Concrete Saw Joint Control Cutting

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LABO0081-003 04/01/2022

UTILITY CONSTRUCTION

STARKE COUNTY

	Rates	Fringes
Laborers:		
GROUP 1	$ 28.97	23.63
GROUP 2	$ 29.27	23.63
GROUP 3	$ 29.97	23.63

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman;

Concrete Saw Joint Control cutting

LABO0120-003 04/01/2022

UTILITTY CONSTRUCTION

MARION & SHELBY COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in

connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Concrete Saw Joint Control cutting; Hod Carrier (tending bricklayers)

LABO0204-003 04/01/2022

UTILITY CONSTRUCTION

CLAY, FOUNTAIN, GREENE, HENDRICKS, OWEN, PARKE, PUTNAM, SULLIVAN, VERMILLION, VIGO, & WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer;

Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Hod Carrier (tending bricklayers); Concrete Saw Joint Control cutting

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LABO0213-003 04/01/2022

UTILITY CONSTRUCTION

ADAMS, ALLEN, DEKALB, HUNTINGTON, NOBLE, STEUBEN, WABASH, WELLS, & WHITLEY COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator;

Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Hod Carrier (tending bricklayers); Concrete Saw Joint Control cutting

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LABO0274-005 04/01/2022

UTILITY CONSTRUCTION

BENTON, BOONE, CARROLL, CASS, CLINTON, FULTON, HOWARD, MIAMI, MONTGOMERY, PULASKI, TIPPECANOE, TIPTON, and WHITE COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including

supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Hod Carrier (tending bricklayers); Concrete Saw Joint Control cutting

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LABO0561-015 04/01/2022

UTILITY CONSTRUCTION

DAVIESS, DUBOIS, GIBSON, KNOX, PIKE, POSEY, SPENCER, VANDERBURGH, & WARRICK COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Concrete Saw Joint Control cutting

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LABO0645-005 04/01/2022

UTILITTY CONSTRUCTION

ELKHART COUNTY

	Rates	Fringes
Laborers:		

GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Concrete Saw Joint Control cutting

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LABO0645-006 04/01/2022

UTILITY CONSTRUCTION

KOSCIUSKO, LAGRANGE, & MARSHALL COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman;

Concrete Saw Joint Control cutting

LABO0741-007 04/01/2022

UTILITY CONSTRUCTION

BARTHOLOMEW, BROWN, DEARBORN, DECATUR, FRANKLIN, JACKSON, JENNINGS, JOHNSON, LAWRENCE, MARTIN, MONROE, MORGAN, OHIO, ORANGE & RIPLEY COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Hod Carrier (tending bricklayers); Concrete Saw Joint Control cutting

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LABO0795-004 04/01/2022

UTILITY CONSTRUCTION

CLARK, CRAWFORD, FLOYD, HARRISON, JEFFERSON, PERRY, SCOTT, SWITZERLAND, & WASHINGTON COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man; concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side

rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, Hod Carrier (tending bricklayers); TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; General leadman; Concrete Saw Joint Control cutting

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LABO0999-001 04/01/2020

HEAVY AND HIGHWAY CONSTRUCTION

ALL COUNTIES EXCEPT: Jasper, Newton, & Starke

	Rates	Fringes
Laborers:		
GROUP 1	$ 25.10	16.17
GROUP 2	$ 25.40	16.17
GROUP 3	$ 26.10	16.17

LABORERS CLASSIFICATIONS

GROUP 1: Building and Construction Laborers; Scaffold Builders (other than for Plasterers); Mechanic Tenders; Window Washers and cleaners; Waterboys and Toolhousemen; Roofers Tenders; Railroad Workers; Masonry Wall Washers (interior and exterior); Cement Finisher Tenders; Carpenter Tenders; All Portable Water pumps with discharge up to (3) inches; Plaster Tenders; Mason Tenders; Flag & Signal Person.

GROUP 2: Waterproofing; Handling of Creosot Lumber or like treated material (excluding railroad material); Asphalt Rakers and Lutemen; Kettlemen; Air Tool Operators and all Pneumatic Tool Operators; Air and Electric Vibrators and Chipping Hammer Operators; Earth Compactors Jackmen and Sheetmen working Ditches deeper than (6) ft.in depth;

Laborers working in ditches (6) ft.in depth or deeper; Assembly of Unicrete Pump; Tile Layers (sewer or field) and Sewer Pipe Layer (metallic or non-metallic); Motor driven Wheelbarrows and Concrete Buggies; Hyster Operators; Pump Crete Assemblers; Core Drill Operators; Cement, Lime or Silica Clay Handlers (bulk or bag); Handling of Toxic Materials damaging to clothing; Pneumatic Spikers; Deck Engine and Winch Operators; Water Main and Cable Ducking (metallic and non-metallic); Screed Man or Screw Operator on Asphalt Paver; Chain and Demolition Saw Operators; Concrete Conveyor Assemblers.

GROUP 3: Water Blast Machine Operator; Mortar Mixers; Welders (Acetylene or electric); Cutting Torch or Burner; Cement Nozzle. Laborers; Cement Gun Operator; Scaffold Builders when Working for Plasterers. Dynamite Men; Drillers - Air Track or Wagon Drilling for explosives Hazardous and Toxic material handler, asbestos removal or handler.

LABO1112-003 04/01/2022

UTILITY CONSTRUCTION

BLACKFORD, DELAWARE, FAYETTE, GRANT, HAMILTON, HANCOCK, HENRY, JAY, MADISON, RANDOLPH, RUSH, UNION & WAYNE COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1	$ 27.40	17.22
GROUP 2	$ 27.90	17.22
GROUP 3	$ 28.40	17.22

LABORERS CLASSIFICATIONS (UTILITY CONSTRUCTION)

GROUP 1: Construction laborer; Fence erector; Flagger; Grade checker; Guard rail erector; Wire mesh layer; Joint man (mortar, mastic and all other types); Lighting installer (permanent or temporary); Lineman for automatic grade maker on paving machines; Mortar man; Multi-plate erector; Rip-rap installer (all products and materials); Road marking and delineation laborer; Setting and placing of all precast concrete products; Sign installation including supporting structure; Spraying of all epoxy, curing compound, or like material; sod layer; Air tool, power tool, and power equipment operator; Asphalt lute man; Asphalt raker man; Batch truck dumper; Bridge handrail erector; Handler (bulk or bag cement); Chain saw man;

concrete puddler; concrete rubber; Concrete saw operator; Core drill operator, eye level; Hand blade operator; Hydro seeder man; Motor-driven Georgia buggy operator; Power-driven compactor or tamper operator; Power saw operator; Pumpcrete assembly man; Screed man or screw man on asphalt paver; Rebar installer; Sandblaster man; Sealer applicator for asphalt (toxic); Setting and placing prestressed or precast concrete structural memebers; Side rail setter (for sidewalks, side ditches, radii, and pavements); Spreader box tender (manual or power-driven); Straw blower man; Subsurface drain and culvert pipe layer; Transverse and longitudinal hand bull float man; Concrete conveyor assembly man; Horizontal boring and jacking man; Jackman and sheetman; Pipe grade man; Winch and windlass operator

GROUP 2: Cutting torch burner; Laser beam aligner; Manhole erector; Sewer pipe layer; Water line installer, temporary or permanent; Welder (electric or exy-acetylene) in connection with waterline and sewer work, TVing and associated grouting of utility lines

GROUP 3: Air track and wagon drillman; Concrete barrier rail form setter; Dynamite and powder man; Hod Carrier (tending bricklayers); General leadman; Concrete Saw Joint Control cutting

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PAIN0012-006 05/01/2020

COMMERCIAL AND INDUSTRIAL

DEARBORN, OHIO, RIPLEY AND SWITZERLAND COUNTIES:

	Rates	Fringes
PAINTER		
Bridges, Lead Abatement	$ 26.30	11.35
Brush & Roller, Paperhanger, Drywall Taping	$ 25.30	11.35
Sandblasting, Waterblasting	$ 26.05	11.35
Spray	$ 25.80	11.35

PAIN0027-005 06/01/2022

NEWTON COUNTY, West of Highway #41

	Rates	Fringes
GLAZIER	$ 48.75	41.32

PAIN0047-005 06/01/2022

BARTHOLOMEW, BOONE, BROWN, DECATUR, HAMILTON, HANCOCK,
HENDRICKS, JACKSON, JENNINGS, JOHNSON, LAWRENCE, MARION,
MARTIN, MONROE, MORGAN, ORANGE, AND SHELBY COUNTIES

	Rates	Fringes
PAINTER		
BRIDGE WORK		
Concrete/Masonry Bridges	$ 26.44	13.30
Steel Bridges	$ 30.50	14.50
NON-BRIDGE WORK		
Brush, Roller	$ 28.10	15.81
Spray and Sand-Blasting	$ 29.10	15.81

PAIN0080-001 06/01/2022

BENTON, CARROLL, CASS, CLINTON, FOUNTAIN, MONTGOMERY TIPPECANOE
AND WARREN COUNTIES

	Rates	Fringes
PAINTER		
Brush and Roller	$ 27.13	17.43
Spray and Sandblasting	$ 27.18	17.43

PAIN0091-007 06/01/2022

ELKHART, FULTON, KOSCIUSKO AND MARSHALL COUNTIES

	Rates	Fringes
PAINTER		
Brush & Roller, Drywall Taping & Finishing, Vinyl/Paper Hanging	$ 28.75	17.00
Spray	$ 29.25	17.00

PAIN0118-005 06/01/2022

CLARK, CRAWFORD, FLOYD, HARRISON JEFFERSON, SCOTT AND
WASHINGTON COUNTIES

	Rates	Fringes

Painters:
Heavy Construction
Brush, Roller &
Paperhanger.....$ 22.20 14.07
Spray, Sandblast &
Waterblast.....$ 23.45 13.19
Highway Construction &
Railroad Bridges
Brush, Roller &
Paperhanger.....$ 29.81 14.58
Spray, Sandblast &
Waterblast.....$ 30.81 14.58

PAIN0156-001 04/01/2020

DAVIESS, DUBOIS, GIBZSON, KNOX, PERRY, PIKE, POSSEY, SPENCER, VANDERBURGH, AND WARRICK COUNTIES

	Rates	Fringes
Painters:		
BRUSH & ROLLER OF MASTICS, CREOSOTES, KEWINCH KOATE, & COAL TAR EPOXY	$ 28.60	17.53
BRUSH & ROLLER	$ 27.60	17.53
DRYWALL FINISHERS	$ 27.85	17.53
SPRAY of MASTICS CREOSOTES, KWINCH KOATE, COAL TAR EPOXY	$ 29.60	17.53
SPRAY, SANDBLAST, POWER TOOLS, WATERBLAST & STEAM CLEANING	$ 28.60	17.53

FOOTNOTE A:
All Structures over 40? $0.75/ hour above base wage
All Structures over 75? $1.50/ hour above base wage
All Structures over 100? $2.50/ hour above base wage

PAIN0197-001 06/01/2022

CLAY, GREENE, OWEN, PARKE, PUTNAM, SULLIVAN, VERMILLION AND VIGO COUNTIES:

	Rates	Fringes
Painters:		
Brush & Roller	$ 28.50	13.70

Sandblasting	$ 30.50	13.70
Spray & Pot Man	$ 29.00	13.70

FOOTNOTE A: $1.00 premium for work on structures over 40 ft. above floor/ground level
$2.00 premium for work on structures over 100 ft above floor/ground level

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PAIN0387-004 11/01/2022

DEARBORN, FRANKLIN, OHIO, RIPLEY, and SWITZERLAND COUNTIES

	Rates	Fringes
GLAZIER	$ 28.18	16.82

PAIN0460-004 06/01/2022

JASPER, NEWTON, PULASKI, STARKE AND WHITE COUNTIES

	Rates	Fringes
Painters:		
Brush & Roller Building	$ 37.10	27.68
Brush and Roller Heavy and Highway	$ 37.10	27.68
Drywall Taping & Finishing	$ 37.98	27.68

PAIN0469-002 06/01/2022

ADAMS, ALLEN, DEKALB, GRANT, HUNTINGTON, LAGRANGE, NOBLE, STEUBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
Painters:		
Brush, Roller, Paperhanger, & Drywall Finishing	$ 23.77	14.74
Lead Abatement	$ 27.66	14.30
Spray & Sandblast Pot Tenders and Ground Personnel	$ 24.86	14.30
Spray, Sandblast, Power Tools, Waterblast, & Steam Cleaning	$ 24.86	14.30

PAIN0669-001 05/01/2022

BLACKFORD, DELAWARE, FAYETTE, FRANKLIN, HENRY, HOWARD, JAY, MADISON, MIAMI, RANDOLPH, RUSH, TIPTON, UNION and WAYNE COUNTIES

	Rates	Fringes
Painters:		
Brush; Roller; Paperhanging; Drywall Finishers	$ 22.70	15.29
Spray/Waterblasting; Sandblasting	$ 23.70	15.29

PAIN1165-014 07/01/2022

CLARK, CRAWFORD, DAVIESS, DUBOIS, FLOYD, GIBSON, HARRISION, JEFFERSON, KNOX, MARTIN, ORANGE, PERRY, PIKE, POSEY, SCOTT, SPENCER, VANDERBURGH, WARRICK AND WASHINGTON

	Rates	Fringes
GLAZIER	$ 30.87	18.43

PAIN1165-017 07/01/2022

ADAMS, ALLEN, BLACKFORD, DE KALB, GRANT, HUNTINGTON, JAY, NOBLE, STEUBEN, WABASH, WELLS AND WHITLEY COUNTIES

	Rates	Fringes
GLAZIER	$ 27.42	17.15

PAIN1165-018 07/01/2022

JASPER and NEWTON (East of Highway #41) COUNTIES

	Rates	Fringes
GLAZIER	$ 39.38	26.90

PAIN1165-019 07/01/2021

ELKHART, FULTON, KOSCIUSKO, LAGRANGE, MARSHALL, PULASKI, and STARKE COUNTY

	Rates	Fringes
GLAZIER	$ 29.81	17.68

PAIN1165-022 01/01/2022

BARTHOLOMEW, BENTON, BOONE, BROWN, CARROLL, CASS, CLAY, CLINTON, DECATUR, DELEWARE, FAYETTE, FOUNTAIN, GREENE,HAMILTON, HANCOCK, HENDRICKS, HENRY, HOWARD, JACKSON, JENNINGS, JOHNSON, LAWRENCE, MADISON, MARION, MIAMI, MONROE, MONTGOMERY, MORGAN, OWEN, PARKE, PUTNAM, RANDOLPH, RUSH, SHELBY, SULLIVAN, TIPPECANOE, TIPTON, UNION, VIGO, VERMILLION, WARREN, WAYNE, and WHITE COUNTIES

	Rates	Fringes
GLAZIER	$ 30.88	18.70

PLAS0075-001 06/01/2017

CLAY, OWEN, PARKE, PUTNAM, VERMILLION AND VIGO COUNTIES:

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 25.75	13.50

PLAS0075-002 06/01/2017

GREENE and SULLIVAN COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 28.50	13.50

PLAS0101-001 06/01/2018

ELKHART, FULTON AND MARSHALL COUNTIES; PULASKI COUNTY (SOUTHERN 1/2):

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 31.50	14.30

PLAS0101-008 06/01/2014

ADAMS, ALLEN, DEKALB, HUNTINGTON, KOSCIUSKO, LAGRANGE, NOBLE, STEUBEN, WELLS AND WHITLEY COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 23.38	11.94
PLASTERER	$ 25.69	11.75

PLAS0438-003 06/01/2018

PULASKI (NOTHERN 2/3), JASPER (N. EASTERN PORTION OF WEST TO BUT NOT INCLUDING WHEATFIELD), ALL OF STARKE COUNTY

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 36.01	25.40

PLAS0692-002 06/01/2016

AREA #46

BARTHOLOMEW, BOONE, BROWN, CLARK, CLAY, CRAWFORD, DAVIESS, DUBOIS, GIBSON, HENDRICKS, JACKSON, JEFFERSON, JENNINGS, JOHNSON, KNOX, LAWRENCE, MARION, MARTIN, MONROE, MORGAN, ORANGE, OWEN, PARKE, PERRY, PIKE, POSEY, PUTNAM, SCOTT, SHELBY, SPENCER, VANDERBURGH, VERMILLION, VIGO and WARRICK COUNTIES

	Rates	Fringes
PLASTERER	$ 25.04	13.23

PLAS0692-008 05/01/2017

BARTHOLOMEW, BROWN, CLARK, DEARBORN, FLOYD, JACKSON, JEFFERSON, JENNINGS, LAWRENCE, OHIO, ORANGE, RIPLEY, SCOTT, SHELBY, SWITZERLAND, and WASHINGTON Counties

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
AREA #821	$ 24.18	13.49

PLAS0692-009 04/01/2020

AREA #83

BLACKFORD, DELAWARE, GRANT, HAMILTON (Northern Part), HANCOCK (Northern Part), JAY, MADISON, TIPTON, and WABASH COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 26.00	15.54
PLASTERER	$ 25.49	11.95

PLAS0692-011 04/01/2020

AREA #83

DECATUR, FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION and WAYNE COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 26.00	15.54
PLASTERER	$ 25.49	11.95

PLAS0692-015 06/01/2016

AREA #121

BENTON, CARROLL, CASS, CLINTON, FOUNTAIN, HOWARD, MIAMI, MONTGOMERY, TIPPECANOE, WARREN, WHITE and VERMILLION (Northern Part) COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 26.10	17.30
PLASTERER	$ 27.71	16.40

PLAS0692-018 06/01/2017

AREA #165

NEWTON COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 38.88	23.73

PLAS0692-022 06/01/2017

Southward on Rt. No. 49 to the JASPER, BENTON and WHITE County lines, including the City Limits of Wheatfield, Rensselaer and Remington, Indiana. To the West, the boundary of NEWTON County

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
AREA #406	$ 33.35	19.09

PLAS0692-023 06/01/2018

AREA #532

BOONE, HAMILTON (SOUTH HALF OF COUNTY NORTH TO NEW ROUTE INDIANA #32 INCLUDING NOBLESVILLE); HANCOCK COUNTY (SOUTHERN AND WESTERN PART OF HANCOCK COUNTY, NORTH TO BUT NOT INCLUDING FORTVILLE); HENDRICKS, JOHNSON, MARION and MORGAN COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 26.45	18.11
Slip Form Shift Work	$ 27.45	18.11
Swinging/Suspended Scaffold	$ 26.70	18.11

PLAS0692-027 04/01/2020

AREA #566

CRAWFORD, DAVIESS, DUBOIS, GIBSON, HARRISON, KNOX, MARTIN, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH and WARRICK COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 28.30	18.31

PLUM0136-003 04/01/2022

BROWN, DAVIESS, DUBOIS, GIBSON, JACKSON, LAWRENCE, MARTIN, MONROE, ORANGE, OWEN, PERRY, PIKE, POSEY, SPENCER, VANDERBURGH, WARRICK, and WASHINGTON Counties

	Rates	Fringes
Plumbers and Pipefitters	$ 40.07	19.11

PLUM0157-002 07/01/2022

BENTON, CARROLL, CLINTON, FOUNTAIN, MONTGOMERY, TIPPECANOE, WARREN AND WHITE COUNTIES:

	Rates	Fringes
Plumbers and Pipefitters	$ 40.15	20.85

PLUM0166-001 06/01/2022

ADAMS, ALLEN, BLACKFORD, DE KALB, GRANT, HUNTINGTON, NOBLE, STEUBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
Plumber and Steamfitter	$ 39.26	17.81

PLUM0166-002 06/01/2022

ELKHART, KOSCIUSKO, and LAGRANGE COUNTIES

	Rates	Fringes
PLUMBER	$ 39.26	17.81

PLUM0172-001 06/01/2022

JASPER (S of the N. Side of the City of Rensselear), MARSHALL, PULASKI and STARKE COUNTIES

	Rates	Fringes
Plumber, Pipefitter, Steamfitter	$ 38.54	21.79

PLUM0210-003 09/01/2020

JASPER (to the City of Rensselaer) and NEWTON COUNTIES

	Rates	Fringes
PLUMBER	$ 42.07	25.16

PLUM0392-006 06/01/2022

DEARBORN, OHIO, RIPLEY, AND SWITZERLAND COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 36.81	27.35

PLUM0440-002 06/04/2022

BARTHOLOMEW, BOONE, HAMILTON, HANCOCK, HENDRICKS, HOWARD, JOHNSON AND MARION COUNTIES; MIAMI COUNTY (SOUTH OF A STRAIGHT LINE WHERE ROUTE 218 ENTERS W. BOUNDARY); MORGAN, SHELBY and TIPTON COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 41.57	18.99

PLUM0440-004 06/01/2018

FAYETTE, FRANKLIN, HENRY, RANDOLPH, RUSH, UNION and WAYNE COUNTIES

	Rates	Fringes
Plumber and Steamfitter	$ 37.67	16.79

PLUM0502-001 08/01/2016

CLARK, FLOYD AND HARRISON COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 32.00	20.13

PLUM0597-004 06/01/2018

JASPER (Excluding the city limits of Rensselear), AND NEWTON (Entire County)

	Rates	Fringes
PIPEFITTER	$ 48.50	31.12

ROOF0023-004 06/01/2021

ADAMS, ALLEN, DEKALB, ELKHART, FULTON, HUNTINGTON, KOSCIUSKO, LAGRANGE, MARSHALL, MIAMI, NOBLE, PULASKI, STARKE, STEUBEN, WABASH, WELLS, and WHITLEY COUNTIES

	Rates	Fringes
ROOFER		
COMPOSITION	$ 30.50	19.03

SLATE & TILE.....$ 32.00 19.03

ROOF0026-002 06/01/2022

JASPER AND NEWTON COUNTIES

	Rates	Fringes
ROOFER	$ 40.79	24.47

ROOF0042-002 08/01/2022

DEARBORN, OHIO and RIPLEY COUNTIES

	Rates	Fringes
ROOFER	$ 30.90	17.05

ROOF0075-001 05/01/2022

FAYETTE, RANDOLPH, UNION, and WAYNE Counties

	Rates	Fringes
ROOFER		
Composition	$ 25.63	20.61
Slate & Tile	$ 25.85	20.61

ROOF0075-002 05/01/2021

CLINTON COUNTY

	Rates	Fringes
ROOFER		
Composition	$ 24.38	20.09
Slate & Tile	$ 24.60	20.09

ROOF0106-006 04/01/2021

CRAWFORD, DAVIESS, DUBOIS, GIBSON KNOX, MARTIN, ORANGE PERRY, PIKE, POSEY, SPENCER, VANDERBURGH AND WARRICK

	Rates	Fringes
ROOFER		
COMPOSITION	$ 31.00	18.43
SLATE & TILE	$ 30.80	16.52

ROOF0119-002 09/01/2021

BARTHOLOMEW, BLACKFORD, BOONE, BROWN, DECATUR, DELAWARE, FRANKLIN, GRANT, HAMILTON, HANCOCK, HENDRICKS, HENRY, HOWARD, JACKSON, JAY, JENNINGS, JOHNSON, LAWRENCE, MADISON, MARION, MONROE, MONTGOMERY, MORGAN, PUTNAM, RUSH, SHELBY, and TIPTON Counties

	Rates	Fringes
ROOFER	$ 27.80	11.75

ROOF0147-002 04/01/2018

CLARK, FLOYD, HARRISON JEFFERSON, SCOTT, SWITZERLAND, and WASHINGTON Counties

	Rates	Fringes
ROOFER	$ 24.43	10.20

ROOF0150-002 07/01/2022

CLAY, GREENE, OWEN, PARKE, SULLIVAN, VERMILLION AND VIGO COUNTIES

	Rates	Fringes
ROOFER	$ 28.75	17.55

SHEE0020-003 07/01/2022

	Rates	Fringes
Sheet metal worker (HVAC Duct Work)	$ 33.58	26.25

SHEE0020-010 07/01/2022

BARTHOLOMEW, BOONE, BROWN, DECATUR, DELAWARE, FAYETTE, FRANKLIN, HAMILTON, HANCOCK, HENDRICKS, HENRY, JACKSON, JENNINGS, JOHNSON, LAWRENCE, MADISON, MARION, MONROE, MONTGOMERY, MORGAN, ORANGE, RIPLEY, RUSH, SHELBY, TIPTON, UNION AND WASHINGTON COUNTIES

	Rates	Fringes

SHEET METAL WORKER.....$ 38.83 25.27

SHEE0020-011 07/01/2022

CLINTON COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	$ 36.71	27.78

SHEE0020-024 07/01/2022

CLAY, GREENE, MARTIN, OWEN, PARKE, PUTNAM, SULLIVAN, VERMILLION, and VIGO COUNTIES

	Rates	Fringes
Sheet metal worker.....	$ 38.08	22.79

TEAM0135-003 04/01/2021

REMAINING COUNTIES

	Rates	Fringes
TRUCK DRIVER		
GROUP 1.....	$ 31.16	17.27
GROUP 2.....	$ 31.21	17.27
GROUP 3.....	$ 31.26	17.27
GROUP 4.....	$ 31.31	17.27
GROUP 5.....	$ 31.36	17.27
GROUP 6.....	$ 31.26	17.27
GROUP 7.....	$ 31.46	17.27
GROUP 8.....	$ 31.46	17.27
GROUP 9.....	$ 31.56	17.27
GROUP10.....	$ 31.01	17.27
GROUP11.....	$ 31.56	17.27
GROUP12.....	$ 31.66	17.27

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Single/batches axle straight trucks; Batch trucks, wet or dry 3 (34E) axle or less; Single axle Grease and maintenance truck

GROUP 2: Single axle fuel and water trucks

GROUP 3: Single axle ""dog-legs"", and tandem truck or dog-

legs; Winch trucks or A-frames when used for transportation purposes; Drivers on batch trucks, wet or dry over 3 (34E) batches and tandem axle grease and maintenance truck

GROUP 4: Tandem axle fuel trucks; tandem axle water trucks; butuminous distributors (two-man)

GROUP 5: Tandem trucks over 15 tons payload; Single axle semi trucks; Farm tractors hauling material; Mixer trucks (all types); Trucks pulling tilt-top trailer single axle; Single axle low- boys; Truck-mounted pavement breakers

GROUP 6: Tandem trucks or ""dog-legs""; Semi-water Truck; Sprinkler Truck; Heavy equipment-type water wagons, 5,000 gallons and under; butuminous distributors (one-man)

GROUP 7: Tri-axle trucks; Tandem axle semi trucks; Equipment when not self-loaded or pusher loaded, such as Koehring or similar dumpsters, track trucks, Euclid bottom dump and hug bottom dump, tournatrailers, tournarockers, Acey wagons or for similar equipment (12 cu yds or less); Mobile mixer truck; Tandem Axle trucks pulling tilt-top trailer; Tandem - Axle lowboy; Tri- Axle batch Truck; Tri-Axle grease and maintenance truck

GROUP 8: Tandem-tandem semi trucks; Truck mechanics and welders; Heavy equipment-type water wagon over 5,000 gallons; Tri-Axle Trucks pulling tilt-top trailer; Low-boys, tandem-tandem axle

GROUP 9: Low-boys, tandem tri-axle; Acey wagons up to and including 3 buckets; Equipment when not self-loaded or pusher loaded, such as koehring or similar dumpsters, Track Trucks, Euclid bottom dump and hug bottom dump, Tournatrailers, Tournarockers, Acey wagons or for similar equipment (over 12 cu yds.)

GROUP 10: Pick-up trucks

GROUP 11: Helpers; Greasers; Tire men; Batch board tenders; Warehouseman

GROUP 12: Acey wagon (over 3 buckets); Quad Axle Trucks; Articulating Dump

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

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

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

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

Union Rate Identifiers

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

005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

Washington, DC 20210

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

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END OF GENERAL DECISIO"

ATTACHMENT #2

SECTION 05 12 00

STRUCTURAL STEEL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Columns, girders, beams, lintels, frames for openings and removable slabs, baffle supports, weirs and weir angles, pipe supports and hangers, inserts, pins bolts, nuts and washers and similar work.

B. Related Work Specified in Other Sections Includes, But is Not Limited to, the Following:

1. Section 05 51 00 - Metal Stairs
2. Section 09 96 00 - High Performance Coatings
3. Section 46 07 53 - Wastewater Treatment Package Plant

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1.	ASTM A 325	-	High-Strength Bolts for Structural Steel Joints
2.	ASTM A 490	-	Heat-Treated, Steel Structural Bolts
3.	ASTM A 6/A6M	-	General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use
4.	AWS D1.1	-	Structural Welding Code - Steel
5.	AISC M 016	-	Manual of Steel Construction - "Allowable Stress Design"
6.	AISC S 335	-	Specifications for Structural Steel Buildings
7.	AISC S 303	-	Code of Standard Practice for Steel Buildings and Bridges
8.	SSPC SP1	-	Solvent Cleaning
9.	SSPC SP2	-	Hand Tool Cleaning

10. SSPC SP3 - Power Tool Cleaning

1.3 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. CONTRACTOR's Drawings: Provide complete fabrication and erection details and schedules. Conform the numbering of columns, beams, and the like, as shown on detail drawings to the numbering on erection drawings.

C. Placement Listings: Submit erector's complete placement list of all field bolts - including grip, bolt length, and location.

D. Mill Reports: Submit certified mill reports for ASTM A 50 steels as requested. Submit certified mill reports for all steels other than ASTM A 50.

E. Setting Plans: Submit complete setting plans for use by others to set anchor bolts, setting plates, weir anchors and the like.

F. Welding Certifications: Submit reports that confirm that all welders have been certified within the last year by a nationally recognized laboratory to make groove and fillet welds in all positions.

G. Weld Inspection Reports: Submit reports of visual inspections of all structural steel welds for size, length, and defects.

H. Tension Test Reports: Submit direct tension test reports of high strength bolted connections designated on the plans as slip critical connections or direct tension connections.

1.4 TESTING SERVICE

A. General: Provide a testing laboratory responsible for inspecting, conducting and interpreting tests as required in Division 1 and for performance of at least the following inspections and tests:

1. Ascertain that all welders have been certified within the last year by a nationally recognized laboratory to make groove and fillet welds in all positions.

2. Visually inspect all structural steel welds for minimum size and length and for defects. Where specified, shown or required, radiographic, magnetic

particle, or ultrasonic inspection of welds will be performed. Inspection will conform to the inspection requirements of the AWS Structural Welding Code (D1.1).

3. Mechanically test the high-tensile bolted connections selected at random by checking for minimum tension and torque in 10 percent of all bolts or 2 bolts per connection, whichever is greater.

B. Cooperation: Cooperate with the laboratory personnel, provide access to work and manufacturer's operations, and provide and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used which require testing.

C. Additional Testing: Assume sole responsibility for expense of additional testing where work does not comply with the Contract Documents.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle all products and materials as specified in Division 1 (and as follows:)

1. Handle all steel with a crane or derrick. Do not drop or dump material from truck. Return bent or damaged sections to the fabrication shop.

2. Store and cover materials in areas set aside for such use. Store materials on skids or platforms above the ground and protected from corrosion and deterioration.

3. Store materials so that they are not distorted or otherwise damaged in any way.

4. Assume full responsibility for replacement of damaged or unsatisfactory materials.

PART 2 PRODUCTS

2.1 MATERIALS

NOTE: Review with structural designer to determine if other steels are used, such as the following:

ASTM A 572, Grade 50* (low alloy, high strength)

ASTM A 588, Grade 50* (low alloy, weathering) *Grade 50 is most commonly used, although other grades are available.

A. Structural Steel: Provide structural steel as follows:

1.	Provide shapes, plates and anchor bolts	ASTM A 50
2.	Provide tube	ASTM A 500

B. Bolts: Provide bolts as follows:

1.	Provide high-strength bolts	ASTM A 325
2.	Provide standard bolts	ASTM A 307
3.	Stainless steel anchor bolts	ASTM A 276 Type 304

4. Provide miscellaneous bolts of steel, bronze, aluminum, stainless steel with hexagonal nuts and standard flat plate washers with threads that are clean cut, unified standard series meeting the requirements of ANSI B1.1.

C. Direct Tension Indicators: ASTM F 959, type as required

D. Welding Electrodes: Conform welding electrodes to requirements in AWS A5.1 or A5.5, 7000 series.

E. Expansion Anchors: Use Hilti Kwik Bolts by Hilti, Inc., or approved equal, for expansion anchors.

F. Adhesive Anchors: Use Hilti HVA Adhesive Anchors, by Hilti, Inc., or approved equal, for adhesive type anchors.

2.2 FABRICATION

A. General: Conform fabrication to AISC "Code of Standard Practice for Steel Buildings and Bridges".

1. Properly mark and match-mark materials where field assembly so requires. Expedite the sequence of shipments to minimize the field handling of material.

2. Mill or saw cut columns at bearing ends and protect all such surfaces from corrosion.

3. Make allowances for draw in all tension bracing.

4. Drill or punch holes for connection bolts 1/16-inch larger than the nominal diameter of the bolts. Make holes for anchor bolts in column base and setting plates 5/16-inch larger than bolt size. Make holes for bolts in weir plates and the like as shown.

5. Provide all holes required in members to permit the connection of work of other trades who will furnish the necessary templates or such information as may be required.

6. Provide built-up sections assembled by welding free of warpage, and with all axes having true alignment.

7. Be responsible for any errors of fabrication and for the correct fitting of the various members. Errors in fabrication will cause the piece to be rejected. Supply a new and properly fabricated piece at no expense to the OWNER.

B. Connections: Provide connections with a minimum of two bolts. Use two-sided connections unless otherwise shown. Where the reactions are indicated, size and detail connections for those reactions. Unless otherwise shown, provide bolts with 3/4-inch diameter in slip critical connections.

1. Provide connections for noncomposite beams with uniform loads having a capacity not less than half the AISC total tabulated uniform load capacity for the given shape and span, and steel specification for the particular beam tabulated in the "Allowable Uniform Load Tables" with the AISC "Manual of Steel Construction" (Ninth Edition), nor less than the reaction noted, if any. Consider the effect of concentrated loads and make an analysis of loading and end reactions if necessary.

2. Shop connections may be welded or bolted. If bolted, use ASTM A 325 bolts in slip critical connections.

3. Provide bolt, field connections using ASTM A 325 bolts in slip critical connections, unless otherwise shown. Use welding only where indicated.

4. For bolted connections, provide one hardened washer under either head or nut, whichever is turned to tighten. Use the turn-of-the-nut method for tightening. The substitution of direct tension indicators or calibrated impact wrenches for the turn-of-the-nut method is permitted only with previous

approval. Determine proper bolt length for each field connection determined from the "Erector's Placement List".

C. Welded Connections: Use welded connections only where shown or as approved. Substitution of welded connections for shown bolted connections will not be permitted without written approval.

1. Furnish certificate issued by an approved testing laboratory, for all welders, to make groove and fillet welds in all positions. Provide documentation showing that all welders have practiced welding continuously since certification. Submit certification prior to any welding operations.

2. Unless otherwise shown, provide welded connections equal in strength to bolted shear connections. Provide minimum welds when not indicated, 1/4-inch fillet all around.

D. Miscellaneous bolts and nuts: Provide bolts and nuts of steel, bronze, aluminum, stainless steel or other materials as shown for uses other than those specified above for structural framing connections.

1. Assume the expense of drilled and grouted anchor bolts which are installed after concrete is placed.

2. Provide all bolts and nuts which are submerged or subject to periodic wetting of stainless steel, unless shown or specified otherwise.

E. Expansion Anchors: Provide expansion anchors of the size indicated and of the type specified. Lead expansion anchors will not be permitted.

F. Adhesive Anchors: Provide adhesive anchors of the size indicated and of the type specified.

PART 3 EXECUTION

3.1 ERECTION

A. Field Verification: Verify all dimensions for connections to existing structures or to new structures already in place in the field. Assume sole responsibility for the correctness of all shop and field fabrication fits.

B. Bracing: Provide temporary bracing and guy lines to properly protect all persons and property and to ensure proper alignment. Comply with all federal, state and local laws which govern safety requirements for steel erection. Provide all necessary additional bracing, beams, temporary struts, ties, guys, clip angles, and

the like, as required to take care of all loads to which the structure may be subjected before it is in finished condition. Remove all such erection aids after completion of steel erection, unless otherwise directed.

C. Coordination: Coordinate the location of supports for derricks, hoists, rigging and the like.

D. Templates: Furnish templates where shown, specified or required. Furnish shim plates, or developed fills where necessary to transfer load, where required, to obtain proper fit and alignment. Accurately set anchor bolts using a steel or wood template as necessary to maintain elevation and location.

E. Reaming: Unfair holes mismatched less than one-half fastener diameter may be reamed, and a proper size fastener installed with hardened washer under both head and nut, as directed. Mismatched holes greater than one-half fastener diameter will be considered as a fabrication error. Replace the piece affected as specified.

F. Leveling: Unless otherwise noted, level and plumb individual steel members to an accuracy of 1 to 500. Do all leveling and plumbing based on the mean operating temperature of the structure. Make allowances for the differences in temperature at the time of erection and the mean temperature at which the structure will be when completed and in service.

G. Stiffening of Structure: Do no welding or bolt tightening until as much of the structure as will be stiffened by the welding or bolting has been properly aligned.

H. Burn Holes: Burning of holes is permitted only with written approval. Any burning of holes without such written approval will be cause for the rejection of all parts involved.

I. Variations: Report immediately any variation from the Contract Documents which may occur during erection. Do not continue work affected by such variation without written approval.

J. Protection: Protect anchor bolt threads during placement of concrete.

3.2 INSPECTION AND TESTS

A. Rejection of Work: Work which does not comply with the Contract Documents will not be accepted. Take sole responsibility and assume the expense of all corrective measures, including additional and more extensive testing related to such work.

3.3 PAINTING

A. For surface preparation and painting of structural steel not encased in concrete see Section 09 96 00.

B. Structural steel encased in concrete shall be cleaned by removing all rust, loose mill scale, oil, grease and dirt in accordance with Steel Structures Painting Council SSPC-SPI, SP2 or SP3.

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 05 51 00

METAL STAIRS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Treads, risers, steel and aluminum structural framing members for stairs, platforms, and anchorage.

B. Related Work Specified in Other Sections Includes, But is Not Limited to, the Following:

1. Section 05 12 00 - Structural Steel
2. Section 46 07 53 - Wastewater Treatment Package Plant Handrail and Railings
3. Section 09 96 00 - High Performance Coatings

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1.	ASTM A 50/A50M	-	Structural Steel
2.	ASTM A 193/A193M	-	Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service
3.	ASTM B 308/B308M	-	Aluminum - Alloy 6061-T6 Standard Structural Shapes, Rolled or Extruded
4.	AWS D1.1	-	Structural Welding Code – Steel
5.	AWS D1.2	-	Structural Welding Code – Aluminum
6.	FF-5325	-	Expansion Shields

1.3 DESIGN REQUIREMENTS

A. Fabricate the aluminum and steel stairs to support a live load of 150 pounds per square foot with a deflection of the stringers or landing framing not to exceed L/240 of the span.

1.4 SUBMITTALS

A. General: Provide all submittals, including the following, as specified in Division 1.

B. Shop Drawings: Submit shop drawings for approval, indicating all the sizes and shapes of the stringers, headers, tees, carrier angles, clip angles, cast treads, landing platforms, bracing, stiffeners, hangers, supports, fascias and anchors as required.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Stair Treads

a. Wooster Products, Inc.; Type 105
b. Safe-T Metal Co., Inc.; Type KK

2. Stile and Ships Ladder Treads

a. Wooster Products, Inc.; Type 106A
b. Safe-T Metal Co., Inc.; Type D1

3. Platforms

a. Wooster Products, Inc.
b. Safe-T Metal Co., Inc.

2.2 MATERIALS

A. Steel Sections: Provide ASTM A 50/A50M steel sections including: stringers, headers, tees, carrier angles, clip angles, angles, bracing, stiffeners, supports, and bearing plates in sizes shown.

B. Aluminum Sections: Provide ASTM B 308/B308M aluminum sections including: stringers, headers, tees, carrier angles, clip angles and angles, bracing, stiffeners, supports and bearing plates, in sizes as shown.

C. Aluminum Plates: Provide ASTM B 209 aluminum riser.

D. Stair Treads: Provide stair treads of abrasive cast aluminum, in width and length as shown and of thickness recommended by the manufacturer for the required length.

E. Stair Platforms and Landings: Provide stair platforms and landings of abrasive cast aluminum, with truss ribs, and toeplates and nosings, matching the treads, as specified.

F. Welding Materials: Provide AWS D1.1 and D1.2 welding for type required for materials being welded.

G. Expansion Bolts: Provide ASTM A 193/A193M expansion bolts with washers and nuts, stainless steel type.

2.3 FABRICATION

A. General: Fit and shop assembly the stairs in the largest practical sections for delivery to the job site.

B. Stringers: Miter the stringers at changes in direction with joints tightly fitted and secured by continuous welds. Grind all exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight. Ease exposed edges to a small uniform radius.

1. Close and fit the ends of stringers at the floor or landing to the floor surface. On landings and platforms where they are part of the stair framing, carry the wall stringers around and above the finished level of the platform to form a base of the height as shown.

C. Treads: Fasten treads for stairs to steel carrier angles, welded to steel stringers.

D. Fasteners: Use Type MT 316 stainless steel complying with ASTM A 193/A193M for fastening treads to the carrier angles and for expansion bolts. Provide closed-end, bottom bearing expansion shields in accordance with the requirements of FF-B-5325.

2.4 FINISHES

A. Surface Preparation: Prepare surfaces to be primed and painted in accordance with Section 09 96 00.

B. Dissimilar Materials: Coat aluminum in contact with dissimilar metals, masonry or lime products, in accordance with Section 09 96 00.

PART 3 EXECUTION

3.1 PREPARATION

A. Cleaning: Clean and strip primed steel items to bare metal, where site welding is required.

3.2 INSTALLATION

A. General: Install metal stairs in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

B. Alignment: Install and set plumb, square, level and true the stairs, ships ladders and stiles at their proper elevation and plane, and located in true alignment with all the Work.

C. Fastening: Securely bolt the stairs, ships ladders, platforms and stiles to, or hang from, the structural framing with approved anchors, struts, or hangers.

D. Alignment: Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

E. Welding: Field weld components indicated on the shop drawings. Perform field welding to meet AWS D1.1 or D1.2.

END OF SECTION

SECTION 09 96 00

HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Preparation of surfaces, shop painting of items furnished, field painting of new structures, and masonry waterproofing.

1.2 REFERENCES

A. Codes and standards referred to in this Section are:

1. SSPC - The Society for Protective Coatings

a. SSPC SP 1 - Solvent Cleaning

b. SSPC SP 2 - Hand Tool Cleaning

c. SSPC SP 3 - Power Tool Cleaning

d. SSPC SP 5 - White Metal Blast Cleaning

e. SSPC SP 6 - Commercial Blast Cleaning

f. SSPC SP 10 - Near-White Blast Cleaning

g. SSPC SP 11 - Power Tool Cleaning to Bare Metal

h. SSPC SP 13 - Surface Preparation of Concrete

i. SSPC SP 16 - Brush-off Blast Cleaning of Non-Ferrous Metals

2. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method

3. NACE SP0178 - Standard Practice for Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service

1.3 SUBMITTALS

A. Provide all submittals, including the following, as specified in Division 1.

1. Submit manufacturer's standard color chart for color selection.

2. Furnish affidavits from the manufacturer certifying that materials furnished conform to the requirements specified and that paint products have been checked for compatibility.

3. Submit a supplementary schedule of paint products with mil thickness and solids by volume, including all paint applied in the shop and in the field. Provide a schedule that is in accordance with the recommendations of the paint manufacturer.

4. Furnish affidavits from the manufacturer certifying that coatings in immersion service contain no water soluble solvents or corrosion inhibitive (active) pigments with slight water solubility.

1.4 PAINTING REQUIREMENTS

A. Shop Primed and Field Painted Items: Furnish the following items shop primed and field painted: structural steel and wrought metals, hangers and supports, steel stair framing, and steel lintels.

B. Unpainted Items: Do not paint the following items, unless otherwise specified: floor gratings, stainless steel, surfaces to receive field welding, faying surfaces of high strength bolted connections, and steel to be embedded or in contact with cast-in-place concrete.

1.5 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store and handle all products and materials as specified in Division 1 (and as follows:)

B. Delivery and Storage: Deliver and store paint at the site from the approved manufacturer only.

C. Packaging and Labeling: Prepare, pack and label paints, stains, varnish or ingredients of paints to be used on the job. Deliver all material to the site in original, unbroken containers.

D. Storage: Store the painting materials at the site in accordance with applicable codes and regulations and in accordance with manufacturer's instructions. Keep the storage space clean at all times. Take every precaution to eliminate fire hazards.

1.6 JOB CONDITIONS

A. Provide all necessary labor equipment supplies, power and materials to protect the surrounding property and facilities and personnel during sandblasting and painting operations and preclude the migration of sandblast residue or coating materials.

1.7 QUALITY ASSURANCE

A. Observe all applicable local, state and federal rules and regulations for removal, storage and disposal of sandblast residue, and for application of the new coating systems.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

1. Paint - General:

a. AkzoNobel (Ceilcote, Devoe, Enviroline, International)

2. Protective Coating – Concrete and concrete-block parapet walls, concrete roofs of walkways and where indicated

a. Mameco; Vulkum 450/451 over 171 primer

2.2 MATERIALS

A. General: Furnish paint and other materials of the type and quality of the manufacturer on which the painting schedule specified herein is based.

1. Provide compatible shop and field coats.

2. Provide all coats of paint for any particular surface from the same manufacturer.

3. Provide paint of approved color as selected from the manufacturer's standard range of colors.

B. Paint Schedule: Provide all painting in accordance with the following schedule with the number of coats not less than the number shown on the schedule.

Class of Work	Surface Preparation	Field Coats 1st	2nd	3rd	Total DFT
Steel-Structural:					
Exterior	SSPC-SP 6	E	F	C	8.5-15.0
Concrete Walls (Cast and Precast):					
Below Grade	SSPC SP-13	H			16.0-20.0
Exterior Exposed	SSPC SP-13	O	N	N	7.0-10.0

C. Schedule of Paints: Alphabetical designations in the following list are given solely for the purpose of indicating the type and quality of materials desired. Equivalent material from other approved manufacturers may be submitted for approval.

Symbol	Product Name and Number	Volume Solids %	Dry Film Thickness Mils Per Coat	VOCs (g/L)
A	International Paint-Devoe Coatings Bar-Rust 231	71	4.0-8.0	271
B	International Paint-Devoe Coatings Bar-Rust 233H	80	4.0-6.0	170
C	International Paint-Devoe Coatings Devthane 379	63	2.0-3.0	311
D	International Paint-Devoe Coatings Pre-Prime 167	100	1.0-1.5	95
E	International Paint-Devoe Coatings Cathacoat 302H	78	2.5-4.0	282
F	International Paint-Devoe Coatings Devran 224V	77	4.0-8.0	28
G	International Paint-Devoe Coatings Devran 201H	58	2.0-3.0	327
H	International Paint-Devoe Coatings Devtar 5A-HS	79	16.0-20.0	98
I	International Paint-Devoe Coatings Intertherm 228HS	70	4.0-6.0	265
J	International Paint-Devoe Coatings Tru-Glaze 4015	53	9.0-11.0	99
L	International Paint-Devoe Coatings Tru-Glaze 4015	53	9.0-11.0	99
M	International Paint-Devoe Coatings Tru-Glaze-WB 4428	36	2.0-4.0	43
N	International Paint-Devoe Coatings Devcryl 1448 – Semi-gloss	38	1.5-4.0	98
O	International Paint-Devoe Coatings Devran 203	45	3.0-4.0	91
P	International Paint-Devoe Coatings Devcryl 1440	44	2.0-3.0	77

PART 3 EXECUTION

3.1 REPAIR

A. Fill all pits in concrete having a depth in excess of 1/8 of an inch with a 100 percent solids epoxy repair compound.

B. Notify the ENGINEER of all pits with a depth greater than 1/4 inch to determine whether structural repairs are necessary. Repair such pits in a manner approved by ENGINEER.

3.2 PREPARATION

A. Inspection: Prior to surface preparation perform the following:

1. Verify that surface substrate conditions are ready to receive Work as instructed by the product manufacturer.

2. Examine specifications for all Work and become thoroughly familiar with all provisions regarding painting.

3. Document conditions of substrate prior to beginning work. Indicate any damaged or deficient substrates requiring repair and report findings to the ENGINEER.

B. Surface Preparation: After inspection and prior to painting, perform the following:

1. Inspect all Work prior to application of any paint or finishing material.

2. Brush and wash concrete and masonry surfaces. Remove all loose dirt, free lime, form oil, curing compounds and other foreign matter by approved methods such as SSPC SP13. Patch concrete surfaces requiring repair and spackle and repair surfaces to receive paint. Acid etch concrete surfaces to be painted as recommended by the manufacturer of the coating to be applied, to produce a slightly granular surface required for adherence of the paint to the concrete unless otherwise indicated. Determine that concrete and concrete masonry is thoroughly dry prior to painting per ASTM D4263.

3. Thoroughly clean surfaces to be given protective coatings.

4. Do not begin field painting prior to approval of the surface preparation.

5. Prepare and clean all surfaces prior to painting, as specified and required. Verify that surfaces are dry before any paint is applied. Perform special surface preparation work as directed by the manufacturer of the paint specified to be applied to the surface.

6. Clean the surface of structural steel by removing all rust, mill scale, oil, grease or dirt in accordance with SSPC-SP6.

7. Prior to painting steel, grind smooth all welds, beads, blisters or protuberances per NACE SP0178, other than identification markings and remove other imperfections. Remove all rust, mill scale, oil, grease and dirt by abrasive blasting in accordance with SSPC-SP-10 unless otherwise indicated.

8. Prime cleaned metal the same day immediately after sandblasting to prevent rusting.

3.3 INSTALLATION

A. General: Install all painting and coatings in accordance with the manufacturer's recommendations and approved shop drawings and as specified in Division 1.

1. Refer to manufacturer’s guidelines as it relates to minimum/maximum allowable temperatures for application.

2. The surface temperature of the steel shall be at least 5 degrees F above the dew point.

3. Paint surfaces in accordance with the material painting schedule included in this Section.

4. Completely cover all surfaces to be painted. Cover by additional coats when color on undercoats shows through the final coat of paint, until paint is of uniform color and appearance and coverage is complete.

5. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

6. Provide sufficient temporary ventilation during painting operations in enclosed areas to remove moisture and solvents, and to keep the atmosphere safe from harmful or dangerous fumes and dust levels for personnel.

B. Touch-Up Shop-Primed and Finished Items: Touch-up all damaged portions and imperfections in shop-primed and finished items. Use the same paint as used for the shop prime and finish. Prepare the surface prior to touch-up by wire brushing and sanding to remove rust, scale and loose paint per SSPC SP 2, 3, or 11, as determined by each situation.

C. Aluminum and Incompatible Surfaces: Where aluminum surfaces come in contact with incompatible metals, lime, mortar, concrete or other masonry materials, apply one field coat of International Paint-Devoe Coatings Bar-Rust 231 Epoxy or two coats of asphalt varnish conforming to FS-TT-V-51F. The aluminum surface should be abraded to a 1.5-2.0 mil profile before coatings application is done to ensure maximum adhesion to the surface.

D. Field Painting: Perform field painting at the job site as follows:

1. Mix all paints and similar materials in approved containers of adequate capacity.

2. Mix all paint thoroughly before being taken from the containers. Keep mixed while painting. Apply all ready-mixed paint exactly as received from the manufacturer without addition of any kind of drier or thinner, except as specified, to mix colors to conform to approved color schedule. Tint successive coats of paint to make various coats easily distinguishable. Tint undercoats of paint to the approximate shade of the final coat of paint.

3. Use only skilled painters on the Work, and employ specialists where required. Apply paint by brush, roller or sprayer in accordance with the manufacturer's recommendation.

4. Thoroughly and uniformly sand undercoats on hollow metal Work with No. 00 sandpaper or equal abrasive to remove all surface defects and provide a smooth, even surface. Do not allow brush marks or other irregularities on finished surfaces.

5. Perform painting as a continuous and orderly operation to facilitate adequate inspection. Prime coat and paint materials subject to weathering or corrosion before erection. Perform all paint application methods in accordance with the instructions of the paint manufacturer and as approved.

6. Fully protect areas under and adjacent to painted work at all times and promptly remove dripped or spattered paint.

7. Repair, refinish and repaint any adjacent surfaces that have been damaged or discolored by overspray.

8. Do not paint when the air or surface temperature is below that recommended by the manufacturer, or in dust-laden air, or until moisture on the surface has completely disappeared. If necessary, provide sufficient heating and ventilation to keep the atmosphere and all surfaces to be painted dry and warm until each coat of paint has hardened.

9. Remove any painting found defective. Touch-up and provide remedial painting as directed and as required until completion and acceptance of final work.

10. Apply coatings at vertical and horizontal surfaces in strict conformance with the coating manufacturer's recommendations.

3.4 HEALTH AND SAFETY

A. Introduction

1. Products listed in this specification and used in high-performance coatings situations contain high volume solids; the aerosol droplets/particulates produced during airless spray of some of these materials may form an explosive mixture with air and additionally may contain materials which may necessitate personal protection against potential health hazards. A summary of the main precautions to be taken includes:

   - Danger of explosion or fire
   - Provision of a suitable breathing environment for workers.
   - Prevention of skin irritation problems.
   - Use of paints which have been specially formulated for use in tanks.

B. Consult with manufacturer prior to commencing work to review recommended Health and Safety procedures.

3.5 QUALITY CONTROL

A. General Coatings:

1. At least daily, check temperature, humidity, and Dew Point as to time and readings obtained. Submit "Paint Inspection: Daily Coating Inspection Report" to ENGINEER on a daily basis. See Supplement below.

2. Perform daily wet film thickness readings or spreading rate checks to make certain that proper film thickness is being achieved. If proper film thickness is not being achieved more frequent checks may be required by the ENGINEER at their discretion. Provide daily written report to ENGINEER. Correct any deficiencies in film thickness by application of additional paint. See Supplement below.

3.6 CLEANING AND FINAL TOUCH UP PAINTING

A. Touch up and restore any damaged finish. Remove paint or other finishes spilled, splashed or splattered from all surfaces taking care not to mar any surface or item being cleaned.

3.7 SUPPLEMENT

A. The supplement listed below is a part of this Specification:

1. Paint Inspection: Daily Coating Inspection Report

Paint Inspection:

Daily Coating Inspection Report

Project/Client:	Date: / / M T W Th F S Su	Pg. Of
Location:	Project #:	COPY To: ☐ QC Mgr ☐ Owner
Description:	Inspector:	☐ Contr ☐ _____
Requirements:		Attachments: ☐ DFT Sheet ☐ NCR/CAR ☐ _____
Contractor:	Spec #	Revision #

Description of Areas & Work Performed

Hold Point Inspections Performed

- ☐ 1 Pre Surface Pep/Condition & Cleanliness
- ☐ 2 Surface Preparation Monitoring
- ☐ 3 Post Surface Preparation/Cleanliness & Profile
- ☐ 4 Pre Application Prep/Surface Cleanliness
- ☐ 5 Application Monitoring/Wet Film Thickness (WFT)
- ☐ 6 Post Application/Application Defects
- ☐ 7 Post Cure/Dry Film Thickness (DFT)
- ☐ 8 Nonconformance/Corrective Actions Follow-up
- ☐ 9 Final Inspection

Approved By: _____

Surface Conditions

☐ New ☐ Maint ☐ Primer/Paint ☐ Age/Dry/Cure_____
☐ Steel ☐ Galvanize ☐ Concrete ☐ Other_____
☐ Hazard _____ ☐ Sample Report # _____
☐ Degree of contamination: _____
Test: ☐ Cl_____ µg/cm² / ppm ☐ Fe ____ppm ☐ pH _____
☐ Degree of Corrosion: _____
☐ Scale ☐ Pitting/Holes ☐ Crevices ☐ Sharp Edges
☐ Weld_____ ☐ Moisture ☐ Oils ☐ Other_____
☐ Painted Surface Condition: _____
Dry to: ☐ Touch ☐ Handle ☐ Recoat
☐ Dry/Over Spray ☐ Runs/Sags ☐ Pinholes ☐ Holidays
☐ Abrasion ☐ Fall Out ☐ Other _____

Surface Preparation

Start Time: Finish Time: Est Sq/ft:
☐ Solvent Clean ☐ Hand Tool ☐ Power Tool
☐ HP Wash PSI_____ ☐ Other _____
☐ Abrasive Blast ☐ Abrasive Type _____ ☐ Sample
☐ Blast Hose Size _____ ☐ Nozzle Size / PSI _____
☐ Air Supply CFM _____ ☐ Air Supply Cleanliness
☐ Water/Oil Trap Check ☐ Equipment Condition Check

Surface Cleanliness & Profile Measurement

☐ Job Specification ☐ SSPC/NACE - SP- _____
☐ SSPC/NACE Spec / Visual Stds ☐ _____
Profile Check: _____ ☐ Disc ☐ Tape ☐ Gauge
☐ Specified_____mils avg. / Achieved _____mils
☐ Surface effect on DFT Gauge/BMR_____mils

Dry Film Thickness

Gage Type / Model	Gage Serial #	Gage Calib. Verified	Spec Avg. DFT	Total Avg DFT	DFT Last Coat	DFT This Coat

Ambient Conditions

Time (Indicate AM or PM)	:	:	:	:
Dry Bulb Temp° (C/F)	°	°	°	°
Wet Bulb Temp° (C/F)	°	°	°	°
% Relative Humidity	%	%	%	%
Surface Temp° (C/F) Min/Max	/ °	/ °	/ °	/ °
Dew Point Temp° (C/F)	°	°	°	°
Wind Direction/Speed				
Weather Conditions:				

Application

Start Time : Finish Time : Est. Sq/ft.
☐ Primer ☐ Intermediate ☐ Topcoat ☐ Touch-up

Generic Type:	Qty Mixed:
Manuf.:	Mix Ratio:
Prod Name:	Mix Method:
Prod #:	Strain/Screen:
Color:	Material Temp: °F
Kit Sz/Cond.:	Sweat-in Time: Min/Hrs
Shelf Life:	Pot Life: Min/Hrs

Batch #'s

(A)	Reducer #:
(B)	Qty Added: Pt/Qt/Gal
(C)	% by Vol: %
Reducer:	Specified WFT Avg: Mils
	Achieved WFT Avg: Mils

☐ Airless/Conv. Spray ☐ Brush ☐ Roller ☐ Other _____

Pump Pot	Hose Dia.	Air Check
Ratio/Size	Hose Lng.	SEP/Trap
GPM/CFM	Spray Gun	Filter
PSI	Tip Sz.	Agitator

Inspector's Signature Date

END OF SECTION

(NO TEXT FOR THIS PAGE)

SECTION 25 13 00 - INSTRUMENTATION AND CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This specification covers the technical requirements for the fabrication, installation, engineering, wiring, adjustment, testing, start-up, commissioning, and training for the instrumentation and control (I&C) systems required for the project.

B. The instrumentation and control systems shall include all work and materials necessary to perform the control functions as illustrated on the electrical drawings as specified in the Division 25 Specifications.

C. All software program licenses, software programs, and passwords shall be turned over to the Owner at the end of the project and placed in the Owner's name. All programming copies to owner shall be documented.

1.2 SCOPE OF WORK

A. This project includes the improvements of existing wastewater supply and treatment facility. The Contractor shall be responsible for but not limited to the following for this project:

1. Furnish and Program New Main PLC Control Panel (BSBCP) – main system control panel by pre-packaged WWTP manufacturer. This package includes all related instrumentation.
2. Furnish and Program new Lift Station Pump Control Panel.
3. UV System – by UV manufacturer. This unit shall be monitored on the new BSBCP PLC.

1.3 QUALITY ASSURANCE

A. All work and materials specified herein shall be furnished by a single Contractor (SI). The SI shall be an experienced and reputable firm, which has been engaged in the business of providing instrumentation and control systems for water and wastewater treatment facilities for at least five years.

B. Drawings and specifications shown are intended to convey information required for a complete functioning system for the purposes specified. The Contractor shall be responsible for all details which may be necessary to properly install, adjust, and place in operation a complete and working system, including all mechanical and electrical installations, final wiring diagrams, connections, and the final layout, sizes and quantities of conduit and wiring communicated to the Electrical Contractor and other trades.

C. In order to achieve standardization in appearance, operation, maintenance, and spare parts, similar equipment provided under this contract shall be the end products of a single manufacturer.

D. Codes, specifications, and standards referred to by number of titles shall form a part of this specification to the extent required by the references thereto.

1.4 PRE-CONSTRUCTION SUBMITTALS

A. Submittals shall be as specified in the General Conditions and as further described below:

B. Submit the following:

1. Project schedule, which shall represent the Contractor's and Contractor's best projections of when activities listed below will occur. Project schedules shall be updated at the Engineer's request, when major changes in the schedule occur. The activities shall include, but not be limited to, the following:

    a. Coordination and loop review meetings
    b. Shop drawing submittals for each group of equipment
    c. Shop drawing approvals for each group of equipment
    d. Equipment manufacturing/panel fabrication
    e. Equipment delivery
    f. Equipment installation
    g. System testing and calibration
    h. Operational testing and demonstration.
    i. As-built submittals
    j. Operation and Maintenance Manual submittals
    k. Operator training
    l. Follow-up Operator training at six months after substantial completion.

2. Manufacturer's certification of compliance with the referenced specifications and standards.
3. Certified copies of reports of factory tests specified herein and required by the referenced standards.
4. Shop drawings, indicating performance and physical data of the equipment specified herein.
5. Manufacturer's installation instructions.
6. Provide mounting details for field mounted equipment.
7. Manufacturer's operation and maintenance instructions.
8. If available, USB driver, DVD and CD ROM media produced by the equipment manufacturer, which contain demonstrations of operation and maintenance procedures for the equipment specified herein.

C. Physical requirements of submittals shall be as follows:

1. Submittals shall be submitted as media on clear (not scanned) pdf documentation.
2. Submittals shall be organized and divided into logical division by means of tagged tabs. Each type of equipment shall be given a separate tab division.
3. Provide an index sheet for the submittals.
4. Drawings shall be on media converted to pdf and printable as 11 by 17 landscape format.
5. All text material shall at minimum be typewritten. Handwritten material is not acceptable.

6. Telecopied (FAX) documents or photocopies of faxed documents shall not be included in submittals. Submittals containing telecopied documents will be rejected and returned immediately.
7. All submitted equipment shall have highlighted features and clear part number designated.

D. Shop drawings shall include, but not be limited to, the following:

1. Instrument index, which shall include instrument tag numbers, instrument description and instrument calibrated ranges.
2. Typewritten specification sheets or pdf version, which shall include manufacturer's names and complete catalog numbers.
3. Detailed calculations as applicable, which shall include, but not be limited to, the following:

    a. Power supply sizing calculations
    b. Thermal loading (heat dissipation) calculations

4. Cut sheets and catalog information, which shall contain equipment specifications, dimensions, wiring and piping drawings, and installation and mounting details.
5. Loop drawings, which shall contain, but not be limited to, the following information:

    a. Loop numbers and instrument tag numbers
    b. Individual loop component locations
    c. Actual equipment wiring terminal designations, point to point wiring, and cable shield terminations
    d. Wire type, size and identification number
    e. Signal types (e.g., 120 Volt AC, 4-20 mA DC, pulse frequency, 3-15 psig, etc.)
    f. Contact orientations (e.g., normally open, normally closed, etc.)
    g. Equipment grounding requirements
    h. Sources of loop power, or power supply identifications
    i. Signal boosters, interposing relays and shunt resistors

        1) Reserve output capacity

6. Instrument and control panel layout drawings, which shall include, but not be limited to, the following:

    a. Bill of materials
    b. Front panel layout drawings
    c. Swing-out panel layout drawings
    d. Internal panel layout drawings
    e. Internal wiring diagrams, including wire type, size and identification number
    f. Terminal block layout drawings
    g. Nameplate lists
    h. Color schedules and samples

7. Elementary control diagrams.
8. Other descriptive information that will assist the Engineer with approval.

1.5 RECORD DRAWINGS (AS-BUILT) SUBMITTALS

A. Record drawings (as-built) submittals shall be as specified in the General Conditions, further described below:

B. The record drawings submittals shall consist of, but not be limited to, the following:

1. Submit one set to the Engineer and one set to the owner of corrected contract documents on a USB drive formatted and organized in pdf files. The original contract documents shall be marked to reflect 'as-built' conditions. Corrections shall be made in red.
2. Submit one set to the Engineer and one set to the owner of corrected loop description. The original loop description shall be marked to reflect 'as-built' conditions. Corrections shall be made in red.
3. Submit one set to the Engineer and one set to the Owner printer outputs of the final configuration or programs of all programmable controller-based equipment.
4. Where applicable, submit to the Owner standard magnetic storage devices, such as CD/DVD disks, of all programmable controller-based equipment software and programs.
5. Submit original licensed copies and original documentation for all software. All software licenses shall be in Owner's name.
6. Where applicable, submit to the Owner two sets of pre-configured Read-only Memory Modules, such as EEPROMS or UVPROMS, of all programmable microprocessor-based equipment. Each memory module shall be submitted in an anti-static zippered polybag, which shall be clearly labeled and identified.

1.6 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall prepare and furnish Operation and Maintenance Manuals of the system, which shall be submitted to the Engineer prior to operator training described below. Provide four (2) bound hard copy sets and one (2) USB drives with complete electronic copy in pdf format.

B. The Operation and Maintenance Manuals shall include, but not be limited to, the following:

1. Approved shop drawings amended by approved change orders and as-built conditions.
2. Manufacturer supplied operating and installation manuals.
3. Detailed procedures and instructions on the operation, removal, installation, adjustment, calibration, and maintenance of each component provided under this contract.
4. As-built control panel and enclosure drawings, including termination drawings, PLC input/output (I/O) wiring diagrams, and panel bill of materials.
5. List of recommended spare parts, which shall include complete catalog numbers
6. List of local or the nearest manufacturer approved repair and service centers.

1.7 OPERATOR TRAINING

A. The Contractor shall provide operation and maintenance training of the Owner's personnel. This training shall include, but not be limited to, the following:

1. The review of the Operation and Maintenance Manuals prepared and furnished by the Contractor.
2. The review of 'as-built' panel layout drawings and wiring diagrams.
3. Hands-on training in the operation of each instrument and each loop.
4. Hands-on training in the maintenance, removal, and reinstallation of each instrument and each loop.
5. Hands-on training in the programming or configuration of all programmable microprocessor-based instruments. This does not include the PLC system.

B. For bidding purposes, the Contractor shall include a minimum training period of one day, at eight hours per day, for up to five persons.

C. The Contractor shall bear all expenses associated with the operator training activities, including labor, transportation and material costs.

PART 2 PROCESS DESCRIPTION

2.1 GENERAL

A. Where indicated, each pump/motor or actuator will have the following pilot and control devices:

1. HAND-OFF-AUTO selector switch.

a. In HAND the equipment shall run.
b. In OFF the equipment shall remain off.
c. In AUTO, the equipment shall be controlled by the PLC

2. Green LED RUN/OPEN light.
3. Amber ALARM light.
4. Elapsed time meter (ETM) only for motors.

B. The new main PLC control panel, RTU panels and HMI shall communicate via Ethernet/IP networking protocol. The HMI shall display all parts of the system functionality and alarming. Text only information is not acceptable. Graphically represent all functions of the system with an easy-to-use menu system. Graphics that do not represent proper operation, process functionality, ease of use and operator interface shall be rejected.

C. Provide a protocol convertor to communicate Modbus TCP/IP to the new generator. Provide addresses and display on HMI as described on drawings.

D. All provided variable frequency drives (VFD) shall have Ethernet/IP connectivity to the PLC for monitoring only. Hard wired control and monitoring shall be as shown on drawings. Each VFD shall have a soft programmed Auto/Manual in the PLC that can be selected by the operator. When in Auto, the VFD shall follow commands from the PLC as described below. In Manual, the operator

shall have the ability to manually start/stop each motor and provide a speed setpoint (100% as default) from the HMI and SCADA system.

1. VFD information to be monitored at a minimum via the Ethernet connection (this information shall be available as a popup when a VFD or motor symbol on the display is pressed):

    a. VFD and Motor info
    b. Run status
    c. Fault status (included parameter and a lookup table so operator can easily identify drive fault problem)
    d. Motor torque
    e. Frequency and percentage (drive speed)
    f. Voltage (each leg)
    g. Current (each leg)
    h. Overload status

E. All provided electric actuators shall have hardwired control and monitoring as shown on drawings. Each actuator shall have a soft programmed Auto/Manual in the PLC that can be selected by the operator. When in Auto, the actuator shall follow the commands of the PLC as described herein. When in Manual, the operator shall be able to force valve opened or closed and if it is a positional type of actuator, set the position from closed to 100% open.

F. The new main PLC control panel HMI shall have trending for all flows, levels, temperatures and pressures of the system.

G. The HMI shall have an alarm summary screen.

H. The HMI shall have pop-up screens for all pump, actuators and other equipment controls.

I. All plant alarms shall be sent via text and email over a provided interface module provided by the pre-packaged WWTP manufacturer.

J. Local access to the PLC/HMI SCADA shall be per the owner provide internet service provider.

K. Flow rates (influent and effluent) shall have the following and be represented on HMI and SCADA graphics:

1. Current Flow Rate in GPM
2. Total Accumulated Flow in MGD
3. Current Hour Total in Gallons
4. Previous Hour Total in Gallons
5. Current Day Total in MGD
6. Previous Day Total in MGD
7. Current Week Total in MGD
8. Previous Week Total in MGD
9. Current Month Total in MGD
10. Previous Month Total in MGD
11. Current Year Total in MGD

12. Previous Year Total in MGD

2.2 PROCESS CONTROL AND MONITORING DESCRIPTIONS

A. New Main PLC Control Panel

1. The new BSBCP PLC shall be the central control and monitoring of the entire facility. Network connections and communications shall be required to all remote PLCs, VFDs and other Ethernet enabled devices as indicated on the contract drawings.
2. Programming functionality for the treatment processes shall be as designed by the pre-packaged WWTP manufacturer.

B. Plant Lift Station

1. The plant lift station (LS) shall have a control panel as shown on drawings. The LS shall have two modes of operation, PLC control or Float control. These two controls shall be independent of each other. Primary control shall be by radar level transmitter and secondary control shall be by floats. The floats shall enter the pump control panel into an intrinsically safety barrier (ISB) to control relays. These relays shall allow isolated signals to the pump control panel operation and for indication to the main PLC via Ethernet.
2. Provide a 2-Position selector switch for PLC/Float Mode selection.

    a. Float Mode: pumps shall operate independently from the PLC and activate by float control as High Level – both pumps run; Low Level – all pumps off; Lead Level – lead pump run call (either pump 1 or pump 2); Lag Level – second pump starts. Provide a pump alternator to alternate between pump 1 and pump 2 each Lead Level cycle. High level will generate an alarm and energize a local alarm beacon.
    b. PLC Mode: Auto/Manual mode as described above. Pumps shall operate based on a primary level transmitter while in Auto mode. Via the HMI or SCADA system, setpoint levels can be entered by the operator for High Level, Low Level (pumps off), Lead level and Lag level. When lead level is reached, the lead pump (alternated between pumps 1 and 2 each cycle) shall be called to run, VFD speed setpoint shall be set to 80% as default; provide the start speed as an enterable value. The pump speed shall increase to 100% between the lead and lag call setpoints. Once the lag setpoint is reached, call on the second pump starting at 80% speed. As level continues to rise, increase speed of lag pump. Lag pump shall shutoff when both pump speeds reduce to 80%. Lead pump shall shutoff at pump off setpoint.
    c. While in PLC mode, the PLC shall continuously monitor the level transmitter, if the level transmitter fails, switch auto control to start and stop the pumps based on float digital inputs. Both pumps shall be started at 100% during this mode of operation.
    d. Wire a relay on the digital output of the PLC so that it remain energized, if the PLC faults, the relay shall de-energize and automatically put the pump control panel in float mode. The output contact shall be a NC contact in parallel with the float mode 2-position switch.

C. UV System/Effluent:

1. A new UV system will be provided and installed. The UV manufacturer shall supply a system controller. Monitor system as shown on drawings.
2. All UV information shall be displayed on the new BSBCP HMI. Provide appropriate alarms and warnings.

2.3 GRAPHIC DESCRIPTIONS

A. General graphics descriptions for Main PLC HMI

1. Provide all necessary graphic screens for a complete SCADA system for new project scope. Screens shall be developed as required to achieve control systems as described in Division 25 and as shown on contract drawings. Develop new screens to cover all new functionalities at the WWTP facility. This includes graphics for systems as provided by other manufacturers such as the Screening System, UV System and other.
2. Graphic screens shall comply with standards presented below or similar as approved by the Engineer. These shall include but not limited to:

    a. Standard color convention
    b. Standard security levels and schemes
    c. Standard screen navigation and pop-up windows
    d. Standard display screen design

3. The SCADA software package shall have configured a Data Historian as necessary to provide required process historical records. This shall include all analytical type data such as: flow rates, levels, pressures, dissolved oxygen, ORP, motor runtimes, etc…
4. Graphics Standard Color Convention

    a. Equipment Status Colors

        i. Power ON: Green
        ii. Motor ON: Green
        iii. Motor OFF: Yellow
        iv. Motor FAIL: Red (flashing)
        v. Valve OPEN: Green
        vi. Valve CLOSED: Red
        vii. Valve in travel: Both Red and Green, or Yellow
        viii. Pending Alarm Warning: Amber
        ix. Alarm: Flashing Red

    b. Process Piping Indications

        i. Raw Water from wells: Dull/Dark Green
        ii. Backwash water from filters: Brown
        iii. Raw Sludge: Brown
        iv. Plant Effluent Water: Light Brown
        v. Scum Water: Gray
        vi. Sewage: Gray
        vii. Clean/Non Potable Water: Cyan (Light Blue)
        viii. Equipment: Machinery Gray

6. Screen Navigation and Pop-Up Windows

    a. Navigation Menu: Provide common, combo-box style drop down navigational menu, on each SCADA screen. Menu shall include the following items and sub-items:

        i. Overview
        ii. Plant Overview
        iii. Process Overview
        iv. Control System Overview
        v. Flow Summary (Daily, weekly and monthly totals and accumulated total).

    b. Controls - Provide menu and submenu items, which correspond to processes and unit processes unique to associated facility.
    c. Trends - Provide menu and submenu items to access preconfigured trend pages unique to associated facility.
    d. Alarm and Setpoints - Provide button to open alarm summary screens. Provide menu and submenu items to permit control setpoint changes as necessary unique to associated facility.
7. Animation: In general, minimize unnecessary animation. Standard animation includes the following:

    a. Animate variable signal bar graphs and tank levels.
    b. Animate wet well water levels.
    c. Unacknowledged alarm shall flash.
    d. Change piping colors from light gray on no-flow condition, to process colors as described herein, on positive flow condition.
    e. Change equipment status indication color as necessary and as described herein.
    f. All animated level or flow indication will also include a digital dynamic value of that variable.
    g. Flow direction by arrow movement (incremental flash)

8. Motor Control Pop-Up Window.

    a. Provide a motor control pop-up window for each motor controlled piece of equipment. Double-clicking equipment symbol shall open associated motor control pop-up window.
    b. Pop-up for VFDs: Pop-up shall have Start/Stop Pushbutton, Manual/Auto Operation Pushbutton, Speed Control Variable Setpoint, Speed Reference Feedback, VFD Fault Indication and Total Runtime Hours. On/Off Status indication will be shown here as well as on the overview screen. Include all data as provided via the Ethernet connection.
    c. Pop-up for Standard ACL Starters: Pop-up shall have Start/Stop Pushbutton, Manual/Auto Operation Pushbutton, Fault Indication and Total Runtime Hours. On/Off Status indication will be shown here as well as on the overview screen.
    d. Valve Control Pop-Up Window. Provide valve control pop-up window for every actuated process valve. Double-clicking valve symbol shall open associated control pop-up window. Pop-up shall have Open/Close function when in manual and a Manual/Auto Pushbutton. Open and Closed statuses will be shown on the pop-up as well as the overview screen.

9. Bitmap Images: In general, minimize unnecessary bitmap images (*.bmp, *.gif, *.jpg, etc.). Bitmap images may be used only if they are helpful and useful to the users.

10. Provide new screens for monitoring Generator and ATS switch position status. The following minimum Generator status signals shall be monitored on the SCADA system via Ethernet:

    a. Run Status
    b. Prewarning for low oil pressure
    c. Prewarning for high coolant temperature
    d. Low oil pressure shutdown
    e. High coolant temperature shutdown
    f. Over crank shutdown
    g. Overspeed shutdown
    h. Switch off/not in automatic start mode
    i. Low coolant temperature
    j. High battery voltage
    k. Low battery voltage
    l. Normal battery voltage
    m. Fuel leak detection status
    n. Unit ON-OFF-AUTO controls
    o. Low Fuel

B. Descriptions of these screens are only for bidding purposes. It will be the responsibility of the Contractor (for PLC and HMI) to provide all necessary screens to cover all operations of this facility and make the usage of a SCADA system as simple and easy to use for all operators of the utility company. All displays, graphical and other, shall be complete, organized, easy to read and completely tested to assure that all signals are linked correctly.

C. Include in bid 1 day for a meeting with Engineer to review Display Screens and requirements.

PART 3 EXECUTION

3.1 GENERAL

A. The Contractor shall provide all materials and work necessary for a complete and functioning I&C system and shall have full coordination responsibility of the electrical, mechanical, and structural work as specified herein and as shown on the drawings. The Contractor shall ensure that the instrumentation and control systems work is properly interfaced with equipment and other work furnished under other divisions of the contract documents.

B. The Contractor shall install, make final connections to, adjust, test, and start-up the complete instrumentation and control system utilizing the technical service and advice of the various equipment and instrument manufacturers.

3.2 COORDINATION MEETINGS

A. Coordination and control loop review meetings shall be attended by representatives of the Contractor and the Contractor, and the owner may be invited. The meetings shall be held at the Engineer's office periodically during the course of the project. The purpose of these meetings shall be to document the compatibility of the mechanical and electrical work as described in Article 3.01, paragraph A. above.

B. For bidding purposes, the Contractor and the Contractor shall include cost for participation in no less than two (2) coordination and control loop review meetings. Each meeting shall require at least one-half working day.

3.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Materials and equipment shall be delivered to the job site at a maximum of ten days prior to installation and not before.

B. All instruments containing electronics components shall be stored off the ground in weathertight enclosures. They shall be kept dry at all times. All plug-in equipment which can be removed from panels without the necessity of disconnecting any wire terminations shall be removed from its panel before shipping. They shall be shipped in separate shipping containers.

C. All equipment covered by this specification shall be shipped in a thoroughly clean condition, free from sand, oil, grit or grease (except when required for lubrication), weld splatter, or other foreign materials. All panel openings shall be capped.

3.4 INSTALLATION

A. General

1. Installation shall be in strict compliance with individual equipment manufacturer's instructions.
2. All gages and indicators shall be mounted in the upright position.
3. Provide sufficient space around the equipment for maintenance and removal.
4. Cover front panels, gages and indicators, during construction for protection from weld and paint splatter.
5. Unless otherwise impractical, support instruments independent of process piping.

B. Installation Hardware

1. All nuts and bolts shall be stainless steel.
2. Support channels shall be stainless steel unistrut channels with stainless steel hardware.
3. Do not mount equipment directly to masonry or concrete walls. Provide unistrut channels on wall.
4. All equipment mounting plates shall be of 0.25-inch thick minimum stainless steel.
5. All contact surfaces between dissimilar metals shall be gasketed to prevent galvanic reaction.

C. Instrument Disconnect and Surge Protection

1. All analog signal wiring shall be provided with surge protection at both the transmitting end and at the receiving end if the device is located exterior to the building in which the connecting PLC is located.

    a. At the instrument - TP48 by Telematic, Liebert FLW series or equal.
    b. At PLC – SD Series by MTL Surge Technologies or equal.

D. Weather Protection

1. Unless noted otherwise or impractical, all externally located instruments shall be installed to face north.
2. All externally located instruments, indicators, totalizers, control panels and control stations shall be mounted on a panel or mounting plate, which shall be provided with an aluminum or stainless steel weathershield to protect the instruments from direct exposure to the sun and weather. This weathershield shall be 3" wider at each end and have a 6" overhang in front of the instrument. All edges shall be smooth and rounded.

3.5 EQUIPMENT IDENTIFICATION AND TAG NUMBERS

A. All apparatus, control equipment, and instruments, both panel and field mounted, shall be plainly identified, using the following methods:

1. Pipe-mounted instruments shall be provided with embossed stainless steel tags, which shall be attached to the instruments by means of stainless steel wire or tie wrap.
2. Wall, plate, or panel mounted instruments shall be provided with engraved laminated plastic tags, which shall be mounted above, or below instruments. The plastic tags shall be mounted at eye level and shall be visible from a minimum distance of 20 feet. Lettering shall be black on white background.

B. Tag numbers and engraved or embossed text shall be as shown on the drawings, or as approved by the Engineer during shop drawing approval.

C. Tag numbers shall conform to the current Instrument Society of America (ISA) Standards, unless otherwise noted, which shall consist of a multi-character prefix, followed by a loop number. Tag numbers shall be as indicated on the drawings.

3.6 TESTING AND CALIBRATION

A. Test all analog loop zeroes and spans by disconnecting wiring at each transmitter and substituting an approved 4-20madc generator. Adjust the indicators and receiving instruments to indicate the correct value, correlated to the simulated current signal.

B. Test all annunciator points by placing jumpers across normally open contact inputs, or by disconnecting wiring on normally closed contact inputs.

C. Submit testing and calibration reports for all instruments to the Engineer.

3.7 COMMISSIONING

A. This activity shall consist of individual loop/instrument tests, overall systems test, and Operator training. Each test shall be witnessed by representatives of the Contractor, Contractor, Owner, and Engineer.

1. Loop Operation Test: The objective is to demonstrate that the instrumentation and control system individual instruments are ready to be placed into permanent operation. Each loop shall be tested and demonstrated.
2. Control Function Test: The objective of this test is to demonstrate that all local and remote-control panels, control stations, MCC, and Operator interface functions are ready to place into permanent operation. All features of the WTP CP and HMI shall be demonstrated.
3. The Contractor shall prepare an agenda for the commissioning and submit to Engineer as part of the shop drawing submittal package.
4. The Contractor shall conduct training as specified.
5. Substantial completion of the system shall not be approved until satisfactory completion of the above commissioning tasks.

3.8 WARRANTY

A. The Instrumentation and Control System shall be fully warranted and guaranteed from defect for a one-year time period, beginning at the date of substantial completion.

B. During the warranty period adjust, recalibrate, repair, replace and otherwise place back into service any instrument and any item(s) that may require service, including software, at no additional cost to the Owner for any reason.

C. During the warranty service, provide unlimited on-site software and operation support, at no additional cost to the Owner for any reason.

D. Respond to a call for service within 24 hours.

E. At approximately six months completion of the warranty period, visit the plant and perform routine diagnostics and tests to determine on-going operation and performance of the I & C system within the project requirements. Make any and all repairs and adjustments necessary at no additional cost to the Owner for any reason. Conduct additional “follow-up training” to assist the Owner in operation of the plant and to address any operational concerns that may have become known after six months of operation.

END OF SECTION 25 13 00

SECTION 25 30 00 - FIELD MOUNTED INSTRUMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The work required under this section includes the provision, installation, start-up, testing and calibration of all field mounted instruments required for this project.

B. This section covers field mounted instruments provided separately from a manufactured system or process equipment package, to be used on the various portions of the project, and the Contractor shall meet the requirements of these Specifications wherever applicable.

C. The types of field mounted instruments required for this project include the following:

1. Submersible Pressure Transmitter (lift station level)
2. Magnetic Flow Meter (influent flow rate)
3. Ultrasonic Flow Meter (weir for effluent flow rate)
4. Float Switches
5. For VFD units in control panels, see Division 26

1.2 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of field mounted instruments and systems of types and sizes required, whose products have been in satisfactory use in similar service, and whose products meet all requirements specified herein.

B. Installer: Qualified with successful installation experience on projects with field instrument work similar to that required for this project.

1. It is intended that an experienced electronic systems/instrumentation and control systems subcontractor shall be in responsible charge of all field instrument work.

C. ISA Compliance: Comply with applicable Standards and Practices for Instrumentation published by the Instrument Society of America pertaining to field mounted instruments and related installations.

D. UL Compliance and Labeling: Comply with provisions of UL safety standards pertaining to electrical systems, and provide products and components which have been UL-listed and labeled whenever such UL listed products are available.

E. NEC Compliance: Comply with requirements as applicable to construction and installation of field mounted instruments and installations.

1.3 SUBMITTALS

A. Prepare and submit shop drawings and descriptive data for each instrument and information regarding field installation of each instrument.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ship instruments and accessories properly protected and packaged.

B. Handle instruments and accessories carefully to prevent damage and protect from weather.

PART 2 - PRODUCT

2.1 GENERAL

A. For each field mounted instrument, provide a complete assembly with all required components, enclosures suitable for the environment and location, fittings, mounting brackets, and other components and accessories as needed to form a complete system.

B. Provide conduit, raceway accessories, wiring and connections necessary to place the instruments into service and necessary to interface the instruments to other equipment control panels, programmable controllers, SCADA system, and similar installations as required for the project.

C. Include TVSS units as specified per specification 25 30 00 where required.

2.2 SUBMERSIBLE PRESSURE TRANSDUCER

A. General

1. Provide loop powered (1) submersible pressure transmitters for this project.

   a. Plant Drain Lift Station – in stilling tube

2. This section describes the requirements for a submersible level measuring system. Under this item, the contractor shall furnish and install the level measuring system, and all associated equipment and accessories as indicated on the plans and as herein specified.

B. Primary level control shall be from a submersible pressure transducer.

C. The liquid level of the following areas shall be sensed by maintenance free Loop Powered Submersible Level Transducer system that uses reliable hydrostatic head pressure sensing principle to provide an accurate and reliable proportional 4-20 mA signal representing level/pressure. Other technologies that can be affected by foaming, turbulence, grease, suspended solids build up, atmospheric changes, condensation, or false echoing shall not be acceptable. Submersible sensor systems that use protective caps or cages to protect the sensing diaphragm, are susceptible to solids build up, shall be considered high maintenance and unreliable, and shall not be acceptable. The transducer shall be suitable for continuous submergence and operation and shall be installed in accordance with manufacturer's instructions. The bottom diaphragm face of the sensor shall be installed 6 inches above the floor. The sensor shall be mounted using a stainless steel cable system.

D. The transducer housing shall be fabricated of a Teflon™ coated 316 stainless steel with a bottom diaphragm 2-5/8" diameter of heavy-duty, limp, foul-free, molded Teflon™ bonded to a synthetic rubber back/seal. System design shall allow maintenance free operation in both water and wastewater environments (high solids). Housing construction shall resist and be unaffected by the buildup of solids on its surfaces or sensing diaphragm. The transducer electronics shall be encased within the protective housing and shall be electrically and mechanically isolated from the sensed media via non-conductive fluid filled pressure transference cavity and barometric compensated transducer electronics chamber. Metallic or ridged diaphragms shall not be acceptable in that they are subject to damage or distortion.

E. The submersible level transducer shall be a two-wire type and shall operate from a supply voltage of 9 to 30 VDC and produce a 4-20 mA signal in direct proportion to the measured level excursion over a pre-calibrated range of 0 to 30 PSI. The unit shall have ample instrument loop load capacity and shall be able to drive a minimum load of 750 Ohms @ 24 VDC loop power. The sensor technology shall be based on the use of a highly reliable and stable piezo-resistive pressure element with a .25% full scale accuracy with compensation for non-linearity, hysteresis and repeatability. The unit shall operate over a wide –40 to 185 degrees F. temperature range and shall have not more than a 3% full scale error over a –4 to 180 Deg F. range.

F. The transducer element shall incorporate high over-pressure protection and be designed to withstand intermittent overpressures (8X (1.5 PSI) 4X (5 PSI) 2X (15 & 30 PSI) –Select One) times the full-scale range being sensed. Sensing principles employing less reliable technologies including LVDTs, capacitance or pneumatic elements shall not be acceptable.

G. The internal pressure of the transducer assembly shall be relieved to atmospheric pressure through a heavy-duty urethane jacketed hose/cable assembly with a dedicated breather tube. The tube shall be ridged to prevent compression that may result from mounting or folding of the cable through installation. The breather system shall be sealed through the use of a rugged maintenance free air bladder assembly connected to the breather tube and mounted within a junction box or monitoring panel. The sealed breather system shall compensate for variations in barometric pressure including expansion and contraction of air due to temperature changes and altitude as well as prevent fouling from moisture and other corrosive/atmospheric elements.

H. The transducer shall be installed where directed by the Engineer and connected with other system elements and placed in successful operation. It shall be provided with input power and output signal transient protection, associated control elements as specified herein and in accordance with manufacturer's instructions.

I. Acceptable Manufacturers:

1. KSPI Model 710
2. AGP PT-500 Series
3. A1000i as manufactured by Siemens Water
4. Or Approved Equal.

2.3 MAGNETIC FLOW METERS

A. Provide (1) magnetic flow meter.

B. Acceptable Manufacturer:

1. EuroMag Model MUT2300 with MC608 remote converter
2. No equal

C. METER:

1. Shall be a velocity sensing electromagnetic type flanged tube meter with sealed housing for 150 PSI working pressure.

E. GROUNDING RINGS:

1. Shall be 316 stainless steel and shall be supplied with the meter tube. Exception: On sensor models which use grounding electrodes, grounding rings are optional. For best performance, grounding rings are recommended for all sizes.

F. POWER AND SIGNAL ISOLATION:

1. The power supplied between the converter and the meter tube (sensor) and signal between the meter tube and the converter shall be isolated and placed in separate submersible cables.

G. SERVICE & SUPPORT:

1. Supplier must have flow calibration laboratories and personnel to perform testing and certify calibration. Personnel must also provide instruction or training as required assuring meters are supported and maintained throughout the guarantee period.

H. VOLUMETRIC TESTING:

1. All meters must be performed and approved prior to shipment. The complete meter assembly and signal converter must be wet accuracy tested and calibrated. The test facility must be rigorously traceable to an accuracy of ±0.15% with the National Institute of Standards and Technology. If desired, the test shall be witnessed by the customer or their selected agent. A copy of the certified accuracy test record must be furnished at no charge to the Owner.

2.2 ULTRASONIC FLOW METER

A. Provide an ultrasonic flow meters for the effluent structure weir at the post aeration basin.

B. This specification covers a non-contacting ultrasonic Level/Flow. This instrument shall provide for indicating, transmitting and control of the material level in a vessel or proximity of a target to the instrument sensor, and indicating, transmitting, and totalizing of the flow rate through a flume, weir, or other primary measuring device.

1. Level/Flow Monitor to consist of a non-contacting ultrasonic sensor, connecting cable, and a remote enclosure with indicating, transmitting and controlling electronics.
2. Measurement accuracy shall be ±0.25% of Range or 2 mm (0.08"), whichever is greater, and shall be automatically temperature compensated.

3. Sensor cable length shall be as required by installation, not to exceed 500' (152 m).
4. System shall have no moving parts and shall not contact the material being measured.
5. Shall include PC software program disk to determine open channel flow calibration values for non-standard flumes and weirs if used for flow rate calculations.

C. Sensing Element

1. Sensor shall be constructed of PVC and Teflon.
2. The sensor shall have a minimum deadband or blanking of 12" (305 mm) and a maximum range of 32 ft. (10 m), and have an operating frequency of 42 kHz with an ultrasonic beam angle of 8 Degrees.
3. Sensor shall withstand accidental submersion to 20 psi.
4. Sensor operating temperature shall be from -40°F to 150°F (-40°C to 65°C).
5. Sensor shall include integral temperature sensor. Temperature sensors requiring separate mounting and wire runs shall not be accepted.

D. Sensor Connecting Cable

1. Provide RG62AU coaxial cable 25' (7.6m) continuous length, with waterproof, potted bond to the Sensor head.
2. Extended sensor cable shall be RG62AU coaxial to a maximum of 500' (152m). Cable shall be spliced with screw terminal connections in manufacturer's recommended steel NEMA4 Junction Box.
3. Level and temperature signals shall be conducted on one single coaxial cable. Separate or multiple-conductor cables shall not be accepted.
4. Sensor cable shall be installed in grounded conduit.

E. Transmitter

1. The transmitter shall provide for field-calibration via built-in 5-key calibration system with menu selection of parameters. Systems requiring calibration by Parameter codes, BCD switches or external calibrators shall not be accepted.
2. Calibration data shall be password protected and permanently stored through power interruptions for a minimum of 12 months.
3. Field calibration shall allow selection and automatic conversion of measurement units, measurement span and control relays.
4. The transmitter shall provide for field calibration in user-selected Range, Level or Open Channel Flow modes. Flow mode shall allow calibration to common primary metering devices, plus allow entry of calibration formula for non-standard flumes, weirs or open channels.
5. Transmitter shall permit field programmable damping to smooth output with turbulent level.
6. Transmitter operating temperature shall be from -5° to 140°F (-20° to 60°C). Transmitter shall contain a thermostat-controlled enclosure heater for condensation protection below 30°F (-1°C).
7. Transmitter shall have an isolated 4-20mA output rated for 1000 ohm maximum load with menu-selectable 0-5VDC alternative.

8. Provide two relay contacts rated 5 amp SPDT programmable for single set point alarms, dual set point pump control, pump alternation, temperature alarm, flow totalizer pulse and/or echo loss alarm.
9. Provide a white, backlit matrix LCD display indicating flow rate, level, velocity, totalizer and relay states in user-selected engineering units.
10. Transmitter display indicating level or flow rate, units of calibration, totalizer and relay states shall be visible without opening cover.
11. Transmitter shall be housed in a wall-mount, watertight NEMA4X (IP66) enclosure with hinged, clear cover. Mounting hardware shall be included.
12. Transmitter electronics shall be surge protected on AC power input, sensor and 4-20mA outputs.
13. Transmitter power input shall be 100-240VAC 50-60Hz with power consumption of 3.5 Watts or less.
14. The transmitter shall permit plug-in field installation and auto-detection of optional accessories including data logger and additional control relays.

F. Acceptable Manufacturers:

1. Endress & Hauser FMU90 with FDU91 Level and Flow monitor
2. Or Approved Equal

G. Installation

1. The unit shall be installed according to the manufacturer's recommendations.
2. Mount the sensor to ensure a clear path to the surface being measured.
3. Provide stainless steel or FRP mounting brackets as required.

2.3 FLOAT SWITCHES

A. Float switches to be used for backup level control and/or primary control as indicated on drawings.

B. Operating Principle

1. Direct acting, non-mercury float switch, encased in an ellipse shaped molded plastic float, connected to a factory installed cable. Float cable length to be determined by Contractor.
2. The float shall be either pipe-mounted, or suspended by its cable by means of a weight kit, as indicated in the equipment data.

C. Specifications

1. Construction

a. Float material: High impact styrene
b. Mounting: 3/16" SS aircraft cable attached to a 10 pound concrete weight or similar coated boat anchor.
c. Strap float cables individually with PVC cable ties to aircraft cable. This shall allow removal of one float without affecting the other floats.
d. See Drawings for float switching elevations.

2. Electrical

    a. The switch contacts shall be normally open or normally closed as indicated in the equipment data.
    b. The switch contacts shall be rated 6 amperes, non-inductive at 120 Volts AC. Switches shall be normally closed unless noted otherwise.
    c. The cable shall be two fine-stranded AWG #18 conductors in heavy-duty type SJO- W Neoprene jacketing. Standard length of the cables shall be 40 feet.

3. Performance

    a. The switch shall make and break over a 1-inch level change.

4. Manufacturer

    a. Dura float
    b. Approved equal

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Each instrument or system shall be installed, wired, calibrated, and tested in strict compliance with the manufacturer's instruction. Calibrate for operational range required for this project.

B. Installation Hardware

    1. All nuts and bolts shall be stainless steel.
    2. Support channels mount externally, or mounted in a corrosive atmosphere, shall be stainless steel unistrut channels.
    3. Do not mount equipment directly to masonry or concrete walls. Provide unistrut channels on wall.
    4. All equipment mounting plates shall be of 0.25-inch thick minimum stainless steel.
    5. All contact surfaces between dissimilar metals shall be gasketed to prevent galvanic reaction.

C. All test instruments used for field calibrations shall have a minimum accuracy of 3 times greater than that of the instrument being calibrated. Test instruments shall have been calibrated to National Bureau of Standards requirements within 6 months of their use on this project. Provide evidence of such calibration upon request by the Owner of Engineer.

D. Final conduit connection to the instruments shall be through watertight flexible conduit. Where noted, final connection shall be by extra hard service cable rated for wet location. Use explosion-proof or liquid-tight flexible conduit where required.

E. Line powered units shall receive 120-volt AC supply through a disconnect switch and surge protector, see specification 13600 for description.

3.2 ENVIRONMENTAL PROTECTION

A. Transmitters and similar items located outdoors or in unheated or untreated spaces must be manufactured for the environment to be encountered. If not suitable for the environment where located, the Contractor shall provide a heated and insulated and exhaust fan ventilated enclosure suitable for the environment, to protect the transmitter or instrument.

B. All transmitters and local control stations shall have aluminum sheet metal sun shields/weather shields.

3.3 CALIBRATION

A. In addition to the above requirements, calibrate each system as follows:

1. Each system, including its complete instrument loop, shall be calibrated. Reading on the remote receiving instruments shall be equal to reading at the converter indicator.
2. Provide a written loop-calibration report for each system, which shall include but shall not be limited to the following:

    a. Date & time the final calibration was completed.
    b. Atmospheric conditions when the final calibration was performed.
    c. Comparison of readings at the converter with readings at the remote receiving instruments.
    d. Provide a table showing calculated and measured values at 0%, 25%, 50%, 75% & 100%.
    e. Verification of accuracy of the outputs, including those at the receiving instruments.
    f. Verification of operation of all contact outp8uts, including those at the receiving instruments.
    g. Description of method of calibration.
    h. The names and signatures of personnel performing the calibration. Provide room for 2 names.
    i. The names and signatures of engineer’s field representatives. Provide room for 2 names.
    j. Special comments or notes, including “as left” conditions.
    k. This report may be 2 pages if required for each instrument.

END OF SECTION 25 30 00

SECTION 25 30 10 - INSTRUMENT PANEL CONSTRUCTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This specification covers the technical requirements for the fabrication, engineering, wiring and installation for instrument panels and enclosures.

B. The instrument panels shall be as shown on the drawings. They shall include, but shall not be limited to the following:

1. Furnish new Main PLC Control Panel with HMI (BSBCP) – by pre-packaged WWTP manufacturer
2. Furnish new Main Plant Lift Station Control Panel

1.2 SUBMITTALS

A. Submittals shall be as specified in the appropriate sections.

B. Each panel submittal shall have a complete layout drawing of all equipment and a parts list.

PART 2 - PRODUCTS

2.1 GENERAL

A. The instrument panels and enclosures shall be as follows:

1. Located in environmentally controlled (heated and ventilated) rooms, shall be steel rated NEMA 12.
2. General instrumentation and control panels located outdoors or in non-air-conditioned areas shall be stainless steel rated NEMA 4X.

B. NEMA 12 enclosures shall be painted electro-statically, prior to equipment installation:

C. The exterior surfaces of a NEMA 4X stainless steel enclosure shall not be painted. The finish shall be sandblasted, roughened or chemically etched to reduce gloss, reflections & glare.

D. Conduit knockouts on the enclosure shall be made prior to installation of any equipment within the enclosure. The size and the number of conduit knockouts shall be as required. Provide malleable iron watertight conduit hubs for all NEMA 4X enclosures.

E. All enclosures exposed to weather conditions shall be provided with sun shields to protect the enclosure from direct exposure from the sun and rain.

2.2 PANEL CONSTRUCTION

A. General

1. Stiffening members shall be provided for strength and stiffness as required.
2. Seamless welded construction shall be used throughout. All exposed seams shall be continuously welded and ground smooth.
3. Lifting rings shall be provided for panels in excess of 100 pounds.
4. Subpanels shall e provided as required, with mounting designed for easy removal. The subpanels shall be finished with 2 coats if white enamel paint.
5. Print pockets shall be attached to the interior side of each door.
6. Hinges shall be stainless steel piano type.

B. NEMA 12 Enclosures

1. NEMA 12 enclosures shall be fabricated from 12 gauge cold rolled sheet steel or better.
2. Double doors shall be of the flush type construction with continuous hinge and gasket.
3. Doors shall be equipped with three-point latching mechanism and door locks.
4. Corrosion inhibitors shall be furnished for corrosion control inside the panel.

C. NEMA 4X Enclosures

1. Nema 4X enclosures shall be fabricated from 14 gauge stainless steel or better.
2. Enclosure door shall be provided with neoprene gasket, which shall be attached to the enclosure with oil-resistant adhesive, and held in place with stainless steel retaining strips.
3. Door clamps shall be provided on three sides of the enclosure door.
4. A hasp and staple shall be provided for padlocking.
5. Panel heaters, corrosion inhibitors and breather drains shall be furnished for condensation and corrosion control inside the panel. Panel heaters shall be of the forced air types, provided with integral thermostat control.

D. PANEL GROUNDING

1. Where noted or specified, provide a ground bus tied to the facility grounding system.

2. The ground busbars shall be of nickel-plated copper, rated for at least 100 amperes.
3. The busbar shall be provided with two (2) screw clamp terminal blocks, which shall be capable of accepting conductors up to #2 AWG.
4. The busbar shall be provided with a minimum of twenty (20) screw clamp terminal blocks, which shall be capable of accepting conductors up to #10 AWG.

2.3 PANEL WIRING

A. Wiring within the enclosure shall be continuous and shall be terminated only at terminal blocks or equipment terminals.

B. Not more than two wires shall be terminated at any terminal.

C. Wiring splices and wire nuts will not be permitted within the enclosure.

D. Wiring within the enclosure shall be protected as follows:

1. In general, all wiring within the enclosure shall be put in plastic wiring ducts. Wiring ducts shall be sized to include 100% (percent) spare capacity.
2. Wiring outside of the ducts shall be restrained by means of plastic ties.
3. Wiring passing a door hinge shall be grouped and wrapped in a protective wire harness.
4. Provide abrasion protection for any wire bundles passing through holes or across sheet metal edges.

E. In general, wiring within the enclosure shall be as follows:

1. 120VAC control wiring within and external to the enclosure shall be #14 AWG stranded.
2. DC control wiring within the enclosure shall be #16 AWG stranded.
3. Wiring for long distance DC signals shall be #14 AWG stranded.
4. Wiring for 4-20 mA DC analog signals shall be #16 AWG twisted shielded pair.

F. In general, wiring within the enclosure shall follow the following color convention to comply with NFPA 79 (1994), part 16.

G. AC and DC wiring shall be separated from each other. Where AC and DC wire runs parallel, the minimum separation between them shall be four (4) inches. Where AC and DC wire runs cross, they shall cross at 90o. Provide separate wiring duct for AC and DC wiring.

H. Equipment and signal ground wiring, as well as Neutral wiring, shall not be daisy-chained; they shall each be terminated at isolated, bussed terminal blocks.

I. Each conductor end shall be terminated at a terminal block or at an equipment wiring terminal. Each terminal block shall have a unique identification number. The terminal blocks shall be arranged and numbered in consecutive order, based on standard alpha-numeric order.

J. Terminal blocks within each enclosure shall be grouped for the voltage and type of circuit connected.

K. Provide 25% spare terminal blocks (minimum of six) for each type used in each enclosure.

2.4 TERMINAL BLOCKS

A. Terminal blocks within enclosures shall be of the high-density modular types, constructed of nylon material, suitable for mounting on standard DIN rails. Termination type shall be tubular screw with serrated pressure plate. The terminal block system shall be manufactured by Phoenix Contact,

Weidmuller, or pre-approved equal.

B. All current carrying parts (metal bodies) shall be made of nickel/tin-plated copper.

C. Ground terminals shall be color coded in accordance with international standard, which shall be yellow/green.

D. Matching jumper bridges shall be color coded to the wiring colors.

E. Panel power distribution fused terminal blocks shall be provided with disconnect lever puller mechanism and illuminated indication.

2.5 PANEL ACCESSORIES

A. The Systems Integrator/enclosure fabricator shall be responsible for all accessories, including interposing relays, analog signal isolators, terminal blocks, power distribution blocks, grounding blocks, fuse blocks and fuses, circuit breakers, duplex receptacle, heaters, exhaust fans, louvers and filters, DIN mounting rails, plastic wiring channels, hardware, wire tags, engraved nameplates, and all such accessories needed for a professional class panel fabrication.
B. Panels shall have the appropriate cooling and heating equipment. Panels located indoors with climate control shall require proper cooling and exhaust fan units when VFD units are installed. Panels with VFD units located outside shall have a properly sized air conditioning and heating unit.
C. Panels located outdoors shall include corrosion inhibitors for environment protection.

2.6 PILOT AND CONTROL DEVICES

A. Pilot Devices: Pushbuttons, selector switches, and indicating lights shall be rated heavy-duty, oiltight or watertight and corrosion resistant as required. All units shall be furnished with standard size legend plates with legends as indicated on the project Drawings.

B. For Class 1, Division 2 areas, devices shall either be explosion proof type, or all contacts and other items which may arc or spark shall be hermetically sealed. Hermetically sealed contacts and devices shall meet the current and voltage ratings required for the circuit.

C. Selector switches shall have the number of positions, switching arrangement, number and type of contact blocks indicated on the project Drawings.

D. Contact blocks shall have a minimum continuous current rating of 10 amperes at 240 VAC. Contact blocks shall have screw type connection terminals.

E. Indicating lights shall be LED type only. Provide flashing type lights where indicated.

F. Pilot lights shall be 120VAC, push-to-test (PTT) 30mm type.

G. Pilot device manufacturers shall be:

1. Square D, Class 9001, Type K

2. Allen-Bradley Bulletin 800H or 800T
3. IDEC
4. Approved Equal

H. Control relays shall be plug-in type with sockets and hold-in clips. Sockets shall have screw terminals, compression terminals not acceptable. Contacts shall be silver-cadmium, rated 10 amperes at 240 VAC. Relays shall have as a minimum two pole, double throw contacts (2PDT). Relays shall have a manual operator and miniature pilot light. Coil voltages shall be 120 VAC, or as noted on the project Drawings. Relays shall be as manufactured by Allen-Bradley Bulletin 700, Type HA or HB, Square D, Idec, or approved equal.

I. PLC digital output isolation relays shall be SPDT type with minimum 6A rated contacts. Coil voltage to match PLC output card. Phoenix Contact or equal.

J. Latching relays shall be similar to the control relays. Relay position shall be magnetically held, and shall be the single coil type.

K. Timing relays shall be solid sate, plug-in type with screw terminal sockets. Each relay shall have 5 adjustable timing ranges, switch selectable, and 4 timing modes, switch selectable. Timing ranges shall allow from 0.05 seconds to 999 minutes timing. Timing modes shall be ON delay, OFF delay, ONE SHOT, and REPEAT CYCLE. Output contacts shall be DPDT, rated 10 amperes at 240 VAC. Timing setting shall be by thumbwheel switches. Coil voltages shall be 120VAC, or as noted on the project Drawings.

L. Elapsed Time Totalizers (ETT's) shall be the synchronous motor driven type with digital readout to indicate the total time a piece of equipment is energized. Totalizer shall have a minimum of six-digit wheels including a 1/10-digit wheel to provide the range of time measured in hours, unless noted otherwise. Units shall be non-resettable, and operate on 120V, 1 phase, 60 Hz. Elapsed Time Meter (ETM) shall be considered synonymous with Elapsed Time Totalizer (ETT).

2.7 EQUIPMENT IDENTIFICATION AND WIRE TAGGING

A. All equipment and wiring identifications shall conform to and be compatible with the Owner's current labeling system, and shall be completed prior to final acceptance of the work. It is the responsibility of the Contractor to coordinate with the Owner's Engineer, to obtain from him or her, all labeling standards and documentation.

B. All control wiring shall be identified by means of computer-generated, heat shrink type wire marker. Wire numbers shall be as shown on the drawings.

C. Each major component mounted within the enclosure shall be provided with equipment identification. Equipment and device nameplates or identification shall be of engraved laminated plastic, with black lettering on white background. Nameplates shall be as listed herein or as shown on the project Drawings.

D. The enclosure vendor shall be responsible for providing and sizing all instrument loop power supplies. The instrument loop power supplies shall be sized to include at least 100% spare capacity.

The enclosure vendor shall submit power supply load calculations with the panel shop drawings.

2.8 REGULATED POWER SUPPLY

A. When DC power supply is required for PLC discrete inputs, and 2-wire analog loops, provide at least two redundant 24 V DC regulated power supplies. A redundancy module with alarm contacts shall be provided for auto-switching of power supplies and power supply failure notification.

B. The power supply shall be sized to include 100% spare capacity.

C. Acceptable power supply manufacturers:

1. Phoenix Contact
2. SOLA
3. IDEC
4. Approved equal

2.9 UNINTERRUPTIBLE 120VAC POWER SUPPLY

A. When panels include a programmable controller or computer, provide an uninterruptible power supply to condition incoming power and ride-through utility power interruptions. UPS shall be 1500VA minimum unless otherwise noted.
B. This location has generator backup system; therefore, all UPS units shall be of dual conversion type confirmed by manufacturer to work properly with generators.

C. Acceptable power supply manufacturers:

1. APC SRT series
2. or approved equal

PART 3 - EXECUTION

3.1 GENERAL

A. All panels shall be installed level and plumb.

B. Installation Hardware

1. All nuts and bolts shall be stainless steel.
2. Support channels mount externally, or mounted in a corrosive atmosphere, shall be either reinforced fiberglass or stainless steel unistrut channels. All cuts and holes on fiberglass unistrut channels shall be coated with appropriate resin coating to protect them from deterioration.
3. Do not mount equipment directly to masonry or concrete walls. Provide unistrut channels on wall.
4. All equipment mounting plates shall be of 0.25-inch thick minimum clear anodized aluminum.
5. All contact surfaces between dissimilar metals shall be gasketed to prevent galvanic reaction.

C. Touch up all nicks, scratches, etc. with materials as recommended by the enclosure manufacturer.

END OF SECTION 25 30 10

SECTION 25 30 20 - PROCESS CONTROLLERS AND COMPUTER SYSTEMS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. The work required under this section includes the provision, installation, start-up, testing and calibration of all computer, controller, software and networking required for this project.

B. The types of systems required for this project include the following:

1. AB CompactLogix 5370 Process Controller
2. Panelview Plus 7 HMI
3. Panelview Graphics Package

C. The Contractor in coordination with the pre-packaged WWTP manufacturer shall be responsible for work of this division. Contractor for this project will have scope of work associated with Division 25; see Electrical drawings and Process drawings for associated information.

D. Provide Owner with original licenses for all copies of all software, for all equipment and systems provided in Division 25. Provide the Owner with software version and printed documentation of all documented programs, as part of Record Documents and Operation and Maintenance Manuals. Provide the Owner with all passwords required for full program access for all levels of PLC, PC, HMI, LAN and VPN network programming. The Owner shall have full legal right to use without restriction, and modify if they choose at their own risk, all programs, screens and reports prepared for this project, for their use in operating, maintaining, and managing their facilities.

1.2 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in the startup and commissioning of SCADA and similar systems of types and sizes to this project, whose products have been in satisfactory use in similar service, and whose products meet all requirements specified herein.

B. Installer: Qualified with successful installation experience on projects with field instrument work similar to that required for this project.

1. It is intended that an experienced electronic systems/instrumentation and control systems subcontractor shall be in responsible charge of all field instrument work.

C. ISA Compliance: Comply with applicable Standards and Practices for Instrumentation published by the Instrument Society of America pertaining to field mounted instruments and related installations.

D. UL Compliance and Labeling: Comply with provisions of UL safety standards pertaining to electrical systems, and provide products and components which have been UL-listed and labeled whenever such UL listed products are available.

E. NEC Compliance: Comply with requirements as applicable to construction and installation of field mounted instruments and installations.

1.3 SUBMITTALS

A. Provide submittals in accordance with Section 25 13 00.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ship instruments and accessories properly protected and packaged.

B. Handle instruments and accessories carefully to prevent damage and protect from weather.

PART 2 PRODUCT

2.1 GENERAL

A. For each system, provide a complete assembly with all required components, enclosures suitable for the environment and location, fittings, mounting brackets, and other components and accessories as needed to form a complete system.

B. Provide conduit, raceway accessories, wiring and connections necessary to place the systems into service and necessary to interface the instruments to other equipment control panels, programmable controllers, SCADA system, and similar installations as required for the project.

2.3 NETWORKING

A. Provide all necessary network setup and hardware to create a complete networked system between PLCs and SCADA computers.

B. Minimum requirements:

1. Provide in each specified PLC control panel an Ethernet switch with multiple ports to accommodate all equipment requiring Ethernet connection. The switch will be 10/100Mbs with auto-switching capabilities. Redlion or equal.
2. A spare Ethernet port will be available for future connection and troubleshooting.
3. Provide and setup a VPN connection to Main SCADA computer for Operator and Superintendent Connectivity over internet. Coordinate with town's IT personnel.

2.4 PROCESS CONTROLLERS

A. MANUFACTURERS

1. Allen-Bradley CompactLogix 5370 or 5380 Series.
2. No Substitutes.

B. GENERAL

1. Perform stand-alone monitoring and control and include following as minimum.

    a. Microprocessor based controller (PLC processor) to execute program instructions, store data, and control data transfer.
    b. PLC memory.
    c. I/O subsystem interfaces.
    d. Power supply, including power conditioning and surge protection.
    e. Communication interfaces.
    f. Programming interface.

2. Must integrate with any existing network of PLCs, ASDs, LOIs and HMIs.
3. Utilized as Main SCADA PLC networked to local panel mounted PC and HMI software. See drawings for list of IO and connectivity to field instruments and devices.

C. PLC PROCESSORS - COMPACTLOGIX 1769-L33ERM (System's Integrator may submit alternate AB CompactLogix unit for approval).

D.

1. Features:

    a. 10/100Mbps, RJ-45, Ethernet I/P Communication Interface Card mounted in one of the two available Communication Card Slots in processor chassis.
    b. Ladder, sequential function chart (SFC), structured text, and function block programming ready.

2. Provide orderly shutdown on power failure, saving register contents with automatic restart on power restoration.
3. Interface to programmer unit for maintenance and troubleshooting. Continually update display when data requested. Provide capability to monitor or change following.

    a. Discrete I/O.
    b. Analog I/O.
    c. Pulsed I/O.
    d. Communication parameters.
    e. Configuration data.
    f. Internal program data values.

E. PLC POWER SUPPLY - P4

1. 85-264 VAC.
2. Sizing is responsibility of System Supplier.

F. I/O MODULES

1. I/O modules specifically designed for interfacing of I/O signals to PLC processor. Screw-type removable wiring arms required for each I/O module are responsibility of System Supplier.

2. Include sufficient I/O modules to accommodate I/O with provisions for 20% spare I/O prewired to terminal strips. Where no I/O of a listed type (digital input, digital output, analog input, analog output) is shown, provide one spare prewired module. Each processor or I/O chassis must contain a minimum of one spare slot, beyond the required spare I/O. Provide 1769-N2 filler strips for all empty slots in processor and I/O chassis.

3. 120VAC Digital Input 1769-IA16

   a. 120 VAC individually isolated as required by application.
   b. 16 points per module.
   c. LED indication of on/off status of each point.

4. 120 VAC Digital Output 1769-OA16

   a. 120 VAC non-isolated as required by application.
   b. 16 points per module.
   c. LED indication of on/off status of each point.
   d. Interposing relay for each output point required.

5. Analog Input 1769-IF4I

   a. Individually isolated.
   b. 6 points per module.
   c. Accept 4-20 mAdc or 1-5 vdc inputs as required by application.

6. Analog Output 1769-OF4I

   a. Individually isolated.
   b. 6 points per module.
   c. Transmit 4-20 mAdc.

G. ETHERNET ADAPTER 1769-ENBT

1. Provides connectivity between SCADA system and PLC processers on Ethernet data highway.

2. 10/100 auto-switching.

H. COMMUNICATIONS SOFTWARE

1. Communication software and configuration shall meet monitoring and control requirements of each process in accordance with functional descriptions.
2. Within each hardware unit communicating over data highway, include executive routines or traffic controller to control and coordinate activities on communication links. Use integrated, standard products for communication software to manage transmission protocols, line error detection, and message switching.
3. Interface software for transfer of data from one location to another.
4. Expandable systems shall accommodate addition of future equipment as specified elsewhere.
5. Diagnostic facilities to check performance of communication links and communications interface portion of devices on data highway.
6. Include routines to detect transmission errors. Perform automatic re-interrogations and retransmissions before alarm is sounded. Generate system alarms.

2.4 CELL MODEMS (where required)

A. Provide a cell modem in the Main PLC control panel and the Garage Remote HMI panel. The cell modem shall be configured for tunneled security and only allow permissions for approved personnel to have access to the system.

B. Coordinate with the Owner to obtain a SIM card for each cell modem from their service provider. Confirm correct operation and communications once the modems have been provisioned.

C. Manufacturer:

1. Sierra Wireless RV50X

END OF SECTION 25 30 20

ATTACHMENT #3

SECOND STREET

ROOT STREET

MAIN STREET

FUTURE INDIANA STREET (BY OTHERS)

PROPERTY LINE

APP R/W

PROPOSED CHAIN-LINK FENCE

620 SF TO BE CLEARED

REMOVE 35 LF OF EXIST. CHAIN LINK FENCE

PROP 16' GRAVEL DRIVEWAY

20' SLIDE GATE

COVERED SLUDGE DRYING BED

PLANT DISCHARGE TO DRY DITCH

FL 475.84

245 SF TO BE CLEARED

REMOVE 10 LF OF EXIST. CHAIN LINK FENCE

MAN GATE

8" PVC SDR 26 @0.60%

10' BACK FRAME

4" SLUDGE PIPING FM PVC SDR 26

8" 45° PVC ELBOW W/ CLEAN OUT

PROP 5' MH

8" DRYING BED DRAIN LINE PVC SDR 26

6" DECANT, PVC SDR 26

AEROMOD TANK

POST AERATION

UV SYSTEM

SECTION OF EXISTING WTP BACKWASH 8" PIPE TO BE DEMOLISHED

4" 45° PVC ELBOW

FUTURE WWTP TANK

PROP 4" FORCE MAIN PVC SDR 26

4" 45° PVC ELBOW

8" 45° PVC ELBOW W/ CLEAN OUT

WELL #4 (INACTIVE) DECOMMISSION IN ACCORDANCE WITH 312 IAC 13 RULE 10

8" PVC SDR 26 FL=474.08

FUTURE UV SYSTEM

REMOVE STAND

526 SF TO BE CLEARED

REMOVE 12 LF OF EXIST. CHAIN LINK FENCE

100' SETBACK

PROPOSED 10' SWALE @ 0.20%

THIS AREA IS OVERGROWN WITH VEGETATION, THEREFORE LOCATIONS OF STRUCTURES SHOWN ARE APPROXIMATE

REGIONAL LIFT STATION/ RAW PUMP STATION

4" 22.5° PVC ELBOW W/ CLEAN OUT

PROP 4" SANITARY PVC SDR 26

4" 45° PVC ELBOW W/ CLEAN OUT

PROPOSED CHAIN-LINK FENCE

2-8" 45° PVC ELBOWS

REMOVE SECTION OF EXISTING CHAIN LINK FENCE

SEE SHEET P110 FOR CONTINUATION OF COLD WATER SERVICE LINE

TIE PROPOSED FENCE INTO EXISTING CHAIN LINK FENCE

8" PROP. PVC

50' SETBACK

WELL #3 (BACKUP)

21.2'

8" 45° PVC ELBOW

REROUTE WTP BACKWASH FROM RED POND

PROP 16' GRAVEL DRIVEWAY

DECOMMISSIONED FILTER BACKWASH

4" 45° PVC ELBOW W/ CLEAN OUT

5.0'

SEE SHEET P110 FOR CONTINUATION OF SANITARY SERVICE LINE

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION

8" C.O.

WELL #2 (ACTIVE)

PROPOSED BLOWERS TO BE PLACED IN EXISTING POLE BARN

4.6'

13.0'

EX. 6" BACKWASH DISCHARGE PIPE - VERIFY LOCATION IN FIELD. ALIGNMENT IS ASSUMED BASED ON START/END POINTS.

TIE PROPOSED FENCE INTO EXISTING CHAIN LINK FENCE

PROP COPPER 1.5" COLD WATER SERVICE LINE PER SPECIFICATION 22 11 16. MIN. 4' COVER.

4.5'

EXISTING 8" PVC

8" C.O.

EXISTING YARD HYDRANT

WELL #5 (ACTIVE)

PROPOSED GENERATOR TO BE INSTALLED BY OTHERS.

EXISTING CHAIN LINK FENCE WITH BARBED WIRE

EXISTING 8" PVC

APPROXIMATE RED POND LOCATION

See Utility Note 1

WELL #6 (ACTIVE)

WELL #1 (INACTIVE)

CP1

CP2

1

NOTES:

1. CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED IN THE TRENCH FOR ALL BURIED PIPE. BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND THE PIPE AND TO A SUFFICIENT HEIGHT ABOVE THE PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE. ALL STONES UNABLE TO PASS THROUGH THE U.S. STANDARD SEIVE OPENING OF TWO (2) INCHES THAT ARE FOUND IN THE TRENCH WITHIN SIX (6) INCHES OF THE OUTSIDE EDGE OF THE PIPE SHALL BE REMOVED.

2. ALL WATER MAINS AND THEIR ACCESSORIES SHALL BE INSTALLED AND PRESSURE AND LEAKED TESTED IN ACCORDNACE WITH THE APPLICABLE PROVISINGS. C605-94 AWWA STANDARD FOR UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PUPE AND FITTINS FOR WATER.

LEGEND

- CONTROL POINT
- ELECTRIC METER
- GUY WIRE
- UTILITY POLE
- UTILITY POLE WITH LIGHT
- UTILITY POLE WITH TRANSFORMER AND LIGHT
- UTILITY POLE WITH DROP
- UTILITY POLE WITH TRANSFORMER, DROP AND LIGHT
- UTILITY POLE WITH TRANSFORMER AND DROP
- UTILITY POLE WITH LIGHTS FOR BASEBALL FIELD
- MANHOLE FOR GATE VALVE
- STORM SEWER DROP INLET
- TELEPHONE INSPECTION PEDESTAL
- GAS METER
- WATER VALVE
- WATER METER
- WATER WELL
- 36" DIAMETER WATER TANK
- FIRE HYDRANT

- TITLE TRACT PERIMETER
- ADJOINER PROPERTY LINES
- EASEMENT LINE (AS NOTED)
- ROAD CENTERLINE
- 0.5' CONTOUR INTERVAL
- 2.5' CONTOUR INTERVAL
- FENCE - TYPE AS NOTED
- NATURAL GAS - UNDERGROUND
- COMMUNICATION - OVERHEAD
- COMMUNICATION - UNDERGROUND
- ELECTRIC - OVERHEAD
- STORM SEWER PIPE
- OVERHEAD ELECTRIC & COMMUNICATIONS
- SANITARY FORCE MAIN
- CONCRETE AREA
- ASPHALT AREA
- GRAVEL AREA
- TRASH PILE
- UTILITY CUT OBSERVED
- WORK AREA

30' 0 30' 60'

GRAPHIC SCALE

RQAW

INTENTIONAL INNOVATION

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS

DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	COMMENTS	1/13/23

Project #: 21-400-194-1

Designed By: MTR

Drawn By: KLB

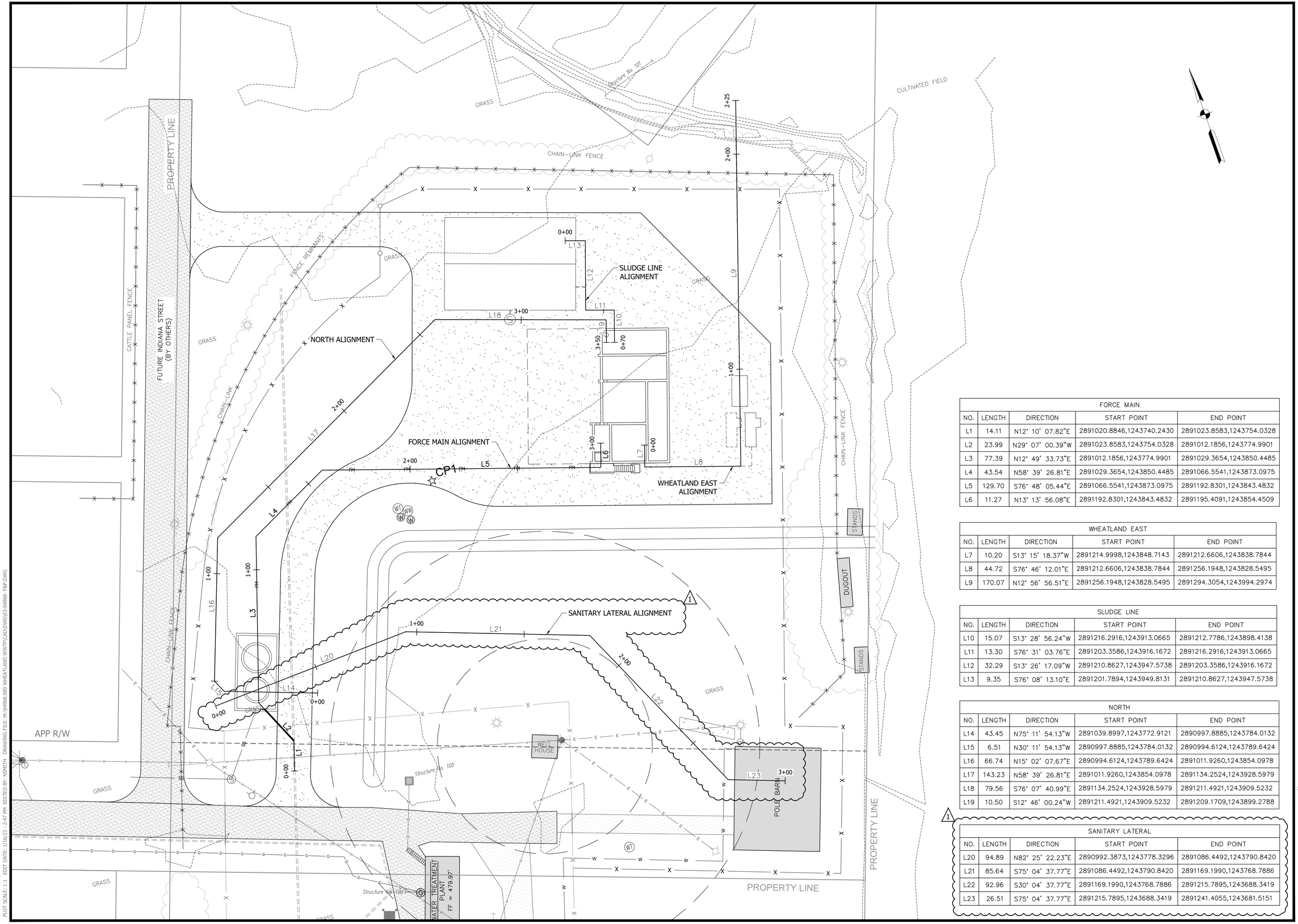
Checked By: ALC

Date: 1/26/2023

PROPOSED SITE LAYOUT

C200

PRINT DATE: 1/26/23
PLOT SCALE: 1:1 EDIT DATE: 1/16/23 - 10:20 AM EDITED BY: NSMITH DRAWING FILE: M:\04968.000 WHEATLAND WWTP\CAD\DWG\01-04968- PROPOSED SITE PLAN.DWG



FORCE MAIN				
NO.	LENGTH	DIRECTION	START POINT	END POINT
L1	14.11	N12° 10' 07.82"E	2891020.8846,1243740.2430	2891023.8583,1243754.0328
L2	23.99	N29° 07' 00.39"W	2891023.8583,1243754.0328	2891012.1856,1243774.9901
L3	77.39	N12° 49' 33.73"E	2891012.1856,1243774.9901	2891029.3654,1243850.4485
L4	43.54	N58° 39' 26.81"E	2891029.3654,1243850.4485	2891066.5541,1243873.0975
L5	129.70	S76° 48' 05.44"E	2891066.5541,1243873.0975	2891192.8301,1243843.4832
L6	11.27	N13° 13' 56.08"E	2891192.8301,1243843.4832	2891195.4091,1243854.4509

WHEATLAND EAST				
NO.	LENGTH	DIRECTION	START POINT	END POINT
L7	10.20	S13° 15' 18.37"W	2891214.9998,1243848.7143	2891212.6606,1243838.7844
L8	44.72	S76° 46' 12.01"E	2891212.6606,1243838.7844	2891256.1948,1243828.5495
L9	170.07	N12° 56' 56.51"E	2891256.1948,1243828.5495	2891294.3054,1243994.2974

SLUDGE LINE				
NO.	LENGTH	DIRECTION	START POINT	END POINT
L10	15.07	S13° 28' 56.24"W	2891216.2916,1243913.0665	2891212.7786,1243898.4138
L11	13.30	S76° 31' 03.76"E	2891203.3586,1243916.1672	2891216.2916,1243913.0665
L12	32.29	S13° 26' 17.09"W	2891210.8627,1243947.5738	2891203.3586,1243916.1672
L13	9.35	S76° 08' 13.10"E	2891201.7894,1243949.8131	2891210.8627,1243947.5738

NORTH				
NO.	LENGTH	DIRECTION	START POINT	END POINT
L14	43.45	N75° 11' 54.13"W	2891039.8997,1243772.9121	2890997.8885,1243784.0132
L15	6.51	N30° 11' 54.13"W	2890997.8885,1243784.0132	2890994.6124,1243789.6424
L16	66.74	N15° 02' 07.67"E	2890994.6124,1243789.6424	2891011.9260,1243854.0978
L17	143.23	N58° 39' 26.81"E	2891011.9260,1243854.0978	2891134.2524,1243928.5979
L18	79.56	S76° 07' 40.99"E	2891134.2524,1243928.5979	2891211.4921,1243909.5232
L19	10.50	S12° 46' 00.24"W	2891211.4921,1243909.5232	2891209.1709,1243899.2788

1

SANITARY LATERAL				
NO.	LENGTH	DIRECTION	START POINT	END POINT
L20	94.89	N82° 25' 22.23"E	2890992.3873,1243778.3296	2891086.4492,1243790.8420
L21	85.64	S75° 04' 37.77"E	2891086.4492,1243790.8420	2891169.1990,1243768.7886
L22	92.96	S30° 04' 37.77"E	2891169.1990,1243768.7886	2891215.7895,1243688.3419
L23	26.51	S75° 04' 37.77"E	2891215.7895,1243688.3419	2891241.4055,1243681.5151

RQAW
INTENTIONAL INNOVATION

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	COMMENTS	1/13/23

Project #: 21-400-194-1

Designed By: MTR

Drawn By: KLB

Checked By: ALC

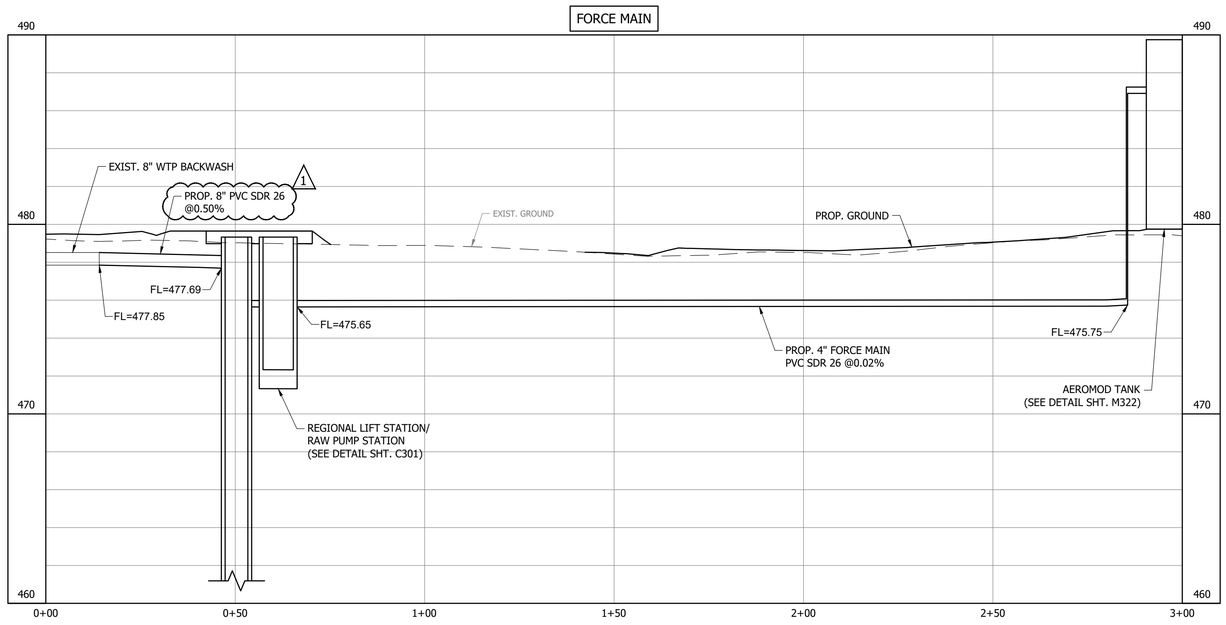
Date: 1/26/2023

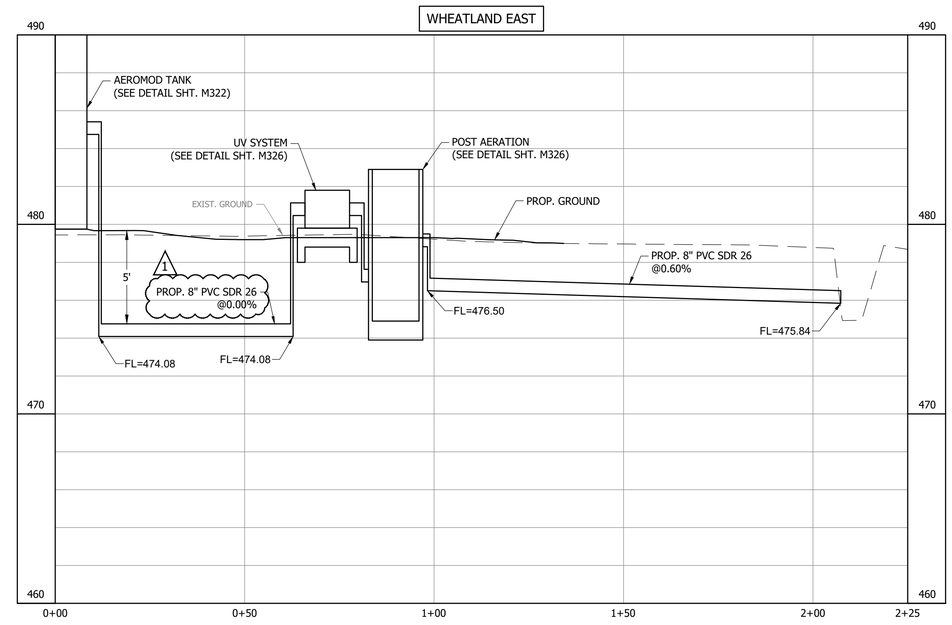
20' 0 20' 40'
GRAPHIC SCALE

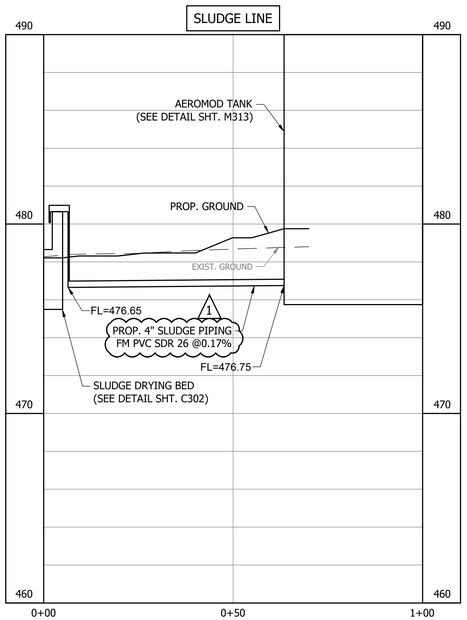
ALIGNMENT LAYOUT

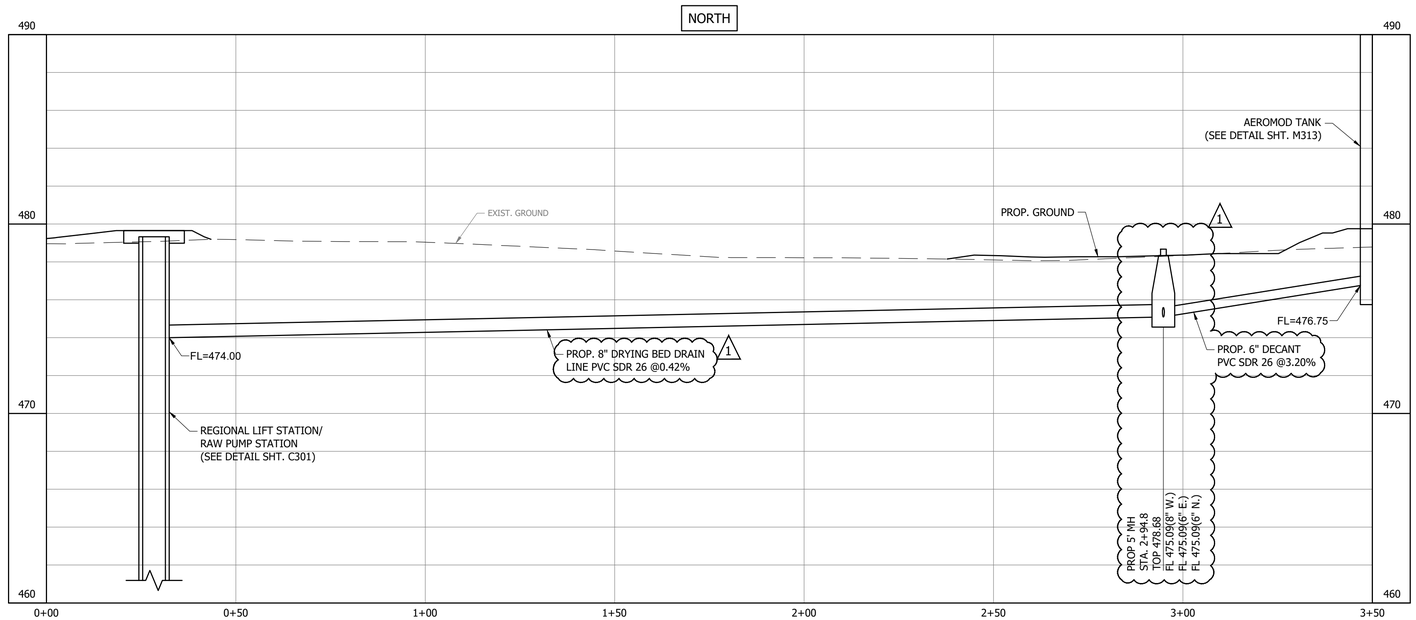
C300

PRINT DATE: 1/26/23
PLOT SCALE: 1:1 EDIT DATE: 1/16/23 2:47 PM EDITED BY: NSMITH DRAWING FILE: M:\04968.000 WHEATLAND WWTP\CAD\DWG\03-04968_P&P.DWG









RQAW
INTENTIONAL INNOVATION

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	COMMENTS	1/13/23

Project #: 21-400-194-1
Designed By: MTR
Drawn By: KLB
Checked By: ALC
Date: 1/26/2023

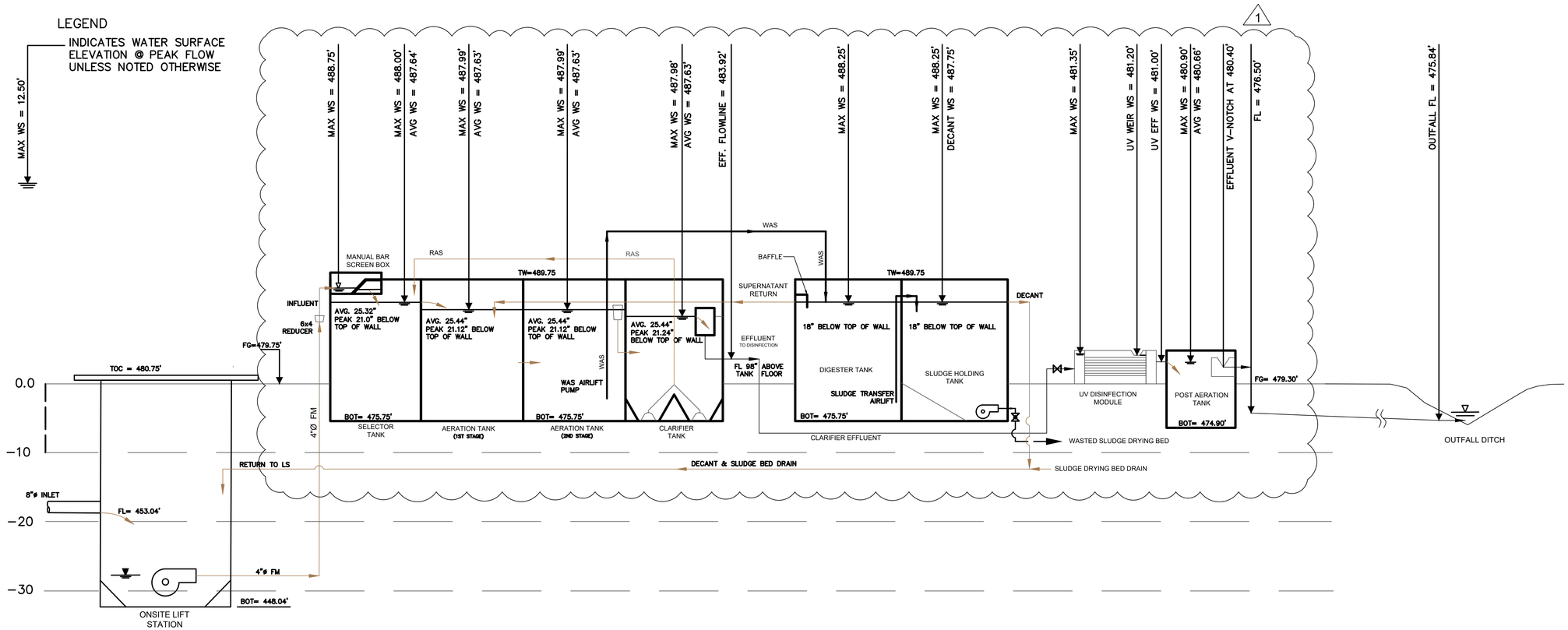
20' 0 20' 40'
GRAPHIC SCALE

PROFILE LAYOUT (1 OF 2)

C400

PRINT DATE: 1/26/23
PLOT SCALE: 1:1 EDIT DATE: 1/16/23 - 2:47 PM EDITED BY: NSMITH DRAWING FILE: N:\04968.000 WHEATLAND WWTP\CAD\DWG\03-04968 P&P.DWG

PHASE	I	II
AVERAGE DAILY FLOW (GPD)	58,900	--
PEAK FLOW (GPD)	235,600	--



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RQAW
INTENTIONAL INNOVATION

100% CONSTRUCTION DOCUMENTS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	HYDRAULIC PROFILE	2023-1-12

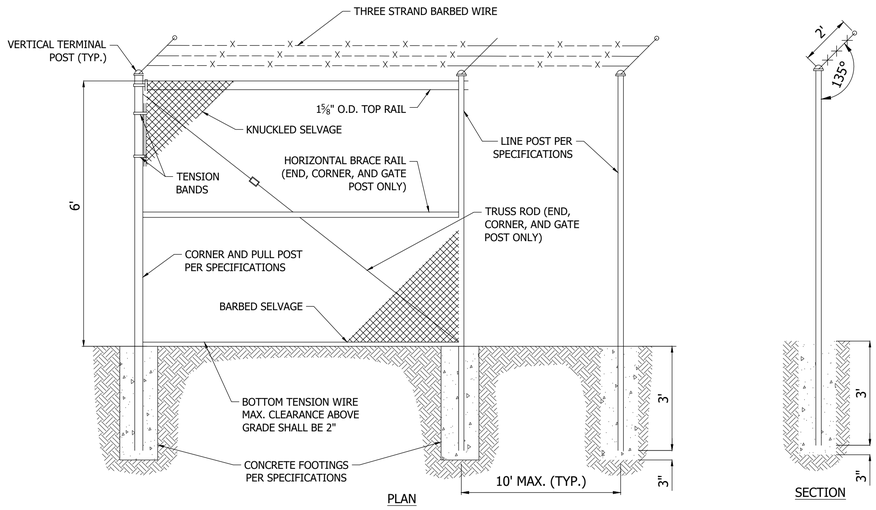
Project #: 21-400-194-1
Designed By: **LC**
Drawn By: **JM**
Checked By: **LC**
Date: **1/5/2023**

LI CHUNG CHEN REGISTERED No. PE12200794 STATE OF INDIANA PROFESSIONAL ENGINEER
1/5/2023

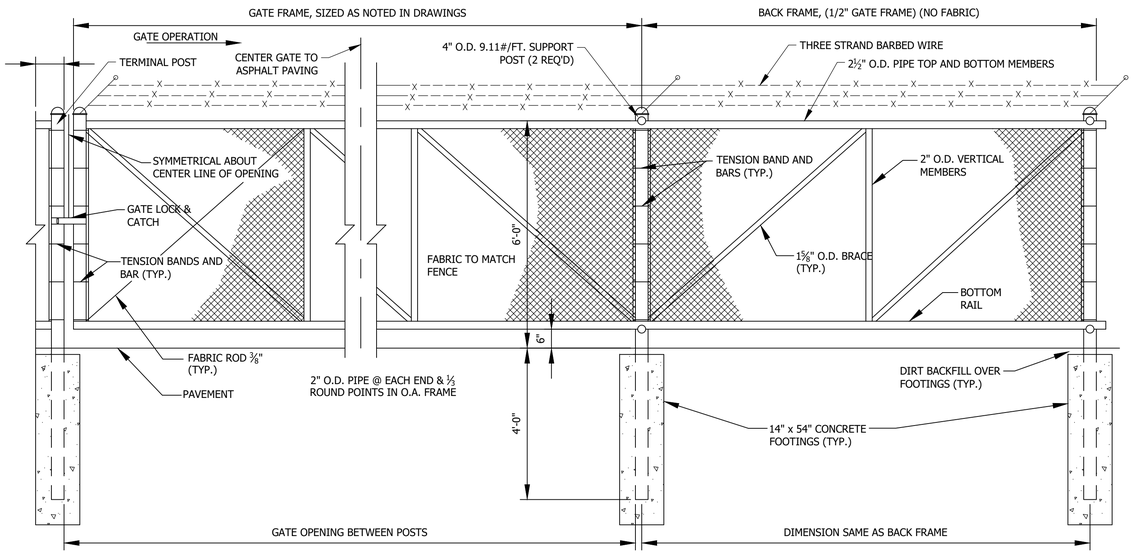
SCALE:NTS

HYDRAULIC PROFILE

C502



19 CHAIN LINK FENCE DETAIL (BID ALTERNATIVE)
NOT TO SCALE



20 CANTILEVER SLIDE GATE DETAIL (BID ALTERNATIVE)
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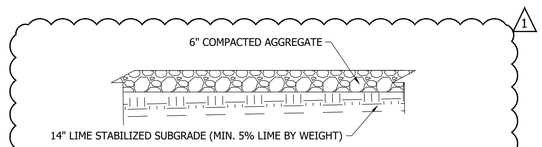
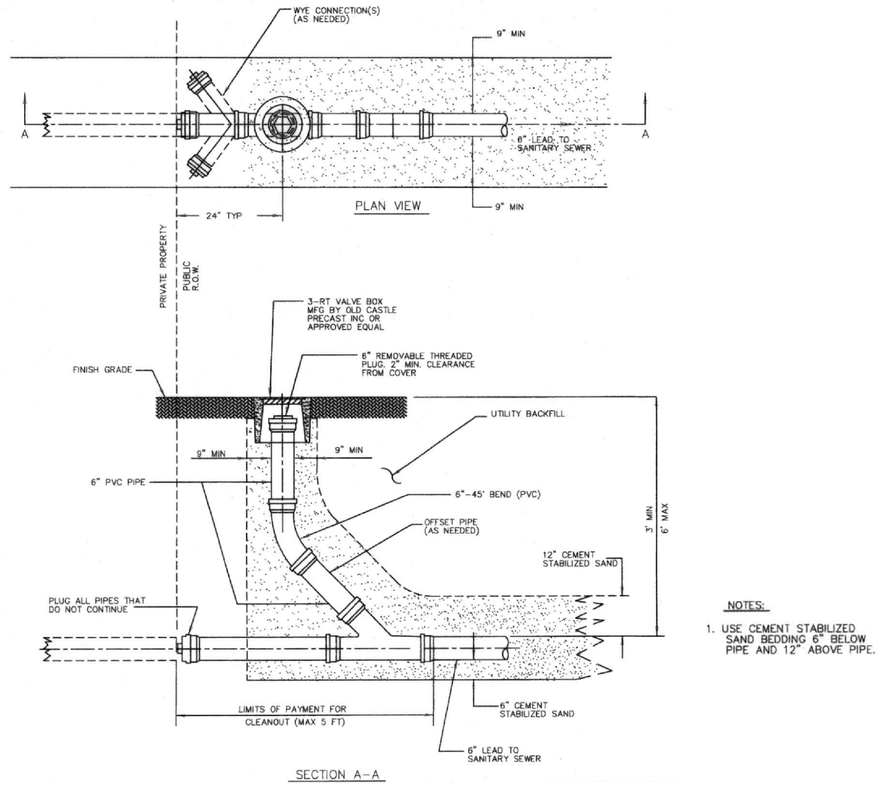
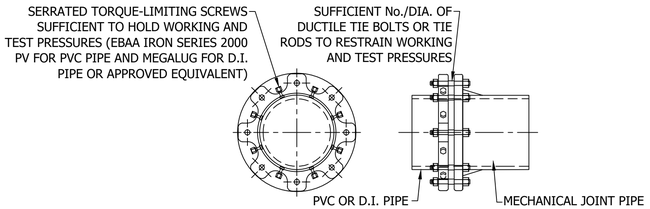


CROSS SECTION OF STONE PARKING AREA
N.T.S

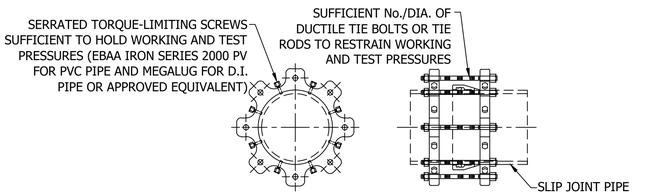


NOTES:
1. USE CEMENT STABILIZED SAND BEDDING 6" BELOW PIPE AND 12" ABOVE PIPE.

STANDARD CLEANOUT DETAIL
N.T.S



RESTRAINED JOINTS ON MECHANICAL JOINT PIPE & FITTINGS



RESTRAINED JOINTS ON SLIP JOINT PIPE
(USING GRIPPING TYPE RETAINERS)

RESTRAINED LENGTHS FOR 4" DIA. PIPE												
DEPTH OF PIPE	4'	4'	4'	4'	5'	5'	5'	5'	10'	10'	10'	10'
BEND ANGLE	11.25°	22.5°	45°	90°	11.25°	22.5°	45°	90°	11.25°	22.5°	45°	90°
RESTRAINED LENGTH	1'	1'	2'	5'	1'	1'	2'	4'	1'	1'	1'	3'

4 FORCE MAIN PIPE JOINT RESTRAINT DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
1	COMMENTS	1/13/23

Project #: 21-400-194-1
Designed By: MTR
Drawn By: KLB
Checked By: ALC
Date: 1/26/2023

NTS

CIVIL DETAILS

C600

PRINT DATE: 1/26/23
PLOT SCALE: 1:1 EDIT DATE: 1/26/23 - 3:26 PM EDITED BY: NSMITH DRAWING FILE: M:\04988.000 WHEATLAND WWTP\CAD\DWG\05-04988- DETAIL.DWG

GENERAL NOTES:

1. Building Code: Indiana Building Code, 2014 Edition

2. Design Loads:
   - A. Access Stair and Platform: Live Load = 150 psf; Dead Load = 4.8 psf (Grating); 2.8 plf (Handrail)
   - B. Manual Bar Screen: Dead Load = 4.8 psf (Grating); 120 pcf (Soil)
   - C. Wind Loads based on 90 mph in accordance with IBC-2014 Exposure C.
   - D. Seismic Design Data: Seismic Use Group 1; S_{DS} = 0.40g; S_{D1} = o.22g; Site Class D; Seismic Design Category C

3. Contractor to install all equipment in complete accordance with all manufacturer's recommendations.

4. All fasteners, supports etc. to be Stainless Steel.

5. Refer to specifications for further information.

6. All concrete to be min. F'c = 4,000 psi
   All reinforcing steel to be min. F'y = 60,000 psi

7. See Structural detail sheets and Electrical/Mechanical sheets for further detail.

8. See Plant Control/Monitor specifications for necessary equipment coordination.

9. All Ferrous metal surfaces to be prepared and painted in accordance with the specifications.

10. Contractor to coordinate with all other applicable plan sheets and specifications.

11. Contractor to verify equipment mounting elevations and dimensions prior to construction.

12. Reinforcing details shown represent minimum requirements. Alternate but equal methods are acceptable, but they shall not be used without prior approval of the engineer.

13. "L" Represents the minimum development according to ACI 318, based on grade 60 steel reinforcing and 4,000 psi (211 kg/mm) 28-day concrete.

14. All dowels shall be of the same size and spacing as the bar being doweled or as shown elsewhere on the drawings.

15. The reinforcing details shown on this drawing are intended to establish basic reinforcing requirements for various general types of horizontal and vertical joints in reinforced concrete structures. Details designated as "Plan" are horizontal joints and details designated as "Section" are vertical joints. Other details are self explanatory. When the condition exists in a structure that conforms to one of these details, the reinforcing requirements shown on the applicable detail shall be incorporated into the structure unless the condition is specifically detailed elsewhere on the drawings.

16. The following concrete cover shall be provided for reinforcement unless otherwise indicated:
   - A. Concrete cast against and permanently exposed to earth: 3" (bottom mat and sides of slabs or other concrete cast against the earth).
   - B. Concrete exposed to earth, weather or fluid surfaces: 2" (tank walls, beams, slabs, columns).
   - C. Concrete not exposed to earth in contact with ground: 1 1/2".

17. An undimensioned bend represents a standard hook.

18. Where one grid of reinforcing is required in a wall or slab, the grid shall be centered in the element unless otherwise located on the plans with a clear distance to either side of the element.

19. All reinforcing splices to meet ACI requirements.

20. Max. "A" for walls = 4'-0", Max. "A" and "B" for slabs = 4'-0". Larger Openings require special treatment.

21. Chamfer all exposed edges 3/4" (Typical)

FOUNDATION NOTES:

1. Design soil bearing Pressure = 2,000 psf

2. Backfilling along walls and grade beams shall be placed simultaneously where walls have fill on each side. Backfilling of cantilevered retaining walls shall be with clean sand and gravel placed with a minimum amount of tamping or compacting once concrete has attained full strength. Walls to be tied into slab on grade shall be braced until the concrete slab on grade and adjacent wall have attained full strength.

3. No horizontal construction joints are permitted in walls unless noted.

4. All anchor bolts shall be furnished by the Structural Steel Contractor and installed by the Foundation Contractor.

5. Footings and slabs shall be poured on firm, undisturbed soil or on engineered fill. Engineered fill shall be free-draining and compacted to a minimum dry density of 100% of the maximum standard proctor dry density (ASTM-D698) placed in 6" to 8" lifts.

6. Undercutting of the soil for foundation and/or slab placement may be required. These drawings do not indicate the entire scope of the undercutting, fill or bad soil removal that may be required to attain the design soil bearing pressures. It is the responsibility of the Contractor to obtain a soils investigation report, before bidding, to assess the extent of excavation and compaction that may be required to meet the design criteria.

7. The Geotechnical Representative shall be retained to monitor all backfilling operations and to inspect footing bearing materials. A Report certified by the soils engineer shall be furnished to the Architect/Engineer verifying that all foundations were placed on a material capable of sustaining the design bearing pressures.

8. The bottoms of all foundations shall be protected from moisture damage and/or freezing if the foundation cannot be cast immediately.

9. If dewatering is required, sumps shall not be placed within the foundation excavation.

REINFORCED CONCRETE:

1. Unless otherwise noted, cover, laps, splices and embedment lengths shall conform to ACI 318-2019 (22).

2. No horizontal construction joints shall be permitted in grade beams or walls unless specifically shown on the drawings. Horizontal reinforcement in perimeter walls shall be continuous with a lap of 1'-9" minimum.

3. All horizontal bars in walls or grades beams shall be bent at corners or intersections in such a way that continuity is provided through the joint.

STRUCTURAL STEEL:

1. All beam end connections shall be designed for 0.5Wc/L (kips). Beam end connections shall be single angle framed beam connections. Wc = uniform load constant (kip-ft) for the beam as shown in the AISC Manual 15th Edition. L = Beam span in feet.

2. All welding shall be done by the electric arc method in accordance with the AWS Structural Welding Code D1.1 E70XX electrodes conforming to AWS A5.1 orA5.5 shall be used for the shielded metal arc method and E70XX flux-electrode combination conforming to AWS5.17 for the submerged arc method.

3. All Rolled structural steel shall conform to ASTM A50 U.N.O. All structural steel tube shall conform to ASTM A500.

4. All field connections shall be made with 3/4" diameter ASTM A325N bearing type bolts with threads assumed in the shear plane U.N.O. in the specifications. Connections for horizontal and vertical bracing shall develop 50% of the member strength.

5. All connections shall be a minimum of two (2) 3/4" diameter A325 bolts. or a weld developing a minimum force of 10 kips.

6. Weld all floor plates to beam with 3/16" x 2" long at 2'-8" on centers.

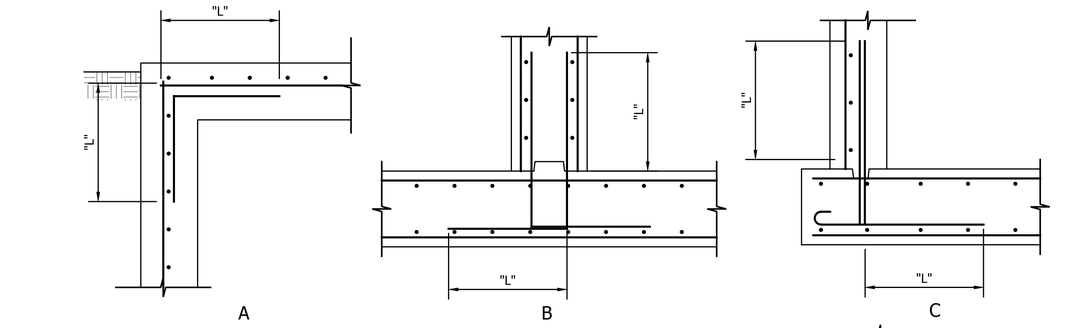
7. All Structural steel shall be detailed, fabricated, installed and erected in accordance with the latest AISC "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings".

8. See the specifications regarding the painting of steel.

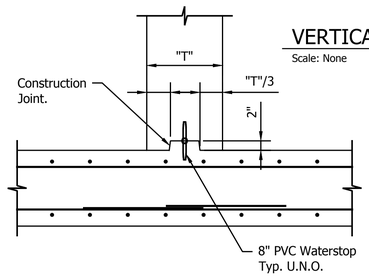
9. Steel framing connections shall be tightened and columns shall be leveled and grouted in place before decking is placed.

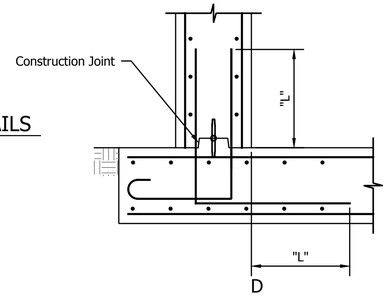
10. Burning of holes in structural steel is not permitted without prior approval of the structural engineer.

11. All steel floor plates shall span continuously over a minimum of 3 spans. All floor plates shall butt into a continuous 1/4" bent toe plate around platform perimeter.

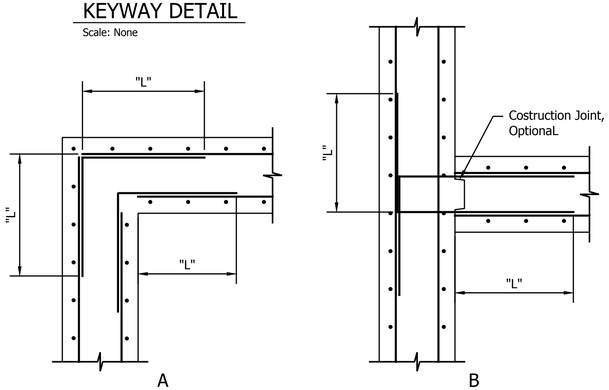


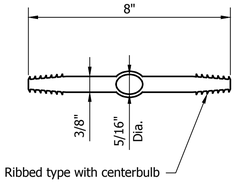
VERTICAL REINFORCING CORNER DETAILS
Scale: None





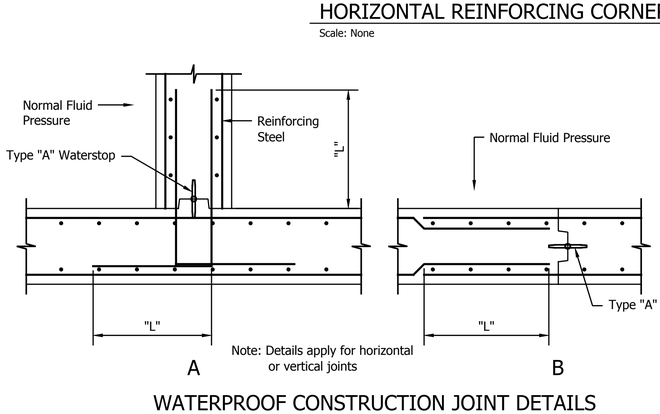
KEYWAY DETAIL
Scale: None



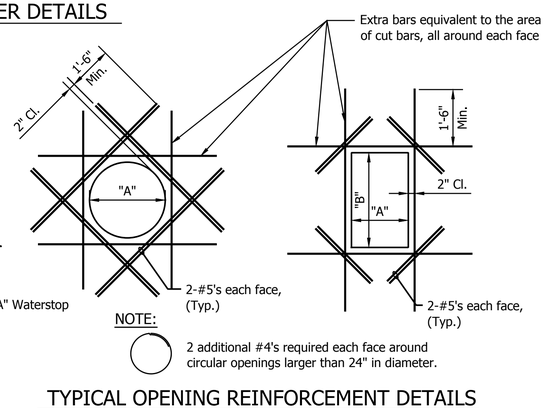


TYPE A WATERSTOP
Scale: None

HORIZONTAL REINFORCING CORNER DETAILS
Scale: None



WATERPROOF CONSTRUCTION JOINT DETAILS
Scale: 3/4" = 1'-0"



NOTE:
2 additional #4's required each face around circular openings larger than 24" in diameter.

TYPICAL OPENING REINFORCEMENT DETAILS
Scale: 1/2" = 1'-0"

RQAW
INTENTIONAL INNOVATION

STRUCTURAL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

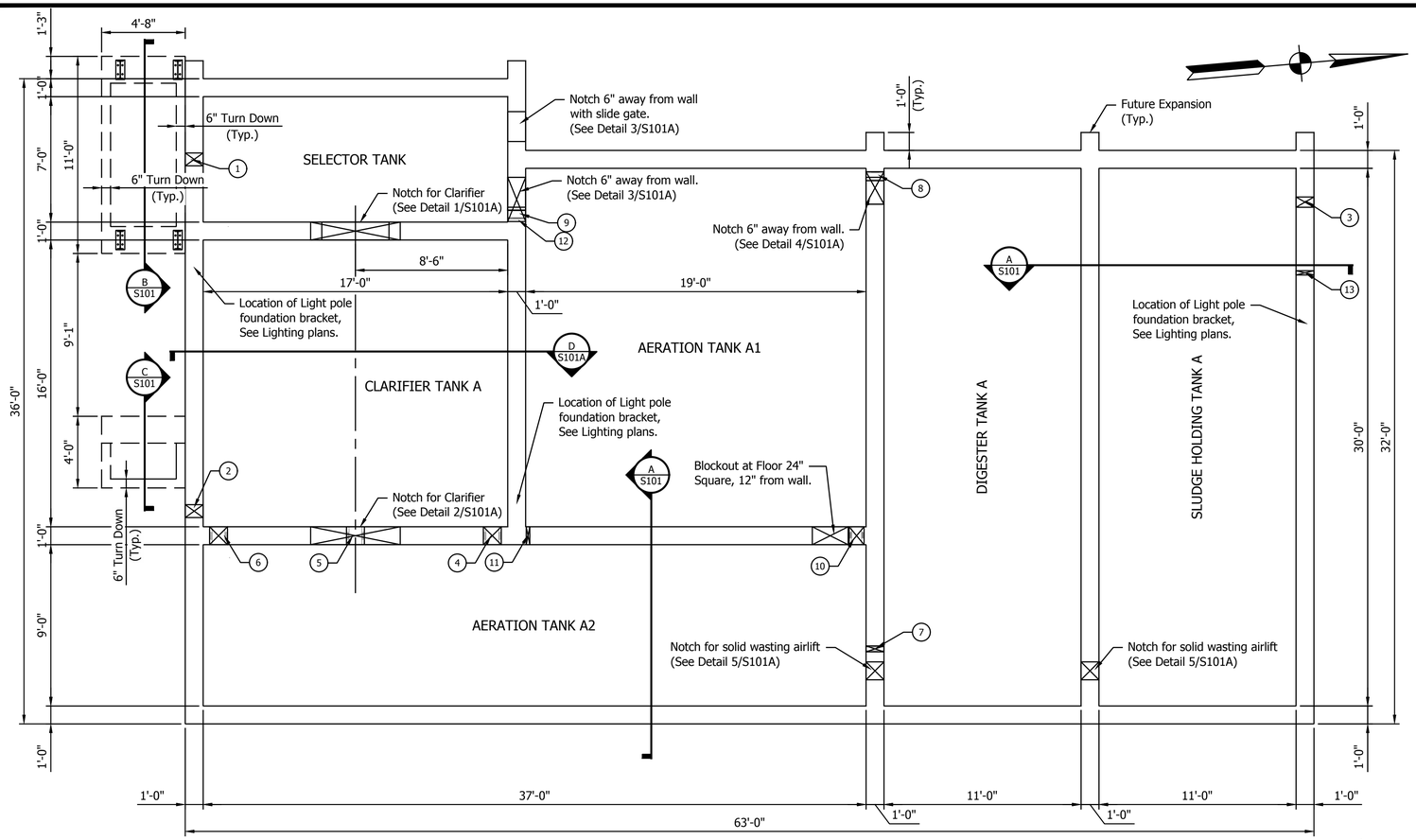
KENNETH J. JANSING JR. REGISTERED No. 10809588 STATE OF INDIANA PROFESSIONAL ENGINEER

Kenneth J. Jansing

200' 0 200' 400'
GRAPHIC SCALE

STRUCTURAL DETAILS

S100



ENLARGED PLAN - AERATION TANK BUILDING

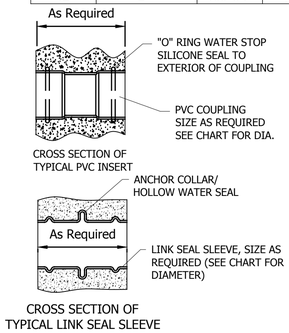
Scale: 1/4" = 1'-0"

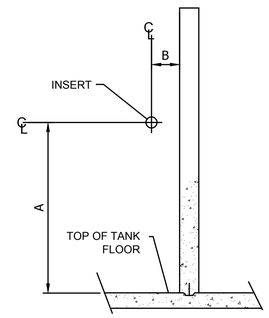
Indicates Approximate locations of inserts/blockouts in walls for equipment. Coordinate with equipment and plumbing manufacturers prior to casting concrete.

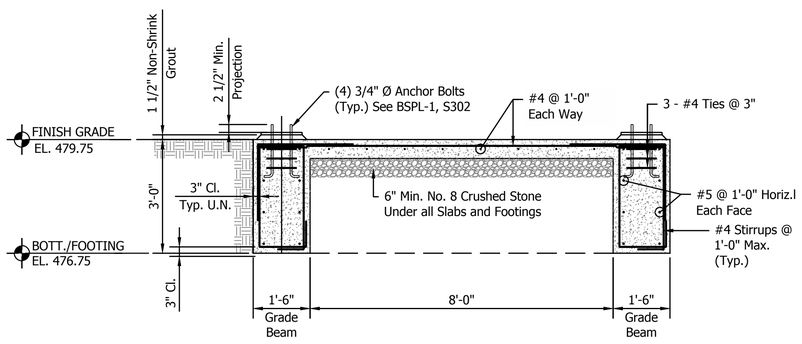
WALL INSERT LOCATION CHART				
REF NO	DIA.	A	B	DESCRIPTION
1	FOR 4" PIPE	138"	34"	INFLUENT LINE
2	FOR 8" PIPE	102 1/4"	10 1/2"	EFFLUENT LINE
3	FOR 6" PIPE	15 1/4"	22 1/2"	DECANT LINE
13	FOR 4" PIPE	20 1/2"	70"	SLUDGE LINE

LINK SEAL INSERT LOCATION CHART				
REF NO	DIA.	A	B	DESCRIPTION
4	12" FOR 8" PIPE	56 1/4"	10 1/4"	DISTRIBUTOR LINE
5	12" FOR 8" PIPE	56 1/4"	102"	DISTRIBUTOR LINE
6	12" FOR 8" PIPE	56 1/4"	10 1/4"	DISTRIBUTOR LINE
7	6" FOR 4" PIPE	102 1/4"	38 1/4"	AIR LINE
8	6" FOR 4" PIPE	102 1/4"	5 1/4"	AIR LINE
9	6" FOR 4" PIPE	102 1/4"	5 1/4"	AIR LINE
10	10" FOR 6" PIPE	74 1/4"	6 1/4"	AIR LINE

PVC INSERT LOCATION CHART				
REF NO	DIA.	A	B	DESCRIPTION
11	2"	153 1/4"	1 1/2"	CONDUIT LINE
12	2"	153 1/4"	1 1/2"	CONDUIT LINE







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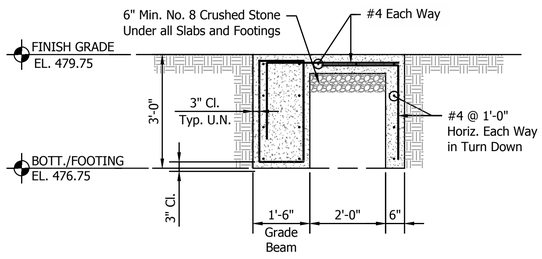

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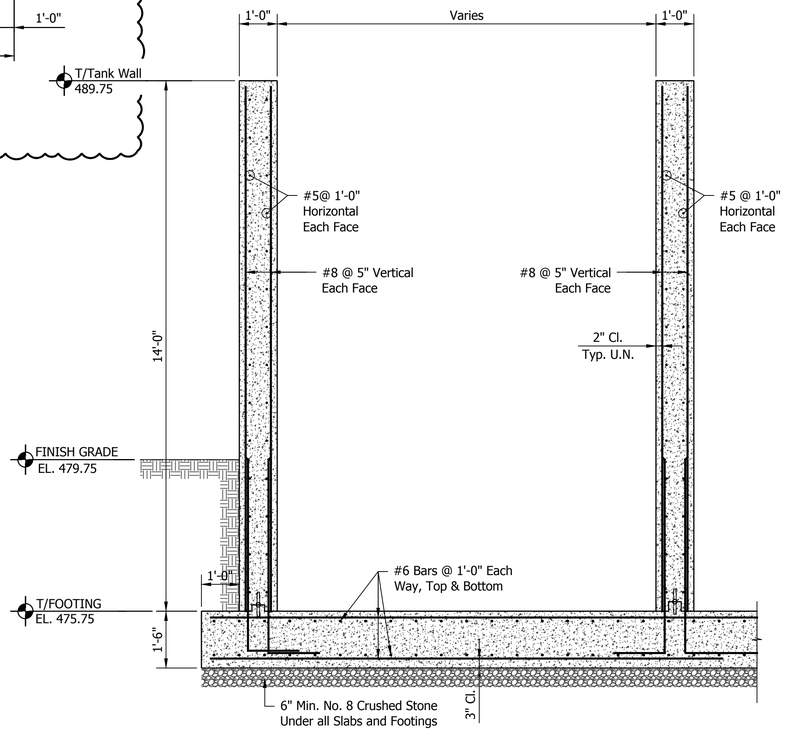


SECTION

Scale: None — A S101

RQAW
INTENTIONAL INNOVATION

STRUCTURAL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

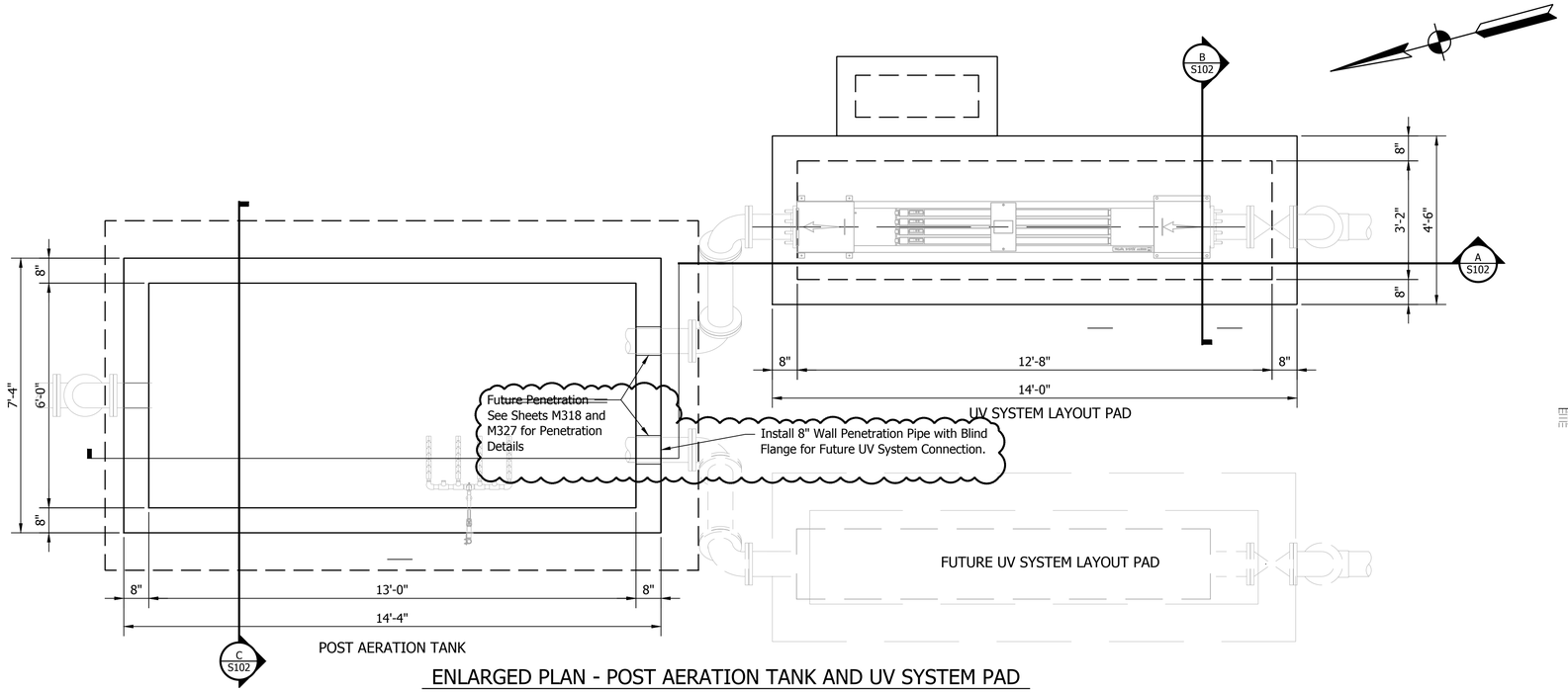
Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

KENNETH J. JANSING JR. REGISTERED PROFESSIONAL ENGINEER No. 10809588 STATE OF INDIANA

200' 0 200' 400'
GRAPHIC SCALE

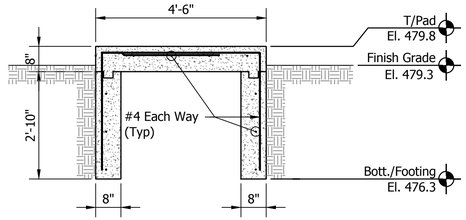
STRUCTURAL DETAILS

S101



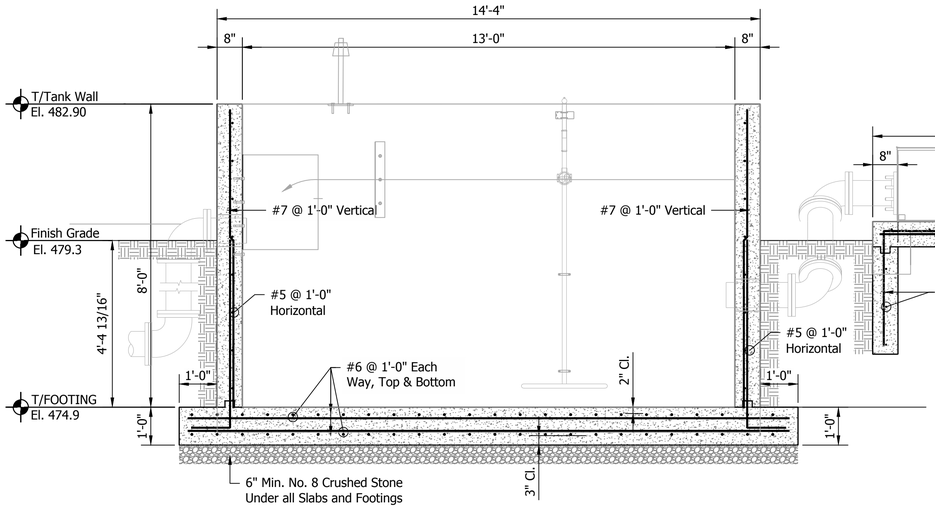
ENLARGED PLAN - POST AERATION TANK AND UV SYSTEM PAD

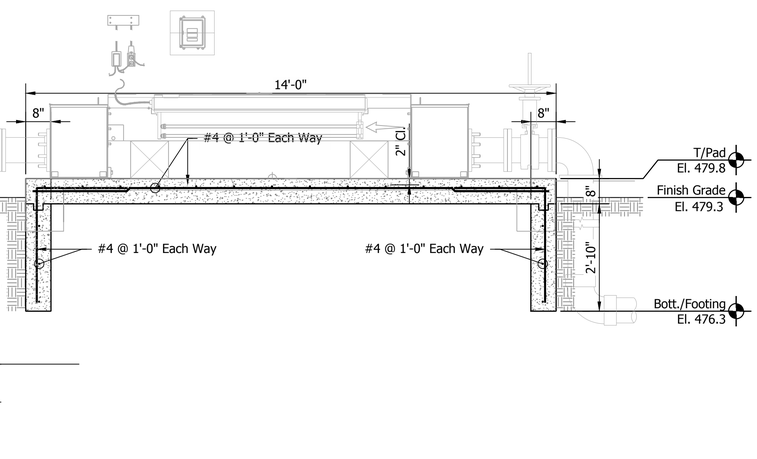
Scale: 1/2" = 1'-0"



SECTION

Scale: 1/2" = 1'-0" (B S102)





SECTION

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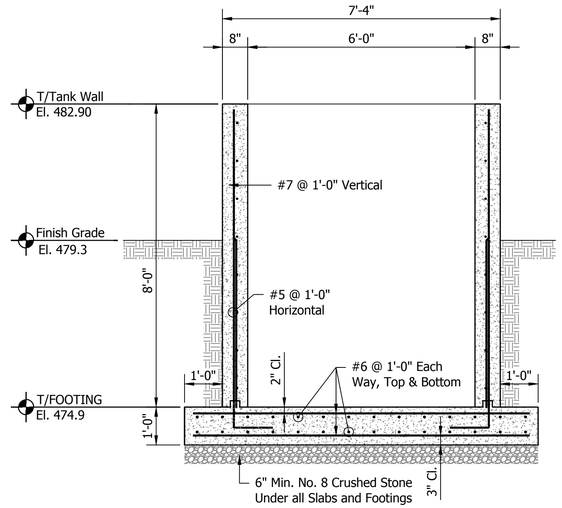


SECTION

Scale: 1/2" = 1'-0" (C S102)

RQAW
INTENTIONAL INNOVATION

STRUCTURAL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

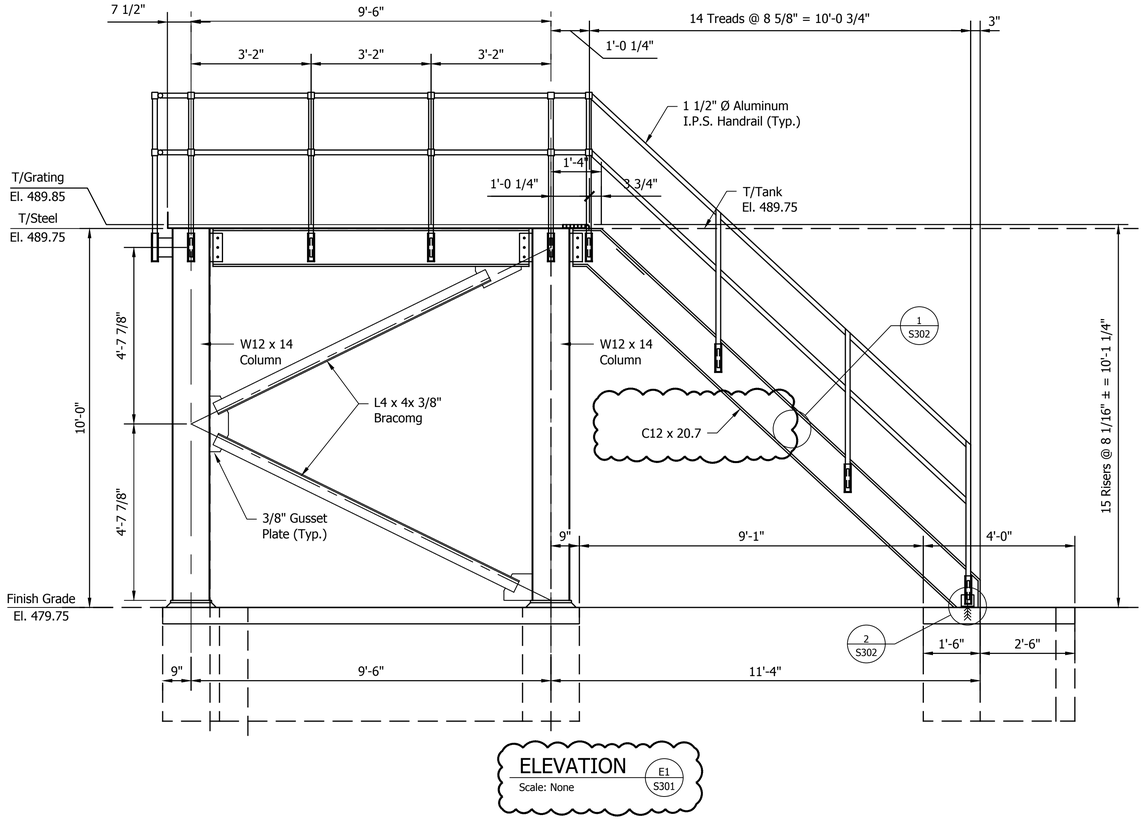
KENNETH J. JANSING JR. REGISTERED No. 10809588 STATE OF INDIANA PROFESSIONAL ENGINEER

Kenneth J. Jansing

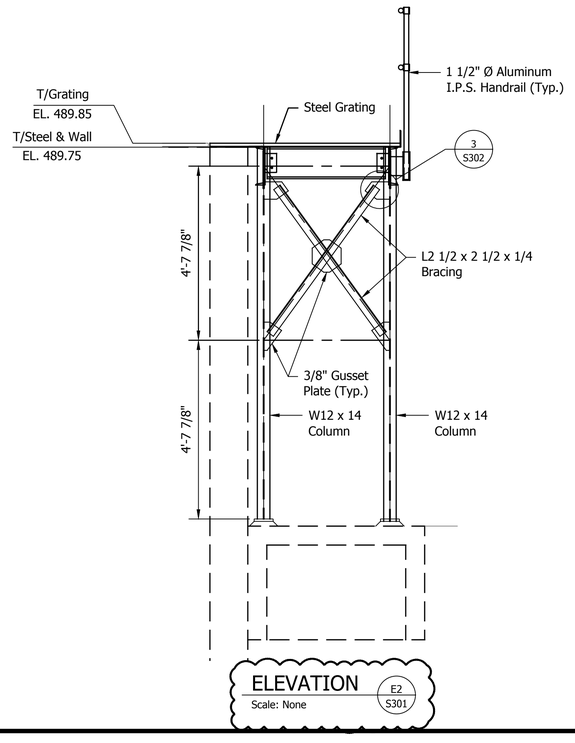
200' 0 200' 400'
GRAPHIC SCALE

STRUCTURAL DETAILS

S102



ELEVATION
Scale: None
E1 S301



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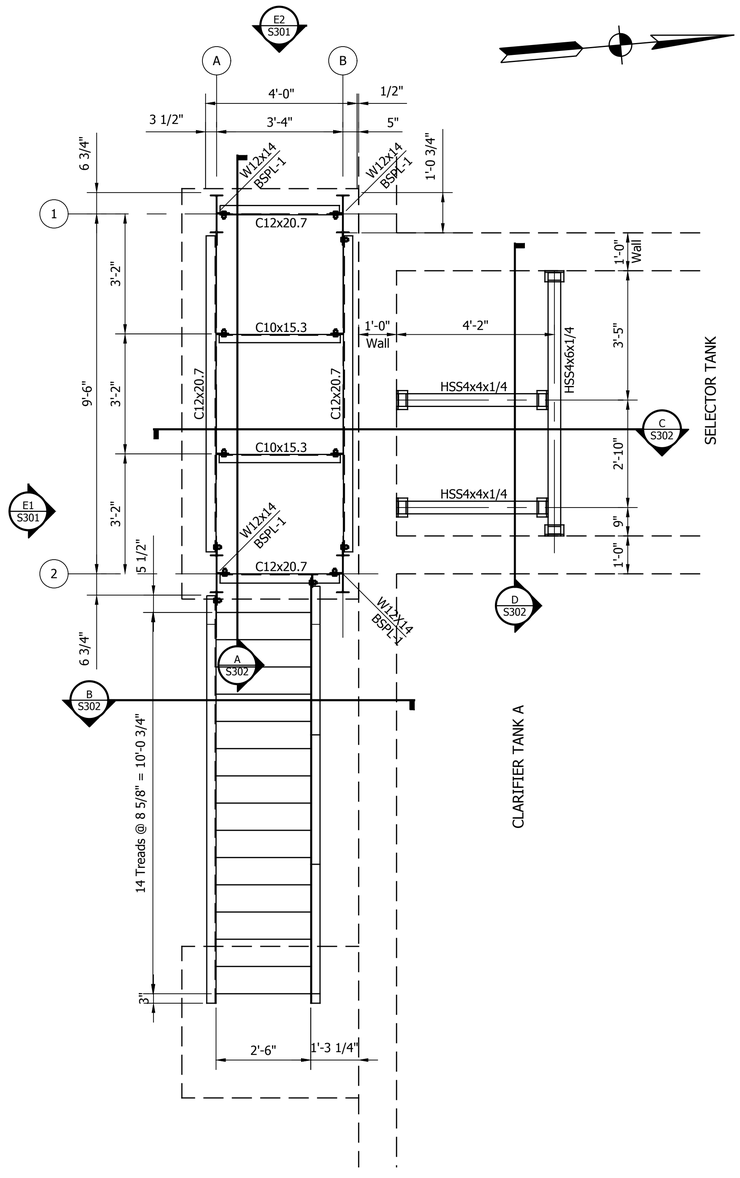
E2 S301



ACCESS STAIR & PLATFORM FRAMING PLAN
Scale: 1/2" = 1'-0"

RQAW
INTENTIONAL INNOVATION

STRUCUTRAL STEEL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

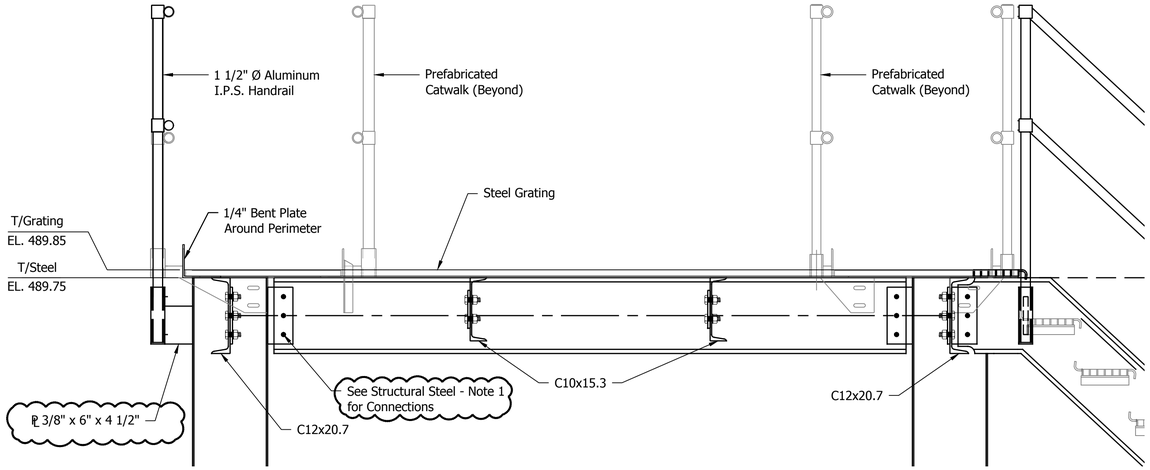
Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

KENNETH J. JANSING, JR.
REGISTERED
No. 10809588
STATE OF INDIANA
PROFESSIONAL ENGINEER

200' 0 200' 400'
GRAPHIC SCALE

STRUCTURAL STEEL DETAILS

S301



SECTION A S302
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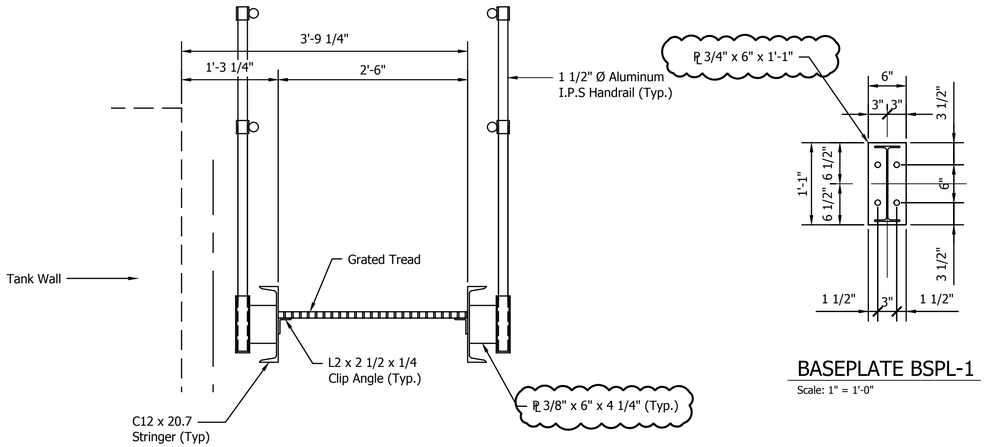
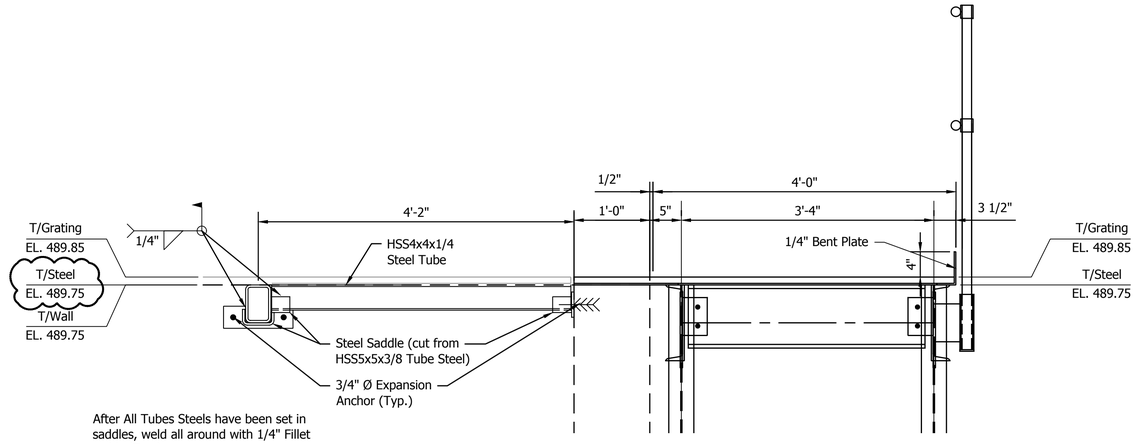


SECTION B S302
Scale: 1" = 1'-0"

BASEPLATE BSPL-1
Scale: 1" = 1'-0"



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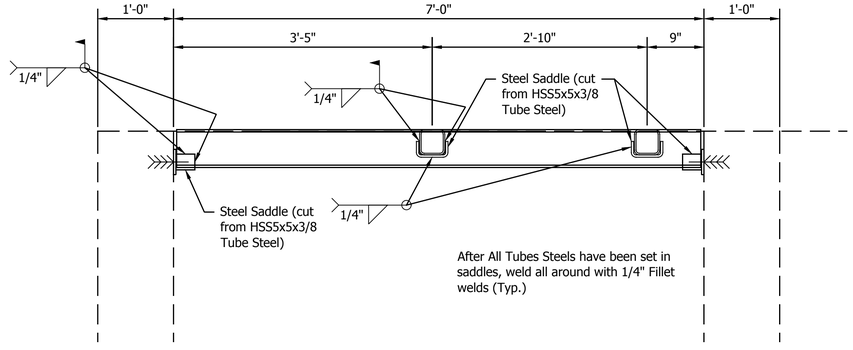

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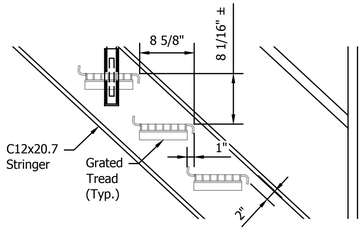
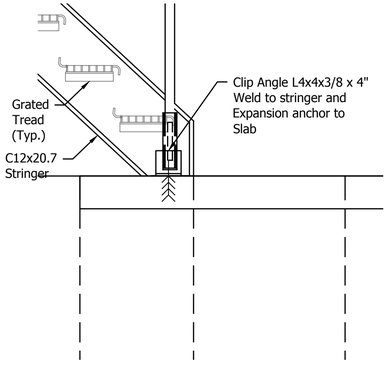


DETAIL 1 S302
Scale: 1" = 1'-0"



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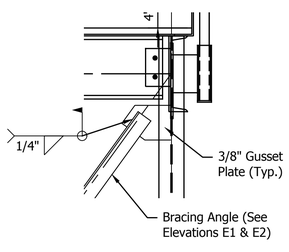


DETAIL 3 S302
Scale: 1" = 1'-0"

RQAW
INTENTIONAL INNOVATION

STRUCUTRAL STEEL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

KENNETH J. JANSING, JR. REGISTERED PROFESSIONAL ENGINEER No. 10809588 STATE OF INDIANA

200' 0 200' 400'
GRAPHIC SCALE

STRUCTURAL STEEL DETAILS

S302

PLAN NOTES

#	NOTE
1	UNIT PROVIDED WITH FACTORY INSTALLED SAFETY DICONNECT SWITCH.
2	EC SHALL PROVIDE DISCONNECT AND ALL ELECTRICAL INTERCONNECTIONS BETWEEN INDOOR UNIT AND ASSOCIATED OUTDOOR UNIT AS REQUIRED.
3	PROVIDE NEMA 3R 208V, 2P-30A FUSIBLE DISCONNECT. FUSE AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
4	DEDICATED RECEPTACLE AND CIRCUIT FOR HONEYWELL CHART RECORDER. VERIFY EXACT LOCATION.
5	REFER TO SIMMS-DURKIN ASSOCIATES DRAWINGS FOR ADDITIONAL ELECTRICAL INFORMATION AND REQUIREMENTS.
6	REFER TO FIRE PROTECTION PLAN FOR CIRCUITING REQUIREMENTS.
7	MOTORIZED OVERHEAD DOOR. PROVIDE ALL CONTROL WIRING IN CONDUIT FROM MOTOR TO CONTROLLERS. PROVIDE LOCAL DISCONNECTING MEANS AT MOTOR AS REQUIRED. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OVERHEAD DOOR MANUFACTURER PRIOR TO INSTALLATION.

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

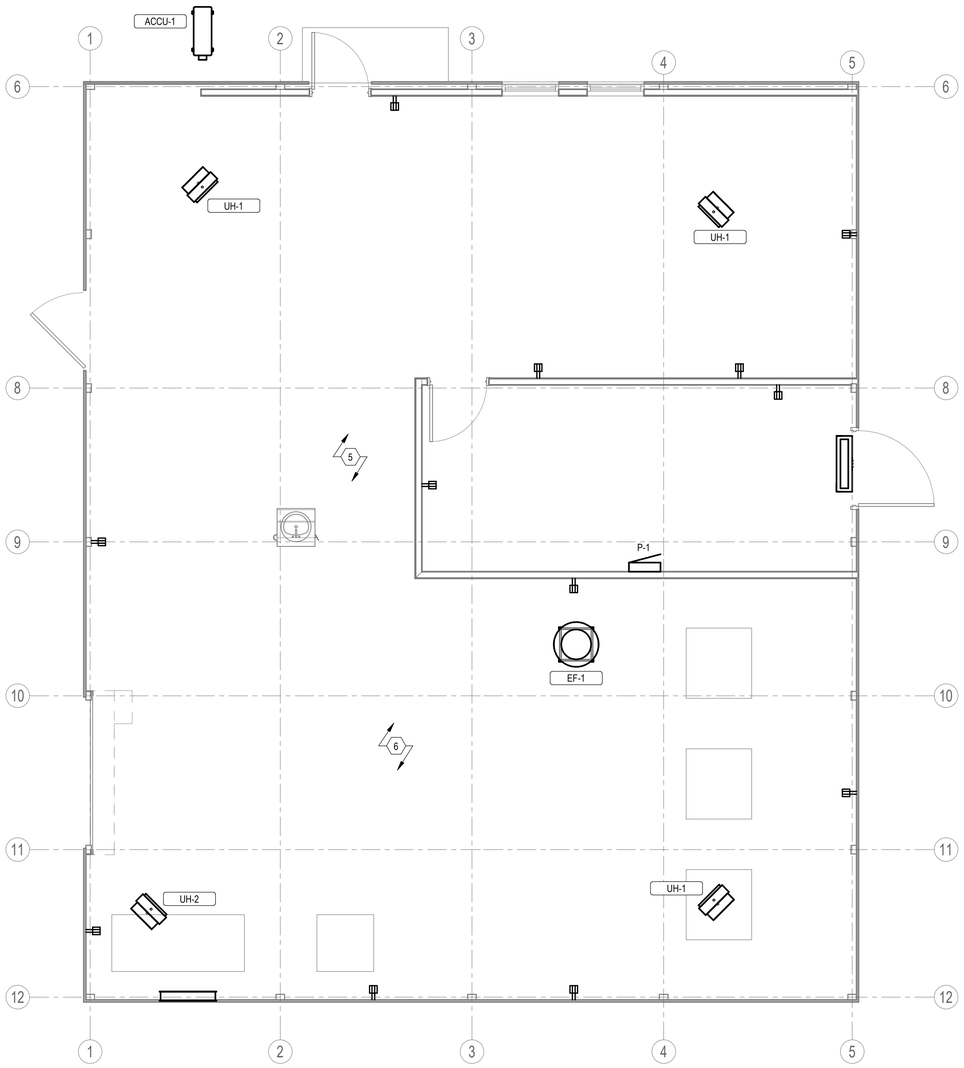
D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

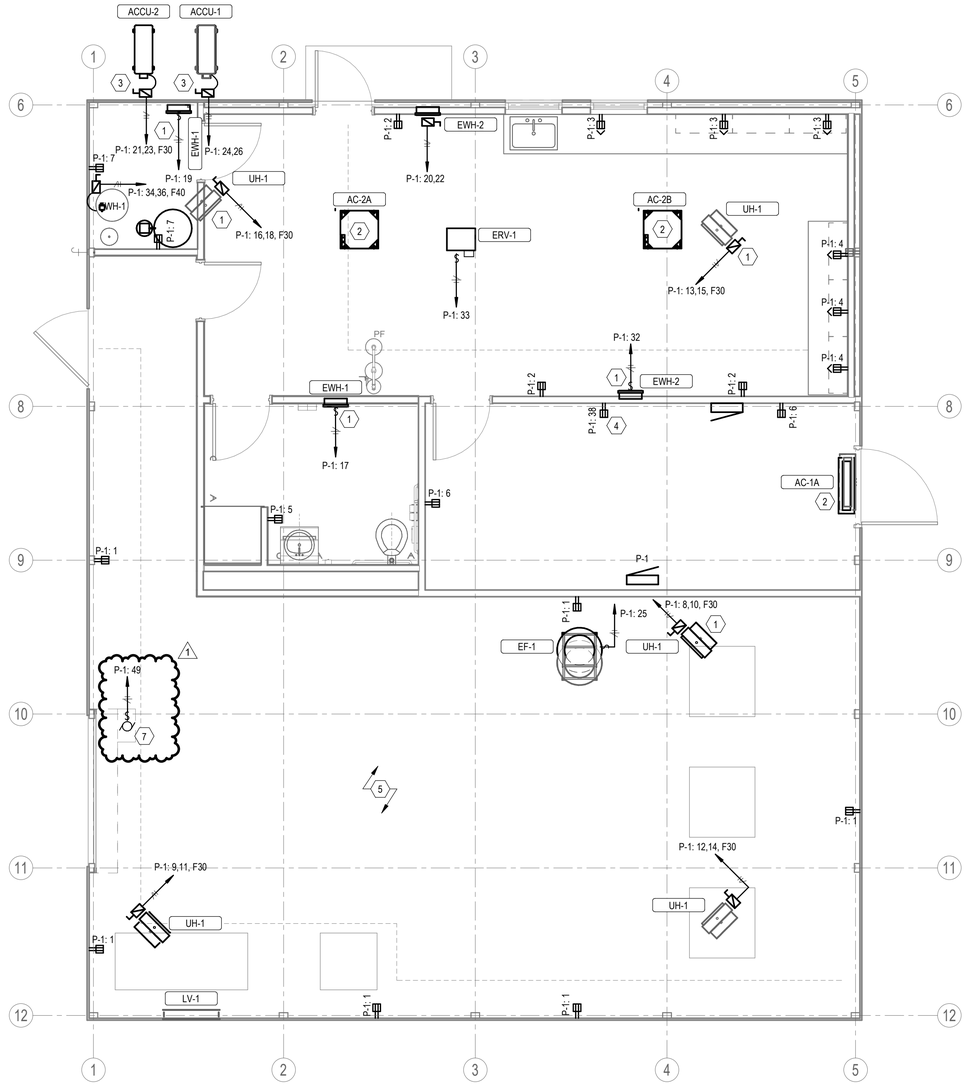
F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS, REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.



1 FIRST FLOOR POWER PLAN - BASE BID
1/4" = 1'-0"
0 2' 4' 8'



2 FIRST FLOOR POWER PLAN - ALTERNATE
1/4" = 1'-0"
0 2' 4' 8'

1/26/2023 12:25:01 PM

RQAW

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
	ADD #001	01/27/2023

Project #: 21-400-194-1
Designed By: Designer
Drawn By: Author
Checked By: Checker
Date: 12/28/22

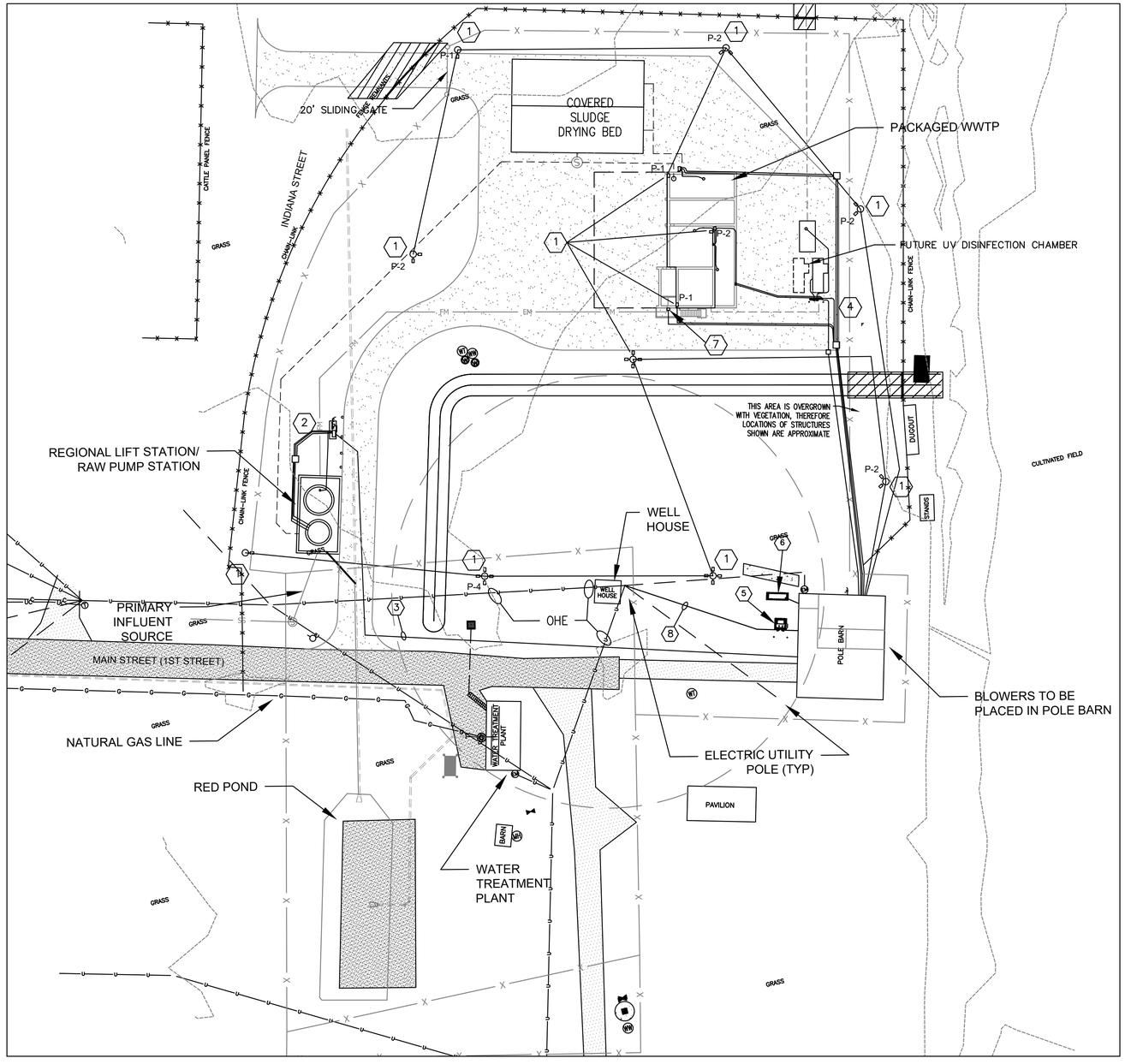
DUSTIN E. BARTH
REGISTERED
No. 12200401
STATE OF
INDIANA
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

N

FIRST FLOOR POWER PLAN

E211



N

ELECTRICAL SITE PLAN

SCALE: 1"=30'-0"

0 30' 60'

GENERAL ELECTRICAL NOTES: ALL SHEETS

A. LOCATE ALL EXISTING PIPING AND UTILITIES BEFORE INSTALLING UNDERGROUND CONDUITS; PROTECT ALL EXISTING INSTALLATIONS.

B. ALL BELOW GRADE CONDUIT SHALL BE SCH. 40 PVC. ALL TRANSITIONS (90 DEGREE ELBOW) FROM BELOW GRADE TO ABOVE GRADE OR THROUGH A CONCRETE SLAB SHALL BE GALVANIZED RIGID STEEL.

C. ALL OUTDOOR ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM. SUPPORT EVERY 3'.

D. ALL RIGID ALUMINUM CONDUIT WHERE IN CONTACT WITH EARTH OR CONCRETE SHALL HAVE OXIDATION RESISTANT COATING.

E. ALL EQUIPMENT, WIRING, AND CONDUIT INSTALLED WITHIN WET WELL OR INTO A CLASS 1 DIVISION 1 AND/OR DIVISION 2 HAZARDOUS AREA SHALL BE EXPLOSION-PROOF RATED. ALL UNDERGROUND CONDUITS INSTALLED INTO A CLASS 1 DIVISION 1 AND/OR DIVISION 2 HAZARDOUS AREA SHALL BE GALVANIZED RIGID STEEL.

F. PROVIDE PUTTY TYPE DUCT SEAL FOR ALL UNDERGROUND CONDUIT OPENINGS IN OUTDOOR EQUIPMENT.

G. MAINTAIN 3' SEPARATION BETWEEN 480V POWER CONDUITS AND LOW VOLTAGE (NETWORK, 24V DC CONTROL, OR INTRINSICALLY SAFE CIRCUIT) CONDUITS. MAINTAIN 1' SEPARATION BETWEEN 120V POWER CONDUITS AND LOW VOLTAGE (NETWORK, 24V DC CONTROL, OR INTRINSICALLY SAFE CIRCUIT) CONDUITS.

H. WHERE CONDUIT CROSSES UNDER EXISTING OR FUTURE ROADS/DRIVES, CONDUIT SHALL BE GALVANIZED RIGID STEEL. SAW CUT AND REPAIR EXISTING PAVEMENT AS NECESSARY.

I. ANTI-CORROSION SUBSTANCE SHALL BE USED AS A BARRIER BETWEEN ALL DISSIMILAR METALS TO PREVENT CORROSION. USE IDEAL NOALOX ANTI-OXIDANT COMPOUND OR APPROVED EQUAL.

J. WIRE AND CONDUIT ROUTES AND ELECTRICAL EQUIPMENT LOCATIONS ARE APPROXIMATE, FIELD VERIFY EXACT INSTALLATIONS.

K. ALL WIRING, CONDUIT, AND TERMINATIONS FURNISHED AND INSTALLED BY CONTRACTOR.

L. SEE ELECTRICAL ONE-LINE DIAGRAM FOR WIRING AND CONDUIT REQUIREMENTS.

M. CONTRACTOR SHALL TAKE NECESSARY MEANS TO PROTECT AND SUPPORT CABLES TO PREVENT DAMAGE DURING CONSTRUCTION. PROTECT EXISTING SYSTEMS AND CABLING DURING CONSTRUCTION.

N. MAINTAIN 5' MINIMUM SEPARATION BETWEEN VENTED TERMINAL BOXES AND OTHER ELECTRICAL EQUIPMENT. MAINTAIN 3' MINIMUM SEPARATION BETWEEN WET WELL HATCH AND ELECTRICAL EQUIPMENT.

O. OWNER WILL COORDINATE WITH DUKE ENERGY TO PROVIDE 480V, 3PH POWER TO SITE.

ELECTRICAL KEYED NOTES:

1. AREA LIGHTING. SEE LIGHTING FIXTURE SCHEDULE E313.
2. LIFT STATION CONTROL PANEL.
3. LIFT STATION POWER.
4. POWER & INSTRUMENTATION.
5. PAD MOUNTED TRANSFORMER.
6. GENERATOR PAD AND GENERATOR.
7. HEAT TRACE.
8. UTILITY PRIMARY.

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2022141

RQAW
INTENTIONAL INNOVATION

CONSTRUCTION SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM 1	1/23/2023

Project #: 21-400-194-1
Designed By: WK/DD/JR
Drawn By: CG
Checked By: WRK/JWS
Date: 01/23/2023

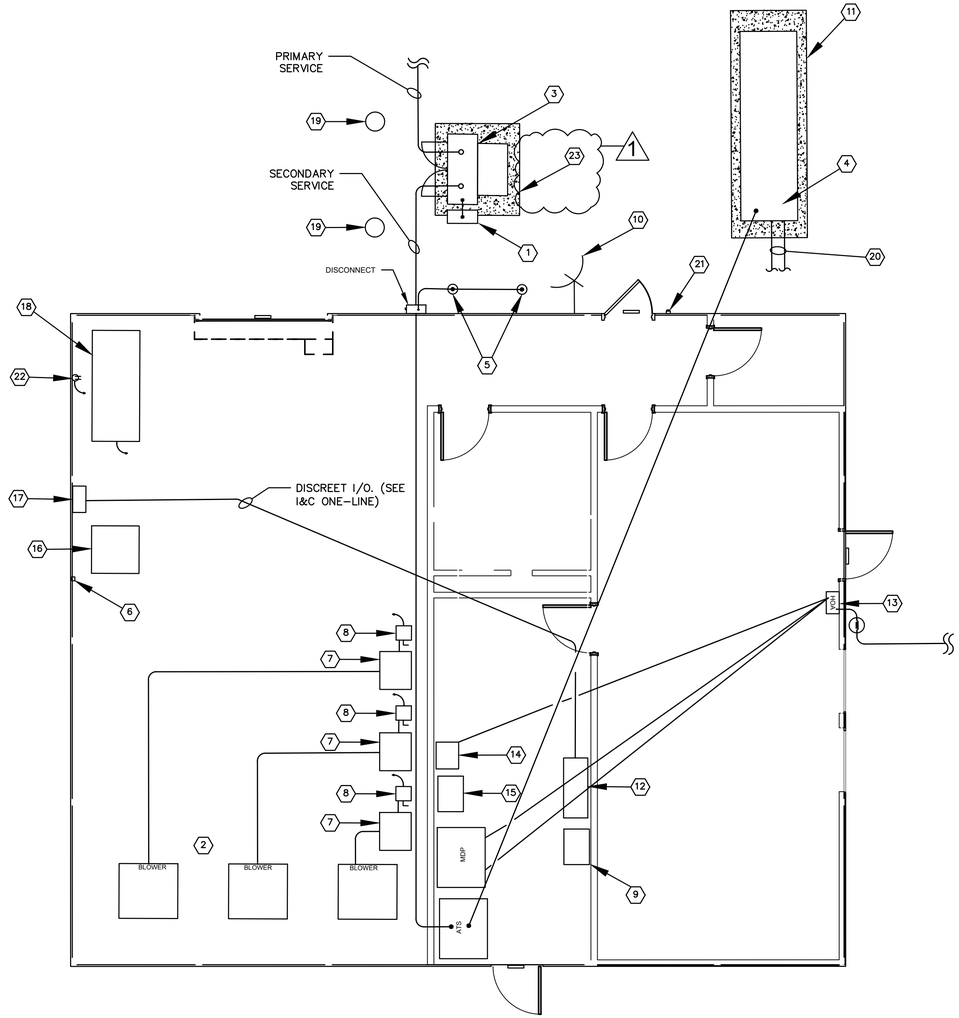
JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

Joseph W Sims

ELECTRICAL SITE DRAWING

E301

PRINT DATE: 1/23/23
PLOT SCALE: 1:1905.9116 EDIT DATE: 1/6/23 - 8:35 AM EDITED BY: CORY GRAVES DRAWING FILE: \\TRUENAS\OPERATIONS\PROJECTS\2022\2022141 WHEATLAND, IN PACKAGED WWTP\20 CAD\ CURRENT WORKING\E301 ELECTRICAL SITE DRAWING.DWG



N

BUILDING ELECTRICAL EQUIPMENT LAYOUT

SCALE: 1/4"=1'-0" 0 1' 2' 4'

ELECTRICAL KEYED NOTES:

1. ELECTRIC SERVICE METER – 277/480V 3PH, 4W.
2. SEE SHT M323 FOR COMPRESSORS & BLOWERS LAYOUT
3. TRANSFORMER FURNISHED AND INSTALLED BY UTILITY. 10' MINIMUM CLEARANCE IN FRONT, 3' MINIMUM CLEARANCE ALL OTHER SIDES. MINIMUM 4' AWAY FROM BUILDING.
4. GENERATOR WITH SUB-BASE 24HR FUEL TANK, ON REINFORCED CONCRETE PAD, 4' MINIMUM CLEARANCE ALL SIDES.
5. TWO GROUND RODS, 10' APART. SEE ONE-LINE.
6. 120V AIR DRYER RECEPTACLE. HOME RUN TO PANEL P-1.
7. 3 VFD BLOWER CONTROL PANELS. SEE ONE-LINE E303.
8. BLOWER DISCONNECT SWITCH. MOUNTED TO WALL. SEE ONE-LINE E303.
9. NEW HONEYWELL CHART RECORDER FOR WWTP FLOW METERING/RECORDING.
10. UBIQUITY AIRMAX ETHERNET WIRELESS BRIDGE.
11. 6" REINFORCED CONCRETE PAD.
12. CP-BSB/SQC AEROMOD PLC CONTROL PANEL.
13. LIGHTING CONTROL PANEL. SEE E312 DETAILS.
14. PANEL P-1
15. 480-120/208V TRANSFORMER.
16. DRYER.
17. COMPRESSOR ALTERNATION PANEL.
18. 2 COMPRESSORS.
19. BOLLARDS.
20. CONTROL AND ACCESSORY CIRCUITS. SEE E309.
21. EMERGENCY STOP FOR GENERATOR.
22. RECEPTACLE FOR COMPRESSOR AUTO DRAIN. HOME RUN TO PANEL P-1.
23. TRANSFORMER PAD PER DUKE ENERGY STANDARDS. SEE DETAILS ON E312.

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SDA PROJECT NUMBER: 2022141

RQAW
INTENTIONAL INNOVATION

CONSTRUCTION SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM 1	1/23/2023

Project #: 21-400-194-1
Designed By: WK/DD/JR
Drawn By: CG
Checked By: WRK/JWS
Date: 01/23/2023

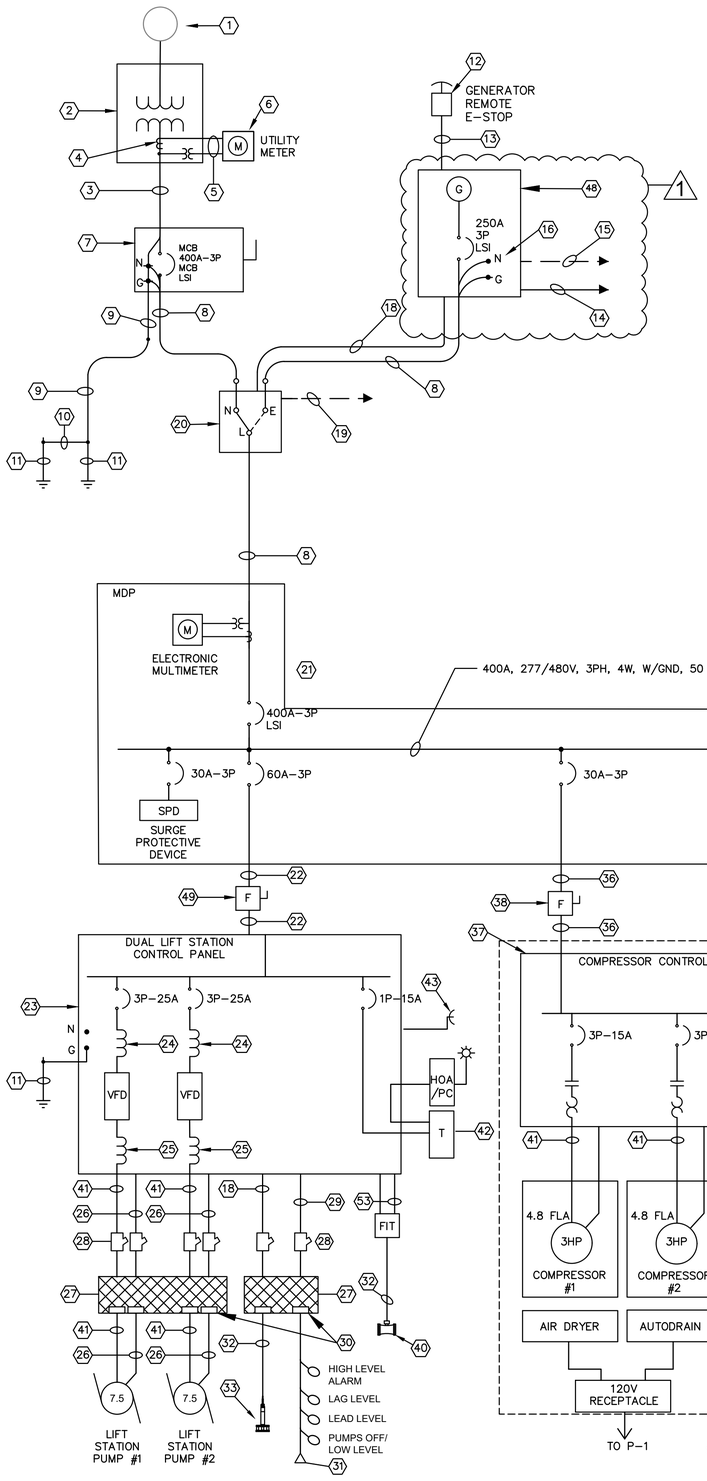
JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

Joseph W Sims

BUILDING ELECTRICAL EQUIPMENT LAYOUT

E302

PRINT DATE: 1/22/23
PLOT SCALE: 1:186.9116 EDIT DATE: 1/23/23 - 3:14 PM EDITED BY: CORY GRAVES DRAWING FILE: \\TRUENAS\OPERATIONS\PROJECTS\2022\2022141 WHEATLAND, IN PACKAGED WWTP\20 CAD CURRENT WORKING\E302 BUILDING ELECTRICAL EQUIPMENT LAYOUT.DWG



GENERAL ELECTRICAL NOTES:

A. ALL EQUIPMENT, WIRING, AND CONDUIT ON THIS PLAN FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED. VERIFY ALL REQUIREMENTS WITH APPROVED SHOP DRAWINGS BEFORE ROUGH–IN.

B. ALL CONTROL PANELS SHALL HAVE LOCKOUT/TAGOUT AVAILABLE.

C. WET WELL AND OPEN TANK AREAS ARE CLASSIFIED CLASS 1 DIVISION 1 GROUP D: ALL WIRING IN HOLES SHALL COMPLY.

D. RIGID GALVANIZED RIGID STEEL FOR ALL CONDUIT ABOVE GRADE. RIGID GALVANIZED STEEL FOR ALL CONDUITS BELOW DRIVING SURFACES AND ENTRANCE TO CLASSIFIED AREAS. SCHEDULE 40 PVC FOR ALL OTHER UNDERGROUND CONDUIT.

ELECTRICAL KEYED NOTES:

1. UTILITY POLE. PRIMARY CONDUCTORS BY UTILITY. CONTRACTOR SHALL FURNISH AND INSTALL (2) 4" UNDERGROUND CONDUIT. BURY 36" BELOW GRADE. CONTRACTOR SHALL TRANSITION TO ABOVE GRADE WITH 36" WIDE SWEEP 90'S AND TERMINATE AT POLE +12" AFG AND AT TRANSFORMER.
2. UTILITY PAD MOUNTED TRANSFORMER. 480V, 3PH, 4W SEC. TRANSFORMER BY UTILITY. PAD BY CONTRACTOR.
3. SECONDARY CONDUCTORS AND CONDUITS FURNISHED AND INSTALLED BY CONTRACTOR. 4–#500MCM CU, 4" CONDUIT.
4. UTILITY CO. C.T.s, P.T.s INSTALLED BY UTILITY CO. AT TRANSFORMER. TERMINATION BY THE UTILITY. CONTRACTOR SHALL COORDINATE ALL THE REQUIREMENTS WITH UTILITY.
5. INSTRUMENTATION WIRING BY UTILITY. CONDUIT BY CONTRACTOR.
6. UTILITY METER AND METER BASE. METER BASE FURNISHED AND INSTALLED BY CONTRACTOR. METER BASE SHALL BE RATED FOR OUTDOOR ENVIRONMENT. CONTRACTOR SHALL COORDINATE ALL THE REQUIREMENTS WITH UTILITY.
7. NEMA 4X STAINLESS STEEL ENTRANCE RATED DISCONNECT WITH: LSI 400A, 480V, 50KAIC, MAIN CIRCUIT BREAKER TO BREAKER. BOND NEUTRAL TO GROUND AT THIS LOCATION.
8. 4–#500 MCM CU, 1–#2 CU GND, 4" C.
9. 1–#1/0 BARE CU GND, 1" C.
10. 1–#1/0 CU GROUNDING ELECTRODE CONDUCTOR. CADWELD.
11. 3/4" X 10' CU CLAD GROUND ROD; TYPICAL OF 2. SEPARATED BY 10' OF CONDUCTOR TO EACH GROUND ROD. BURY GROUND ROD 12" BELOW GRADE, TYPICAL
12. E–STOP FURNISHED WITH GENERATOR BY GENERATOR SUPPLIER AND INSTALLED BY CONTRACTOR.
13. 2–#14 CU, 1–#14 CU GND, 3/4" C.
14. POWER CIRCUITS FOR THE GENERATOR BLOCK HEATER AND BATTERY CHARGER 2–#10, 2–#10 CU GND, 1–1/2" C EACH.
15. GENERATOR MONITORING STATUS WIRING TO THE MAIN PLC CONTROL PANEL, 1" C.
16. DO NOT BOND NEUTRAL AT THIS LOCATION. EXTEND NEUTRAL TO ATS.
17. NOT USED.
18. GENERATOR START SIGNAL, 2–#14 CU, 1–#14 CU GND, 3/4" C.
19. ATS MONITORING STATUS TO THE MAIN PLC CONTROL PANEL. 4–#14 CU, 3/4" C.
20. ASCO 7000 SERIES NEMA 1, 400A, 240V, 3 PH, 4 W, 1"C. SOLID NEUTRAL. AUTOMATIC TRANSFER SWITCH, 50 KAIC RATING WITH DTTS CONTROL.
21. MAIN DISTRIBUTION PANELBOARD "MDP", 277/480V, 3PH, 4W, 400A, NEMA 1 ENCLOSURE, 50KAIC, WITH 400A LSI BREAKER.
22. 4–#6 CU, 1–#8 CU GND, 1–1/2" C.
23. LIFT STATION CONTROL PANEL.
24. LINE REACTOR.
25. LOAD REACTOR.
26. OVERTEMP STATUS, 2–#14 CU, SEAL FAIL ALARM, 2–#14 CU, 1–#14 CU GND, 3/4" C.
27. STAINLESS STEEL VENTED TERMINAL BOX, TYPICAL. SEE DETAIL. 1
28. NEW HAZARDOUS SEAL OFF FOR TRANSITION FROM CLASS 1 DIVISION 1 AND DIVISION 2 SPACE TO UNCLASSIFIED SPACE, TYPICAL. CROUSE–HINDS EYSER OR APPROVED EQUAL FURNISHED AND INSTALLED BY CONTRACTOR.
29. FLOAT SWITCH CABLES INTEGRAL TO FLOATS, IN 3"C. CABLE SHALL BE CONTINUED TO VENTED BOX AND NOT SPLICED.
30. ALL CABLE SUPPORTS SHALL BE WITH KELLUM GRIPS.
31. WEIGHT FOR CABLE.
32. PROBE CABLE PROVIDED BY MANUFACTURER. MANUFACTURER CABLE TO RUN COINTINUOUS TO FLOW METER ELECTRONICS, DO NOT CUT OR SPLICE.
33. SUBMERSIBLE LEVEL SENSOR FOR WET WELL, PRIMARY CONTROL.
34. DRY–TYPE TRANSFORMER "T–1". 75KVA, 480V, 3PH PRIMARY. 120/208V, 3PH, 4W SECONDARY.
35. PANELBOARD "P–1", 400A PANEL, 250A MCB, 120/208V, 3PH, 4W, 10 KAIC MINIMUM RATING, NEMA 1 ENCLOSURE, 42 POLES. SEE SCHEDULE.
36. 3–#10 CU, 1–#10 CU GND, 1" C.
37. COMPRESSOR CONTROL PANEL
38. NEMA 12 600V, 30A–3P, CLASS–RK5 TYPE FUSED LOCAL DISCONNECT SWITCH. MOUNT THE 3 DISCONNECTS NEXT TO COMPRESSOR ALTERNATOR ARRANGED VERTICALLY.
39. 2–#8 CU, 1–#10 CU GND, 1 1/4" C.
40. MAGNETIC FLOW SENSOR.
41. 3–#12 CU, 1–#12 CU GND, 1" C.
42. STAINLESS STEEL 3kVA TRANSFORMER. SEE E307.
43. UBIQUITY AIRMAX WIRELESS BRIDGE. SEE E305, 307.
44. 2–#14 CU, 1–#14 CU GND, 3/4" C.
45. 3–#10 CU, 1–#10 CU GND, 1" C.
46. KAESAR ROTARY LOBE BLOWER PACKAGE COM–PAK SERIES. FURNISHED BY AEROMOD. INSTALLED BY ELECTRICAL CONTRACTOR.
47. NEMA 12 LOCAL LOCK–OUT/TAG–OUT DISCONNECT SWITCH. 600V, 60A–3P–F35–RK5.
48. NEW GENERATOR WITH SUB–BASE FUEL TANK ON CONCRETE PAD, 175KW, 480V; 250A, GENERATOR CIRCUIT BREAKER.
49. NEMA 4X STAINLESS STEEL 600V, 60A–3P, CLASS RK5 FUSED LOCAL DISCONNECT SWITCH.
50. SUBMERSIBLE SLUDGE PUMP CONTROL PANEL FURNISHED BY AEROMOD INSTALLED BY ELECTRICAL CONTRACTOR. SEE E310.
51. 3–#2, 1–#6 GND, 1 1/2 " C.
52. 4–#250 CU, 1–#4 CU GND, 3" C.
53. 1–#16 TSP, 1" C.
54. BLOWER CONTROL PANEL. FURNISHED BY AEROMOD. INSTALLED BY ELECTRICAL CONTRACTOR
55. COMPRESSOR EQUIPMENT TO BE FURNISHED BY AEROMOD. INSTALLED BY ELECTRICAL CONTRACTOR
56. 2–#12 CU, 1–#12 CU GND, 3/4" C.
57. 15A–1P BREAKER IN PANEL P–1. 1

PRINT DATE: 1/23/23
PLOT SCALE: 1:186.9116 EDIT DATE: 1/2023 - 10:04 AM EDITED BY: CORY GRAVES DRAWING FILE: \VITRIENAS\OPERATIONS\PROJECTS\2022\202141 WHEATLAND, IN PACKAGED WWTP\20 CAD\ CURRENT WORKING\E303 ELECTRICAL ONE-LINE DIAGRAM.DWG

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2022141

RQAW
INTENTIONAL INNOVATION

CONSTRUCTION SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

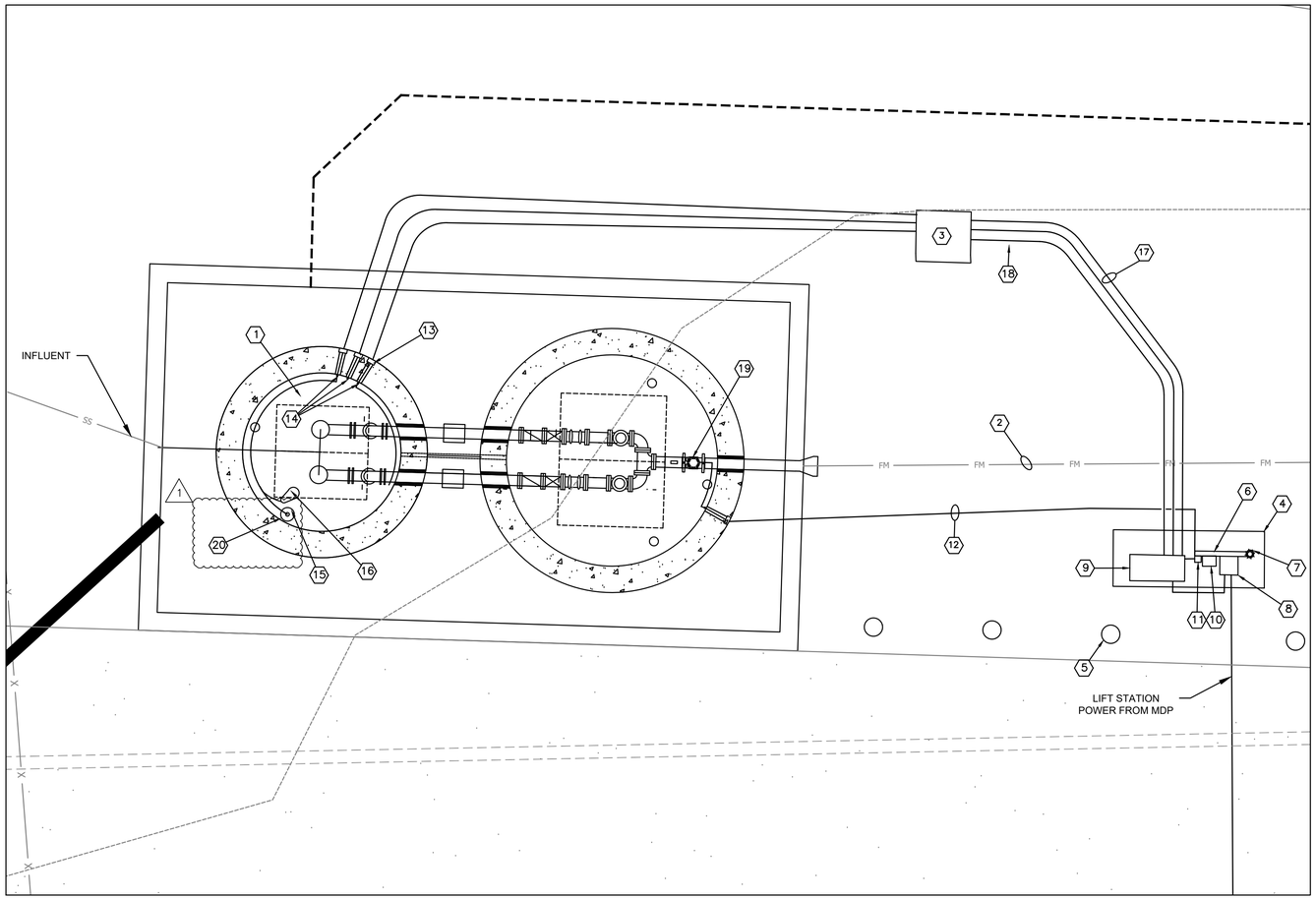
#	Revision	Date
1	ADDENDUM 1	1/23/2023

Project #: 21-400-194-1
Designed By: WK/DD/JR
Drawn By: CG
Checked By: WRK/JWS
Date: 01/23/2023

JOSEPH W. SIMS REGISTERED NO PE60800165 STATE OF INDIANA PROFESSIONAL ENGINEER
Joseph W Sims

ELECTRICAL ONE-LINE DIAGRAM

E303



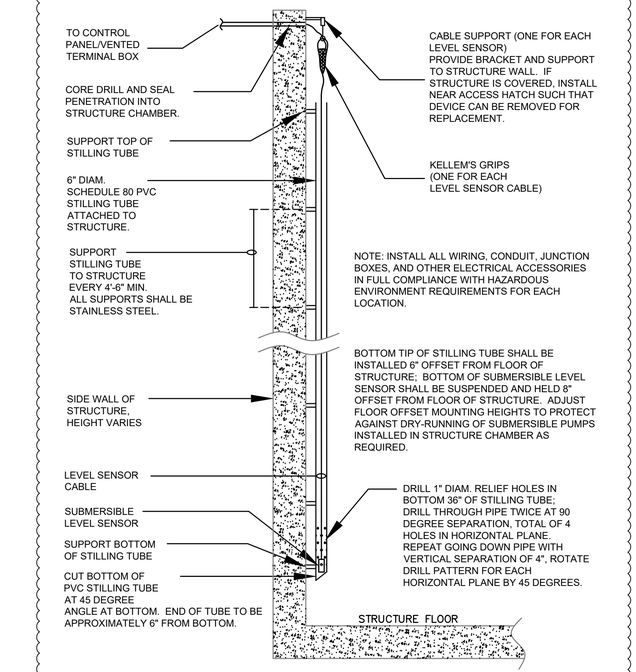
N

LIFT STATION SITE PLAN

NOT TO SCALE REFER TO CIVIL SITE DRAWING FOR SCALE

ELECTRICAL KEYED NOTES:

1. WET WELL.
2. FORCE MAIN.
3. VENTED TERMINAL BOX. SEE DETAILS.
4. EQUIPMENT CONCRETE PAD. SEE DETAILS.
5. BOLLARD – TYPICAL OF 4. SEE DETAILS.
6. EQUIPMENT RACK. SEE DETAILS.
7. AREA LIGHT AND WIRELESS ETHERNET BRIDGE ON MAST.
8. LIFT STATION MAIN POWER FUSED DISCONNECT. SEE ONE–LINE.
9. CONTROL PANEL.
10. TRANSFORMER.
11. FIT PANEL MODEL MC6081. NO EQUALS.
12. FLOW METER CABLE FURNISHED BY FLOW METER MANUFACTURER, IN 1 1/4"C BY CONTRACTOR. THIS CABLE CANNOT BE CUT OR SPLICED. COORDINATE PROPER DISTANCE WHEN ORDERING.
13. PROVIDE LINK SEAL FOR EACH WET WELL PENETRATIONS.
14. UTILIZE KELLUM GRIPS FOR EACH CABLE SUSPENDED FROM BOX.
15. SUBMERSIBLE LEVEL SENSOR. KSPI MODEL 710 OR EQUIVALENT.
16. FLOAT SWITCHES. PROVIDE WITH STAINLESS STEEL "J" HOOKS.
17. FLOAT SWITCH AND SUBMERSIBLE TRANSMITTER MANUFACTURER CABLES. ALL CABLES TO BE LONG ENOUGH TO PUMP CONTROL PANEL. NO SPLICES ALLOWED.
18. INDIVIDUAL PUMP LEAD CONDUIT AND CABLES.
19. EUROMAG FLOW METER MODEL MUT2300. NO EQUALS.
20. MINIMUM 6" PVC STILLING WELL FOR SUBMERSIBLE LEVEL TRANSMITTER. SEE DETAIL BELOW.



SUBMERSIBLE LEVEL SENSOR - STILLING TUBE DETAIL

SCALE: NONE

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2022141

RQAW
INTENTIONAL INNOVATION

CONSTRUCTION SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM 1	1/23/2023

Project #: 21-400-194-1
Designed By: WK/DD/JR
Drawn By: CG
Checked By: WRK/JWS
Date: 01/23/2023

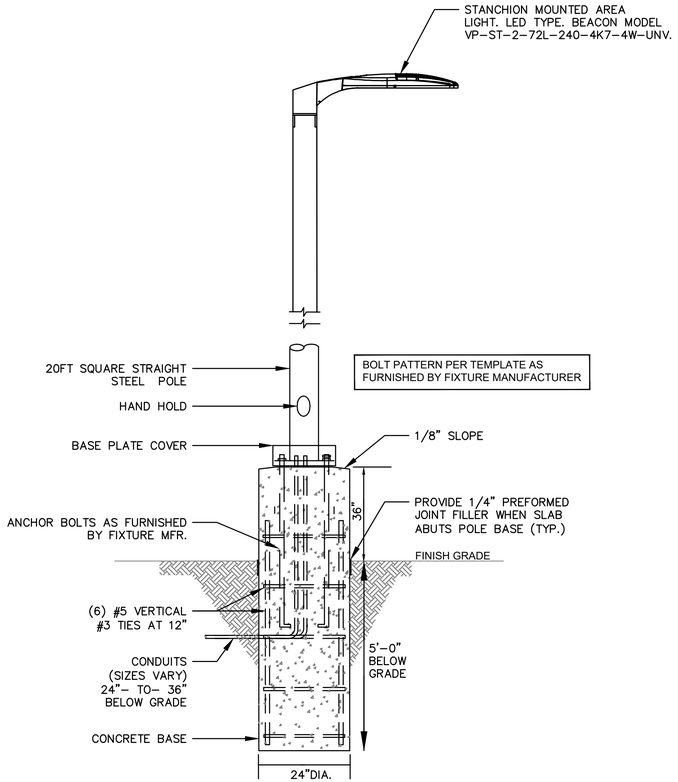
JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

Joseph W Sims

LIFT STATION ELECTRICAL SITE PLAN

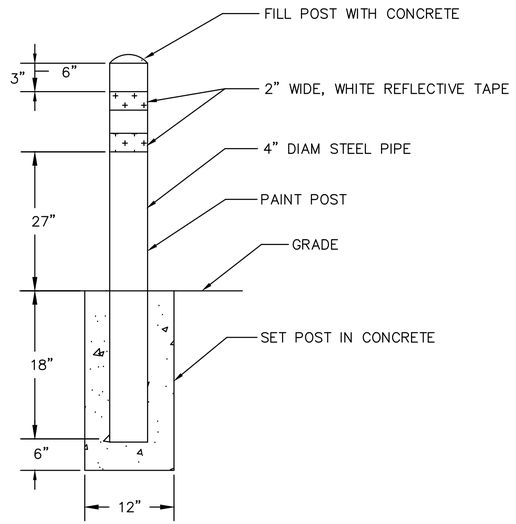
E304

PRINT DATE: 1/23/23
PLOT SCALE: 1:184.9116 EDIT DATE: 1/19/23 - 12:56 PM EDITED BY: JACK1 DRAWING FILE: \\TRUENAS\OPERATIONS\PROJECTS\2022\2022141 WHEATLAND, IN PACKAGED WWTP\20 CAD CURRENT WORKING\E304 LIFT STATION ELECTRICAL SITE PLAN.DWG



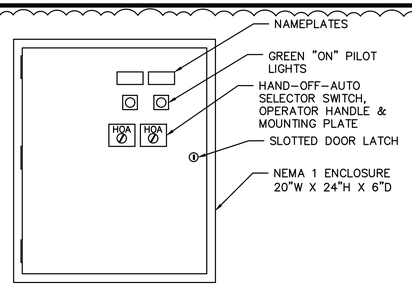
LIGHTING POLE DETAIL

NOT TO SCALE

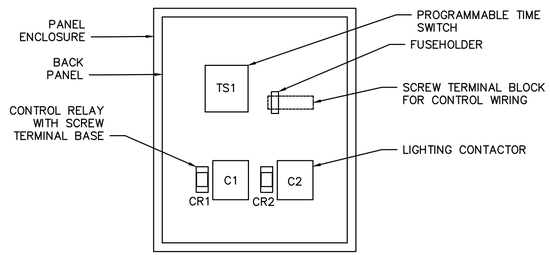


PIPE BOLLARD DETAIL

NOT TO SCALE



EXTERIOR PANEL LAYOUT

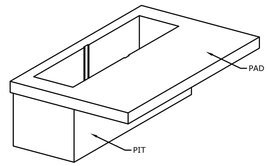


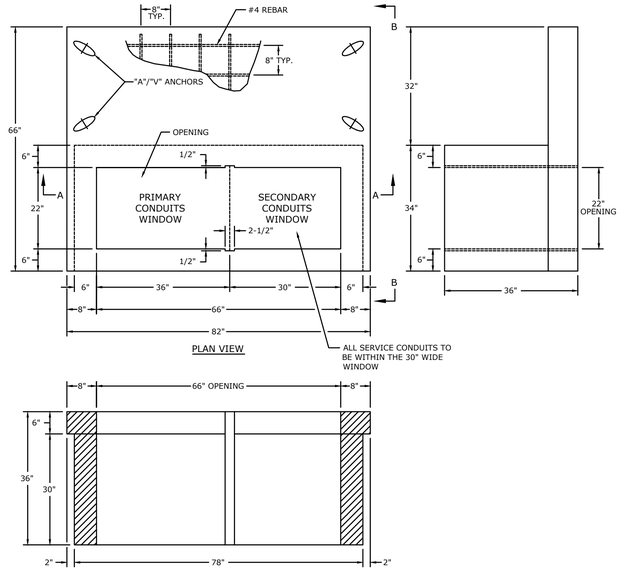
INTERIOR PANEL LAYOUT

1

LIGHTING CONTROL PANEL LAYOUT

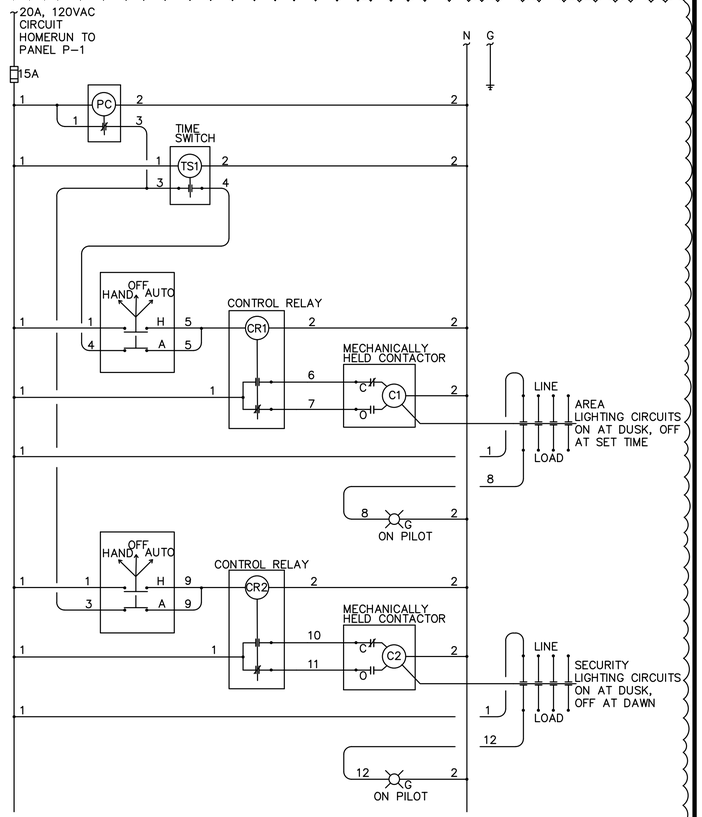
NOT TO SCALE





DUKE TRANSFORMER PAD DETAIL

NOT TO SCALE



LIGHTING CONTROL PANEL WIRING DIAGRAM

NOT TO SCALE

GENERAL ELECTRICAL DETAILS

NOT TO SCALE

SIMS-DURKIN ASSOCIATES
ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2022141

RQAW
INTENTIONAL INNOVATION

CONSTRUCTION SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION

WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM 1	1/23/2023

Project #: 21-400-194-1
Designed By: WK/DD/JR
Drawn By: CG
Checked By: WRK/JWS
Date: 01/23/2023

JOSEPH W. SIMS
REGISTERED
NO
PE60860165
STATE OF
INDIANA
PROFESSIONAL ENGINEER

Joseph W Sims

GENERAL ELECTRICAL DETAILS

E312

PRINT DATE: 1/23/23
PLOT SCALE: 1:186.9116
EDIT DATE: 1/23/23 - 3:18 PM EDITED BY: CORY GRAVES DRAWING FILE: \\TRUENAS\OPERATIONS\PROJECTS\2022\2022141 WHEATLAND, IN PACKAGED WWTP\30 CAD CURRENT WORKING\E312 GENERAL ELECTRICAL DETAILS.DWG

Branch Panel: P-1

Location: ELECTRICAL 102
Supplied From:
Mounting: Surface
Enclosure Type: Type 1

Voltage: 208Y/120
Phase: 3
Wire: 4
Ground: Equipment Ground Bus

Branch: NORMAL
A.I.C. Rating: 10,000
Main Type: 250A MCB
Main Rating: 400 A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	Circuit Number
1	Receptacle BLOWERS 103	20 A	1	1.1	0.5					1	20 A	Receptacle OFFICE 101	2
3	Receptacle OFFICE 101	20 A	1			0.5	0.5			1	20 A	Receptacle OFFICE 101	4
5	Receptacle RR 104	20 A	1					0.2	0.4	1	20 A	Receptacle ELECTRICAL 102	6
7	Receptacle STORAGE 105	20 A	1	0.4	2.2					2	30 A	UH-1	8
9	UH-1	30 A	2			2.2	2.2						10
11								2.2	2.2	2	30 A	UH-1	12
13	UH-1	30 A	2	2.2	2.2								14
15						2.2	2.2			2	30 A	UH-1	16
17	EWH-1	20 A	1					1	2.2				18
19	EWH-1	20 A	1	1	0.8					2	15 A	EWH-2	20
21	ACCU-2	30 A	2			2	0.8						22
23								2	0.6	2	15 A	ACCU-1	24
25	EF-1	20 A	1	0.5	0.6								26
27	UV Controller	25 A	1			0.5	0.5			1	20 A	Ultrasonic Flow Meter	28
29	UV PDR	15 A	1					0.5	0.5	1	15 A	UV PDR	30
31	DO Analyzer	20 A	1	0.5	1					1	20 A	EWH-1	32
33	EWH-1	40 A	2			0.1	3			2	40 A	EWH-1	34
35	Generator Control Panel	20 A	1					1	3				36
37	Generator Battery Charger	30 A	2		0.2					1	20 A	Honeywell Chart Recorder	38
39						1	0.5			1	20 A	SQC Panel	40
41	Generator Block Heater	40 A	2					1.5	0.7	1	20 A	Lighting Room 101, 104, 105, 103	42
43				0.5	0.1					1	20 A	Lighting ELECTRICAL 102	44
45	SPARE	20 A	1			0	0.1			1	20 A	Lighting	46
47	Heat Trace	20 A	1					0.1	0	1	20 A	SPARE	48
49	Overhead Door	20 A	1	0.5	0					1	20 A	SPARE	50
51	Lighting Control Panel	20 A	1			0.5	0			1	20 A	SPARE	52
53	SPARE	20 A	1					0	0	1	20 A	SPARE	54
55	SPARE	20 A	1	0	0					1	20 A	SPARE	56
57	SPARE	20 A	1			0	0			1	20 A	SPARE	58
59	SPARE	20 A	1					0	0	1	20 A	SPARE	60
			Total Load:	16.2 kVA		18.8 kVA		18.1 kVA					

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	958 VA	100.00%	958 VA		
Mechanical	4100 VA	70.00%	2870 VA	Total Conn. Load:	53138 VA
Motor	34700 VA	100.00%	34700 VA	Total Est. Demand:	50218 VA
Receptacle	13380 VA	87.37%	11690 VA	Total Conn. Current:	147 A
				Total Est. Demand Current:	139 A

Remarks:

LIGHT FIXTURE SCHEDULE - INTERIOR LIGHTING

FIXTURE TYPE	FIXTURE NAME	DESCRIPTION	VOLTAGE	MAXIMUM ALLOWED WATTAGE	LAMP TYPE	COLOR TEMPERATURE	DELIVERED LUMENS	ACCEPTABLE MANUFACTURERS
F1	LED FLAT PANEL	2'x4' LED FLAT PANEL, WHITE HOUSING, WHITE FROSTED LENS, SURFACE MOUNT KIT, 0-10V DIMMING.	120 V	38 W	LED	3500K	4000	LITHONIA EPANL 2x4, METALUX 24FP, COLUMBIA CFP
F2	LED FLAT PANEL	2'x4' LED FLAT PANEL, WHITE HOUSING, WHITE FROSTED LENS, SURFACE MOUNT KIT, 0-10V DIMMING.	120 V	46 W	LED	3500K	4800	LITHONIA EPANL 2x4, METALUX 24FP, COLUMBIA CFP
F3	6" SHOWER DOWNLIGHT		120 V					
F4	LED STRIP FIXTURE	4" WIDE X 4' LONG, SURFACE MOUNT OR SUSPENDED, FROSTED DROP LENS, WIDE DISTRIBUTION, DAMP LOCATION LISTED.	120 V	41 W	LED	3500K	5000	LITHONIA Z1LD, METALUX SNLED, COLUMBIA MPS
F5	UNDER CABINET LIGHT		120 V					
FEM	EMERGENCY LIGHT FIXTURE	FLAME RETARDANT THERMOPLASTIC HOUSING, SELF DIAGNOSTICS AVAILABLE, UL 924 LISTED EMERGENCY BATTERY WITH A MINIMUM OF 90 MINUTES OF RUNTIME.	120 V					HUBBELL – PROGRESS LIGHTING – PE2EU, COOPER - SURE-LITES – AP2SQLED, LITHONIA LIGHTING – EU2C
FX	EXIT LIGHT	DIE CAST ALUMINUM EXIT, WHITE HOUSING, DIRECTIONAL ARROWS AND NUMBER OF FACES AS PER DRAWINGS, UNIVERSAL CEILING OR WALL MOUNT, STENCIL FACE, RED LETTERS, UL LISTED, MEETS UL924, NFPA 101, NEC, AND OSHA ILLUMINATION STANDARDS, FIVE YEAR WARRANTY.	120 V	4 W	LED			DUAL-LITE SE, LITHONIA LE, SURE-LITES CX

LIGHT FIXTURE SCHEDULE - EXTERIOR LIGHTING

FIXTURE TYPE	FIXTURE NAME	DESCRIPTION	VOLTAGE	MAXIMUM ALLOWED WATTAGE	LAMP TYPE	COLOR TEMPERATURE	DELIVERED LUMENS	ACCEPTABLE MANUFACTURERS
EX1	EXTERIOR WALL PACK	18"W X 9"D X 9"T, DIE-CAST ALUMINUM HOUSING, TYPE IV DISTRIBUTION, WET LOCATION LISTED, PROVIDE WITH INTEGRAL 90 MINUTE EMERGENCY BATTERY. FINISH COLOR TO BE SELECTED BY ARCHITECT.	120 V	29 W	LED	4000K	3053	LITHONIA WSQ, OR APPROVED EQUAL

GENERAL NOTES - LIGHT FIXTURES:

A. ALL FIXTURES SHALL BE CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) TO US SAFETY STANDARDS-UL, ETL, CSA.

B. ALL FIXTURES SHALL BE PAINTED AFTER FABRICATION.

C. THIS SCHEDULE DOES NOT NECESSARILY INDICATE TYPE OF TRIM REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TRIM TYPE WITH TYPE OF CEILING SYSTEM AT EACH INSTALLATION LOCATION. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS AND PROVIDE ACCORDINGLY.

D. ALL FIXTURES LOCATED IN AN EXTERIOR AND/OR UNCONDITIONED ENVIRONMENT SHALL BE PROVIDED WITH HOUSINGS, LAMPS, AND/OR DRIVERS SUITABLE FOR THIS ENVIRONMENT.

E. ALL LED FIXTURES SHALL BE LM-79/LM-80 TESTED AND COMPLIANT.

F. ALL LED FIXTURES SHALL BE PROVIDED WITH A MINIMUM OF FIVE-YEAR WARRANTY. REFER TO SPECIFICATION SECTION 265100 FOR ADDITIONAL REQUIREMENTS.

G. LUMENS LEVELS LISTED IN THIS SCHEDULE ARE INTENDED TO BE DELIVERED LUMENS. SUBMITTALS ARE TO INCLUDE THE DELIVERED LUMEN TOTAL OF EACH FIXTURE AND MUST MEET THE LEVEL INDICATED FOR EACH FIXTURE TYPE.

H. WATTAGE LISTED IN THIS SCHEDULE ARE TO BE MAXIMUM ALLOWABLE WATTAGE FOR EACH FIXTURE. SUBMITTED LIGHT FIXTURES MUST NOT EXCEED LISTED MAXIMUM WATTAGE TO ACHIEVE SPECIFIED DELIVERED LUMENS.

RQAW

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
	ADD #001	01/27/2023

Project #: 21-400-194-1
Designed By: DJ
Drawn By: DJ
Checked By: DB
Date: 12/28/22

DUSTIN E. BARTH
REGISTERED
No. 12200401
STATE OF
INDIANA
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

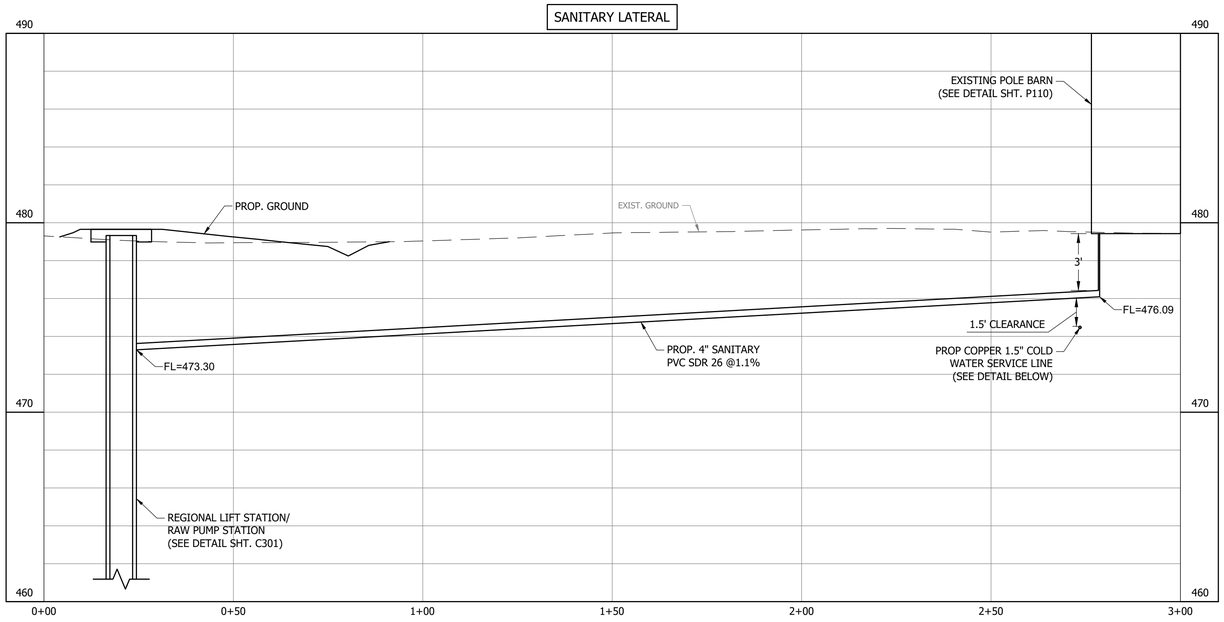
N

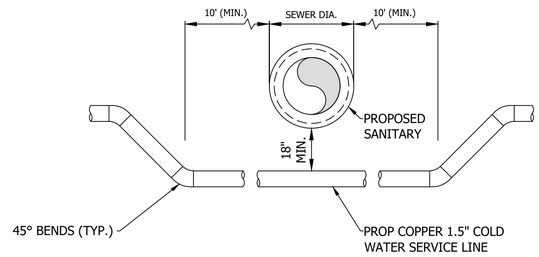
ELECTRICAL SCHEDULES

E600

1/26/2023 12:26:09 PM

ATTACHMENT #4





8 OFFSET WATER / SANITARY DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

PERMIT SET

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
1	COMMENTS	1/13/23

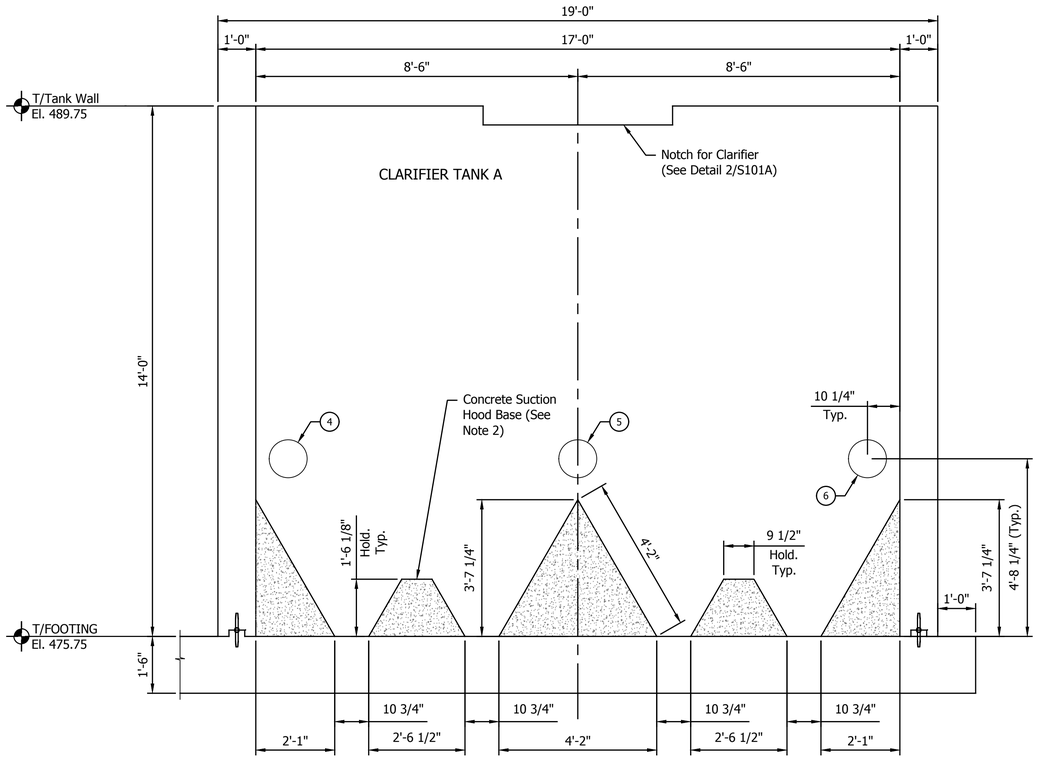
Project #: 21-400-194-1
Designed By: MTR
Drawn By: KLB
Checked By: ALC
Date: 1/26/2023

20' 0 20' 40'
GRAPHIC SCALE

PROFILE LAYOUT (2 OF 2)

C401

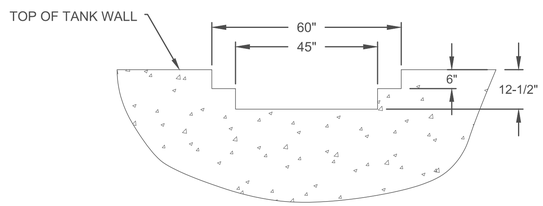
PRINT DATE: 1/26/23
PLOT SCALE: 1:1 EDIT DATE: 1/16/23 - 2:47 PM EDITED BY: NSMITH DRAWING FILE: M:\04968.000 WHEATLAND WWTP\CAD\DWGS\03-04968- P&P.DWG



SECTION (D / S101A)
Scale: 1/2" = 1'-0"

NOTES:

1. Reinforcing not shown for clarity. see section A/S101.
2. It is important that concrete base dimensions are within ±1/4" tolerance. For a contractor to meet this tolerance, Aero-Mod will supply form anchor brackets as per scope of services.
3. See S101 for link seal insert location chart.



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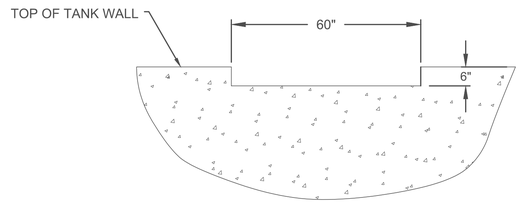

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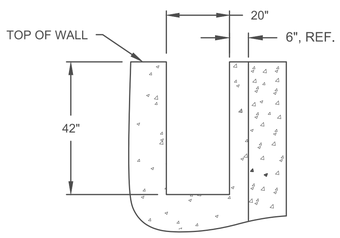

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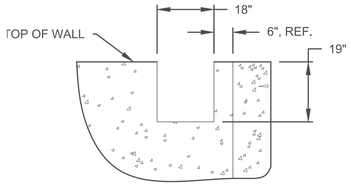

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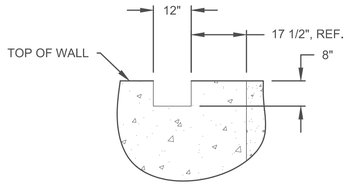

NOTCH DETAIL #5

⚠1

RQAW
INTENTIONAL INNOVATION

STRUCTURAL DETAILS

WHEATLAND WASTEWATER SYSTEM IMPROVEMENTS
DIVISION I - WASTEWATER TREATMENT PLANT AND REGIONAL LIFT STATION
WHEATLAND, IN 47597

#	Revision	Date
1	ADDENDUM #1	1/23

Project #: 21-400-194-1
Designed By: KJJ
Drawn By: DRD
Checked By: KJJ
Date: 01/05/2023

KENNETH J. JANSING, JR. REGISTERED PROFESSIONAL ENGINEER No. 10809588 STATE OF INDIANA

Kenneth J. Jansing

200' 0 200' 400'
GRAPHIC SCALE

STRUCTURAL DETAILS

S101A

ATTACHMENT #5

PRE-BID MEETING MINUTES

Client: Town of Wheatland

Project Name: Wheatland Wastewater System Improvements Division I and Division II

Project ID: 21-400-194-1

Meeting Location: Wheatland Water Department – 121 IN-550 Wheatland, IN 47597

Date: January 23rd, 2023

Goals

- Introductions – *RQAW started the meeting at 10:00 am*
- Scope of Work
- Document Availability
- Contract Milestones
- Addenda
- Special Considerations
- General Questions/Discussion

Introductions

- Town
- Kleinpeter Consulting Group LLC – *Kleinpeter discussed labor standards followed for the project*
    - *Fringe benefits are to be paid as straight amounts*
    - *Payrolls shall be submitted weekly*
    - *Contractors can have apprentice but must have a DOL certifications*
    - *If you have multi-skilled workers, they need to be classified each day on what they do. (Laborer vs. Operator)*
- RQAW
    - *RQAW noted the following subconsultant responsibilities:*
        - *Process design - Binkley & Barfield*
        - *Process electrical, instrumentation, and controls - Sims Durkin & Associates*
        - *Pole barn building electrical, HVAC, and plumbing - RQAW MEP Department*
        - *Structural – RQAW Bridge Department*
    - *As noted later in the notes, all contractor questions should be directed to Madison Lydy at mlydy@rqaw.com.*
- Sign-in Sheet

Scope of Work

- Division I:
    - New AeroMod Package WWTP (Extended Aeration)
    - Site Design, Grading, and Electrical

- Renovation of Existing Pole Barn into Controls Space
- Lift Station
- UV Disinfection System
  - *RQAW noted that the UV system was designed around the Trojan 3200K model.*
- Post-Aeration System
- Mandatory Alternates
  - *RQAW explained that rough plumbing to the pole barn is included in the base bid, while finishing out the space with a bathroom and small office is one of the mandatory alternates.*

- Division II:
  - Gravity Sewer System (about 5 miles of 8" PVC)
  - Manholes
    - *RQAW confirmed the laterals will be extended downstream of existing septic systems, if present.*
    - *The Town sent a survey to residents requesting information on their sanitary sewer systems. While not complete, the Town is able to share current results with bidders. At the moment, the results are*
      - *9 residents with no septic system*
      - *5 residents did not know if they had a septic system*
      - *7 residents confirmed they had septic systems, with overflows to the ditch.*
  - Laterals
    - *RQAW noted that they believed most of the proposed laterals are to be 4 inch, and commercial properties are 6-inch laterals.*
  - RR and INDOT Crossings

Document Availability

- RQAW Online Plan Room
  - Electronic documents can be downloaded from: https://rqaw.com/public-documents/

Milestone	Date
Pre-bid Meeting	January 23rd 2023
Last Day for Questions	January 25th 2023
Final Addendum	**January 27 th 2023**
Open Bids	**January 31 st 2023 (9AM)**
Close of SRF Loan	March/April 2023
Anticipated Notice to Proceed	**March/April 2023**

Bid Overview

- Bids Due – **Tuesday January 31 st, 2023 at 9:00 AM**
    - Bid Location – Sealed bids submitted to the attention of the Deputy Clerk at the Town of Wheatland, P.O. Box 219, Wheatland, IN 47597
    - Bid Opening will occur at 9:00 AM at the Wheatland Water Department (121 IN-550, Wheatland, IN 47597)
- Contract
    - Division I
        - Lump Sum Contract
        - Mandatory Bid Alternates (Adds/Deducts)
    - Division II
        - Unit Price Contract.
        - Mandatory Bid Alternates (Adds/Deducts) *RQAW reminded bidders that they should provide the price* difference *between the base bid and requested alternate in the bid form, rather than the total revised price.*
- Documents due at Bid **(PER DIVISION SUBMITTING FOR. ONE BID PACKAGE PER DIVISION)**
    - Completed Bid Form – Section 00 41 13
    - Required Bid Security
    - List of Proposed:
        - Subcontractors
        - Suppliers
    - List of Project References
    - Evidence of Bidder's Authority to do business in the State of Indiana
    - Bidder's state or contractor license number
    - Acknowledgement of Addendum(s)
    - Contractor's Bid for Public Work – Form 96
    - Wage/Fringe Benefit Certification
    - GPR Bid Breakdown
    - American Iron and Steel Certification
    - Form OEE-1
    - Form OEE-2
    - Good Faith Efforts Worksheet
    - E-Verify Affidavit
    - Bids remain in effect for 60 days

Contract Milestones

- Final Completion – as directed by the specifications, approximately 560 days to final completion for each project, see specifications for details.
    - *RQAW has updated the Substantial Completion timeline to 540 calendar days for Division I and Division II.*
    - *RQAW has updated the Final Completion timeline to 600 calendar days for Division I and Division II.*

- Liquidated Damages: $1,500 per day for missing Substantial Completion. $750 per day for missing Final Completion

Addenda

- All questions to be sent in writing to Aaron Crow or Madison Lydy no later than Wednesday, January 25th, 2023:
    - Email: mlydy@rqaw.com
    - Mail: 8770 North St., Ste. 110, Fishers, IN 46038
- Addendum No. 1
    - Issued no later than Friday, January 27th, 2023.
    - Updates
        - Davis-Bacon Wage updates
        - Select specification updates
        - Sheet updates (including control panel sheets)
        - Q/As
        - *Sims Durkin & Associates noted that their portion of the addendum will include:*
            - *Missing details for lighting*
            - *Missing symbols for UV*
            - *Div 25 specs are incorrect. Most specifications in this division will have minor revisions, but 25 13 00 will be replaced in total.*
        - *BBI noted that the hydraulic profile will be revised to reflect correct sidewater depths. No concrete elevations are anticipated to change.*

General Questions/Discussion

- Funding by ~~Office of Community and Rural Affairs (OCRA) and~~ SRF loan.
- IDEM, CSX, and INDOT ROW permits have been submitted and are in process, where applicable.
    - *RQAW elaborated that a public comment was made during IDEM's antidegradation demonstration process. This comment was concerned about the proximity of the wastewater treatment plant (WWTP) to the Town's drinking water wells. RQAW provided justification to IDEM in a recent meeting and believes that the IDEM construction permit will be issued soon.*
    - *RQAW noted that they were attempting to amend the approved CSX permit. The amendment would be to shift the sewer into the middle of the road, as shown in the bid documents.*
- Utility locations will need to be confirmed in the field.
- Potential Staging Areas
    - On Town-owned parcel where existing WTP is.
    - Town Hall lot prior to construction.
        - *RQAW's Architecture Department stated that the earliest the Town Hall project would begin breaking ground is in Fall 2023.*
    - Additional to be discussed with town.

        - *RQAW estimated that approximately 2000 truckloads of soil will be removed during the project. The Town noted that there are three farmers willing to take all excess topsoil.*
- Site Tours
    - A site tour will be conducted immediately after the Pre-Bid Meeting if requested.
    - All other site tours need to be coordinated individually with Erika Goble at (812) 321-2340
- *Questions and Answers*
    - *Q: SBL - Could the septic systems be staked?*
        - *A: RQAW – The Town and RQAW can ask residents to do so after bid-award and along with complete survey results.*
    - *Q: Wabash - Any thoughts of extending the bid?*
        - *A: RQAW: That conversation is in progress.*
    - *Q: Graves - If the Division I contractor is required to have the wet well installed in 60 days, whose responsibility is it to get that built out and cleaned out?*
        - *A: RQAW – That is the Division I contractor responsibility for the final cleanout prior to pumps being installed. Further clarification on the bypass pumping and lift station wet well cleaning requirements will be provided in the addendum.*
    - *Q: Graves – In response to the wet well conversation, is there a manhole near the LS?*
        - *A: RQAW -Yes, just upstream of the wet well, Division II contractor is responsible for setting that manhole.*
    - *Q: Graves - What type of holding capacity does the upstream sewer have? We are concerned that attempting to pump out of this manhole will cause backups of the sewer system.*
        - *A: RQAW – We will clarify bypass pumping and lift station wet well cleaning requirements in the addendum.*
    - *Q: Wabash – Do you have any suggestions on insurance requirements for the boring under the railroad?*
        - *A: RQAW/Town – No suggestions at this time.*
    - *Q: Wabash - Will INDOT require settlement monitoring plan prior to approving the right-of-way permit? Whose responsibility is it to pay for the settlement plan?*
        - *A: RQAW - Paid for by contractor under contract item Construction Engineering, as shown in the project manual.*
    - *Q: SBL – Did CenterPoint say when they will be replacing gas main throughout Town?*
        - *A: Dashiell – Has not confirmed this timeline while working on the ongoing water project.*
    - *Q: SBL* - Will flaggers be needed for the jack and bore?
        - *A: Town - We did not need a flagger but did need an inspector – the Town pays for inspectors' costs.*
    - *Q: Graves – Is there a Green Project Reserve (GPR) requirement on this project?*
        - *A: RQAW – There is a GPR Form provided in the Bid Documents, but we will not be pursuing GPR for Division I or Division II.*
    - *Q: HT Muni – Noted that they have information on the Aeromod plant for Division I contractors for that he is willing to share.*

- *Q: Will compaction testing be required? What is the frequency of testing?*
  - *A: RQAW – We will look at frequency of testing and get back to you.*

Bid Opening Sign-in Sheet

Town of Wheatland

Wheatland Wastewater System Improvements Project Divisions I and II

01/23/23

RQAW

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