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AUGUST 16, 2022

CONTRACT NO. 1760 G, E, H, P

CSO BYPASS AND DISINFECTION

ADDENDUM NO. 4

All bidders bidding Contract No. **1760 G, E, H, P** shall read and take note of this Addendum No. 4. The Contract Documents for **Contract No. 1760 G, E, H, P – CSO Bypass and Disinfection** are hereby revised and/or clarified as stated below.

Acknowledgement of Contract No. 1760 G, E, H, P ; Addendum No. 4

The Acknowledgement attached to Addendum No. 4 is to be signed and returned immediately via **email** to **Kathleen P. Uniatowski** at contract.clerks@alcosan.org and acknowledged with Bidder's Proposal.


Kimberly Kennedy, P.E.
Director – Engineering and Construction

**ACKNOWLEDGEMENT OF
CONTRACT NO. 1760 G, E, H, P – CSO BYPASS AND DISINFECTION**

ADDENDUM NUMBER 4

FIRM NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

AUGUST 16, 2022

CONTRACT NO. 1760 G, E, H, P

CSO BYPASS AND DISINFECTION

ADDENDUM NO. 4



JK Kostelac
8.16.22

AUGUST 16, 2022

CONTRACT NO. 1760 G, E, H, P

CSO BYPASS AND DISINFECTION

ADDENDUM NO. 4

A. Contract Documents – Volume 1

1. Article 3 - General Contract Conditions
 - a. Replace the existing Article 3 – General Contract Conditions in its entirety with the attached revised copy (Version August 2022).

B. Contract Specifications – Volume 2

1. N/A

C. Contract Specifications – Volume 3

1. Replace Pipe Support Systems (Section 40 05 07) in its entirety with the attached reissued specification.
2. In Pipe and Pipe Fittings – Basic Requirements (Section 40 05 00), Para. 3.2.H.7. Replace the existing statement with the following: "Drip trays and miscellaneous piping shall be supported using 316 stainless steel supports in accordance with Section 40 05 07."
3. In Pipe and Pipe Fittings – Basic Requirements (Section 40 05 00), Para. 3.12.A.2.a. Change "Schedule 10" to "Schedule 40."
4. In Pipe – Steel, (Section 40 05 24), add the following to section 2.5:

G. Corrosion Protection:

1. Clean all welded stainless steel and welds after fabrication.
2. Pre-clean all outside weld areas to remove splatter with the use of stainless steel brushes and/or deburring tools and finish grinding wheels.
3. All tube, piping, fitting product to be immersion pickled subsequent to manufacturing and fabrication operations and prior to shipping.
 - a) Pickling solution of 6 to 10 percent nitric acid and 3 to 4 percent hydrofluoric acid.
 - b) Temperature and exact concentrations to be such only a modest etch is produced but all oxidation and ferrous contamination is removed from metal surface.
 - c) All pickling solution residues are to be neutralized after pickling.

5. In Process Control Systems Instrument List (Section 40 61 97), at the end of this section, delete the existing Process Control Instrument list and replace it with the attached revised version.
6. In Chain-and-Flight Collection System (Section 46 43 11), Para. 2.4.I.3. add “#14, 1 ¼ length”, after the word “minimum”.
7. In Chain-and-Flight Collection System (Section 46 43 11), delete Para. 2.4.I.4.

D. Contract Drawings

1. On drawing 750-M-41, change all centerline call outs for SSP-72”-PEF-PE from “716.90” to “717.33”.
2. On drawing 822-G-10, change note referencing 822-G-02 to reference drawing 822-G-11.
3. On drawing 832-G-10, change note referencing 822-G-02 to reference drawing 822-G-11.
4. On drawing 822-M-40, change all centerline call outs for SSP-72”-PEF-PE from “716.90” to “717.33”.
5. On drawing 840-S-43, delete the first sentence of Note 4.
6. Replace drawing 840-M-10 with the attached updated sheet. Note for clarification, Item 17 on Addendum 3 should be deleted and disregarded.
7. Replace drawing 840-M-11 with the attached updated sheet.
8. Replace drawing 840-M-12 with the attached updated sheet.
9. Replace drawing 840-M-14 with the attached updated sheet.
10. Replace drawing 000-EDM-10 with the attached updated sheet.
11. Replace drawing 000-EDM-11 with the attached updated sheet.
12. Replace drawing 840-ES-03 with the attached updated sheet.
13. Replace drawing 840-ET-10 with the attached updated sheet.
14. Replace drawing 840-ET-11 with the attached updated sheet.
15. Replace drawing 840-ET-12 with the attached updated sheet.
16. Replace drawing 840-SDM-10 with the attached updates sheet.
17. On drawing 842-ES-01, add the following note: “Replace existing panelboards as shown/scheduled on the left-hand side of this drawing with new panelboards as shown/scheduled on the right-hand side of this drawing. Panelboard LPB001-842 is an integral transformer/panelboard device (i.e. minipowerzone).

18. On drawing 842-ET-01, at call out labeled “LPB001-842 15kVA MPZ 24 branch”, add “provide new to replace existing. See sheet 842-ES-01 for panelboard schedule”.
19. On drawing 842-ET-01, at call out labeled “Existing PPB001-842”, add “provide new to replace existing. See sheet 842-ES-01 for panelboard schedule”.
20. On drawing 900-M-41 and 900-M-42, change note for "Drip Tray" to "FRP Drip Tray and 316 Stainless Steel Supports"

E. Questions

Response to Question #21, (from addendum #2):

Question: Reference specification section 40 05 07 that generally calls for carbon steel supports with galvanized finish such as 2.2 A 1 a & b or 2.2 F 1 a & b, whereas a majority of the pipe support standard details on MD-61 through MD-65 indicate SS pipe supports. Please clarify which pipe systems, pipe materials, or plant locations*** require the use of SS supports. Where SS supports are required, please confirm that 304SS support material & connecting hardware is acceptable.

*** As an example area that requires clarification: Reference DWG 840-M-11 (180), the 10” SS PAC line exposed on top of tank calls for DET 21/MD-62 (TYP.), which is a SS pipe stand detail, while 20” SS PAC line on inside of tank wall notes DET 46/MD-65 which is a CS GALV wall bracket detail. Clarification is requested on the location/application of SS supports for SS pipe lines, on all lines in tanks (submerged or nearly submerged), on all lines in exterior exposed locations, etc.

Answer: Refer to re-issued Section 40 05 07 (Pipe Support Systems). The contractor is required to submit PE stamped calculations and layout for all piping support systems.

Response to Question #22, (from addendum #2):

Question: Reference specification section 40 05 07 under F Trapeze Hangers 2 a calls for FRP, 2 b calls for Unistrut.

- a. Please clarify if only chemical containing pipes in Chemical Storage & Feed Areas require FRP Trapeze Hangers, or if all piping in these areas require FRP Trapeze Hangers.
- b. Please confirm FRP Trapeze Hangers (Unistrut) are acceptable to use in exterior exposed locations. The specification only requires FRP supports under F 2 Trapeze Hangers (in Chemical Storage & Feed Areas).
- c. Please clarify if all hangers types used for chemical containing pipes must be FRP, or only if Trapeze style Hangers must be FRP.
- d. Please clarify if all piping in Chemical Storage & Feed Areas require all hangers types to be FRP, or only if Trapeze style Hangers used on all piping in these areas must be FRP.

Answer: Refer to re-issued Section 40 05 07 (Pipe Support Systems). The contractor is required to submit PE stamped calculations and layout for all piping support systems

Response to Question #26, (from addendum #2):

Question: Reference DWG 900-M-41 & -42 (196 & 197) that call for drip pan & drip pan supports. Specification 40 05 00 3.2 H 3 a indicates drip pans are to be 16ga. 316SS. Please confirm that these are the only (2) locations where these drip pans are required. Please clarify if the drip pan supports need to be 316SS like the pans.

Answer: Refer to re-issued Section 40 05 07 (Pipe Support Systems). The drip pans shall be FRP. For drip pan pipe supports, the contractor is required to submit PE stamped calculations and layout for all piping support systems.

106. Question: We are looking at the Heat Tracing Cable Schedule from Section 404113 Page 5 and 6 and the Pipe, Duct, and Equipment Schedule from Section 404200 Page 9. We are having difficulty matching the requirements of the referenced Pages with the floor plan drawings, sections, etc. It seems as though the Process Flow Diagrams 750-M-01 thru 902-M-01 are referenced along with other Drawings which makes it difficult to determine the validity of the quantities shown on the referenced Schedules. Please review and advise.

Answer: Quantities are as noted in the specifications. Refer to Addendum 2 regarding heat tracing and insulation tables.

107. Question: Drawing 840-M-10 Mechanical Plan BCCT - North, Keynotes 14. states "ultrasonic" but no description is given such as the other Ultrasonic Level Sensors in Keynotes 11. and 12. Please assign the appropriate level sensor identification.

Answer: See Re-issued drawings 840-M-10, 840-M-12, 840-M-14, 840-ES-03, 840-ET-10, 840-ET-11, 840-ET-12.

108. Question: Drawing 900-M-11 Sodium Hypochlorite RAS, EFW, and Transfer Pumps Plan, Note 1 states to "Heat trace and insulate all new piping installed above ground and in trench". It also says to "Replace any existing heat trace which is damaged or demolished during construction". Please verify that all new piping shown on Drawings 900-M-11, 900-M-41, 900-M-42, and 900-M-43 is to be heat traced and insulated.

Answer: Heat tracing requirements for new piping called out in Section 40 41 13, which was re-issued in Addendum No. 2.

109. **Question:** DRAWING 842 ES-01 SHEET 303 OF 359 DETAILS THE REQUIREMENTS FOR (2) 100A PANELS BOTH LABELED LPB001-842 (1) NEW AND (1) EXISTING. DRAWING 842-ET-10 SHEET 305 OF 359 DETAILS THE REQUIREMENT FOR (1) 100A PANEL AND (1) MINI-POWER ZONE.

A. PRESENTLY ARE THERE (2) EXISTING PANLES LPB001-842?

Answer: Yes, there are presently two existing panelboards. Replace the existing panelboards / mini powerzone with panelboards / mini-powerzone as shown/scheduled on the right side of sheet 842-ES-01

B. IS (1) OF THE TWO EXISTING PANELS LPB-001-842 A MINI POWER ZONE?

Answer: Yes, the existing LPB001-842 (the 120/240 volt, single phase panelboard) is an integral transformer / panelboard. Replace the existing LPB001-842 with the new, larger integral transformer / panelboard as shown/scheduled on the right side of sheet 842-ES-01.

C. THE PANEL SCHEDULE ON DRAWING 842-ES-01 DOES NOT LIST THE REQUIREMENT FOR 15KVA MINI POWER ZONES, SHOULD BOTH PANELS LPB001-842 EXISTING AND NEW BE MINI NEW POWER ZONES?

Answer: Yes, the existing LPB001-842 (the 120/240 volt, single phase panelboard) is an integral transformer / panelboard. Replace the existing LPB001-842 with the new, larger integral transformer / panelboard as shown/scheduled on the right side of sheet 842-ES-01.

110. **Question:** Reference Drawing 840-MDM-10 Sheet 141: Regarding the demolition of existing chlorine analyzer enclosure and sampler piping. Are there any details for the demolition of the existing concrete structure that supports the analyzer?

Answer: See re-issued drawing 840-SDM-10.

111. **Question:** Reference drawing 822-G-10 (sheet 23) : There is a note referencing drawing 822-G-02. That drawing was not issued. Please advise.

Answer: The note should reference Drawing 822-G-11.

112. **Question:** Reference drawing 840-S-43 (sheet 101) section B : Note 4 references drawing 840-S-13 for top slab elevations. There are no elevations shown on that drawing. Please advise.

Answer: Final elevations to be coordinated with the C-drawings. Slope to match slope on C-drawings.

113. **Question:** Reference drawings 000-EDM-10&11 (sheets 248 & 249) and drawings 000-ESP-10,11,12,13 (sheets 250,251,252,253) : Regarding the demolition, removal, and replacement of the “medium voltage duct bank running over the top of flow regulator chambers”, please confirm that this can be done in sections as defined by the first four phases. Please also confirm that the “medium 5kV medium voltage conduit running along exterior north wall of 708 building” will be in place, under separate contract, prior to the beginning of our five-phased work of the general contract. And, please confirm that this 5kV service will provide the complete by-pass of the medium voltage duct bank (over the regulator chambers) that we are to remove, for the entire duration of the first four phases, prior to us then removing it.

Answer: Confirmed, the medium voltage conduit/cable in Area 708 is being installed under Contract 1739. Removal of existing 5 kV in sections is acceptable. Confirming 5 kV cable over Area 708 is the bypass for the 5-kV duct bank over the regulator chambers.

114. **Question:** Reference drawings 000-EDM-10&11 (sheets 248 & 249) and drawings 000-ESP-10,11,12,13 (sheets 250,251,252,253) : Regarding the demolition, removal, and replacement of the “low voltage duct bank run over the top of flow regulator chambers”, please confirm that, unlike that of the medium voltage duct bank, this cannot be done in sections, since there is no bypass shown. And, since there is no bypass for this duct bank, we will be required to perform demolition, temporary shoring, new concrete and mechanical construction, while the Electrical contractor performs the new low voltage duct bank and conduit work, all in and around this existing duct bank, before being able to remove it. Or, is it possible for the Electrical contractor to install a bypass similar to that of the medium voltage duct bank bypass ?

Answer: The referenced existing duct bank, as well as control wiring conduits must be kept in service to the operational flow regulators throughout construction. The E-Contract shall provide temporary power and control service to the on line Flow Regulator Chambers. This will allow the GC work associated with the installation of the new flow regulators to proceed as shown. We expect the EC will complete these temporary connections in phases as the GC conducts their Work in phases in those areas. However, the EC may choose different means and methods to provide this temporary connection and this must be coordinated between the Prime Contracts.

115. **Question:** Reference drawings 000-EDM-10&11 (sheets 248 & 249) and drawings 000-ESP-10,11,12,13,14 (sheets 250,251,252,253,254) : Please confirm that the new electrical MV manhole EMH-214 and the new electrical duct bank running along the west side of the CCT is to be in place prior to the removal of the existing electrical manhole EMH-108A/B and the removal of the existing medium voltage conduits in the trench along the east side of the CCT.

Answer: The contractor shall be responsible to conduct their sequence of work to maintain plant operations as specified in section 01 52 00, including submittal of a Maintenance and Operations Plan coordinated with the work of other contractors.

116. **Question:** Is there an electrical power MoPO available that defines the shut-downs, removals, relocations, activations (etc.) required to facilitate the work under the general package ?

Answer: The contractor shall be responsible to conduct their sequence of work to maintain plant operations as specified in section 01 52 00, including submittal of a Maintenance and Operations Plan coordinated with the work of other contractors.

117. **Question:** Reference drawing 822-M-40 (sheet 175): Regarding the replacement of the flow regulator pipe. Note that the existing centerline locations of the existing are different than the centerline locations of the new pipe. Since these will be significant in size, please provide a more specific detail, other than the general patching detail (SD64 on sheet 69) provided. We request dimensioned, engineered details, for the cut-out, reinforcement, and patch-back of the existing walls on both the effluent channel and aeration tank sides of the flow regulator chambers.

Answer: Deferred to addendum # 5.

118. **Question:** Reference the existing primary effluent channel : Please provide any available soil borings under the channel that can be used to determine what will be required for our contractor designed underpinning and-or shoring.

Answer: Available soils information is included in the Geotechnical Report, which has been provided as reference material and is not part of the Contract Documents.

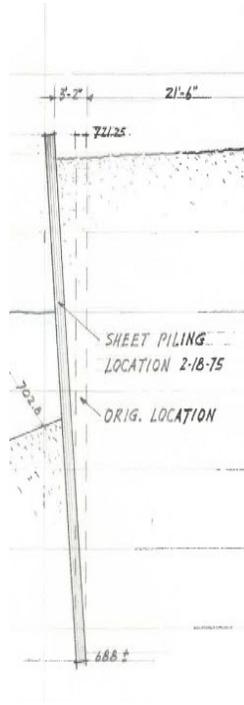
119. **Question:** Reference the reference documents issued with the bid documents : It is noted that the reference drawings show no deep foundations under the existing primary effluent channel, flow regulator chambers, and central pipe gallery. Please confirm that this is the as-built condition under the entire footprint of these structures.

Answer: Existing facilities are based on existing reference documents.

120. Question: Reference the central pipe gallery : Please provide loading/design parameters for the temporary support of the central pipe gallery as required during the excavation and installation of the auger-cast piles, designed to be installed below the existing central pipe gallery, for the new CSO bypass channel.

Answer: Central Pipe gallery supports shall be design for applicable Dead Loads, Live Loads, Traffic loads etc. as required by the building codes. Loads shall be determined by Professional engineer that designs temporary shoring

121. Question: Reference the inserted detail of the existing river wall near the new outfall location : Can this detail (dated 6-5-75) be added to the reference documents ? Is there any updated information on any further movement of this wall ? This will give us more accurate information to determine an attachment method for the river coffer dam sheeting to the existing river wall.



Answer: The noted detail is not believed to accurate. Information on the river wall is included in the Geotechnical Report, which has been provided as reference material and is not part of the Contract Documents.

122. Question: Current design drawings: 840-S-42 (Section A) 840-S-42 (Section E) do not show a slope in the flush water storage area to start at EL. 705.20' (gate opening invert). For effective flushing and operation of the flush gates a slope of 5% should be added to the Flush Water Storage Area (FWSA), behind each gate.

Answer: This was addressed in Add No. 3.

123. **Question:** Please provide the output shaft diameters and length, and confirm the length for all tanks.

Answer: Per contract documents, the contractor will need to field-verify any/all dimensions and existing conditions. Anticipated/known conditions/dimensions to date are listed in specification.

124. **Question:** Please provide the width/thickness (length-through-bore, LTB) of the existing torque overload and drive sprocket assembly. If possible, provide a shop drawing of the existing assembly.

Answer: Per contract documents, the contractor will need to field-verify any/all dimensions and existing conditions. Anticipated/known conditions/dimensions to date are listed in specification.

125. **Question:** If possible, please provide shop drawing information for the existing drive chain tensioner assembly that is bolted to the operating floor by the drive unit.

Answer: Existing shop drawing information will not be provided at this time.

126. **Question:** Spec Section 2.4.d Collector Chain Sprockets, point 5, calls for 17-tooth Upper Return Idler sprockets, and 19-tooth tail shaft sprockets. You cannot put a 19-tooth 18.45" PD sprocket in place of a 17-tooth 16.59" PD sprocket, as the flights will not be able to clear the turn. Please confirm.

Answer: Proposed modifications/changes to specified equipment will be reviewed during the submittal phase.

127. **Question:** On the Upper Effluent Cornershaft/Turnshaft, there currently is a 17-tooth 16.59" PD sprocket. With the water level being raised 2 inches, would you consider replacing the UEC 17-tooth sprockets with 23-tooth, 22.21" PD sprockets, so the return track does not have to slope downward the last 10 feet, but can remain at a constant elevation to the end at the UEC? This will allow for positive movement of floating solids all the way to the end of the upper return track and UEC. We understand that the first section of return track at the headshaft end will still have to slope upward 2".

Answer: Proposed modifications/changes to specified equipment will be reviewed during the submittal phase.

128. **Question:** Spec section 2.4.E. Drive Chain Sprockets,1.a, calls out "of solid construction" for the drive sprocket assemblies, which isn't possible. They have to be shear pin type or equal with a drive hub and a sprocket hub. Please confirm.

Answer: Substitutions/modifications deemed necessary by materials constraints shall be reviewed during the submittal phase.

129. **Question:** 2.4.F calls out bearings, but the shafting is not being replaced. Please confirm if bearings are being replaced.

Answer: Refer to Para. 2.2.C of the specification for equipment scope of work

130. **Question:** 2.4.I Wear Strips point 1 says no wearstrips on the return rails. Point 4 just below says "Attach return rails wearstrip to return rail...". Please confirm if wearstrips are required.

Answer: No wear strips shall be placed on the upper guide rails. Wear strips shall be placed on the floor. Refer to specification changes above.

131. **Question:** Under 1.5 Spare Parts it calls out one 17-tooth idler sprocket and one 23-tooth drive (headshaft) sprocket. Under 2.6 Spare Parts, A.2 calls for Two collector Sprockets...are these the same thing? Please confirm.

Answer: Confirmed. The two sprockets referenced in Part 2.6 are also listed in Para. 1.5.

132. **Question:** The worm gear drive mechanism design was upgraded in 2000 to a linear actuator and a pushrod and linkage system, utilizing AUMA multi-turn SAR actuator with linear drive. Please confirm that the current AUMA multi-turn SAR actuator with linear drive is preferred in lieu of the specified worm gear drive mechanism. If possible, please provide shop drawing literature for the existing or preferred actuator, along with required electrical controls and required classification/rating.

Answer: Existing actuators for rotating scum troughs are to remain.

133. **Question:** Shop Testing, c. Laboratory Tests, point 2.a requires a test on an ACA 4-square Tester. When the DuraMax CS715SS collector chain was first developed in 2009, the chain was ran on polyurethane sprockets in a 4-square test at the Rexnord Technical Center at a much higher speed (80 FPM) and higher load (2100 pounds tensile), while simulating 40 years of service (see the attached report). The water bath used simulated actual field conditions, and contained sodium chloride (as a corrosive element), colloidal silica (for sand and grit), and a small amount of water soluble oil (to simulate fats oils and greases in primary waste). This is the same testing center that Envirex, now Evoqua, ran their chain tests. We'd like to submit this test in lieu of conducting a new 4-square test. Please advise.

Answer: If the contractor wishes to propose a different testing protocol, this must be done after contract award. Acceptance of such a request cannot be guaranteed, and the contractor must bid in accordance with the work as described in the contract documents.

134. **Question:** Sodium Hypochlorite Tanks THS001-865 and THS003-865 are 21,000 gallon tanks that we are to relocate from Area 900 to Area 865. Please advise what the weight of each tank will be in order to figure the correct crane and rigging requirements.

Answer: The empty weight of each tank is approximately 5400 pounds. This is based on available drawings/information from others, and we cannot guarantee the accuracy of that information.

135. **Question:** As a follow-up to Addendum No. 3, Question No. 89 response, please tell us the total possible quantity of drain traps that might need to be removed and replaced with new 90 degree elbows and Tideflex Check Valves

Answer: There are 432 total drains (12 per bay, 20 bays on the west side, 16 bays on the east side)

136. **Question:** Please clarify how the upper return rail brackets are mounted to the wall in all of the existing Primary Clarifier Tanks

Answer: Per contract documents, the contractor will need to field-verify the existing conditions. New rails are mounted per manufacturer's recommendations

137. **Question:** Reference ADD#2, Q/A #31, Indicated that SPEC 40 05 00 & 40 05 24 should be used for SSP-72"-PEF-FE. Please confirm it is acceptable to use Mechanical Galvanized flange hardware per 40 05 24 2.2 J 2 on this 304SS pipe. If not, please clarify what flange hardware is required for this 304SS pipe

Answer: Provide 316SS hardware. Mechanical galvanized flange hardware is not acceptable.

138. **Question:** Reference ADD#2, Q/A #31, Please confirm immersion pickling w/passivation of SSP-72"-PEF-FE lines is NOT required.

Answer: Pickling with passivation **shall be** provided.

139. **Question:** Reference drawing 750-M-01 & 822-M-40 & ADD#2 Page 5 Article D-1 b & ADD#3 Q/A #105. Are the 3" sump discharge lines (at 8 Flow Regulator Chamber locations) CPVC or DIP-Epoxy Lined?

Answer: See Section 40 05 00 3.12.B.3 (re-issued in Addendum No. 3).

140. **Question:** Reference drawing 750-M-01 & 822-M-40 & ADD#2 Page 5 Article D-1 b & ADD#3 Q/A #105. Are 3" ball valves and check valves listed on 822-M-40 SW (associated with the 3" sump discharge lines) CPVC or Flanged Iron Body valves?

Answer: CPVC

141. **Question:** Reference Section 40 61 97 – Process Control Systems Instrument List. There are six FI's listed on the first page of the list used for the "Bisulfate Flow Indicators" and the "Sodium Hypochlorite Flow Indicators". Please provide the Manufacturer and Model numbers for these six Flow Indicators.

Answer: See re-issued Process Control Instrument List.

142. **Question:** Reference specification section 01 52 00, 1.6, 6, c that identifies installation of adjustable effluent weir plates, scum troughs and associated weir plates. This work is identified in future work phases in paragraphs 1.27 and 1.29 of the same section. Please clarify if adjustable scum weirs and effluent weirs are required during the phase identified in paragraph 1.6. Additionally, the summary of work 01 11 00 as issued in addendum 2, paragraph 1.2, B, 3 calls for temporary bulkheads and weirs as required for equipment and structure installation. Please identify the scope of these temporary weirs.

Answer: As noted in both 01 11 00 and 01 52 00 (Para 1.6), new adjustable weir plates will be installed during while the PSTs are out of service. These same weirs are later raised to a new elevation in later phases of the Work (Para 1.27 and 1.29).

Attachments:

Specifications:

- a. Article 3 – General Contract Conditions
- b. Section 40 05 07 (Pipe Support Systems)

Drawings:

- a. 840-M-10
- b. 840-M-11
- c. 840-M-12
- d. 840-M-14
- e. 000-EDM-10
- f. 000-EDM-11
- g. 000-ES-03
- h. 840-ET-10
- i. 840-ET-11
- j. 840-ET-12
- k. 840-SDM-10

Other:

Process Control Instrument List

*** * * * END OF ADDENDUM NO. 4 * * * ***

GENERAL CONTRACT CONDITIONS

ARTICLE 3

CONTRACT 1760 G, E, H, P

GENERAL CONTRACT CONDITIONS

ARTICLE 3

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GENERAL

3.1 DESCRIPTION OF WORK

A. THE PROJECT

This Article 3, General Contract Conditions ("Contract Provisions") is a part of that certain Contract Agreement (together with these General Conditions and the other Contract Documents, as defined herein, collectively referred to as the "Contract") awarded by the Allegheny County Sanitary Authority (the "Owner") to the Successful Bidder (hereinafter referred to as the "Contractor") for the construction of the **CONTRACT NO. 1760 G, E, H, P – CSO BYPASS AND DISINFECTION** at the Owner's wastewater treatment facility located in Pittsburgh, Pennsylvania (the "Facility"). This Contract is for work that will form a part of a larger capital improvements project at the Facility (the "Project").

B. THE WORK UNDER THIS CONTRACT

The intent and meaning of the Contract Documents is that the Contractor, in order to fulfill its obligations under the Contract, shall provide any and all labor, supervision, materials, supplies, services (including detailed engineering), equipment, tools, transportation, facilities and appurtenances thereto, whether temporary or permanent, and such other items as indicated, required or implied by the Contract Documents and as necessary for a complete, functional and operational **CSO BYPASS AND DISINFECTION** - (The "Work").

C. SEPARATE CONTRACTS

The Contractor acknowledges that the Owner may bid and award to other contractors (together with the subcontractors of such other contractors collectively referred to hereinafter as "Other Contractors") separate contracts, to provide certain general, civil, mechanical, instrumentation, controls, heating, ventilating and other construction items, facilities, equipment and/or services in connection with the Project and related to the Work. The Contractor shall cooperate fully with the Owner and Other Contractors in providing any and all design and construction information and details relative to the Work, in a timely manner, as necessary for the Owner to prepare the plans and specifications for such separate contracts, if any, or to enable the Owner's Other Contractors to complete the related work required thereunder (the Contractor and Other Contractors, not including their subcontractors, are sometimes collectively referred to hereinafter as the "Prime Contractors").

D. CONSULTANTS

Certain provisions throughout this document may refer to certain consultants retained by the Owner, including, without limitation, the Construction Manager, the Consulting Engineer(s), and describe certain of their duties and responsibilities. If any or all of the above-mentioned consultants are not retained for this Project, their

duties and responsibilities shall, unless otherwise specified, remain in the Owner's Director of Engineering and Construction ("Engineer") or the Engineer's written designee.

3.2 CONTRACT DOCUMENTS

A. DEFINITION

The term "CONTRACT DOCUMENTS" means the full and collective set of documents which form the Contract, including: Legal Notice; Article 1, Bid Form; Supplementary Information Package; Bid Bond; Certificate of MBE & WBE Participation; Non-Collusion Affidavit; Certificate of Compliance with the Pennsylvania Steel Products Procurement Act; Certification of Safety Procedures Compliance; Contractor's Experience Questionnaire; Prevailing Minimum Wage Predetermination; Article 2, Information for Bidders; Article 3, General Contract Conditions ; Article 4, Contract Agreement; Article 5, Performance Bond, Labor and Material Payment Bond, Maintenance Bond and associated Certificate of Satisfaction and Statements of Surety; Specifications; Drawings; all Addenda issued by the Owner prior to the time of opening of Bids, if any; any exceptions, changes, modifications and/or clarifications incorporated into or submitted by the Contractor along with its Bid, provided that each and every such exception, change, modification and/or clarification is specifically accepted by the Owner, in writing, as a part of the award of the Contract; and any duly executed changes, modifications and/or amendments to the Contract made and approved by the Owner's Board of Directors prior to Contract completion and any other form or document described as part of this Contract. The Contract Documents are all made a part of the Contract and supplement each other. It is the intent of the Contract Documents to describe the Work as a functionally complete system. Any work, materials or equipment that may be inferred reasonably from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for.

B. MODIFICATIONS ONLY IN WRITING

The terms, conditions, drawings, and specifications contained in the Contract Documents cannot be waived, altered or modified except by a written Change Order issued in accordance with Section 3.32 of these General Conditions entitled, "Proposed Change Orders, Change Orders, and Change Directives."

C. CLARIFICATIONS

If, during the performance of the Work, the Contractor finds, or is made aware of, a conflict, error or discrepancy in the Contract Documents, the Contractor shall so report to the Construction Manager in writing at once before proceeding with the work affected thereby, and, if appropriate, shall obtain a written interpretation or clarification from the Construction Manager in accordance with Section 3.31 of these General Conditions entitled, "Requests for Information and Field Instructions."

D. ORDER OF PRECEDENCE

In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based upon the following order of precedence, to be followed seriatim with item 1. being consulted first:

1. The Agreement between the Owner and the Contractor.
2. Special Conditions, if any.
3. General Contract Conditions.
4. Remaining Contract Documents (except the Specifications and Drawings).
5. Specifications (specific instructions shall supersede general instructions).
6. Drawings (details supersede plans and elevations; schedules supersede general notes).

If the foregoing order of precedence fails to resolve the conflict or discrepancy, then the better quality or greater quantity of Work shall be provided in accordance with the Owner's interpretation.

Except as otherwise specifically provided by the Owner in writing, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and (a) the provisions of any standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or (b) the provisions of any laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in a violation of any such law or regulation).

3.3 ADDITIONAL DEFINITIONS

Wherever the words defined in this Section, or pronouns used in their stead, occur in the Contract Documents, they shall have the meanings given as follows:

- A. AS-BUILT DRAWINGS refers to drawings that show how the constructed Work was installed or modified in size, arrangement, elevation, position, materials used, or other manner, from that shown on the Contract Documents.
- B. BASELINE CONTRACT SCHEDULE refers to the initial CPM formatted schedule, prepared by the Contractor, coordinated by the Construction Manager and acceptable to the Owner, covering the entire performance of the Work and incorporating such milestone dates as are necessary and appropriate to demonstrate that the Work will be completed in sufficient time to allow the achievement of the milestones set forth in the Contract Agreement.

- C. BENEFICIAL USE shall mean the acceptance of completed equipment and/or operating systems by the Owner prior to Substantial Completion.
- D. CHANGE ORDER refers to a document recommended by Construction Manager and Engineer and signed by Contractor and Owner that authorizes an addition, deletion or revision in the Work that results in a Contract Modification, an increase or decrease to the Contract Sum, and/or extension of the Final Completion Date on or after the date of the Agreement between Owner and Contractor. A Change Order, dependent upon the value, requires prior written authorization by the Owner's Director of Engineering and Construction or Executive Director and approval by the Owner's Board of Directors.
- E. CONSTRUCTION MANAGER means the independent firm retained by the Owner to coordinate and direct activities between the Owner and the Contractor and to assist with the Contract administration and the completion of this Project.
- F. CONSULTING ENGINEER(S), also referred to herein as "Final Design Consultant(s)," means the independent consultant(s) retained by the Owner to participate in the design the Project.
- G. CONTRACT SUM means the total amount payable to the Contractor by the Owner upon satisfactory completion of the Work under this Contract, as the same may be adjusted from time to time pursuant to the Contract Documents.
- H. DEFECTIVE WORK refers to Work that, in the sole discretion of the Owner, is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Final Acceptance of the Work (unless responsibility for the protection from damage thereof has been assumed in writing by the Owner).
- I. DIRECTOR OF ENGINEERING & CONSTRUCTION (the "Engineer") means that person holding the position of or acting in the capacity of Director of Engineering & Construction of the Allegheny County Sanitary Authority, acting directly or through agents properly authorized in a writing signed by the Director of Engineering & Construction, such agents acting within the scope of their authorized duties.
- J. DIRECTOR or EXECUTIVE DIRECTOR means that person holding the position of or acting in the capacity of Executive Director of the Allegheny County Sanitary Authority, acting directly or through the Director of Engineering & Construction or through agents properly authorized in a writing signed by the Executive Director or the Director of Engineering and Construction, such agents acting within the scope of their authorized duties.
- K. DRAWINGS mean the drawings which give guidance in illustrating the character and scope of the Work to be performed and which have been prepared or approved by the Consulting Engineer and are referred to in the full Contract Documents.

- L. FIELD INSTRUCTION refers to a writing issued by the Engineer through the Construction Manager which is necessary or appropriate to interpret or to resolve any ambiguity or error in the Specifications or Drawings or to make any minor change to the Specifications or Drawings that does not result in a net change in the Contract Sum or Contract Time or the quality of materials or workmanship. Field Instructions may not change or alter the terms and conditions of the Contract.
- M. FINAL COMPLETION DATE means the number of calendar days or date defined by the Owner for the completion of the Work as stated in the Contract Agreement. This includes the submission of all final closeout paperwork required by **Section 3.53** hereof.
- N. JOB SITE means the location on the Owner's premises at 3300 Preble Avenue, Allegheny County, Pittsburgh, Pennsylvania, 15233, where certain portions of the Work are to be performed or located, or any other location described in the Contract Documents.
- O. NOTICE TO PROCEED means written notice from the Owner to the Contractor to commence its Work in accordance with the Contract Documents. In issuing the Notice to Proceed, stipulations may be included as to time and other requirements that may condition commencement of the Work at the Job Site.
- P. PROJECT MANAGER means that person of the Allegheny County Sanitary Authority, named in a writing signed by the Director of Engineering & Construction, holding or acting in the capacity of Project Manager within the scope of particular duties entrusted to such person in writing.
- Q. PROJECT PROGRESS SCHEDULE refers to an integrated overall CPM formatted schedule, coordinated by the Construction Manager, which incorporates each Contractor's Contract Schedule.
- R. PROJECT RECORD shall mean all information, materials, and data of every kind and character and form (hard copy, as well as computer readable data), including without limitation, records, books, papers, documents, notes, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, payrolls, subcontractor files, original estimates, Applications for Payment, Change Orders, job cost reports, project notes, daily diaries, superintendent reports, drawings, receipts, vouchers, and memoranda, and any and all other agreements, sources of information and matter that may in Owner's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by the Contract Documents to the extent necessary to adequately permit evaluation and verification of: (a) Contractor compliance with the Contract Documents; (b) compliance with Owner's business ethics policies; and (c) compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or his payees.

- S. PROPOSED CHANGE ORDER refers to the first step in initiating a change in the Work, the Contract Sum, or the Contract Time. A Proposed Change Order (PCO) can be initiated in eBuilder by Owner, Engineer, or Construction Manager to make changes to the plans and specifications as a request for proposal from the Contractor to perform the change in Work.
- T. RECORD DRAWINGS refers to drawings that show how the equipment supplied under this Contract was manufactured. Record Drawings delivered to the Owner shall be certified as Record Drawings by the supplier and signed and, as appropriate under any applicable law and regulation, signed and sealed by a Licensed Professional Engineer.
- U. SCHEDULE OF VALUES refers to the listing of the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing amounts of progress payments during construction.
- V. SHOP DRAWINGS refers to all drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information submitted by the Contractor to illustrate materials or equipment for all portions of the Work.
- W. SPECIFICATIONS, or Technical Specifications, refers to those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain details thereof. The Specifications are found in Article 6.
- X. SUBSTANTIAL COMPLETION means the Work of the Contract (or a specified part of the Work as provided in the Contract Documents or otherwise determined by Owner) has progressed to the point where, in the opinion of the Engineer (as certified in writing by issuance of a Certificate of Substantial Completion), the Work (or a specific part of the Work) is essentially and satisfactorily complete in accordance with the Contract Documents, as modified by approved Change Orders, and is ready for full occupancy or use by the Owner in the manner intended without inconvenience or discomfort and includes all local, state and federal approvals, permits and licenses required by all governmental agencies having jurisdiction over the Project; provided, however, that the determination of Substantial Completion of the Work shall not be withheld if the failure to obtain same is due to design errors or other causes not the fault of or responsibility of the Contractor. The determination by the Owner on the status of Substantial Completion shall generally but not specifically mean or include: all materials, equipment, systems, controls, features, Underground Facilities, accessories, and similar elements are installed in the proper manner and in operating condition; spaces and surfaces (except minor areas or spaces) have been painted or otherwise finished throughout; masonry and concrete cleaned with any sealer or other finish applied; casework installed, complete with tops, sinks, fittings

and other related items installed and services connected; utilities and systems connected and functioning; site work essentially complete; permanent heating, ventilating, air conditioning and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; and other work to a similar state of essential and satisfactory completion. A minor amount of work, as determined by and at the discretion of the Owner, such as installation of minor accessories or items, a minor amount of painting, seeding, landscaping, minor replacement of defective work, minor adjustment of controls, completion or correction of minor site or exterior work that cannot be completed due to weather conditions, will not delay the determination of Substantial Completion. The procedure for Certification of Substantial Completion is described in Section 3.51 hereof entitled "Certification of Substantial Completion."

- Y. SUBSTANTIAL COMPLETION DATE means the number of calendar days or date defined by the Owner for Substantial Completion of the Work as stated in the Contract Agreement.
- Z. SUPERINTENDENT refers to the authorized agent appointed by the Contractor on a full-time basis to supervise and coordinate all Job Site activities performed by the Contractor or any subcontractor or supplier employed directly or indirectly by the Contractor.
- AA. WORKDAY means any calendar day excluding Saturdays, Sundays, and holidays.

Any pronouns used in relation to, or in place of, any of the words or combinations of words, herein defined, shall have the same meaning as the words or combinations of words themselves.

Wherever the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used in the Contract Documents, it shall be understood that the directions, requirements, permission, orders, designation or prescription of the Engineer are intended. Similarly, the words "approved," "acceptable," "suitable," "satisfactory," or words of like import shall mean approved by, acceptable to, suitable to, or satisfactory to the Engineer in each case.

3.4 TITLES NOT TO LIMIT TEXT

The titles or headings of the various divisions, sections, parts, paragraphs, or subparagraphs of the Contract Documents are for convenience of reference only and are not intended to limit and shall not be construed as in any way limiting, the application of the text.

RIGHTS AND DUTIES OF THE CONTRACTOR

3.5 MEANS AND METHODS/QUALITY OF MATERIALS

The Contractor shall complete the Work to the reasonable satisfaction of the Owner and in accordance with the Contract Documents. The Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the

Contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

If requested by the Engineer or Consulting Engineer, through the Construction Manager, the Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment used in the Work. All materials and equipment shall be of first quality and applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable manufacturer, except as otherwise provided in the Contract Documents.

3.6 RESPONSIBILITY FOR THE WORK

The Contractor represents and warrants by submission of its Bid that it has thoroughly examined and has become familiar with the Contract Documents and determined the nature and location of the Work, the general and local conditions, the availability of labor, materials, supplies, and equipment, and all other matters which can in any way affect the Work under this Contract. Failure to make any examination necessary for this determination shall not release the Contractor from the obligations of this Contract or be grounds for any claim based on unforeseen conditions.

The Contractor shall take all responsibility for the Work performed under this Contract. It shall in no way be relieved of its responsibility by any right of the Executive Director, Engineer, the Owner's employees, or agents to give permission or orders, or by failure of such to give permission or to issue orders. The Contractor shall be responsible for all loss and damage incurred in transporting the equipment, materials, or Work while under the direction or control of the Contractor, to, from, or on the Job Site and for all loss and damage to the equipment, materials and/or Work or any part thereof caused by the Contractor, its agents, representatives or employees, any subcontractor, or any person or organization directly or indirectly employed or engaged by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, occurring prior to the Owner's Final Acceptance thereof.

3.7 COORDINATION

It shall be the Contractor's responsibility to coordinate all Work furnished under this Contract with the Construction Manager and with the Other Contractors to make sure that all Work performance guarantees are achieved and that the Work is properly constructed, assembled, installed, and configured for reliable and continuous operation. The Contractor shall require its subcontractors to review the requirements set forth herein to ensure that the Work and equipment integrated therein will be compatible and properly integrated, constructed, assembled, and installed.

The Owner shall allocate the Work and designate the sequence of construction in case of controversy between the Contractor and Other Contractors and/or suppliers. The Contractor shall, at all times, have on site a Superintendent who is fully authorized as its agent. The Superintendent shall be capable of reading and thoroughly understanding the Contract Documents and shall receive and fulfill instructions from the Owner or its authorized

representatives.

3.8 COOPERATION BETWEEN CONTRACTORS/DISPUTES OR ACTIONS BETWEEN CONTRACTORS

In the event the Owner contracts with Other Contractors or third parties for work on the Project on or near the Work covered by this Contract, the Contractor shall conduct its work so as not to interfere with or hinder the progress or completion of the work being performed by such Other Contractors. The Contractor shall cooperate with the Other Contractors working on the Project and coordinate its work with that of the Other Contractors.

The Contractor shall be responsible under the Contract to include all considerations, financial and otherwise, resulting from the requirement herein to interface, coordinate, and cooperate with Other Contractors working on the Project, as well as with the Owner and its authorized representatives.

The Contractor shall afford each Other Contractor or third-party performing work on the Project and each utility owner (and the Owner, if the Owner is performing additional work with the Owner's employees) proper and safe access to the Job Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Unless otherwise provided in the Contract Documents, the Contractor shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate and connect with work performed by Other Contractors. The Contractor shall not endanger any work by Other Contractors by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the prior written consent, through the Construction Manager, of the Other Contractors whose work will be affected.

If any part of the Contractor's Work depends for proper execution or results upon the work of any Other Contractor, the Contractor shall within 48 hours of its anticipated start of the Work in a particular area inspect the work of the Other Contractors and report in writing to the Construction Manager any apparent discrepancies, interferences, defects, or delays in such work that render it unsuitable for the proper execution and results of the Contractor's Work. Failure of the Contractor to so inspect and report shall constitute an acceptance of the Other Contractor's work as fit and proper to receive the Contractor's Work, except as to defects which may develop in the Other Contractor's work after the execution of the Contractor's Work.

The Contractor agrees that all claims, disputes, and other matters in question between the Contractor and Other Contractors, which arise out of or are related to this Contract or the breach thereof, shall be settled by agreement or, failing agreement, resolved through arbitration in accordance with the Construction Industry Rules of the American Arbitration Association then in effect, unless the parties to the dispute mutually agree otherwise. This agreement to arbitrate shall be specifically enforceable under the prevailing Arbitration Law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any Court having jurisdiction thereof.

Notice of the demand for arbitration shall be submitted in writing to the Other Contractor(s) and filed with the Pittsburgh Regional Office of the American Arbitration Association, with a copy to the Owner and the Construction Manager. The demand for arbitration shall be made within a reasonable time after the claim, dispute or other matter in question has arisen.

Under no circumstances shall the Owner, the Final Design Consultants, the Construction Manager or any of the Owner's other agents or employees be made a party to such claim, dispute, or other matter in question.

It is agreed by the parties to this Contract (the Owner as promisee and the Contractor as promisor) that the intent of this clause is to benefit the other as an indication of the mutual intent of the Owner and the Contractor that this clause raise such Other Contractors to the status of third-party beneficiaries only as to the terms and conditions of this Contract Section. The Contractor agrees that this Contract Section is provided as a benefit to the Contractor and that it specifically excludes claims against the Owner, the Final Design Consultants, and the Construction Manager for delay or other damages.

3.9 INSURANCE

The terms, conditions, and provisions related to insurance are contained in Exhibit "A", attached hereto and made a part hereof. It shall be the responsibility of the Contractor to make certain that its subcontractors and suppliers comply with any such insurance requirements relating to them.

3.10 INDEMNIFICATION

The Contractor shall be liable for, and shall protect, defend, indemnify and save harmless the Owner, the Consulting Engineer(s), the Construction Manager, and their officers, members, employees, agents and invitees (hereinafter, the "Indemnified Parties") against and from any and all liabilities, suits, actions, claims, demands, losses, expenses and costs of every kind and nature incurred by or asserted or imposed against the Indemnified Parties, or any of them, by reason of any accident, injury (including death) or damage to any person or property, or loss of use, however caused resulting in any way from any act of commission or omission of the Contractor, any subcontractor of the Contractor of any tier, or any person or organization directly or indirectly employed or engaged by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, whether or not caused in part by the active or passive negligence or other fault of any of the Indemnified Parties; provided, however, that the foregoing obligations shall not arise if such liabilities, suits, actions claims, losses, expenses and costs are caused by the sole negligence of any of the Indemnified Parties. Furthermore, the foregoing obligations shall survive the completion of the Work and/or termination of the Contract.

In any and all claims against Indemnified Parties by any employee of the Contractor, any subcontractor, any person or organization directly or indirectly employed or engaged by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the above defense, indemnification and hold harmless obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any such subcontractor or other person or organization

under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts, nor shall this defense, indemnification and hold harmless obligation be limited in any way by the amount or type of insurance coverage held by the Owner, the Consulting Engineer, the Construction Manager, or any of their subcontractors.

The Contractor and its subcontractors shall require their insurance carriers, with respect to all insurance policies, to waive all rights of subrogation against the Indemnified Parties; provided, however, that such waiver shall not extend to the Consulting Engineer, or the Construction Manager, their agents or employees, for liability arising out of (1) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications or (2) the giving of, or the failure to give, directions or instructions by the Consulting Engineer or the Construction Manager, their agents or employees provided that any such act or omission is the sole cause of the loss or damage claimed.

3.11 PERMITS

Unless otherwise provided in the Contract Documents or unless otherwise provided by the Engineer in writing, the Contractor shall, prior to beginning Work at the Job Site, obtain and pay for all permits and licenses necessary to complete the Work and shall provide a copy of such to the Construction Manager prior to beginning Work at the Job Site. The Owner shall assist the Contractor, when necessary, in obtaining such permits and licenses. The Contractor shall pay all governmental charges and inspection fees necessary for the

prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Contract.

3.12 NON-DISCLOSURE OF OWNER RELATED INFORMATION

During all times that the Contractor is engaged on behalf of the Owner and at all times subsequent to the date of this Agreement, Contractor acknowledges and agrees that Contractor is prohibited, without prior written consent from the Owner, from displaying or utilizing Owner Related Information on Contractor's public website, in Contractor's marketing materials or in any other form of communication intended for dissemination to third parties. Owner Related Information shall include, but is not limited to, 1) photographs, drawings or maps of the Owner's facility or the work Contractor performs for the Owner, 2) documents obtained from or prepared by the Owner or associated in any way with the Contractor's work for the Owner, 3) photographs or images of the Owner's employees or attendees at Owner's meetings, and/or 4) written descriptions of the Owner's facility or Contractor's work for the Owner.

3.13 DOCUMENTS, RECORDS AND PAYROLLS

A. Documents

The Contractor shall keep at the Job Site for inspection by the Owner all Contract Documents that reflect changes made during the performance of the Contract. If there is more than one Job Site, the Contractor shall keep complete sets of such

Contract Documents at each Job Site.

The Contractor shall prepare and/or maintain all documents required by this Contract in accordance with the Contract Documents and shall deliver such documents to the Construction Manager in the specified form and quantity before final payment is made.

The Contractor shall not be compensated for performing Work or ordering materials shown on construction, shop, and detailed drawings which have been prepared under its Contract until such drawings have been reviewed and accepted in accordance with the procedure established in the Contract Documents.

B. Records

The Owner or any duly authorized representative may inspect and copy the Contractor's records, pertinent books, documents, and papers relating to the Project at any time up to four (4) years after the day final payment is made. In the event of arbitration, litigation, or the settlement of claims arising out of the performance of this Contract or any contracts with vendors, the time period provided in this paragraph shall be extended until two (2) years after any appeal, arbitration, litigation, or claim shall have been finally disposed of.

The Contractor shall check all materials, equipment, and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for verification of progress payment requests and other invoices issued by the Contractor under this Contract.

C. Payrolls

The Contractor shall furnish the Owner immediately after each pay period, two (2) copies of each certified payroll for its Work and the Work of its subcontractors, prepared on forms furnished by the Owner, or in a form approved by the Pennsylvania Department of Labor, and executed and sworn to by the Contractor's and subcontractors' respective payroll supervisor.

The Contractor shall keep and require their subcontractors to keep for four (4) years from the date of payment a record showing the name, craft, and hourly wage paid to each employee working on the Project. In the event of arbitration, litigation, or the settlement of claims arising out of the performance of this Contract, the time period provided in this paragraph shall be extended until two (2) years after any appeal, arbitration, litigation, or claim shall have been finally disposed of.

Whenever the first payroll is filed with the Owner, or whenever a new payroll supervisor is employed, the Contractor shall file an affidavit, executed by the employer (or the employer's agent duly authorized by a written Power of Attorney or otherwise legally capable of binding the employer) setting forth the name of the payroll supervisor and that the payroll supervisor has full knowledge of the facts sworn in the payroll statement.

3.14 PATENTS AND PROPRIETARY RIGHTS

The Contractor shall acquire (in a form acceptable to legal counsel of the Owner), through assignment, purchase, license, or other means, all rights required to fully utilize all technology, know-how, trade secrets, inventions, processes, articles, procedures, equipment, apparatus, devices, or any part thereof, and any and all things or matters that are to be used in pursuance of performance of the Work under the terms and conditions of this Contract.

In case a temporary, preliminary or permanent injunction is secured because of an alleged patent or proprietary rights infringement which prevents the Owner from using the process, materials or equipment furnished, utilized or installed, the Contractor, at its option and expense, shall within thirty (30) calendar days following notification either: (1) procure the right for the Owner to continue using the same process, materials or equipment; (2) modify the process, materials or equipment and provide a replacement process, materials or equipment which is non-infringing, it being understood that such modification must meet the approval of the Owner (which approval must be recorded in a writing signed by the Engineer); or, (3) take back the materials or equipment and refund the purchase price. The Contractor will also be subject to the Owner's damages caused by any violation or alleged violation of payment or proprietary rights of a third party. The obligations of the Contractor under this paragraph continue without time limit.

The Contractor agrees to defend, indemnify and hold harmless Indemnified Parties from and against, and to reimburse the foregoing for all loss, damage, cost and expense (including attorneys' fees) arising from or resulting from the infringement, alleged infringement or violation of a patent, copyright, or other intellectual property or proprietary right, or violation of a patent right, copyright or other intellectual property or proprietary right with respect to equipment, apparatus, materials, supplies, documents, data, manuals, lists, information, technology, know-how, trade secret, invention, process, procedure, device or article, or any part thereof, furnished, utilized, or installed by the Contractor, or arising from or occasioned by the use or manufacture thereof, including their use by the Owner or resulting in any way from the Contractor's performance of the Work. The Contractor shall pay any loss, damage, cost, and expense in a suit so defended. The Owner and the Contractor further agree that the Contractor waives any and all claims, rights and causes of action it may have, now or in the future, against the Owner arising out of compliance with any specifications the Owner furnishes to the Contractor. To wit, the Contractor hereby waives and relinquishes any claim, right or cause of action it may have against the Owner deriving from the Owner's duty, under state law or otherwise, to hold the Contractor harmless against claims for infringement or the like which arises out of compliance with said specifications.

3.15 CONTRACTOR'S CERTIFICATE AND SURETY COMPANY STATEMENT

Before final payment is made by the Owner, the Contractor shall furnish to the Owner a Certificate of Satisfaction, on the form included in the Contract Documents, or, if not so included, on the form customarily used by the Owner, stating that all bills for labor, materials, and equipment and all outstanding claims and indebtedness of whatsoever nature arising out of the performance of this Contract, including payments to all subcontractors and suppliers, have been paid. The Contractor shall also furnish statements by each surety, on

the form included in the Contract Documents, that the surety is satisfied that payment of all the above such bills, claims and indebtedness has been made.

3.16 NO LIEN AGREEMENT/RELEASE

The Contractor, on behalf of itself, its subcontractors, and suppliers, hereby specifically waives the right to file any mechanic's or other lien for work performed or materials furnished in or about the performance of this Contract, and it is hereby expressly agreed that no such claim or claims shall be filed by anyone or any entity and that the Contractor shall not file or permit any subcontractor, supplier, material man, mechanic or other person or entity to file any mechanic's or other lien for work performed or materials furnished in or about the performance of this Contract against the Owner, and/or the ground upon which the structure or work herein provided for is erected or performed, or against any structure thereon erected or to be erected, or against any structure or property of the Owner.

3.17 PERMISSION TO SUBLET OR ASSIGN

The Contract Agreement may not be assigned by the Contractor nor may any obligation of the Contractor hereunder be assumed by any other person or third party without the prior written consent of the Owner and concurrence by the surety. The Contractor shall be required to present a request for such an assignment to the Owner, in writing, for consideration and approval, and the assignment shall be consummated only upon receipt of the written approval of the Owner. In the case of the Owner's approval, the Contractor shall file copies of all related legal documents with the Owner. The Contractor may perform portions of this Contract through any of its subsidiaries, affiliates, subcontractors, or licensees, however, the Owner will administer this Contract solely through the Contractor and will not deal directly with any subsidiary, affiliate, subcontractor, or licensee.

3.18 ASSIGNMENT OF ANTITRUST CLAIMS

The Contractor and the Owner recognize that in actual economic practice, overcharges by Contractor's subcontractors and/or suppliers resulting from violations of state or federal antitrust laws are in fact borne by the Owner. As part of the consideration for the award of this Contract, and intending to be legally bound, the Contractor assigns to the Owner all right, title and interest in and to any claims the Contractor now has or may hereafter acquire under state or federal antitrust laws relating to any products or the Work which is the subject of this Contract.

3.19 CONCERNING SUBCONTRACTORS AND OTHERS

The Contractor shall not employ any subcontractor, person, or entity, including those initially acceptable to the Owner against whom the Owner may have a reasonable objection. In the event the Contractor fails or refuses to replace, within a reasonable time, any subcontractor, person, or entity to which the Owner has taken reasonable objection, the Owner may stop the Contractor's performance until such time that a replacement is effectuated. The Contractor shall be liable for any and all damages related to any reasonable stoppage of the Contractor's performance under this Section. This Section shall not limit the Owner's right to recover for breach of contract or any other legally recognizable cause of action.

The Contractor shall establish the qualifications of subcontractors and will make sure that they comply with the insurance requirements of Exhibit "A". In addition, the Contractor shall establish that subcontractors providing any professional services have adequate professional liability insurance. The Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Contract Documents) of any such subcontractor or other person or entity so identified may be revoked upon the Owner's written objection, in which case the Contractor shall submit a substitute acceptable to the Owner. No acceptance by the Owner of any such subcontractor or other person or entity shall constitute a waiver of any right of the Owner to reject Defective Work.

The Contractor shall be fully responsible to the Owner for all acts and omissions of its subcontractors and other persons and entities performing or furnishing any of the Work under a direct or indirect contract with the Contractor just as the Contractor is responsible for its own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such subcontractor or other person or entity any contractual relationship between the Owner and any such subcontractor or other person or entity, nor shall it create any obligation on the part of the Owner to pay or to see to the payment of any moneys due any such subcontractor, supplier, or other person or entity.

The Articles and Sections of the Contract Documents and the identifications of any Drawings shall not prohibit or restrict the Contractor in dividing the Work among subcontractors or delineating the Work to be performed by any specific trade.

All Work performed for the Contractor by a subcontractor will be pursuant to an appropriate agreement between the Contractor and the subcontractor which specifically binds the subcontractor to the terms, conditions, requirements, and prohibitions of the Contract Documents for the benefit of the Owner except where Owner approves otherwise, in writing. Whenever any such agreement is with a subcontractor who is listed as an additional insured on the property insurance provided in Exhibit "A", the Contract Documents or in a writing signed by the Engineer, the agreement between the Contractor and the subcontractor will contain provisions whereby the subcontractor waives all rights against the Owner, the Contractor, and all other additional insureds for all losses and damages caused by, arising out of, or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work; provided, however, that such waiver shall not extend to the Consulting Engineer or the Construction Manager, their agents or employees, for liability arising out of (1) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications or (2) the giving of, or the failure to give, directions or instructions by the Consulting Engineer or the Construction Manager, their agents or employees provided that such giving, or failure to give, is the sole cause of the loss or damage arising there from. If the insurers on any such policies require separate waiver forms to be signed by any subcontractor or any other entity engaged to do the Work, the Contractor will obtain the same.

With regard to any claim or dispute with respect to payment of a subcontractor or supplier of any tier, the Contractor expressly agrees to defend, indemnify, and hold the Owner harmless

in the event any suit is brought on account of a dispute between any of the parties including, but not limited to, subcontractors, suppliers, and material men. The Contractor shall assume the defense affirmatively at its sole cost whenever such suit is brought in any jurisdiction and shall keep the Owner advised as to all material developments.

3.20 ETHICS IN PUBLIC CONTRACTING

The Contractor certifies that it has entered into the Contract without collusion or fraud; that it has not offered or received any kickbacks or inducements from any other supplier, manufacturer, or subcontractor in connection with the Contract; and that it has not conferred on any public employee having official responsibility for this construction transaction any payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value, present or promised.

3.21 INTOXICATING LIQUORS, CONTROLLED SUBSTANCES, OR SIMILAR ACTING DRUGS

The Contractor shall not sell or permit or suffer the introduction or use of intoxicating liquors, controlled substances (without benefit of prescription), or other similar-acting drugs on or about the Work.

The Contractor shall implement, maintain, and document a controlled substance surveillance program for all on-site personnel. An outline of this program shall be submitted to the Construction Manager for record prior to the issuance of the Notice to Proceed.

3.22 SALES AND USE TAX

The Owner renders a public utility service, i.e., sewage treatment. Pennsylvania Department of Revenue Regulations provide, in part, that a contractor or subcontractor's purchase of "equipment, machinery or parts thereof" which are "used directly in the rendition of a public utility service upon installation" are exempt from Pennsylvania sales tax. See Section 204(k)(8)(C) of the Tax Reform Code of 1971, Act of March 4, 1971, P.L.6, as amended (the "Act") and Pennsylvania Department of Revenue Regulation 61 Pa. Code § 31.13(b). Accordingly, the Owner shall issue to Contractor one or more exemption certificates in the form attached hereto as Exhibit D so that Contractor may avail itself of the said sales and use tax exemption.

Notwithstanding the foregoing, the Owner makes no representation or warranty regarding the applicability of the exemption with respect to any particular purchase of property by Contractor in connection with the Work. The Contractor shall remain responsible for the full amount of sales and use tax, including interest and penalty, applicable to its Work under this Contract and required to be paid pursuant to Section 204 of the Act and Pennsylvania and local law. The Contractor represents that it is familiar with the Pennsylvania and local sales and use tax law, regulations, and rulings applicable to construction contracts including Pennsylvania Department of Revenue Regulations 61 Pa. Code §§ 31.11, Construction Contractors-Definitions, 31.12, Construction Contractor-Imposition of Tax, and 31.13, Construction Contractors-Claim for Exemptions.

The Contractors shall be responsible for determining which materials and equipment it believes are entitled to exemption from sales and use tax. The Owner shall not be obligated to issue any exemption certificate if it believes an exemption is not applicable. Such decision by the Owner shall not entitle the Contractor to a change in the Contract Sum.

Contractor shall indemnify, defend, and hold harmless the Owner, and all other parties entitled to indemnification under this Contract, from the obligation to pay any Pennsylvania and local sales and use tax, interest, and penalty which may become due under this Contract.

The Contractor hereby assigns to Owner the exclusive right to seek any and all refunds of Pennsylvania and local sales and use tax erroneously paid pursuant to this Contract. The Contractor shall cooperate fully with the Owner in developing information for the preparation of its refund claim including without limitation copies of purchase invoices and canceled checks. If Contractor concludes that use tax is due under this contract, it shall provide Owner with the basis for its determination at the time the use tax return is required to be made. The Contractor shall also provide Owner copies of its use tax returns and canceled checks for the payment of use tax. In any case where Owner files a refund claim, the Contract shall provide testimony and affidavits as necessary in support of Owner's claim.

RIGHTS AND DUTIES OF THE OWNER

3.23 AUTHORITY OF THE OWNER

The Owner, either directly or through its agents, shall be the sole judge of the intent and meaning of the Contract Documents and its decisions thereon and its interpretations thereof will be final, conclusive, and binding on all parties.

The Engineer, through the Construction Manager, shall be the representative of the Owner during the life of the Contract and will observe the Work in progress on behalf of the Owner. The Engineer shall have the authority:

- D. To act on behalf of the Owner to the extent expressly provided in the Contract or otherwise in a writing signed by the Executive Director.
- E. To stop the Work whenever such stoppage may be necessary, in its sole discretion, to prevent improper execution of the Work, or otherwise to protect the Owner's interests.
- F. To approve and direct the sequence of execution and general conduct of the Work and to direct that changes be made in such sequence where, in its sole discretion, public necessity or welfare, the interest of the Owner, or the progress of the Work will require; such approval or direction will, however, in no way relieve or diminish the responsibility of the Contractor for or in the performance of the Work;
- G. To determine the amount, quality, acceptability and fitness of all Work, materials and equipment required by the Contract; and,
- H. To decide all questions which arise in relation to the Work, the performance thereof, and the fulfillment of the Contract.

Any delay, failure, or omission of the Owner to exercise any obligations or powers shall not impair any such obligations or powers, nor shall the same be construed to be a waiver thereof or any acquiescence therein, nor shall any such action or inaction by the Owner alter or impair the obligations of the Owner.

The Owner shall not, unless specifically required by the Contract Documents, supervise, direct or have control or authority over, or be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, or for any failure of the Contractor to comply with laws and regulations applicable to the furnishing or performance of the Work. The Owner shall not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

3.24 ACCESS TO WORK

The Owner, and its officers, agents, servants, and employees may, during the hours of 7:00 A.M. to 5:00 P.M., Monday through Friday or at such other times when the Work is being performed, enter upon the premises used by the Contractor, including the Contractor's offices and/or factory for the purpose of inspection of the Work, and the Contractor shall at all times provide safe and proper facilities, therefore. This provision shall not be interpreted as limiting or restricting, to any degree, the Owner's right to free and unrestricted access to its own property and facilities or any portion of the Work therein.

3.25 EXAMINATION OF WORK

The Contractor shall furnish the Owner with a minimum of seven (7) calendar days notice of the Contractor's and/or any subcontractor's or supplier's intent to conduct shop tests, Performance and Acceptance Tests, and/or any other tests, as described herein, to enable the Owner to witness such testing. The Contractor shall provide the Owner with full access to all construction, manufacturing or testing facilities for the purposes of examining and inspecting the Work; for witnessing of testing; and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract Documents. The Contractor shall furnish the Owner with every reasonable facility necessary for the Owner to make such inspections or examinations.

3.26 RIGHT TO TEST OR INSPECT

The Owner reserves the right to conduct any test or inspection it may deem advisable to assure that construction, supplies, and services conform to the provisions of the Contract Documents. If such tests reveal that material and/or work does not meet Contract requirements, the Contractor will be responsible for the costs related to this testing or retesting.

3.27 RIGHT TO MATERIALS/REUSE OF DOCUMENTS

Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus, and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the Job Site, but all such

materials, equipment, apparatus, and other items shall, upon being so installed, incorporated, attached, or affixed, become the sole and exclusive property of the Owner.

The Specifications, Drawings, manufacturing data, and other information transmitted from the Owner to the Contractor in connection with the Contract are the property of the Owner and are disclosed in confidence on the condition that they are not to be reproduced, copied, or used for any purpose other than performance of the Contract.

The Contractor and any subcontractor or supplier or other person or organization performing or furnishing any of the Work i) shall not have or acquire any title or ownership rights in any of the drawings, specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of the Engineer, the Consulting Engineer, or any other design professional performing any work on behalf of the Owner and (ii) shall not reuse any such drawings, specifications, or other documents or copies related to the Project without the express written consent of the Owner.

PERFORMANCE OF CONTRACT

3.28 PROJECT COORDINATION

A. Preconstruction Conference

The Owner shall designate the time and location of the Preconstruction Conference which shall be attended by principals of the Contractor, each subcontractor, and each major supplier, or their designated representatives; the Owner; the Engineering Manager; the Consultant Engineer(s); the Construction Manager; and other involved parties to establish Project administrative procedures and to discuss any other appropriate items. The Contractor shall not begin performance of the Work prior to the Preconstruction Conference unless authorized by the Construction Manager in writing.

B. Progress Meetings

Progress Meetings shall be held weekly at times designated by the Construction Manager throughout the period of this Contract. Additional meetings may be arranged at the request of either party when deemed necessary or required by the Contract Documents.

C. Contractor's Superintendent

The Contractor shall identify prior to contract award and assign to the Work, at all times during the life of this Contract, its own competent Superintendent (acceptable to the Owner), who shall not be replaced without written notice to the Construction Manager. The Superintendent will be the Contractor's representative at the Job Site and shall have authority to act on behalf of the Contractor. All communications to the Superintendent shall be as binding as if given to the Contractor.

D. Schedules

Prior to the start of Work, the Contractor shall submit the following preliminary schedules: a "Mobilization Schedule," which covers the first ninety (90) calendar days of performance of the Work; a "Shop Drawing and Sample Submittal Schedule"; and a completed Schedule of Values. Each preliminary schedule shall be submitted to the Construction Manager, within ten (10) working days of Notice of Award but, in all events, at least five (5) working days in advance of the Preconstruction Conference. Within thirty (30) calendar days of the receipt of the Notice to Proceed, the Contractor shall submit to the Construction Manager a complete "Baseline Contract Schedule" that covers the entire performance of the Work. No progress payments shall be made to the Contractor until the schedules referenced above are submitted, found acceptable to the Construction Manager, and incorporated with all other Prime Contractor's "Baseline Contract Schedules" for the accepted Master Schedule.

3.29 TIME FOR COMPLETION, MILESTONE DATES

A. Contract Time

The Contractor shall commence the Work immediately upon receipt of the written Notice to Proceed and shall prosecute the Work diligently to completion within the number of calendar days specified in Paragraph 3 of the Contract Agreement (the "Contract Time"). Time is of the essence as regards Contractor's Work.

B. Schedule

The Owner's operations, the scope of the Project, and the Work to be furnished under this Contract require careful coordination by the Construction Manager and scheduling between the Contractor and all Other Contractors. Since it will be necessary for the Owner to maintain continuity of its current operations throughout the Contractor's performance, it will be necessary for the Work to be phased in such a manner that portions of the Work will be constructed, installed, started-up, and completed in sequence with work performed by Other Contractors and suppliers. The Contract Schedule prepared by Contractor pursuant to Section 3.28D above must be based upon, and demonstrate the Contractor's ability to meet, the milestones established for the Project ("Project Milestones"). Where the achievement of a Project Milestone is dependent upon the Contractor's completion of all or any portion of the Work to be performed under this Contract, a "Construction Milestone" applicable to the Contractor's Work will be established by the Owner and incorporated by the Contractor into the Contract Schedule.

C. Liquidated Damages

If the Work is not completed within the Contract Time for any Construction Milestone, damage will be sustained by the Owner. It is impracticable and extremely

difficult to ascertain and determine actual damages which the Owner will sustain by reason of such delay. It is therefore agreed that the Contractor will be required to pay, as liquidated damages and not as penalty, for delay damages sustained solely by the Owner, the sum of money stipulated in Paragraph 3 of the Contract Agreement for each and every calendar day's delay in finishing the Work beyond the Contract Time prescribed for each Construction Milestone.

The Owner may, at its option, apply any liquidated damages as a credit against the Contract Sum by way of a change order or payment deduction. The remedies provided herein are not exclusive and are in addition to any other rights and remedies provided by law or under the Contract and the Contractor remains liable for damages caused by reasons other than delay.

D. Responsibility for Completion

Contractor shall furnish such manpower, materials, facilities, and equipment, and shall work such hours, including night shifts and premium time operations, as may be necessary to ensure the prosecution and Substantial and Final Completion of the Work within the number of days specified in the Contract for completion of the Work, as adjusted. If Work actually in place falls behind the latest Owner accepted Contractor's Schedule for reasons that are the responsibility of Contractor, and Owner determines that the Work will not be completed by the Final Completion Date, as adjusted, or any portion of the Work will not be completed within the Contract Time allotted for any applicable Construction Milestone, Contractor agrees that it will, as necessary, accelerate its efforts at no increase in the Contract Sum to improve its progress. Such acceleration shall include as necessary some or all of the following actions:

1. Increase manpower and crafts;
2. Increase the number of working hours per shift, shifts per Workday, Work Days per week, or the amount of equipment, or any combination of the foregoing; and/or
3. Reschedule activities.

Owner may also require Contractor to submit a revised Contractor's Schedule and description of Corrective Action it intends to take to assure completion of Work by the Final Completion Date and/or within the Contract Time for any Construction Milestone. If the Owner reasonably finds the Corrective Action not acceptable, Owner may require Contractor to submit revisions until acceptable to Owner.

Failure of Contractor to substantially comply with the requirements of this paragraph shall be considered grounds for a determination by the Owner that Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified and grounds for termination of this Agreement for cause.

3.30 TEMPORARY SUSPENSION OF THE WORK

The Owner shall have the authority to suspend the Work wholly, or in part, for such period or periods as it may deem necessary.

In the event that the Contractor is ordered by the Owner, in writing, to suspend the Work for some unforeseen cause not otherwise provided for in the Contract and over which the Contractor and/or its subcontractors have no control and are not in any way at fault, the Contractor may be reimbursed for actual out-of-pocket costs directly related to the suspension of the Work. No allowance will be made for any claims for lost profits or any incidental or consequential loss or damage. The period of shutdown shall be computed from the effective date of the Owner's order to suspend Work to the effective date of the Owner's order to resume the Work. Claims for additional compensation resulting from the shutdown shall be filed with the Owner within ten (10) working days of the Owner's order to resume Work unless otherwise stated in the Owner's order to resume Work. The Contractor shall, within twenty (20) calendar days or such other time as the Owner may specify, submit with its claim information substantiating the amount shown on the claim. Failure to submit any claim or substantiating information within the requisite time periods shall constitute a waiver of any such claim. The Owner will consider the Contractor's claim in accordance with the Contract Documents. No provision of this Section shall be construed as a waiver by the Owner of its right to subsequently terminate the Contract or as relieving the Contractor from its full responsibility for performance of its obligations under this Contract or as entitling the Contractor to compensation for delays due to: (I) the Contractor's failure to carry out orders given or to perform any or all provisions of the Contract; (ii) suspensions made at the request of the Contractor; or (iii) for any other delay provided for in the Contract Documents unless otherwise specified. Additionally, no provision of this section shall be construed as obligating the Owner to suspend Work for such reasons.

If it should become necessary to suspend Work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. It shall take every precaution to prevent damage or deterioration of the Work performed and shall provide for proper drainage of the Work. The Contractor shall, at its sole expense and without any increase in the Contract Sum, relocate, replace, or repair any materials or Work which becomes an obstruction or is damaged in any way due, in the Owner's sole opinion, to the Contractor's failure to properly store and/or protect the materials and/or Work.

3.31 REQUESTS FOR INFORMATION AND FIELD INSTRUCTIONS

A. Requests for Information

Monitoring the "Request for Information" ("RFI") process is the responsibility of the Construction Manager. In general, the Contractor is responsible for initially issuing an RFI (pursuant to the form then currently utilized by the Owner) upon discovery of a problem or question. The Construction Manager may at times issue RFIs.

B. Procedure

1. The Contractor is responsible for being thoroughly familiar with the procedures, requirements, and conditions of the Contract Documents which relate to the RFI.
2. If at any time after receiving the Notice to Proceed, the Contractor discovers or is made aware of any conflicts, omissions, errors, or ambiguity in the Contract Documents or between the Contract Documents and any provision of any law or regulation applicable to the performance of Work; or if it appears to the Contractor that the Work to be done or of any matter related thereto is not sufficiently detailed or explained in the Contract Documents; or if it appears to the Contractor that an order or direction of the Engineer, the Consulting Engineer, or the Construction Manager is unclear, then, before proceeding with the Work affected, the Contractor shall notify the Construction Manager in writing and request information/clarification or additional detailed information concerning the Work on the RFI form.
3. If pursuant to the judgment of the Construction Manager, the RFI is an emergency, the resolution will be handled by telecopy or telephone.
4. If the answer to an RFI initiated by the Contractor is clearly contained in the Contract Documents, the Contractor shall be responsible and liable for any costs or delays associated with the review of the RFI.

C. Field Instructions

The Owner may issue Field Instructions, through the Construction Manager, from time to time as may be necessary or appropriate to interpret or to resolve any ambiguity or error in the Specifications or Drawings or to make any minor change to the Specifications or Drawings that does not result in a net change in the Contract Sum, the Contract Time, or the quality of material or workmanship. Field Instructions shall be effective upon delivery to the Contractor. Field Instructions may not change or alter the General Conditions.

3.32 PROPOSED CHANGE ORDERS, CHANGE ORDERS, AND CHANGE DIRECTIVES

A. Contract Changes

1. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, and without notice to any surety, by Change Orders, Deduct Orders, Pre-Authorization Notices, and Construction Change Directives, and the Contract Sum and the Final Completion Date shall be adjusted as provided herein in connection therewith. If there is a change in the Contract Time, the Construction Schedule and any milestones set forth in the Contract Documents shall be adjusted accordingly.

2. The Owner reserves and shall have the right to make such alterations in the Work, including changes to the Contract Sum and Contract Time, as may be necessary or desirable to complete the Work in an acceptable manner.
3. This Contract may be revised at any time by means of a written Change Order issued in accordance with this Section of the General Conditions signed by both the Owner and the Contractor. This provision cannot be waived, and no oral amendment of this Contract shall be effective.
4. A change in the Work, the Contract Sum, or the Contract Time shall be accomplished only by Change Order. Direction to proceed with a change in the Work may be given by the Owner through a Proposed Change Order (PCO) fully executed by the Owner and the Contractor which directs the Contractor to proceed with the change in the Work. Subsequently, a Change Order shall formalize any changes in the Work, Contract Sum, and/or Contract Time related to such PCO that direct the Contractor to proceed with a change.
5. Deduct Orders shall be issued in writing to Contractor and shall authorize Contractor to non-perform an entire Bid Item, or any portion thereof. A Deduct Order requires prior written authorization from the Owner. All Deduct Orders shall be tracked and will be included in the Final Adjusting Change Order for the project. The Contractor shall not be entitled to profit, markup, or fee on any work removed from its scope through a Deduct Order.
6. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any enrichment, shall be the basis of any claim to an increase in any amounts due under the contract Documents or a change in any time period provided for in the Contract Documents.
7. Until a PCO which directs the Contractor to proceed with a change in the Work is fully executed by the Owner and the Contractor, or a written Change Order is approved in writing by the Owner, no money or time shall be expended by the Contractor on performing work that is the subject of a Change Order pending approval and none of the money and time actually expended will be reimbursed to the Contractor and the cost of all corrective work will be the responsibility of the Contractor.

8. For a PCO where the value or extent of the Work cannot be reasonably pre-determined or agreed upon, or where time is of the essence, the Owner may issue a written Pre-Authorization Notice such that Work shall proceed on an agreed upon Time and Materials basis or a Lump Sum basis both not to exceed a pre-determined maximum amount. The final amounts of the Time and Materials or Lump Sum PCO shall be determined pursuant to the respective subparagraphs of Section 3.32 hereof.

B. General

1. Claims for Additional Cost:
 - a. All claims by Contractor for an increase in the Contract Sum shall be made in writing to the Owner within five (5) Calendar Days after the occurrence of the event giving rise to such claim. The Contractor's notice of claim shall indicate the Contractor's good faith, objective determination of the potential impact and effect to the Contract Sum and the Contractor's technical evaluation and recommendation on how to minimize the potential impact and effect to the Contract Sum.
 - b. The provision of timely notice to Owner by Contractor is a condition precedent to the Owner's obligation to pay Contractor an increase in the Contract Sum. Contractor expressly acknowledges and agrees that the notice and time of notice provisions in this Agreement are conditions precedent and necessary for Owner to determine the best course of action to implement in order to mitigate adverse consequences arising out of or related to Contractor's claim and to coordinate the Work affected by Contractor's claim with Owner's separate Contractors and other Owner-supplied Work. If a claim is made more than five (5) Calendar Days after such occurrence, the claim shall be waived, and Contractor fully and completely releases Owner from all responsibility therefrom pursuant to this Agreement.
2. The Construction Manager will have primary responsibility for the administration of Change Orders approved by the Owner.
3. Upon receipt of a PCO from the Owner through the Construction Manager, the Contractor shall, within ten (10) working days, submit a proposal for the work covered by the PCO, including any requested adjustment in the Contract Sum or the Contract Time, properly itemized and supported by sufficient substantiating data to permit evaluation. Failure to request a modification of the Contract Time when submitting such proposal shall constitute a waiver of the Contractor's right to subsequently claim an adjustment of the Contract Time based upon such changed work.

4. The cost or credit to the Owner resulting from a change in the Work shall be determined in one or more of the following ways:
 - a. At a Lump Sum Price agreed upon before the additional Work is commenced and stated in the Change Order for the Work;
 - b. On a unit price basis at the unit prices quoted in the Contractor's Bid or, if none are established, by unit prices inferred from the Contract and agreed to by the Owner and Contractor; or
 - c. On a time and material basis as provided in Section C below (the "Time and Material Method").
5. The Owner shall have no obligation to pay for anticipated profit or consequential loss claimed by the Contractor on Work eliminated by Change Order.
6. Notwithstanding any other provisions of the Contract, if the Owner and the Contractor are unable to agree upon an adjustment of the Contract Sum or the Contract Time connected with a change in the Work, the Owner reserves the right to make other arrangements for its completion.
7. Work in addition to that prescribed by the Contract Documents shall not be performed without a signed Change Order or signed PCO except when a written Pre-Authorization Notice has been provided by the Owner or under emergency circumstances which pose a clear and present danger to property or persons. Emergency changes shall be compensated using the Time and Material Method.
8. All Work performed pursuant to any Change Order will be performed under the applicable conditions and provisions of the Contract Documents (except as otherwise specifically provided). If notice of any change relating to the general scope of the Work or the provisions of the Contract Documents is required to be given to a surety, the giving of such notice will be the Contractor's responsibility, and the Contractor will make certain that the amount of each applicable Bond will be adjusted accordingly.
9. Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the Contract Time. In the event a Change Order increases the Contract Sum, Contractor shall include the work covered by such Change Order in Applications for Payment as if such Work were originally part of the Contract Documents.

10. For Change Orders authorizing an increased Contract Sum, the Contractor may add up to a 1% markup fee to cover the cost of bonding.

C. Lump Sum Method

1. Unless otherwise approved by the Director of Engineering and Construction, at a minimum, the cost of the Lump Sum Change Order Cost Summary prepared by Contractor shall include and indicate the items enumerated below. Rates for labor, equipment, and material shall be the same for extra and credit computations. The Contractor shall utilize a Cost Summary form approved by the Construction Manager. A separate Cost Summary shall be provided for both the prime and each tier of subcontractors. Notwithstanding the above, the Owner has the option to propose an acceptable lump sum price in lieu of the Contractor submitting a proposal.
2. Lump Sum – Labor
 - a. For all Lump Sum labor, the Contractor shall submit the proposed projected wage rates and projected fringe benefits rates that will be in effect at the time the Change Order is performed or for the time period applicable to the Change Order. An example of prior wage rates paid in the form of a certified payroll report shall be provided. The proposed fringe benefits shall include costs paid to, or on behalf of, workers by reason of health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreements or other employment contracts generally applicable to the class of labor employed to perform the Change Order. Fringe benefits on non-union employees shall not include discretionary pensions and/or bonuses and any other fringe benefit that is discretionary or based on profit sharing, including employee stock option plans. In addition to the above the Contractor shall receive the actual projected cost of social security tax and workers' compensation and a total of 4% of direct labor cost for state and federal unemployment insurance. No other markups or allocations as a percentage of labor shall be allowed. The Contractor is required to furnish auditable evidence of past percentages paid for Worker's Compensation as evidenced by forms from the Commonwealth of Pennsylvania.
 - b. The Contractor shall not propose payment for overtime unless necessitated by the work schedule, explained in the proposal cover letter, and approved in writing by the Owner.

- c. The Contractor shall not propose payment for the designated field superintendent for the Project attributable to the Change Order, unless specifically justified in the proposal cover letter and approved in writing by the Owner.
 - d. The Contractor shall not propose payment for field engineering hours attributable to the Change Order, unless specifically justified in the proposal cover letter and approved in writing by the Owner.
 - e. The Contractor shall not propose payment for more than one foreman classification per work crew, unless specifically justified in the proposal cover letter and approved in writing by the Owner.
3. Lump Sum – Material and Supplies
- a. For Lump Sum Change Orders, the Contractor will propose to be paid, or the Owner will be credited, the cost of material and supplies approved by the Owner and incorporated into the Change Order as evidenced by supplier quotations or, by example, receipts for major materials previously purchased.
4. Lump Sum – Equipment
- a. The Contractor shall not include in the cost proposal of a Lump Sum Change Order any proposed costs or rental of small tools (defined as tools with a replacement cost of \$1,500 or less), buildings, and field trailers. These costs shall be considered part of the Contractor's Markup Fee (as hereinafter defined).
 - b. For any construction equipment included in the Contractor's cost proposal, the Contractor shall propose to charge the applicable rental rate based on the Rental Rate Blue Book for Construction Equipment published by Equipment Watch, but under such conditions as contained herein. The use of any other publication for the determination of rental rates will be at the Owner's sole discretion.
 - c. The proposed rental of equipment or equipment owned by the Contractor will be paid for by the hour. The hourly charge for equipment will be 1/176 of the monthly rate shown in the Rental Rate Blue Book for Construction Equipment.
 - d. The proposed hourly charge for equipment on standby will be 1/352 of the monthly rate shown in the Rental Rate Blue Book for Construction Equipment. Equipment on standby shall not be billed for more than eight (8) hours in any Calendar Day or for more than forty (40) hours in any calendar week. Standby time is herein defined as the portion of an eight (8) hour Calendar Day during which

equipment is located on site, but is not in operation. No operating or other costs shall be charged for equipment on standby.

- e. The proposed hourly charge for equipment not listed in the Rental Rate Blue Book for Construction Equipment will be the local rental rate of such equipment from area suppliers as established by the Owner or as calculated through the use of any publication for the determination of rental rates, whichever is lower.
- f. Equipment to be rented from a third party will be paid at quoted cost. In addition, at the request of the Owner, the Contractor shall present competitive quotes for the Owner's evaluation prior to renting equipment from a third party.
- g. Equipment rates are for bare rental, without an operator.
- h. The Contractor may add the actual operating costs of fuel, oil, and lubricants necessary for the operation of the equipment used for a Change Order based on published consumption rates for that piece of equipment. The Contractor will be required to provide documentation as required by Owner to support the above charges. In lieu of that method and as approved by the Owner, the Contractor may utilize the operating rate for fuel, oil, and lubricants listed in the Rental Rate Blue Book for Construction Equipment. The Contractor shall not propose to be paid for fuel, oil, and lubricant cost for any piece of equipment on standby, or for equipment that does not utilize fuel, oil, and/or lubricants.
- i. For Contractor owned equipment, the proposed aggregate equipment rental charge for any single piece of equipment used in any Change Order shall be limited to fifty percent (50%) of the fair market value of the piece of equipment at the time the Work Order or Change Order will be performed.
- j. Equipment which is not in good condition as decided by the Owner shall be replaced at no additional cost to Owner.
- k. If the Change Order requires the use of construction equipment not already on the Site of the Work, the Contractor shall propose to only be paid for one (1) round-trip transportation charge per Change Order for each piece of equipment brought to the Site, unless otherwise approved by the Owner in writing. The round-trip transportation charge shall be based on a round trip of no more than 50 miles.

5. Lump Sum – Markup Fee

- a. The percentages for overhead and profit as set forth herein for a Lump Sum Change Order may be less depending on the nature, extent, or complexity of the Change Order, where the percentage is not commensurate with the responsibility and administration involved but in no event shall they exceed:
 - (1) In the case of a Change Order performed by the Contractor's own forces, add a twenty percent (20%) markup to the proposed costs identified and substantiated in Subparagraphs 3.32.C.1 through 3.32.C.4; and
 - (2) In the case of a Change Order performed by the Contractor's subcontractors, at whatever tier, add a fifteen percent (15%) markup to the proposed costs identified and substantiated in Subparagraphs 3.32.C.1 through 3.32.C.4 for the performing subcontractor, and the next higher subcontractor and the following subcontractor or Contractor will receive a five percent (5%) mark-up each. The maximum allowable mark-up allowed on subcontractor performed work is 26.8% (15%/5%/5%).
- b. The Markup Fee includes, but is not limited to the following costs, fees, and expenses: home office, insurance, branch office, field office, project management, superintendents, estimating, engineering, training and safety meetings, coordination, expediting, purchasing, detailing, legal, accounting, data processing or other administrative services, shop drawing, permits, taxes, comprehensive general liability insurance, auto insurance, umbrella insurance, and subcontractor bond premium.

6. Contents of a Lump Sum Cost Proposal:

- a. At a minimum the Contractor shall provide the following items before a Lump Sum cost proposal will be considered:
 - (1) Lump Sum proposal cover letter stating total proposed cost for the additional or deducted work, and;
 - (2) Lump Sum cost summary using the spreadsheet format approved by the Construction Manager for the prime contractor and each subcontractor, and;
 - (3) Auditable backup for proposed Worker's Compensation for both prime and subcontractors, and;

- (4) Quotations and/or example invoices for any key proposed materials, and;
- (5) Copies of published rates for the proposed equipment; and
- (6) Actual Certified Payroll Reports for the time work was performed.

D. Time and Materials Method

1. In the event the Contractor and Construction Manager are unable to agree on the basis for compensating the Contractor for a change in the Work, the Contractor, provided he receives a written Change Order or Pre-Authorization Notice signed by the Owner, shall promptly proceed with the work involved. The cost of such work shall then be determined on the basis of the reasonable expenditures and savings of those performing the work attributable to the change, including, in the case of an increase in the Contract Sum, a reasonable allowance for overhead and profit determined in accordance with Subparagraph 3.32.D.7 below. In such case, and also under Subparagraphs 3.32.B.4.b. and 3.32.B.4.c. above, the Contractor shall keep and present an itemized accounting together with appropriate supporting data for inclusion in a Change Order. If a Change Order results in additions to and decreases from the Contract Sum, the Contractor shall only be entitled to markup on the net increase to the Contract Sum, if any. If a Change Order results in a net decrease to the Contract Sum, the Change Order shall include removal of Contractor's Markup Fee for the portion of Contract Sum removed by the Change Order (i.e. the negative value of the Change Order shall be multiplied by the Contractor's markup fee percentage).
2. The Contractor and/or Subcontractor shall utilize the cost summary form approved by the Construction Manager when submitting invoices for a Change Order that is based on the actual cost of Time and Materials Work. The Contractor and/or subcontractor shall keep daily Time and Materials reports for all Change Orders. The daily reports shall include the names of employees, the employees' classifications, the nature of work performed, the hours worked, materials and equipment incorporated, and machinery or equipment used, if any, in the prosecution of each Change Order. Invoices and paid receipts will be retained by the Contractor and submitted as part of the daily Time and Materials report. Contractor's daily report shall constitute verification that the Change Order was performed, shall be submitted to the Owner at the end of each shift, and must be signed both by the Contractor and the Owner. A complete daily report for each day worked shall be submitted for each Change Order cost proposal.

3. Unless otherwise approved by the Director of Engineering and Construction, at a minimum the cost proposal for the Time and Materials Change Order prepared by Contractor shall include and indicate the items enumerated below. Rates for labor, equipment, and material shall be the same for extra and credit computations.
4. Time and Materials – Labor:
 - a. For all time and materials labor, the Contractor shall be paid the actual rate of wages and fringe benefits in effect at the time the Change Order was performed for each and every hour that said labor was actually engaged performing the Change Order. An example of the wage rate paid in the form of a certified payroll report for each employee shall be provided. Fringe benefits shall include costs paid to, or on behalf of, workers by reason of health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreements or other employment contracts generally applicable to the class of labor employed to perform the Change Order. Fringe benefits on non-union employees shall not include discretionary pensions and/or bonuses and any other fringe benefit that is discretionary or based on profit sharing, including employee stock option plans. In addition to the above the Contractor shall receive the actual cost of social security tax and workers' compensation and a total of 4% of direct labor cost for state and federal unemployment insurance. No other markups or allocations as a percentage of labor shall be allowed. The Contractor is required to furnish auditable evidence of the actual percentages applicable at the time the Change Order was performed as evidenced by forms from the Commonwealth of Pennsylvania.
 - b. Overtime will only be paid if authorized in writing by Owner.
 - c. Any portion of the time of the designated field superintendent for the Project attributable to the Change Order shall not be billed as a direct cost, unless specifically authorized in writing by the Owner.
 - d. Payment will be made for only one foreman classification per work crew, unless specifically authorized in writing by Owner.
 - e. The Contractor shall not request reimbursement for field engineering hours attributable to the Change Order, unless specifically justified in the proposal cover letter and approved in writing by the Owner.

5. Time and Materials – Materials and Supplies:
 - a. For a Time and Materials Change Order, the Contractor will be paid the cost of material and supplies approved by the Owner and incorporated into the Change Order and/or as evidenced by invoices and paid receipts.
6. Time and Materials – Equipment:
 - a. The Contractor shall not include in the cost of a Change Order any cost or rental of small tools (defined as tools with a replacement cost of \$1,500 or less), buildings, and field trailers. These costs shall be considered part of the Contractor's Markup Fee (as hereinafter defined).
 - b. For any construction equipment, the Contractor shall charge the applicable rental rate based on the Rental Rate Blue Book for Construction Equipment published by Equipment Watch, but under such conditions as contained herein. The use of any other publication for the determination of rental rates will be at the Owner's sole discretion.
 - c. Rental of equipment or equipment owned by the Contractor will be paid for by the hour. The hourly charge for equipment will be 1/176 of the monthly rate shown in the Rental Rate Blue Book for Construction Equipment.
 - d. The hourly charge for equipment on standby will be 1/352 of the monthly rate shown in the Rental Rate Blue Book for Construction Equipment. Equipment on standby shall not be billed for more than eight (8) hours in any Calendar Day or for more than forty (40) hours in any calendar week. Standby time is herein defined as the portion of an eight (8) hour Calendar Day during which equipment is located on site, but is not in operation. No operating or other costs shall be applied to equipment on standby.
 - e. The hourly charge for equipment not listed in the Rental Rate Blue Book for Construction Equipment will be the local rental rate of such equipment from area suppliers as established by the Owner or as calculated through the use of any publication for the determination of rental rates, whichever is lower.
 - f. Equipment rented from a third party will be paid at invoice cost. In addition, at the request of the Owner, the Contractor shall present competitive quotes for the Owner's evaluation prior to renting equipment from a third party.

- g. Equipment rates are for bare rental, without an operator.
- h. The Contractor may add the actual cost of fuel, oil, and lubricants used for the operation of the equipment used for a Change Order. The Contractor will be required to provide documentation as required by Owner to support the above charges. In lieu of that method and as approved by the Owner, the Contractor may utilize the operating rate for fuel, oil, and lubricants listed in the Rental Rate Blue Book for Construction Equipment. The Contractor shall not be paid for fuel, oil, and lubricant cost for any piece of equipment on standby.
- i. For Contractor owned equipment, the aggregate equipment rental charge for any single piece of equipment used in any Change Order shall be limited to fifty percent (50%) of the fair market value of the piece of equipment at the time the Change Order was performed.
- j. Equipment which is not in good condition as decided by the Owner shall be replaced at no additional cost to Owner.
- k. If the Change Order requires the use of construction equipment not already on the Site of the Work, Owner will only pay for one (1) round-trip transportation charge per Change Order for each piece of equipment brought to the Site, unless authorized in writing by the Owner. The round-trip transportation charge shall be based on a round trip of no more than 50 miles unless authorized in writing by the Owner.
- l. A list of all equipment to be used must be approved by Owner in writing prior to commencement of a Change Order.

7. Time and Materials – Markup Fee:

- a. The percentages for overhead and profit as set forth herein for a Time and Materials Work Order and/or Change Order may be less depending on the nature, extent, or complexity of the Work Order and/or Change Order, where the percentage is not commensurate with the responsibility and administration involved but in no event shall they exceed:
 - (1) In the case of a Time and Materials Work Order and/or Change Order performed by the Contractor's own forces, add a twenty percent (20%) markup to the costs identified and substantiated in Subparagraphs 3.32.D.1 through 3.32.D.6; and
 - (2) In the case of a Time and Materials Work Order and/or Change Order performed by the Contractor's subcontractors, at whatever tier, add a fifteen percent (15%) markup to the

proposed costs identified and substantiated in Subparagraphs 3.32.D.1 through 3.32.D.6 for the performing subcontractor, and the next higher subcontractor and the following subcontractor or Contractor will receive a five percent (5%) mark-up each. The maximum allowable mark-up allowed on subcontractor performed work is 26.8% (15%/5%/5%).

- b. The Markup Fee includes, but is not limited to the following costs, fees and expenses: home office, insurance, branch office, field office, project management, superintendents, estimating, engineering, training and safety meetings, coordination, expediting, purchasing, detailing, legal, accounting, data processing or other administrative services, shop drawing, permits, taxes comprehensive general liability insurance, auto insurance, umbrella insurance and subcontractor bond premium.

8. Contents of a Time and Materials Cost Proposal:

- a. At a minimum the Contractor shall provide the following items before a Time and Materials cost proposal will be considered:
 - (1) Time and Materials proposal cover letter stating total proposed cost for the additional work, and;
 - (2) Time and Materials cost summary using the spreadsheet format approved by the Construction Manager for the prime contractor and each subcontractor, and;
 - (3) Auditable backup for proposed Worker's Compensation for both prime and subcontractors, and;
 - (4) Invoices for any key materials used, and;
 - (5) Copies of published rates for the equipment that was utilized;
 - (6) Certified Payroll Reports for each employee billed.

E. Construction Change Directive

- 1. A Construction Change Directive is a written order signed by the Owner, directing a change in Work pursuant to a Change Order where there is a dispute as to the terms of the Change Order. A Construction Change Directive for a Change Order shall be in writing and signed by the Owner's Director of Engineering and Construction.
- 2. A Construction Change Directive shall be initiated by the Owner and used in the absence of total agreement on the terms of a Change Order.

3. An adjustment to the cost of the Work resulting from a Construction Change Directive shall be documented in a signed written agreement. The cost of the Work shall be determined as set forth in Paragraph 3.32 of this Agreement.
4. All Construction Change Directives shall be signed first by the Owner followed by the Contractor, respectively.
5. Upon receipt of a Construction Change Directive signed by Owner, Contractor shall promptly proceed with the Change Order involved and advise the Owner of Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment to the Change Order.
6. A Construction Change Directive signed by Contractor indicates the agreement of Contractor to its terms. Such agreement shall be effective immediately and shall be followed-up by a written Change Order.
7. Except as otherwise agreed by the Owner and Contractor, the method and the adjustment shall be initially determined by the Owner on the basis of reasonable expenditures and savings of those performing the Work attributable to the Change Order, including expenditures for design services and revisions to the Contract Documents. If the Contractor does not respond within five (5) days or disagrees with the method for adjustment, Contractor shall keep and present, in such form as Owner may prescribe, an itemized accounting together with appropriate supporting data to substantiate the accounting to the reasonable satisfaction of Owner.
8. Pending final determination of cost to the Owner for a Change Order, amounts not in dispute may be included in Applications for Payment. The amount of credit to be allowed by Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost. When both additions and credits covering related Work or substitutions are involved in a Change Order, Contractor's Markup Fee shall be figured on the basis of net increase, if any, with respect to that change.
9. If the Owner and Contractor do not agree as to the terms of a Construction Change Directive or the method for determining it, the adjustment or the method shall be decided pursuant to Paragraph 3.55.
10. When the Owner and Contractor, subsequent to the issuance of a Construction Change Directive, agree concerning the adjustments to the Change Order, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate written Change Order.

3.33 PROGRESS AND COMPLETION

- A. All time limits stated in the Contract Documents are essential conditions of the Contract. In executing the Contract and any Change Order, Contractor agrees that the number of days within which the Work shall be completed is reasonable for Contractor's Work.
- B. The Contractor shall carry the Work forward expeditiously and continuously with adequate forces to make progress in accordance with the latest Owner accepted Contractor's Schedule and to complete Contractor's Work within the time for completion of the Work.
- C. Except for constraints which may be specified for a certain part of the Work or otherwise imposed by Owner, the Work shall not be suspended or shut down, but shall progress continuously and expeditiously, unless otherwise approved in writing by the Owner. Contractor shall assemble material and equipment in advance of the need and, as may be appropriate to the progress, shall prefabricate assemblies which will comply with the Contract Documents, as may be specified, to expedite the Work and ensure completion within the interim milestone dates and dates of Substantial Completion and Final Completion required by the Contract Documents.

3.34 DELAYS AND EXTENSIONS OF TIME

- A. Should the progress, performance or completion of any portion or portions or the whole of Contractor's Work, which is on the latest Owner accepted Contractor's Schedule, be delayed as the result of:
 - 1. Any negligence of the Owner;
 - 2. Any Change Order requested by the Owner if the Change Order included additional time;
 - 3. Labor disputes (including strikes affecting transportation) that do, in fact, directly and critically affect the progress of the Work, but only if the persons or entities taking such actions are not the fault or responsibility of Contractor. An extension of time on account of an individual labor strike shall not exceed the number of Calendar Days of the strike;
 - 4. Tornado, fire, hurricane, blizzard, earthquake, flood, other acts of God, or any other unforeseeable and extreme natural event not within the control of the Contractor that prevents the progress of the Work on the critical path of the latest Owner accepted Contractor's Schedule;
 - 5. Delay authorized in writing by the Owner pending resolution of a dispute;
 - 6. Acts of the public enemy, acts of the state, federal or local government in its sovereign capacity;

7. Any other cause which the Owner determines may justify the delay;
8. Delays incurred to investigate any claim by Contractor for Unforeseen Conditions authorized in writing by the Owner;
9. The occurrence of weather-related delays in excess of forty-sixty (46) Work Days per twelve (12)-month period as follows: three (3) Work Days per month between April and October, and five (5) Work Days per month between November and March or
10. Order of any court of competent jurisdiction enjoining the performance of the Work that is not sought by Contractor in accordance with the Contract Documents;

The time of completion of the portion or portions of the Work directly affected by such delay, shall, upon request of Contractor as provided in Subparagraph 3.34.B, be extended by a reasonable period, in no event to exceed the time lost on the critical path of the latest Owner accepted Contractor's Schedule.

- B. Should Contractor reasonably believe, in accordance with Subparagraph 3.34.A, that it is entitled to an extension of time for completion of any portion or portions of the Work, the Contractor shall, within five (5) Calendar Days after the occurrence of the cause of the delay, notify the Owner in writing, setting forth (a) the cause for the delay; (b) the identity of the party or parties responsible for the delay; (c) a description of the portion or portions of Work on the critical path affected thereby; (d) an estimate of the probable impact and effect of the delay on the progress of the critical path Work and completion of the Work; (e) a technical evaluation and recommendation on how to minimize the probable impact and effect on the critical path work; and (f) all Project Records that document the delay. A subsequent written application for the specific number of days of extension of time requested shall be made by the Contractor to the Owner within fourteen (14) Calendar Days after the effects of the delay can be ascertained through use of the latest Owner accepted Contractor's Schedule. Any time extension resulting from the claim shall be authorized by a Change Order.
- C. It is a condition precedent to the consideration or prosecution of any claim for an extension of time that the foregoing provisions regarding the timing of notice be strictly adhered to in each and every instance so that Owner may determine the best course of action to implement to mitigate the impact to the critical path of the Contractor's Schedule, the Project Construction Schedule, or Other Contractors. Contractor expressly agrees that if Contractor fails to strictly comply with the notice provisions set forth in this Paragraph 3.34, the claim shall be deemed to have been waived by Contractor.

- D. The Contractor agrees that it shall have no claim against the Owner for an increase in the Contract Sum or for any other monetary damages resulting from delays, disruptions, or interference on account of or resulting from conditions set forth in Subparagraph 3.34.A except only for claims for delays caused by the Owner, as set forth in Subparagraph 3.34.A.1 and solely as provided in this Subparagraph 3.34.D. The Contractor may only recover funds in excess of the Contract Sum or for any other monetary damages resulting from delays, disruptions and interferences for Actual Costs incurred by the Contractor due to the proximate cause of the actions or inactions of the Owner, provided that the Contractor satisfies in full the following conditions precedent for each claim: (1) claims must strictly satisfy the notice requirements of Subparagraph 3.34.B; (2) Contractor identifies, in writing, and demonstrates that it has used all reasonable efforts to mitigate the effects of the alleged delay; and (3) Contractor provides Owner with a written analysis which demonstrates the proximate cause and effect relationship between the alleged cause of the delay and the effect on the critical path of the Contractor's Schedule where a critical path method schedule is specified in the Contract Documents. Contractor agrees that after demonstrated satisfaction of the provisions of Subsection 3.34.D(1)-(3) as set forth above, any claim for an increase in the Contract Sum for any other monetary damages resulting from delays, disruptions, and interferences caused by the Owner shall be limited to Contractor's Actual Costs. Actual Costs shall not include other compensatory or consequential damages, including, but not limited to, loss of home office overhead, loss of profits, or loss of bonding capacity, which are expressly waived by Contractor.
- E. Should changes in the Work pursuant to Article 3.32 materially affect the critical path progress of the Work of the Project, then any time extension request or any claim against the Owner resulting from the delay caused by the Change Order shall be submitted to Owner simultaneously with the request for monetary adjustments. Contractor acknowledges that any attempt to preserve or reserve Contractor's right to assert a subsequent claim for the effects of a prior Change Order or the cumulative effects of multiple Change Orders is ineffective and has no force or effect pursuant to this Agreement. For a Change Order which does not affect the critical path of the Contractor's Schedule, the Contractor shall not be entitled to a time extension.
- F. Delays resulting from a labor dispute not the fault or responsibility of Contractor will result in a time extension no longer than the dispute period, in addition to a reasonable mobilization period, and may be less depending on the actual effect on the critical path of the Contractor's Schedule and the operations that were actually curtailed or suspended. Lockouts and improper labor practices, over which the Contractor has control or right of control, or labor force shortages, are not valid grounds for a time extension.

- G. Delays to Subcontractors will be valid reasons for time extension only under the same conditions as set forth in this Paragraph 3.34. Contractor shall provide the required notice and information for all delays to the progress of the Work alleged by its Subcontractor(s) as set forth in Subparagraph 3.34.B.
- H. Contractor acknowledges and agrees that there may be changes to the latest Owner accepted Contractor's Schedule which may require Contractor to reschedule and resequence the Work in order to meet its obligations, to schedule and coordinate its Work with the Work of Owner's other trade contractors, if any, and to accommodate the needs and requirements of Owner. In the event the rescheduling and resequencing of the Work results in an extension of the critical path of the Contractor's Schedule where a critical path method schedule is specified in the Contract Documents, a time extension may be granted to Contractor, but only to the extent the Contractor's critical path time of performance was actually extended. If there is no extension of the critical path, Contractor agrees it is not entitled to a time extension. Contractor agrees it shall have no claim against Owner for any additional loss, cost, or expense alleged to be the result of any rescheduling or resequencing of the Work.
- I. Contractor agrees that it shall have no claim for an increase in the Base Bid Amount, any Specific Allowance or the Contract Sum for delay, disruption, interference, acceleration, or hindrance caused, in whole or in part, by reason of any delay events not proximately caused by Owner. Contractor agrees to accept, as its sole and exclusive remedy, an extension of time unless the Owner elects to accelerate Contractor's performance in lieu of granting an extension of time. If Owner elects to accelerate Contractor's performance due to delays in no way related to actions or omissions of the Contractor, subcontractor, or any entity for which Contractor may be responsible, Owner agrees to adjust the Base Bid Amount, any Specific Allowance, or the Contract Sum pursuant to Paragraph 3.32 of this Agreement.
- J. The Owner may, if it deems necessary, direct the Contractor to work overtime (as permitted by law) or shift work, and, if so directed, Contractor shall work overtime or shift work, and the Owner shall pay the Contractor for the additional premium wages and benefits paid, plus taxes imposed by law on such additional wages pursuant to Paragraph 3.32 of this Agreement. If, however, Contractor is, in Owner's reasonable opinion, behind schedule with the Work, the Contractor shall, at its own expenses, work such reasonable overtime as may be necessary to complete the Work on time and in compliance with the latest Owner accepted Contractor's Schedule.

3.35 PROGRESS ESTIMATES AND APPLICATIONS FOR PAYMENT

The parties hereto agree that Act 142 of 1994, amending the Public Works Contract Regulation Law (73 P.S. Section 1621) shall not apply to any Contract terms between the Owner and the Contractor.

For the purposes of this Contract, the Owner intends to make progress payments to the Contractor based upon the extent of the Work completed. Determination of the amount of Work completed will be determined in accordance with this Section 3.35.

The Contractor shall submit a proposed Schedule of Values to the Construction Manager pursuant to the Contract requirements to enable the Construction Manager to prepare an estimate form or review a payment form for use in determining the amount of monies periodically due to the Contractor for completed Work. In order to make progress payments, it will be necessary for the Contractor to include values for each item of Work shown as an activity on the Contractor's Project Schedule. The Construction Manager will have the right to approve, modify, or reject this price breakdown if, in its sole opinion, the amounts reflected are not appropriate to the Work elements involved; there are inaccurate, missing, or incomplete items; or the unit prices listed thereon are unbalanced. The determination of the Construction Manager with regard to the price breakdown shall be final, binding, and non-appealable.

The Owner, at its option, may make payments for materials and equipment stored at the Job Site or at a facility acceptable to the Construction Manager. If payment is requested on the basis of materials and equipment not incorporated in the Work, but deliberately and suitably stored at the Job Site or at another location agreed to in writing, any application for payment shall be accompanied by a bill of sale, paid invoice, or other documentation warranting that the Owner has received the materials and equipment free and clear of all liens and encumbrances and evidence that the materials and equipment are covered by Contractor supplied property insurance and other arrangements to protect the Owner's interest therein, all of which will be satisfactory to the Owner. Payment shall only be requested for those stored materials and equipment not incorporated into the Work if their unit cost is greater than \$500 or their bundled value is greater than \$1,000. (Broken bundles or boxes will be discounted.)

The Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any progress payment, whether incorporated in the Project or not, will pass to the Owner no later than the time of application for payment, free and clear of all liens and encumbrances.

If there exists a good faith dispute over the amounts to be paid, the Owner shall pay the undisputed amount, but the disputed portion may be withheld from the Contractor until resolution of the matter, with that portion due forty-five (45) calendar days after said resolution. No request by the Contractor for an adjustment to the Contract Sum, regardless of the reason, shall be allowed if asserted after final payment under this Contract.

Any payment made pursuant to a progress estimate is not an acceptance by the Owner of any part of the Work, material, or equipment covered by such progress estimate. The Owner may refuse to make any partial payments under the Contract for Work performed after any applicable Milestone Date and shall be entitled to withhold payments as a result of the Contractor's failure to complete its Work in accordance with the specified Milestones.

Payments shall be subject to the retainage described in Section 3.37 of the General Conditions entitled "Monies May Be Retained Or Withheld" and may also be reduced by the Owner for any credits due to the Owner including amounts owed for liquidated damages, amounts resulting from Defective Work, amounts resulting from claims made against the Owner on account of the Contractor's performance or furnishing of the Work, or amounts resulting from other items entitling the Owner to a set-off.

A. Payments to Subcontractors:

In the absence of a good faith reason, within fourteen (14) calendar days of the receipt of payment by the Contractor or fourteen (14) calendar days after receipt of a subcontractor's or supplier's invoice, whichever is later, the Contractor shall pay the subcontractor or supplier, with whom it has contracted, the full or proportional amount received for each such subcontractor's or supplier's Work and materials. Should the Contractor fail to pay a subcontractor or supplier without a good faith reason, the Owner may, at its discretion, withhold future payments owed to the Contractor. No subcontractor or supplier shall become a third-party beneficiary of this provision and this provision shall not afford any subcontractor or supplier a cause of action against the Owner.

B. Procedure

1. General

During the Preconstruction Conference, the specific details for progress payments will be reviewed and sample forms distributed to the Contractor.

2. Schedule of Values

The Contractor shall provide a Schedule of Values outlining the values of each component of the Work as shown on its Project Schedule as an activity. The Schedule of Values will be computerized into a standard spreadsheet format established and acceptable to the Construction Manager.

3. Draft Application for Payment

The Contractor shall prepare a draft Application for Payment in the form provided through the Construction Manager for each pay period indicating the percentages of completion for each activity and properly stored materials and equipment for which payments are to be requested. This draft will be effective for the end of the month. A review will be performed by the Construction Manager to confirm that the amounts are acceptable. Any required adjustment will be discussed with the Contractor.

4. Formal Application for Payment

After agreement between the Contractor and the Construction Manager on quantities and their associated value, the Contractor shall submit an original Formal Application for Payment signed in blue ink, and two copies of the Formal Application for Payment for that pay period, and shall perform all extensions and arithmetic, and provide back-up documentation, etc., on the forms provided through the Construction Manager. The Formal Application for Payment shall be executed by an authorized officer of the Contractor's firm and submitted by the sixth calendar day of the month.

Upon receipt of each Formal Application for Payment, the Construction Manager staff will verify that any agreed-upon modifications have been made from the Draft Application for Payment, check all extension and arithmetic, and ensure that all the Contractor provisions pertaining to progress payments have been met and that all necessary substantiating documentation is included. After review and approval of the Formal Application for Payment by the Construction Manager, the Owner shall pay the Contractor within sixty (60) calendar days of submitting its Formal Application for Payment unless the Owner is withholding payment.

When Work nears completion, cost estimates of uncompleted Work will be made by the Construction Manager as a means of verifying percentages of completed Work.

5. Retainage

The Construction Manager will assure the retainage, as prescribed by Section 3.37 of the General Conditions entitled "Monies may be Retained or Withheld", will be deducted from the payment request. The retained percentage will not be relied on to cover costs of correction of defects, omissions, and the like; thus, additional sums may be withheld by the Owner to cover such items.

6. Miscellaneous

The Contractor will be advised by the Construction Manager in writing of reductions in the payment request for Work which has been performed but does not meet Contract Documents' requirements.

3.36 FINAL PAYMENT

Payment will be made by the Owner within forty-five (45) calendar days following submittal of the Contractor's Final Payment Application, less one- and one-half times any amount as is required to complete any then remaining uncompleted minor items as certified by the Engineer (and other adjustments and any liquidated damages as provided in the Contract Documents). The Owner's Certificate of Substantial Completion will include a punch list of uncompleted items (See Contract Provisions Section entitled "Certification of Substantial

Completion"). Final payment of any amount withheld will be paid upon certification by the Engineer of Final Acceptance (See Section 3.53 entitled "Final Completion").

3.37 MONIES MAY BE RETAINED OR WITHHELD

The Owner shall at any time retain from any monies which could otherwise be payable an amount not exceeding the amount of retainage outlined in Act 317 known as the Contractor's Act approved November 26, 1978, and amended by Act 200, approved November 23, 1982. If the Act does not apply to purchases under this Contract, the Owner may utilize retention provisions similar to those contained in the Contractor's Act. The Owner may apply any moneys retained hereunder to reimburse itself for any and all costs, expenses, losses, damage and damages, liabilities, suits, judgments, and awards incurred, suffered, threatened, or sustained by the Owner and chargeable to the Contractor hereunder or as determined hereunder.

Whenever there is unacceptable or Defective Work, or there are outstanding or potential third party claims against the Owner arising from the Contractor's activities, or there is a reasonable doubt on the part of the Owner that the Contractor will satisfactorily complete its Contract, or when liquidated damages may be owed to the Owner pursuant to the terms of this Contract, the Owner may withhold so much as is necessary, in the Owner's discretion, to reimburse the Owner for any costs or expenses that may accompany these conditions.

3.38 ACCOUNTING RECORDS

A. The Contractor shall keep full and detailed Project Records and exercise such controls as may be necessary for proper business and financial management under the Contract Agreement. The Owner, Owner's accountants or any local, state, or federal governmental authority, or their duly authorized representatives shall be afforded access to Contractor's Project Records and Contractor shall preserve the Projects Records and shall make them available for inspection or copying for a period of four (4) years after Substantial Completion, or for such longer period as may be required by Applicable Laws. In the event of arbitration, litigation, or the settlement of claims arising out of the performance of this Contract or any contracts with vendors, the time period provided in this paragraph shall be extended until two (2) years after any appeal, arbitration, litigation, or claim shall have been finally disposed of. All Project Records related to financial matters will be maintained in accordance with generally accepted accounting principles and audit standards, consistently applied. There will be an "open book" policy in effect at all times with regard to all Project Records maintained by the Contractor, or anyone on its behalf and the Owner, Owner's accountants or any local, state, or federal governmental authority, or their duly authorized representatives will be afforded full and complete access to the Project Records at all reasonable times. The Owner, Owner's accountants or any local, state, or federal governmental authority, or their duly authorized representatives will have the right to audit the Project Records of Contractor, Subcontractors, and Sub-Subcontractors. If the audit results in a finding

that an overcharge or error of any nature has occurred, Owner will adjust Contractor's Application(s) for Payment accordingly and the Contractor shall be responsible for the cost of the audit.

- B. If the Contractor carries out any of the duties of this Agreement through a Subcontract with a value of \$25,000.00 or more over a 12-month period, the subcontract will also contain a clause compelling the Subcontractor to abide by the provisions of Paragraph 3.38.
- C. Owner's authorized representative or designee shall have access to the Contractor's facilities to inspect and copy Project Records, shall be allowed to interview all current or former employees to discuss matters pertinent to the performance of the Agreement and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with Paragraph 3.38.
- D. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor's Project Records shall be made within a reasonable amount of time (not to exceed 30 Calendar Days) from the presentation of Owner's undisputed findings to the Contractor.

3.39 SUBMITTALS

- A. To assure that the products furnished under this Contract conform to the intent of the Contract Documents and requirements under the specifications, the Contractor shall submit: testing data and/or reports; manufacturer's data and pertinent system design information; certifications; installation drawings and instructions; Shop Drawings; samples; requests for substitutions as required by and in strict conformance with the Contract Documents; and, additional information as may be requested by the Owner.
- B. The Contractor shall review and submit to Owner with reasonable promptness and in such sequence required by the Contractor's Schedule, all Shop Drawings, Product Data, Samples and Contractor's other submittals required by the Contract Documents.
- C. By reviewing and submitting Shop Drawings, Product Data, Samples, and Contractor's other submittals required by the Contract Documents, Contractor represents that it has determined and verified all materials, field measurements, and field construction criteria related to the Work, or will do so, and that it has checked and coordinated the information contained within the Shop Drawings, Product Data, Samples and Contractor's other submittals with the requirements of the Work and of the Contract Documents.
- D. The Contractor shall make any corrections required by the Owner and shall resubmit the required number of corrected copies of Shop Drawings, Product Data, Samples or Contractor's other submittals required by the Contract Documents. Resubmittal of Shop Drawings, Product Data, Samples, and Contractor's other submittals necessitated by required corrections shall not be a cause for extension of time. Contractor shall direct specific attention in writing or on resubmitted Shop Drawings,

Product Data, Samples, or Contractor's other submittals, to revisions other than the corrections requested on previous submittals.

- E. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by Owner's review or approval of Shop Drawings, Product Data, Samples, or Contractor's other submittals required by the Contract Documents, unless Contractor has specifically informed the Owner in writing of such deviation at the time of submission and the Owner has given written approval to the specific deviation. All Shop Drawings, Product Data, Samples, or Contractor's other submittals required by the Contract Documents which do not strictly conform with the requirements of the Contract Documents do not alter the terms and conditions of this Agreement regardless of Owner's review or approval of same. Contractor shall not be relieved from responsibility for errors or omissions in the preparation of Shop Drawings, Product Data, Samples, or Contractor's other submittals required by the Contract Documents, including, without limitation, the failure to comply with Applicable Laws or by the Owner's review or Owner's approval.
- F. Shop Drawings, Product Data, Samples, and Contractor's other submittals required by the Contract Documents shall be dated and bear: Name of Project; description or names of equipment, materials and items, and complete identification of locations at which materials or equipment are to be installed.
- G. Submission of Shop Drawings, Product Data, Samples, and Contractor's other submittals required by the Contract Documents shall be accompanied by transmittal letter in duplicate, containing Project name, Contractor's name, number of Drawings, Product Data, Samples, and Contractor's other submittals, titles and other pertinent data. Each and every submission shall be included on Contractor's Submittal Schedule.
- H. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, Owner shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

3.40 FIELD SERVICES, FIELD INSPECTIONS AND START-UP TESTING

A. General

As part of the Work of this Contract, the Contractor shall provide (as required) field services at the Owner's facility before, during, and after Work construction and/or installation, to inspect and approve the construction and/or installation of the Contractor's Work; to conduct commissioning inspections and start-up operations; to conduct Performance and Acceptance Tests; and to train the Owner's personnel in the proper operation and maintenance of the Work provided under this Contract, as set forth herein. Specific time periods will not be less than that specified in the Contract Documents or recommended by each Component Manufacturer.

The Contractor shall cooperate fully with the Construction Manager and all others involved in the field construction so that it does not delay or interfere with their work.

Field Services, Field Inspections and Start-Up Testing may be more fully described in Article 6.

3.41 FIELD SERVICE ASSISTANCE/OWNER-FURNISHED EQUIPMENT

If the installation of Owner-Furnished Equipment (as further described in Section 3.44.C below) is part of the Work of this Contract, it is to be tested, started up and serviced as part of the Work of this Contract.

For those services specified as the responsibility of Owner-Furnished Equipment suppliers in separate contracts with the Owner, the Contractor shall schedule field services in conjunction with the Construction Manager and notify the Owner at least 21 calendar days before the manufacturers' representatives are needed for field inspection and testing of each Owner-Furnished Equipment.

Where the manufacturer's representatives of Owner-Furnished Equipment Manufacturers will provide training, the Contractor shall schedule training sessions in conjunction with the Construction Manager, determine appropriate locations for training, and provide the Owner at least 21 calendar days' advance notice of the training schedule.

The Owner shall assure that Owner-Furnished Equipment suppliers have provided spare parts and special tools and approved operations and maintenance manuals to the site before any field services commence.

3.42 TRAINING SERVICES

The Contractor shall adequately instruct designated employees or representatives of the Owner in the operation, maintenance, and care of all Work provided under this Contract. Such training shall be coordinated and administered through the Construction Manager.

During the Acceptance Tests, the Owner's operating personnel will assist in the operation of the item of Work being tested, performing operating adjustments under the direction of the representatives of the Contractor. To that extent, the Owner's personnel will take an active role in the operation of the item of Work being tested, as a part of their training, under the direct supervision of the Contractor's representatives.

A. Responsibility During Tests

The Contractor shall be fully responsible for the operation of the respective Work provided under this Contract during all periods of testing and instruction and will neither have nor make any claim for damage to any item of Work prior to its Final Acceptance.

Training Services may be more fully described in Article 6.

3.43 TESTING

Three (3) types of testing are required for certain equipment and components covered under this Contract: Shop Tests; Acceptance Tests; and Performance Tests. All Tests shall be conducted so that they may be witnessed by representatives of the Owner. It shall be the responsibility of the Contractor to assure that such tests are performed and shall submit the written test reports and certificates to the Owner summarizing the results of all tests and indicating satisfactory completion of all required tests. The reports and certificates for Shop Tests shall be submitted to the Owner as soon as possible after shipment of the equipment and components to the Owner's facility, unless they can be submitted prior to shipment. In all cases such reports and certificates shall be submitted prior to Acceptance Testing on site.

The various tests and obligations of the Contractor during testing are more specifically described in Article 6.

The Contractor shall note that the design requirements provided in the Contract Documents, including the Specifications for each component of work as well as overall performance, are considered essential to meeting the minimum requirements of this Contract.

3.44 CONTROL OF MATERIALS

A. Quality Requirements

The materials, labor, equipment, and systems used on the Work shall conform to the requirements of the Contract Documents.

The Owner expects that all manufactured and installed items, equipment, components, and materials will perform at or above the manufacturers or suppliers written specifications, as well as all applicable standards, laws, and regulations.

The Contractor shall be responsible for the quality of the materials and construction and shall be solely responsible for complying fully with the Contract Documents.

The Owner may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by the Manufacturer's or supplier's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract.

The Owner or its authorized representative may inspect, at its source, any specified materials or assembly to be used in the Work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the Work and to obtain samples required for the Owner's acceptance of the materials or assembly.

It is understood and agreed that the Owner shall have the right to retest any material which has been tested and approved at the source of supply after it has been delivered to the Job Site. The Owner shall have the right to reject material which, when retested, does not meet the requirements of the Contract, plans, or Specifications.

All storage sites on private property or the Job Site shall be restored to their original condition by the Contractor at its entire expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

B. Unacceptable Materials

Any materials or assembly that does not conform to the requirements of the Contract Documents shall be considered unacceptable and may be rejected. The Contractor shall remove any rejected materials or assembly from the Site of the Work, unless otherwise instructed by the Owner.

No rejected materials or assembly, the defects of which have been corrected by the Contractor, shall be returned to the Job Site of the Work until such time as the Contractor has demonstrated, to the Owner's satisfaction, that the use of such materials or assembly in the Work will produce a finished product which complies, in all respects, with the requirements of the Contract Documents.

The decisions of the Engineer, through the Construction Manager, as to whether materials and workmanship should be accepted or rejected will be binding upon the Contractor.

The Owner will not be stopped by any measurement, estimate, or certificate made by it or any of its representatives from later showing that the Work, materials, or equipment do not conform to the requirements of the Contract Documents.

C. Owner-Furnished Materials and Equipment

The Contractor shall furnish all materials and equipment required to complete the Work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished Materials and Equipment shall be made available to the Contractor at the location specified in the Contract Documents.

After any Owner-Furnished Material or Equipment has been received by the Contractor, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies which may occur during the Contractor's handling, storage, or use of such Owner-Furnished Materials and Equipment. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-Furnished Materials and Equipment. After any Owner-Furnished Material or Equipment has been received by the Contractor, it shall become part of the Work for purposes of this Contract, including all indemnifications and warranty provisions as described in the Contract Documents including the Contract Provisions Sections entitled "Obligations and Liability of the Contractor" and "Warranty".

3.45 AUTHORITY AND DUTIES OF INSPECTOR

Inspectors employed by the Owner shall be authorized to inspect all Work performed and all material furnished. Such inspection may extend to all or any part of the Work, whether ongoing or completed, and to the preparation, fabrication, or manufacture of the materials to

be used. Inspectors are not authorized to revoke, alter, or waive any provision of the Contract or accept any Work. Inspectors are not authorized to issue instructions contrary to the Contract Documents or to act as foremen for the Contractor.

3.46 INSPECTION OF THE WORK

All materials and each part or detail of the Work shall be subject to inspection by the Owner. The Owner shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Owner requests it, the Contractor, at any time before Final Acceptance of the Work, shall remove or uncover such portions of the finished Work as may be directed. After examination, the Contractor shall restore said portions of the Work to the standard required by the Specifications. Should the Work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra Work; but should the Work so exposed or examined prove unacceptable or in any way defective, the uncovering, or removing, and the replacing of the covering or making good of the parts removed and any and all attorneys' fee, Engineering fees and/or any other consulting fees, will be at the expense of the Contractor who performed the unacceptable Work.

Any Work done or materials used without inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense.

Should the Work include relocation, adjustment, or any other modification to existing facilities, not the property of the Owner or its authorized representative, the owners of such facilities shall have the right to inspect such Work. Such inspection shall in no way make any facility owner a party to the Contract and shall in no way interfere with the rights of the parties to this Contract.

If any rule or and regulation of any body having jurisdiction require any Work (or any part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such body, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, paying all costs in connection therewith, and shall furnish the Construction Manager the required certificates of inspection, for approval. The Contractor shall also be responsible for arranging and obtaining and shall pay for all costs in connection with inspection, tests or approvals required for the Owner's acceptance of materials or equipment to be incorporated in the Work.

3.47 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK

All Work which does not conform in any way to the requirements of the Contract Documents will be considered Defective Work and unacceptable, unless otherwise determined acceptable by the Owner.

Defective Work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause, shall be removed immediately and replaced in an

acceptable manner in accordance with the Contract Documents. The Contractor shall pay all claims, costs, losses, and damages caused or resulting from such correction or removal (including but not limited to all costs of repair or replacement of the Work of others and any and all attorneys' fee, Engineering fees and/or any other consulting fees incurred by the owner).

Work done contrary to the instructions of the Owner, Work done contrary to the Specifications, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the Contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply within three (3) working days with any order of the Owner made under the provisions of this Section, the Owner will have authority to cause Defective Work to be remedied or removed and replaced and unauthorized Work to be removed and to deduct the costs (incurred by or on behalf of the Owner) from any monies due or to become due the Contractor. If such costs and damages exceed the unpaid Contract Sum, the Contractor shall pay the difference to the Owner.

3.48 OWNER MAY STOP THE WORK

If the Work is defective, or the Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or, in the Owner's sole opinion, fails to furnish or perform the Work in such a way that the completed Work will conform with the Contract Documents, the Owner may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any surety or any other party. Only such orders issued in a writing signed by the Engineer and issued through the Construction Manager shall be considered valid.

3.49 ACCEPTANCE OF DEFECTIVE WORK

If instead of requiring correction or removal and replacement of Defective Work, the Owner prefers to accept it, the Owner may do so. The Contractor shall pay all expenses, claims, costs, losses, and damages attributable to the Owner's evaluation of and determination to accept such Defective Work, including any and all attorneys' fee, Engineering fees and/or any other consulting fees incurred by the Owner. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the Owner shall be entitled to an appropriate decrease in the Contract Sum. If the acceptance occurs after final payment, or if such costs and damages exceed the unpaid Contract Sum, an appropriate amount will be paid by the Contractor to the Owner or, at the Owner's option, may be set off from other amounts owed by Owner to the Contractor pursuant to other contracts.

3.50 OWNER MAY CORRECT DEFECTIVE WORK

If the Contractor fails within three (3) working days after receipt of a written notice from the Engineer to correct Defective Work or to remove and replace rejected Work as required by

the Owner, or if the Contractor fails to perform the Work in accordance with the Contract Documents, or if the Contractor fails to comply with any other provision of the Contract Documents, the Owner may correct and remedy any such deficiency. In connection with such corrective and remedial action, the Owner may exclude the Contractor from all or part of the Job Site, take possession of all or part of the Work, and suspend the Contractor's services related thereto, take possession of the Contractor's tools, appliances, construction equipment and machinery at the Job Site, and incorporate in the Work all materials and equipment stored at the Job Site or for which the Owner has paid the Contractor but which are stored elsewhere. The Contractor shall allow the Owner, the Owner's representatives, agents, and employees access to the Job Site to enable the Owner to exercise the rights and remedies under this Section. All claims, costs, losses, and damages incurred or sustained by the Owner in exercising such rights and remedies will be charged against the Contractor and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the Owner shall be entitled to an appropriate decrease in the Contract Sum or any other remedy permitted in the Contract Documents or allowed by laws and regulations. Such claims, costs, losses, and damages will include, but not be limited to, all costs of repair or replacement or Work of others destroyed or damaged by correction, removal, or replacement of the Contractor's Defective Work and any and all attorneys' fee, Engineering fees and/or any other consulting fees incurred by the Owner. The Contractor shall not be allowed an extension of the Contract Time because of any delay in the performance of the Work attributable to the exercise by the Owner of the Owner's rights and remedies hereunder.

3.51 PROTECTION, MAINTENANCE AND SECURITY DURING CONSTRUCTION

The Contractor shall protect, maintain, and secure the Work during construction and until the Work is accepted. This protection, maintenance and security shall constitute continuous and effective Work prosecuted day by day, with adequate equipment and forces so that the Work is protected, maintained, and secured in satisfactory condition at all times.

All costs of protection, maintenance, and security Work during construction and before the Project is accepted shall be included in the prices for the various Contract Items, and the Contractor will not be paid an additional amount for such Work.

Should the Contractor at any time fail to so protect, maintain, and secure the Work, the Owner upon observing such a failure, shall notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory condition, not to exceed three (3) days.

Should the Contractor fail to respond to the Owner's notification, in addition to any and all other remedies afforded to the Owner under this Contract Agreement, the Owner may suspend any of the Contractor's Work necessary for the Owner to correct such unsatisfactory protection, maintenance, or security condition, depending on the exigency that exists. Any protection, maintenance or security cost incurred by the Owner, shall be deducted from

monies due or to become due the Contractor, or if such costs and damages exceed the unpaid Contract Sum the Contractor shall pay the difference to the Owner.

3.52 CERTIFICATION OF SUBSTANTIAL COMPLETION

A. Preliminary Procedures:

Before requesting inspection for certification of Substantial Completion of entire work, the Contractor shall have completed the following:

1. Advise the Owner of pending insurance change-over requirements.
2. Submit specific warranties, including all Manufacturer's warranties, Workmanship bonds, maintenance agreements, final certifications, and similar documents.
3. Obtain and submit any releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and other similar releases.
4. Submit As-Built and Record Drawings, operations and maintenance manuals, damage or settlement survey, property survey, (if any) and similar final record information for all work completed at substantial completion.
5. Deliver tools, spare parts, extra stock, and similar items.
6. Make any final change-over of permanent locks and transmit keys to the Owner, if necessary. Advise the Owner's personnel of change-over in security provisions.
7. Certify that Start-up, Performance and Acceptance testing of Work, and instruction and training of the Owner's operating and maintenance personnel has been completed.
8. Submit Consent of Surety to Reduction in Retainage.
9. Submit such other documentation as may be requested by the Owner.

B. Inspection Procedures:

1. On receipt of a Contractor request for inspection for certification of Substantial Completion, which shall include any known exceptions to the items described in Section 3.43 above, the Construction Manager will coordinate, within a reasonable time thereof, a final inspection and advise the Contractor of any unfilled Contract requirements. The Owner will either prepare the Certificate of Substantial Completion form following the

inspection, or, through the use of a punch list form, will advise the Contractor of Work that must be completed prior to issuance of the certification.

2. The Construction Manager will arrange another inspection when requested and assured by the Contractor that the Work has been substantially completed. The Contractor shall bear all costs the Owner may incur with regard to such re-inspections. Results of the completed inspection will form part of the basis of the requirements for Final Acceptance.

C. Certificate of Substantial Completion:

Upon the Contractor's completion of all the above, and based upon the Construction Manager's recommendation, the Owner will issue a Certificate of Substantial Completion.

3.53 FINAL COMPLETION

A. Preliminary Procedures:

At least five (5) calendar days before requesting final inspection for certification of Final Acceptance and final payment, the Contractor shall have completed the following in form and substance acceptable to the Owner:

1. Submit Guarantees and Bonds as required by the Contract.
2. Submit Maintenance Bond.
3. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
4. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
5. Submit a certified copy of the final inspection punch list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for Final Acceptance, and the list has been endorsed and dated by the Engineer.
6. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.
7. Submit consent of surety to final payment.

8. Submit a final liquidated damages settlement statement.
9. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
10. Submit the Contractor's Release and Waiver of Claims.
11. Submit Releases and Waivers in form acceptable to the Owner from any or all subcontractors or suppliers or the like who performed Work or supplied labor, materials, or services pursuant to the execution of this Contract or as may be requested by the Owner.
12. Submit the Contractor's Affidavit of Payment of Debts and Claims.
13. Submit written certification that:
 - a. the Contract Documents have been reviewed.
 - b. the Work has been inspected for compliance with the Contract Documents.
 - c. the Work has been completed in accordance with the Contract Documents.
 - d. the Work has been tested in the presence of the Construction Manager and is operational.
 - e. the Work is complete and ready for final inspection.
14. Submit all other submittals required by the Contract Documents or otherwise reasonably requested by the Owner.

B. Reinspection Procedure:

The Construction Manager will coordinate reinspection of the Work upon receipt of Contractor notice that the Work, including inspection of punch list items from earlier inspections, has been completed. The Contractor shall bear all costs the Owner may incur with regard to such re-inspections.

1. Upon completion of reinspection, the Owner will either prepare a Certificate of Final Acceptance, or, through the use of a punch list form, will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance.
2. If necessary, reinspection will be repeated. This, however, shall not limit the Owner's right to receive liquidated damages for delay.

3. Non-Pennsylvania corporations and their sureties will not be relieved of their obligations until they furnish evidence that they have paid or posted security for, all state taxes and any other obligations owed to the Commonwealth.

If the Contractor refuses or fails to perform the punch list items, the Contractor hereby consents to the withholding of payments owed to the Contractor by the Owner for any reason or on any project, made at the discretion of the Owner and which may be deducted from any monies due or to become due the Contractor, or if such costs and damages exceed the unpaid Contract Sum the Contractor shall pay the difference to the Owner.

C. Certificate of Final Acceptance:

Upon the Contractor's completion of all the above, to the Construction Manager's satisfaction, the Owner will issue a Certificate of Final Acceptance.

D. Final Cleaning Up:

Upon completion of the Work and before Final Acceptance and Final Payment will be made, the Contractor shall remove from the Job Site all of its machinery, equipment, surplus and discarded materials, rubbish, and temporary structures. The Contractor shall leave the Site in a neat and presentable condition and shall call the Work "Broom-Clean" or its equivalent, except as otherwise specified. Material cleared from the Site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner and disposes of the material in a manner which complies fully with all applicable laws and regulations.

3.54 USE OR PARTIAL PAYMENT NOT ACCEPTANCE

It is agreed that this is an entire Contract for one whole and complete Work and that neither the Owner's entrance upon or use of any part of the Work nor any partial payments by the Owner shall constitute an acceptance of the Work or any part thereof before its entire completion and Final Acceptance. Accepting such instances where, as may be specifically provided for in the Specifications or by Written Amendment, the Owner provides acceptance covering one or more completed unit(s) or portion(s) of the Work.

If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

3.55 ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE OF OWNER

Acceptance by the Contractor of final payment shall release the Owner, and any representative of the Owner, from any and all claims and all liability to the Contractor for all things done or furnished in connection with the Work, and from every act, omission, or neglect of the Owner, its agents, and others relating to or arising out of the Work. No payment, however, final or otherwise, shall operate to release the Contractor from its obligations under this Contract. Failure of the Owner or any of its agents or representatives during the progress of the Work to discover or reject materials, equipment, or Work not in accordance with the Contract Documents shall not be considered an acceptance or a waiver of defects therein, and payment to the Contractor or partial occupancy by the Owner shall not be considered an acceptance of the Work or materials which are not strictly in accordance with the Contract Documents.

3.56 DISPUTES AND CLAIMS

Subject to Section 3.34 and any other applicable provisions of the Contract Documents, any dispute, claim, or controversy of any nature arising out of or relating to this Contract, or the breach thereof, or otherwise related to the Project, excluding claims and disputes between Prime Contractors described above in Section 3.8 (hereinafter called "Disputed Matter"), must be presented by the Contractor to the Construction Manager in writing within fifteen (15) calendar days of (a) discovery of the event giving rise to the Disputed Matter, or (b) when, by the exercise of reasonable diligence, the Contractor should have recognized the condition giving rise to the Disputed Matter.

Upon receipt of a timely Disputed Matter, the Construction Manager will render an initial decision (hereinafter called "Initial Response") approving or rejecting the Disputed Matter, or indicating that the Construction Manager is unable to resolve the Disputed Matter. This Initial Response shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties of any change in the Contract Sum or Contract Time or both. The Initial Decision shall be binding on the Contractor unless the Contractor timely disputes it in accordance with the process set forth below.

In the event that the Contractor disputes the Initial Response given by the Construction Manager, the Contractor must, within fifteen (15) calendar days of the Initial Response from the Construction Manager, refer the Disputed Matter, in writing, with all material facts described, to the Executive Director for determination. No Disputed Matter will be reviewed by the Executive Director and the Contractor shall have waived its right to contest the Disputed Matter unless the Contractor has complied with all procedures and/or requirements relating to the Disputed Matter found in the Contract Documents or otherwise established by the Owner.

As an additional express condition precedent to the Contractor's right to submit a Disputed Matter to the Executive Director, the Contractor may be required to provide certain materials utilized by the Contractor in preparation of its Bid, including, but not limited to, worksheets, quotations, calculations, pricing data, estimates and correspondence relating thereto, clarification, additional information or data requested, and shall present in writing to the Executive Director evidence regarding the Disputed Matter, including evidence regarding liability, causation and damages, sufficient to enable the Executive Director to render a decision with respect to the Disputed Matter. The Executive Director, in his/her sole discretion, may require an informal hearing prior to making a determination. The Executive Director may conduct the hearing or may appoint a hearing officer of his/her choice. If the hearing officer is anyone other than the Executive Director, the hearing officer shall make a recommendation to the Executive Director as to the disposition of the Disputed Matter. The decision of the Executive Director, or hearing officer, shall be made in writing within fifteen (15) calendar days of the hearing.

It is mutually agreed that any controversies, claims or disputes of any nature arising out of or relating to this Contract, or the breach thereof, or otherwise related to the Project, including any unresolved Disputed Matter, may, at the Owner's sole discretion, be settled by arbitration in accordance with the then current Construction Industry Arbitration Rules of the American Arbitration Association (in the Pittsburgh, Pennsylvania office only) and that all findings and decisions by the arbitrators shall be conclusive and binding on both parties and shall not be appealable and judgment upon the award rendered by the arbitration panel may be entered in the Court of Common Pleas of Allegheny County. The Owner may exercise its discretion to utilize arbitration at any time and shall not be deemed to have waived such discretion by any lapse of time or performance of any act.

If so determined by the arbitrators, and to the extent so determined by the arbitrators, the fees, costs and expenses of the arbitration shall be borne by the party against whom the arbitration is determined.

It is mutually agreed that any controversies, claims or disputes of any nature arising out of or relating to this Contract, or the breach thereof, or otherwise related to the Project, including any unresolved Disputed Item, may, at the Owner's sole discretion, be resolved by legal proceedings in the courts of the Commonwealth of Pennsylvania beginning in the Court of Common Pleas, Allegheny County Pennsylvania unless otherwise determined by the Owner.

The Contractor shall comply with all directions and decisions of the Owner and shall proceed diligently with performance of the Work including disputed Work pending final resolution of any Disputed Item and shall maintain the Contract Schedule during any claims, disputes, questions, or related matters or proceedings unless otherwise agreed to by the Contractor and the Owner in writing. If the Contractor is proceeding with the Work, or any portion thereof, under protest, the Contractor must notify the Construction Manager, in writing, prior to the commencement of such Work.

The Contractor shall make no claim against any officer, agent, or employee of the Owner for, or on account of, any act or omission to act in connection with the Contract, and hereby waives any and all rights to make any such claim or claims.

3.57 NO WAIVER OF RIGHTS

Neither inspection nor witnessing of tests by the Owner, nor any payment for, nor acceptance of, the whole or any part of the Work by the Owner, nor any extension of time, nor any possession taken, nor use made by the Owner, shall operate as a waiver of any provision of the Contract, nor of any power herein provided, nor shall any waiver, actual or implied, of any breach of the Contract be held to be a waiver of any other or subsequent breach. Issuance of the Final Acceptance or acceptance of any part of the Work by the Owner shall not be binding and conclusive upon the Owner with regard to Defective Work, fraud or bad faith, or such gross mistakes as may amount to fraud, or as regards to the Owner's rights under any warranty. Defective Work shall be corrected, and unsuitable materials, equipment, apparatus and other Items shall be replaced by the Contractor, notwithstanding that such Work, materials, equipment, apparatus and other Items may have been previously overlooked and/or accepted or estimated for payment. Failure of the Owner to require strict compliance with any term or condition of the Contract in any specific instance shall not be deemed a waiver of the right to subsequent enforcement thereof.

No failure of the Owner to insist upon strict compliance by the Contractor to any requirements of this Contract or to promptly exercise any right accruing from any default of the Contractor shall impair the Owner's rights in case the Contractor's default continues or in case of any subsequent default by the Contractor.

No action or failure to act by the Owner shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

3.58 BONDS

When the Contractor delivers the executed Contract Agreement, it shall also provide a Performance Bond and a Labor and Material Payment Bond on the forms included in these Contract Documents, each with corporate surety satisfactory to the Owner and valid Power of Attorney attached. Each such Bond shall be in the full amount (100%) of the Contract Sum, payable to the Allegheny County Sanitary Authority, said Bonds to be conditioned upon the full and faithful performance by the Contractor pursuant to the Contract Documents and payment by the Contractor for all materials and supplies furnished and labor supplied or performed, and all other legal debts incurred in the prosecution of the Work. If the Contract Sum is increased pursuant to a Change Order, the Contractor shall increase the amount of each Bond proportionately. The Contractor shall furnish the proper Performance Bond and Labor and Material Payment Bond to the Owner prior to the execution of the Contract by the Owner. The Owner reserves the right to reject any bond furnished where it determines it is

in its best interest to do so. No bond shall be furnished from a Surety which is not registered to do business with the Pennsylvania Insurance Commission for the limits so required.

Upon Final Acceptance of the completed Work and before the Surety which has furnished the Performance Bond is released, the Contractor shall furnish a Maintenance Bond of a surety company acceptable to the Owner in the amount of One Hundred (100%) of the Contract Sum. The form of the Maintenance Bond shall not deviate from the form Maintenance Bond attached to the Contract Documents. The Owner reserves the right to reject any surety or bond furnished where it determines it is in the best interest of the Owner to do so.

All Bonds (including any Bid Bond) shall be duly executed by the Contractor as principal and by a corporate surety or sureties approved to do business in the Commonwealth of Pennsylvania and must be satisfactory to the Owner. If the surety on any bond furnished by the Contractor is declared a bankrupt or becomes insolvent or its right to do business in Pennsylvania is terminated, the Contractor shall immediately notify the Owner in writing, and shall within ten (10) working days thereafter substitute another bond and surety, both of which must be acceptable to the Owner.

3.59 WARRANTY

The Contractor represents and warrants that the Work and services to be performed under the Contract, and all workmanship, materials, Work, and equipment provided, furnished, used or installed in the construction of the same, shall be safe, substantial, and durable construction in all respects, of the highest quality and best obtainable in every respect, new (unless otherwise provided herein), shall be free from faults or defects, shall be performed and furnished in strict accordance with the Contract Documents, and that the strength of parts of all manufactured equipment shall be adequate and as specified and explicitly warrants the merchantability and the fitness for use and quality of all Owner approved substituted Items provided by it or its subcontractors and warrants that all Owner approved substituted Items will perform to the standard of the Item originally specified. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of the materials and equipment. The Contractor further agrees on behalf of itself, any heirs, executors, administrators, successors and assigns that it shall repair and replace promptly, without charge, all workmanship, Work, materials, or equipment (and/or any damage to owned or controlled real or personal property resulting from Defective Work, equipment or materials or resulting from the replacement of such) furnished under the Contract that fail to meet the above standard or are otherwise Defective. This obligation shall survive the completion of the Work and/or the termination of the Contract. If within three (3) working days after the Contractor has been notified of a defect, the Contractor has not made substantial progress nor shown a satisfactory attempt to make the necessary corrections, the Owner is hereby authorized to make the corrections or to order the Work to be done by a third party, and the cost of the corrections shall be paid by the Contractor. This warranty shall be for a period of eighteen (18) months from the date of the delivery to the Job Site, or twelve (12) months from the date the Work is placed into service and Final Acceptance by the Owner, whichever

is later to occur or such longer period of time as may be prescribed by law or by the terms of the Contract Documents (the "Warranty Period"). In special circumstances where a portion of the Work is accepted by the Owner, pursuant to a signed writing, before Final Acceptance of all the Work, the Warranty Period for that portion of the Work only may start to run from an earlier date if so provided in the Specifications or by Written Amendment. If, during the Warranty Period, the Work, materials, equipment, or system is unavailable due to defects covered by the warranty in excess of 15 calendar days during a 30-calendar day period, the Warranty Period shall be extended by 30 calendar days. This Warranty Period extension shall apply to all subsequent 30 calendar day periods where these provisions apply or such longer period of time as may be prescribed by law or by the terms of the Contract Documents. Malfunction of the Work, materials, equipment, or any portion thereof shall be cause for the Work, materials, or equipment replacement and an extension of the Warranty Period to a date twelve (12) months following acceptable replacement. Work, materials, or equipment replacement shall be defined to mean the replacement of the piece of the Work, materials or equipment containing the failed component or subsystem (e.g., pump, feed system, hydraulic power unit, control panel). Nothing herein shall limit the Owner's right to seek recovery for any defects which are not observable until after the Warranty Period has expired. The Warranty provided herein shall be in addition to and not in limitation of any other warranty or remedy required by law or the Contract Documents. The Contractor will be responsible to make sure that all third-party warranties flow through to the Owner and will enforce all such warranties for the benefit of the Owner. If the maker of any such warranties and guarantees fails to fulfill its obligations thereunder, the Contractor shall fulfill such obligation of the guarantor or reimburse the Owner for any costs incurred by the Owner in replacing Defective Materials and correcting Defective, unsound, or improper Work covered by any such warranties and guarantees.

The Contractor further represents and warrants that: (1) it has the right to transfer title to the materials, parts, components and Items of Work to the Owner, free and clear of any liens, security interests or other encumbrances; (2) all of the materials, parts, components and Items of Work will be new; and (3) none of the materials, parts, components and Items of Work will be substitute components, unless such substitutions have been approved in advance, in writing by the Owner.

For equipment, products or systems that carry a Manufacturer's Warranty, the Contractor shall make sure that the Manufacturer supplies the Owner with the following prior to final close out:

- A. Certificate of Warranty for the equipment, product, or system; and
- B. Letter of acknowledgment identifying:
 - 1. The starting and end dates of the Warranty Period.
 - 2. All conditions under which the Warranty operates or under which it can become null and void.

3. Names, Address and Telephone Number of the authorized Warranty Service Center or Servicing Company.

3.60 TERMINATION OF THE CONTRACT

A. Termination for Cause

The Owner may, upon seven (7) calendar days of written notice to the Contractor and its surety, terminate and/or take over the entire Contract, or any part of it, for reasons including but not limited to the following: (1) the Contractor's Work or performance impairs or delays the progress of the Project or any portion thereof or any Other Contractor at the Job Site, (2) the Contractor fails, refuses, or neglects to supply sufficient skilled workmen or materials or equipment of proper quality and quantity or adequate equipment to perform the Work or fails to comply with the Specifications as required by this Contract, (3) the Contractor fails to make prompt payment to subcontractors for material or labor, (4) the Contractor fails, refuses, or neglects to remove materials or to perform anew such Work as may be rejected as unacceptable or unsuitable by the Owner or the Construction Manager, (5) the Contractor fails to keep its Work on schedule as required by the Owner through the Construction Manager, including modifications or remedial instructions or revisions, (6) the Contractor otherwise fails in any respect to comply with any provision of this Contract, or applicable law, ordinance, or regulation, (7) the Contractor becomes insolvent, files a voluntary petition for bankruptcy or becomes the subject of an involuntary petition of bankruptcy, receivership, control of assets by a Trustee, or sequestration of assets or allows any final judgment to stand against him unsatisfied for a period of ten (10) calendar days, makes an assignment for the benefit of creditors, or (8) for any other cause whatsoever, fails to carry on the Work in an acceptable manner.

If the Contractor does not remedy nor make acceptable progress at the remedy of the deficiencies or failures which are the basis of the Owner's termination notice within the seven (7) calendar day notice period, the Owner may, at its option and without prejudice to any other right or remedy that the Owner may have under the Contract or otherwise and without any further notice or communication of any kind, correct the deficiency or failure through any means and charge back any cost, expense, loss, and damages (including any and all direct and indirect costs incurred by the Owner including attorneys' fees, Engineers fees and/or any other consulting fees) for its correction to the Contractor as they accrue, and/or the Owner may withhold further payment to the Contractor until satisfactory performance has resumed, and/or the Owner may terminate this Contract in whole or in part in writing, and the Owner shall thereafter have the rights and remedies set forth in this Contract and as allowed by law. If the Contractor corrects the deficiency or failure within the notice period to the Owner's satisfaction, then this Contract shall continue in full force except that the Contractor shall reimburse the Owner for all of the Owner's costs, expenses, damages, losses, and other liabilities related to the deficiency or failure.

If this Contract or any part of it is terminated, the Owner shall have the option to complete the Work required by the Contract, either in whole or in part, or re-let the remaining Work. If this Contract is terminated in whole or in part, the Owner shall have the right to take possession of all tools, equipment, scaffolding, materials, and supplies which are on the Job Site, in transit to the Job Site, or related to the Work at the Job Site, whether the Contractor owns those items or not, and to use or have others use those items to complete this Contract. The use of those items will be at no cost or liability to the Owner. The Owner may also notify and require the surety to complete the Work, either in whole or in part, in accordance with the Contract Documents.

To the extent this Contract is terminated, the Contractor shall immediately take all steps to protect the Work, discontinue the Work and not place additional orders or subcontracts for labor, materials, equipment, or services with respect to the terminated part of this Contract. The Owner may then suspend all further payments to the Contractor until after (1) this Contract Work is completed and (2) the Owner has made final payment for the Work. After the Owner makes final payment for the completed Work, and subject however to any pending or expected claims, by the Owner, the Owner shall pay the Contractor the amount or part of it, if any, due the Contractor for retainage and/or progress billings that were previously earned but unpaid as of the termination date.

In any event, the Owner's maximum liability to the Contractor shall be limited to the lesser of the pro-rata part of the Contract Sum for, or the value to the Owner of Work actually and properly completed and incorporated into the Project before the termination date. However, the above liability shall be decreased by any amounts previously paid to the Contractor or on its behalf, and also decreased by all additional costs, expenses, damages, liabilities, and/or losses the Owner incurs to complete this Contract and pay for the Work (including, but not limited to payment of any Owner's creditor claims arising from or related to this Contract, reasonable compensation for managerial and administrative services and other overhead of the Owner, the Owner's attorney fees and other legal expenses) and also decreased by all other damages, liabilities, losses, costs, and/or expenses the Owner incurs arising out of or relating to this Contract or the Contract Work. Any savings realized shall be the sole property of the Owner. If the total amounts previously paid to the Contractor and on the Contractor's behalf plus the Owner's damages, losses, costs and expenses (including but not limited to overhead and the Contractor's expected profit as reasonably determined by the Owner reasonable profit) to complete this Contract plus other losses, damages, liabilities, costs and/or expenses of the Owner arising out of or relating to the Contractor's default, this Contract and the Work, exceeds the total outstanding Contract Sum, the Contractor and its surety shall be liable for and shall reimburse the Owner for the excess upon demand at any time. Without otherwise limiting its recovery, the Owner shall be entitled to deduct that amount or any part of it from any funds otherwise payable to the Contractor. In addition to the above, the Contractor is liable for liquidated damages pursuant to the Contract Documents.

If this Contract is so terminated, the Contractor shall, at the Owner's option, assign in full force to the Owner those subcontracts of any tier (including supply contracts) held by the Contractor, or any part of them, for which the Owner requests assignment (the Contractor shall place in all of its subcontracts and supply contracts a provision allowing such assignment at the Owner's option). The Contractor shall remain liable for all its obligations to its suppliers, subcontractors and other persons on those assigned subcontracts and supply contracts for rights that accrued before, or upon, the assignment and shall remain liable to the Owner for any breaches of the assigned subcontracts and supply contracts whether occurring before or after such assignment.

The duties and obligations of the Contractor as stated or referred to hereunder shall also apply to the surety.

Notwithstanding any termination of this Contract, the Contractor's obligations to the Owner shall continue as to all Work performed. The obligations and duties of the Contractor under this Contract, including but not limited to warranty provisions, shall remain in full force after termination, except to the extent necessarily limited by such termination, and after completion of the Work. Termination for cause shall not waive or release any of the Owner's claims, rights or remedies against the Contractor or its surety, as allowed by this Contract or applicable law. If it is subsequently determined that adequate cause did not exist for the Owner's termination of this Contract for cause, this termination by the Owner shall be then considered a termination by the Owner for its convenience under Paragraph B.

The rights and remedies of the Owner provided in this provision are in addition to any other rights or remedies provided by law or under the Contract Documents.

B. Termination for Convenience

The Owner shall have the right to terminate this Contract or any part of it at any time without cause upon written notice to the Contractor specifying the extent to which this Contract is terminated and the date upon which such termination becomes effective. After the Contractor receives the Owner's Notice of Termination, and unless otherwise directed, the Contractor shall (i) stop Work on the terminated part of this Contract on the date and to the extent specified, (ii) place no further orders or subcontracts for equipment, materials, labor, services, or facilities except what may be necessary for completion of that part of the Contract that is not terminated; (iii) transfer title for the terminated part and deliver to the Owner any Work in progress, completed Work and materials and equipment for which the Contractor has been or will be paid; (iv) complete performance of any part of the Work required by this Contract that is not terminated by the Owner's Notice of Termination; and (v) take such other actions as may be directed by the Owner.

The Contractor shall notify the Owner in writing within seven (7) calendar days after receipt of the Owner's Notice of Termination of the effect of such order upon the Contractor's Work.

If the Owner terminates this Contract for its convenience the Owner's liability to the Contractor for the termination shall be expressly subject and limited to (1) payments and retainage actually and properly accrued and unpaid for Work, materials and equipment actually and properly completed, stored and incorporated into the Project before termination and (2) the reasonable costs and expenses for terminating supply contracts (not to exceed actual costs) which cannot be mitigated by the Contractor and which are necessarily and unavoidably incurred by the Contractor and caused by the Owner's Notice of Termination (subject to full prior advice, cooperation and concurrence with the Owner as to mitigation measures to reduce as much as possible such termination costs and expenses as well as subsequent verification and documentation of these costs and expenses), (3) less any claim the Owner has against the Contractor. If the sum of all previous payments and credits made by the Owner exceeds the sums payable above, such excess shall be refunded by the Contractor to the Owner immediately upon determination of such excess by the Owner or at the Owner's option may be the basis of a claim by the Owner against any other amounts due the Contractor.

If this Contract is so terminated, the contractor shall, at the Owner's option, assign in full force to the Owner those subcontracts of any tier (including supply contracts), or parts of them, held by the Contractor, for which the Owner requests such assignment. (The Contractor shall place in all its subcontracts a provision allowing assignment at the Owner's option.) The Contractor shall remain liable for all its obligations to suppliers and subcontractors and other persons on the assigned subcontracts and supply contracts for rights that accrued before, or upon, the assignment.

In no event will the Owner be liable for the loss of anticipated profits or overhead, or any special, consequential, incidental, overhead or other costs or liability arising from any termination for convenience other than that previously described. The Contractor agrees to remove promptly its tools, equipment, materials, and employees from the Job Site upon the stated termination date. Notwithstanding any termination of this Contract, the Contractor's obligation to the Owner shall continue as to all Work performed. The obligations and duties of the Owner under this Contract, including but not limited to warranty provisions, shall remain in full force after termination, except to the extent necessarily limited by such termination, and after completion of the Work. This termination for convenience will not waive or release any of the Owner's claims, rights or remedies against the Contractor or its surety, as allowed by this Contract or applicable law.

3.61 LIMITATION OF LIABILITY

Notwithstanding any other provision of the Contract Documents, in no event shall the Owner, the Consulting Engineer, the Construction Manager, their officers, Board members, indemnitees, agents, guests, invitees and employees be liable (in contract or in tort, including negligence) to the Contractor for incidental or consequential damages, including, but not limited to, interest or carrying charges on its investment, expenses arising from costs of capital, loss of profits on Work not performed, attorneys fees, or for loss of use of or under-utilization of labor, equipment or facilities of the Contractor, resulting from any performance, nonperformance, or delay in performance on the part of the Owner, the Consulting Engineer, the Construction Manager, their officers, Board members, indemnitees, agents, guests, invitees and employees of obligations under this Contract, or from the Owner's delay, termination or suspension of the Work.

CONTRACT CONSTRUCTION

3.62 INTERPRETATION

Words of any gender used in this Contract shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, and vice versa, unless the context otherwise requires.

When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials or equipment, such words shall be interpreted in accordance with that meaning unless defined otherwise in the Contract Documents.

Reference to standard specifications, manuals or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specifications, manuals, codes or Laws or Regulations in effect at the time of the opening of Bids (or, on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated. However, no provision of any reference, standard, specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Owner or the Contractor or any of their consultants, agents, or employees from those set forth in the Contract Documents.

3.63 PARTIAL INVALIDITY

In the event any one or more of the provisions of this Contract are found by a court of competent jurisdiction to be invalid or unenforceable, the remaining provisions of the Contract shall remain in full force and effect. The Owner and the Contractor agree that the Contract 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.

3.64 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of the laws and regulations required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though they were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract will forthwith be physically amended to make such insertion or to correct such insertion.

3.65 BINDING EFFECT

The terms, provisions, covenants, and conditions contained in this Contract shall apply to, inure to the benefit of and be binding upon the parties hereto and upon their respective heirs, legal representatives, successors and permitted assigns except as otherwise expressly provided.

3.66 SURVIVAL

All covenants, representations and warranties contained in this Contract shall remain in force in perpetuity unless terminated as provided in this Contract.

3.67 INTEGRATION

The terms of this Contract (including any document which is referenced by this Contract) sets forth the entire agreement and understanding between the parties.

3.68 MODIFICATIONS AND CHANGES

No verbal agreement or conversation with any officer, agent, consultant, or employee of the Owner or any other entity, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

3.69 JURISDICTIONAL DISPUTES

The Owner or the Executive Director shall not be brought into any dispute or controversy by reason of inadvertence or seeming necessity for issuing the Contract Documents in the form herewith presented. No arrangement of topics or other interrelation or reference used throughout in connection with any of the Contract Documents shall be construed by anyone to be an inference on the part of either the Owner or the Executive Director with any jurisdictional or other trade rules or agreement.

3.70 GOVERNING LAW; FORUM

This Contract shall be governed construed and enforced in accordance with the laws of the Commonwealth of Pennsylvania. Pursuant to Section 3.55 hereof entitled "Disputes and Claims," the Executive Director may make a determination regarding any controversy, claim or dispute. The Owner may refer any controversy, claim, or dispute to arbitration or court. The exclusive venue and jurisdiction for any court proceedings regarding this Contract shall be in the courts of the Commonwealth of Pennsylvania beginning in the Court of Common Pleas, Allegheny County Pennsylvania.

3.71 ATTORNEY'S FEES

In the event of any action brought by either party against the other to enforce any of the obligations hereunder or arising out of any dispute concerning the terms and conditions hereby created, the losing party shall pay the prevailing party such reasonable amounts for fees, costs and expenses.

REGULATORY REQUIREMENTS

3.72 COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall give all notices and comply with all laws and regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable laws and regulations, the Owner shall not be responsible for monitoring the Contractor's compliance with any laws and regulations.

If the Contractor performs any Work that is contrary to laws and regulations, the Contractor shall bear all claims, costs, losses, and damages caused by, arising out of or resulting therefrom.

The Contractor shall, throughout the performance of the Contract, keep itself fully informed of all existing and future laws and regulations in any manner affecting those engaged or employed in the Work, or in any way affecting the conduct of the Work. If any discrepancy or inconsistency is discovered in the Contract Documents in relation to any such laws and regulations, the Contractor shall indemnify and forthwith report the same, in writing, to the Engineer and the Construction Manager.

The Contractor shall at all times itself observe and comply with and cause all its agents and employees to observe and comply with all such existing and future laws and regulations; and shall protect and indemnify the Owner, its officers and agents against any claims or liability arising from or based upon violation of such laws and regulations, whether by itself or its agents or employees.

No provisions of these Contract Documents shall act to make the Owner and its agents or any other party other than the Contractor responsible for safety. The Contractor shall indemnify, defend, and hold harmless the Owner, its agents, and any Indemnified Parties from and against any and all actions, damages, fines, suits, and losses arising from the Contractor's failure to meet safety requirements and/or provide a safe worksite.

3.73 NONDISCRIMINATION CLAUSE

During the term of the Contract, the Contractor agrees as follows:

- A. The Contractor shall not discriminate against any employee, applicant for employment, independent contractor or any other person because of race, color, religious creed, ancestry, national origin, age, sex, or handicap. The Contractor shall take actions to ensure that applicants are employed, and that employees or agents are treated without regard to national origin, sex, or handicap. Such actions shall include, but are not limited to the following: employment, upgrading, demotion or transfer, recruitment, or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training. The Contractor shall post in conspicuous places, available to employees, agents, applicants for employment, and other persons, a notice to be provided by the contracting agency setting forth the provisions of this nondiscrimination clause. The Contractor shall abide by the Contract Compliance Regulations issued by the Pennsylvania Human Relations Commission ("Compliance Regulations").
- B. The Contractor shall not discriminate against the Owner's employees or agents on any of the bases set forth in the preceding paragraph. This includes, but is not limited to, the Contractor's obligation to provide the Owner's employees and agents who deal with the Contractor, a workplace that is free from any and all forms of harassment on the basis of race, color, religious creed, ancestry, national origin, age, sex, or disability. As a condition of accepting and executing this Contract, the Contractor agrees to adopt and comply with the Owner's Sexual Harassment Policy which is attached hereto and made a part hereof as Exhibit "C".
- C. The Contractor shall, in advertisements or requests for employment placed by it or on its behalf, state that all qualified applicants will receive consideration for employment without regard to race, color, religious creed, ancestry, national origin, age, sex or handicap.
- D. The Contractor shall send each labor union or workers' representative with which it has a collective bargaining agreement or other contract or understanding, a notice advising said labor union or worker's representative of its commitment to this nondiscrimination clause. Similar notice shall be sent to every other source of recruitment regularly utilized by the Contractor.

- E. It shall be no defense to a finding of noncompliance of the Compliance Regulations or with this nondiscrimination clause that the Contractor had delegated some of its employment practices to any union, training program, or other source of recruitment which prevents it from meeting its obligations. However, if the evidence indicates that the Contractor was not on notice of the third-party discrimination or made a good faith effort to correct it, such factors shall be considered in mitigation in determining appropriate sanctions.
- F. Where the practices of a union or of any training program or other source of recruitment will result in the exclusion of minority group persons, so that the Contractor will be unable to meet its obligations, under the Compliance Regulations or under this nondiscrimination clause, the Contractor shall notify the Owner in writing and then employ and fill vacancies through other nondiscriminatory employment procedures.
- G. The Contractor shall comply with the Compliance Regulations and all local, state, and federal laws prohibiting discrimination in hiring or employment opportunities. In the event of this Contractor's noncompliance with the nondiscrimination clause of this Contract or with any such laws, this Contract may be terminated or suspended, in whole or in part, and the Contractor may be declared temporarily ineligible for further Owner contracts, and other sanctions may be imposed and remedies invoked.
- H. The Contractor shall furnish all necessary employment documents and records to, and permit access to its books, records, and accounts by, the Owner or other governmental agency, for purposes of investigation to ascertain compliance with the provisions of this clause. If the Contractor does not possess documents or records reflecting the necessary information requested, it shall furnish such information on reporting forms supplied by the Owner or applicable governmental agency.
- I. The Contractor shall actively recruit minority subcontractors or subcontractors with substantial minority representation among their employees.
- J. The Contractor shall include the provisions of this nondiscrimination clause in every subcontract, so that such provisions will be binding upon each subcontractor.
- K. The Contractor's obligations under this clause are limited to the Contractor's facilities within Pennsylvania, or, where the contract is for purchase of goods manufactured outside of Pennsylvania, the facilities at which such goods are actually produced.

3.74 PROVISIONS CONCERNING THE AMERICANS WITH DISABILITIES ACT

During the term of this Contract, the Contractor agrees as follows:

- A. Pursuant to federal regulations promulgated under the authority of The Americans With Disabilities Act, 28 C.F.R. 35.101 et seq. the Contractor understands and agrees that no individual with a disability shall, on the basis of the disability, be excluded

from participation in this Contract or from activities provided for under this Contract except to the extent that accommodating such a person with a disability would impose an undue burden on the Contractor. As a condition of accepting and executing this Contract, the Contractor agrees to comply with the "General Prohibitions Against Discrimination," 28 C.F.R. §35.130, and all other regulations promulgated under Title II of The Americans With Disabilities Act which are applicable to the benefits, services, programs, and activities provided by the Owner through contracts with outside individuals and entities.

- B. The Contractor shall be responsible for and agrees to indemnify and hold harmless the Owner from all losses, damages, expenses, claims, demands, suits, and actions brought by any party against the Owner as a result of the Contractor's failure to comply with the provisions of paragraph 1. above.

3.75 COMPLIANCE WITH HEALTH, SAFETY AND ENVIRONMENTAL LAWS

- A. The Contractor represents and warrants to the Owner that, to the extent it performs any Work or provides any services to the Owner, it shall be familiar and in full compliance with all applicable workplace requirements of, and standards and regulations issued by the Federal Occupational Safety and Health Administration ("OSHA") and/or by the Pennsylvania Department of Labor and Industry, including but not limited to the Occupational Health and Safety Act of 1970.

The Contractor represents and warrants to the Owner that, to the extent it or its subcontractors perform any work or provide any services to the Owner, it shall be familiar and in full compliance with all applicable workplace safety requirements.

- B. The Contractor agrees to take all reasonable and necessary precautions to prevent injury to persons, property and equipment and shall be solely responsible for the implementation and enforcement of a safety program. This safety program shall cover all subcontractors working on the Job Site for the Contractor. If at any time, and in the sole judgment and discretion of the Owner, proper safety measures are not being taken, or Work is being performed in an unsafe manner, such unsafe work shall be stopped and shall resume only after such unsafe conditions shall have been corrected. All costs incurred by the Contractor as a result of such stoppage of Work shall be borne by the Contractor without any right of reimbursement from the Owner. This right to stop Work shall impose no liability upon the Owner or Its agents to the Contractor or to any third parties for establishment of safety requirements or enforcement of job safety.

As outlined in the bid process, pre-construction meeting or OSHA and/or the Department of Labor regulation, a written site-specific health and safety plan (HASp) shall be submitted to the Owner prior to performing any Work on the Job Site. Any employees working under these site-specific conditions must have appropriate license and/or training prior to starting work on the site. Violation of these standards will be addressed with corrective action up to and including Stop Work.

- C. No Work shall be performed at the Owner's Job Site that could prevent the Owner from performing any daily operations. The Contractor shall properly protect and restrict access to the work area to protect employees/contractors as necessary and appropriate.

If at any time proper safety measures are not being taken or the work is being performed in an unsafe manner the Owner may take any or all of the following actions:

1. Require the removal of the Contractor's employee responsible for the safety violation, including the Contractor's superintendent;
2. Withhold part or all of a current payment request; and/or
3. Notify the Contractor's insurance carrier of the safety violation.

Notwithstanding the Construction Manager's right to issue Safety Non-compliance notices and the Owner's right to take actions with regard to safety infractions as described in the Contract documents, neither the Owner nor the Construction Manager shall have any obligation to exercise these rights with respect to any safety infraction by the Contractor. Furthermore, the exercise or non-exercise of these rights shall not be deemed to make the Owner or the Construction Manager responsible for the Contractor's safety.

- D. The Contractor is wholly responsible for performing the Work in a safe manner that complies with the provisions of the Contract Documents and with the requirements of the governmental agencies responsible for establishing safe procedures for the workplace and protection to the public.

The Contractor is an independent contractor and neither the Contractor nor any of its subcontractors, nor the employees of the Contractor nor any of its subcontractors shall be deemed to be servants, employees, agents or under the control of the Owner.

If an accident should occur on the Job Site, the Contractor or party involved must notify the Owner immediately after notifying any required emergency services. Copies of all accident reports shall be transmitted to the Owner's Manager of Loss Control.

No provision of the Contract Documents shall act to make the Owner, Construction Manager or any other party other than the Contractor responsible for safety. The Contractor shall indemnify, defend, and hold harmless the Owner, its Directors, the Construction Manager, the Engineer, and any of the owner's agents and employees from and against any and all actions, damages, fines, suits, and losses of any kind arising from the Contractor's failure to meet all safety requirements and/or provide a safe work site.

3.76 HAZARDOUS SUBSTANCES

A. Labeling.

The Contractor shall insure that each individual product (as well as the carton, container, or package in which the product is shipped) of any of the following substances (as defined by the Worker and Community Right-to-Know Act and the regulations promulgated thereunder) supplied to the Owner by the Contractor is clearly labeled with the information listed in Paragraphs (1) through (4):

1. Hazardous substances;
 - a. the chemical name or common name,
 - b. hazard warning,
 - c. the name, address, and telephone number of the Manufacturer, and
 - d. the contractor's name and project office telephone number, and ALCOSAN contract number.
2. Hazardous mixtures;
 - a. the common name, but if none exists, then the trade name,
 - b. the chemical or common name of special hazardous substances comprising 0.1% or more of the mixture,
 - c. the chemical or common name of hazardous substances comprising 1 % or more of the mixture,
 - d. a hazard warning,
 - e. the name, address, and telephone number of the Manufacturer, and
 - f. the contractor's name and project office telephone number, and ALCOSAN contract number.

3. Single chemicals;
 - a. the chemical name or common name,
 - b. a hazard warning, if appropriate,
 - c. the name, address, and telephone number of the Manufacturer, and
 - d. the contractor's name and project office telephone number, and ALCOSAN contract number.

4. Mixtures;
 - a. the common name, but if none exists, the trade name,
 - b. a hazard warning, if appropriate,
 - c. the name, address, and telephone number of the Manufacturer,
 - d. the chemical name or common name of either the top five substances by volume or those substances constituting 5.% or more of the mixture, and
 - e. the contractor's name and project office telephone number, and ALCOSAN contract number.

FAILURE TO PROPERLY LABEL EACH INDIVIDUAL PRODUCT AND THE CARTON, CONTAINER OR PACKAGE IN WHICH THE PRODUCT IS SHIPPED CAN RESULT IN THE REJECTION OF THE SHIPMENT.

B. Material Safety Data Sheet.

The Contractor shall provide Material Safety Data Sheets (MSDS) with the information required by the Act and the regulations for each hazardous substance or hazardous mixture. The Owner must be provided an appropriate MSDS with the initial shipment and with the first shipment after an MSDS is updated or product changed. For any other chemical, the Contractor shall provide an appropriate MSDS, if the Manufacturer, importer, or supplier produces or possesses the MSDS. The Contractor shall also notify the Owner when a substance or mixture is subject to the provisions of the Act. Material Safety Data Sheets should be attached to the carton, container or package mailed to the Owner at the time of shipment.

C. If the Contractor performs any Work or provides any services at the Owner's Site, the Contractor shall comply with all applicable surveying, posting, labeling, reporting, disclosure, and training requirements of the OSHA Hazard Communication Standard and of the Worker and Community Right-to-Know Act and the regulations

promulgated thereunder. The Contractor hereby represents and warrants that it is familiar with the above-mentioned Standard Act and regulations.

3.77 WORKING HOURS

Work performed at the Job Site shall be performed during normal working hours (7:00 A.M. to 5:00 P.M.) or at other times approved by the Owner.

The Contractor shall schedule all Job Site Work so that its working hours and the normal working hours of the Owner coincide. Should it be necessary to work hours other than the Owner's normal working hours, the Contractor shall arrange for access to the area with the Construction Manager, in writing, no less than 48 hours prior to this need.

Work performed between 5:00pm and 7:00am on weekdays, during the Owner-designated holidays, and on weekends shall be overseen by the Construction Manager at the sole expense of the Contractor. The Contractor will not be required to reimburse the Owner for the cost of the Owner's employees. Compensation to the Owner for such work for the Construction Manager's time shall be based on his designated rate of pay and shall be processed as a Contractor credit change order to the Owner. Designated rate of pay shall be \$140 per hour. Owner will waive Construction Manager costs for work performed during construction constraints that interrupt normal operation as identified in the contract documents.

The Owner observes the following holidays on the day that is designated by the Federal Government:

- New Year's Day
- Martin Luther King Day
- Presidents Day
- Good Friday
- Memorial Day
- Independence Day (Fourth of July)
- Labor Day
- Columbus Day/Indigenous Peoples Day
- Election Day
- Veterans Day
- Thanksgiving Day
- Day after Thanksgiving Day
- Christmas Day

3.78 MINIMUM WAGE RATES

The Contractor shall pay not less than the minimum wage rates established by the governmental agency having jurisdiction. The Contractor shall comply with the

requirements of the Pennsylvania Prevailing Wage Act, Act No. 442, approved August 15, 1961.

3.79 BUY AMERICAN

It is the desire of the Owner that items supplied under this Contract shall be manufactured and assembled in the United States of America and utilize American materials to the maximum practical extent, consistent with the needs of this Contract and the availability of products and components of American manufacture. In this respect, all items supplied under this Contract shall comply with all applicable State and Federal laws relating to utilizing products, material supplies of local or domestic origin.

3.80 PENNSYLVANIA STEEL PRODUCTS PROCUREMENT ACT

The Contractor agrees to comply with the Pennsylvania Steel Products Procurement Act and shall submit with its Bid a signed copy of the Certificate of Compliance with the Pennsylvania Steel Products Procurement Act that is incorporated as part of the Contract Documents.

3.81 TRADE PRACTICES ACT

The Contractor agrees to comply with the Trade Practices Act and shall not use or permit to be used in the Work any aluminum or steel products made in a foreign country which discriminates against aluminum or steel products manufactured in Pennsylvania.

3.82 WORKMEN'S COMPENSATION

The Contractor agrees, in any contract involving construction or doing any work involving construction or doing any work involving the employment of labor, to accept the provisions of the Workmen's Compensation Act and any reenactment, supplements or amendments thereto and shall insure its liability thereunder or file with the Owner a certificate of exemption of insurance from the Department of Labor and Industry of the Commonwealth of Pennsylvania.

EXHIBIT "A"
INSURANCE

All insurance required by the Contract Documents (including this Exhibit) to be purchased and maintained by the Contractor shall be obtained from insurance companies that are duly licensed or authorized in the Commonwealth of Pennsylvania for the issuance of insurance policies for the limits and coverages so required. Such insurance companies shall also meet such additional requirements and qualifications as may be provided in the Contract Documents and provided below.

All coverage shall be without voluntary deductibles, and if the insurance contains deductibles, the Contractor shall pay all costs and expenses not covered because of such deductibles. All insurance shall be on an occurrence basis.

The Contractor shall provide to the Engineer and the Construction Manager (with copies to each additional insured identified in the Contract Documents) prior to commencing Work, Certificates of Insurance evidencing the required insurance (as well as any other evidence of insurance requested by the Owner or any other additional insured). Each certificate shall, in addition to the insurance coverage, contain the following:

1. Inception and expiration dates of insurance policy (ies);
2. Limits of liability;
3. Nature of coverage(s) provided including special hazards, if required;
4. Name(s) of insurance company (ies);
5. Policy Number(s);
6. Notation of deductible and self-insurance retention applicable to any contract of insurance;
7. Notation of policy endorsement that provides for thirty (30) calendar days prior written notice to the Owner in the event of change, canceling or renewal;
8. Underlying insurance requirements for excess liability contracts; and

The Owner will accept no certificate which exculpates the issuer or reduces any right conferred on the Owner by the above certificates, nor will the Owner accept certificates unless the certificates bear the signature of a direct representative of the insurance company authorized to do business in Pennsylvania.

The Contractor will furnish a certificate of renewal or extension of the policy that expires during the term of this contract thirty (30) calendar days prior to the expiration date of the policy.

The Contractor shall deliver to the Owner a certified copy of each policy required hereunder, as well as a copy of the endorsement adding additional insureds hereunder (on 150 Form B for general liability coverage) as well as a listing of all policy exclusions different from the standard for CG 00 01 prior to beginning the Work.

Contractor's Liability Insurance:

The Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from the Contractor's performance and furnishing of the Work and the Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by the Contractor, any subcontractor or supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable for not less than the following amounts or greater if required by law:

1. claims under workers' compensation, disability benefits and other similar employee benefit acts pursuant to the amounts provided in 2 below;
2. claims for damages because of bodily injury, occupational sickness or disease, or death (including wrongful death) of the Contractor's employees; Worker's Compensation Insurance in compliance with all states in which the Contractor does business, including coverage B Employers' Liability;

Bodily Injury by accident, \$100,000 for each accident;

Bodily Injury by disease \$500,000 policy limit;

Bodily Injury by disease \$100,000 for each employee;

3. claims for damages because of bodily injury, sickness or disease, or death (including wrongful death) of any person other than the Contractor's employees;
4. claims for damages insured by customary personal injury liability coverage which are sustained:
 - (I) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or
 - (II) by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

The Contractor's liability insurance shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of the Contractor for not less than the following amounts:

General Aggregate (except Products - Completed Operations)	<u>\$2,000,000</u>
Products Completed Operations Aggregate	<u>\$2,000,000</u>
Personal and Advertising Injury (Per Person/Organization)	<u>\$1,000,000</u>
Each Occurrence (Bodily Injury and Property Damage)	<u>\$1,000,000</u>
Property Damage Liability Insurance will provide explosion, collapse, underground coverages where appropriate	
Excess Liability General Aggregate	<u>\$2,000,000</u>
Each occurrence	<u>\$2,000,000</u>

claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

6. Automobile Liability:

(1) Bodily Injury:	
Each Person	<u>\$1,000,000</u>
Each Accident	<u>\$1,000,000</u>
and	
Property Damage:	
Each Accident	<u>\$1,000,000</u>
or	
(2) Combined Single Limit (Bodily Injury and Property Damage):	
Each Accident	<u>\$1,000,000</u>

The policies of liability insurance so required by above to be purchased and maintained shall:

- (a) with respect to insurance required by paragraphs 3,4,5 and 6 include as additional insureds (subject to any customary exclusion in respect of professional liability) the Owner (ALCOSAN), Consulting Engineer and their respective subconsultants, municipalities or authorities owning or operating the sewers to be inspected and their respective consulting engineers, municipalities in which the sewers to be inspected are physically located and their respective consulting engineers, and any other

persons or entities identified by the Owner, all of whom shall be listed as additional insureds, and include coverage for the respective officers and employees of all such additional insureds;

- (b) include completed operations insurance;
- (c) include contractual liability insurance covering the Contractor's indemnity obligations with coverage of not less than (1) General Aggregate \$ 2,000,000, (2) Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000.
- (d) remain in effect at least until final payment and at all times thereafter when the Contractor may be correcting, removing or replacing Defective Work in accordance with the Contract Documents; and
- (e) with respect to completed operations insurance, it shall remain in effect for at least two years after final payment (and the Contractor shall furnish the Owner and each other additional insured identified by the Owner to whom a certificate of insurance has been issued evidence satisfactory to the Owner and any such additional insured of continuation of such insurance at final payment and two years thereafter).

Owner's Protective Liability:

The Contractor shall purchase and maintain protective liability which will protect the Owner against claims which may arise from operations under the Contract Documents, with coverages of not less than:

General Aggregate	<u>\$1,000,000</u>
Each Occurrence	<u>\$1,000,000</u>

Property Insurance:

The Contractor shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof. This insurance shall:

1. include the interests of the Owner, the Contractor, subcontractors, Consulting Engineer, Engineering Program Manager, and Construction Manager each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured:
2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, false work and Work in transit and shall insure against at least the following perils: fire, lightning, extended coverage, theft vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of any laws, water damage, and such other perils as may be specifically required by the Owner.

3. include expense incurred in the repair or replacement of any insured property including but not limited to fees and charges of engineers and architects;
4. include coverage for loss of use or time delay;
5. cover materials and equipment in transit for incorporation in the Work or stored at the site or at another location that was agreed to in writing by the Owner prior to being incorporated in the Work.
6. Contain no partial occupancy restriction for utilization of the Project by the Owner for the purpose intended.
7. be maintained in effect until final payment is made unless otherwise agreed to in writing by the Owner and shall provide thirty (30) calendar days written notice to each other additional insured to whom a certificate of insurance has been issued.

The Contractor shall purchase and maintain boiler and machinery insurance including coverage for explosion, damage, mechanical breakdown and business interruption which will include the interests of the Owner, subcontractors, Consulting Engineer and any other persons or entities identified by the Owner, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured, with coverages of not less than the following amounts or greater if required by law: \$5,000,000

Waiver of Rights:

The Owner and the Contractor intend that all policies purchased related to the Work will protect the Owner, the Contractor, subcontractors, Consulting Engineer, Construction Manager and all other persons or entities identified by the Owner to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. The Owner and the Contractor waive all rights against each other and their respective officers, directors, employees and agents for all losses and damages cause by; arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against subcontractors, Consulting Engineer and all other persons or entities identified by the Owner to be listed as insureds or additional insureds under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance otherwise payable under any policy so issued.

None of the above waivers shall extend to the Consulting Engineer, the Engineering Program Manager or the Construction Manager, their agents or employees, for the liability arising out of (1) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications or (2) the giving of, or the failure to give, directions or instructions by the Consulting Engineer, the Engineering Program Manager or the Construction Manager, their agents or employees, provided any such act or omission is the sole cause of the Damages..

EXHIBIT "B"

COST REDUCTION INCENTIVE

The provisions herein will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding. The status of lowest bidder will be determined without reference to any cost reduction incentives that are proposed by the Contractor.

On projects with original contract amounts in excess of \$100,000.00, the Contractor may submit to the Owner, in writing, proposals for modifying the plans, specifications or other requirements of the Contract for the purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. Such a cost reduction proposal shall, also, not impose additional time or cost restraints upon other contractors working on the project. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

- (a) A description of both the existing Contract and proposed requirements for performing the Work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;
- (b) An itemization of the Contract requirements that must be changed if the proposal is adopted;
- (c) A detailed estimate of the cost of performing the Work under the existing Contract and under the proposed changes;
- (d) A statement of the time by which a Change Order adopting the proposal must be issued;
- (e) A statement of the effect that adoption of the proposal will have on the Contract Time; and
- (f) The Contract Items of work affected by the proposed changes, including any quantity variation attributable to them.
- (g) An assessment of the impact the proposal would have on other work or projects of the Owner.
- (h) The Contractor shall also provide for whatever financial assistance the Owner may require to review and/or approve proposals.

The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Owner, within the period specified in the proposal. The provisions of this Section shall not be construed to require the Owner to consider any cost reduction proposal which may be submitted.

The Contractor shall continue to perform the Work in accordance with the requirements of the Contract until a Change Order incorporating the cost reduction proposal has been issued. If a Change Order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.

The Owner shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Owner may disregard the Contract Bid prices if, in the Owner's judgment, such prices do not represent a fair measure of the value of the Work to be performed or deleted.

The Owner may, whether the Contractor's proposal is accepted or not, require the Contractor to pay the Owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the Contract. If the Contractor fails to acknowledge and accept such a request from the Owner his proposal shall be deemed rejected.

If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a Contract Change Order which shall specifically state that it is executed pursuant to this Section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Owner's approval is based. The Change Order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original Contract costs for the involved Work Items and the costs occurring as a result of the proposal change. The Change Order shall also establish the net savings agreed upon and shall provide for adjustment in the Contract Sum that will divide the net savings providing the Owner with sixty percent (60%) of the net savings and the Contractor with forty percent (40%) of the net savings.

The Contractor's forty percent (40%) share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the Work.

Acceptance of the cost reduction proposal and performance of the cost reduction Work shall not extend the Contract Time unless specifically provided for in the Contract Change Order.

EXHIBIT "C"

Effective Date - December, 2002
ALLEGHENY COUNTY SANITARY AUTHORITY
NO HARASSMENT POLICY

This Exhibit applies to the conduct of the Contractor's employees at the Job Site, and the conduct of the Contractor's employees when representatives of the Owner visit the Contractor's facilities:

The Allegheny County Sanitary Authority is committed to maintaining a work environment free of discrimination. In keeping with this commitment, ALCOSAN will not tolerate harassment of its employees by anyone, including any supervisor, co-worker, vendor, client, contractor, or customer of ALCOSAN or any third party, based on inherent characteristics such as race, color, sex, national origin, ancestry, and place of birth, age, religious beliefs, disability and sexual orientation.

Harassment consists of unwelcome conduct, whether verbal, physical or visual. Harassment includes pranks, kidding and teasing. It includes displaying derogatory material or objects, such as cartoons or symbols that threaten or ridicule a particular race, religion or ethnic group. It also includes telling jokes based on racial, ethnic or sexual stereotypes, or which mock individuals based on their disability, race, color, sex, age, national origin, ethnicity, and ancestry, place of birth, religion or sexual orientation. Harassment may include interfering with someone's personal belongings, working space, tools, and equipment as well as touching, pushing, and other physical contact.

Sexual harassment is conduct based on sex, whether directed towards a person of the opposite or same sex, and may include explicit sexual propositions, sexual innuendo, sexually suggestive comments, gesture or noises, off-color jokes, sexually oriented "kidding," "teasing", or "practical jokes", talking about sexual behavior or sexual preferences, creating or displaying sexually suggestive, sexually demeaning or sexually explicit objects, graffiti, magazines, posters or other printed or visual material, and physical contact such as patting, pinching, grabbing, or brushing against another person's body.

All ALCOSAN employees are responsible for ensuring that the work environment is free of harassment. ALCOSAN urges any employee who believes he or she has been harassed to report the harassment to the Manager of Human Resources, or, if the employee prefers, to the Executive Director. Employees who believe they have witnessed an act of harassment against another are to notify the Manager of Human Resources or the Executive Director.

ALCOSAN'S policy is to investigate all harassment complaints thoroughly and promptly. To the fullest extent possible, ALCOSAN will keep complaints confidential. ALCOSAN will take appropriate corrective action, if an investigation confirms that a violation of this policy has occurred.

EXHIBIT D
TAX EXEMPTION CERTIFICATE

REV-1220 AS + (9-08)(1)



PENNSYLVANIA EXEMPTION CERTIFICATE

CHECK ONE:

- STATE OR LOCAL SALES AND USE TAX
- STATE OR LOCAL HOTEL OCCUPANCY TAX
- PUBLIC TRANSPORTATION ASSISTANCE TAXES AND FEES (PTA)
- VEHICLE RENTAL TAX (VRT)

(Please Print or Type)

This form cannot be used to obtain a Sales Tax License Number, PTA License Number or Exempt Status.

Read Instructions On Reverse Carefully

THIS FORM MAY BE PHOTOCOPIED – VOID UNLESS COMPLETE INFORMATION IS SUPPLIED

- CHECK ONE:** PENNSYLVANIA TAX UNIT EXEMPTION CERTIFICATE (USE FOR ONE TRANSACTION)
 PENNSYLVANIA TAX BLANKET EXEMPTION CERTIFICATE (USE FOR MULTIPLE TRANSACTIONS)

Name of Seller, Vendor, or Lessor

Street City State ZIP Code

NOTE: Do not use this form for claiming an exemption on the registration of a vehicle. To claim an exemption from tax for a motor vehicle, trailer, semi-trailer or tractor with the PA Department of Transportation, Bureau of Motor Vehicles, use one of the following forms:

- FORM MV-1 Application for Certificate of Title (first time registrations)
- FORM MV-4ST Vehicle Sales and Use Tax Return/Application for Registration (other registrations)

Property and services purchased or leased using this certificate **are exempt** from tax because: (Select the appropriate paragraph from the back of this form, check the corresponding block below and insert information requested.)

- 1. Property or services will be used directly and predominately by purchaser in performing purchaser's operation of: _____
- 2. Purchaser is a/an: Municipal Authority created under the "Municipality Authorities Acts".
- 3. Property will be resold under License Number _____ (If purchaser does not have a PA Sales Tax License Number, include a statement under Number 7 explaining why a number is not required.)
- 4. Purchaser is a/an: _____ holding Exemption Number _____
- 5. Property or services will be used directly and predominately by purchaser performing a public utility service.
 PA Public Utility Commission PUC Number _____ and/or US Department of Transportation MC/MX _____
- 6. Exempt wrapping supplies, License Number _____ (If purchaser does not have a PA Sales Tax License Number, include a statement under Number 7 explaining why a number is not required.)
- 7. Other _____
 (Explain in detail. Additional space on reverse side.)

I am authorized to execute this Certificate and claim this exemption. Misuse of this Certificate by seller, lessor, buyer, lessee, or their representative is punishable by fine and imprisonment.

Name of Purchaser or Lessee Signature EIN Date

Street City State ZIP Code
 3300 Preble Avenue Pittsburgh PA 15233

1. ACCEPTANCE AND VALIDITY:

For this certificate to be valid, the seller/lessor shall exercise good faith in accepting this certificate, which includes: (1) the certificate shall be completed properly; (2) the certificate shall be in the seller/lessor's possession within 60 days from the date of sale/lease; (3) the certificate does not contain information which is knowingly false; and (4) the property or service is consistent with the exemption to which the customer is entitled. For more information, refer to Exemption Certificates, Title 61 PA Code §32.2. An invalid certificate may subject the seller/lessor to the tax.

2. REPRODUCTION OF FORM:

This form may be reproduced but shall contain the same information as appears on this form.

3. RETENTION:

The seller or lessor must retain this certificate for at least four years from the date of the exempt sale to which the certificate applies.

DO NOT RETURN THIS FORM TO THE PA DEPARTMENT OF REVENUE.

4. EXEMPT ORGANIZATIONS:

This form may be used in conjunction with form REV-1715, Exempt Organization Declaration of Sales Tax Exemption, when a purchase of \$200 or more is made by an organization which is registered with the PA Department of Revenue as an exempt organization. These organizations are assigned an exemption number, beginning with the two digits 75 (example: 75-00000-0).

GENERAL INSTRUCTIONS

Those purchasers set forth below may use this form in connection with the claim for exemption for the following taxes:

- a. State and Local Sales and Use Tax;
- b. PTA rental fee or tax on leases of motor vehicles;
- c. Hotel Occupancy Tax if referenced with the symbol (●);
- d. PTA fee on the purchase of tires if referenced with the symbol (+);
- e. Vehicle Rental Tax (VRT)

EXEMPTION REASONS

- 1.) Property and/or services will be used directly and predominately by purchaser in performing purchaser's operation of:
- A. Manufacturing B. Mining C. Dairying D. Processing E. Farming F. Shipbuilding

This exemption is not valid for property or services which are used in: (a) constructing, repairing, or remodeling of real property, other than real property which is used directly in exempt operations; or (b) maintenance, managerial, administrative, supervisory, sales, delivery, warehousing or other nonoperational activities. Effective October 1, 1991, this exemption does not apply to certain services and PTA tire fee.

- 2.) Purchaser is a/an:

- + A. Instrumentality of the Commonwealth.
- + B. Political subdivision of the Commonwealth.
- + ● C. Municipal Authority created under the "Municipality Authorities Acts".
- + ● D. Electric Cooperative Corporations created under the "Electric Cooperative Law of 1990".
 - E. Cooperative Agricultural Associations required to pay Corporate Net Income Tax under the Cooperative Agricultural Association Corporate Net Income Tax Act (exemption not valid for registered vehicles).
- + ● F. Credit Unions organized under "Federal Credit Union Act" or Commonwealth "Credit Union Act".
- + ● G. United States Government, its agencies and instrumentalities.
- H. Federal employee on official business (Exemption limited to Hotel Occupancy Tax only. A copy of orders or statement from supervisor must be attached to this certificate.)
 - I. School Bus Operator (This Exemption Certificate is limited to the purchase of parts, repairs or maintenance services upon vehicles licensed as school buses by the PA Department of Transportation. For purchase of school buses, see NOTE below.)

- 3.) Property and/or services will be resold or rented in the ordinary course of purchaser's business. If purchaser does not have a PA Sales Tax License Number, complete Number 7 explaining why such number is not required. This Exemption is valid for property or services to be resold: (1) in original form; or (2) as an ingredient or component of other property.

- 4.) **Renewable Entities beginning with the two numbers 75:**
- A. Religious Organization
 - B. Volunteer Firemen's Organization
 - C. Nonprofit Educational Institution
 - D. Charitable Organization

- Permanent Exemptions beginning with the two numbers 76:**
- E. School District

Special Exemptions:

- F. Direct Pay Permit Holder
- + ● G. Individual Holding Diplomatic ID
- H. Keystone Opportunity Zone
- I. Tourist Promotion Agency

Exemption limited to purchase of tangible personal property or services for use and not for sale. The exemption shall not be used by a contractor performing services to real property. An exempt organization or institution shall have an exemption number assigned by the PA Department of Revenue and diplomats shall have an identification card assigned by the Federal Government. The exemption for categories "A, B, C and D" are not valid for property used for the following: (1) construction, improvement, repair or maintenance of any real property, except supplies and materials used for routine repair or maintenance of the real property; (2) any unrelated activities or operation of a public trade or business; or (3) equipment used to maintain real property.

- 5.) Property or services will be used directly and predominately by purchaser in the production, delivery, or rendition of public utility services as defined by the PA Utility Code.

This Exemption is not valid for property or services used for the following: (1) construction, improvement, repair or maintenance of real property, other than real property which is used directly in rendering the public utility services; or (2) managerial, administrative, supervisor, sales or other nonoperational activities; or (3) tools and equipment used but not installed in maintenance of facilities or direct use equipment. Tools and equipment used to repair "direct use" property are exempt from tax.

- 6.) Vendor/Seller purchasing wrapping supplies and nonreturnable containers used to wrap property which is sold to others.

- 7.) Other (Attach a separate sheet of paper if more space is required.)

SECTION 40 05 07
PIPE SUPPORT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe supports, brackets, anchors, and appurtenances including miscellaneous fittings, adapters, struts, and plates not specifically included under other sections of the specifications Design of pipe support systems as specified.
2. In general, pipe supports are not detailed on the Contract Drawings and shall be supplied and installed as specified herein.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Procurement and Contracting Requirements.
2. Division 01 - General Requirements.
3. Section 01 81 10 - Wind and Seismic Design Criteria.
4. Division 03 - Concrete
5. Division 40 – Process Interconnections
6. Section 05 50 00 – Metal Fabrications.
7. Section 09 90 00 – Painting
8. Section 40 42 00 – Pipe, Duct and Equipment Insulation.

1.2 Reference Standards

A. American Society of Mechanical Engineers (ASME):

1. B31.1, Power Piping.
2. B31.3, Process Piping.

B. ANVIL International (ANVIL).

C. ASTM International (ASTM):

1. A36, Standard Specification for Carbon Structural Steel.
2. A276, Standard Specification for Stainless Steel Bars and Shapes.
3. A575, Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades.
4. A576, Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.
5. A917, Standard Specification for Steel Sheet, Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface (General Requirements).
6. A918, Standard Specification for Steel Sheet, Zinc-Nickel Alloy Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.
7. B633, Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

D. American Welding Society (AWS):

1. D1.1, Structural Welding Code – Steel.
 2. D1.6, Structural Welding Code – Stainless Steel.
- E. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):
1. SP-58, Pipe Hangers and Supports – Materials, Design and Manufacture.
 2. SP-69, Pipe Hangers and Supports – Selection and Application.

1.3 SUBMITTALS

- A. See Section 01 33 00, Submittals, for requirements for the mechanics and administration of the submittal process.
- B. Shop Drawings:
1. Design calculations and drawings signed and sealed by a Professional Engineer licensed in the State of Pennsylvania including:
 - a. Certification by the Professional Engineer registered in the State of Pennsylvania stating that the pipe support systems comply with the requirements of specifications and are adequate to support the pipe within allowable stress limits under all operating conditions. The type and location of pipe supports, hangers, expansion couplings, and expansion joints shall be selected and supports shown on Drawings shall be supplemented based on pipe stress analysis. Include support layout and design calculations and indicate size and characteristics of components and fabrication details.
 - b. Thermal stress (expansion:contraction) analysis shall be performed for exposed and buried process air piping and shall be signed and sealed by a Professional Engineer registered in the State of Pennsylvania.
 - c. Seismic restraint analysis. If seismic restraints are not required, a Professional Engineer registered in the State of Pennsylvania shall provide a letter on the Professional Engineer’s letterhead with justification. Letter shall contain a signed and sealed Professional Engineer’s stamp from the State of Pennsylvania.
 - d. Identify all exceptions.
 2. Drawings identifying seismic locations with corresponding details of pre-approved seismic restraints, with seismic loads and seismic force level (Fp) calculations; pre-engineered and stamped by a Professional Engineer licensed in the State of Pennsylvania and experienced in seismic restraint systems.
 3. Dimensional shop drawings showing the piping, hangers, and support systems.
 4. Details of hanger and support systems, including bill of materials.
 5. Details of pipe anchors.
 6. Warranty statement

C. Product Data:

1. Catalog sheets, specifications, and installation instructions for each item specified, except fasteners.

D. Quality Control Submittals:

1. Seismic Restraint Manufacturer's Qualifications Data:

- a. Name of firm producing the seismic restraints, business address and telephone number.
- b. Period of time firm has been in the business producing seismic restraints, and names and addresses of 3 similar projects that the manufacturer has produced seismic restraints for during the past 5 years.

2. Company Field Advisor Data:

- a. Name, business address and telephone number of Company Field Advisor secured for the required services.
- b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
- c. Services and each product for which authorization is given by the Company, listed specifically for this project.

3. Manufacturer's Certificate of Compliance for Seismic Restraints: Certificate from seismic restraint manufacturer stating that the restraint and its mounting system or anchorage has been tested or analyzed and meets the requirements of International Building Code, Section 1613.

1.4 Quality Assurance

A. Regulatory Requirements:

1. Comply with the applicable requirements of the ASME B31 Piping Codes.
2. Unless otherwise shown or specified, comply with the requirements of the Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS) Standards SP-58, and SP-69.
3. The contractor shall provide pre-engineered or stamped and signed details (by a State of Pennsylvania Licensed Professional Engineer) of seismic restraint systems to meet total design lateral force requirements for support and restraint of mechanical and electrical systems.
4. Seismic components shall be UL listed or California OSHPD (Office of Statewide Health Planning and Development) approved.

- B. Pipe Support Design Engineer Qualifications: The firm producing the support design, including the seismic restraint calculations and thermal-stress analysis calculations,

shall be experienced in providing engineering services of the kind indicated and have experience in this work for minimum of five years.

1. Provide a detailed resume, including references from projects within the past five years.
- C. Seismic Restraint Manufacturer Qualifications: The firm producing the seismic restraints shall be experienced in seismic restraint work and shall have produced seismic restraints for a minimum of five years.
- D. Company Field Advisor: Secure the services of a Company Field Advisor from seismic restraint manufacturer for the following
1. Render advice regarding installation and final adjustment of seismic restraint system.
 2. Render advice on the suitability of each seismic restraint for its particular application.
 3. Inspect completed installation of seismic restraint system and certify with an affidavit that the system is installed in accordance with the Contract Documents and is operating properly.
 4. Train facility maintenance personnel on the installation of seismic restraint system and routine maintenance of the system.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Each piping system shall be analyzed for all loads and forces on the hangers and supports, and their reaction forces to the structure to which they are fastened.
- B. Provide supports of adequate size and strength to support the weight of pipe, fittings, specials, valves, accessories and liquid and any anticipated thrust. Quantities and sizes shall be provided so that no load to the support or hanger falls within 20% of the rated design load of the pipe support and/or hanger.
- C. Each piping system shall be analyzed for all loads and forces on the hangers and supports, and their reaction forces to the structure to which they are fastened.
- D. All supports, brackets, inserts, rods, bolts, nuts, anchors, and accessories shall be of Type 316 stainless steel, unless otherwise noted.

2.2 MATERIALS

- A. Pipe support and hanger material must be compatible with the piping material so that neither has a deteriorating action on the other

2.3 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable

- B. Submit request for substitution in accordance with Section 01 25 13, Product Substitutions.

2.4 HANGERS AND SUPPORTS

- A. Manufacturer - Manufactured hangers and supports:
 - 1. Anvil International
 - 2. Eaton, B-Line Products.
 - 3. Or approved equal.
- B. All supports shall be capable of adjustment after placement of piping.
- C. Pipe saddles shall be provided where required to protect the pipe covering. Supports shall be made so as to fit the outside diameter of the pipe plus the saddle.
- D. Prevent contact between dissimilar metals when supporting copper tubing by use of solid copper, rubber, vinyl coated hangers or supports.
- E. Hangers for pipe 2 inches in diameter and smaller shall be split ring type and for pipe larger than 2 inches in diameter shall be the clevis type.
- F. Split ring type hangers shall be 316 stainless steel clevis type shall be 316 stainless steel, except as specified otherwise herein.
- G. Pipes with centerlines less than 24 inches from a wall may be supported by a typical wall support bracket.
- H. Pipes with centerlines less than 6 feet above a floor shall be supported from below. All other pipes shall be hung from above, unless otherwise shown or specified.
- I. Pipe support spacing shall be as defined in Part 3 of this specification.
- J. Pipe supported from underneath shall be adjustable pipe saddle supports on properly sized stanchions.
- K. Hangers suspended from stainless steel shall be supported by 316 stainless steel beam clamps with 316 stainless steel upper nuts and tie rods to lock clamps in place. Hangers suspended from pre-cast concrete shall be of type acceptable to the pre-cast concrete manufacturer. All hangers shall be 316 stainless steel.
- L. Pipe Hangers: Height adjustable standard duty clevis type, with cross bolt and nut. Pipe spreaders or spacers shall be used on cross bolts of clevis hangers, when supporting piping 10 inches in size and larger.

2.5 ANCHORS AND ATTACHMENTS

- A. Sleeve Anchors (316 stainless steel): Parasleeve Series, Ramset's Dynabolt Series, or Red Head/Phillips AN, HN, or FS Series.
- B. Wedge Anchors (316 stainless steel): Hilti's Kwik Bolt Series.
- C. Non-Drilling Anchors (316 stainless steel): Hilti's HDI Series.
- D. Stud Anchors (316 stainless steel): Red Head/Phillips JS Series.

- E. Wedge Type Concrete Insert: 316 stainless steel, designed to accept 3/4-inch diameter bolts having special wedge shaped heads.
- F. Beam Clamps: 316 stainless steel beam clamp, with weldless eye nut (right-hand thread), tie rod, nuts, and washers, (size for load, beam flange width, and rod size required).
- G. Supports shall be furnished complete with necessary inserts, anchors, bolts, nuts, rods, washers, and other accessories.
- H. Supports capable of supporting the pipe for all service and testing conditions.

2.6 FASTENERS

- A. Bolts, Nuts, Washers, Lags, and Screws: 316 stainless steel; size and type to suit application; Except where shown otherwise on the Contract Drawings.

2.7 ACCESSORIES

A. Hanger Rods

1. Hanger rods shall be solid and made of 316 stainless steel. Fully threaded or threaded at each end, with two nuts at each end for positioning rod and hanger, and locking each in place.
2. All hanger rods are subject to approval by the ENGINEER.

B. Adjustable Floor Rests and Base Flanges – 316 stainless steel.

C. Riser Clamps -316 stainless steel.

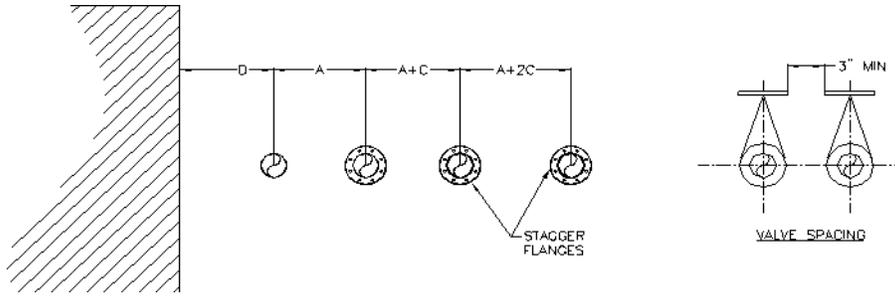
D. Rollers - 316 stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide piping systems exhibiting pulsation, vibration, swaying, or impact with suitable constraints to correct the condition.
 1. Included in this requirement are movements from:
 - a. Trap discharge.
 - b. Water hammer.
 - c. Similar internal forces.
- B. Weld Supports:
 1. AWS D1.1.
 2. Weld anchors to pipe in accordance with ASME B31.3.
 3. AWS D1.6 for stainless steel supports.
- C. Locate piping and pipe supports as to not interfere with open accesses, walkways, platforms, and with maintenance or disassembly of equipment.
- D. Inspect hangers for:

1. Design offset.
 2. Adequacy of clearance for piping and supports in the hot and cold positions.
 3. Guides to permit movement without binding.
 4. Adequacy of anchors.
- E. Inspect hangers after erection of piping systems and prior to pipe testing and flushing.
- F. Anchorage to Concrete:
1. Reference Section 05 50 50, Concrete and Masonry Anchors.
- G. Install individual or continuous slot concrete inserts for use with hangers for piping and equipment.
1. Install concrete inserts as concrete forms are installed.
- H. Welding:
1. Welding Rods: ASTM and AWS standards.
 2. Integral Attachments:
 - a. Include welded-on ears, shoes, plates and angle clips.
 - b. Ensure material for integral attachments is of good weldable quality.
 3. Preheating, welding and post-heat treating: ASME B31.3, Chapter V.
- I. Field Painting:
1. Comply with Section 09 90 00, Painting.
- J. Run piping in-groups at same location and elevation where practicable and generally parallel to building walls. Pipe spacing on support shall be as defined on the following table, unless otherwise specified by the manufacturer noted on the Contract Drawings:



STANDARD PIPE SPACING UNINSULATED PIPE DIM 'A'															ADDITIONAL SPACE TO ADD FOR INSUL. 'C'	
Pipe Size	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	ST D.	D.STD
24"	21"	21"	21"	22"	22"	24"	25"	26"	27"	27"	28"	29"	30"	24"	1"	2"
20"	18"	18"	19"	19"	20"	21"	22"	23"	24"	24"	25"	26"	28"		1"	2"
18"	17"	17"	17"	18"	18"	20"	21"	22"	23"	23"	24"	25"			1"	3"
16"	16"	16"	16"	17"	17"	18"	19"	20"	21"	2"	23"				1"	3"
14"	14"	15"	15"	15"	16"	17"	18"	19"	20"	21"					2"	3"
12"	13"	13"	14"	14"	15"	16"	17"	18"	19"						2"	3"
10"	12"	12"	12"	13"	13"	14"	15"	16"							2"	3"
8"	10"	11"	11"	11"	12"	13"	14"								2"	3"
6"	9"	9"	10"	10"	11"	12"									2"	3"
4"	8"	8"	9"	9"	10"										2"	3"
3"	7"	7"	8"	8"											2"	3"
2"	6"	7"	7"												2"	3"
1½"	6"	6"													2"	3"
1"	5"														2"	3"
	5"	6"	6"	7"	7"	9"	10"	11"	13"	14"	15"	16"	18"	20"		
CLEARANCE 'D'																

K. Support spacing shall be in accordance with ANSI B31.1. Space supports for horizontal piping generally as defined in the following schedules, except as otherwise specified by the manufacturer, or noted on the Contract Drawings.

1. For Weld/Threaded Steel, Alloy Steel, Threaded Brass Pipe and Fibrous Glass Reinforced Plastic Pipe (FRP):

PIPE SIZE (Inches)	MAXIMUM SPACING (Feet)
1 and under	8
1¼ and 1½	9
2	10
2½ and 10	12
10 and up	20

2. For Grooved End Steel Pipe (Rigid System):

PIPE SIZE (Inches)	MAXIMUM SPACING (Feet)
1½ and under	7
2 through 4	10
5 and over	12

Notes:

- No pipe length shall be left unsupported between any two coupling joints.
- Support spacing shall be reduced as required for flexible system.

3. For Copper Tubing:

PIPE OR TUBING SIZE (Inches)	MAXIMUM SPACING (Feet)
1½ and under	6
2 and over	10

4. For PVC and CPVC Piping:

PIPE OR TUBING SIZE (Inches)	MAXIMUM SPACING (Feet)
Under 1 inch	4
1¼ inch to 2 inch	5
2½ inch to 6 inch	6
8 inch to 12 inch	8

Notes:

- Pipe spacing based on schedule 40 piping system operating at 100 degrees F.
- Spacing shall be modified as required for all other operating limits and pipe specification.

5. For Flanged Ductile Iron Pipe:

PIPE OR TUBING SIZE (Inches)	MAXIMUM SPACING (Feet)
1 ¼ inch and larger	10

- L. For Directional Changes: Install a hanger or support close to the point of change of direction of all pipe runs in either a horizontal or vertical plane.
- M. For Concentrated Loads: Install additional hangers or supports, spaced as required and directed, at locations where concentrated loads such as in-line pumps, valves, fittings or accessories occur, to support the concentrated loads.
- N. For Branch Piping Runs and Runouts Over 5 feet In Length: Install a minimum of one hanger, and additional hangers if required by the hanger spacing schedules.
- O. Parallel Piping Runs: Where several pipe lines run parallel in the same plane and in close proximity to each other, trapeze hangers may be submitted for approval. Base hanger spacing for trapeze type hangers on the smallest size of pipe being supported.

Design the entire hanger assembly based on a safety factor of five, for the ultimate strength of the material being used.

- P. Support floor drain traps from the overhead construction, with hangers of type and design as required and approved. Overhead supports are not required for floor drain traps installed directly below earth supported concrete floors.
- Q. Size hanger rods at a minimum in accordance with the following:

PIPE OR TUBING SIZE (Inches)	SINGLE ROD HANGER SIZE (Inches)		DOUBLE ROD HANGER SIZE (Inches)	
	PIPE	TUBING	PIPE	TUBING
1/2 to 2	3/8	3/8	3/8	3/8
2-1/2 and 3	1/2	3/8	3/8	3/8
4 and 5	5/8	1/2	1/2	3/8
6	3/4	1/2	5/8	1/2
8, 10 and 12	7/8	5/8	3/4	5/8

1. Size hanger rods, for piping over 12 inches in size and multiple line supports, based on a safety factor of five for the ultimate strength of the materials being used.
2. Secure hanger rods as follows: Install one nut under clevis, angle or steel member; one nut on top of clevis, angle or steel member; one nut inside insert or on top of upper hanger attachment and one nut and washer against insert or on lower side of upper hanger attachment. A total of four (4) nuts are required for each rod, two (2) at upper hanger attachment and two (2) at hanger.

R. Vertical Piping

1. Vertical piping shall be supported from below.
2. Support vertical risers of piping systems, by means of heavy duty hangers installed close to base of pipe risers, and by riser clamps with extension arms at intermediate floors, with the distance between clamps not to exceed 25 feet, unless otherwise specified. Support pipe risers in vertical shafts equivalent to the aforementioned. Install riser clamps above floor slabs, with the extension arms resting on floor slabs. Provide adequate clearances for risers that are subject to appreciable expansion and contraction, caused by operating temperature ranges.
3. Support extension arms of riser clamps, secured to risers to be insulated for cold service, 4 inches above floor slabs, to allow room for insulating and vapor sealing around riser clamps.
4. Install intermediate supports between riser clamps on maximum 6-foot centers, for copper tubing risers 1 1/4-inch in size and smaller, installed in finished rooms or spaces other than mechanical equipment machine or steam service rooms, or penthouse mechanical equipment rooms.
5. Support cast iron risers, by means of heavy-duty hangers installed close to the base of the pipe risers, and 1/4-inch thick malleable iron or steel riser clamps with extension arms at each floor level, with the distance between clamps not to exceed 25 feet. Support cast iron risers in vertical shafts equivalent to the aforementioned.

Support hubless cast iron risers, by means of heavy-duty hangers installed close to the base of the pipe risers, and by malleable iron or steel riser clamps with the extension arms at each floor level, with the distance between clamps or intermediate supports not to exceed 12 feet. Support risers in vertical shafts equivalent to the aforementioned.

3.2 UPPER HANGER ATTACHMENTS

A. General

1. In all cases, secure upper hanger attachments to overhead structural steel, steel bar joists, or other suitable structural members.
2. Do not attach hangers to steel decks that are not to receive concrete fill.
3. Do not attach hangers to precast concrete plank decks less than 2 3/4-inches thick.
4. Do not use flat bars or bent rods as upper hanger attachments.

B. Attachment to Steel Frame Construction: Provide intermediate structural steel members where required by pipe support spacing. Select steel members for use as intermediate supports based on a minimum safety factor of five.

1. Do not use drive-on beam clamps.
2. Do not support piping over 4 inches in size from steel bar joists. Secure upper hanger attachments to steel bar joists at panel points of joists.
3. Do not drill holes in main structural steel members.
4. Beam clamps, with tie rods as specified, may be used as upper hanger attachments for the support of piping, subject to clamp manufacturer's recommended limits.

C. Attachment to Concrete Filled Steel Decks

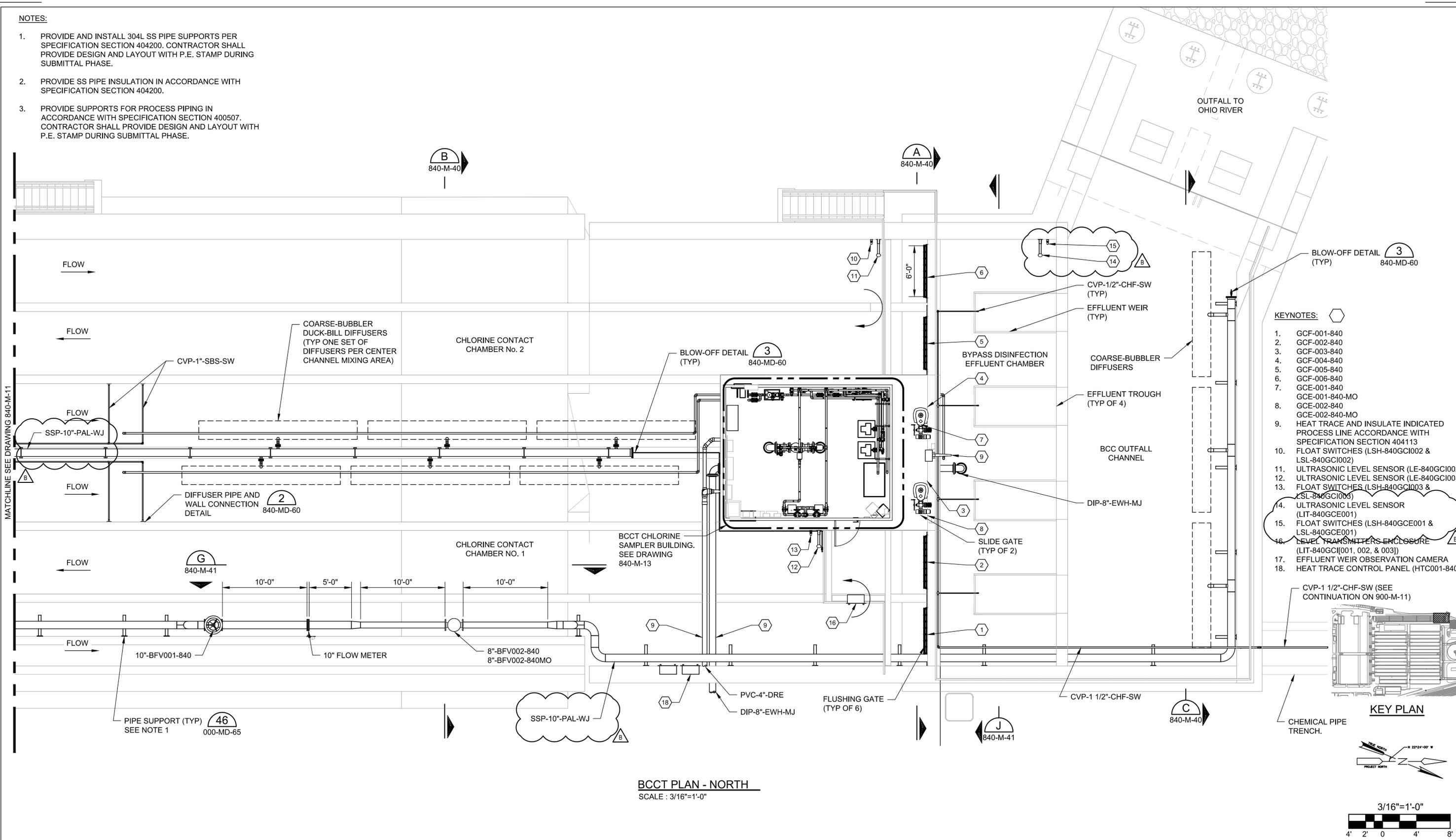
1. New Construction: Install metal deck ceiling bolts.
2. Existing Construction: Install welding studs (except at roof decks). Do not support a load in excess of 250-lbs. from any single welded stud.
3. Do not attach hangers to decks less than 2 1/2-inches thick.

D. Attachment to Cast-In-Place Concrete: Secure to overhead construction by means of cast-in-place concrete inserts.

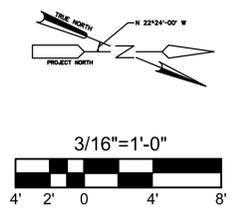
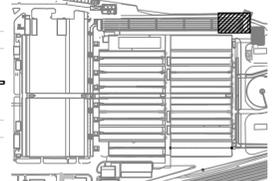
END OF SECTION

NOTES:

1. PROVIDE AND INSTALL 304L SS PIPE SUPPORTS PER SPECIFICATION SECTION 404200. CONTRACTOR SHALL PROVIDE DESIGN AND LAYOUT WITH P.E. STAMP DURING SUBMITTAL PHASE.
2. PROVIDE SS PIPE INSULATION IN ACCORDANCE WITH SPECIFICATION SECTION 404200.
3. PROVIDE SUPPORTS FOR PROCESS PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 400507. CONTRACTOR SHALL PROVIDE DESIGN AND LAYOUT WITH P.E. STAMP DURING SUBMITTAL PHASE.



- KEYNOTES:**
1. GCF-001-840
 2. GCF-002-840
 3. GCF-003-840
 4. GCF-004-840
 5. GCF-005-840
 6. GCF-006-840
 7. GCE-001-840
 8. GCE-001-840-MO
 9. GCE-002-840
 10. GCE-002-840-MO
 9. HEAT TRACE AND INSULATE INDICATED PROCESS LINE ACCORDANCE WITH SPECIFICATION SECTION 404113
 10. FLOAT SWITCHES (LSH-840GCI002 & LSL-840GCI002)
 11. ULTRASONIC LEVEL SENSOR (LE-840GCI002)
 12. ULTRASONIC LEVEL SENSOR (LE-840GCI003)
 13. FLOAT SWITCHES (LSH-840GCI003 & LSL-840GCI003)
 14. ULTRASONIC LEVEL SENSOR (LIT-840GCE001)
 15. FLOAT SWITCHES (LSH-840GCE001 & LSL-840GCE001)
 16. LEVEL TRANSMITTERS ENCLOSURE (LIT-840GCI001, 002, & 003)
 17. EFFLUENT WEIR OBSERVATION CAMERA
 18. HEAT TRACE CONTROL PANEL (HTC001-840)



Designed by: KCK	REVISION			
	REV No.	DATE	DESCRIPTION	APPV
Drawn by: MRG	A	6/8/22	ISSUED FOR BIDS	CPM
	B	8/15/22	ADDENDUM No. 4	CPM
Checked by: JDS				



GHD Inc.
1240 North Mountain Road
Harrisburg PA 17112 USA
T 1 717 541 0622 F 1 717 441 0161 W www.ghd.com



alcosan
alleggheny county sanitary authority

ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

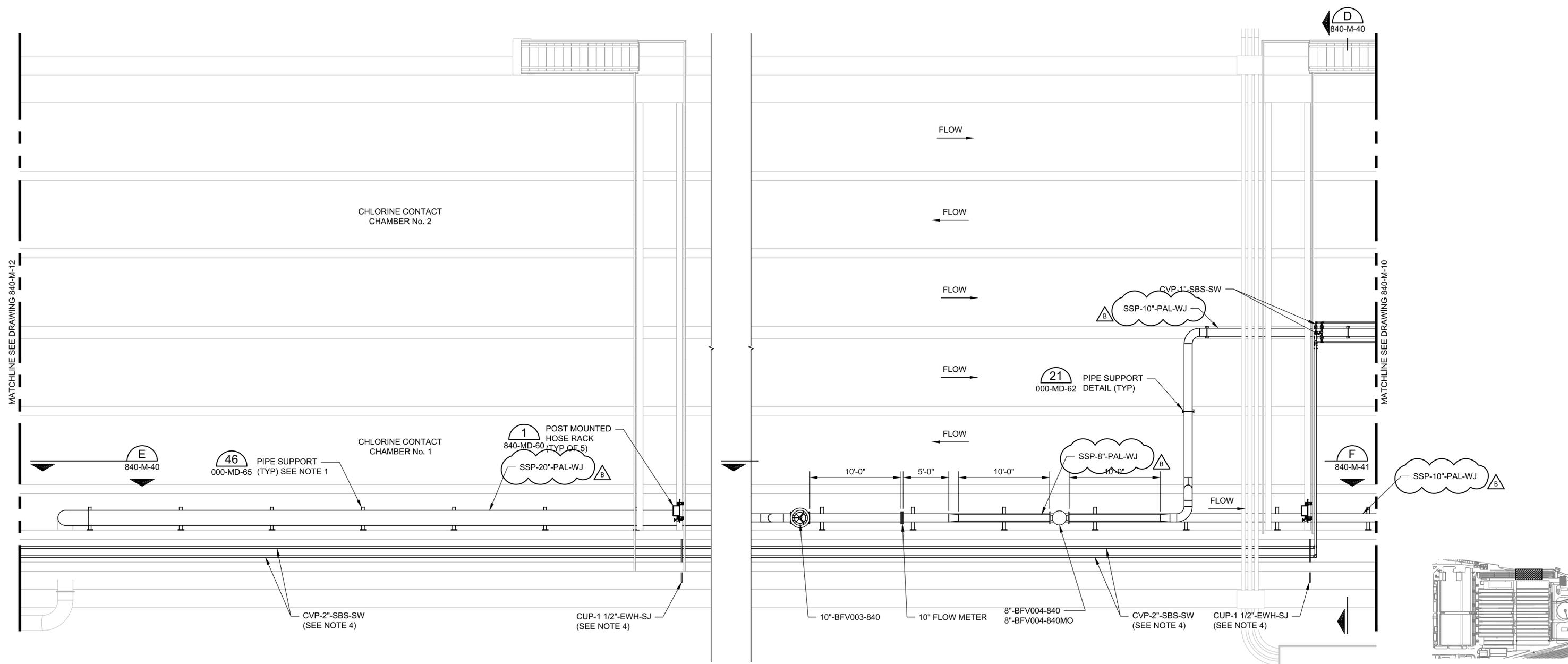
3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810

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ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT

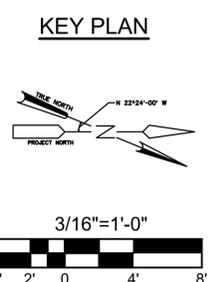
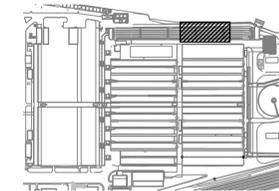
840-M-10
MECHANICAL PLAN BCCT - NORTH

Contract: 1760
CAD File Name: 840-M-10.dwg
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BCCT PLAN - CENTER
SCALE : 3/16"=1'-0"

- NOTES:**
1. PROVIDE AND INSTALL 316L SS PIPE SUPPORTS PER SPECIFICATION SECTION 404200. CONTRACTOR SHALL PROVIDE DESIGN AND LAYOUT WITH P.E. STAMP DURING SUBMITTAL PHASE.
 2. PROVIDE SS PIPE INSULATION IN ACCORDANCE WITH SPECIFICATION SECTION 404200.
 3. PROVIDE SUPPORTS FOR PROCESS PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 400507. CONTRACTOR SHALL PROVIDE DESIGN AND LAYOUT WITH P.E. STAMP DURING SUBMITTAL PHASE.
 4. HEAT TRACE AND INSULATE INDICATED PROCESS LINES ACCORDANCE WITH SPECIFICATION SECTION 404113.



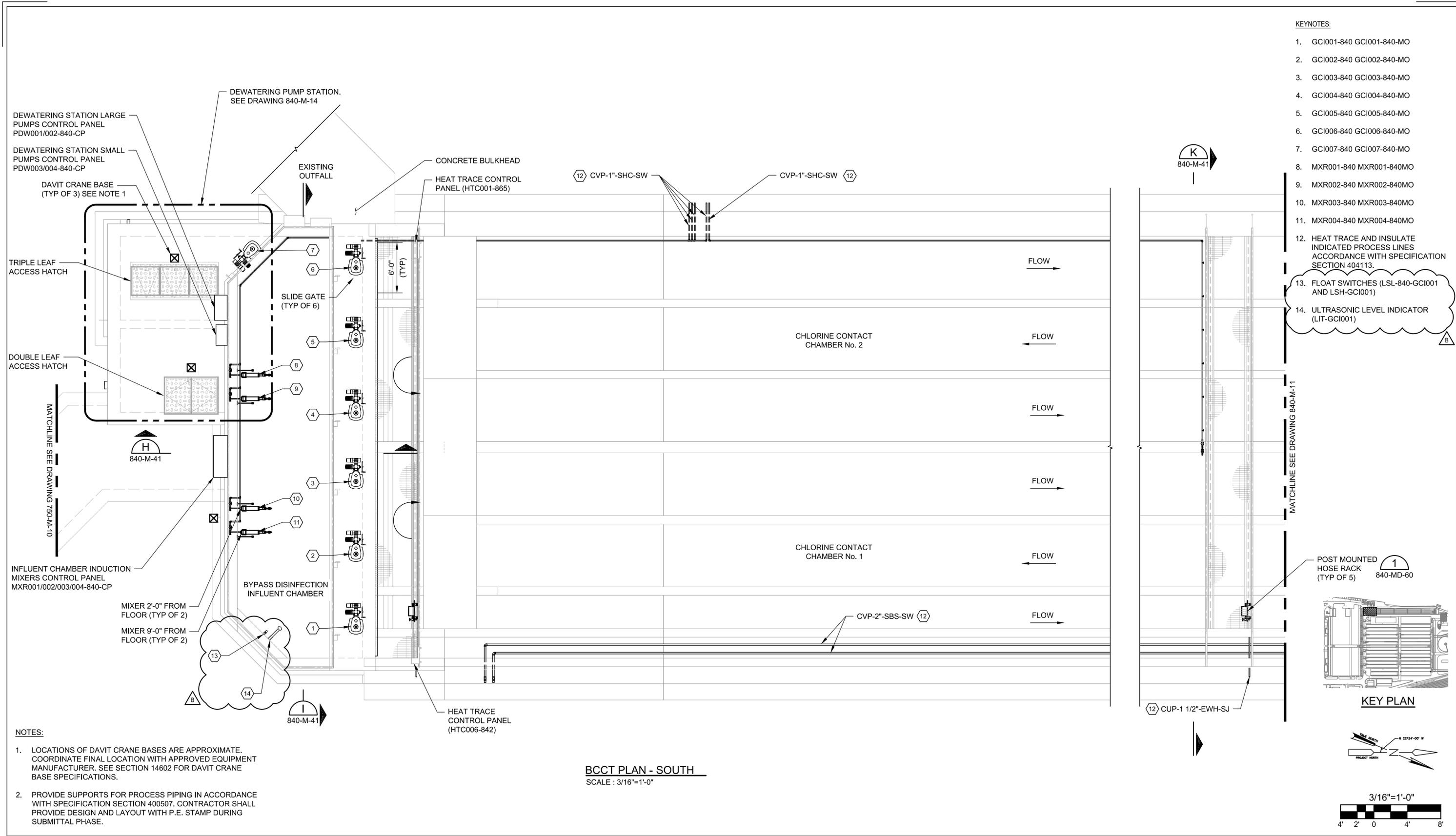
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	REV No.	DATE	DESCRIPTION	APPV
Drawn by:	A	6/8/22	ISSUED FOR BIDS	CPM
	B	8/15/22	ADDENDUM No. 4	CPM
Checked by:				



ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT

840-M-11
MECHANICAL PLAN BCCT - CENTER

Contract: 1760
CAD File Name: 840-M-11.dwg
Date: 06 / 08 / 2022
Sheet: 180 of 359

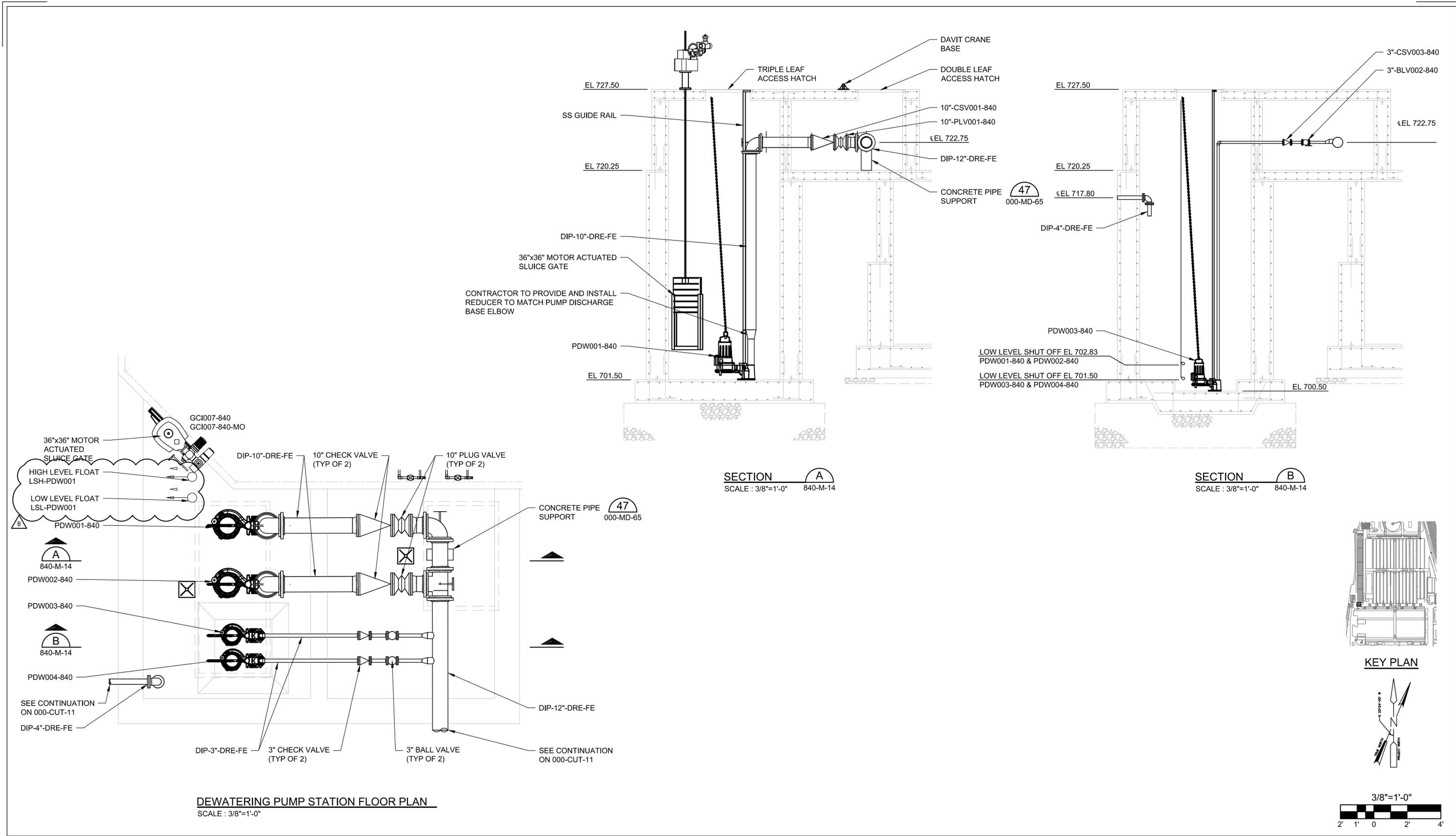


- KEYNOTES:**
- GCI001-840 GCI001-840-MO
 - GCI002-840 GCI002-840-MO
 - GCI003-840 GCI003-840-MO
 - GCI004-840 GCI004-840-MO
 - GCI005-840 GCI005-840-MO
 - GCI006-840 GCI006-840-MO
 - GCI007-840 GCI007-840-MO
 - MXR001-840 MXR001-840MO
 - MXR002-840 MXR002-840MO
 - MXR003-840 MXR003-840MO
 - MXR004-840 MXR004-840MO
 - HEAT TRACE AND INSULATE INDICATED PROCESS LINES ACCORDANCE WITH SPECIFICATION SECTION 404113.
 - FLOAT SWITCHES (LSL-840-GCI001 AND LSH-GCI001)
 - ULTRASONIC LEVEL INDICATOR (LIT-GCI001)

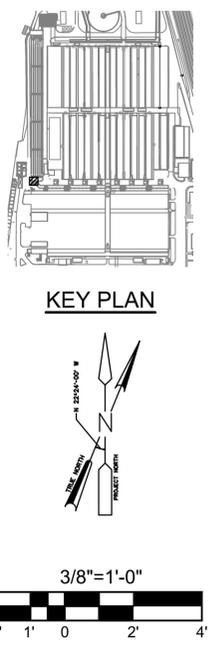
- NOTES:**
- LOCATIONS OF DAVIT CRANE BASES ARE APPROXIMATE. COORDINATE FINAL LOCATION WITH APPROVED EQUIPMENT MANUFACTURER. SEE SECTION 14602 FOR DAVIT CRANE BASE SPECIFICATIONS.
 - PROVIDE SUPPORTS FOR PROCESS PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 400507. CONTRACTOR SHALL PROVIDE DESIGN AND LAYOUT WITH P.E. STAMP DURING SUBMITTAL PHASE.

BCCT PLAN - SOUTH
SCALE : 3/16"=1'-0"

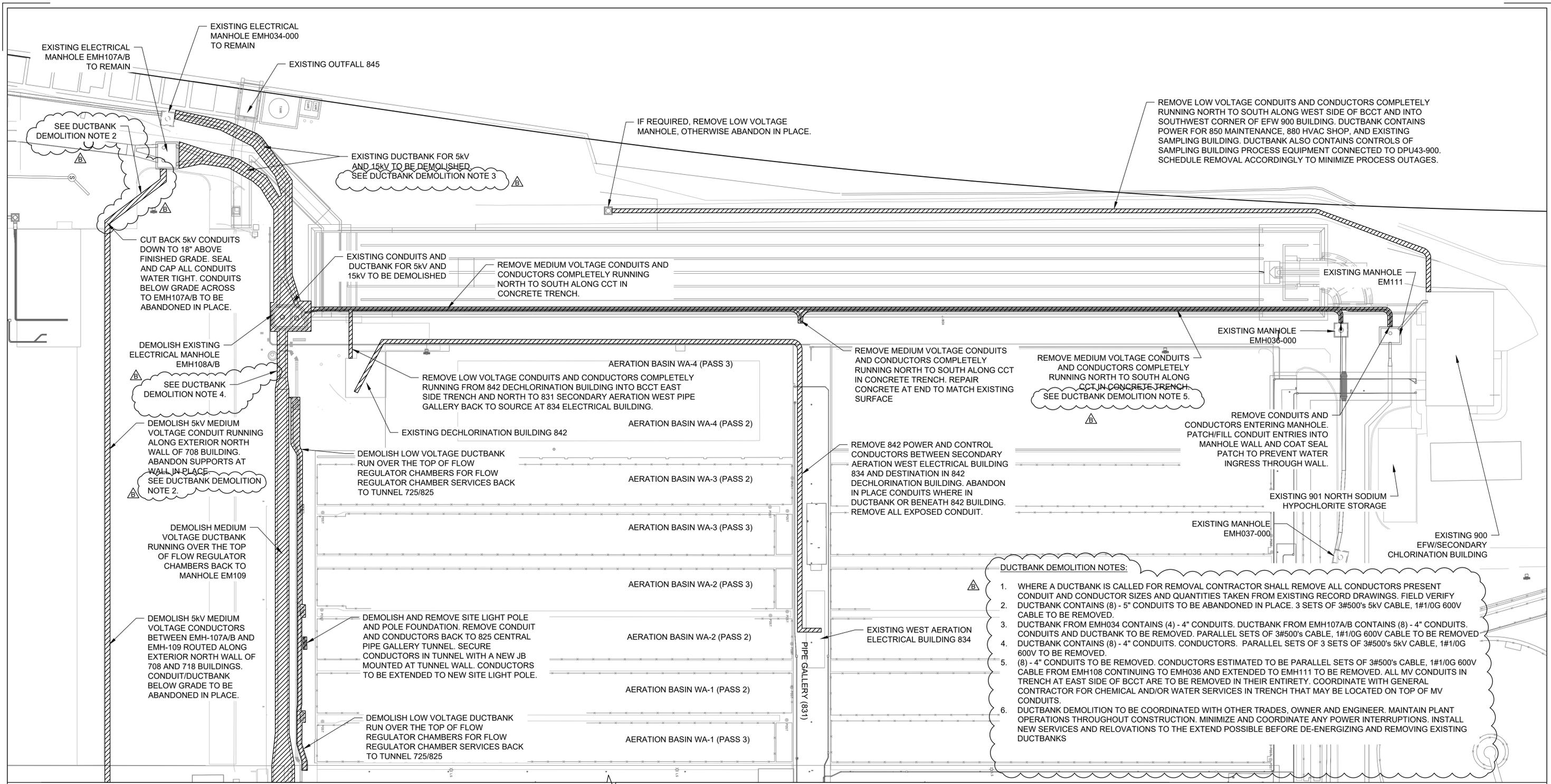
Designed by: KCK	REVISION	<p>GHD Inc. 1240 North Mountain Road Harrisburg PA 17112 USA T 1 717 541 0622 F 1 717 441 0161 W www.ghd.com</p>	<p>alcosan allegheeny county sanitary authority</p>	<p>ARLETTA SCOTT WILLIAMS EXECUTIVE DIRECTOR, ALCOSAN</p>	<p>ALLEGHENY COUNTY SANITARY AUTHORITY WASTEWATER TREATMENT PLANT CSO BYPASS AND DISINFECTION PROJECT</p>	Contract: 1760								
Drawn by: MRG	<table border="1"> <thead> <tr> <th>REV No.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>APPV</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>6/8/22</td> <td>ISSUED FOR BIDS</td> <td>CPM</td> </tr> <tr> <td>B</td> <td>8/15/22</td> <td>ADDENDUM No. 4</td> <td>CPM</td> </tr> </tbody> </table>					REV No.	DATE	DESCRIPTION	APPV	A	6/8/22	ISSUED FOR BIDS	CPM	B
REV No.	DATE	DESCRIPTION	APPV											
A	6/8/22	ISSUED FOR BIDS	CPM											
B	8/15/22	ADDENDUM No. 4	CPM											
Checked by: JDS				3300 PREBLE AVE. PITTSBURGH, PA 15233 (412) 766 - 4810	<p>840-M-12 MECHANICAL PLAN BCCT - SOUTH</p>	Date: 06 / 08 / 2022								
				www.alcosan.org		Sheet: 181 of 359								



DEWATERING PUMP STATION FLOOR PLAN
SCALE : 3/8"=1'-0"



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Drawn by: MRG	REV No.	DATE	DESCRIPTION	APPV					CAD File Name: 840-M-14.dwg
Checked by: JDS	A	6/8/22	ISSUED FOR BIDS	CPM	Date: 06 / 08 / 2022				
	B	8/15/22	ADDENDUM No. 4	CPM	Sheet: 183 of 359				



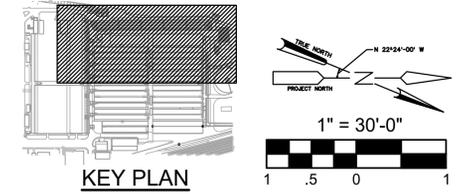
MATCHLINE SEE DRAWING 000-EDM-11

MATCHLINE SEE DRAWING 000-EDM-11

NOTES:

- ELECTRICAL CONTRACTOR TO COORDINATE DUCTBANK DEMOLITION WORK WITH GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR TO DE-ENERGIZE AND REMOVE ALL UNDERGROUND CONDUCTORS CALLED FOR REMOVAL. GENERAL CONTRACTOR TO DEMOLISH CONDUITS AND CONCRETE ENCASEMENT FOR DUCTBANKS BEING REMOVED.

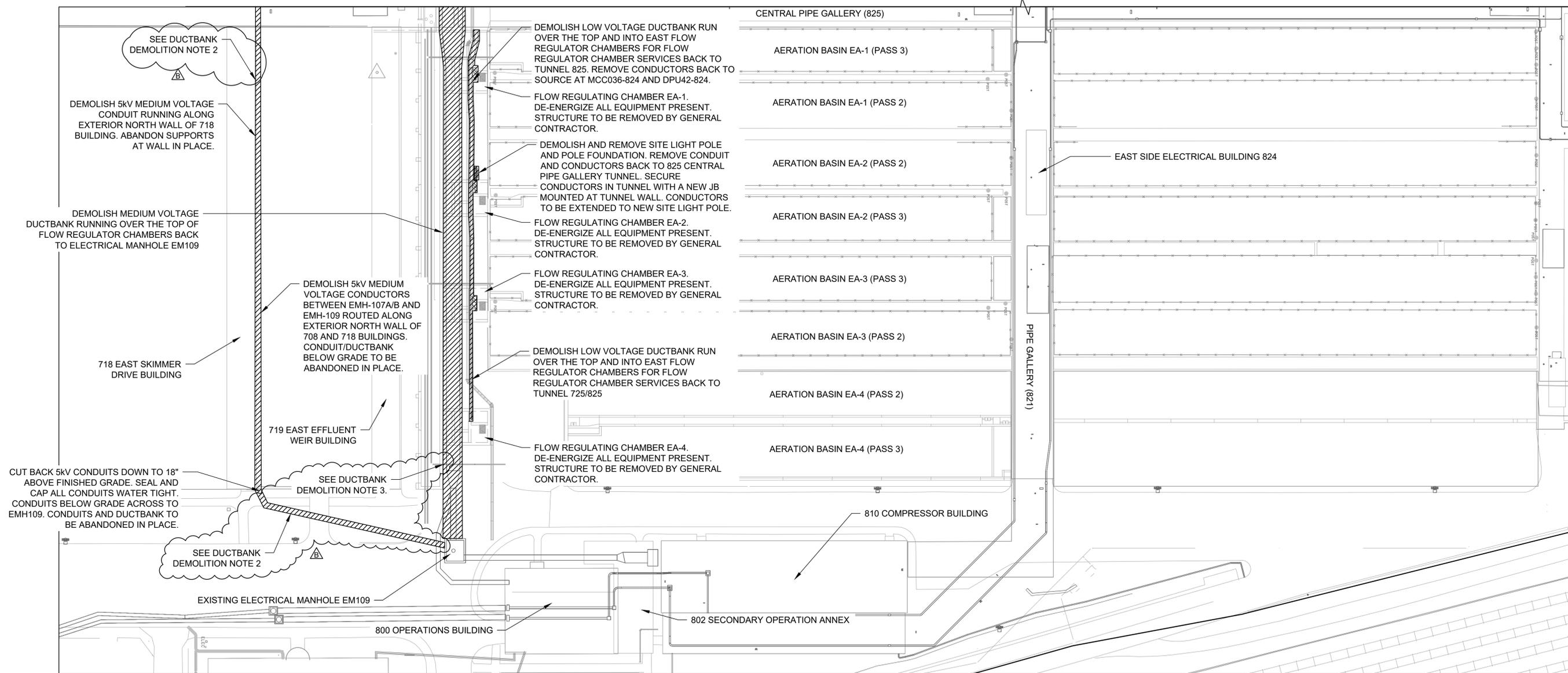
PARTIAL ENLARGED SITE PLAN
1" = 30'-0"



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Drawn by: GRM	REV No.	DATE	DESCRIPTION	APPV					CAD File Name: 000-EDM-10.dwg
Checked by: TWD	A	06/08/22	ISSUED FOR BIDS	CPM					Date: 06 / 08 / 2022
	B	08/15/22	ADDENDA No. 4	CPM	Sheet: 248 of 359				

MATCHLINE SEE DRAWING 000-EDM-10

MATCHLINE SEE DRAWING 000-EDM-10



PARTIAL ENLARGED SITE PLAN

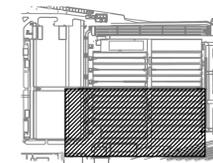
1" = 30'-0"

NOTES:

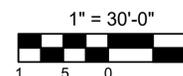
- ELECTRICAL CONTRACTOR TO COORDINATE DEMOLITION WORK WITH GENERAL CONTRACTOR. ELECTRICAL CONTRACTOR TO DE-ENERGIZE AND REMOVE ALL UNDERGROUND CONDUCTORS CALLED FOR REMOVAL, GENERAL CONTRACTOR TO DEMOLISH CONDUITS AND CONCRETE ENCASMENT FOR DUCTBANKS BEING REMOVED.

DUCTBANK DEMOLITION NOTES:

- WHERE A DUCTBANK IS CALLED FOR REMOVAL CONTRACTOR SHALL REMOVE ALL CONDUCTORS PRESENT SIZES AND CONDUCTORS TAKEN FROM EXISTING RECORD DRAWINGS. FIELD VERIFY
- DUCTBANK CONTAINS (8) - 5" CONDUITS, UNDERGROUND CONDUITS TO BE ABANDONED IN PLACE. PARALLEL SETS OF 3 SETS OF 3#500's 5kV CABLE, 1#1/0G 600V CABLE.
- DUCTBANK CONTAINS (8) - 4" CONDUITS, CONDUCTORS TO BE DE-ENERGIZED AND ABANDONED IN PLACE OR ALREADY REMOVED BETWEEN EMH107A/B AND EMH109. PARALLEL SETS OF 3 SETS OF 3#500's 5kV CABLE, 1#1/0G 600V CABLE TO BE REMOVED.



KEY PLAN



Designed by:	TWD	REVISION			
Drawn by:	EPP	REV No.	DATE	DESCRIPTION	APPV
Checked by:	TWD	A	06/08/22	ISSUED FOR BIDS	CPM
		B	08/15/22	ADDENDA No. 4	CPM



ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

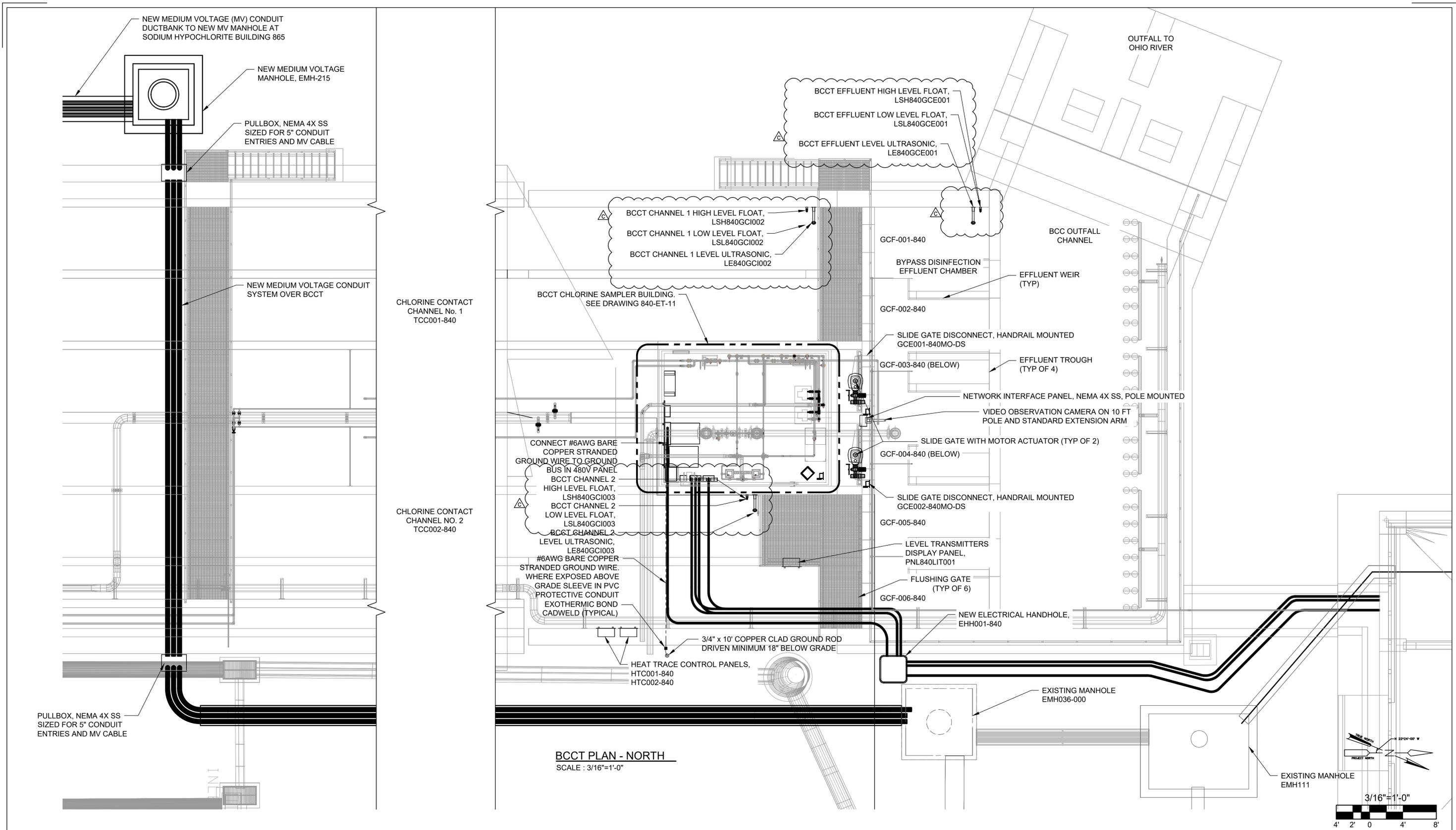
3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810

ALLEGHENY COUNTY SANITARY AUTHORITY WASTEWATER TREATMENT PLANT CSO BYPASS AND DISINFECTION PROJECT		Contract: 1760
000-EDM-11 ELECTRICAL PARTIAL ENLARGED SITE ELECTRICAL DEMOLITION PLAN - EAST		CAD File Name: 000-EDM-11.dwg
		Date: 06 / 08 / 2022
		Sheet: 249 of 359

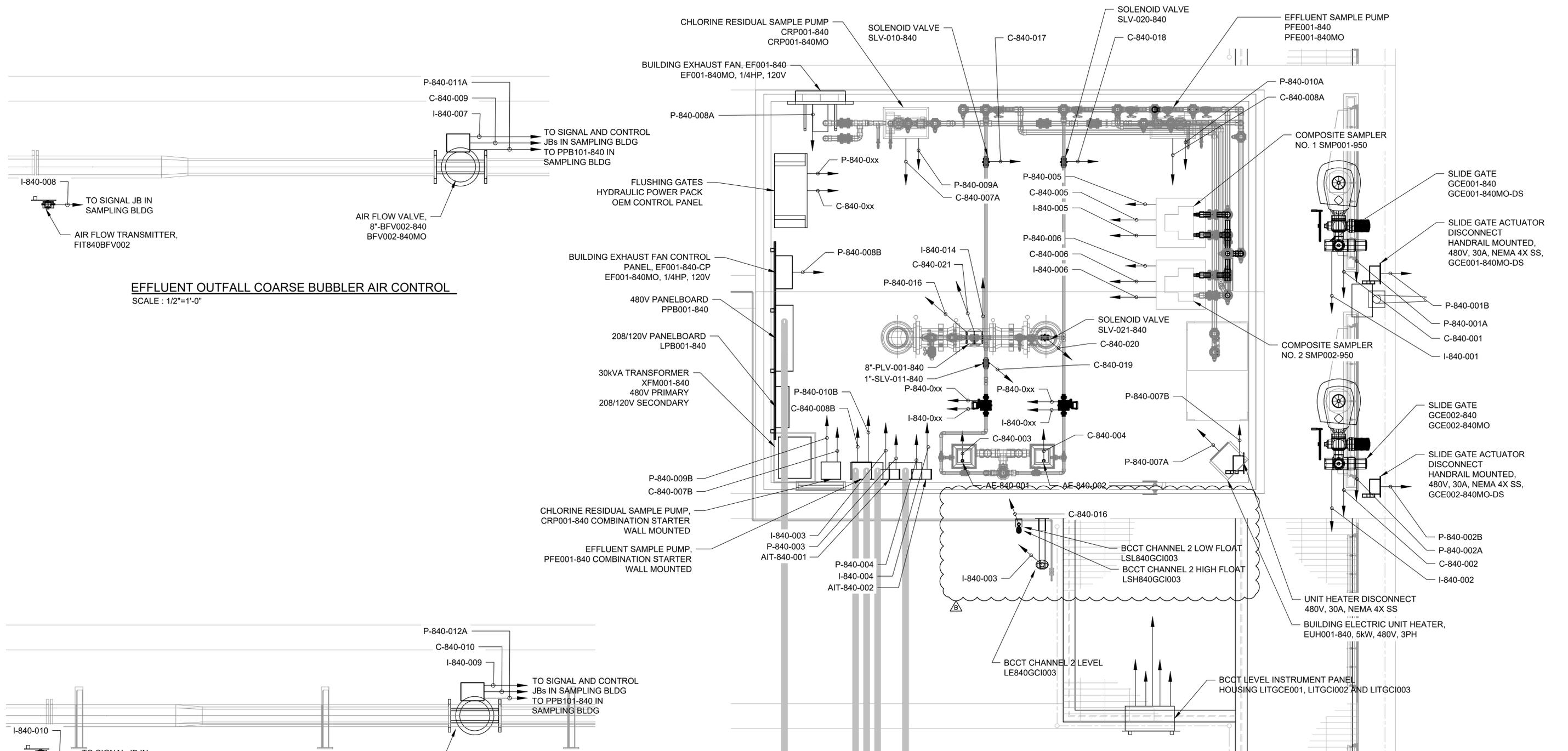
840 BCCT INFLUENT CHAMBER AND PUMPING STATION AREA CONDUIT AND CABLES SCHEDULE						
CONDUIT SIZE	CONDUIT ID	CONDUCTORS	DESCRIPTION	SOURCE	DESTINATION	
3/4"	P-840-101A	3#12's, 1#12G	SLIDE GATE GCI001-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-101B	3#12's, 1#12G	SLIDE GATE GCI001-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-101	12#14's	GATE GCI001-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-102A	3#12's, 1#12G	SLIDE GATE GCI002-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-102B	3#12's, 1#12G	SLIDE GATE GCI002-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-102	12#14's	GATE GCI002-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-103A	3#12's, 1#12G	SLIDE GATE GCI003-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-103B	3#12's, 1#12G	SLIDE GATE GCI003-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-103	12#14's	GATE GCI003-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-104A	3#12's, 1#12G	SLIDE GATE GCI004-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-104B	3#12's, 1#12G	SLIDE GATE GCI004-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-104	12#14's	GATE GCI004-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-105A	3#12's, 1#12G	SLIDE GATE GCI005-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-105B	3#12's, 1#12G	SLIDE GATE GCI005-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-105	12#14's	GATE GCI005-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-106A	3#12's, 1#12G	SLIDE GATE GCI006-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-106B	3#12's, 1#12G	SLIDE GATE GCI006-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-106	12#14's	GATE GCI006-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3/4"	P-840-107A	3#12's, 1#12G	SLIDE GATE GCI007-840 FEEDER	GATE ACTUATOR	GATE DISCONNECT	
3/4"	P-840-107B	3#12's, 1#12G	SLIDE GATE GCI007-840 FEEDER	GATE DISCONNECT	POWER JUNCTION BOX	
3/4"	C-840-107	12#14's	GATE GCI007-840 CONTROL	GATE ACTUATOR	CONTROL JUNCTION BOX	
3"	P-840-108	3#6's, 1#8G, 3#12's, 1#12G	DEWATERING STATION PUMP CONTROL PANELS PDW001-840-CP, PDW003-840-CP FEEDERS	PPB001-865	POWER JUNCTION BOX	
2"	P-840-117	3#6's, 1#8G	LARGE DEWATERING PUMP CONTROL PANEL FEEDER PDW-001-840-CP	POWER JUNCTION BOX	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-840-CP	
1"	P-840-111	Manufacturer Cable	LARGE DEWATERING PUMP FEEDER PDW-001	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-840-CP	PUMP 1 PDW001-840MO	
1"	P-840-112	Manufacturer Cable	LARGE DEWATERING PUMP FEEDER PDW-002	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-840-CP	PUMP 2 PDW002-840MO	
1"	C-840-109	(2)-10#14's	LARGE DEWATERING PUMP CONTROLS	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-840-CP	CONTROL JUNCTION BOX	
1"	P-840-109	3#12's, 1#12G	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP FEEDER	POWER JUNCTION BOX	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP	
1"	P-840-113	Manufacturer Cable	SMALL DEWATERING PUMP FEEDER PDW-003	PUMP PDW-003	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP	
1"	P-840-114	Manufacturer Cable	SMALL DEWATERING PUMP FEEDER PDW-004	PUMP PDW-004	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP	
1"	C-840-111	(2)-10#14's	SMALL DEWATERING PUMP CONTROLS	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP	CONTROL JUNCTION BOX	
3"	P-840-110	3#10's, 1#6G	INFLUENT MIXERS PANEL POWER FEEDER	PPB001-865	POWER JUNCTION BOX	
2"	P-840-110	3#10's, 1#6G	INFLUENT MIXERS PANEL POWER FEEDER	POWER JUNCTION BOX	MIXER OEM PANEL	
1-1/2"	I-840-101	8#18 TSP	INFLUENT MIXERS PANEL SIGNAL	MIXER OEM PANEL	CONTROL JUNCTION BOX	
1-1/2"	C-840-107	(4)-12#14's	INFLUENT MIXERS PANEL CONTROL (RUN, ESTOP, FAULT, TSH, L/R, ENERGIZE)	MIXER OEM PANEL	CONTROL JUNCTION BOX	
1"	P-840-121	Manufacturer Cable	INDUCTION MIXER MXR001-840	INDUCTION MIXER MXR001-840MO	INDUCTION MIXERS CONTROL PANEL MXR001-840-CP	
1"	P-840-122	Manufacturer Cable	INDUCTION MIXER MXR002-840	INDUCTION MIXER MXR002-840MO	INDUCTION MIXERS CONTROL PANEL MXR001-840-CP	
1"	P-840-123	Manufacturer Cable	INDUCTION MIXER MXR003-840	INDUCTION MIXER MXR003-840MO	INDUCTION MIXERS CONTROL PANEL MXR001-840-CP	
1"	P-840-124	Manufacturer Cable	INDUCTION MIXER MXR004-840	INDUCTION MIXER MXR004-840MO	INDUCTION MIXERS CONTROL PANEL MXR001-840-CP	
3/4"	CS-840-101	2#14's, 1#14G	HIGH LEVEL FLOAT LSH840SSP001 - INTRINSIC CIRCUITS	FLOAT SENSORS	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-840-CP	
3/4"	CS-840-102	2#14's, 1#14G	LOW LEVEL FLOAT LSH840SSP002 - INTRINSIC CIRCUITS	FLOAT SENSORS	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW003-840-CP	
3/4"	C-840-113	(2) - 14#14's	DEWATERING STATION LARGE PUMPS CONTROL PANEL PDW001-940-CP	LARGE PUMP OEM PANEL	CONTROL JUNCTION BOX	
3/4"	C-840-114	(2) - 14#14's	DEWATERING STATION SMALL PUMPS CONTROL PANEL PDW002-940-CP	SMALL PUMP OEM PANEL	CONTROL JUNCTION BOX	
3"	C-840-110	(4) - 12#14's, (4) - 14#14's	INFLUENT CHAMBER AREA CONTROLS	CONTROL JUNCTION BOX	865 ELECTRICAL ROOM AND DPU41/91-865	
3"	C-840-112		INFLUENT CHAMBER AREA CONTROLS	CONTROL JUNCTION BOX	865 ELECTRICAL ROOM	
3/4"	P-840-115	3#10's, 1#10G	HEAT TRACE PANEL 1, HTC001-840	HEAT TRACE PANEL	POWER JUNCTION BOX	
3/4"	P-840-116	3#10's, 1#10G	HEAT TRACE PANEL 2, HTC001-842	HEAT TRACE PANEL	POWER JUNCTION BOX	
3"	P-840-119	(4) - 3#8's, 1#8G	INFLUENT CHAMBER AREA POWER (GATES POWER)	865 ELECTRICAL ROOM AND PPB001-865	POWER JUNCTION BOX	
3"	P-840-120	(3) - 3#10's, 1#10G	INFLUENT CHAMBER AREA POWER (HEAT TRACE)	865 ELECTRICAL ROOM AND LPB001-865	POWER JUNCTION BOX	
3"	C-840-115		INFLUENT CHAMBER AREA CONTROLS	865 ELECTRICAL ROOM	CONTROL JUNCTION BOX	
3"	C-840-116		INFLUENT CHAMBER AREA CONTROLS	865 ELECTRICAL ROOM	CONTROL JUNCTION BOX	
3/4"	C-840-117	2#14's, 1#14G	LEVEL SWITCH LSH840GCI001	LEVEL SWITCH	CONTROL JUNCTION BOX	
3/4"	C-840-116	2#14's, 1#14G	LEVEL SWITCH LSH840GCI001	LEVEL SWITCH	CONTROL JUNCTION BOX	
3/4"	P-840-121	2#14's, 1#14G	LEVEL SWITCH LSH840GCI001	LPB001-840	LEVEL TRANSMITTER	
3/4"	C-840-102	1#18 TSP	LEVEL SWITCH LSH840GCI001	LEVEL TRANSMITTER	SIGNAL JUNCTION BOX	

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	REV No.	DATE	DESCRIPTION	CPM						
Drawn by: EPP	A	06/08/22	ISSUED FOR BIDS	CPM					CAD File Name: 840-ES-03.dwg	
	B	08/15/22	ADDENDUM No. 4	CPM						
Checked by: STJ									Date: 06 / 08 / 2022	
									Sheet: 294 of 359	

840-ES-03
BCCT INFLUENT CHAMBER AND PUMPING
STATION CONDUIT AND CABLE SCHEDULE



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Drawn by: GRM	REV No.	DATE	DESCRIPTION	APPV	CAD File Name: 840-ET-10.dwg					
Checked by: TWD	A	06/08/22	ISSUED FOR BIDS	CPM	Date: 06 / 08 / 2022					
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	C	08/15/22	ADDENDUM No. 4	CPM						



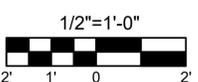
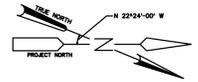
EFFLUENT OUTFALL COARSE BUBBLER AIR CONTROL
SCALE : 1/2"=1'-0"

CHLORINE SAMPLING BUILDING PLAN
SCALE : 1/2"=1'-0"

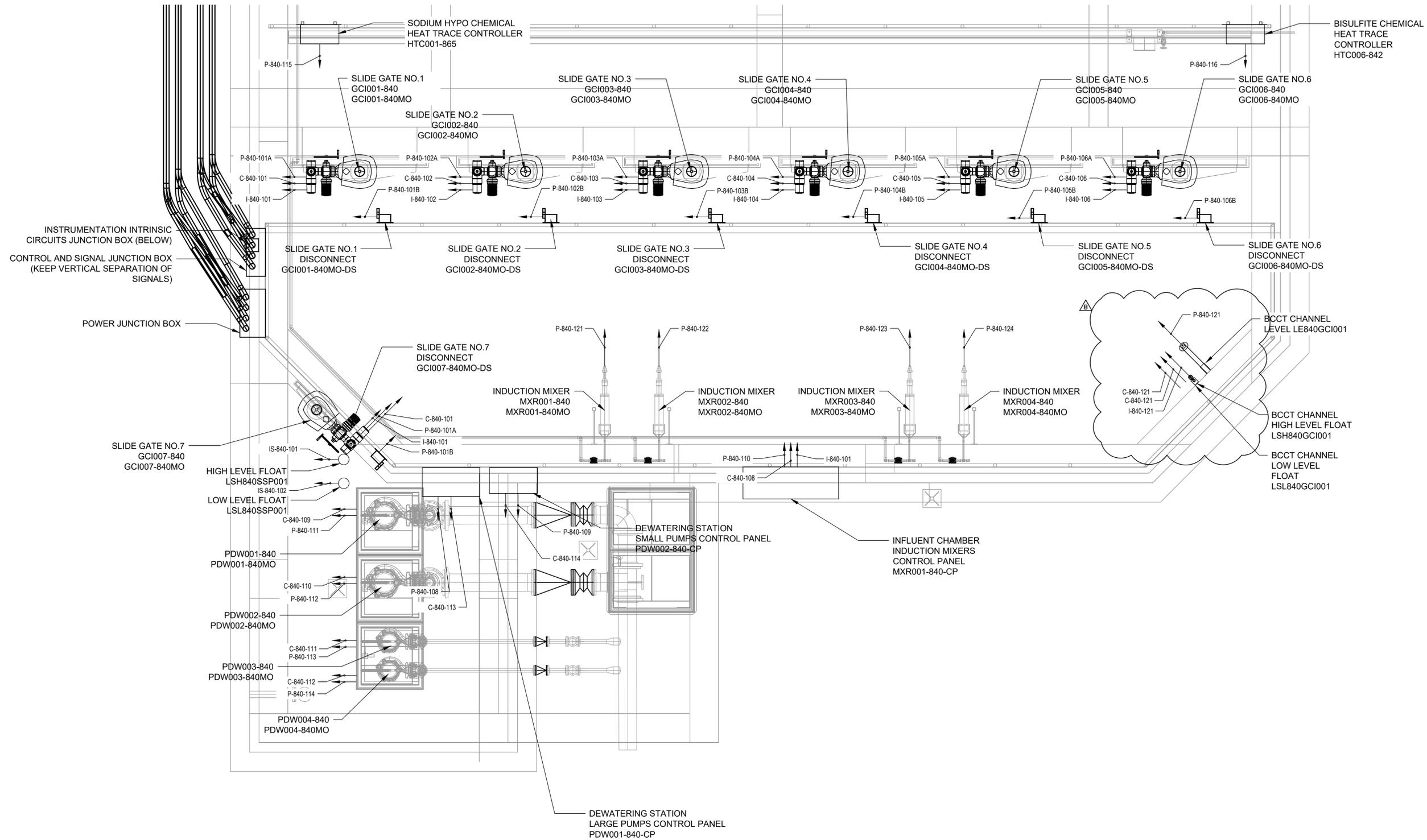
BCCT CHANNELS COARSE BUBBLER AIR CONTROL
SCALE : 1/2"=1'-0"

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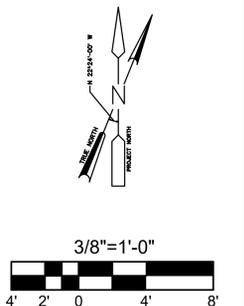
- SEE CONDUIT AND CABLE SCHEDULE ON SHEET 840-ES-02 FOR CONDUIT DESTINATION WHERE NOT CALLED OUT. REFER TO CONDUCTORS ON SCHEDULE REQUIRED AT EACH CONDUIT.



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	REV No.	DATE	DESCRIPTION	APPV					CAD File Name: 840-ET-11.dwg
Drawn by: EPP	A	06/08/22	ISSUED FOR BIDS	CPM				840-ET-11 BCCT CHLORINE SAMPLING BUILDING ELECTRICAL POWER PLAN	Date: 06 / 08 / 2022
Checked by: TWD	B	08/15/22	ADDENDUM No. 4	CPM					Sheet: 296 of 359



DEWATERING PUMP STATION AND BCCT INFLUENT CHAMBER PLAN
SCALE : 3/8"=1'-0"



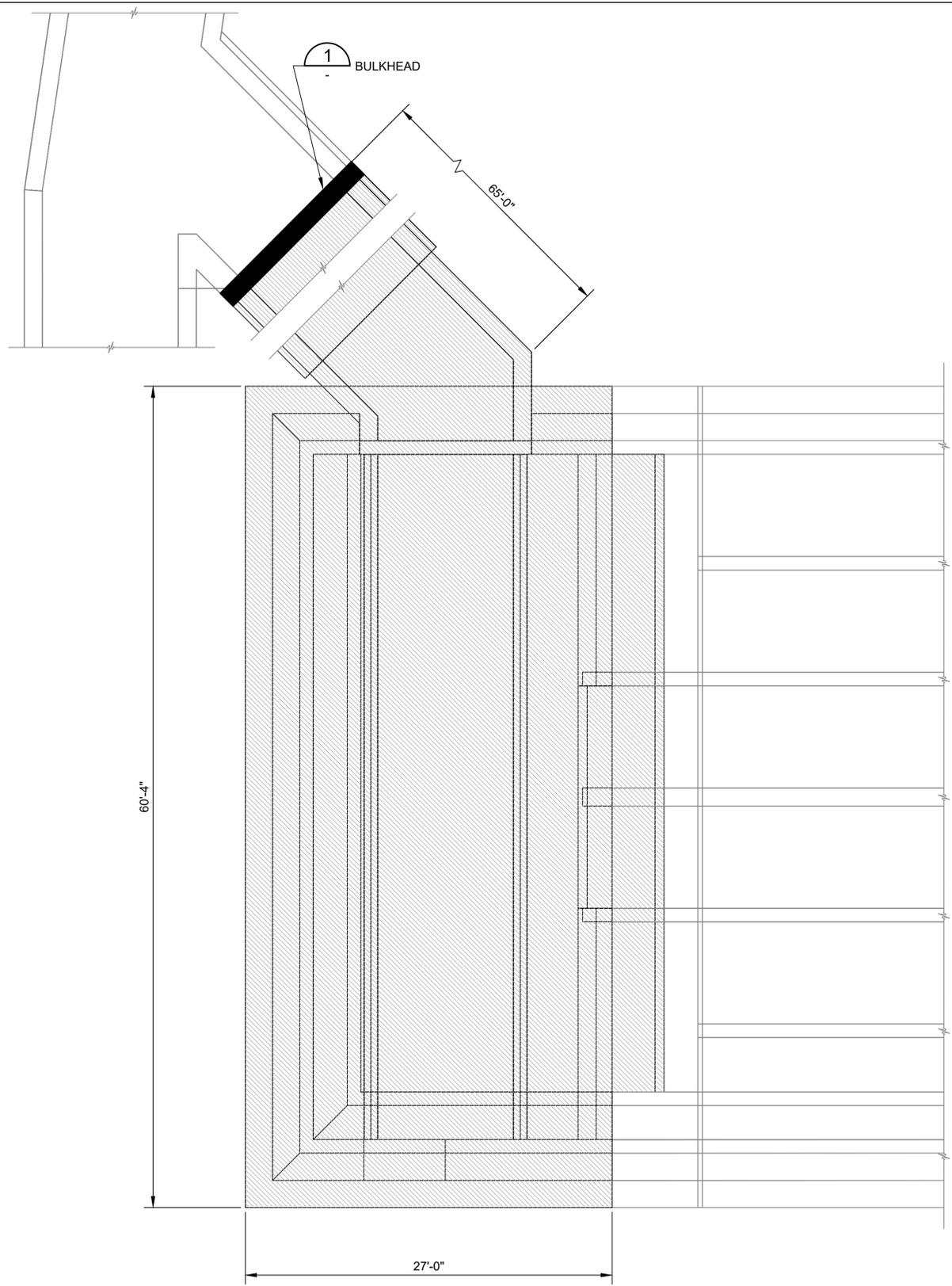
Designed by: EPP	REVISION				APPV	Contract: 1760
	REV No.	DATE	DESCRIPTION	CPM		
Drawn by: EPP	A	06/08/22	ISSUED FOR BIDS	CPM	CAD File Name: 840-ET-12.dwg	
	B	08/15/22	ADDENDUM No. 4	CPM		
Checked by: TWD					Date: 06 / 08 / 2022	
					Sheet: 297 of 359	



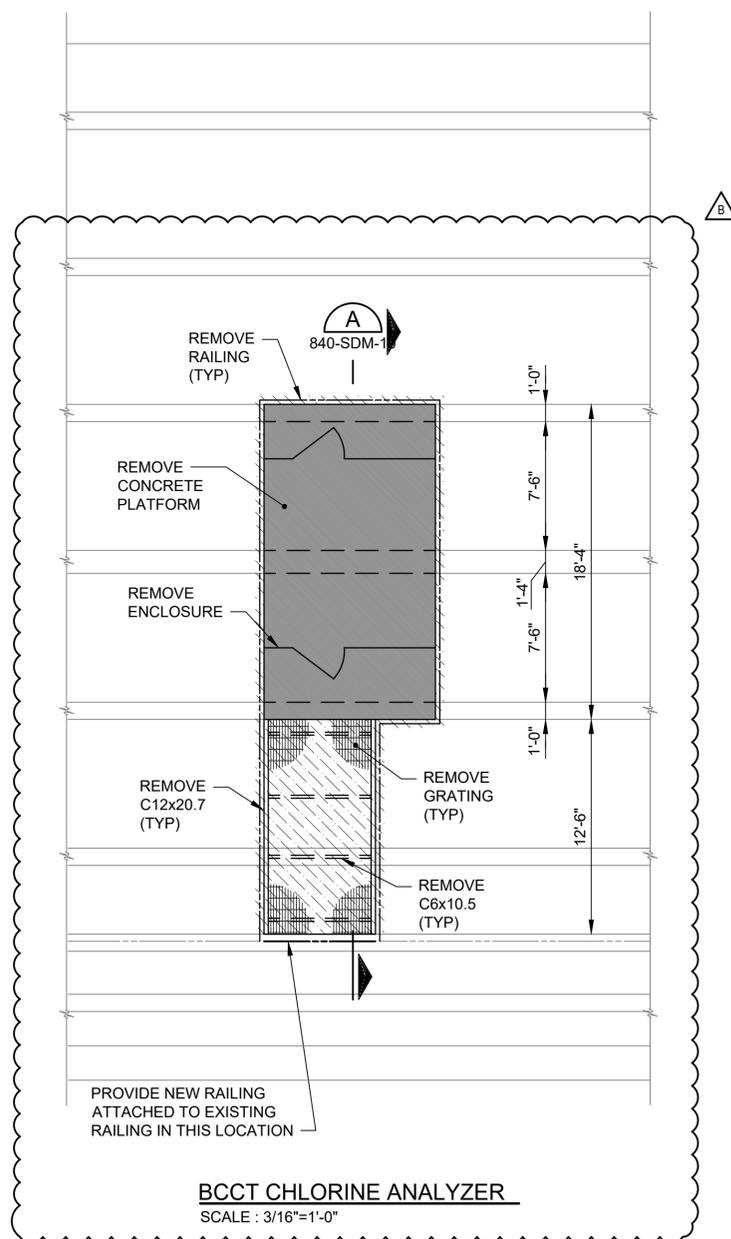
ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCO SAN

ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT

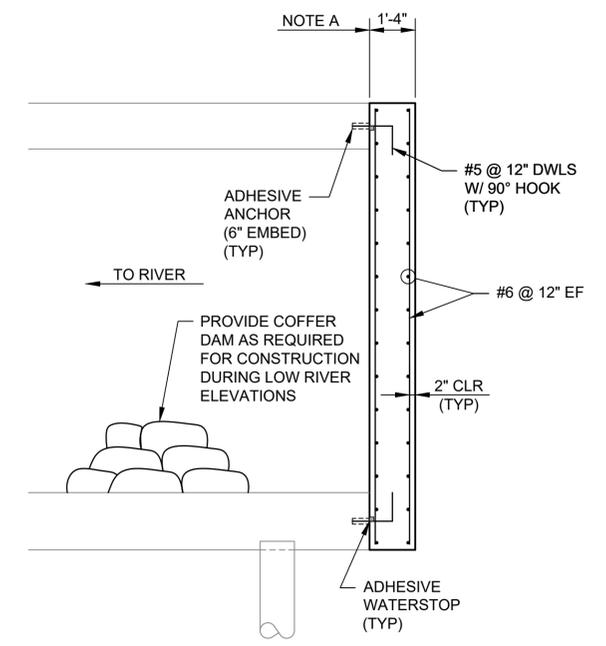
840-ET-12
PLANS- BCCT INFLUENT CHAMBER
DEWATERING PUMP STATION



BCCT INFLUENT CHAMBER
SCALE : 3/16"=1'-0"

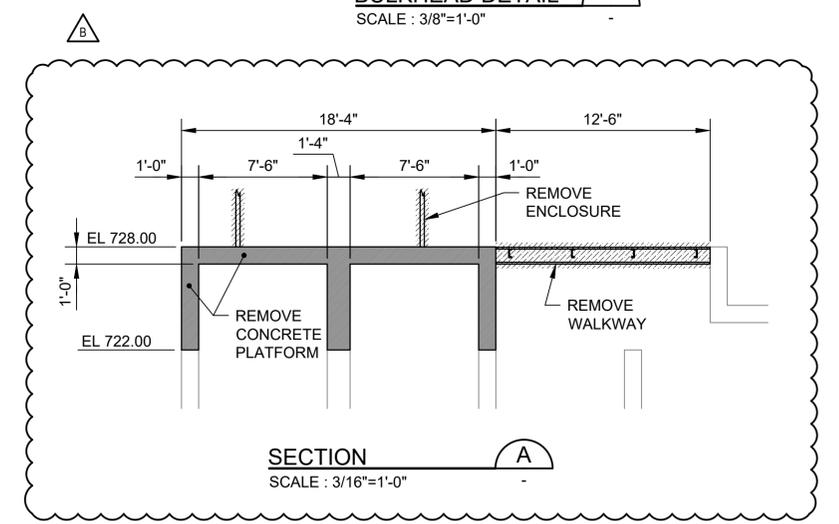


BCCT CHLORINE ANALYZER
SCALE : 3/16"=1'-0"

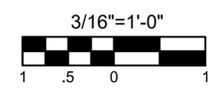
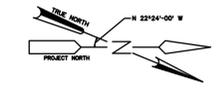


NOTES:
A. PROVIDE SMOOTH SAW-CUT FOR CONSTRUCTION AND CONNECTION OF NEW BULKHEAD. LOCATION OF BULKHEAD TO BE COORDINATE WITH LIMITS OF DEMOLITION.

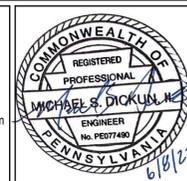
BULKHEAD DETAIL 1
SCALE : 3/8"=1'-0"



SECTION A
SCALE : 3/16"=1'-0"



Designed by:	JPF	REVISION			
Drawn by:	MGH	REV No.	DATE	DESCRIPTION	APPV
Checked by:	MSD	A	6/8/22	ISSUED FOR BIDS	CPM
		B	8/16/22	ADDENDUM No. 4	CPM



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ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT
840-SDM-10
BCCT INFLUENT CHAMBER
SOUTH DEMOLITION PLAN

Contract: 1760
CAD File Name: 840-SDM-10.dwg
Date: 06 / 08 / 2022
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CSO Bypass Instrument List

P&ID	Instrument Function Code	Loop No.	Spec No.	Data Sheet	Control Signal Description	System Description	Location Description	Device Description	Manufacturer	Model No.	Power Supply	2 Wire/4 Wire	Hazardous Classification	Process Connection	Eng. Unit	Range	Setpoint	EU Scale Low	EU Scale High	Signal Type	Remarks
750-I-01	LIT/LE	LIT700GBI001	40 72 00		PRIMARY EFFLUENT CHANNEL LEVEL	PRIMARY EFFLUENT	EFFLUENT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 1	Open	ft	0 - 15	12.5	0	15	4-20mA	
750-I-01	LIT/LE	LIT710GBI001	40 72 00		PRIMARY EFFLUENT CHANNEL LEVEL	PRIMARY EFFLUENT	EFFLUENT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 1	Open	ft	0 - 15	12.5	0	15	4-20mA	
750-I-01	PI	PI700PPS001	40 73 00		PRIMARY EFFLUENT SAMPLING PUMP PRESSURE	PRIMARY EFFLUENT	EFFLUENT	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Class 1 Div 1	1" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
750-I-01	PI	PI710PPS001	40 73 00		PRIMARY EFFLUENT SAMPLING PUMP PRESSURE	PRIMARY EFFLUENT	EFFLUENT	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Class 1 Div 1	1" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
750-I-01	FIT/FE	FIT822BFV004	40 71 00		BASIN EA4 INFLUENT FLOW	BASIN EA4	EAST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT822BFV003	40 71 00		BASIN EA3 INFLUENT FLOW	BASIN EA3	EAST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT822BFV002	40 71 00		BASIN EA2 INFLUENT FLOW	BASIN EA2	EAST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT822BFV001	40 71 00		BASIN EA1 INFLUENT FLOW	BASIN EA1	EAST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	LSL	LSH822SPP004	40 72 00		EA4 SUMP LOW LEVEL STATUS	EA4 SUMP	EAST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH822SPP004	40 72 00		EA4 SUMP HIGH LEVEL STATUS	EA4 SUMP	EAST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH822SPP004	40 72 00		EA4 SUMP HI-HI LEVEL STATUS	EA4 SUMP	EAST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSH822SPP003	40 72 00		EA3 SUMP LOW LEVEL STATUS	EA3 SUMP	EAST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH822SPP003	40 72 00		EA3 SUMP HIGH LEVEL STATUS	EA3 SUMP	EAST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH822SPP003	40 72 00		EA3 SUMP HI-HI LEVEL STATUS	EA3 SUMP	EAST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL822SPP002	40 72 00		EA2 SUMP LOW LEVEL STATUS	EA2 SUMP	EAST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH822SPP002	40 72 00		EA2 SUMP HIGH LEVEL STATUS	EA2 SUMP	EAST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH822SPP002	40 72 00		EA2 SUMP HI-HI LEVEL STATUS	EA2 SUMP	EAST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL822SPP001	40 72 00		EA1 SUMP LOW LEVEL STATUS	EA1 SUMP	EAST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH822SPP001	40 72 00		EA1 SUMP HIGH LEVEL STATUS	EA1 SUMP	EAST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH822SPP001	40 72 00		EA1 SUMP HI-HI LEVEL STATUS	EA1 SUMP	EAST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	FIT/FE	FIT832BFV004	40 71 00		BASIN WA4 INFLUENT FLOW	BASIN WA4	WEST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT832BFV003	40 71 00		BASIN WA3 INFLUENT FLOW	BASIN WA3	WEST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT832BFV002	40 71 00		BASIN WA2 INFLUENT FLOW	BASIN WA2	WEST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	FIT/FE	FIT832BFV001	40 71 00		BASIN WA1 INFLUENT FLOW	BASIN WA1	WEST	FLOW TRANSMITTER	PFS, Inc./Rosemount	HVT-FVC-FM3051S	24VDC	2 Wire	Unclassified	72"DI to 54"DI-BFV	MGD	100 - 600	295	0	600	4-20mA	
750-I-01	LSHH	LSHH832SPP001	40 72 00		WA1 SUMP PUMP LEVEL STATUS	WA1 SUMP	WEST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH832SPP001	40 72 00		WA1 SUMP PUMP LEVEL STATUS	WA1 SUMP	WEST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL832SPP001	40 72 00		WA1 SUMP PUMP LEVEL STATUS	WA1 SUMP	WEST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH832SPP002	40 72 00		WA2 SUMP PUMP LEVEL STATUS	WA2 SUMP	WEST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH832SPP002	40 72 00		WA2 SUMP PUMP LEVEL STATUS	WA2 SUMP	WEST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL832SPP002	40 72 00		WA2 SUMP PUMP LEVEL STATUS	WA2 SUMP	WEST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH832SPP003	40 72 00		WA3 SUMP PUMP LEVEL STATUS	WA3 SUMP	WEST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH832SPP003	40 72 00		WA3 SUMP PUMP LEVEL STATUS	WA3 SUMP	WEST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL832SPP003	40 72 00		WA3 SUMP PUMP LEVEL STATUS	WA3 SUMP	WEST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSHH	LSHH832SPP004	40 72 00		WA4 SUMP PUMP LEVEL STATUS	WA4 SUMP	WEST	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSH	LSH832SPP004	40 72 00		WA4 SUMP PUMP LEVEL STATUS	WA4 SUMP	WEST	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
750-I-01	LSL	LSL832SPP004	40 72 00		WA4 SUMP PUMP LEVEL STATUS	WA4 SUMP	WEST	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	120VAC	N/A	Unclassified	Open	ft	0 - 14.5	0.5	N/A	N/A	DPDT	
840-I-01	LSH	LSH840GCI001	40 72 00		BCCT INFLUENT CHAMBER LEVEL STATUS	BCCT INFLUENT CHAMBER	BCCT	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 27	27	N/A	N/A	DPDT	
840-I-01	LSL	LSL840GCI001	40 72 00		BCCT INFLUENT CHAMBER LEVEL STATUS	BCCT INFLUENT CHAMBER	BCCT	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 60	2	N/A	N/A	DPDT	
840-I-01	LIT/LE	LIT840GCI001	40 72 00		BCCT INFLUENT CHAMBER LEVEL	BCCT INFLUENT CHAMBER	BCCT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 2	Open	ft	0 - 27	25	0	27	4-20mA	
840-I-01	LSH	LSH840GCI002	40 72 00		BCCT CHANNEL 1 LEVEL STATUS	BCCT CHANNEL	BCCT	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 22	20	N/A	N/A	DPDT	
840-I-01	LSL	LSL840GCI002	40 72 00		BCCT CHANNEL 1 LEVEL STATUS	BCCT CHANNEL	BCCT	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 22	2	N/A	N/A	DPDT	
840-I-01	LIT/LE	LIT840GCI002	40 72 00		BCCT CHANNEL 1 LEVEL	BCCT CHANNEL	BCCT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 2	Open	ft	0 - 22	18	0	22	4-20mA	
840-I-01	LSH	LSH840GCI003	40 72 00		BCCT CHANNEL 2 LEVEL STATUS	BCCT CHANNEL	BCCT	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 22	20	N/A	N/A	DPDT	
840-I-01	LSL	LSL840GCI003	40 72 00		BCCT CHANNEL 2 LEVEL STATUS	BCCT CHANNEL	BCCT	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 22	2	N/A	N/A	DPDT	
840-I-01	LIT/LE	LIT840GCI003	40 72 00		BCCT CHANNEL 2 LEVEL	BCCT CHANNEL	BCCT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 2	Open	ft	0 - 22	18	0	22	4-20mA	
840-I-01	LSH	LSH840GCE001	40 72 00		BCCT EFFLUENT CHAMBER LEVEL STATUS	BCCT EFFLUENT CHAMBER	BCCT	LEVEL SWITCH HIGH	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 23.5	22	N/A	N/A	DPDT	
840-I-01	LSL	LSL840GCE001	40 72 00		BCCT EFFLUENT CHAMBER LEVEL STATUS	BCCT EFFLUENT CHAMBER	BCCT	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 2	Open	ft	0 - 23.5	3	N/A	N/A	DPDT	
840-I-01	LIT/LE	LIT840GCE001	40 72 00		BCCT EFFLUENT CHAMBER LEVEL	BCCT EFFLUENT CHAMBER	BCCT	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Class 1 Div 2	Open	ft	0 - 23.5	18	0	23.5	4-20mA	
840-I-01	LSL	LSL840PDW001	40 72 00		BCCT DEWATERING PUMP LEVEL STATUS	BCCT DEWATERING PUMP	BCCT	LEVEL SWITCH LOW	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 1	Open	ft	0 - 26	10	N/A	N/A	DPDT	
840-I-01	LSLL	LSLL840PDW001	40 72 00		BCCT DEWATERING PUMP LEVEL STATUS	BCCT DEWATERING PUMP	BCCT	LEVEL SWITCH LO-LO	Anchor Scientific	Roto-Floater	24VDC	N/A	Class 1 Div 1	Open	ft	0 - 26	10	N/A	N/A	DPDT	
840-I-01	FIT	FIT840BFV004	40 71 00		BCCT CHANNELS AIR FLOW	BCCT CHANNEL 2	BCCT	FLOW TRANSMITTER	Emerson/Rosemount	3051DP	24VDC	2 Wire	Class 1 Div 2	SSP-10"	scfm	0 - 1,000	510	0	1000	4-20mA	
840-I-01	FIT	FIT840BFV002	40 71 00		BCCT OUTFALL CHANNEL AIR FLOW	BCCT OUTFALL CHANNEL	BCCT	FLOW TRANSMITTER	Emerson/Rosemount	3051DP	24VDC	2 Wire	Class 1 Div 2	SSP-10"	scfm	0 - 1,000	460	0	1000	4-20mA	
840-I-01	FI	N/A	40 71 00		BISULFITE FLOW INDICATOR	SODIUM BISULFITE	BCCT	DIAL-TYPE	Dwyer	Series RMV	N/A	N/A	Unclassified	CVP-1"	gpm	0 - 20	N/A	N/A	N/A	N/A	
840-I-01	FI	N/A	40 71 00		BISULFITE FLOW INDICATOR	SODIUM BISULFITE	BCCT	DIAL-TYPE	Dwyer	Series RMV	N/A	N/A	Unclassified	CVP-1"	gpm	0 - 20	N/A	N/A	N/A	N/A	N/A
840-I-01	FI	N/A	40 71 00		BISULFITE FLOW INDICATOR	SODIUM BISULFITE	BCCT	DIAL-TYPE	Dwyer	Series RMV	N/A	N/A	Unclassified	CVP-1"	gpm	0 - 20	N/A	N/A	N/A	N/A	N/A
840-I-01	FI	N/A	40 71 00		BISULFITE FLOW INDICATOR																

865-L02	PI	P1865PHF003A	40 73 00	BCCT SODIUM HYPO FEED PUMP 3 HIGH PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	80	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF003B	40 73 00	BCCT SODIUM HYPO FEED PUMP 3 LOW PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	20	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PSH	PSH865PHF003	40 73 00	BCCT SODIUM HYPO FEED PUMP 3 HIGH PRESS SWITCH	HYPO FEED PUMP	HYPO FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 100	90	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF004A	40 73 00	BCCT SODIUM HYPO FEED PUMP 4 HIGH PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	80	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF004B	40 73 00	BCCT SODIUM HYPO FEED PUMP 4 LOW PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	20	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PSH	PSH865PHF004	40 73 00	BCCT SODIUM HYPO FEED PUMP 4 HIGH PRESS SWITCH	HYPO FEED PUMP	HYPO FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 100	90	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF005A	40 73 00	BCCT SODIUM HYPO FEED PUMP 5 HIGH PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	80	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF005B	40 73 00	BCCT SODIUM HYPO FEED PUMP 5 LOW PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	20	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PSH	PSH865PHF005	40 73 00	BCCT SODIUM HYPO FEED PUMP 5 HIGH PRESS SWITCH	HYPO FEED PUMP	HYPO FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 100	90	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF006A	40 73 00	BCCT SODIUM HYPO FEED PUMP 6 HIGH PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	80	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PI	P1865PHF006B	40 73 00	BCCT SODIUM HYPO FEED PUMP 6 LOW PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 100	20	0	100	N/A	Furnish with Diaphragm Seal
865-L02	PSH	PSH865PHF006	40 73 00	BCCT SODIUM HYPO FEED PUMP 6 HIGH PRESS SWITCH	HYPO FEED PUMP	HYPO FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 100	90	0	100	N/A	Furnish with Diaphragm Seal
865-L03	PI	P1865HTP001A	40 73 00	SODIUM HYPO EFFLUENT FLUSHING WATER 1 PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
865-L03	PI	P1865HTP001B	40 73 00	SODIUM HYPO EFFLUENT FLUSHING WATER 2 PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
900-L01	LIT/LE	LIT900THS001	40 72 00	EFW & RAS HYPO TANK #1 LEVEL STATUS	SODIUM HYPOCHLORITE	EFW&RAS HYPO	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Unclassified	2" (to be verified)	ft	0 - 10	9	0	10	4-20mA	
900-L01	LSHH	LSHH900THS001	40 72 00	EFW & RAS HYPO TANK #1 LEVEL HI-HI	SODIUM HYPOCHLORITE	EFW&RAS HYPO	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Float	120VAC	N/A	Unclassified	2" (to be verified)	ft	0 - 10	9.5	N/A	N/A	DPDT	
900-L01	LIT/LE	LIT900THS002	40 72 00	EFW & RAS HYPO TANK #2 LEVEL STATUS	SODIUM HYPOCHLORITE	EFW&RAS HYPO	LEVEL TRANSMITTER	E&H	Prosonic S FMU90/FDU	120VAC	4 Wire	Unclassified	2" (to be verified)	ft	0 - 10	9	0	10	4-20mA	
900-L01	LSHH	LSHH900THS002	40 72 00	EFW & RAS HYPO TANK #2 LEVEL HI-HI	SODIUM HYPOCHLORITE	EFW&RAS HYPO	LEVEL SWITCH HI-HI	Anchor Scientific	Roto-Float	120VAC	N/A	Unclassified	2" (to be verified)	ft	0 - 10	9.5	N/A	N/A	DPDT	
900-L02	FIT	FIT900PHF001	40 71 00	RAS SODIUM HYPOCHLORITE FEED FLOW	SODIUM HYPOCHLORITE	EFW&RAS HYPO	FLOW TRANSMITTER	E&H	Promag	120VAC	4 Wire	Unclassified	1/2" - CVP	gph	0 - 60	45	0	60	4-20mA	
900-L02	FIT	FIT900PHF002	40 71 00	EFW SODIUM HYPOCHLORITE FEED FLOW	SODIUM HYPOCHLORITE	EFW&RAS HYPO	FLOW TRANSMITTER	E&H	Promag	120VAC	4 Wire	Unclassified	1/2" - CVP	gph	0 - 60	45	0	60	4-20mA	
900-L02	PSH	PSH900PHF001	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 1 HIGH PRESSURE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	70	0	80	DPDT	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF001A	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 1 HIGH PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF001B	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 1 LOW PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PSH	PSH900PHF002	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 2 HIGH PRESSURE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	70	0	80	DPDT	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF002A	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 2 HIGH PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF002B	40 73 00	RAS SODIUM HYPOCHLORITE PUMP 2 LOW PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PSH	PSH900PHF003	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 3 HIGH PRESSURE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	70	0	80	DPDT	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF003B	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 3 HIGH PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF003A	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 3 LOW PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	0	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PSH	PSH900PHF004	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 4 HIGH PRESSURE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	70	0	80	DPDT	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF004A	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 4 HIGH PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1900PHF004B	40 73 00	EFW SODIUM HYPOCHLORITE PUMP 4 LOW PRESS GAUGE	HYPOCHLORITE PUMP	EFW&RAS HYPO	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	0	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1865PCV001A	40 73 00	RAS/EFW SODIUM HYPO EFW 1 PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
900-L02	PI	P1865PCV001B	40 73 00	RAS/EFW SODIUM HYPO EFW 2 PRESS GAUGE	HYPO FEED PUMP	HYPO FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
902-L01	FSH	FSH902SSH001	40 71 00	DEFOAMER SAFETY SHOWER	DEFOAMER FEED	DEFOAMER FEED	FLOW SWITCH HIGH	Magnetrol	F50	120VAC	N/A	Unclassified	CVP-1.25"	gpm	0 - 2	2	0	2	DPDT	
902-L01	FIT	FIT902PDF001	40 71 00	DEFOAMER FLOW METER	DEFOAMER FEED	DEFOAMER FEED	FLOW TRANSMITTER	E&H	Promag	120VAC	4 Wire	Unclassified	CVP-0.5"	gpm	0 - 2	1	0	2	4-20mA	
902-L01	WIT/WE	WIT902PDF001	40 91 10	DEFOAMER STORAGE TOTE WEIGHT	DEFOAMER FEED	DEFOAMER FEED	WEIGHT TRANSMITTER	Force Flow	60-DR100TCSHA4/SRG2-1	120VAC	4 Wire	Unclassified	N/A	lb	0 - 10,000	500	0	10,000	4-20mA	
902-L01	PI	P1902PDF001C	40 73 00	DEFOAMER EFFLUENT FLUSHING WATER 1 PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PI	P1902PDF001D	40 73 00	DEFOAMER EFFLUENT FLUSHING WATER 2 PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PI	P1902PDF001A	40 73 00	DEFOAMER FEED PUMP 1 HIGH PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PI	P1902PDF001B	40 73 00	DEFOAMER FEED PUMP 1 LOW PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PSH	PSH902PDF001	40 73 00	DEFOAMER FEED PUMP 1 HIGH PRESSURE SWITCH	DEFOAMER PUMP	DEFOAMER FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	75	0	80	DPDT	Furnish with Diaphragm Seal
902-L01	PI	P1902PDF002A	40 73 00	DEFOAMER FEED PUMP 2 HIGH PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE HIGH	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	70	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PI	P1902PDF002B	40 73 00	DEFOAMER FEED PUMP 2 LOW PRESS GAUGE	DEFOAMER PUMP	DEFOAMER FEED	PRESS GAUGE LOW	Ametek/US Gauge	P500	N/A	N/A	Unclassified	1/4" (to be verified)	psi	0 - 80	20	0	80	N/A	Furnish with Diaphragm Seal
902-L01	PSH	PSH902PDF002	40 73 00	DEFOAMER FEED PUMP 2 HIGH PRESSURE SWITCH	DEFOAMER PUMP	DEFOAMER FEED	PRESS SWITCH HIGH	Ashcroft	F-Series	N/A	N/A	Unclassified	1/2" (to be verified)	psi	0 - 80	75	0	80	DPDT	Furnish with Diaphragm Seal