

AUGUST 10, 2022

Members of the Board

Corey O'Connor
Chair Person

Rep. Harry Readshaw
Sylvia C. Wilson
Shannah Tharp-Gilliam, Ph.D.
Jack Shea
John Weinstein

Arletta Scott Williams
Executive Director

Karen Fantoni, CPA, CGMA
*Director
Finance & Administration*

Jan M. Oliver
*Director
Regional Conveyance*

Douglas A. Jackson, P.E.
*Director
Operations & Maintenance*

Kimberly N. Kennedy, P.E.
*Director
Engineering & Construction*

Michelle M. Buys, P.E.
*Director
Environmental Compliance*

Jeanne K. Clark
*Director
Governmental Affairs*

Joseph Vallarian
*Director
Communications*

CONTRACT NO. 1760 G, E, H, P

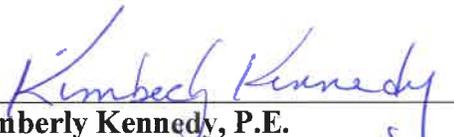
CSO BYPASS AND DISINFECTION

ADDENDUM NO. 3

All bidders bidding Contract No. **1760 G, E, H, P** shall read and take note of this Addendum No. **3**. 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. 3

The Acknowledgement attached to Addendum No. **3** 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 3

FIRM NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

AUGUST 10, 2022

CONTRACT NO. 1760 G, E, H, P

CSO BYPASS AND DISINFECTION

ADDENDUM NO. 3



AUGUST 10, 2022

CONTRACT NO. 1760 G, E, H, P

CSO BYPASS AND DISINFECTION

ADDENDUM NO. 3

A. Contract Documents – Volume 1

1. Article 1, section 8.2, Table of unit price work (page 1-3G): Revise Item No. 1 quantity to 40,000 VLF.
2. Article 4, Table of unit price work (page 4-2G): Revise Item No. 1 quantity to 40,000 VLF.

B. Contract Specifications – Volume 2

1. Summary of Work (Section 01 11 00):
 - a) In Paragraph 1.2.B.39, replace the existing sentence with “Provide weekly street sweeping of areas indicated on drawings for the duration of the contract. Street sweeping shall be by means of wet vacuum street sweeper. Power brooms are not acceptable.”
 - b) In Paragraph 1.2.C.10, replace the existing sentence with “Furnish and install all cameras, wiring and any/all appurtenances/equipment required to effect a complete & functional system.”
2. Measurement and Payment (Lump Sum and Unit Prices) (Section 01 22 00):
 - a) Paragraph 1.6.B, add the following statement “Pencil copy shall be submitted to the CM for review prior to submission of progress pay application. Pencil copy shall be submitted on form provided by the CM.”
3. Concrete Joints and Accessories (Section 03 25 00), Delete paragraph 3.1.C.8

C. Contract Specifications – Volume 3

1. Concrete Pavement (Section 32 13 13), Change paragraph 2.2.A. from 4000 psi to 4500 psi.
2. Concrete Curb and Gutter (Section 32 16 13), Change paragraph 2.3.A. from 4000 psi to 4500 psi.
3. Concrete Sidewalk and Steps (Section 32 16 23), Change paragraph 2.3.A. from 4000 psi to 4500 psi.

4. Replace the existing section 40 05 00. (Pipe and Pipe Fittings – Basic Requirements) with the revised version (attached).
5. Pipe - Stainless Steel for Process Air (40 05 23):
 - a) Add section 2.2.E.6: Expansion joint minimum temperature rating shall be 250 degrees Fahrenheit" to Section 40 05 23.
6. DCS Input Output Database (40 61 93): Replace the existing DCS I/O list with the revised version (attached).
7. Functional Control Narratives (40 61 98)
 - a) 1.1.A.5 revise to read “832SPP001 Flow Regulator Chamber Sump Pump”+
 - b) 13.2.A.5.b. – Add the following alarms:
 - i.) LARGE PUMP nn SEAL LEAK
 - ii.) LARGE PUMP nn HIGH TEMPERATURE
 - c) 13.2.A.5.b. – Add the following alarms:
 - i.) LARGE PUMP nn SEAL LEAK
 - ii.) LARGE PUMP nn HIGH TEMPERATURE
 - d) 21.1.C.1 – Revise the level switch tag should to “LSH864SPP001” in both cases.
 - e) 22.1.A.5.d.1.b. – Revise to “Hypochlorite tank valve nn IN LOCAL”
 - f) 24.1.B.1 – Revise to “Facility Area: 900 (Effluent Flushing Water [EFW] Building)”
 - g) 24.2.A.5.b.1.c. - Revise to “The low-low level setting of the LIT-900THS[1,2] are not tripped.”
 - h) 24.2.A.5.d.1.a – Revise to “Hypochlorite Tank Valve nn IN LOCAL”
 - i) 25.1.C.8 – Revise solenoid valve to “SLV010-902”
 - j) 25.2.B.1.a – Revise to “SLV010-902” (EFW Control Valve).
 - k) 26.2.A.1.b – Tag is “FSH842SSH001”
 - l) 28.1.C.2 – Revise to “The main MCC breakers and tie breaker will be provided with contacts to signal OPEN or CLOSE status to the DCS.”

D. Contract Drawings

1. On drawing 000-G-06, Add “SBD – Scrubber Blowdown” and “EWL - Effluent Flushing Water Low Pressure” to the Process Fluid Identification Codes.
2. On drawing 000-G-19, Note 2. Add "Street sweeping shall be by means of wet vacuum street sweeper. Power brooms are not acceptable."
3. Replace drawing 000-CDM-11 with the attached updated sheet.
4. Replace drawing 000-CGR-12 with the attached updated sheet.
5. Replace drawing 000-CSP-13 with the attached updated sheet.
6. Replace drawing 840-ET-10 with the attached updated sheet.
7. Replace drawing 840-S-42 with the attached updated sheet.

8. Replace drawing 840-S-45 with the attached updated sheet.
9. On drawing 700-M-10, Primary Sedimentation Tank Plan. A note near upper left hand corner of the drawing states ""Raise existing primary effluent weir (Typ of 72)". Change this callout to read "Replace and raise existing primary effluent weir (Typ of 72)".
10. On drawing 750-M-01, change the sheet number from 141 to 150.
11. On drawing 750-M-40, Section C is indicated as being shown on drawing 750-M-12. Correct this reference, as it is actually shown on 750-M-11.
12. On drawing 750-M-11, change "DIP-4"-EFW-FLG" to "DIP-4"-EWH-FLG".
13. On drawing 825-MDM-10, change Section A callout from "DIP-12"-WSL" to "DIP-6"-EWL"
14. On drawing 840-M-01, change callouts which read "10"-BFV004-840" and "10"-BFV004-840MO" to read "8"-BFV004-840" and "8"-BFV004-840MO", respectively.
15. On drawing 840-M-01, change callouts which read "10"-BFV002-840" and "10"-BFV002-840MO" to read "8"-BFV002-840" and "8"-BFV002-840MO", respectively.
16. On drawing 840-M-41, Section F and Section G change "BFV002" to read "BFV004"
17. On drawing 840-M-10, change "BFV002" to read "BFV004"
18. On drawing 000-MS-01, change valve actuators listed on actuator schedule from "10"-BFV004-840" to "8"-BFV004-840MO"
19. On drawing 000-MS-01, Schedule 40 05 51 and 40 05 58, add "MO" to the end of all tag numbers on both schedules.
20. On drawings 840-SDM-10, Bulkhead Detail 1. Add the following information to this detail. Top of Top slab elevation: 722.78 +/- . Top of Base slab elevation 711.45 +/- .
21. On drawing 865-M-01, there is a tee fitting after the flexible connection on each of the three tank outlet lines. On the downward-facing fitting of each tee, there is a valve shown as 1 1/2" – DIV026-865. Change this callout to read 2"-DIV026-865 for tanks THS001-865 and THS002-865. This callout is absent for tank THS003-865, thus, add this callout to this valve.
22. On drawing 900-M-11, change CVP-2"-CON-SW line from the isolation box to the inside of the EFW building basement line type to light type to annotate "existing" piping, not "new" piping
23. On drawing 920-M-10, change 2 CVP-2"-SCH-SW line type to light type to annotate "existing" piping, not "new" piping

24. On drawing 842-ES-01 panelboard schedule LPB001-842, circuit 19,20. Currently shown as one, 2-pole 20 amp circuit breaker for the Bisulfite tanks air scrubber. Revise to show two, 20 amp single pole circuit breakers with one being labeled spare, the other being labeled Bisulfite Scrubber Blower Receptacle.
25. On sheet 842-ES-02:
- a) Revise line for conduit P-842-015A to show 2#12's, 1#12G going to the scrubber blower receptacle.
 - b) Delete the line with conduit P-842-015-B.
 - c) Revise the line C-842-015 to show ¾" conduit with 2#14's from a blower receptacle amperage switch to the DCU.
 - d) Provide an amperage switch on the conductors going to the blower control receptacle that will close when current is flowing on these conductors.
 - e) Provide 2#14's from this blower receptacle amperage switch to the DCU.
26. On drawing 842-ET-10, add a 20A, 120 volt receptacle installed within 8 feet of the bisulfite scrubber blower.
27. On the following drawings, revise Tag ID No. for the 54" butterfly valves and 72" Venturi flow meters in the Flow Regulator Chambers from "BFV" to "ABN":
- a) 822-EM-01
 - b) 822-ET-12
 - c) 822-ET-13
 - d) 822-ET-14
 - e) 822-ES-01
 - f) 822-ES-02
 - g) 824-ESL-01
 - h) 824-ESL-02
 - i) 832-EM-01
 - j) 832-ET-12
 - k) 832-ET-13
 - l) 832-ET-14
 - m) 832-ES-01
 - n) 832-ES-02
 - o) 834-ESL-01
 - p) 834-ESL-02

E. Questions

56. **Question:** Reference drawing 840-M-41 Sections F & G which indicate 2 – 8" MO BFV, both named 8"-BFV002-MO, while drawing 840-M-10 & -11 calls these valves 8"-BFV002-MO & 8"-BFV004-MO, but these valves/MO aren't in the Valve Actuator Schedule on DWG MS-001. Please clarify.

Answer: Refer to drawing changes in this addendum.

57. **Question:** Reference drawing 840-M-10 & -11 & Sections I & K on 840-M-41 that show 5 - 1.5" Copper lines tying into existing piping. Please provide detail for connection to existing and locations for all 5 tie-ins.

Answer: Refer to Keynote 9 on 000-CUT-11 & 000-CUT-12. Connection is made by installation of 18"x1-1/2" Tapping Saddle and Valve.

58. **Question:** Reference drawing 865-M-01 that calls for 2 – 1.5"-DIV026-865 CPVC diaphragm valves in the vertical lines shown under Sod Hypo tank THS001-865 & THS002-865. Please confirm these 2 valves are actually 2" CPVC diaphragm valves.

Answer: Confirmed. Valves should be called out as 2" See revisions to drawing 865-M-01.

59. **Question:** Reference drawing 865-M-10 (lower left) which calls out CUP-1.5"-EWH-SJ, while SEC A/865-M-40 calls this line out as CVP-1.5"-EWH-SW. Please clarify if this 1.5" EWH line is to be Copper or CPVC.

Answer: Pipe shall transition from copper to CPVC inside the building upstream of pressure reducing station as indicated on 865-M-03.

60. **Question:** Reference drawing G-19, Note 2; Please specify the duration that the contractor needs to include for sweeping the road(s).

Answer: Contractor needs to include road sweeping throughout the duration of the Contract (refer to revisions of 01 11 00).

61. **Question:** Reference drawing 115 (850-SDM-10), Note 1; Please provide specific direction regarding the procedure to determine HAZMAT presence.

Answer: Refer to Spec Section 02 41 11 (Demolition) Para 2.1.

62. **Question:** Reference drawing 900-M-10 Coded notes #3 & 4 for 2 - CVP-2"-SCH-SW. These lines are drawn light (as existing lines), but these same lines shown on DWG 902-M-10 show these 2 - CVP-2"-SCH-SW lines drawn bold (as new lines). Please clarify the if these 2 lines are new & if yes, provide routing.

Answer: Lines are existing and should be shown in the same line type on 902-M-10.

63. Question: Reference drawing 900-M-11 Coded note 8 which indicates a CVP-2”-CON-SW line is to run from EFW Building to EFW isolation box. Please clarify the distance from the EWF BDLG to the EWF isolation box.

Answer: The line from the isolation box to the inside of the EFW building basement should be shown as light "existing" because it is being installed as part of ongoing construction. Contractor shall connect new piping to existing piping in the EFW building basement.

64. Question: Reference drawing 840-SDM-10 Bulkhead detail. Please provide the top and bottom elevations for the existing tunnel that is to be demolished.

Answer: Top of Top slab elevation: 722.78 +/- . Top of Base slab elevation 711.45 +/- . (See revision to drawing 840-SDM-10)

65. Question: Reference drawing 822-M-40, the plan view at the top of page calls out “Connect to new pipe in structure” at DIP-4”-DRN-PJ, but no existing piping is shown connecting to these new DRN lines. Please clarify the connections that are required at these 6 Flow Regulator Chambers.

Answer: See revision made to drawing 822-M-40 in addendum # 2 (in response to question #16).

66. Question: Reference drawing 750-M12 & -13, as well as Section A/750-M-40 that show 4” SS PAL drops penetrating the PC plank walkway. A PC Plank supplier indicated that openings under 10” must be core drilled after installation. Do these 6” core drilled penetrations require link-seal? Please provide a detail of these penetrations.

Answer: Openings shall be core drilled with a mechanical link seal installed. See detail 4 on sheet 000-MD-60.

67. Question: Reference drawing 000-CGR-12. The drawing shows the Asphalt pavement replacement stopping about 35’ South of the new Outfall structure, and no replacement on the North side of the Outfall. Please clarify how these areas that will be within the excavation of the new Outfall are to be restored.

Answer: Refer to revised drawings 000-CDM-11, 000-CGR-12, 000-CSP-13.

68. **Question:** Please reference specification section 22 30 00, Page 3, Item 2.8.A.4 - Safety Eyewash and Shower Flow Switches. This section requires a Flow Switch to be provided by the Plumbing Contract as part of each Safety Eyewash and Shower. Please also reference Section 40 61 97 – Process Control Instrument List where there are six Safety Shower Flow Switches listed (FSH842SSH001, FSH842SSH002, FSH865SSH001, FSH865SSH002, FSH865SSH003, and FSH902SSH001). Are these the same Flow Switches that are required by Section 22 30 00 to be supplied by the Plumbing Contract? If yes, please confirm which contract is to furnish and install.

Answer: The Plumbing Contractor should furnish the flow switches per Section 22 30 00. They will install them in the water line feeding to the eyewash/shower. These are the same switches noted in Section 40 61 97. The Electrical Contractor shall provide conduit and cable and terminate the wiring to the switches.

69. **Question:** Please confirm that the Electrical Contract is responsible to supply and install control panels that are not specifically required to be supplied by Divisions 40, 43, 44 and 46 manufacturers. Some examples of control panels that we believe the Electrical Contract is responsible for are the Sodium Bisulfite Control Vales PB Station (Sheet 307), the Sodium Bisulfite Fill Station Indication/Alarm Panel (Sheet 309), the BBC HYPO Fill Station Indication/Alarm Panel (Sheet 325), the Hypochlorite Control Valves PB Panel (Sheet 327), the EFW/RAS Hypochlorite Control Valves PB Panel (Sheet 339), and the Sodium Hypochlorite Fill Station Indication/Alarm Panel (Sheet 341).

Answer: Confirmed, the Electrical Contract is responsible to supply and install control panels that are not specifically specified in Divisions 40, 43, 44 and 46.

70. **Question:** Please confirm that the Electrical Contract is responsible to supply and install control stations that are not specifically required to be supplied by Divisions 40, 43, 44 and 46 manufacturers. Some examples of control stations that we believe the Electrical Contract is responsible for are the Sodium Hypochlorite Transfer Pumps No. 1 and No. 2 Control Stations (Sheet 320) and the RAS Sodium Hypochlorite Feed Pumps No. 1 through No. 4 Control Stations (Sheet 335).

Answer: Confirmed, the Electrical Contract is responsible to supply and install control panels that are not specifically specified in Divisions 40, 43, 44 and 46.

71. **Question:** Please reference Drawing 842-ET-10 (Sheet 305) in regards to the Sodium Bisulfite Scrubber Control Panel (SSB001-842-CP). We did not see this Control Panel required in Section 44 13 15 – “Scrubbing System for Sodium Bisulfite”. Please confirm that this Control Panel is required and clarify which contract is to supply it.

Answer: There is no control panel for the sodium bisulfite scrubber. There is a 120-volt scrubber blower that is powered via cord with plug.

72. **Question:** Drawing 750-M-01 CSO Bypass Channel and Aeration Basins Process Flow Diagram is numbered Sheet 141 of 359. Shouldn't this Drawing be numbered Sheet 150 of 359? Please review and advise.

Answer: Correct.

73. **Question:** Drawing 822-M-40 Flow Regulator Chamber Plan and Section, please advise what the size is of the Venturi Flow Meter and also the reducing fittings upstream and downstream of the Venturi Flow Meter.

Answer: Refer to Specification Section 40 71 00 for Venturi flow meter details.

74. **Question:** Drawings 750-M-10 and 750-M-11 CSO Bypass Channels West and East Plans show (2) Video Cameras, one to the east of WA-1 and one to the east of EA-4. Questions as follows:

- a) Electrical Drawings 700-ET-10 and 710-ET-10 show the (2) Video Cameras located west of EA-1 and East of WA-1. Are these locations correct? Please advise.
- b) Please provide mounting details for these two Video Cameras
- c) Looking at Electrical Drawing 840-ET-10 CSO Bypass Disinfection Process Electrical Plan BCCT North and 840-ET-Chlorine Sampling Building and cannot seem to find one pole mounted camera photographing the BCCT effluent weirs. Please advise the location of the pole mounted camera and the detail of the pole with mounting requirements.

Answer: a) Video camera locations shall be as shown on 750-M-10 and 750-M-11.
b) Mount cameras in accordance with manufacturer's recommendations per Section 28 21 13 2.4.
c) Video camera location for BCCT shown on re-issued 840-ET-10.

75. **Question:** Drawings 700-M-10 Primary Sedimentation Tank Plan - West and 710-M-10 Primary Sedimentation Tank Plan - East states to see "Type A" Weir and "Type B" Weir (Typ) Schedule on Sheet 710-MD-60. We are not finding Sheet 710-MD-60 in the Drawing Index. Please review and issue Drawing 710-MD-60 if required.

Answer: 710-MD-60 is in the Drawing Index and in drawing set.

76. **Question:** Drawing 700-M-10 Primary Sedimentation Tank Plan Note near upper left hand corner of the drawing states "Raise existing primary effluent weir (Typ of 72)". Drawing 710-M-10 Primary Sedimentation Tank Plan Note near upper left hand corner of the drawing states "Replace and raise existing primary effluent weir (Typ of 72)". Please review and advise if the referenced Notes on each Drawing are correct.

Answer: Drawing 700-M-10 callout "Raise existing primary effluent weir (Typ of 72)" shall read "Replace and raise existing primary effluent weir (Typ of 72)".

77. **Question** Drawing 825-MDM-10 Central Pipe Gallery Demolition Plan, Section A shows demolition of a DIP-12" WSL. What do the letters "WSL" stand for? Please advise.

Answer: Section A callout shall read "DIP-6-EWL". Refer to drawing revision.

78. **Question:** Drawing 825-MDM-10 Central Pipe Gallery Demolition Plan, Central Pipe Gallery Plan, shows an unmarked line to be demolished running parallel to the (2) 2" sample pump lines. Please provide line type, size and identification code.

Answer: Line running parallel to 2" sample pump lines is assumed to be DIP-6"-EWH. Line directly North DIP-6"-EWH in yard, before entering pipe gallery, is assumed to be DIP-6"-EWL.

79. **Question:** Drawing 750-M-40 CSO Bypass Channel Sections, please advise where Section C/750-M-12 is shown.

Answer: Refer to Add. No. 2, question #33. Section C from drawing 750-M-40 is shown on 750-M-11, not 750-M-12.

80. **Question:** Drawing 750-M-41 CSO Bypass Channel Sections, Detail 1/750-M-41 Primary Effluent Channel Diffuser, where are they shown, how many are there? Please advise.

Answer: Diffusers are shown on 750-M-41. Refer to Add. No. 2, **Contract Drawings**, Item 2, for updated diffuser schedule.

81. **Question:** Please provide Model Number, etc. for expansion joints that are specific to those specified in Section 400523, 2.2 E. 1. thru 5. (Pipe - Stainless Steel for Process Air).

Answer: Contractor shall provide expansion joint model from approved manufacturer which meets the requirements stipulated in Section 40 05 23. Refer to specification revision.

82. **Question:** Drawing 750-M-11 CSO Bypass Channel - East Plan, please provide the meaning of DIP-4"-EFW-FLG. "EFW" does not show up on the Abbreviations on Drawing 000-G-06. (Reference piping near Knock out wall (For future expansion).

Answer: On Drawing 750-M-11, change DIP-4"-EFW-FLG to DIP-4"-EWH-FLG.

83. **Question:** Reference required concrete strength : Specification 033000 requires the site concrete to be 4500 PSI. Specifications 321313, 321613, & 321623 require the site concrete to be 4000 PSI. What is the correct required strength for site concrete ?

Answer: All concrete shall conform to the requirements on 03 30 00 Cast-In-Place Concrete, Part 2.1.A.

84. **Question:** Reference Building Permit : Please confirm, that as stated in Article 3 paragraph 3.11, and unlike previous projects in the plant, the complete cost of the Building Permit for this project is to be paid for by the Contractor.

Answer: Refer to spec section 01 50 00, Para 1.6.

85. **Question:** Reference Specification 032500 3.1.C : It requires wall construction joints to be grooved with backer rod and joint sealant. Detail 9 on 00-SD-60 does not show this. Which is correct, the specification or the drawing ?

Answer: The construction joints shall be constructed as shown in the details and drawings.

86. **Question:** Reference detail D on drawing 840-S-44 : What is the maximum construction joint spacing for the vertical wall extensions shown ?

Answer: Construction joints are to be spaced at 30'-0" maximum in the vertical wall extension.

87. **Question:** Referencing yard pipe & profile Contract Drawings 000-CUT-10 & 11 & 000-CUT-40 thru 42: For buried ductile iron pipe systems PCW, EHL, and EWH; these pipe runs are noted on the drawings as restrained joint (RJ). The Piping System Schedules (spec 40 05 00-7-17 ~ System 6 & 7) for these services call for push-on pipe joints. Will restrained DI pipe joints such as US Pipe TR Flex be required for these lines?

Answer: Refer to updated 40 05 00. (Pipe and Pipe Fittings – Basic Requirements).

88. **Question:** Referencing Flow Regulation Chamber piping arrangement Contract Drawing 822-M-40: Please verify that the 4" DRN lines from the Aeration Basins will need to be routed to the Sump Pits in these structures.

Answer: See revision made to drawing 822-M-40 in addendum # 2 (in response to question #16).

89. **Question:** C Referencing Leader Note: IF DRAIN TRAPS ARE TO BE REMOVED AFTER FIELD VERIFICATIONS AS NOTED ON DEMOLITION DRAWINGS, PROVIDE NEW 90° ELBOW WITH TIDEFLEX CHECK VALVE MOUNTED TO CEILING DRAIN. No size or quantity given, just what's is on the highlighted drawing leader notes, and no specifications found.

Answer: Contractor shall determine the quantity of traps that must be removed. Tideflex check valve shall be model CheckMate UltraFlex as recommended by manufacturer to eliminate conflict with raised flight elevation.

90. **Question:** Is there a sequence that should be followed relative to the demolition and replacement of the existing and new medium voltage ductbanks and cabling. As an example, will the new 15kV ductbank and feeder from existing Manhole EMH034-000 to Existing Manhole EMH036-000 be required to be installed prior to the demolition of the ductbanks and medium voltage cable from existing Manhole EMH107A/B and EMH 108A/B to existing Manhole EM109? as detailed on Sheet 248 of 359 and 249 of 359?

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.

91. **Question:** Can a single line diagram be provided for the existing medium voltage system detailing the existing condition including the size and number of medium voltage power circuits that will be demolished as detailed on Drawings 248 of 359 and 249 of 359?

Answer: See attached reference information. (Drawings 000ESL01.pdf and 000ESL02.pdf)

92. **Question:** Can a single line diagram be provided for the new configuration of the medium voltage system as detailed on Drawings 250 of 359, 251 of 359, 252 of 359 253 of 359 254 of 359?

Answer: The one-line diagram is shown on 000-ESL-10 Electrical Medium Voltage Partial One Line Diagram

93. **Question:** Is the G Contract responsible for the Remote Local Control Stations for all of the Motor Operated Valves, as an example see the detail on Drawings 279 of 359.

Answer: Only the actuators for the 54" Butterfly Valves in the Flow Regulator Chambers have local control stations. Per Section 40 05 51 2.3.C.6, the General Contractor furnishes and installs the local control stations. The Electrical Contractor shall provide connecting conduit and cable and connect to the control stations. For the Electrical Drawings of Areas 822 and 832, the 54" butterfly valves and Venturi flow meters in the Flow Regulator Chambers, the designation "BFV" should be changed to "ABN". Refer to drawing changes above.

94. **Question:** Is the G Contract responsible for the fiber optic network switches associated with the Camera System?

Answer: See spec revision to 01 11 00 above.

95. **{ Deleted }**

96. **Question:** The pencil copy process is not defined in the Measurement and Payment. Add to new line Section 01 22 00 Paragraph 1.6.B.2. Pencil copy shall be submitted to the CM for review prior to submission of progress pay application. Pencil copy shall be submitted on form provided by the CM.

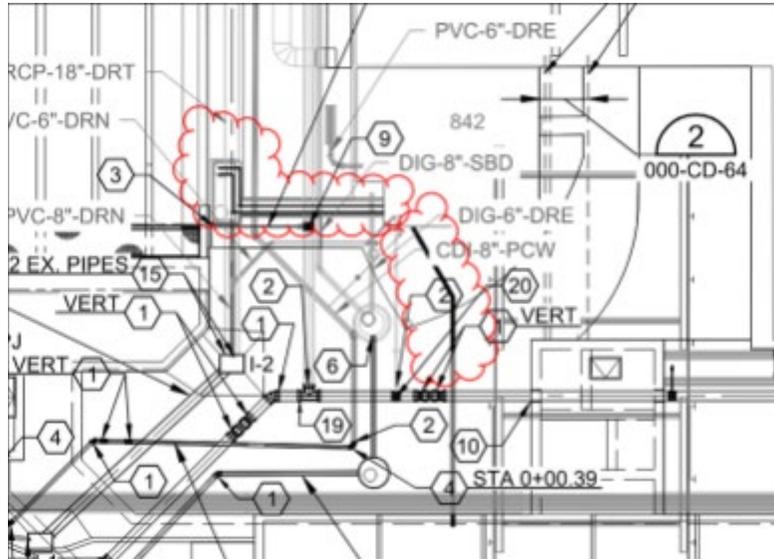
Answer: Pencil copy shall be submitted to the CM for review prior to submission of progress pay application. Pencil copy shall be submitted on form provided by the CM. Refer to spec change above.

97. **Question:** Please specify the desired pipe materials and linings for the following lines which do not appear on the pipe schedule.

- a. 8" SBD
- b. 18"DRT
- c. 12"DRE

Answer: See revised spec section 40 05 00 (Pipe and Pipe Fittings – Basic Requirements).

- 98.** **Question:** Please reference the mark up from drawing 000-CUT-11 (below). There appears to be three (3) proposed lines that are not labeled, please provide pipe sizes, materials, and service if these are new lines.



Answer: The two lines leaving building 842 are CVP-2"-SBS-SW. Refer to sheet 842-M-10. The third is an electrical conduit (refer to E drawings for Bldg 842)

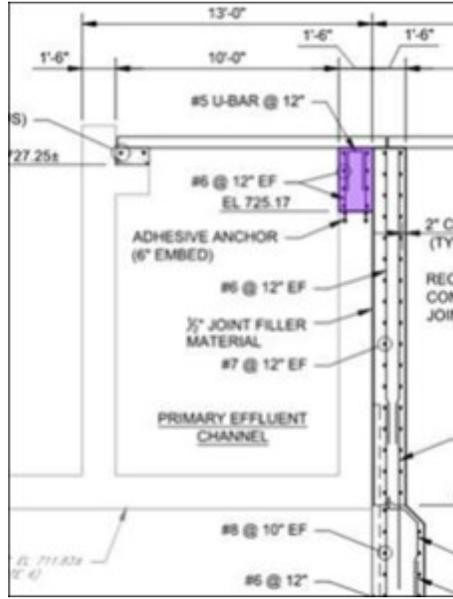
- 99.** **Question:** Reference Pay Item #1 & drawing 000-SD-61 detail 1. Based off of our pile quantity takeoff on the plan sheets and using the pile lengths given for the Bypass Channel/Regulator Chambers and the Chemical Building in detail 1, the 25,000 VLF of auger cast piles appears to be significantly understated. Our take-off quantity is approx. 36,000 VLF. We suggest reviewing and consider revising the pay item quantity.

Answer: After review, Pay Item 1 quantity should be revised to 40,000 VLF

- 100.** **Question:** Reference drawings 000-CDM-11 & 840-S-10. The site demo drawing notes to remove the fencing for new Outfall 002 and indicates to see drawing 840-S-10 for connecting the new outfall into existing facilities. Drawing 840-S-10 does not show any fence replacement or tie ins. Please clarify if the fencing along the river wall gets replaced or how it ties into the new outfall.

Answer: The existing fence should be terminated at the new outfall, termination post shall be installed as needed.

101. Question: Refer to drawing 822-S-41 section cut C. Section cut C shows a new wall extension at the top right-hand side of the existing primary effluent channel. The plan view on drawing 750-S-13 shows new support piers spaced at 15' on center. What is the extent of the new wall extension on 822-S-41 section C?



Answer: Refer to Drawing 750-SDM-10, Section A for extent of demolition of the existing wall. The new wall extensions will be poured up to EL 728.08. These wall extensions occur between the 15' wide weirs (not 15' on center) between the Primary Effluent Channel and the CSO Bypass Channel. Section C on 842-S-41 indicates the reinforcement in those wall extensions, in most cases, the length of the extensions is only 2' as dimensioned on the plans on sheets 750-S-13 and 750-S-14.

102. Question: Reference drawings 822-MDM-10 & 832-MDM-10. Please confirm that all 8 – 60" wall castings (where the existing flow regulating chambers tie into the existing primary effluent channel) are to be removed, so that new 72" SS wall castings can be poured in at the same locations.

Answer: Confirmed

103. Question: Refer to drawing 000-SD-64 detail 9. Detail 9 shows a joint sealing system without additional information regarding the type of joint system product required. Please specify the product data on the joint sealing system.

Answer: Product is Sika Combiflex, refer to Spec Section 03 25 00, Para. 2.2.F

104. **Question:** Reference drawing 822-MDM-10 Note 1 which reads: “Contractor is responsible for continued operation of Primary Effluent Channel Aeration System throughout construction”. Also refer to drawing 832-MDM-10 Note 1 that reads: “Contractor shall furnish & install a temporary Air Supply System until new air piping is installed & operational. Continued operation of the Aeration System is required throughout construction.” Please clarify which of these (2) statement is required. If an entirely new temporary Aeration System is required, please specify the parameters of the aeration system that must be supplied.

Answer: Contractor responsible for maintaining air piping connections to ensure continuous operation of new and existing Primary Effluent channel Aeration System.

105. **Question:** Referring to attached Addendum No. 2 Page 5 of 17, Article D-1.b, calling for the pipe size correction for the Flow Chamber sump pump discharge diagram. This service is labeled on the addendum sheet and the referenced contract drawing as part of the DRN system, with CPVC solvent weld piping. However, the Piping System Schedule in the spec tags DRN as System 2, with the exposed piping requirement as epoxy lined ductile pipe and fittings. Which type of piping material will be required?

Answer: See revised spec section 40 05 00 (Pipe and Pipe Fittings – Basic Requirements).

Attachments:

Specifications:

- a. Section 40 05 00 (Pipe and Pipe Fittings – Basic Requirements)
- b. Section 40 61 93 (DCS Input Output Database) – I/O list

Drawings:

- a. 000-CDM-11
- b. 000-CGR-12
- c. 000-CSP-13
- d. 840-ET-10
- e. 840-S-42
- f. 840-S-45

Other:

Reference information - Drawings 000ESL01.pdf and 000ESL02.pdf

*** * * * END OF ADDENDUM NO. 3 * * * ***

SECTION 40 05 00
PIPE AND PIPE FITTINGS - BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Process piping systems.
 2. Utility piping systems.
- 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 09 90 00 - Painting
 4. Section 10 14 00 - Identification Devices
 5. Section 31 21 00 - Earthwork, Excavation, Trenching and Backfill
 6. Section 40 05 07 - Pipe Support Systems
 7. Section 40 05 51 - Valves - Basic Requirements
 8. Section 40 41 13 - Heat Tracing Cable
 9. Section 40 42 00 - Pipe, Duct and Equipment Insulation
 10. Section 40 71 00 – Flow Instrumentation
 11. Section 40 72 00 – Level Instrumentation
 12. Section 40 73 00 – Pressure Instrumentation
 13. Section 40 75 00 – Process Liquid Analytical Measurement
 14. Section 40 91 10 – Miscellaneous Meters and Transmitters

1.2 QUALITY ASSURANCE

- A. Referenced Standards:
1. American Society of Mechanical Engineers (ASME):
 - a. B16.3, Malleable Iron Threaded Fittings.
 - b. B16.5, Pipe Flanges and Flanged Fittings.
 - c. B16.9, Factory-Made Wrought Steel Butt-Welding Fittings.
 - d. B16.22, Wrought Copper and Bronze Solder - Joint Pressure Fittings.
 - e. B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes.
 - f. B36.19, Stainless Steel Pipe.
 - g. B40.100, Pressure Gauges and Gauge Attachments.
 2. ASTM International (ASTM):
 - a. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - b. A74, Standard Specification for Cast Iron Soil Pipe and Fittings.
 - c. A106, Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service.
 - d. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

- e. A182, Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service.
 - f. A197, Standard Specification for Cupola Malleable Iron.
 - g. A234, Standard Specification for Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
 - h. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - i. A312, Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
 - j. A518, Standard Specification for Corrosion-Resistant High-Silicon Iron Castings.
 - k. A536, Standard Specification for Ductile Iron Castings.
 - l. A760, Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
 - m. A774, Standard Specification for As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures.
 - n. A778, Standard Specification for Welded, Unannealed Austenitic Stainless Steel Tubular Products.
 - o. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 - p. C443, Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
 - q. F439, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
 - r. F441, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
3. American Water Works Association (AWWA):
 - a. C208, Standard for Dimensions for Fabricated Steel Water Pipe Fittings.
 - b. C606, Standard for Grooved and Shouldered Joints.
 - c. C800, Standard for Underground Service Line Valves and Fittings.
 4. American Water Works Association/American National Standards Institute (AWWA/ANSI):
 - a. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.
 - b. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - c. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
 - d. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
 - e. C153/A21.53, Standard for Ductile-Iron Compact Fittings for Water Service.
 5. Underwriters Laboratories, Inc. (UL).

B. Coordinate flange dimensions and drillings between piping, valves, and equipment.

1.3 DEFINITIONS

A. Hazardous Gas Systems:

1. Chlorine gas, sulfur dioxide gas, carbon dioxide gas, lab gases.

B. HPIC:

1. High performance industrial coating.

C. PVDF:

1. Polyvinylidene fluoride.

1.4 SYSTEM DESCRIPTION

A. Piping Systems Organization and Definition:

1. Piping services are grouped into designated systems according to the chemical and physical properties of the fluid conveyed, system pressure, piping size and system materials of construction.
2. See Piping Specification Schedules in Part 3.

B. Water Hammer Arrestor Manufacturer Design:

1. High Pressure Effluent Flushing Water System:
 - a. System Pressure Range: 90-100 psi.
 - b. Pipe System Length: As shown on the Drawings.
 - c. Pipe Diameter: 4 inches.
 - d. Flow Rate Range: 0-200 gpm.
 - e. Pipe System Connections: As shown on the Drawings.
2. Manufacturer shall design water hammer arrestor to meet or exceed specified system requirements

1.5 SUBMITTALS

A. Shop Drawings:

1. See Section 01 33 00, Submittals, for requirements for the mechanics and administration of the submittal process.
2. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Copies of manufacturer's written directions regarding material handling, delivery, storage and installation.
 - c. Separate schedule sheet for each piping system scheduled in this specification section showing compliance of all system components.
 - 1) Attach technical product data on gaskets, pipe, fittings, and other components.
3. Fabrication and/or Layout Drawings:
 - a. Exterior yard piping drawings (minimum scale 1 inch equals 10 feet) with information including:
 - 1) Dimensions of piping lengths.
 - 2) Invert or centerline elevations of piping crossings.
 - 3) Acknowledgement of bury depth requirements.

- 4) Details of fittings, tapping locations, thrust blocks, restrained joint segments, harnessed joint segments, hydrants, and related appurtenances.
 - 5) Acknowledge designated valve or gate tag numbers, manhole numbers, instrument tag numbers, pipe and line numbers.
 - 6) Line slopes and vents.
- b. Interior piping drawings (minimum scale 1/4 inch equals 1 foot) with information including:
- 1) Dimensions of piping from column lines or wall surfaces.
 - 2) Centerline dimensions of piping.
 - 3) Centerline elevation and size of intersecting ductwork, conduit/conduit racks, or other potential interferences requiring coordination.
 - 4) Location and type of pipe supports and anchors.
 - 5) Locations of valves and valve actuator type.
 - 6) Details of fittings, tapping locations, equipment connections, flexible expansion joints, connections to equipment, and related appurtenances.
 - 7) Acknowledgement of valve, equipment and instrument tag numbers.
 - 8) Provisions for expansion and contraction.
 - 9) Line slopes and air release vents.
- c. Schedule of interconnections to existing piping and method of connection.
- B. Contract Closeout Information:
1. Operation and Maintenance Data:
 - a. See Section 01 33 04, Operation and Maintenance Manuals, for requirements for the mechanics, administration, and the content of O&M Manual submittals.
- C. Informational Submittals:
1. Qualifications of lab performing disinfection analysis on water systems.
 2. Test reports:
 - a. Copies of pressure test results on all piping systems.
 - b. Reports defining results of dielectric testing and corrective action taken.
 - c. Disinfection test report.
 - d. Notification of time and date of piping pressure tests.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Handling and Storage:
1. Follow manufacturer recommendations.
 2. Use wide canvas slings and wide padded skids.
 3. Do not use bare cables, chains, hooks, metal bars, or narrow skids.
 4. Do not store directly on ground. Provide adequate blocking.
 5. Pipe shall be stored in compliance with manufacturer's recommendations for prevention of exposure to damaging elements including but not limited to precipitation, hot and cold temperatures, and UV light.
- B. Shipment:
1. Support on padded saddles not less than 12 inches wide.
 2. Laterally support ends of pipe, fitting, and specials to maintain shape.
 3. Separate materials so they do not bear against each other.
 4. Securely fasten load to prevent movement in transit.

C. Delivery:

1. Reject products with dents, kinks, abrupt changes of curvature, or other damage.
2. Reject any products dropped from truck or crane.
3. Replace rejected items at Contractor's expense.
4. Reconditioning subject only allowed if approved by Engineer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Insulating Unions:
 - a. "Dielectric" by Epco.
 - b. Or approved equal.
2. Dirt Strainers (Y-Type):
 - a. Mueller.
 - b. Sarco.
 - c. Armstrong.
 - d. Or approved equal.
3. Chemical Strainers (Y-Type):
 - a. Asahi.
 - b. Chemtrol.
 - c. Or approved equal.
4. Dry Disconnect Couplings:
 - a. Kamlock.
 - b. Or approved equal.
5. Dielectric Flange Kit:
 - a. PSI.
 - b. Maloney.
 - c. Central Plastics.
 - d. Or approved equal.
6. Pipe Saddles (for Gage Installation):
 - a. Dresser Style 91 (steel and ductile iron systems).
 - b. Dresser Style 194 (nonmetallic systems).
 - c. Or approved equal.
7. Expansion Joint at FRP and Poly Tanks:
 - a. PROCO.
 - b. Garlock, Style 215.
 - c. Or approved equal.
8. Elastomeric Bellows-Type Expansion Joints:
 - a. Garlock, Guardian 200/204.
 - b. PROCO, equivalent model.
 - c. Red Valve, equivalent model.
 - d. Or approved equal.
9. Dismantling Joint:
 - a. Romac DJ400.

- b. Smith Blair 972.
- c. Or approved equal.
- 10. Grooved Couplings (3 to 12 Inches):
 - a. Victaulic Style 07 (Rigid)
 - b. Victaulic Style 77 (Flexible)
- 11. Grooved Couplings (14 Inches and Larger):
 - a. Victaulic W07 (Rigid)
 - b. Victaulic W77 & W77B (Flexible)
- 12. Quick Disconnect Coupling:
 - a. OPW.
 - b. Dixon Valve & Coupling.
 - c. Or approved equal.
- 13. Chemical Unions:
 - a. Spears.
 - b. GF Piping Systems.
 - c. Or approved equal.

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

2.2 PIPING SPECIFICATION SCHEDULES

A. Piping system materials, fittings and appurtenances are subject to requirements of specific piping specification schedules located at the end of Part 3 of this specification section.

2.3 COMPONENTS AND ACCESSORIES

A. Insulating Components:

- 1. Dielectric Flange Kits:
 - a. Flat faced.
 - b. 1/8 inch thick dielectric gasket, phenolic, non-asbestos.
 - c. Suitable for 175 psi, 210 degrees F.
 - d. 1/32 inch wall thickness bolt sleeves.
 - e. 1/8 inch thick phenolic insulating washers.
- 2. Dielectric Unions:
 - a. Screwed end connections.
 - b. Rated at 175 psi, 210 degrees F.
 - c. Provide dielectric gaskets suitable for continuous operation at union rated temperature and pressure.

B. Dirt Strainers:

- 1. Y-type.
- 2. Composition stainless steel.
- 3. Rated for test pressure and temperature of system in which they are installed.
- 4. Screen openings sized based on service per manufacturer's recommendation.
- 5. Threaded plug in the blowoff outlet.
- 6. Ball valve with hose thread nipple in the blowoff outlet.
- 7. Threaded NPT end connections.

- C. Strainers for Chemical Applications:
 - 1. Y-type.
 - 2. Strainers of same material, test pressure, and temperature rating as system in which strainer is placed.
 - 3. Include sediment strainer drain kit with valve to be provided by Contractor with socket connection to strainer.
- D. Reducers:
 - 1. Furnish appropriate size reducers and reducing fittings to mate pipe to equipment connections.
 - 2. Connection size requirements may change from those shown on Drawings depending on equipment furnished.
- E. Protective Coating and Lining:
 - 1. Include pipe, fittings, and appurtenances where coatings, linings, coating, tests and other items are specified.
 - 2. Field coating pipe in accordance with Section 09 90 00, Painting.
- F. Underground Warning Tape:
 - 1. See Section 10 14 00, Identification Devices.
- G. Pressure Gages:
 - 1. See Sections 01 61 03, Basic Equipment Requirements, and 40 73 00, Pressure Instrumentation.
- H. Dry Disconnect Couplings:
 - 1. Adapters:
 - a. Male Adapters: Size shown on Drawings.
 - b. Adapters:
 - 1) Female NPT end connection for sludge and flush applications.
 - 2) Male NPT end connection for chemical applications.
 - c. Construct adapters for sludge applications from cast iron or steel.
 - d. Construct adapters for chemical and PVC system applications 3 inches and below from polypropylene.
 - 1) Above 3-inch size, provide stainless steel units.
 - 2. Couplers:
 - a. Built-in valve and spring loaded poppet which close automatically when disconnected.
 - b. Designed to remain with only one arm locked in closed position.
 - c. Construct couplers for sludge applications fabricated from material utilized for adapters.
 - d. Construct couplers for chemical and PVC system applications 3 inches and less from polypropylene with stainless steel arms and pins.
 - 1) Above 3-inch, provide stainless steel units.
 - e. Gasket: Compatible with conveyed liquid.
 - 3. Dust Caps: For all adapters.
- I. Quick Disconnect Couplings:
 - 1. Type: Cam and Groove.

2. Hose Connection:
 - a. Sodium Hypochlorite Fill: Male cam and groove.
 - b. Sodium Bisulfite Fill: Female cam and groove.
 - c. Other connections as shown on the Drawings.
 3. Pipe Connection: Flanged.
 4. Size: Shown on Drawings.
 5. Provide caps and plugs, as appropriate, for all quick coupling adapters, to allow locking the chemical connections when not in use.
 6. Materials of construction:
 - a. All wetted components shall be fully compatible for continuous service with either sodium hypochlorite or sodium bisulfite (depending on the application).
 - b. Sodium Hypochlorite: Hastelloy.
 - c. Sodium Bisulfite: Stainless Steel, Type 316.
- J. Sacrificial Anode Cathodic Protection:
1. 3-lb. magnesium sacrificial anodes, prepackaged in a cloth bag containing 75 percent hydrated gypsum, 20 percent bentonite, and 5 percent anhydrous sodium sulfate.
 2. TW 600 V or an HMWPE insulated copper lead attached to the anode.
- K. Valves:
1. See schematics, drawings and details for definition of valves used in each system.
 2. See Section 40 05 51, Valves-Basic Requirements.
- L. Expansion Joints at FRP and Poly Tanks:
1. Materials:
 - a. Bellows: PTFE.
 - b. Flanges: PVC.
 - c. Limit Bolts and Nuts: 316 stainless steel.
 - d. Reinforcing Rings: Stainless steel.
 2. Pressure rating at 70 degrees F: 70 psig.
 3. Minimum Axial Movement: 3/8 inch.
- M. Elastomeric Bellows Type Expansion Joints:
1. Provide reducing type where indicated on the Drawings.
 2. Air Piping: Refer to Section 40 05 23, Pipe-Stainless Steel For Process Air.
 3. Flanges: ANSI 125/150.
 4. Materials:
 - a. Bellows:
 - 1) Sludge Service: Natural rubber.
 - 2) Hot Water (over 100 degrees F): EPDM.
 - 3) All Other: Compatible with fluid.
 - b. Restraint:
 - 1) Provide restraint limit bolts (control rods) and nuts to restrain joint at test pressure of piping.
 - 2) Control Rod Material: 316 stainless steel.
 - c. Working Pressure: Equal to or greater than test pressure of connecting piping.
 - d. Minimum Axial Movement: 3/8 inch.

5. Arches:
 - a. Sludge Service: Provide single filled arches.
 - b. All Other Service: Provide double open arches.
- N. Chemical Unions:
 1. Provide where shown, specified and required for all chemical related piping.
 2. O-Ring: FKM.
 3. End Connections: As required to facilitate pipe coupling and disassembly.

PART 3 - EXECUTION

3.1 EXTERIOR BURIED PIPING INSTALLATION

- A. Unless otherwise shown on the Drawings, provide a minimum of 4 feet and maximum of 8 feet earth cover over exterior buried piping systems and appurtenances conveying water, fluids, or solutions subject to freezing.
- B. Enter and exit through structure walls, floors, and ceilings by using penetrations and seals specified in Section 01 73 20, Openings and Penetrations in Construction, and as shown on Drawings.
- C. When entering or leaving structures with buried mechanical joint piping, install joint within 2 feet of point where pipe enters or leaves structure.
 1. Install second joint not more than 6 feet nor less than 4 feet from first joint.
- D. Install expansion devices as necessary to allow expansion and contraction movement.
- E. Laying Pipe in Trench:
 1. Excavate and backfill trench in accordance with Section 31 21 00, Earthwork, Excavation, Trenching, and Backfill.
 2. Clean each pipe length thoroughly and inspect for compliance to specifications.
 3. Grade trench bottom and excavate for pipe bell and lay pipe on trench bottom.
 4. Install gasket or joint material according to manufacturer's directions after joints have been thoroughly cleaned and examined.
 5. Except for first two joints, before making final connections of joints, install two full sections of pipe with earth tamped alongside of pipe or final with bedding material placed.
 6. Lay pipe in only suitable weather with good trench conditions.
 - a. Never lay pipe in water except where approved by Engineer.
 7. Seal open end of line with watertight plug if pipe laying stopped.
 8. Remove water in trench before removal of plug.
- F. Lining Up Push-On Joint Piping:
 1. Lay piping on route lines shown on Drawings.
 2. Deflect from straight alignments or grades by vertical or horizontal curves or offsets.
 3. Observe maximum deflection values stated in manufacturer's written literature.
 4. Provide special bends when specified or where required alignment exceeds allowable deflections stipulated.

5. Install shorter lengths of pipe in such length and number that angular deflection of any joint, as represented by specified maximum deflection, is not exceeded.
- G. Anchorage and Blocking:
1. Provide reaction blocking, anchors, joint harnesses, or other acceptable means for preventing movement of piping caused by forces in or on buried piping tees, wye branches, plugs, or bends.
 2. Place concrete blocking so that it extends from fitting into solid undisturbed earth wall.
 - a. Concrete blocks shall not cover pipe joints.
 3. Provide bearing area of concrete in accordance with drawing detail.
- H. Install underground hazard warning tape per Section 10 1400, Identification Devices.
- I. Install insulating components where dissimilar metals are joined together.
- 3.2 INTERIOR AND EXPOSED EXTERIOR PIPING INSTALLATION
- A. Install piping in vertical and horizontal alignment as shown on Drawings.
- B. Alignment of piping smaller than 4 inches may not be shown; however, install according to Drawing intent and with clearance and allowance for:
1. Expansion and contraction.
 2. Operation and access to equipment, doors, windows, hoists, moving equipment.
 3. Headroom and walking space for working areas and aisles.
 4. System drainage and air removal.
- C. Enter and exit through structure walls, floor and ceilings using penetrations and seals specified in Section 01 73 20, Openings and Penetrations in Construction, and as shown on the Drawings.
- D. Install vertical piping runs plumb and horizontal piping runs parallel with structure walls.
- E. Pipe Support:
1. Use methods of piping support as shown on Drawings and as required in Section 40 05 07, Pipe Support Systems.
 2. Where pipes run parallel and at same elevation or grade, they may be grouped and supported from common trapeze-type hanger, provided hanger rods are increased in size as specified for total supported weight.
 - a. The pipe in the group requiring the least maximum distance between supports shall set the distance between trapeze hangers.
 3. Size pipe supports with consideration to specific gravity of liquid being piped.
- F. Locate and size sleeves and castings required for piping system.
1. Arrange for chases, recesses, inserts or anchors at proper elevation and location.
- G. Use reducing fittings throughout piping systems.
1. Bushings will not be allowed unless specifically approved.
- H. Equipment Drainage and Miscellaneous Piping:

1. Provide drip pans and piping at equipment where condensation may occur and as indicated on the contract drawings.
 2. Hard pipe stuffing box leakage to nearest floor drain.
 3. Avoid piping over electrical components such as motor control centers, panelboards, etc.
 - a. If piping must be so routed, utilize FRP drip pan under piping and over full length of electrical equipment.
 - b. Pans joints shall be caulked with Fluorodyn Viton caulk, by Thermodyn Corporation (Sylvania, OH).
 - c. Hard pipe drainage to nearest floor drain.
 4. Collect system condensate at drip pockets, traps and blowoff valves.
 5. Provide drainage for process piping at locations shown on Drawings in accordance with Drawing details.
 6. For applications defined above and for other miscellaneous piping which is not addressed by a specific piping service category in Part 1, provide 304 stainless steel piping and fittings.
 - a. Size to handle application with 3/4 inch being minimum size provided.
 7. Use methods of drip pan support as shown on Drawings and as required in Section 40 05 07, Pipe Support Systems.
- I. Unions:
1. Install in position which will permit valve or equipment to be removed without dismantling adjacent piping.
 2. Mechanical type couplings may serve as unions.
 3. Additional flange unions are not required at flanged connections.
- J. Install expansion devices as necessary to allow expansion/contraction movement.
- K. Provide full faced flanges and gaskets on all systems.
- L. Anchorage and Blocking:
1. Block, anchor, or harness exposed piping subjected to forces in which joints are installed to prevent separation of joints and transmission of stress into equipment or structural components not designed to resist those stresses.
- M. Equipment Pipe Connections:
1. Equipment - General:
 - a. Exercise care in bolting flanged joints so that there is no restraint on the opposite end of pipe or fitting which would prevent uniform gasket pressure at connection or would cause unnecessary stresses to be transmitted to equipment flanges.
 - b. Where push-on joints are used in conjunction with flanged joints, final positioning of push-on joints shall not be made until flange joints have been tightened without strain.
 - c. Tighten flange bolts at uniform rate which will result in uniform gasket compression over entire area of joint.
 - 1) Provide tightening torque in accordance with manufacturer's recommendations.

- d. Support and match flange faces to uniform contact over their entire face area prior to installation of any bolt between the piping flange and equipment connecting flange.
 - e. Permit piping connected to equipment to freely move in directions parallel to longitudinal centerline when and while bolts in connection flange are tightened.
 - f. Align, level, and wedge equipment into place during fitting and alignment of connecting piping.
 - g. Grout equipment into place prior to final bolting of piping but not before initial fitting and alignment.
 - h. To provide maximum flexibility and ease of alignment, assemble connecting piping with gaskets in place and minimum of four bolts per joint installed and tightened.
 - 1) Test alignment by loosening flange bolts to see if there is any change in relationship of piping flange with equipment connecting flange.
 - 2) Realign as necessary, install flange bolts and make equipment connection.
 - i. Provide utility connections to equipment shown on Drawings, scheduled or specified.
- N. Provide insulating components where dissimilar metals are joined together.
- O. Instrument Connections:
- 1. See Drawing details.

3.3 CONNECTIONS WITH EXISTING PIPING

- A. Where connection between new work and existing work is made, use suitable and proper fittings to suit conditions encountered.
- B. Perform connections with existing piping at time and under conditions which will least interfere with service to customers affected by such operation.
- C. Undertake connections in fashion which will disturb system as little as possible.
- D. Provide suitable equipment and facilities to dewater, drain, and dispose of liquid removed without damage to adjacent property.
- E. Where connections to existing systems necessitate employment of past installation methods not currently part of trade practice, utilize necessary special piping components.
- F. Where connection involves potable water systems, provide disinfection methods as prescribed in this specification section.
- G. Once tie-in to each existing system is initiated, continue work continuously until tie-in is made and tested.

3.4 ACCESS PROVISIONS

- A. Provide access doors or panels in walls, floors, and ceilings to permit access to valves, piping and piping appurtenances requiring service.

- B. Size of access panels to allow inspection and removal of items served, minimum 10inch x 14-inch size.
- C. Fabricate door and frame of minimum 14 GA, stretcher leveled stock, cadmium plated or galvanized after fabrication and fitted with screw driver lock of cam type.
- D. Provide with key locks, keyed alike, in public use areas.
- E. Furnish panels with prime coat of HPIC. See Section 09 90 00, Painting.
- F. Style and type as required for material in which door installed.
- G. Where door is installed in fire-rated construction, provide door bearing UL label required for condition.

3.5 CATHODIC PROTECTION

- A. Isolate, dielectrically, all piping from all other metals including reinforcing bars in concrete slabs, other pipe lines, and miscellaneous metal.
- B. Make all connections from wire or cable by Thermit Cadwelding accomplished by operators experienced in this process.
- C. Install all cables with a loop and overhead knot around each pipe and slack equal to at least 50 percent of the straight line length.
- D. After cadwelding, coat all exposed metallic surfaces with hot applied tape.

3.6 HEAT TRACING

- A. See Section 40 41 13, Heat Tracing Cable.

3.7 PRESSURE GAGES

- A. Provide at locations shown on the Drawings and specified.
- B. See Section 01 61 03, Equipment-Basic Requirements.

3.8 FIELD QUALITY CONTROL

- A. Pipe Testing - General:
 - 1. Test piping systems as follows:
 - a. Test exposed, non-insulated piping systems upon completion of system.
 - b. Test exposed, insulated piping systems upon completion of system but prior to application of insulation.
 - c. Test concealed interior piping systems prior to concealment and, if system is insulated, prior to application of insulation.
 - d. Test buried piping (insulated and non-insulated) prior to backfilling and, if insulated, prior to application of insulation.
 - 2. Utilize pressures, media and pressure test durations as specified in the Piping Specification Schedules.
 - 3. Isolate equipment which may be damaged by the specified pressure test conditions.
 - 4. Perform pressure test using calibrated pressure gages and calibrated volumetric measuring equipment to determine leakage rates.

- a. Select each gage so that the specified test pressure falls within the upper half of the gage's range.
- b. Notify the Engineer 24 hours prior to each test.
5. Completely assemble and test new piping systems prior to connection to existing pipe systems.
6. Acknowledge satisfactory performance of tests and inspections in writing to Engineer prior to final acceptance.
7. Bear the cost of all testing and inspecting, locating and remedying of leaks and any necessary retesting and re-examination.

B. Pressure Testing:

1. Testing Medium: Unless otherwise specified in the Piping Specification Schedules, utilize the following test media.

a. Process Systems:

Pipeline Size	Specified Test Pressure	Testing Medium
2 inches and smaller	75 psi or less	Water
2 inches and smaller	Greater than 75 psi	Water
Greater than 2 inches	3 psi or less	Water
Greater than 2 inches	Greater than 3 psi	Water

b. Laboratory Gases and Natural Gas Systems: Cylinder nitrogen.

c. Liquid Systems:

Pipeline Size (Diameter)	Gravity or Pumped	Specified Test Pressure	Testing Medium
Up to and including 48 inches	Gravity	25 psig or less	Water
Above 48 inches	Gravity	25 psig or less	Water
All sizes	Pumped	250 psig or less	Water

2. Allowable Leakage Rates:

- a. Hazardous gas systems, all exposed piping systems, all pressure piping systems and all buried, insulated piping systems which are hydrostatically pressure tested shall have zero leakage goal at the specified test pressure throughout the duration of the test.
- b. Hydrostatic exfiltration and infiltration for sanitary and storm water sewers (groundwater level is below the top of pipe):
 - 1) Leakage Rate: 200 gallons per inch diameter per mile of pipe per day at average head on test section of 3 feet.
 - 2) Average head is defined from groundwater elevation to average pipe crown.
 - 3) Acceptable Test Head Leakage Rate For Heads Greater Than 3 feet: Acceptable leakage rate (gallons per inch diameter per mile per day) equals 115 by (actual test head to the 1/2 power).

- c. Hydrostatic infiltration test for sanitary and storm water sewers (groundwater level is above the top of pipe):
 - 1) Allowable leakage rate: 200 gallons per inch diameter per mile of pipe per day when depth of groundwater over top of pipe is 2 to 6 feet.
 - 2) Leakage rate at heads greater than 6 feet: Allowable leakage rate (gallons per inch diameter per mile of pipe per day) equals 82 by (actual head to the 1/2 power).
- d. Large diameter (above 48 inches) gravity plant piping systems shall have a maximum exfiltration of 25 gpd per inch-mile.
- e. Non-hazardous gas and air systems which are tested with air shall have a maximum pressure drop of 5 percent of the specified test pressure throughout the duration of the test.
- f. For low pressure (less than 25 psig) air testing, the acceptable time for loss of 1 psig of air pressure shall be:

Pipe Size (in dia)	Time, minutes/100 ft
4	0.3
6	0.7
8	1.2
10	1.5
12	1.8
15	2.1
18	2.4
21	3.0
24	3.6
27	4.2
30	4.8
33	5.4
36	6.0
42	7.3
48	7.6

3. Hydrostatic Pressure Testing Methodology:

- a. General:
 - 1) All joints, including welds, are to be left exposed for examination during the test.
 - 2) Provide additional temporary supports for piping systems designed for vapor or gas to support the weight of the test water.
 - 3) Provide temporary restraints for expansion joints for additional pressure load under test.
 - 4) Isolate equipment in piping system with rated pressure lower than pipe test pressure.

- 5) Do not coat or insulate exposed piping until successful performance of pressure test.
 - b. Soil, Waste, Drain And Vent Systems:
 - 1) Test at completion of installation of each stack or section of piping by filling system with water and checking joints and fittings for leaks.
 - 2) Eliminate leaks before proceeding with work or concealing piping.
 - 3) Minimum test heights shall be 10 feet above highest stack inlet.
 - c. Larger Diameter (Above 36 Inches) Gravity Plant Piping:
 - 1) Plug downstream end of segment to be tested.
 - a) Provide bracing as required.
 - 2) Fill segment and upstream structure to normal operating level as per hydraulic profile.
 - 3) Allow 24 hours for absorption losses.
 - a) Refill to original level.
 - 4) Provide reservoir to maintain constant head over duration of test.
 - 5) Record reservoir water volume at beginning and end of test.
4. Air Testing Methodology:
- a. General:
 - 1) Assure air is ambient temperature.
 - b. Low pressure air testing:
 - 1) Place plugs in line and inflate to manufacturer's designated seal pressure.
 - 2) Check plugs for proper sealing.
 - 3) Introduce low pressure air into sealed line segment until air pressure reaches 4 psig greater than ground water or allowable limits of ASTM F1417.
 - a) Use test gage conforming to ASME B40.100 with 0 to 15 psi scale and accuracy of 1 percent of full range.
 - 4) Allow 2 minutes for air pressure to stabilize.
 - 5) After stabilization period (3.5 psig minimum pressure in pipe) discontinue air supply to line segment.
 - 6) Record pressure at beginning and end of test.
- C. Dielectric Testing Methods and Criteria:
1. Provide electrical check between metallic non-ferrous pipe or appurtenances and ferrous elements of construction to assure discontinuity has been maintained.
 2. Wherever electrical contact is demonstrated by such test, locate the point or points of continuity and correct the condition.

3.9 CLEANING, DISINFECTION AND PURGING

- A. Cleaning:
1. Clean interior of piping systems thoroughly before installing.
 2. Maintain pipe in clean condition during installation.
 3. Before jointing piping, thoroughly clean and wipe joint contact surfaces and then properly dress and make joint.
 - a. Pig high pressure air piping before connecting to valves or instruments.
 4. At completion of work and prior to Final Acceptance, thoroughly clean work installed under these specifications.

- a. Clean equipment, fixtures, pipe, valves, and fittings of grease, metal cuttings, and sludge which may have accumulated by operation of system, from testing, or from other causes.
 - b. Repair any stoppage or discoloration or other damage to parts of building, its finish, or furnishings, due to failure to properly clean piping system, without cost to Owner.
5. Clean chlorine piping in accordance with The Chlorine Institute- CI Pamphlet 6.
- B. Disinfection of Potable Water Systems:
- 1. After favorable performance of pressure test and prior to Final Acceptance, thoroughly flush entire potable water piping system including supply, source and any appurtenant devices and perform disinfection as prescribed.
 - 2. Perform work, including preventative measures during construction, in full compliance with AWWA C651.
 - 3. Perform disinfection using sodium hypochlorite complying with AWWA B300.
 - 4. Flush each segment of system to provide flushing velocity of not less than 2.5 feet per second.
 - 5. Drain flushing water to sanitary sewer.
 - a. Do not drain flushing water to receiving stream.
 - 6. Use continuous feed method of application.
 - a. Tag system during disinfection procedure to prevent use.
 - 7. After required contact period, flush system to remove traces of heavily chlorinated water.
 - 8. After final flushing and before placing water in service, obtain an independent laboratory approved by the Owner to collect samples and test for bacteriological quality.
 - a. Repeat entire disinfection procedures until satisfactory results are obtained.
 - 9. Secure and deliver to Owner, satisfactory bacteriological reports on samples taken from system.
 - a. Ensure sampling and testing procedures are in full compliance to AWWA C651, local water purveyor and applicable requirements of State of Pennsylvania.

3.10 LOCATION OF BURIED OBSTACLES

- A. Furnish exact location and description of buried utilities encountered and thrust block placement.
- B. Reference items to definitive reference point locations such as found property corners, entrances to buildings, existing structure lines, fire hydrants and related fixed structures.
- C. Include such information as location, elevation, coverage, supports and additional pertinent information.
- D. Incorporate information on "As-Recorded" Drawings.

3.11 PIPE INSULATION

- A. Insulate pipe and pipe fittings in accordance with Section 40 42 00, Pipe, Duct and Equipment Insulation.

3.12 PIPING SYSTEM SCHEDULES

Abbreviation	Piping Service	System Number
CHF	Chemical Feed (Defoamer)	5
CON	Containment Piping	4
EWH	Effluent Flushing Water High Pressure	6
EWL	Effluent Flushing Water Low Pressure	6
EWC	Chlorinated Effluent Flushing Water	7
FPR	Fire Protection Water	7
DRE	Equipment Drain	4
PAL	Plant Air, Low Pressure	8
PEF	Primary Effluent	1
NPW	Non-potable Water	6
PCW	Potable City Water	7
CFW	Potable Water Cold	7
HFW	Potable Water Hot	7
RAS	Return Activated Sludge	2
SPL	Sample	4
SBD	Scrubber Blow Down	3
DRT	Storm Drain	2
DRN	Sanitary Drain	2
SBS	Sodium Bisulfite	5
SHC	Sodium Hypochlorite	5
DRA	Area Drains	2
TPW	Tempered Potable Water	7
VNT	Vent	4

A. SPECIFICATION SCHEDULE - SYSTEM 1

1. General:
 - a. Piping Symbol and Service:
 - 1) Material: Stainless Steel
 - 2) PEF – Primary Effluent
 - b. Test Requirements:
 - 1) Test Medium: Water.
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
2. System Components:
 - a. Material: Stainless steel 304L, Schedule 10.
 - b. Meeting ASTM A778.
 - c. Lining: None.

- d. Coating: None.
- e. Fittings: Seamless steel 304L meeting ASTM A774.
- f. Flanges: Stainless steel, 304L, ANSI Class 150.
- g. Joints: Butt welded with flanges at equipment and valves.
- a. Couplings
 - 1) Grooved Couplings- Victaulic W07 (Rigid), W77 & W77B (Flexible)

B. SPECIFICATION SCHEDULE - SYSTEM 2

1. General:

- a. Piping Symbol and Service:
 - 1) Material: Ductile Iron, Class 53
 - 2) RAS – Return Activated Sludge.
 - 3) DRN – Sanitary Drain
 - 4) DRA – Area Drain
 - 5) DRT – Storm Drain
- b. Test Requirements:
 - 1) Test Medium: Water.
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
- c. Gaskets:
 - 1) Flanged, push-on and mechanical joints (ductile iron): Rubber, AWWA/ANSI C111/A21.11.

2. System Components:

- a. Pipe Size 3 Inches Through 24 inches:
 - 1) Exposed Service:
 - a) Material: Ductile iron, 53
 - b) Reference: AWWA/ANSI C115/A21.15.
 - c) Lining: Protecto 401 Ceramic Epoxy or approved equal.
 - d) Coating: HPIC; See Section 09 90 00, Painting.
 - e) Fittings: EAWWA/ANSI C110/A21.10 ductile or gray iron.
 - f) Joints: Flanged.
 - 1) Victaulic couplings are allowable for sump pump piping where long pipe runs occur between the sump and where the pipe exits the gallery.
 - 2) Buried Service:
 - a) Materials: Ductile iron, Class 350
 - b) Reference: AWWA/ANSI C151/A21.51.
 - c) Lining: Protecto 401 Ceramic Epoxy or approved equal.
 - d) Coating: Bituminous.
 - e) Fittings:
 - 1) AWWA/ANSI C110/A21.10 ductile or gray iron.
 - 2) AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 to 16 inches.
 - f) Joints: Push-on with mechanical (stuffing box type) joints at fittings and valves.
- b. Pipe Size 30 inches through 60 inches:

- 1) Buried Service:
 - a) Materials: Ductile iron, Class 350.
 - b) Reference: AWWA/ANSI C151/A21.51.
 - c) Lining: Protecto 401 Ceramic Epoxy or approved equal.
 - d) Coating: Bituminous.
 - e) Fittings: AWWA/ANSI C110/A21.10 ductile or gray iron.
 - f) Joints: HP LOK restrained joints or approved equal.
3. Flow Regulator Chamber Sump Pump System Components and Truck Unloading Pad Drain System Components:
 - a. Exposed Service:
 - 1) Material: CPVC, Schedule 80.
 - 2) Reference: ASTM F441.
 - 3) Lining: None.
 - 4) Coating: None.
 - 5) Fittings: Solvent welded socket type complying with F439.
 - 6) Joints: Solvent welded with unions at valves, penetrations through structures and equipment connections for pipe 2 inches and less and flanges at those locations for pipe above 2 inches.
 - b. Buried Service:
 - 1) Material: CPVC, Schedule 40.
 - 2) Reference: ASTM F441.
 - 3) Lining: None.
 - 4) Coating: None.
 - 5) Fittings: Solvent welded socket type complying with ASTM F439.
 - 6) Joints: Solvent welded.
 - a)

C. SPECIFICATION SCHEDULE - SYSTEM 3

1. General
 - a. Piping Symbol and Service
 - 1) SBD - Scrubber Blow Down
 - b. Test Requirements:
 - 1) Test Medium: Water
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
 - c. System Components:
 - 1) SDR 26 PVC Pipe in accordance with Section 33 31 11

D. SPECIFICATION SCHEDULE - SYSTEM 4

1. General:
 - a. Piping Symbol and Service:
 - 1) SPL – Sample.
 - 2) DRE – Equipment drain.
 - 3) VNT – Vent.
 - 4) CON – Containment Piping
 - b. Test Requirements Pressure Lines:
 - 1) Test Medium: Water.
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
 - c. Test Requirements Vacuum Lines:
 - 1) Test Medium: Air.
 - 2) Pressure: -27 inch HG.
 - 3) Duration: 6 hours.
 - d. Gaskets and O-rings:
 - 1) Viton.
 - 2) Gaskets for SHC service: Fluorogreen E-600.
2. System Components:
 - a. Pipe Size 12 Inches and Smaller:
 - 1) Exposed Service:
 - a) Material: CPVC, Schedule 80.
 - b) Reference: ASTM F441.
 - c) Lining: None.
 - d) Coating: None.
 - e) Fittings: Solvent welded socket type complying with F439.
 - f) Joints: Solvent welded with unions at valves, penetrations through structures and equipment connections for pipe 2 inches and less and flanges at those locations for pipe above 2 inches.
 - g) For SHC service, provide pipe joint primer and solvent cement specifically formulated for use with this chemical: IPS-70 primer and IPS-724 solvent cement.
 - 2) Buried Service:
 - a) Material: CPVC, Schedule 40.
 - b) Reference: ASTM F441.
 - c) Lining: None.
 - d) Coating: None.
 - e) Fittings: Solvent welded socket type complying with ASTM F439.
 - f) Joints: Solvent welded.
 3. Dewatering Pump Station System Components:
 - a. Buried Service:
 - 1) Materials: Ductile iron, Class 350
 - 2) Reference: AWWA/ANSI C151/A21.51.
 - 3) Lining: Protecto 401 Ceramic Epoxy or approved equal.
 - 4) Coating: Bituminous.

- 5) Fittings:
 - a) AWWA/ANSI C110/A21.10 ductile or gray iron.
 - b) AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 to 16 inches.
- 6) Joints: Push-on with mechanical (stuffing box type) joints at fittings and valves.

E. SPECIFICATION SCHEDULE - SYSTEM 5

1. General:

- a. Piping Symbol and Service:
 - 1) SHC – Sodium Hypochlorite.
 - 2) SBS – Sodium Bisulfite.
 - 3) CHF - Defoamer.
- b. Test Requirements:
 - 1) Test Medium: Water.
 - 2) Pressure: 50 psi.
 - 3) Duration: 6 hours.
- c. Gaskets and O-Rings: Viton or FKM.
- d. Gaskets for SHC Service: Fluorogreen E-600.

2. System Components:

- a. Exposed Indoor and Buried Outdoor Service:
 - 1) Material: CPVC, Schedule 80.
 - 2) Reference: ASTM F441.
 - 3) Lining: None.
 - 4) Coating: None.
 - 5) CPVC Fittings: Solvent welded socket type complying with ASTM F439; Flanged type complying with ASTM F1970.
 - 6) Joints:
 - a) Solvent welded with unions penetrations through structures and equipment connections for pipe 2 inches and less and flanges at those locations for pipe above 2 inches.
 - b) For sodium hypochlorite, provide pipe joint primer IPS-70 and pipe joint solvent cement IPS-724.
- b. Exposed Indoor and Outdoor Service:
 - 1) Double containment system (as indicated on Drawings) per Section 40 20 55, Double Containment Piping Systems.
- c. Exposed Outdoor Vents:
 - 1) Material: PVC, Schedule 120.
 - 2) Reference: ASTM D1784 and ASTM D1785.
 - 3) Lining: None.
 - 4) Coating: None.
 - 5) Fittings: Schedule 80 PVC Solvent welded socket type complying with ASTM D2467.

- 6) Joints:
 - a) Solvent welded with unions at penetrations through structures and equipment connections for pipe 2 inches and less and flanges at those locations for pipe above 2 inches.
 - b) For sodium hypochlorite, provide pipe joint primer IPS-70 and pipe joint solvent cement IPS-724.

F. SPECIFICATION SCHEDULE - SYSTEM 6

1. General:

- a. Piping Symbol and Service:
 - 1) NPW – Non-potable Water.
 - 2) EWH – Effluent Flushing Water, High Pressure.
 - 3) EWL – Effluent Flushing Water, Low Pressure
- b. Test Requirements:
 - 1) Test Medium: Water.
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
- c. Gaskets and O-rings:
 - 1) O-rings: Neoprene or rubber.
 - 2) Flanged, restrained push-on and restrained mechanical joints (ductile iron): rubber, AWWA/ANSI C111/A21.11.
 - 3) Flanged Joints (Steel): Rubber, AWWA C207.
 - 4) Grooved Coupling Joints (Ductile and Steel): Rubber, AWWA C606.

2. System Components:

- a. Pipe Size to 3 Inches in Chemical Building:
 - 1) Exposed Service:
 - a) Material: Galvanized steel, Schedule 40.
 - b) Reference: ASTM A53.
 - c) Lining: None.
 - d) Coating: Hot-dipped galvanized.
 - e) Fittings: Cast iron.
 - 1) ASTM A126, Class B.
 - f) Joints: Threaded.
 - 2) Buried Service:
 - a) Material: Copper tubing, Type K.
 - b) Reference: ASTM B88.
- b. Pipe Size to 3 Inches Elsewhere:
 - 1) Exposed Service:
 - a) Material: Copper tubing, Type L.
 - b) Solder: Cadmium and lead-free solder compatible with tubing and fittings materials.
 - c) Reference: ASTM B88.
 - d) Lining: None.
 - e) Coating: HPIC; See Section 09 90 00, Painting
 - f) Fittings: Wrought copper or bronze fittings meeting ASME B16.22.
 - g) Joints: Soldered or brazed with unions at valves and equipment.
 - 2) Buried Service:
 - a) Material: Copper tubing, Type K.
 - b) Reference: ASTM B88.

- c) Lining: None.
 - d) Coating: None.
 - e) Fittings: AWWA C800.
 - f) Joints: Flared.
- c. Pipe Size 3 Inches Through 24 Inches:
- 1) Exposed Service:
 - a) Materials: Ductile Iron, Class 350
 - 1) Flanged: Ductile iron, Class 53
 - 2) Grooved type mechanical joint system: Use pipe thickness per AWWA C606.
 - b) Reference: AWWA/ANSI C115/A21.15.
 - c) Lining: Cement.
 - d) Coating: HPIC; See Section 09 90 00, Painting.
 - e) Fittings: Either AWWA/ANSI C110/A21.10 ductile or gray iron.
 - f) Joints:
 - 1) Flanged or grooved type mechanical coupling (AWWA C606) joints.
 - 2) With both systems, provide screwed-on flanges at valves, equipment and structure penetration.
- d. Pipe Size 36 Inches:
- 1) Buried Service:
 - a) Materials: Ductile iron, Class 250
 - b) Reference: AWWA/ANSI C151/A21.51.
 - c) Lining: Cement.
 - d) Coating: Bituminous.
 - e) Fittings: Either AWWA/ANSI C110/A21.10 ductile or gray iron.
 - f) Joints: Restrained Push-on US Pipe TR Flex, or equal. Use restrained mechanical joints at fittings and valves..

G. SPECIFICATION SCHEDULE - SYSTEM 7

- 1. General:
 - a. Piping Symbol and Service:
 - 1) PCW – Potable City Water.
 - 2) TPW – Tempered Potable Water.
 - 3) CFW – Potable Water Cold.
 - 4) HFW – Potable Water Hot.
 - 5) EWC – Chlorinated Effluent Flushing Water
 - 6) FPR – Fire Protection Water – Reference Section 21 13 13, Wet Pipe Sprinkler Systems, for sprinkler system requirements. For all other piping, provide as specified herein.
 - b. Test Requirements:
 - 1) Test Medium: Water.
 - 2) Pressure: 1.25 x working pressure.
 - 3) Duration: 6 hours.
 - c. Gaskets and O-rings:
 - 1) O-rings: Neoprene or rubber.

- 2) Flanged, Restrained Push-On and Restrained Mechanical Joints (Ductile Iron): Rubber, AWWA/ANSI C111/A21.11.
 - 3) Flanged Joints (Steel): Rubber, AWWA C207.
 - 4) Grooved Coupling Joints (Ductile and Steel): Rubber, AWWA C606.
2. System Components:
- a. Pipe Size to 3 Inches:
 - 1) Exposed Service:
 - a) Material: Copper tubing, Type L.
 - b) Solder: Cadmium and lead-free solder compatible with tubing and fittings materials.
 - c) Reference: ASTM B88.
 - d) Lining: None.
 - e) Coating: HPIC; See Section 09 90 00, Painting.
 - f) Fittings: Wrought copper or bronze fittings meeting ASME B16.22.
 - g) Joints: Soldered or brazed with unions at valves and equipment.
 - 2) Buried Service:
 - a) Material: Copper tubing, Type K.
 - b) Reference: ASTM B88.
 - c) Lining: None.
 - d) Coating: None.
 - e) Fittings: AWWA C800.
 - f) Joints: Flared.
 - b. Pipe Size 3 Inches through 24 Inches:
 - 1) Exposed Service:
 - a) Materials:
 - 1) Flanged: Ductile iron, Class 53.
 - 2) Grooved type joint system: Use pipe thickness per AWWA C606.
 - 3) With both systems, provide screwed on flanges at equipment, valves and structural penetrations.
 - b) Reference: AWWA/ANSI C115/A21.15.
 - c) Lining: Cement.
 - d) Coating: HPIC; See Section 09 90 00, Painting.
 - e) Fittings: Either AWWA/ANSI C110/A21.10 ductile or gray iron.
 - f) Joints:
 - 1) Flanged or grooved type mechanical coupling (AWWA C606) joints.
 - 2) With both systems, provide screwed-on flanges at valves, equipment, and structure penetration.
 - 2) Buried Service:
 - a) Materials: Ductile iron, Class 350
 - b) Reference: AWWA/ANSI C151/A21.51.
 - c) Lining: Cement.
 - d) Coating: Bituminous.
 - e) Fittings:
 - 1) Either AWWA/ANSI C110/A21.10 ductile or gray iron.

- 2) Optional: AWWA/ANSI C153/A21.53 ductile iron compact fittings for sizes 3 to 16 inches.
- f) Joints: Restrained Push-on US Pipe TR Flex, or equal. Use restrained mechanical joints at fittings and valves.
- c. Pipe Size Greater Than 24 Inches:
 - 1) Exposed Service:
 - a) Material: Steel, fabricated pipe.
 - b) Reference: AWWA C200.
 - c) Lining: Cement.
 - d) Coating: HPIC; See Section 09 90 00, Painting.
 - e) Fittings: AWWA C208.
 - f) Joints: Butt welded with rigid AWWA C207 flanges at equipment, valves, and structure penetrations.
 - 2) Buried Service:
 - a) Material: Steel, fabricated pipe.
 - b) Reference: AWWA C200.
 - c) Lining: Cement.
 - d) Coating: Bituminous.
 - e) Fittings: AWWA C208.
 - f) Joints: Butt welded.
- 3. Install drain tees with capped nipples of IPS brass 3 inches long at low points.
 - a. If low point occurs in concealed piping, provide approved flush access panel.
 - b. These drains are not shown on Drawings.
- 4. Slope water lines down to drain points not less than 1 inch in 60 feet.
- 5. Install all threaded piping with clean-cut tapered threads and with ends thoroughly reamed after cutting to remove burrs.
 - a. Pipe joint cement permitted only on external threads.
- 6. For screwed nipples for connections to flush valves, lavatory supplies, and other equipment with threaded connections use iron, copper, or brass pipe.
- 7. Install ball, butterfly and plug valves where indicated or required to adequately service all parts of system and equipment.
 - a. Install valves on each branch serving restroom.
 - b. Install valves on inlet and outlet connections of heat exchangers and on other equipment connected to water lines.
- 8. Install unions between valves and connections to each piece of equipment, and install sufficient number of unions throughout piping system to facilitate installation and servicing.
 - a. On copper pipe lines, install wrought, solder-joint, copper to copper unions for lines 2 inches and smaller and, for lines 2-1/2 inches and over install brass flange unions.
- 9. Construct and equip plumbing fixtures and equipment with anti-siphon devices as to entirely eliminate any danger of siphoning waste material into potable water supply system.

10. Where exposed pipes 6 inches in size and smaller pass through floors, finished walls, or finished ceilings, fit with nickel or chrome-plated plates large enough to completely close hole around pipes.
 - a. Secure plates to pipe by set screw in approved manner.
11. Size supply branches to individual fixtures as scheduled or indicated on Drawings.
12. Install piping so as to be free to expand with proper loops, anchors and joints without injury to system or structure.
13. Provide branches to wall hydrants or hose bibs in exterior locations with interior shutoff and drain valves.
14. Provide approved type vacuum breaker and backflow preventer installations indicated or as required by Code.
15. Install concealed in finished structures such as administration and office facilities and at locations shown on Drawings.

H. SPECIFICATION SCHEDULE - SYSTEM 8

1. General:
 - a. See Section 46 51 21, Coarse Bubbler Air Diffuser System, for manufacturer supplied piping in the Primary Effluent Channel, BCCT, and BCCT Effluent Outfall Channel. For all other piping, provide as specified herein.
 - b. Piping Symbol and Service:
 - 1) PAL – Low Pressure Process Air.
 - c. Test Requirements:
 - 1) Test medium: Air.
 - 2) Pressure: 18 psig.
 - 3) Duration: 6 hours.
 - d. Gaskets and O-rings:
 - 1) O-rings and Flanged Joints: Silicone.
 - e. Operating Temperature:
 - 1) Maximum: 275 degrees F.
 - f. Expansion Joints:
 - 1) See Section 40 05 23, Pipe-Stainless Steel for Process Air.
2. System Components:
 - a. Material: Stainless steel 304L, Schedule 10.
 - b. Meeting ASTM A778.
 - c. Lining: None.
 - d. Coating: None.
 - e. Fittings: Seamless steel 304L meeting ASTM A774.
 - f. Flanges: Stainless steel, 304L, ANSI Class 150.
 - 1) Contractor shall provide flanges for up to first 20 feet of PAL piping. Contractor shall provide one eye bolt per flange to facilitate removal via overhead hoist. Coordinate eye bolt size required with finalized overhead hoist shop drawings.
 - g. Joints: Butt welded with flanges at equipment and valves.

END OF SECTION



ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
ALCOSAN CSO BYPASS AND DISINFECTION PROJECT
CONTRACT NO. 1760
DCS I/O LIST
DPU42 - FACILITY 824 - EAST AERATION BASIN ELECTRICAL ROOM

REVISION INDEX	
REV NO.	DESCRIPTION
1	60% DESIGN SUBMITTAL
2	90% DESIGN SUBMITTAL
3	100% DESIGN SUBMITTAL
4	BID READY SUBMITTAL
5	ADDENDUM 3

GENERAL NOTES:

1. This document is based on ALCOSAN CS Guidelines Rev.5 document and Microsoft Excel template provided by ALCOSAN (FDC_IOList_template_rev.1.xlsx)
2. Refer to drawing number 00-I-02 - DCS NETWORK COMMUNICATION for System Architecture details.
3. The new signals included on this DCS I/O List refer to the following P&ID number:
750-I-01 - CSO BYPASS CHANNEL AND AERATION
4. This document was developed based on the existing DCS I/O List - DPU42 provided from ALCOSAN.
Signals related to this project were included according to the following color legend:

Tag	Description	Legend
HSXXX00XX	Red text / No fill	This is a NEW signal assigned to an empty IO channel.
HSXXX00XX	Red text / Yellow fill	This is a NEW signal that reuses an existing channel where the signal was eliminated.
HSXXX00XX	Black text/ No fill	EXISTING signals. No changes were done here.

REV NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APPV
1	10/12/2021	60% DESIGN SUBMITTAL	GCF	DPD	RLC
2	2/4/2022	90% DESIGN SUBMITTAL	GCF	DPD	RLC
3	5/6/2022	BID READY SUBMITTAL	GCF	DPD	RLC
4	8/8/2022	ADDENDUM 3	GCF	DPD	RLC

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
FIT820ABN001A	BASIN EA1-PASS1 AIR FLOW	AI			0	9000	SCFM	42	1	1	1	1				
FIT820ABN001B	BASIN EA1-PASS4 AIR FLOW	AI			0	4000	SCFM	42	1	1	1	2				
FIT820ABN004A	BASIN EA4-PASS1 AIR FLOW	AI			0	9000	SCFM	42	1	1	1	3				
FIT821ABN001	BASIN EA1-CHANNEL AIR FLOW	AI			0	700	SCFM	42	1	1	1	4				
FIT822ABN001A	BASIN EA1-PASS2 AIR FLOW	AI			0	6000	SCFM	42	1	1	1	5				
FIT822ABN001B	BASIN EA1-PASS3 AIR FLOW	AI			0	4000	SCFM	42	1	1	1	6				
		AI						42	1	1	1	7				
FIT825PHF005A	AERATION FOAM SPRAY-HYPO FLOW	AI			0	24	GPM	42	1	1	1	8				
FIT820ABN002A	BASIN EA2-PASS1 AIR FLOW	AI			0	9000	SCFM	42	1	1	2	1				
FIT820ABN002B	BASIN EA2-PASS4 AIR FLOW	AI			0	4000	SCFM	42	1	1	2	2				
FIT821ABN002	BASIN EA2-CHANNEL AIR FLOW	AI			0	700	SCFM	42	1	1	2	3				
		AI						42	1	1	2	4				
FIT822ABN002A	BASIN EA2-PASS2 AIR FLOW	AI			0	6000	SCFM	42	1	1	2	5				
FIT822ABN002B	BASIN EA2-PASS3 AIR FLOW	AI			0	4000	SCFM	42	1	1	2	6				
		AI						42	1	1	2	7				
		AI						42	1	1	2	8				
FIT820ABN003A	BASIN EA3-PASS1 AIR FLOW	AI			0	9000	SCFM	42	1	1	3	1				
FIT820ABN003B	BASIN EA3-PASS4 AIR FLOW	AI			0	4000	SCFM	42	1	1	3	2				
		AI						42	1	1	3	3				
FIT822ABN003A	BASIN EA3-PASS2 AIR FLOW	AI			0	6000	SCFM	42	1	1	3	4				
FIT822ABN003B	BASIN EA3-PASS3 AIR FLOW	AI			0	4000	SCFM	42	1	1	3	5				
FIT821ABN003	BASIN EA3-CHANNEL AIR FLOW	AI			0	700	SCFM	42	1	1	3	6				
		AI						42	1	1	3	7				
		AI						42	1	1	3	8				
FIT820ABN004B	BASIN EA4-PASS4 AIR FLOW	AI			0	4000	SCFM	42	1	1	4	1				
FIT821ABN004	BASIN EA4-CHANNEL AIR FLOW	AI			0	700	SCFM	42	1	1	4	2				
		AI						42	1	1	4	3				
FIT822ABN004A	BASIN EA4-PASS2 AIR FLOW	AI			0	6000	SCFM	42	1	1	4	4				
FIT822ABN004B	BASIN EA4-PASS3 AIR FLOW	AI			0	4000	SCFM	42	1	1	4	5				
		AI						42	1	1	4	6				
		AI						42	1	1	4	7				
TT824DPU001	E.AERATION-DPU42 TEMPERATURE	AI			0	200	DEG F	42	1	1	4	8				
ZC820ABN003A	BASIN EA3-PASS1 AIR CONTROL	AO			0	100	%	42	1	1	5	1				
ZC820ABN003B	BASIN EA3-PASS4 AIR CONTROL	AO			0	100	%	42	1	1	5	2				
ZC821ABN003	BASIN EA3-CHANNEL AIR CONTROL	AO			0	100	%	42	1	1	5	3				
SC821WSP004	EA-3 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	1	5	4				
ZC822ABN003	BASIN EA3-INFLUENT CONTROL	AO			0	100	%	42	1	1	6	1				
ZC822ABN003A	BASIN EA3-PASS2 AIR CONTROL	AO			0	100	%	42	1	1	6	2				
ZC822ABN003B	BASIN EA3-PASS3 AIR CONTROL	AO			0	100	%	42	1	1	6	3				
SC821WSP005	EA-3/4 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	1	6	4				
ZC820ABN004A	BASIN EA4-PASS1 AIR CONTROL	AO			0	100	%	42	1	1	7	1				
ZC820ABN004B	BASIN EA4-PASS4 AIR CONTROL	AO			0	100	%	42	1	1	7	2				
ZC821ABN004	BASIN EA4-CHANNEL AIR CONTROL	AO			0	100	%	42	1	1	7	3				
SC821WSP006	EA-4 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	1	7	4				
ZC822ABN004	BASIN EA4-INFLUENT CONTROL	AO			0	100	%	42	1	1	8	1				
ZC822ABN004A	BASIN EA4-PASS2 AIR CONTROL	AO			0	100	%	42	1	1	8	2				
ZC822ABN004B	BASIN EA4-PASS3 AIR CONTROL	AO			0	100	%	42	1	1	8	3				
		AO						42	1	1	8	4				
AIT820ABN001A	BASIN EA1-PASS1 OUTLET D.O.	AI			0	10	PPM	42	1	2	1	1				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
AIT820ABN001B	BASIN EA1-PASS4 OUTLET D.O.	AI			0	10	PPM	42	1	2	1	2				
AIT822ABN001A	BASIN EA1-PASS2 OUTLET D.O.	AI			0	10	PPM	42	1	2	1	3				
AIT822ABN001B	BASIN EA1-PASS3 OUTLET D.O.	AI			0	10	PPM	42	1	2	1	4				
FIT822ABN004	BASIN EA4-INFLUENT FLOW	AI			0	TBD	TBD	42	1	2	1	5				
ZIT820ABN001A	BASIN EA1-PASS1 VALVE STATUS	AI			0	100	%	42	1	2	1	6				
ZIT820ABN001B	BASIN EA1-PASS4 VALVE STATUS	AI			0	100	%	42	1	2	1	7				
ZIT821ABN001	BASIN EA1-CHANNEL VALVE STATUS	AI			0	100	%	42	1	2	1	8				
ZIT822ABN001	BASIN EA1-INFLUENT VALVE STAT.	AI			0	100	%	42	1	2	2	1				
ZIT822ABN001A	BASIN EA1-PASS2 VALVE STATUS	AI			0	100	%	42	1	2	2	2				
ZIT822ABN001B	BASIN EA1-PASS3 VALVE STATUS	AI			0	100	%	42	1	2	2	3				
ZIT822GSL101	BASIN EA1-PASS2 IN-GATE STATUS	AI			0	100	%	42	1	2	2	4				
ZIT822GSL102	BASIN EA1-PASS3 IN-GATE STATUS	AI			0	100	%	42	1	2	2	5				
ZIT822GSL103	BASIN EA1-PASS3 OUT-GATE STAT.	AI			0	100	%	42	1	2	2	6				
JIT824MCC036A	E. AERATION MCC36A POWER USAGE	AI			0	700	KW	42	1	2	2	7				
JIT824MCC036B	E. AERATION MCC36B POWER USAGE	AI			0	700	KW	42	1	2	2	8				
AIT820ABN002A	BASIN EA2-PASS1 OUTLET D.O.	AI			0	10	PPM	42	1	2	3	1				
AIT820ABN002B	BASIN EA2-PASS4 OUTLET D.O.	AI			0	10	PPM	42	1	2	3	2				
AIT822ABN002A	BASIN EA2-PASS2 OUTLET D.O.	AI			0	10	PPM	42	1	2	3	3				
AIT822ABN002B	BASIN EA2-PASS3 OUTLET D.O.	AI			0	10	PPM	42	1	2	3	4				
FIT822ABN003	BASIN EA3-INFLUENT FLOW	AI			0	TBD	TBD	42	1	2	3	5				
ZIT820ABN002A	BASIN EA2-PASS1 VALVE STATUS	AI			0	100	%	42	1	2	3	6				
ZIT820ABN002B	BASIN EA2-PASS4 VALVE STATUS	AI			0	100	%	42	1	2	3	7				
ZIT822ABN002A	BASIN EA2-PASS2 VALVE STATUS	AI			0	100	%	42	1	2	3	8				
ZIT822ABN002B	BASIN EA2-PASS3 VALVE STATUS	AI			0	100	%	42	1	2	4	1				
ZIT822ABN002	BASIN EA2-INFLUENT VALVE STAT.	AI			0	100	%	42	1	2	4	2				
ZIT821ABN002	BASIN EA2-CHANNEL VALVE STATUS	AI			0	100	%	42	1	2	4	3				
ZIT822GSL201	BASIN EA2-PASS2 IN-GATE STATUS	AI			0	100	%	42	1	2	4	4				
ZIT822GSL202	BASIN EA2-PASS3 IN-GATE STATUS	AI			0	100	%	42	1	2	4	5				
ZIT822GSL203	BASIN EA2-PASS3 OUT-GATE STAT.	AI			0	100	%	42	1	2	4	6				
		AI						42	1	2	4	7				
		AI						42	1	2	4	8				
ZIT820ABN003B	BASIN EA3-PASS4 VALVE STATUS	AI			0	100	%	42	1	2	5	1				
AIT820ABN003A	BASIN EA3-PASS1 OUTLET D.O.	AI			0	10	PPM	42	1	2	5	2				
AIT820ABN003B	BASIN EA3-PASS4 OUTLET D.O.	AI			0	10	PPM	42	1	2	5	3				
AIT822ABN003A	BASIN EA3-PASS2 OUTLET D.O.	AI			0	10	PPM	42	1	2	5	4				
AIT822ABN003B	BASIN EA3-PASS3 OUTLET D.O.	AI			0	10	PPM	42	1	2	5	5				
ZIT820ABN003A	BASIN EA3-PASS1 VALVE STATUS	AI			0	100	%	42	1	2	5	6				
ZIT821ABN003	BASIN EA3-CHANNEL VALVE STATUS	AI			0	100	%	42	1	2	5	7				
ZIT822GSL301	BASIN EA3-PASS2 IN-GATE STATUS	AI			0	100	%	42	1	2	5	8				
ZIT822GSL302	BASIN EA3-PASS3 IN-GATE STATUS	AI			0	100	%	42	1	2	6	1				
ZIT822GSL303	BASIN EA3-PASS3 OUT-GATE STAT.	AI			0	100	%	42	1	2	6	2				
ZIT822ABN003	BASIN EA3-INFLUENT VALVE STAT.	AI			0	100	%	42	1	2	6	3				
FIT822ABN002	BASIN EA2-INFLUENT FLOW	AI			0	TBD	TBD	42	1	2	6	4				
ZIT822ABN003A	BASIN EA3-PASS2 VALVE STATUS	AI			0	100	%	42	1	2	6	5				
ZIT822ABN003B	BASIN EA3-PASS3 VALVE STATUS	AI			0	100	%	42	1	2	6	6				
AIT835ABN001A	E-MIXED LIQ. SUSPENDID SOLIDS	AI			0	4000	PPM	42	1	2	6	7				
		AI						42	1	2	6	8				
AIT820ABN004A	BASIN EA4-PASS1 OUTLET D.O.	AI			0	10	PPM	42	1	2	7	1				
AIT835ABN002A	EAST MIXED LIQ. D.O.	AI			0	10	PPM	42	1	2	7	2				
AIT822ABN004A	BASIN EA4-PASS2 OUTLET D.O.	AI			0	10	PPM	42	1	2	7	3				
AIT822ABN004B	BASIN EA4-PASS3 OUTLET D.O.	AI			0	10	PPM	42	1	2	7	4				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
FIT822ABN001	BASIN EA1-INFLUENT FLOW	AI			0	TBD	TBD	42	1	2	7	5				
ZIT820ABN004A	BASIN EA4-PASS1 VALVE STATUS	AI			0	100	%	42	1	2	7	6				
ZIT820ABN004B	BASIN EA4-PASS4 VALVE STATUS	AI			0	100	%	42	1	2	7	7				
ZIT821ABN004	BASIN EA4-CHANNEL VALVE STATUS	AI			0	100	%	42	1	2	7	8				
ZIT822ABN004	BASIN EA4-INFLUENT VALVE STAT.	AI			0	100	%	42	1	2	8	1				
ZIT822ABN004A	BASIN EA4-PASS2 VALVE STATUS	AI			0	100	%	42	1	2	8	2				
ZIT822ABN004B	BASIN EA4-PASS3 VALVE STATUS	AI			0	100	%	42	1	2	8	3				
ZIT822GSL401	BASIN EA4-PASS2 IN-GATE STATUS	AI			0	100	%	42	1	2	8	4				
ZIT822GSL402	BASIN EA4-PASS3 IN-GATE STATUS	AI			0	100	%	42	1	2	8	5				
ZIT822GSL403	BASIN EA4-PASS3 OUT-GATE STAT.	AI			0	100	%	42	1	2	8	6				
		AI						42	1	2	8	7				
		AI						42	1	2	8	8				
HV820ABN001AE	BASIN EA1-PASS1 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	1	1				
HV820ABN001BE	BASIN EA1-PASS4 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	1	2				
HV820GSL101E	BASIN EA1-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	1	3				
HV820GSL102E	BASIN EA1-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	1	4				
HV822ABN001AE	BASIN EA1-PASS2 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	1	5				
HV822ABN001BE	BASIN EA1-PASS3 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	1	6				
HV822ABN001E	BASIN EA1-INFLUENT VALVE	DI	REMOTE	LOCAL				42	1	3	1	7				
SPARE	BASIN EA1-PASS2 INLET GATE	DI	REMOTE	LOCAL				42	1	3	1	8				
SPARE	BASIN EA1-PASS3 INLET GATE	DI	REMOTE	LOCAL				42	1	3	1	9				
SPARE	BASIN EA1-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	1	10				
HV821ABN001E	BASIN EA1-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				42	1	3	1	11				
ZSC820GSL101	BASIN EA1-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	1	12				
ZSC820GSL102	BASIN EA1-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	1	13				
ZSO820GSL101	BASIN EA1-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	1	14				
ZSO820GSL102	BASIN EA1-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	1	15				
		DI						42	1	3	1	16				
HV820ABN002AE	BASIN EA2-PASS1 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	2	1				
HV820ABN002BE	BASIN EA2-PASS4 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	2	2				
HV820GSL201E	BASIN EA2-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	2	3				
HV820GSL202E	BASIN EA2-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	2	4				
HV821ABN002E	BASIN EA2-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				42	1	3	2	5				
HV822ABN002AE	BASIN EA2-PASS2 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	2	6				
HV822ABN002BE	BASIN EA2-PASS3 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	2	7				
HV822ABN002E	BASIN EA2-INFLUENT VALVE	DI	REMOTE	LOCAL				42	1	3	2	8				
SPARE	BASIN EA2-PASS2 INLET GATE	DI	REMOTE	LOCAL				42	1	3	2	9				
SPARE	BASIN EA2-PASS3 INLET GATE	DI	REMOTE	LOCAL				42	1	3	2	10				
SPARE	BASIN EA2-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	2	11				
ZSC820GSL201	BASIN EA2-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	2	12				
ZSC820GSL202	BASIN EA2-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	2	13				
ZSO820GSL201	BASIN EA2-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	2	14				
ZSO820GSL202	BASIN EA2-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	2	15				
		DI						42	1	3	2	16				
HV820ABN003AE	BASIN EA3-PASS1 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	3	1				
HV820ABN003BE	BASIN EA3-PASS4 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	3	2				
HV820GSL301E	BASIN EA3-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	3	3				
HV820GSL302E	BASIN EA3-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	3	4				
HV822ABN003AE	BASIN EA3-PASS2 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	3	5				
HV822ABN003BE	BASIN EA3-PASS3 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	3	6				
HV822ABN003E	BASIN EA3-INFLUENT VALVE	DI	REMOTE	LOCAL				42	1	3	3	7				
SPARE	BASIN EA3-PASS2 INLET GATE	DI	REMOTE	LOCAL				42	1	3	3	8				
SPARE	BASIN EA3-PASS3 INLET GATE	DI	REMOTE	LOCAL				42	1	3	3	9				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
SPARE	BASIN EA3-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	3	10				
ZSC820GSL301	BASIN EA3-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	3	11				
ZSC820GSL302	BASIN EA3-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	3	12				
ZSO820GSL301	BASIN EA3-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	3	13				
ZSO820GSL302	BASIN EA3-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	3	14				
HV821ABN003E	BASIN EA3-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				42	1	3	3	15				
		DI						42	1	3	3	16				
HV820GSL401E	BASIN EA4-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	4	1				
HV820ABN004AE	BASIN EA4-PASS1 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	4	2				
HV820ABN004BE	BASIN EA4-PASS4 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	4	3				
HV820GSL402E	BASIN EA4-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	4	4				
HV821ABN004E	BASIN EA4-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				42	1	3	4	5				
HV822ABN004AE	BASIN EA4-PASS2 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	4	6				
HV822ABN004BE	BASIN EA4-PASS3 AIR VALVE	DI	REMOTE	LOCAL				42	1	3	4	7				
HV822ABN004E	BASIN EA4-INFLUENT VALVE	DI	REMOTE	LOCAL				42	1	3	4	8				
SPARE	BASIN EA4-PASS2 INLET GATE	DI	REMOTE	LOCAL				42	1	3	4	9				
SPARE	BASIN EA4-PASS3 INLET GATE	DI	REMOTE	LOCAL				42	1	3	4	10				
SPARE	BASIN EA4-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				42	1	3	4	11				
ZSC820GSL401	BASIN EA4-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	4	12				
ZSC820GSL402	BASIN EA4-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				42	1	3	4	13				
ZSO820GSL401	BASIN EA4-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	4	14				
ZSO820GSL402	BASIN EA4-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				42	1	3	4	15				
		DI						42	1	3	4	16				
FSL821WSP001	EA1 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	5	1				
HS821WSP001E	EA1 WAS PUMP1 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	5	2				
HS821WSP001F	EA1 WAS PUMP1 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	5	3				
MS821WSP001A	EA1 WAS PUMP1 RUN STATUS	DI	RUN	OFF				42	1	3	5	4				
UA821WSP001	EA1 WAS PUMP1 AFD STATUS	DI	NORMAL	ALARM				42	1	3	5	5				
FSL821WSP002	EA1/2 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	5	6				
HS821WSP002E	EA1/2 WAS PUMP2 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	5	7				
HS821WSP002F	EA1/2 WAS PUMP2 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	5	8				
MS821WSP002A	EA1/2 WAS PUMP2 RUN STATUS	DI	RUN	OFF				42	1	3	5	9				
UA821WSP002	EA1/2 WAS PUMP2 AFD STATUS	DI	NORMAL	ALARM				42	1	3	5	10				
FSL821WSP003	EA2 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	5	11				
HS821WSP003E	EA2 WAS PUMP3 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	5	12				
HS821WSP003F	EA2 WAS PUMP3 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	5	13				
MS821WSP003A	EA2 WAS PUMP3 RUN STATUS	DI	RUN	OFF				42	1	3	5	14				
UA821WSP003	EA2 WAS PUMP3 AFD STATUS	DI	NORMAL	ALARM				42	1	3	5	15				
LSH822ABN001A	EA1 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				42	1	3	5	16				
LSH822ABN002A	EA2 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				42	1	3	6	1				
FSL821WSP004	EA3 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	6	2				
HS821WSP004E	EA3 WAS PUMP4 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	6	3				
HS821WSP004F	EA3 WAS PUMP4 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	6	4				
MS821WSP004A	EA3 WAS PUMP4 RUN STATUS	DI	RUN	OFF				42	1	3	6	5				
UA821WSP004	EA3 WAS PUMP4 AFD STATUS	DI	NORMAL	ALARM				42	1	3	6	6				
FSL821WSP005	EA3/4 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	6	7				
HS821WSP005E	EA3/4 WAS PUMP5 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	6	8				
HS821WSP005F	EA3/4 WAS PUMP5 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	6	9				
MS821WSP005A	EA3/4 WAS PUMP5 RUN STATUS	DI	RUN	OFF				42	1	3	6	10				
UA821WSP005	EA3/4 WAS PUMP5 AFD STATUS	DI	NORMAL	ALARM				42	1	3	6	11				
MS824LTG001AA	AERATION - NORTH EAST LIGHTS	DI	ON	OFF				42	1	3	6	12				
LSH822ABN003A	EA3 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				42	1	3	6	13				
								42	1	3	6	14				
								42	1	3	6	15				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
								42	1	3	6	16				
FSL821WSP006	EA4 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				42	1	3	7	1				
HS821WSP006E	EA4 WAS PUMP6 L-O-R STATUS	DI	REMOTE	LOCAL				42	1	3	7	2				
HS821WSP006F	EA4 WAS PUMP6 ESTOP STATUS	DI	E-STOP	NORMAL				42	1	3	7	3				
LSH822ABN004A	EA4 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				42	1	3	7	4				
MS821WSP006A	EA4 WAS PUMP6 RUN STATUS	DI	ON	OFF				42	1	3	7	5				
MS824LTG001BA	AERATION - SOUTH EAST LIGHTS	DI	ON	OFF				42	1	3	7	6				
UA821WSP006	EA4 WAS PUMP6 AFD STATUS	DI	NORMAL	ALARM				42	1	3	7	7				
ZS824MCC036A	EA-MCC036A BUS A MAIN BREAKER	DI	CLOSED	OPEN				42	1	3	7	8				
ZS824MCC036C	EA-MCC036A/B BUS A TO B TIE BK	DI	CLOSED	OPEN				42	1	3	7	9				
ZS824MCC036B	EA-MCC036B BUS B MAIN BREAKER	DI	CLOSED	OPEN				42	1	3	7	10				
EN824UPS001	DPU42 UPS STATUS	DI	BATTERY	OFF				42	1	3	7	11				
EAM824UPS001	DPU42 UPS ALARM STATUS	DI	NORMAL	ALARM				42	1	3	7	12				
EA824PNL100	DPU42 PRI. POWER TVSS STATUS	DI	ALARM	NORMAL				42	1	3	7	13				
EA824PNL101	DPU42 SEC. POWER TVSS STATUS	DI	ALARM	NORMAL				42	1	3	7	14				
		DI						42	1	3	7	15				
MS710PPS001A	EAST SAMPLE PUMP RUN STATUS	DI	RUN	OFF				42	1	3	7	16				
HV750PLV001E	EFW TO BYPASS CHANNEL VALVE ST	DI	REMOTE	LOCAL				42	1	3	8	1				
		DI						42	1	3	8	2				
		DI						42	1	3	8	3				
		DI						42	1	3	8	4				
		DI						42	1	3	8	5				
		DI						42	1	3	8	6				
		DI						42	1	3	8	7				
		DI						42	1	3	8	8				
		DI						42	1	3	8	9				
		DI						42	1	3	8	10				
		DI						42	1	3	8	11				
		DI						42	1	3	8	12				
		DI						42	1	3	8	13				
		DI						42	1	3	8	14				
		DI						42	1	3	8	15				
		DI						42	1	3	8	16				
MS822SPP001A	EA1 SUMP PUMP RUN STATUS	DI	RUN	OFF				42	1	4	1	1				
MS822SPP002A	EA2 SUMP PUMP RUN STATUS	DI	RUN	OFF				42	1	4	1	2				
MS822SPP003A	EA3 SUMP PUMP RUN STATUS	DI	RUN	OFF				42	1	4	1	3				
MS822SPP004A	EA4 SUMP PUMP RUN STATUS	DI	RUN	OFF				42	1	4	1	1				
		DI						42	1	4	1	5				
		DI						42	1	4	1	6				
		DI						42	1	4	1	1				
		DI						42	1	4	1	8				
		DI						42	1	4	1	9				
		DI						42	1	4	1	1				
		DI						42	1	4	1	11				
		DI						42	1	4	1	12				
		DI						42	1	4	1	13				
		DI						42	1	4	1	14				
		DI						42	1	4	1	15				
		DI						42	1	4	1	16				
	EMPTY SLOT								1	4	2					
	EMPTY SLOT								1	4	3					

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
	EMPTY SLOT									1	4	4				
HV820GSL401A	BASIN EA4-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	5	1				
HV820GSL401B	BASIN EA4-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	5	2				
HV820GSL402A	BASIN EA4-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	5	3				
HV820GSL402B	BASIN EA4-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	5	4				
SPARE	BASIN EA4-PASS2 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	5	5				
SPARE	BASIN EA4-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	5	6				
SPARE	BASIN EA4-PASS3 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	5	7				
SPARE	BASIN EA4-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	5	8				
SPARE	BASIN EA4-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	5	9				
SPARE	BASIN EA4-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	5	10				
		DO						42	1	4	5	11				
		DO						42	1	4	5	12				
		DO						42	1	4	5	13				
		DO						42	1	4	5	14				
		DO						42	1	4	5	15				
		DO						42	1	4	5	16				
SPARE	BASIN EA3-PASS2 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	6	1				
SPARE	BASIN EA3-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	6	2				
HV820GSL301A	BASIN EA3-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	6	3				
HV820GSL301B	BASIN EA3-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	6	4				
HV820GSL302A	BASIN EA3-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	6	5				
HV820GSL302B	BASIN EA3-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	6	6				
SPARE	BASIN EA3-PASS3 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	6	7				
SPARE	BASIN EA3-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	6	8				
SPARE	BASIN EA3-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	6	9				
SPARE	BASIN EA3-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	6	10				
HS821WSP005A	EA3/4 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	6	11				
HS821WSP006A	EA4 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	6	12				
HS824LTG001BA	SE.AERATION STREET LIGHT CTRL	DO	ON	OFF				42	1	4	6	13				
		DO						42	1	4	6	14				
		DO						42	1	4	6	15				
		DO						42	1	4	6	16				
HV820GSL201A	BASIN EA2-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	7	1				
HV820GSL201B	BASIN EA2-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	7	2				
HV820GSL202A	BASIN EA2-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	7	3				
HV820GSL202B	BASIN EA2-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	7	4				
SPARE	BASIN EA2-PASS2 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	7	5				
SPARE	BASIN EA2-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	7	6				
SPARE	BASIN EA2-PASS3 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	7	7				
SPARE	BASIN EA2-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	7	8				
SPARE	BASIN EA2-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	7	9				
SPARE	BASIN EA2-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	7	10				
HS821WSP003A	EA2 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	7	11				
HS821WSP004A	EA3 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	7	12				
HS824LTG001AA	NE.AERATION STREET LIGHT CTRL	DO	ON	OFF				42	1	4	7	13				
HS821WSP002A	EA1/2 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	7	14				
		DO						42	1	4	7	15				
		DO						42	1	4	7	16				
HV820GSL101A	BASIN EA1-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	8	1				
HV820GSL101B	BASIN EA1-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	8	2				
HV820GSL102A	BASIN EA1-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	8	3				
HV820GSL102B	BASIN EA1-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	8	4				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
SPARE	BASIN EA1-PASS2 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	8	5				
SPARE	BASIN EA1-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	8	6				
SPARE	BASIN EA1-PASS3 IN-GATE CTRL	DO	OPEN	STOP				42	1	4	8	7				
SPARE	BASIN EA1-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				42	1	4	8	8				
SPARE	BASIN EA1-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				42	1	4	8	9				
SPARE	BASIN EA1-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				42	1	4	8	10				
SV825PHF005B	AERATION HYPO. ISO. VALVE CTRL	DO	OPEN	CLOSE				42	1	4	8	11				
SV825PHF005C	AERATION HYPO. FLUSH VALVE CTL	DO	OPEN	CLOSE				42	1	4	8	12				
HS821WSP001A	EA1 WAS PUMP S/S CONTROL	DO	START	STOP				42	1	4	8	13				
		DO						42	1	4	8	14				
		DO						42	1	4	8	15				
		DO						42	1	4	8	16				
ZC820ABN001A	BASIN EA1-PASS1 AIR CONTROL	AO			0	100	%	42	1	6	1	1				
ZC820ABN001B	BASIN EA1-PASS4 AIR CONTROL	AO			0	100	%	42	1	6	1	2				
ZC750PLV001	EFW TO BYPASS CHANNEL CONTROL	AO			0	100	%	42	1	6	1	3				
ZC825PHF005	AERATION BASIN HYPO FLOW CTRL	AO			0	100	%	42	1	6	1	4				
ZC822ABN001	BASIN EA1-INFLUENT CONTROL	AO			0	100	%	42	1	6	2	1				
ZC822ABN001A	BASIN EA1-PASS2 AIR CONTROL	AO			0	100	%	42	1	6	2	2				
ZC822ABN001B	BASIN EA1-PASS3 AIR CONTROL	AO			0	100	%	42	1	6	2	3				
SC821WSP001	EA-1 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	6	2	4				
ZC820ABN002A	BASIN EA2-PASS1 AIR CONTROL	AO			0	100	%	42	1	6	3	1				
ZC820ABN002B	BASIN EA2-PASS4 AIR CONTROL	AO			0	100	%	42	1	6	3	2				
ZC821ABN002	BASIN EA2-CHANNEL AIR CONTROL	AO			0	100	%	42	1	6	3	3				
SC821WSP002	EA-1/2 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	6	3	4				
ZC822ABN002	BASIN EA2-INFLUENT CONTROL	AO			0	100	%	42	1	6	4	1				
ZC822ABN002A	BASIN EA2-PASS2 AIR CONTROL	AO			0	100	%	42	1	6	4	2				
ZC822ABN002B	BASIN EA2-PASS3 AIR CONTROL	AO			0	100	%	42	1	6	4	3				
SC821WSP003	EA-2 WAS PUMP SPEED CONTROL	AO			0	100	%	42	1	6	4	4				
FIT821WSP001	BASIN EA-1 WAS FLOW	AI			0	900	GPM	42	1	6	5	1				
FIT821WSP001A	EAST TOTAL WAS FLOW	AI			0	2000	GPM	42	1	6	5	2				
FIT821WSP003	BASIN EA-3 WAS FLOW	AI			0	900	GPM	42	1	6	5	3				
FIT821WSP004	BASIN EA-4 WAS FLOW	AI			0	900	GPM	42	1	6	5	4				
FIT825ABN001	PRIMARY INFLU./EFFLU. AIR FLOW	AI			0	18000	SCFM	42	1	6	5	5				
FIT835ABN001A	EAST MIXED LIQUOR AIR FLOW	AI			0	14000	SCFM	42	1	6	5	6				
FIT835ABN001B	WEST MIXED LIQUOR AIR FLOW	AI			0	7800	SCFM	42	1	6	5	7				
		AI						42	1	6	5	8				
LIT710PEF001	PRIMARY EFFLUENT CHANNEL LEVEL	AI			0	TBD	TBD	42	1	6	6	1				
ZIT750PLV001	EFW TO BYPASS CHANNEL VALVE ST	AI			0	100	%	42	1	6	6	2				
		AI						42	1	6	6	3				
		AI						42	1	6	6	4				
		AI						42	1	6	6	5				
		AI						42	1	6	6	6				
		AI						42	1	6	6	7				
		AI						42	1	6	6	8				
		AO						42	1	6	7	1				
		AO						42	1	6	7	2				
		AO						42	1	6	7	3				
		AO						42	1	6	7	4				
		AI						42	1	6	8	1				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ST821WSP001	EA-1 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	2				
ST821WSP002	EA-1/2 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	3				
ST821WSP003	EA-2 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	4				
ST821WSP004	EA-3 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	5				
ST821WSP005	EA-3/4 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	6				
ST821WSP006	EA-4 WAS PUMP SPEED	AI			0	100	%	42	1	6	8	7				
		AI						42	1	6	8	8				



ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
ALCOSAN CSO BYPASS AND DISINFECTION PROJECT
CONTRACT NO. 1760
DCS I/O LIST
DPU45 - FACILITY 834 - WEST AERATION BASIN ELECTRICAL ROOM

REVISION INDEX	
REV NO.	DESCRIPTION
1	60% DESIGN SUBMITTAL
2	90% DESIGN SUBMITTAL
3	100% DESIGN SUBMITTAL
4	BID READY SUBMITTAL
5	ADDENDUM 3

GENERAL NOTES:

1. This document is based on ALCOSAN CS Guidelines Rev.5 document and Microsoft Excel template provided by ALCOSAN (FDC_IOList_template_rev.1.xlsx)
2. Refer to drawing number 00-I-02 - DCS NETWORK COMMUNICATION for System Architecture details.
3. The new signals included on this DCS I/O List refer to the following P&ID numbers:
750-I-01 - CSO BYPASS CHANNEL AND AERATION
842-I-01 - SODIUM BISULFITE
4. This document was developed based on the existing DCS I/O List - DPU45 provided from ALCOSAN. Signals related to this project were included according to the following color legend:

Tag	Description	Legend
HSXXX00XX	Red text / No fill	This is a NEW signal assigned to an empty IO channel.
HSXXX00XX	Red text / Yellow fill	This is a NEW signal that reuses an existing channel (834) where the signal was eliminated.
HSXXX00XX	Red text / Orange fill	This is a NEW signal that reuses an existing channel (842) where the signal was eliminated.
HSXXX00XX	Black text/ No fill	EXISTING signals. No changes were done here.

REV NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APPV
1	10/12/2021	60% DESIGN SUBMITTAL	GCF	DPD	RLC
2	2/4/2022	90% DESIGN SUBMITTAL	GCF	DPD	RLC
3	5/6/2022	BID READY SUBMITTAL	GCF	DPD	RLC
4	8/8/2022	ADDENDUM 3	GCF	DPD	RLC

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ZC830ABN001B	BASIN WA1-PASS4 AIR CONTROL	AO			0	100	%	45	1	1	1	1				
ZC830ABN001A	BASIN WA1-PASS1 AIR CONTROL	AO			0	100	%	45	1	1	1	2				
ZC831ABN001	BASIN WA1-CHANNEL AIR CONTROL	AO			0	100	%	45	1	1	1	3				
SC831WSP001	WA-1 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	1	4				
ZC822ABN001	BASIN WA1-INFLUENT CONTROL	AO			0	100	%	45	1	1	2	1				
ZC832ABN001A	BASIN WA1-PASS2 AIR CONTROL	AO			0	100	%	45	1	1	2	2				
ZC832ABN001B	BASIN WA1-PASS3 AIR CONTROL	AO			0	100	%	45	1	1	2	3				
SC831WSP002	WA-1/2 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	2	4				
ZC830ABN002A	BASIN WA2-PASS1 AIR CONTROL	AO			0	100	%	45	1	1	3	1				
ZC830ABN002B	BASIN WA2-PASS4 AIR CONTROL	AO			0	100	%	45	1	1	3	2				
ZC831ABN002	BASIN WA2-CHANNEL AIR CONTROL	AO			0	100	%	45	1	1	3	3				
SC831WSP003	WA-2 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	3	4				
ZC822ABN002	BASIN WA2-INFLUENT CONTROL	AO			0	100	%	45	1	1	4	1				
ZC832ABN002A	BASIN WA2-PASS2 AIR CONTROL	AO			0	100	%	45	1	1	4	2				
ZC832ABN002B	BASIN WA2-PASS3 AIR CONTROL	AO			0	100	%	45	1	1	4	3				
SC831WSP004	WA-3 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	4	4				
ZC830ABN003A	BASIN WA3-PASS1 AIR CONTROL	AO			0	100	%	45	1	1	5	1				
ZC830ABN003B	BASIN WA3-PASS4 AIR CONTROL	AO			0	100	%	45	1	1	5	2				
ZC831ABN003	BASIN WA3-CHANNEL AIR CONTROL	AO			0	100	%	45	1	1	5	3				
SC831WSP005	WA-3/4 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	5	4				
ZC822ABN003	BASIN WA3-INFLUENT CONTROL	AO			0	100	%	45	1	1	6	1				
ZC832ABN003A	BASIN WA3-PASS2 AIR CONTROL	AO			0	100	%	45	1	1	6	2				
ZC832ABN003B	BASIN WA3-PASS3 AIR CONTROL	AO			0	100	%	45	1	1	6	3				
SC831WSP006	WA-4 WAS PUMP SPEED CONTROL	AO			0	100	%	45	1	1	6	4				
ZC830ABN004A	BASIN WA4-PASS1 AIR CONTROL	AO			0	100	%	45	1	1	7	1				
ZC830ABN004B	BASIN WA4-PASS4 AIR CONTROL	AO			0	100	%	45	1	1	7	2				
ZC831ABN004	BASIN WA4-CHANNEL AIR CONTROL	AO			0	100	%	45	1	1	7	3				
SC842PBF001	BISULF FEED PMP 1 SPEED SIGNAL	AO			0	100	%	45	1	1	7	4				
ZC822ABN004	BASIN WA4-INFLUENT CONTROL	AO			0	100	%	45	1	1	8	1				
ZC832ABN004A	BASIN WA4-PASS2 AIR CONTROL	AO			0	100	%	45	1	1	8	2				
ZC832ABN004B	BASIN WA4-PASS3 AIR CONTROL	AO			0	100	%	45	1	1	8	3				
SC842PBF002	BISULF FEED PMP 2 SPEED SIGNAL	AO			0	100	%	45	1	1	8	4				
AIT830ABN001A	BASIN WA1-PASS1 OUTLET D.O.	AI			0	10	PPM	45	1	2	1	1				
AIT830ABN001B	BASIN WA1-PASS4 OUTLET D.O.	AI			0	10	PPM	45	1	2	1	2				
AIT832ABN001A	BASIN WA1-PASS2 OUTLET D.O.	AI			0	10	PPM	45	1	2	1	3				
AIT832ABN001B	BASIN WA1-PASS3 OUTLET D.O.	AI			0	10	PPM	45	1	2	1	4				
FIT822ABN004	BASIN WA4-INFLUENT FLOW	AI			0	TBD	TBD	45	1	2	1	5				
ZIT830ABN001A	BASIN WA1-PASS1 VALVE STATUS	AI			0	100	%	45	1	2	1	6				
ZIT830ABN001B	BASIN WA1-PASS4 VALVE STATUS	AI			0	100	%	45	1	2	1	7				
ST831WSP001	WA-1 WAS PUMP SPEED	AI			0	100	%	45	1	2	1	8				
ZIT831ABN001	BASIN WA1-CHANNEL VALVE STATUS	AI			0	100	%	45	1	2	2	1				
ZIT822ABN001	BASIN WA1-INFLUENT VALVE STAT.	AI			0	100	%	45	1	2	2	2				
ZIT832ABN001A	BASIN WA1-PASS2 VALVE STATUS	AI			0	100	%	45	1	2	2	3				
ZIT832ABN001B	BASIN WA1-PASS3 VALVE STATUS	AI			0	100	%	45	1	2	2	4				
ZIT832GSL101	BASIN WA1-PASS2 IN-GATE STATUS	AI			0	100	%	45	1	2	2	5				
ZIT832GSL102	BASIN WA1-PASS3 IN-GATE STATUS	AI			0	100	%	45	1	2	2	6				
ZIT832GSL103	BASIN WA1-PASS3 OUT-GATE STAT.	AI			0	100	%	45	1	2	2	7				
AIT830ABN002A	BASIN WA2-PASS1 OUTLET D.O.	AI			0	10	PPM	45	1	2	2	8				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ST831WSP002	WA-1/2 WAS PUMP SPEED	AI			0	100	%	45	1	2	3	1				
AIT830ABN002B	BASIN WA2-PASS4 OUTLET D.O.	AI			0	10	PPM	45	1	2	3	2				
AIT832ABN002A	BASIN WA2-PASS2 OUTLET D.O.	AI			0	10	PPM	45	1	2	3	3				
AIT832ABN002B	BASIN WA2-PASS3 OUTLET D.O.	AI			0	10	PPM	45	1	2	3	4				
FIT822ABN003	BASIN WA3-INFLUENT FLOW	AI			0	TBD	TBD	45	1	2	3	5				
ZIT830ABN002A	BASIN WA2-PASS1 VALVE STATUS	AI			0	100	%	45	1	2	3	6				
ZIT830ABN002B	BASIN WA2-PASS4 VALVE STATUS	AI			0	100	%	45	1	2	3	7				
ST831WSP003	WA-2 WAS PUMP SPEED	AI			0	100	%	45	1	2	3	8				
ZIT831ABN002	BASIN WA2-CHANNEL VALVE STATUS	AI			0	100	%	45	1	2	4	1				
ZIT822ABN002	BASIN WA2-INFLUENT VALVE STAT.	AI			0	100	%	45	1	2	4	2				
ZIT832ABN002A	BASIN WA2-PASS2 VALVE STATUS	AI			0	100	%	45	1	2	4	3				
ZIT832ABN002B	BASIN WA2-PASS3 VALVE STATUS	AI			0	100	%	45	1	2	4	4				
ZIT832GSL201	BASIN WA2-PASS2 IN-GATE STATUS	AI			0	100	%	45	1	2	4	5				
ZIT832GSL202	BASIN WA2-PASS3 IN-GATE STATUS	AI			0	100	%	45	1	2	4	6				
ZIT832GSL203	BASIN WA2-PASS3 OUT-GATE STAT.	AI			0	100	%	45	1	2	4	7				
ST831WSP004	WA-3 WAS PUMP SPEED	AI			0	100	%	45	1	2	4	8				
AIT830ABN003A	BASIN WA3-PASS1 OUTLET D.O.	AI			0	10	PPM	45	1	2	5	1				
AIT830ABN003B	BASIN WA3-PASS4 OUTLET D.O.	AI			0	10	PPM	45	1	2	5	2				
AIT832ABN003A	BASIN WA3-PASS2 OUTLET D.O.	AI			0	10	PPM	45	1	2	5	3				
AIT832ABN003B	BASIN WA3-PASS3 OUTLET D.O.	AI			0	10	PPM	45	1	2	5	4				
FIT822ABN002	BASIN WA2-INFLUENT FLOW	AI			0	TBD	TBD	45	1	2	5	5				
ZIT830ABN003A	BASIN WA3-PASS1 VALVE STATUS	AI			0	100	%	45	1	2	5	6				
ZIT830ABN003B	BASIN WA3-PASS4 VALVE STATUS	AI			0	100	%	45	1	2	5	7				
ST831WSP005	WA-3/4 WAS PUMP SPEED	AI			0	100	%	45	1	2	5	8				
ZIT822ABN003	BASIN WA3-INFLUENT VALVE STAT.	AI			0	100	%	45	1	2	6	1				
ZIT832ABN003A	BASIN WA3-PASS2 VALVE STATUS	AI			0	100	%	45	1	2	6	2				
ZIT832ABN003B	BASIN WA3-PASS3 VALVE STATUS	AI			0	100	%	45	1	2	6	3				
ZIT832GSL301	BASIN WA3-PASS2 IN-GATE STATUS	AI			0	100	%	45	1	2	6	4				
ZIT832GSL302	BASIN WA3-PASS3 IN-GATE STATUS	AI			0	100	%	45	1	2	6	5				
ZIT832GSL303	BASIN WA3-PASS3 OUT-GATE STAT.	AI			0	100	%	45	1	2	6	6				
ZIT831ABN003	BASIN WA3-CHANNEL VALVE STATUS	AI			0	100	%	45	1	2	6	7				
ST831WSP006	WA-4 WAS PUMP SPEED	AI			0	100	%	45	1	2	6	8				
AIT830ABN004A	BASIN WA4-PASS1 OUTLET D.O.	AI			0	10	PPM	45	1	2	7	1				
AIT835ABN002B	WEST MIXED LIQ. D.O.	AI			0	10	PPM	45	1	2	7	2				
AIT832ABN004A	PILOT PLANT CL2 ANALYZER OUT	AI			0	10	PPM	45	1	2	7	3				
AIT832ABN004B	PILOT PLANT CL2 ANALYZER IN	AI			0	10	PPM	45	1	2	7	4				
FIT822ABN001	BASIN WA1-INFLUENT FLOW	AI			0	TBD	TBD	45	1	2	7	5				
ZIT830ABN004A	BASIN WA4-PASS1 VALVE STATUS	AI			0	100	%	45	1	2	7	6				
ZIT830ABN004B	BASIN WA4-PASS4 VALVE STATUS	AI			0	100	%	45	1	2	7	7				
JIT834MCC037B	W. AERATION MCC37B POWER USAGE	AI			0	700	KW	45	1	2	7	8				
ZIT831ABN004	BASIN WA4-CHANNEL VALVE STATUS	AI			0	100	%	45	1	2	8	1				
ZIT822ABN004	BASIN WA4-INFLUENT VALVE STAT.	AI			0	100	%	45	1	2	8	2				
ZIT832ABN004A	BASIN WA4-PASS2 VALVE STATUS	AI			0	100	%	45	1	2	8	3				
ZIT832ABN004B	BASIN WA4-PASS3 VALVE STATUS	AI			0	100	%	45	1	2	8	4				
ZIT832GSL401	BASIN WA4-PASS2 IN-GATE STATUS	AI			0	100	%	45	1	2	8	5				
ZIT832GSL402	BASIN WA4-PASS3 IN-GATE STATUS	AI			0	100	%	45	1	2	8	6				
ZIT832GSL403	BASIN WA4-PASS3 OUT-GATE STAT.	AI			0	100	%	45	1	2	8	7				
JIT834MCC037A	W. AERATION MCC37A POWER USAGE	AI			0	700	KW	45	1	2	8	8				
HV830ABN001AE	BASIN WA1-PASS1 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	1	1				
HV830ABN001BE	BASIN WA1-PASS4 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	1	2				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
HV830GSL101E	BASIN WA1-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	1	3				
HV830GSL102E	BASIN WA1-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	1	4				
HV831ABN001E	BASIN WA1-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				45	1	3	1	5				
HV832ABN001AE	BASIN WA1-PASS2 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	1	6				
HV832ABN001BE	BASIN WA1-PASS3 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	1	7				
HV822ABN001E	BASIN WA1-INFLUENT VALVE	DI	REMOTE	LOCAL				45	1	3	1	8				
SPARE	BASIN WA1-PASS2 INLET GATE	DI	REMOTE	LOCAL				45	1	3	1	9				
SPARE	BASIN WA1-PASS3 INLET GATE	DI	REMOTE	LOCAL				45	1	3	1	10				
SPARE	BASIN WA1-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	1	11				
ZSC830GSL101	BASIN WA1-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	1	12				
ZSC830GSL102	BASIN WA1-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	1	13				
ZSO830GSL101	BASIN WA1-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	1	14				
ZSO830GSL102	BASIN WA1-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	1	15				
ESMS200A	ELLA STREET STORM PUMP 1	DI	RUN	OFF				45	1	3	1	16				
HV830ABN002AE	BASIN WA2-PASS1 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	2	1				
HV830ABN002BE	BASIN WA2-PASS4 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	2	2				
HV830GSL201E	BASIN WA2-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	2	3				
HV830GSL202E	BASIN WA2-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	2	4				
HV831ABN002E	BASIN WA2-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				45	1	3	2	5				
HV832ABN002AE	BASIN WA2-PASS2 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	2	6				
HV832ABN002BE	BASIN WA2-PASS3 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	2	7				
HV822ABN002E	BASIN WA2-INFLUENT VALVE	DI	REMOTE	LOCAL				45	1	3	2	8				
SPARE	BASIN WA2-PASS2 INLET GATE	DI	REMOTE	LOCAL				45	1	3	2	9				
SPARE	BASIN WA2-PASS3 INLET GATE	DI	REMOTE	LOCAL				45	1	3	2	10				
SPARE	BASIN WA2-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	2	11				
ZSC830GSL201	BASIN WA2-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	2	12				
ZSC830GSL202	BASIN WA2-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	2	13				
ZSO830GSL201	BASIN WA2-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	2	14				
ZSO830GSL202	BASIN WA2-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	2	15				
ESMS200B	ELLA STREET STORM PUMP 2	DI	RUN	OFF				45	1	3	2	16				
HV830ABN003AE	BASIN WA3-PASS1 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	3	1				
HV830ABN003BE	BASIN WA3-PASS4 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	3	2				
HV831ABN003E	BASIN WA3-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				45	1	3	3	3				
HV832ABN003AE	BASIN WA3-PASS2 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	3	4				
HV832ABN003BE	BASIN WA3-PASS3 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	3	5				
HV822ABN003E	BASIN WA3-INFLUENT VALVE	DI	REMOTE	LOCAL				45	1	3	3	6				
HV830GSL301E	BASIN WA3-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	3	7				
HV830GSL302E	BASIN WA3-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	3	8				
SPARE	BASIN WA3-PASS2 INLET GATE	DI	REMOTE	LOCAL				45	1	3	3	9				
SPARE	BASIN WA3-PASS3 INLET GATE	DI	REMOTE	LOCAL				45	1	3	3	10				
SPARE	BASIN WA3-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	3	11				
ZSC830GSL301	BASIN WA3-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	3	12				
ZSC830GSL302	BASIN WA3-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	3	13				
ZSO830GSL301	BASIN WA3-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	3	14				
ZSO830GSL302	BASIN WA3-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	3	15				
ESMS200C	ELLA STREET STORM PUMP 3	DI	RUN	OFF				45	1	3	3	16				
HV830ABN004AE	BASIN WA4-PASS1 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	4	1				
HV830ABN004BE	BASIN WA4-PASS4 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	4	2				
HV830GSL401E	BASIN WA4-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	4	3				
HV830GSL402E	BASIN WA4-PASS4 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	4	4				
HV831ABN004E	BASIN WA4-CHANNEL AIR VALVE	DI	REMOTE	LOCAL				45	1	3	4	5				
HV832ABN004AE	BASIN WA4-PASS2 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	4	6				
HV832ABN004BE	BASIN WA4-PASS3 AIR VALVE	DI	REMOTE	LOCAL				45	1	3	4	7				
HV822ABN004E	BASIN WA4-INFLUENT VALVE	DI	REMOTE	LOCAL				45	1	3	4	8				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
SPARE	BASIN WA4-PASS2 INLET GATE	DI	REMOTE	LOCAL				45	1	3	4	9				
SPARE	BASIN WA4-PASS3 INLET GATE	DI	REMOTE	LOCAL				45	1	3	4	10				
SPARE	BASIN WA4-PASS3 OUTLET GATE	DI	REMOTE	LOCAL				45	1	3	4	11				
ZSC830GSL401	BASIN WA4-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	4	12				
ZSC830GSL402	BASIN WA4-PASS4 OUTLET GATE	DI	CLOSED	TRAVEL				45	1	3	4	13				
ZSO830GSL401	BASIN WA4-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	4	14				
ZSO830GSL402	BASIN WA4-PASS4 OUTLET GATE	DI	OPEN	TRAVEL				45	1	3	4	15				
ESMS100A	ELLA STREET SEWAGE PUMP 1	DI	RUN	OFF				45	1	3	4	16				
FSL831WSP001	WA1 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	5	1				
HS831WSP001E	WA1 WAS PUMP1 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	5	2				
HS831WSP001F	WA1 WAS PUMP1 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	5	3				
MS831WSP001A	WA1 WAS PUMP1 RUN STATUS	DI	RUN	OFF				45	1	3	5	4				
UA831WSP001	WA1 WAS PUMP1 AFD STATUS	DI	NORMAL	ALARM				45	1	3	5	5				
FSL831WSP002	WA1/2 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	5	6				
HS831WSP002E	WA1/2 WAS PUMP2 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	5	7				
HS831WSP002F	WA1/2 WAS PUMP2 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	5	8				
MS831WSP002A	WA1/2 WAS PUMP2 RUN STATUS	DI	RUN	OFF				45	1	3	5	9				
UA831WSP002	WA1/2 WAS PUMP2 AFD STATUS	DI	NORMAL	ALARM				45	1	3	5	10				
LSH832ABN001A	WA1 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				45	1	3	5	11				
LSHH842TBS001	SODIUM BISULF STOR TANK 1 LVL	DI	HI-HI	NOT HH				45	1	3	5	12				
LSHH842TBS002	SODIUM BISULF STOR TANK 2 LVL	DI	HI-HI	NOT HH				45	1	3	5	13				
AAH842SDM001	DECHLORINATION FACILITY SO2	DI	HIGH	NORMAL				45	1	3	5	14				
ASH842SDM001	DECHLORINATION FACILITY SO2	DI	HI-HI	NORMAL				45	1	3	5	15				
XA842SDM001	DECHLOR FACILITY GAS MONITOR	DI	NORMAL	ALARM				45	1	3	5	16				
FSL831WSP003	WA2 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	6	1				
HS831WSP003E	WA2 WAS PUMP3 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	6	2				
HS831WSP003F	WA2 WAS PUMP3 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	6	3				
MS831WSP003A	WA2 WAS PUMP3 RUN STATUS	DI	RUN	OFF				45	1	3	6	4				
UA831WSP003	WA2 WAS PUMP3 AFD STATUS	DI	NORMAL	ALARM				45	1	3	6	5				
FSL831WSP004	WA3 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	6	6				
HS831WSP004E	WA3 WAS PUMP4 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	6	7				
HS831WSP004F	WA3 WAS PUMP4 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	6	8				
MS831WSP004A	WA3 WAS PUMP4 RUN STATUS	DI	RUN	OFF				45	1	3	6	9				
UA831WSP004	WA3 WAS PUMP4 AFD STATUS	DI	NORMAL	ALARM				45	1	3	6	10				
LSH832ABN002A	WA2 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				45	1	3	6	11				
		DI						45	1	3	6	12				
		DI						45	1	3	6	13				
EAM834UPS001	DPU45 UPS ALARM STATUS	DI	NORMAL	ALARM				45	1	3	6	14				
EN834UPS001	DPU45 UPS STATUS	DI	BATTRY	OFF				45	1	3	6	15				
ESMS100B	ELLA STREET SEWAGE PUMP 2	DI	RUN	OFF				45	1	3	6	16				
FSL831WSP005	WA3/4 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	7	1				
HS831WSP005E	WA3/4 WAS PUMP5 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	7	2				
HS831WSP005F	WA3/4 WAS PUMP5 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	7	3				
MS831WSP005A	WA3/4 WAS PUMP5 RUN STATUS	DI	RUN	OFF				45	1	3	7	4				
UA831WSP005	WA3/4 WAS PUMP5 AFD STATUS	DI	NORMAL	ALARM				45	1	3	7	5				
FSL831WSP006	WA4 WAS PUMP SEAL H2O STATUS	DI	NORMAL	LOW				45	1	3	7	6				
HS831WSP006E	WA4 WAS PUMP6 L-O-R STATUS	DI	REMOTE	LOCAL				45	1	3	7	7				
HS831WSP006F	WA4 WAS PUMP6 ESTOP STATUS	DI	E-STOP	NORMAL				45	1	3	7	8				
MS831WSP006A	WA4 WAS PUMP6 RUN STATUS	DI	RUN	OFF				45	1	3	7	9				
UA831WSP006	WA4 WAS PUMP6 AFD STATUS	DI	NORMAL	ALARM				45	1	3	7	10				
LSH832ABN003A	WA3 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				45	1	3	7	11				
MS840PCR001A	CHLORINE RESIDUAL PUMP STATUS	DI	RUN	OFF				45	1	3	7	12				
FSL840PCR001	CHLORINE RESIDUAL PUMP FLOW	DI	NORMAL	LOW				45	1	3	7	13				
ESUA100	ELLA STREET IN FLOAT CONTROL	DI	ALARM	NORMAL				45	1	3	7	14				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ESPOWFAL	ELLA St Utility Power	DI	on	off				45	1	3	7	15				
MS834LTG001AA	AERATION - NORTH WEST LIGHTS	DI	ON	OFF				45	1	3	7	16				
UA834EVA001	MAIN PLANT EVACUATION SIREN	DI	ALARM	NORMAL				45	1	3	8	1				
ESGENON	ELLA St Generator	DI	RUN	OFF				45	1	3	8	2				
HS900EFL002E	EFFLUENT PUMP EFL002 CONTROL	DI	REMOTE	NOT RE				45	1	3	8	3				
HS900EFL002F	EFFLUENT PUMP EFL002 E-STOP	DI	E-STOP	NOT E-				45	1	3	8	4				
MS900EFL002A	EFFLUENT PUMP EFL002 ON	DI	ON	NOT ON				45	1	3	8	5				
LSH832ABN004A	WA4 VAULT SUMP LEVEL STATUS	DI	HIGH	NORMAL				45	1	3	8	6				
MS834LTG001BA	AERATION - SOUTH WEST LIGHTS	DI	ON	OFF				45	1	3	8	7				
ZS834MCC037A	WA-MCC037A BUS A MAIN BREAKER	DI	CLOSED	OPEN				45	1	3	8	8				
ZS834MCC037B	WA-MCC037B BUS B MAIN BREAKER	DI	CLOSED	OPEN				45	1	3	8	9				
ZS834MCC037C	WA-MCC037A/B BUS A TO B TIE BK	DI	CLOSED	OPEN				45	1	3	8	10				
		DI						45	1	3	8	11				
		DI						45	1	3	8	12				
		DI						45	1	3	8	13				
		DI						45	1	3	8	14				
EAF834PNL100	DPU45 PRI. POWER TVSS STATUS	DI	ALARM	NORMAL				45	1	3	8	15				
EAF834PNL101	DPU45 SEC. POWER TVSS STATUS	DI	ALARM	NORMAL				45	1	3	8	16				
MS842PBF001A	BISULF FEED PUMP 1 RUN STATUS	DI	RUN	OFF				45	1	4	1	1				
HS842PBF001F	BISULF FEED PUMP 1 ESTOP	DI	E-STOP	NORMAL				45	1	4	1	2				
HS842PBF001E	BISULF FEED PUMP 1 L-R	DI	REMOTE	LOCAL				45	1	4	1	3				
LSL842PBF001	BISULF FEED PUMP 1 LUBRICANT LEAK	DI	ALARM	NORMAL				45	1	4	1	4				
PSH842PBF001	BISULF FEED PUMP 1 HIGH PRESS	DI	HIGH	NORMAL				45	1	4	1	5				
XS842PBF001	BISULF FEED PMP 1 VFD FAULT SYSTEM ALA	DI	ALARM	NORMAL				45	1	4	1	6				
MS842PBF002A	BISULF FEED PUMP 2 RUN STATUS	DI	RUN	OFF				45	1	4	1	7				
HS842PBF002F	BISULF FEED PUMP 2 ESTOP	DI	E-STOP	NORMAL				45	1	4	1	8				
HS842PBF002E	BISULF FEED PUMP 2 L-R	DI	REMOTE	LOCAL				45	1	4	1	9				
LSL842PBF002	BISULF FEED PUMP 2 LUBRICANT LEAK	DI	ALARM	NORMAL				45	1	4	1	10				
PSH842PBF002	BISULF FEED PUMP 2 HIGH PRESS	DI	HIGH	NORMAL				45	1	4	1	11				
XS842PBF002	BISULF FEED PMP 2 VFD FAULT SYSTEM ALA	DI	ALARM	NORMAL				45	1	4	1	12				
LSH842TBS003	BISULF CONTAINMENT AREA LEVEL	DI	HIGH	NORMAL				45	1	4	1	13				
FSH842SSH001	DECHLOR BUILDING SAFETY SHOWER	DI	ALARM	NORMAL				45	1	4	1	14				
FSH842SSH002	TRUCK FILL SAFETY SHOWER	DI	ALARM	NORMAL				45	1	4	1	15				
		DI						45	1	4	1	16				
HV842BLV061E	BISULF FEED PMP1 INLET VLV L-R	DI	REMOTE	LOCAL				45	1	4	2	1				
ZSO842BLV061	BISULF PUMP1 INLET VLV OPEN	DI	OPEN	TRAVEL				45	1	4	2	2				
ZSC842BLV061	BISULF PUMP1 INLET VLV CLOSED	DI	CLOSED	TRAVEL				45	1	4	2	3				
HV842BLV060E	BISULF PUMP2 INLET VLV L-R	DI	REMOTE	LOCAL				45	1	4	2	4				
ZSO842BLV060	BISULF PUMP 2 INLET VLV OPEN	DI	OPEN	TRAVEL				45	1	4	2	5				
ZSC842BLV060	BISULF PUMP 2 INLET VLV OPEN	DI	CLOSED	TRAVEL				45	1	4	2	6				
HV842BLV004E	BISULF PMP1 FLUSH WTR VLV L-R	DI	REMOTE	LOCAL				45	1	4	2	7				
ZSO842BLV004	BISULF PUMP 1 FLUSH VLV OPEN	DI	OPEN	TRAVEL				45	1	4	2	8				
ZSC842BLV004	BISULF PUMP 1 FLUSH VLV CLOSED	DI	CLOSED	TRAVEL				45	1	4	2	9				
HV842BFV005E	BISULF PMP2 FLUSH WTR VLV LOR	DI	REMOTE	LOCAL				45	1	4	2	10				
ZSO842BFV005	BISULF PUMP 2 FLUSH VLV OPEN	DI	OPEN	TRAVEL				45	1	4	2	11				
ZSC842BFV005	BISULF PUMP 2 FLUSH VLV CLOSED	DI	CLOSED	TRAVEL				45	1	4	2	12				
FSL840TCC001A	SODIUM BISULF SOL A LINE FLOW	DI	NORMAL	LOW				45	1	4	2	13				
FSL840TCC001B	SODIUM BISULF SOL B LINE FLOW	DI	NORMAL	LOW				45	1	4	2	14				
FSL840TCC002A	SODIUM BISULF SOL A LINE FLOW	DI	NORMAL	LOW				45	1	4	2	15				
FSL840TCC002B	SODIUM BISULF SOL B LINE FLOW	DI	NORMAL	LOW				45	1	4	2	16				
MS832SPP001A	WA1 SUMP PUMP RUN STATUS	DI	RUN	OFF				45	1	4	3	1				
MS832SPP002A	WA2 SUMP PUMP RUN STATUS	DI	RUN	OFF				45	1	4	3	2				
MS832SPP003A	WA3 SUMP PUMP RUN STATUS	DI	RUN	OFF				45	1	4	3	3				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address										
								PN	ED	ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module
MS832SPP004A	WA4 SUMP PUMP RUN STATUS	DI	RUN	OFF					45	1	4	3	4					
MS700PPS001A	WEST SAMPLE PUMP RUN STATUS	DI	RUN	OFF					45	1	4	3	5					
MS842SPP001A	BISULF SUMP PUMP RUN STATUS	DI	RUN	OFF	CONTRACTOR IS TO CONFIRM THAT THERE IS SUFFICIENT SPACE AVAILABLE.					1	4	3	6					
LSH842SPP001	BISULF SUMP PUMP LEVEL STATUS	DI	HIGH	NORMAL						1	4	3	7					
MS842SSB001A	BISULF SCRUBBER RUN STATUS	DI	RUN	OFF						1	4	3	8					
XA842SSB001	BISULF SCRUBBER SYSTEM ALARM	DI	ALARM	NORMAL						1	4	3	9					
XA842HTC001	BISULF HEAT TRACING ALARM	DI	ALARM	NORMAL						1	4	3	10					
MS842AHU001	BISULF AIR HANDLING UNIT STATUS	DI	RUN	OFF						45	1	4	3	11				
XA842AHU001	BISULF AIR HANDLING UNIT FAIL	DI	ALARM	NORMAL					45	1	4	3	12					
									45	1	4	3	13					
HV842BLV014E	BISULF FEED PMP1 CARRIER H2O VLV L-R	DI	REMOTE	LOCAL					45	1	4	3	14					
ZSO842BLV014	BISULF PUMP1 CARRIER H2O VLV OPEN	DI	OPEN	TRAVEL					45	1	4	3	15					
ZSC842BLV014	BISULF PUMP1 CARRIER H2O VLV CLOSED	DI	CLOSED	TRAVEL					45	1	4	3	16					
HS700PPS001A	WEST SAMPLE PUMP S/S CONTROL	DO	START	STOP					45	1	4	4	1					
									45	1	4	4	2					
HV842BLV014A	BISULF PUMP 1 CARRIER H2O VALVE OPEN	DO	OPEN	TRAVEL					45	1	4	4	3					
HV842BLV014B	BISULF PUMP 1 CARRIER H2O VALVE CLOSE	DO	CLOSE	TRAVEL					45	1	4	4	4					
					CONTRACTOR IS TO CONFIRM THAT THERE IS SUFFICIENT SPACE AVAILABLE.				45	1	4	4	5					
										1	4	4	6					
										1	4	4	7					
										1	4	4	8					
										1	4	4	9					
										1	4	4	10					
									45	1	4	4	11					
									45	1	4	4	12					
									45	1	4	4	13					
									45	1	4	4	14					
									45	1	4	4	15					
									45	1	4	4	16					
									45	1	4	5	1					
									45	1	4	5	2					
									45	1	4	5	3					
									45	1	4	5	4					
									45	1	4	5	5					
					CONTRACTOR IS TO CONFIRM THAT THERE IS SUFFICIENT SPACE AVAILABLE.				1	4	5	6						
										1	4	5	7					
										1	4	5	8					
										1	4	5	9					
										1	4	5	10					
										45	1	4	5	11				
									45	1	4	5	12					
									45	1	4	5	13					
									45	1	4	5	14					
									45	1	4	5	15					
									45	1	4	5	16					
										1	4	6	1-16					
									45	1	4	7	1					
									45	1	4	7	2					
									45	1	4	7	3					
									45	1	4	7	4					
									45	1	4	7	5					
					CONTRACTOR IS TO CONFIRM THAT THERE IS SUFFICIENT SPACE AVAILABLE.				1	4	7	6						
										1	4	7	7					

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address									
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply	
					CONTRACTOR TO CONFIRM THAT THERE IS SUFFICIENT SPACE AVAILABLE.					1	4	7	8				
									1	4	7	9					
									1	4	7	10					
								45	1	4	7	11					
								45	1	4	7	12					
								45	1	4	7	13					
								45	1	4	7	14					
								45	1	4	7	15					
								45	1	4	7	16					
		DI							1	4	8	1-16					
LIT700PEF001	PRIMARY EFFLUENT CHANNEL LEVEL	AI			0	TBD	TBD	45	1	5	1	1					
FIT831ABN001	BASIN WA1-CHANNEL AIR FLOW	AI			0	700	SCFM	45	1	5	1	2					
FIT830ABN001B	BASIN WA1-PASS4 AIR FLOW	AI			0	4000	SCFM	45	1	5	1	3					
		AI						45	1	5	1	4					
FIT832ABN001A	BASIN WA1-PASS2 AIR FLOW	AI			0	6000	SCFM	45	1	5	1	5					
FIT832ABN001B	BASIN WA1-PASS3 AIR FLOW	AI			0	4000	SCFM	45	1	5	1	6					
FIT831WSP001	BASIN WA-1 WAS FLOW	AI			0	900	gpm	45	1	5	1	7					
FIT830ABN001A	BASIN WA1-PASS1 AIR FLOW	AI			0	9000	SCFM	45	1	5	1	8					
FIT830ABN002A	BASIN WA2-PASS1 AIR FLOW	AI			0	9000	SCFM	45	1	5	2	1					
FIT830ABN002B	BASIN WA2-PASS4 AIR FLOW	AI			0	4000	SCFM	45	1	5	2	2					
FIT831ABN002	BASIN WA2-CHANNEL AIR FLOW	AI			0	700	SCFM	45	1	5	2	3					
		AI						45	1	5	2	4					
FIT832ABN002A	BASIN WA2-PASS2 AIR FLOW	AI			0	6000	SCFM	45	1	5	2	5					
FIT832ABN002B	BASIN WA2-PASS3 AIR FLOW	AI			0	4000	SCFM	45	1	5	2	6					
FIT831WSP001A	WEST TOTAL WAS FLOW	AI			0	2000	GPM	45	1	5	2	7					
		AI						45	1	5	2	8					
FIT830ABN003A	BASIN WA3-PASS1 AIR FLOW	AI			0	9000	SCFM	45	1	5	3	1					
FIT830ABN003B	BASIN WA3-PASS4 AIR FLOW	AI			0	4000	SCFM	45	1	5	3	2					
FIT831ABN003	BASIN WA3-CHANNEL AIR FLOW	AI			0	700	SCFM	45	1	5	3	3					
		AI						45	1	5	3	4					
FIT832ABN003A	BASIN WA3-PASS2 AIR FLOW	AI			0	6000	SCFM	45	1	5	3	5					
FIT832ABN003B	BASIN WA3-PASS3 AIR FLOW	AI			0	4000	SCFM	45	1	5	3	6					
FIT831WSP003	BASIN WA-3 WAS FLOW	AI			0	900	gpm	45	1	5	3	7					
		AI						45	1	5	3	8					
FIT830ABN004A	BASIN WA4-PASS1 AIR FLOW	AI			0	9000	SCFM	45	1	5	4	1					
FIT830ABN004B	BASIN WA4-PASS4 AIR FLOW	AI			0	4000	SCFM	45	1	5	4	2					
FIT831ABN004	BASIN WA4-CHANNEL AIR FLOW	AI			0	700	SCFM	45	1	5	4	3					
FIT832ABN004B	BASIN WA4-PASS3 AIR FLOW	AI			0	4000	SCFM	45	1	5	4	4					
FIT832ABN004A	BASIN WA4-PASS2 AIR FLOW	AI			0	6000	SCFM	45	1	5	4	5					
		AI						45	1	5	4	6					
FIT831WSP004	BASIN WA-4 WAS FLOW	AI			0	900	gpm	45	1	5	4	7					
TT834DPU001	W.AERATION-DPU45 TEMPERATURE	AI			0	200	DEG F	45	1	5	4	8					
HV830GSL401A	BASIN WA4-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	5	1					
HV830GSL401B	BASIN WA4-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	5	2					
HV830GSL402A	BASIN WA4-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	5	3					
HV830GSL402B	BASIN WA4-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	5	4					
SPARE	BASIN WA4-PASS2 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	5	5					
SPARE	BASIN WA4-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	5	6					
SPARE	BASIN WA4-PASS3 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	5	7					
SPARE	BASIN WA4-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	5	8					
SPARE	BASIN WA4-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	5	9					

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
SPARE	BASIN WA4-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	5	10				
HS834LTG001BA	SW.AERATION STREET LIGHT CTRL	DO	ON	OFF				45	1	5	5	11				
HV842BLV004A	BISULF PUMP 1 FLUSH VALVE OPEN	DO	OPEN	TRAVEL				45	1	5	5	12				
HV842BLV004B	BISULF PUMP1 FLUSH VALVE CLOSE	DO	CLOSE	TRAVEL				45	1	5	5	13				
HV842BLV005A	BISULF PUMP 2 FLUSH VALVE OPEN	DO	OPEN	TRAVEL				45	1	5	5	14				
HV842BLV005B	BISULF PUMP2 FLUSH VALVE CLOSE	DO	CLOSE	TRAVEL				45	1	5	5	15				
								45	1	5	5	16				
HV830GSL301A	BASIN WA3-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	6	1				
HV830GSL301B	BASIN WA3-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	6	2				
HV830GSL302A	BASIN WA3-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	6	3				
HV830GSL302B	BASIN WA3-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	6	4				
SPARE	BASIN WA3-PASS2 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	6	5				
SPARE	BASIN WA3-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	6	6				
SPARE	BASIN WA3-PASS3 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	6	7				
SPARE	BASIN WA3-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	6	8				
SPARE	BASIN WA3-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	6	9				
SPARE	BASIN WA3-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	6	10				
HS831WSP005A	WA3/4 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	6	11				
HS831WSP006A	WA4 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	6	12				
HS834LTG001AA	NW.AERATION STREET LIGHT CTRL	DO	ON	OFF				45	1	5	6	13				
HS900EFL001A	EFFLUENT PUMP EFL001 CONTROL	DO	START	NOT ST				45	1	5	6	14				
		DO						45	1	5	6	15				
		DO						45	1	5	6	16				
HV830GSL201A	BASIN WA2-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	7	1				
HV830GSL201B	BASIN WA2-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	7	2				
HV830GSL202A	BASIN WA2-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	7	3				
HV830GSL202B	BASIN WA2-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	7	4				
SPARE	BASIN WA2-PASS2 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	7	5				
SPARE	BASIN WA2-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	7	6				
SPARE	BASIN WA2-PASS3 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	7	7				
SPARE	BASIN WA2-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	7	8				
SPARE	BASIN WA2-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	7	9				
SPARE	BASIN WA2-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	7	10				
HS831WSP003A	WA2 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	7	11				
HS831WSP004A	WA3 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	7	12				
HV842BLV061A	BISULF PUMP 1 INLET VALVE OPEN	DO	OPEN	TRAVEL				45	1	5	7	13				
HV842BLV061B	BISULF PUMP1 INLET VALVE CLOSE	DO	CLOSE	TRAVEL				45	1	5	7	14				
HV842BLV060A	BISULF PUMP 2 INLET VALVE OPEN	DO	OPEN	TRAVEL				45	1	5	7	15				
HV842BLV060B	BISULF PUMP2 INLET VALVE CLOSE	DO	CLOSE	TRAVEL				45	1	5	7	16				
HV830GSL101A	BASIN WA1-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	8	1				
HV830GSL101B	BASIN WA1-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	8	2				
HV830GSL102A	BASIN WA1-PASS4 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	8	3				
HV830GSL102B	BASIN WA1-PASS4 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	8	4				
SPARE	BASIN WA1-PASS2 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	8	5				
SPARE	BASIN WA1-PASS2 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	8	6				
SPARE	BASIN WA1-PASS3 IN-GATE CTRL	DO	OPEN	STOP				45	1	5	8	7				
SPARE	BASIN WA1-PASS3 IN-GATE CTRL	DO	CLOSE	STOP				45	1	5	8	8				
SPARE	BASIN WA1-PASS3 OUT-GATE CTRL	DO	OPEN	STOP				45	1	5	8	9				
SPARE	BASIN WA1-PASS3 OUT-GATE CTRL	DO	CLOSE	STOP				45	1	5	8	10				
HS831WSP001A	WA1 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	8	11				
HS831WSP002A	WA1/2 WAS PUMP S/S CONTROL	DO	START	STOP				45	1	5	8	12				
HS842PBF001A	BISULF FEED PUMP 1 S/S CONTROL	DO	START	STOP				45	1	5	8	13				
HS842PBF002A	BISULF FEED PUMP 2 S/S CONTROL	DO	START	STOP				45	1	5	8	14				
		DO						45	1	5	8	15				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
HN834EVA001	AERATION TUNNEL EVAC ALARM	DO	ON	OFF				45	1	5	8	16				YES
AIT840TCC002A	PRE-DECHLOR D.O.	AI			0	20	PPM	45	1	6	1	1				
AIT840TCC002B	POST-DECHLOR D.O.	AI			0	20	PPM	45	1	6	1	2				
AIT840CRA001	PRE-DECHLOR CL2 RESIDUAL	AI			0	5	PPM	45	1	6	1	3				
LIT842TBS001	SODIUM BISUL STOR TANK 1 LVL	AI			0	TBD	TBD	45	1	6	1	4				
LIT842TBS002	SODIUM BISUL STOR TANK 2 LVL	AI			0	TBD	TBD	45	1	6	1	5				
		AI						45	1	6	1	6				
		AI						45	1	6	1	7				
AIT835ABN001B	W-MIXED LIQ. SUSPENDE SOLIDS	AI			0	4000	PPM	45	1	6	1	8				
FIT840TCC001	CONTACT TANK DECHLOR TOTAL AIR	AI			0	5000	SCFM	45	1	6	2	1				
FIT840TCC002	POST-DECHLOR AIR FLOW	AI			0	1550	SCFM	45	1	6	2	2				
TT842BBS001	BISULFITE BUILDING TEMPERATURE	AI			0	200	DEG F	45	1	6	2	3				
FIT842PBF001	SODIUM BISULFITE FEED	AI			0	TBD	TBD	45	1	6	2	4				
		AI						45	1	6	2	5				
		AI						45	1	6	2	6				
		AI						45	1	6	2	7				
		AI						45	1	6	2	8				
ESLT100	ELLA STREET WET WELL LEVEL	AI			0	16	FEET	45	1	6	3	1				
ESFT100	ELLA STREET PLANT FLOW	AI			0	2000	GPM	45	1	6	3	2				
ESGENLT001	ELLA ST GENERATOR FUEL LEVEL	AI			0	1000	GAL	45	1	6	3	3				
		AI						45	1	6	3	4				
		AI						45	1	6	3	5				
		AI						45	1	6	3	6				
		AI						45	1	6	3	7				
		AI						45	1	6	3	8				
		AO						45	1	6	4	1				
		AO						45	1	6	4	2				
		AO						45	1	6	4	3				
		AO						45	1	6	4	4				
	EMPTY SLOT							45	1	6	5					
	EMPTY SLOT							45	1	6	6					
	EMPTY SLOT							45	1	6	7					
	EMPTY SLOT							45	1	6	8					



ALLEGHENY COUNTY SANITARY AUTHORITY	
WASTEWATER TREATMENT PLANT	
ALCOSAN CSO BYPASS AND DISINFECTION PROJECT	
CONTRACT NO. 1760	
DCS I/O LIST	
DPU43 - FACILITY 900 - EFW / SECONDARY CHLORINATION BUILDING	

REVISION INDEX	
REV NO.	DESCRIPTION
1	60% DESIGN SUBMITTAL
2	90% DESIGN SUBMITTAL
3	100% DESIGN SUBMITTAL
4	BID READY SUBMITTAL
5	ADDENDUM 3

GENERAL NOTES:

- This document is based on ALCOSAN CS Guidelines Rev.5 document and Microsoft Excel template provided by ALCOSAN (FDC_IOlist_template_rev.1.xlsx)
- Refer to drawing number 00-I-02 - DCS NETWORK COMMUNICATION for System Architecture details.
- The new signals included on this DCS I/O List refer to the following P&ID numbers:
 840-I-02 - BCCT CHLORINE SAMPLING BUILDING
 900-I-01 - EFW & RAS SODIUM HYPOCHLORITE STORAGE
 900-I-02 - EFW & RAS SODIUM HYPOCHLORITE PUMPS
 900-I-03 - DEFOAMER FEED
- This document was developed based on the existing DCS I/O List - DPU43 provided from ALCOSAN. Signals related to this project were included according to the following color legend:

Tag	Description	Legend
HSXXX00XX	Red text / No fill	This is a NEW signal assigned to an empty IO channel.
HSXXX00XX	Red text / Yellow fill	This is a NEW signal that reuses an existing channel where the signal was eliminated.
HSXXX00XX	Black text/ No fill	EXISTING signals. No changes were done here.

REV NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APPV
1	10/12/2021	60% DESIGN SUBMITTAL	GCF	DPD	RLC
2	2/4/2022	90% DESIGN SUBMITTAL	GCF	DPD	RLC
3	5/6/2022	BID READY SUBMITTAL	GCF	DPD	RLC
4	8/8/2022	ADDENDUM 3	GCF	DPD	RLC

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
AIT840CRA002	POST-DECHLOR CL2 RESIDUAL	AI			0.02	2	PPM	43	1	1	1	1				
AIT900NIT001	EFW NITRATE CONCENTRATION	AI			0	50	mg/L	43	1	1	1	2				
ZT835PHF003	HYPO VALVE TO W-RAS POSITION	AI			0	100	PCT	43	1	1	1	3				
ZT835PHF009	HYPO VALVE TO E-RAS POSITION	AI			0	100	PCT	43	1	1	1	4				
		AI						43	1	1	1	5				
ST900EFH001	HIGH PRESSURE EFW PUMP1 SPEED	AI			0	100	PCT	43	1	1	1	6				
ST900EFH002	HIGH PRESSURE EFW PUMP2 SPEED	AI			0	100	PCT	43	1	1	1	7				
AIT900EDO001	CONTACT TANK INFLUENT D.O.	AI			0	20	PPM	43	1	1	1	8				
TIT900EFH001A	HP EFW P1 OUTBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	2	1				
TIT900EFH001B	HP EFW P1 INBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	2	2				
TIT900EFH002A	HP EFW P2 OUTBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	2	3				
TIT900EFH002B	HP EFW P2 INBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	2	4				
FIT900PHF001	EFW SODIUM HYPOCHLORITE FEED FLOW	AI			0	TBD	TBD	43	1	1	2	5				
LIT900THS001	TEMPORARY HYPO TANK1 LEVEL	AI			0	TBD	TBD	43	1	1	2	6				
LIT900THS002	TEMPORARY HYPO TANK2 LEVEL	AI			0	TBD	TBD	43	1	1	2	7				
SPARE	TEMPORARY HYPO TANK3 LEVEL	AI			0	25	FT	43	1	1	2	8				
FIT835PHF003	HYPO FLOW TO WEST RAS	AI			0	14400	GPD	43	1	1	3	1				
FIT835EFL001	LOW PRESSURE EFW FLOW	AI			0	4000	GPM	43	1	1	3	2				
FIT835EFH001	HIGH PRESSURE EFW EAST FLOW	AI			0	7500	GPM	43	1	1	3	3				
PIT900EFL001	LOW PRESSURE EFW HEADER	AI			0	36	PSIG	43	1	1	3	4				
PIT900IAS001	INSTRUMENT AIR PRESSURE	AI			0	200	PSIG	43	1	1	3	5				
PDIT900SEF001	HP EFW STRAINER #1 DELTA P	AI			0	15	PSID	43	1	1	3	6				
PIT900EFH002	EFW MAIN PRE-STRAINER PRESSURE	AI			0	200	PSIG	43	1	1	3	7				
TT900DPU001	EFW-DPU43 TEMPERATURE	AI			0	200	DEG F	43	1	1	3	8				
FIT835PHF009	HYPO FLOW TO EAST RAS	AI			0	14400	GPD	43	1	1	4	1				
FIT835EFH002	HIGH PRESSURE EFW WEST FLOW	AI			0	7500	GPM	43	1	1	4	2				
PIT900EFH001	EFW MAIN POST-STRAINER PRESSUR	AI			0	200	PSIG	43	1	1	4	3				
FIT900PHF004	HYPO FLOW TO FINAL EFFLUENT	AI			0	14400	GAL/DY	43	1	1	4	4				
PDIT900SEF002	HP EFW STRAINER #2 DELTA P	AI			0	15	PSID	43	1	1	4	5				
FIT900EFH001	EFW CARRIER WATER - HYPO FEED	AI			0	1500	GPM	43	1	1	4	6				
JIT900USS012B	EFW USS12B POWER USAGE	AI			0	1500	KW	43	1	1	4	7				
JIT900USS012C	EFW USS12C POWER USAGE	AI			0	1500	KW	43	1	1	4	8				
FY835PHF003	HYPO VAVLE TO W-RAS CONTROL	AO			0	100	PCT	43	1	1	5	1				
FY900PHF004	HYPO VALVE TO F. EFF CONTROL	AO			0	100	PCT	43	1	1	5	2				
SC900EFH001	EFW PUMP 1 SPEED CONTROL	AO			0	100	PCT	43	1	1	5	3				
SC900EFH002	EFW PUMP 2 SPEED CONTROL	AO			0	100	PCT	43	1	1	5	4				
FY835PHF009	HYPO VALVE TO E-RAS CONTROL	AO			0	100	PCT	43	1	1	6	1				
FY840SFE001	FINAL EFFLUENT SAMPLER CONTROL	AO			0	250	MGD	43	1	1	6	2				
FCV840TCC001	POST DECHLOR D.O. CONTROL VALV	AO			0	100	PCT	43	1	1	6	3				
		AO						43	1	1	6	4				
	Serial Link Controller								1	1	7					
ZT900PHF004	HYPO VALVE TO F.EFF POSITION	AI			0	100	PCT	43	1	1	8	1				
PIT900PHF004	HYPO PRESSUR TO F. EFF CONTROL	AI			0	50	PSI	43	1	1	8	2				
AIT840CRP001	RESIDUAL CHLORINE ANALYZER	AI			0	TBD	TBD	43	1	1	8	3				
AIT840PFE001	RESIDUAL CHLORINE ANALYZER	AI			0	TBD	TBD	43	1	1	8	4				
TIT900EFH003A	HP EFW P3 OUTBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	8	5				
TIT900EFH003B	HP EFW P3 INBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	8	6				
TIT900EFH004A	HP EFW P4 OUTBOARD BEARING TMP	AI			0	300	DEG.F.	43	1	1	8	7				
TIT900EFH004B	HP EFW P4 INBOARD BEARING TEMP	AI			0	300	DEG.F.	43	1	1	8	8				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
HS840CRP001E	CHLORINE SAMPLE PUMP L-R STAT.	DI	REMOTE	LOCAL				43	1	2	1	1				
HS840CRP001F	CHLORINE SAMPLE PUMP ESTOP STA	DI	E-STOP	NORMAL				43	1	2	1	2				
MS840CRP001A	CHLORINE SAMPLE PUMP RUN STAT.	DI	RUN	OFF				43	1	2	1	3				
								43	1	2	1	4				
		DI						43	1	2	1	5				
HS840PFE001E	BCCT EFFLUENT SAMPLE PUMP L-R STATUS	DI	REMOTE	LOCAL				43	1	2	1	6				
HS840PFE001F	BCCT EFFLUENT SAMPLE PUMP ESTOP STATUS	DI	E-STOP	NORMAL				43	1	2	1	7				
MS840PFE001A	BCCT EFFLUENT SAMPLE PUMP RUN STATUS	DI	RUN	OFF				43	1	2	1	8				
HV840GCF001E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL				43	1	2	1	9				
ZSO840GCF001	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL				43	1	2	1	10				
ZSC840GCF001	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL				43	1	2	1	11				
HV840GCF002E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL				43	1	2	1	12				
ZSO840GCF002	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL				43	1	2	1	13				
ZSC840GCF002	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL				43	1	2	1	14				
HV840GCF003E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL				43	1	2	1	15				
ZSO840GCF003	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL				43	1	2	1	16				
LSH840GCI001	BCCT INFLUENT CHAMBER LEVEL ST	DI	HIGH	NORMAL				43	1	2	2	1				
LSL840GCI001	BCCT INFLUENT CHAMBER LEVEL ST	DI	LOW	NORMAL				43	1	2	2	2				
LSH840GCI002	BCCT CHANNEL 1 LEVEL STATUS	DI	HIGH	NORMAL				43	1	2	2	3				
LSL840GCI002	BCCT CHANNEL 1 LEVEL STATUS	DI	LOW	NORMAL				43	1	2	2	4				
LSH840GCI003	BCCT CHANNEL 2 LEVEL STATUS	DI	HIGH	NORMAL				43	1	2	2	5				
LSL840GCI003	BCCT CHANNEL 2 LEVEL STATUS	DI	LOW	NORMAL				43	1	2	2	6				
LSH840GCE001	BCCT EFFLUENT CHAMBER LEVEL ST	DI	HIGH	NORMAL				43	1	2	2	7				
LSL840GCE001	BCCT EFFLUENT CHAMBER LEVEL ST	DI	LOW	NORMAL				43	1	2	2	8				
HS840SMP001E	COMPOSITE SAMPLER NO.1 STATUS	DI	REMOTE	LOCAL				43	1	2	2	9				
HS840SMP002E	COMPOSITE SAMPLER NO.2 STATUS	DI	REMOTE	LOCAL				43	1	2	2	10				
HV840PLV001E	EFW FLUSHING WATER VALVE L-R	DI	REMOTE	LOCAL				43	1	2	2	11				
ZSO840PLV001	EFW FLUSHING WATER VALVE	DI	OPENED	TRAVEL				43	1	2	2	12				
ZSC840PLV001	EFW FLUSHING WATER VALVE	DI	CLOSED	TRAVEL				43	1	2	2	13				
XA840XXX001	SAMPLING HEAT TRACING ALARM	DI	ALARM	NORMAL				43	1	2	2	14				
PSH901PHF001	HYPOCHLORITE PUMP 1 HIGH PRESS	DI	HIGH	NORMAL				43	1	2	2	15				
PSH901PHF002	HYPOCHLORITE PUMP 2 HIGH PRESS	DI	HIGH	NORMAL				43	1	2	2	16				
HS840CRP001A	CHLORINE SAMPLE PUMP S/S CONTR	DO	START	STOP				43	1	2	3	1				
HS840PFE001A	BCC EFFLUENT SAMPLE PUMP S/S CONTROL	DO	START	STOP				43	1	2	3	2				
HV840SLV010	ANALYZER EFW FEED VALVE CTRL	DO	OPEN	CLOSE				43	1	2	3	3				
HV840SLV011	ANALYZER SAMPLE FEED VALVE CTRL	DO	OPEN	CLOSE				43	1	2	3	4				
HV840SLV020	ANALYZER EFW FEED VALVE CTRL	DO	OPEN	CLOSE				43	1	2	3	5				
HV840SLV021	ANALYZER SAMPLE FEED VALVE CTRL	DO	OPEN	CLOSE				43	1	2	3	6				
HS840GCF001A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	2	3	7				
HS840GCF001B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	2	3	8				
HS840GCF002A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	2	3	9				
HS840GCF002B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	2	3	10				
HS840GCF003A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	2	3	11				
HS840GCF003B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	2	3	12				
HS840SMP002A	COMPOSITE SAMPLER NO.2 CONTROL	DO	START	STOP				43	1	2	3	13				
HS902PDF001A	DEFOAMER FEED PUMP 1 S/S CTRL	DO	START	STOP				43	1	2	3	14				
HS902PDF002A	DEFOAMER FEED PUMP 2 S/S CTRL	DO	START	STOP				43	1	2	3	15				
HV902SLV001	DEFOAMER EFW VALVE CONTROL	DO	OPEN	CLOSE				43	1	2	3	16				
LSHH900THS001	TEMPORARY HYPO TANK1 LEVEL	DI	HIHI	NORMAL				43	1	2	4	1				
LSHH900THS002	TEMPORARY HYPO TANK2 LEVEL	DI	HIHI	NORMAL				43	1	2	4	2				
LSL900PHF004	RAS HYPO PUMP 2 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	2	4	3				
LSHH900CHS001	TEMPORARY HYPO CONTAINMENT	DI	HIGH	NORMAL				43	1	2	4	4				
HV900DIV020E	TEMP HYPO TANK1 OUTLET VLV L-R	DI	REMOTE	LOCAL				43	1	2	4	5				
ZSO900DIV020	TEMP HYPO TANK1 OUTLET VALVE	DI	OPENED	TRAVEL				43	1	2	4	6				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ZSC900DIV020	TEMP HYPO TANK1 OUTLET VALVE	DI	CLOSED	TRAVEL				43	1	2	4	7				
HV900DIV021E	TEMP HYPO TANK2 OUTLET VLV L-R	DI	REMOTE	LOCAL				43	1	2	4	8				
ZSO900DIV021	TEMP HYPO TANK2 OUTLET VALVE	DI	OPENED	TRAVEL				43	1	2	4	9				
ZSC900DIV021	TEMP HYPO TANK2 OUTLET VALVE	DI	CLOSED	TRAVEL				43	1	2	4	10				
LSL900PHF001	EFW HYPO PUMP 1 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	2	4	11				
LSL900PHF002	EFW HYPO PUMP 2 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	2	4	12				
LSL900PHF003	RAS HYPO PUMP 1 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	2	4	13				
MS901PHT001A	TEMPORARY HYPO TRANSFER PUMP1	DI	RUN	OFF				43	1	2	4	14				
MS901PHT002A	TEMPORARY HYPO TRANSFER PUMP2	DI	RUN	OFF				43	1	2	4	15				
XA902XXX002	DEFOAMER HVAC ALARM	DI	ALARM	NORMAL				43	1	2	4	16				
UA900EFH001	HP EFW PUMP 1 VFD	DI	FAULT	OK				43	1	2	5	1				
ZSC900SRV001	HP EFW SURGE RELIEF VALVE	DI	CLOSED	OPEN				43	1	2	5	2				
MS900SEF001A	HP EFW STRAINER 1	DI	ON	OFF				43	1	2	5	3				
ZSO900SEF001	EFW STRAINER 1 BACKWASH VALVE	DI	OPEN	CLOSED				43	1	2	5	4				
ZSC900SEF001	EFW STRAINER 1 BACKWASH VALVE	DI	CLOSED	OPEN				43	1	2	5	5				
MS900SEF002A	HP EFW STRAINER 2	DI	ON	OFF				43	1	2	5	6				
ZSO900SEF002	EFW STRAINER 2 BACKWASH VALVE	DI	OPEN	CLOSED				43	1	2	5	7				
ZSC900SEF002	EFW STRAINER 2 BACKWASH VALVE	DI	CLOSED	OPEN				43	1	2	5	8				
UA900EFH002	HP EFW PUMP 2 VFD	DI	FAULT	OK				43	1	2	5	9				
SPARE	FCV840TCC001 MODE	DI	REMOTE	LOCAL				43	1	2	5	10				
MS900PHF001A	TEMPORARY HYPO FEED PUMP1	DI	RUN	OFF				43	1	2	5	11				
HS900PHF001E	TEMPORARY HYPO FEED PUMP1 L-R	DI	REMOTE	LOCAL				43	1	2	5	12				
HS900PHF001F	TEMP HYPO FEED PUMP1 ESTOP	DI	E-STOP	NORMAL				43	1	2	5	13				
MS900PHF002A	TEMPORARY HYPO FEED PUMP2	DI	RUN	OFF				43	1	2	5	14				
HS900PHF002E	TEMPORARY HYPO FEED PUMP2 L-R	DI	REMOTE	LOCAL				43	1	2	5	15				
HS900PHF002F	TEMP HYPO FEED PUMP2 ESTOP	DI	E-STOP	NORMAL				43	1	2	5	16				
MS900EFH003A	H.P. EFW PUMP3 RUN STATUS	DI	RUN	OFF				43	1	2	6	1				
MS900LTG001	EFW STREET LIGHTING STATUS	DI	ON	OFF				43	1	2	6	2				
EAF900PNL100	DPU43-900PRI.POWER TVSS STATUS	DI	ALARM	NORMAL				43	1	2	6	3				
EAF900PNL101	DPU43-900SEC.POWER TVSS STATUS	DI	ALARM	NORMAL				43	1	2	6	4				
EN900UPS001	DPU43-900 UPS INVERTER STATUS	DI	BATTERY	OFF				43	1	2	6	5				
EAM900UPS001	DPU43-900 UPS ALARM STATUS	DI	NORMAL	ALARM				43	1	2	6	6				
		DI						43	1	2	6	7				
		DI						43	1	2	6	8				
XS900PHF001	HYPOCHLORITE PUMP 1 VFD FAULT	DI	ALARM	NORMAL				43	1	2	6	9				
XS900PHF002	HYPOCHLORITE PUMP 2 VFD FAULT	DI	ALARM	NORMAL				43	1	2	6	10				
HV840GCF005E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL				43	1	2	6	11				
ZSO840GCF005	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL				43	1	2	6	12				
ZSC840GCF005	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL				43	1	2	6	13				
FSH900EES001	TEMP HYPO TRUCK EYEWASH STATUS	DI	ALARM	NORMAL				43	1	2	6	14				
FSH900EES002	TEMP HYPO PUMP EYEWASH STATUS	DI	ALARM	NORMAL				43	1	2	6	15				
MS900LTG001A	EFW BUILDING LIGHTING	DI	ON	OFF				43	1	2	6	16				
FSL900EFH002	H.P. EFW PUMP2 SEAL H2O STATUS	DI	NORMAL	LOW				43	1	2	7	1				
FSL900EFH004	H.P. EFW PUMP4 SEAL H2O STATUS	DI	NORMAL	LOW				43	1	2	7	2				
PSL840CRP003	FINAL EFF CL2 METER PRESSURE	DI	LOW	NORMAL				43	1	2	7	3				
MS900EFH002A	H.P. EFW PUMP2 RUN STATUS	DI	RUN	OFF				43	1	2	7	4				
MS900EFH004A	H.P. EFW PUMP4 RUN STATUS	DI	RUN	OFF				43	1	2	7	5				
HV835PHF003E	HYPO VALVE W-RAS L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	7	6				
HS900EFH002E	H.P. EFW PUMP2 L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	7	7				
HS900EFH004E	H.P. EFW PUMP4 L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	7	8				
HS900EFH002F	H.P. EFW PUMP2 ESTOP STATUS	DI	ESTOP	NORMAL				43	1	2	7	9				
HS900EFH004F	H.P. EFW PMUMP4 ESTOP STATUS	DI	ESTOP	NORMAL				43	1	2	7	10				
ZSC900EFH002	H.P. EFW PUMP2 VALVE	DI	CLOSED	TRAVEL				43	1	2	7	11				
ZSC900EFH004	H.P. EFW PUMP4 VALVE	DI	CLOSED	TRAVEL				43	1	2	7	12				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
ZSO900EFH002	H.P. EFW PUMP2 VALVE	DI	OPEN	TRAVEL				43	1	2	7	13				
ZSO900EFH004	H.P. EFW PUMP4 VALVE	DI	OPEN	TRAVEL				43	1	2	7	14				
UAS900EFH002	H.P. EFW PUMP2 VALVE STATUS	DI	FAILED	NORMAL				43	1	2	7	15				
UAS900EFH004	H.P. EFW PUMP4 VALVE STATUS	DI	FAILED	NORMAL				43	1	2	7	16				
FSL900EFH003	H.P. EFW PUMP3 SEAL H2O STATUS	DI	NORMAL	LOW				43	1	2	8	1				
MS900EFH001A	H.P. EFW PUMP1 RUN STATUS	DI	RUN	OFF				43	1	2	8	2				
FSL900EFH001	H.P. EFW PUMP1 SEAL H2O STATUS	DI	NORMAL	LOW				43	1	2	8	3				
MS840CRP002A	CONTACT BASIN SAMPLE PMP RUN	DI	RUN	OFF				43	1	2	8	4				
HV835PHF009E	HYP0 VALVE E-RAS L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	8	5				
HS900EFH001E	H.P. EFW PUMP1 L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	8	6				
HS900EFH003E	H.P. EFW PUMP3 L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	8	7				
HS900EFH001F	H.P. EFW PUMP1 ESTOP STATUS	DI	ESTOP	NORMAL				43	1	2	8	8				
HS900EFH003F	H.P. EFW PUMP3 ESTOP STATUS	DI	ESTOP	NORMAL				43	1	2	8	9				
HV900PHF004E	HYP0 VALVE F.EFF. L-O-R STATUS	DI	REMOTE	LOCAL				43	1	2	8	10				
ZSC900EFH001	H.P. EFW PUMP1 VALVE	DI	CLOSED	TRAVEL				43	1	2	8	11				
ZSC900EFH003	H.P. EFW PUMP3 VALVE	DI	CLOSED	TRAVEL				43	1	2	8	12				
ZSO900EFH001	H.P. EFW PUMP1 VALVE	DI	OPEN	TRAVEL				43	1	2	8	13				
ZSO900EFH003	H.P. EFW PUMP3 VALVE	DI	OPEN	TRAVEL				43	1	2	8	14				
UAS900EFH001	H.P. EFW PUMP1 VALVE STATUS	DI	FAILED	NORMAL				43	1	2	8	15				
UAS900EFH003	H.P. EFW PUMP3 VALVE STATUS	DI	FAILED	NORMAL				43	1	2	8	16				
HS900EFH002A	H.P. EFW PUMP2 START CONTROL	DO	START	CLEAR				43	1	3	1	1				
HS900EFH001A	H.P. EFW PUMP1 START CONTROL	DO	START	CLEAR				43	1	3	1	2				
HS900LTG001	EFW STREET LIGHTING CONTROL	DO	ON	OFF				43	1	3	1	3				
HS900EFH002B	H.P. EFW PUMP2 STOP CONTROL	DO	STOP	CLEAR				43	1	3	1	4				
HS900EFH001B	H.P. EFW PUMP1 STOP CONTROL	DO	STOP	CLEAR				43	1	3	1	5				
HS900PHF001A	TEMP HYP0 FEED PUMP1 S/S CTRL	DO	START	STOP				43	1	3	1	6				
HS900PHF002A	TEMP HYP0 FEED PUMP2 S/S CTRL	DO	START	STOP				43	1	3	1	7				
HV900DIV020A	TEMP HYP0 TANK1 OUTLET VLV CTL	DO	OPEN	STOP				43	1	3	1	8				
HV900DIV020B	TEMP HYP0 TANK1 OUTLET VLV CTL	DO	CLOSE	STOP				43	1	3	1	9				
HV900DIV021A	TEMP HYP0 TANK2 OUTLET VLV CTL	DO	OPEN	STOP				43	1	3	1	10				
HV900DIV021B	TEMP HYP0 TANK2 OUTLET VLV CTL	DO	CLOSE	STOP				43	1	3	1	11				
HS840GCF004A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	3	1	12				
HS840GCF004B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	3	1	13				
HS900PHF003A	HYP0 FEED PUMP3 S/S CTRL	DO	START	STOP				43	1	3	1	14				
HS900PHF004A	HYP0 FEED PUMP4 S/S CTRL	DO	START	STOP				43	1	3	1	15				
HS900LTG001A	EFW BUILDING LIGHTING CONTROL	DO	ON	OFF				43	1	3	1	16				
HS900EFH003A	H.P. EFW PUMP3 START CONTROL	DO	START	CLEAR				43	1	3	2	1				
HS900EFH004A	H.P. EFW PUMP4 START CONTROL	DO	START	CLEAR				43	1	3	2	2				
HS900EFH003B	H.P. EFW PUMP3 STOP CONTROL	DO	STOP	CLEAR				43	1	3	2	3				
HS900EFH004B	H.P. EFW PUMP4 STOP CONTROL	DO	STOP	CLEAR				43	1	3	2	4				
HV840PLV001A	EFW FLUSHING WATER VALVE CTL	DO	OPEN	STOP				43	1	3	2	5				
HV840PLV001B	EFW FLUSHING WATER VALVE CTL	DO	CLOSE	STOP				43	1	3	2	6				
HS840GCF005A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	3	2	7				
HS840GCF005B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	3	2	8				
HS840GCF006A	BCCT FLUSHING GATE OPEN	DO	OPEN	TRAVEL				43	1	3	2	9				
HS840GCF006B	BCCT FLUSHING GATE CLOSE	DO	CLOSE	TRAVEL				43	1	3	2	10				
HS840GCE001A	BCCT EFFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				43	1	3	2	11				
HS840GCE001B	BCCT EFFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				43	1	3	2	12				
HS840GCE002A	BCCT EFFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				43	1	3	2	13				
HS840GCE002B	BCCT EFFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				43	1	3	2	14				
		DO						43	1	3	2	15				
HN900EVA001	EFW EVACUATION ALARM	DO	ON	OFF				43	1	3	2	16				
PSH902PDF001	DEFOAMER FEED PUMP1 HIGH PRESS	DI	HIGH	NORMAL				43	1	3	3	1				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
PSH902PDF002	DEFOAMER FEED PUMP2 HIGH PRESS	DI	HIGH	NORMAL				43	1	3	3	2				
MS902PDF001A	DEFOAMER FEED PUMP 1 RUN STAT	DI	RUN	OFF				43	1	3	3	3				
HS902PDF001F	DEFOAMER FEED PUMP 1 ESTOP	DI	E-STOP	NORMAL				43	1	3	3	4				
HS902PDF001E	DEFOAMER FEED PUMP 1 L-R	DI	REMOTE	LOCAL				43	1	3	3	5				
XS902PDF001	DEFOAMER FEED PUMP 1 VFD FAULT	DI	ALARM	NORMAL					1	3	3	6				
MS902PDF002A	DEFOAMER FEED PUMP 2 RUN STAT	DI	RUN	OFF					1	3	3	7				
HS902PDF002F	DEFOAMER FEED PUMP 2 ESTOP	DI	E-STOP	NORMAL					1	3	3	8				
HS902PDF002E	DEFOAMER FEED PUMP 2 L-R	DI	REMOTE	LOCAL					1	3	3	9				
XS902PDF002	DEFOAMER FEED PUMP 2 VFD FAULT	DI	ALARM	NORMAL					1	3	3	10				
FSH900SSH004	DEFOAMER SAFETY SHOWER	DI	ALARM	NORMAL				43	1	3	3	11				
XA902HTC001A	DEFOAMER HEAT TRACING ALARM	DI	ALARM	NORMAL				43	1	3	3	12				
XA902HTC001B	DEFOAMER HEAT TRACING ALARM	DI	ALARM	NORMAL				43	1	3	3	13				
XA902HTC001C	DEFOAMER HEAT TRACING ALARM	DI	ALARM	NORMAL				43	1	3	3	14				
XA902HVC002A	DEFOAMER HVAC ALARM	DI	ALARM	NORMAL				43	1	3	3	15				
XA902HVC002B	DEFOAMER HVAC ALARM	DI	ALARM	NORMAL				43	1	3	3	16				
HV840GCE001E	BCCT EFFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				43	1	3	4	1				
ZSO840GCE001	BCCT EFFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				43	1	3	4	2				
ZSC840GCE001	BCCT EFFLUENT CHMBR VLV CLOSED	DI	CLOSED	TRAVEL				43	1	3	4	3				
HV840GCE002E	BCCT EFFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				43	1	3	4	4				
ZSO840GCE002	BCCT EFFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				43	1	3	4	5				
ZSC840GCE002	BCCT EFFLUENT CHMBR VLV CLOSED	DI	CLOSED	TRAVEL					1	3	4	6				
HV840GCF006E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL					1	3	4	7				
ZSC840GCF003	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL					1	3	4	8				
HV840GCF004E	BCCT FLUSHING GATE VALVE L-R	DI	REMOTE	LOCAL					1	3	4	9				
ZSO840GCF004	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL					1	3	4	10				
ZSC840GCF004	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL				43	1	3	4	11				
ZSO840GCF006	BCCT FLUSHING GATE VALVE OPEN	DI	OPEN	TRAVEL				43	1	3	4	12				
ZSC840GCF006	BCCT FLUSHING GATE VALVE CLOSE	DI	CLOSED	TRAVEL				43	1	3	4	13				
								43	1	3	4	14				
								43	1	3	4	15				
								43	1	3	4	16				
PSH900PHF003	HYPOCHLORITE PUMP 3 HIGH PRESS	DI	HIGH	NORMAL				43	1	3	5	1				
PSH900PHF004	HYPOCHLORITE PUMP 4 HIGH PRESS	DI	HIGH	NORMAL				43	1	3	5	2				
MS900PHF003A	HYPO FEED PUMP3	DI	RUN	OFF				43	1	3	5	3				
HS900PHF003E	HYPO FEED PUMP3 L-R	DI	REMOTE	LOCAL				43	1	3	5	4				
HS900PHF003F	HYPO FEED PUMP3 ESTOP	DI	E-STOP	NORMAL				43	1	3	5	5				
XS900PHF003	HYPOCHLORITE PUMP 3 VFD FAULT	DI	ALARM	NORMAL					1	3	5	6				
MS900PHF004A	HYPO FEED PUMP4	DI	RUN	OFF					1	3	5	7				
HS900PHF004E	HYPO FEED PUMP4 L-R	DI	REMOTE	LOCAL					1	3	5	8				
HS900PHF004F	HYPO FEED PUMP4 ESTOP	DI	E-STOP	NORMAL					1	3	5	9				
XS900PHF004	HYPOCHLORITE PUMP 4 VFD FAULT	DI	ALARM	NORMAL					1	3	5	10				
								43	1	3	5	11				
								43	1	3	5	12				
								43	1	3	5	13				
								43	1	3	5	14				
								43	1	3	5	15				
								43	1	3	5	16				
FIT840CRP001	RESIDUAL CHLORINE ANALYZER FLOW	AI			0	TBD	TBD	43	1	3	6	1				
FIT840PFE001	RESIDUAL CHLORINE ANALYZER FLOW	AI			0	TBD	TBD	43	1	3	6	2				
LIT840GCI001	BCCT INFLUENT CHAMBER LEVEL	AI			0	TBD	TBD	43	1	3	6	3				
LIT840GCI002	BCCT CHANNEL 1 LEVEL	AI			0	TBD	TBD	43	1	3	6	4				
LIT840GCI003	BCCT CHANNEL 2 LEVEL	AI			0	TBD	TBD	43	1	3	6	5				
LIT840GCE001	BCCT EFFLUENT CHAMBER LEVEL	AI			0	TBD	TBD	43	1	3	6	6				
FIT840BFV004	BCCT CHANNEL AIR FLOW	AI			0	TBD	TBD	43	1	3	6	7				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
FIT840BFV002	BCCT OUTFALL CHANNEL AIR FLOW	AI			0	TBD	TBD	43	1	3	6	8				
	PLEASE CONFIRM THAT THIS IS AN EMPTY SLOT.								1	3	7	1-16				
	PLEASE CONFIRM THAT THIS IS AN EMPTY SLOT.								1	3	8	1-16				
EXTRA "AI" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
FIT902PDF001	DEFOAMER FLOW	AI			0	TBD	TBD	43	1	4	1	1				
WIT902PDF001	DEFOAMER STORAGE TOTE WEIGHT	AI			0	TBD	TBD	43	1	4	1	2				
ZIT840BFV004	BCCT CHANNEL VALVE STATUS	AI			0	100	%	43	1	4	1	3				
ZIT840BFV002	BCCT OUTFALL CHANNEL VLV STAT.	AI			0	100	%	43	1	4	1	4				
								43	1	4	1	5				
								43	1	4	1	6				
								43	1	4	1	7				
								43	1	4	1	8				
EXTRA "AO" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
SC900PHF001	HYPOCHLORITE PUMP 1 SPEED CTRL	AO			0	100	%	43	1	4	2	1				
SC900PHF002	HYPOCHLORITE PUMP 2 SPEED CTRL	AO			0	100	%	43	1	4	2	2				
SC902PDF001	DEFOAMER FEED PUMP1 SPEED CTRL	AO			0	100	%	43	1	4	2	3				
SC902PDF002	DEFOAMER FEED PUMP2 SPEED CTRL	AO			0	100	%	43	1	4	2	4				
EXTRA "AO" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
SC900PHF003	HYPOCHLORITE PUMP 3 SPEED CTRL	AO			0	100	%	43	1	4	3	1				
SC900PHF004	HYPOCHLORITE PUMP 4 SPEED CTRL	AO			0	100	%	43	1	4	3	2				
ZC840BFV004	BCCT CHANNEL VALVE CONTROL	AO			0	100	%	43	1	4	3	3				
ZC840BFV002	BCCT OUTFALL CHANNEL VLV CTRL	AO			0	100	%	43	1	4	3	4				
EXTRA "DI" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
TSH840GCF001	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL				43	1	4	5	1				
LSL840GCF001	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL				43	1	4	5	2				
PSL840GCF001	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL				43	1	4	5	3				
XS840GCF001	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL				43	1	4	5	4				
HS840GCF001	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL				43	1	4	5	5				
TSH840GCF002	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL					1	4	5	6				
LSL840GCF002	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL					1	4	5	7				
PSL840GCF002	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL					1	4	5	8				
XS840GCF002	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL					1	4	5	9				
HS840GCF002	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL					1	4	5	10				
TSH840GCF003	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL				43	1	4	5	11				
LSL840GCF003	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL				43	1	4	5	12				
PSL840GCF003	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL				43	1	4	5	13				
XS840GCF003	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL				43	1	4	5	14				
HS840GCF003	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL				43	1	4	5	15				
LSL902PDF001	DEFOAMER PUMP 1 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	4	5	16				
EXTRA "DI" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
TSH840GCF004	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL				43	1	4	6	1				
LSL840GCF004	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL				43	1	4	6	2				
PSL840GCF004	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL				43	1	4	6	3				
XS840GCF004	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL				43	1	4	6	4				
HS840GCF004	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL					1	4	6	5				
TSH840GCF005	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL					1	4	6	6				
LSL840GCF005	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL					1	4	6	7				
PSL840GCF005	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL					1	4	6	8				
XS840GCF005	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL					1	4	6	9				
HS840GCF005	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL				43	1	4	6	10				
TSH840GCF006	FLUSHING VALVE FLUID HIGH TEMP	DI	HIGH	NORMAL				43	1	4	6	11				
LSL840GCF006	FLUSHING VALVE FLUID LEVEL LOW	DI	LOW	NORMAL				43	1	4	6	12				
PSL840GCF006	FLUSHING VALVE FLUID PRESSURE LOW	DI	LOW	NORMAL				43	1	4	6	13				
XS840GCF006	FLUSHING VALVE MOTOR OVERLOAD	DI	ALARM	NORMAL				43	1	4	6	14				
HS840GCF006	FLUSHING VALVE ESTOP	DI	E-STOP	NORMAL				43	1	4	6	15				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
LSL902PDF002	DEFOAMER PUMP 2 LUBRICANT LEAK	DI	ALARM	NORMAL				43	1	4	6	16				
EXTRA "AI" CARD REQUIRED (THIS IS A SUGGESTED POSITION. AVAILABILITY NEEDS TO BE CONFIRMED)																
	PLEASE CONFIRM THAT THIS IS AN EMPTY SLOT.							43	1	4	4	1-8				
	PLEASE CONFIRM THAT THIS IS AN EMPTY SLOT.							43	1	4	7	1-16				
	PLEASE CONFIRM THAT THIS IS AN EMPTY SLOT.							43	1	4	8	1-16				



ALLEGHENY COUNTY SANITARY AUTHORITY WASTEWATER TREATMENT PLANT ALCOSAN CSO BYPASS AND DISINFECTION PROJECT CONTRACT NO. 1760 DCS I/O LIST DPU041/91 - FACILITY 865 - BYPASS DISINFECTION CHEMICAL BUILDING - ELECTRICAL ROOM

REVISION INDEX	
REV NO.	DESCRIPTION
1	60% DESIGN SUBMITTAL
2	90% DESIGN SUBMITTAL
3	100% DESIGN SUBMITTAL
4	BID READY SUBMITTAL
5	ADDENDUM 3

GENERAL NOTES:

- This document is based on ALCOSAN CS Guidelines Rev.5 document and Microsoft Excel template provided by ALCOSAN (FDC_I/Olist_template_rev.1.xlsx)
- Refer to drawing number 00-I-02 - DCS NETWORK COMMUNICATION for System Architecture details.
- The new signals included on this DCS I/O List refer to the following P&ID numbers:
 840-I-01 - BYPASS CHLORINE CONTACT TANK
 865-I-01 - SODIUM HYPOCHLORITE STORAGE TANKS
 865-I-02 - SODIUM HYPOCHLORITE FEED PUMPS
 865-I-03 - SODIUM HYPOCHLORITE TRANSFER PUMPS

REV NO.	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY	APPV
1	10/12/2021	60% DESIGN SUBMITTAL	GCF	DPD	RLC
2	2/4/2022	90% DESIGN SUBMITTAL	GCF	DPD	RLC
3	5/6/2022	BID READY SUBMITTAL	GCF	DPD	RLC
4	8/8/2022	ADDENDUM 3	GCF	DPD	RLC

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
XS865UPS001	DPU 041/91 UPS01 FAULT	DI	ALARM	NORMAL				041/91	1	1	1	1				
HS865UPS001	DPU 041/91 UPS01 ON BATTERY	DI	ALARM	NORMAL				041/91	1	1	1	2				
XS865UPS002	DPU 041/91 UPS02 FAULT	DI	ALARM	NORMAL				041/91	1	1	1	3				
HS865UPS002	DPU 041/91 UPS02 ON BATTERY	DI	ALARM	NORMAL				041/91	1	1	1	4				
XS865MCC0621	MAIN CIRCUIT BREAKER 1 POSITION	DI	OPEN	CLOSED				041/91	1	1	1	5				
XS865MCC0622	MAIN CIRCUIT BREAKER 2 POSITION	DI	OPEN	CLOSED				041/91	1	1	1	6				
XS865MCC0623	TIE CIRCUIT BREAKER POSITION	DI	OPEN	CLOSED				041/91	1	1	1	7				
		DI						041/91	1	1	1	8				
LSLL840PDW001	BCCT DEWATERING PUMP LEVEL ST.	DI	LOWLOW	NORMAL				041/91	1	1	1	9				
LSL840PDW001	BCCT DEWATERING PUMP LEVEL ST.	DI	LOW	NORMAL				041/91	1	1	1	10				
TSH840MXR001	BCCT INDUC. MIXER HIGH TEMP SW	DI	NORMAL	HIGH				041/91	1	1	1	11				
HS840MXR001E	BCCT INDUC. MIXER L-R STATUS	DI	REMOTE	LOCAL				041/91	1	1	1	12				
HS840MXR001F	BCCT INDUC. MIXER ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	1	13				
MS840MXR001A	BCCT INDUC. MIXER RUN STATUS	DI	RUN	OFF				041/91	1	1	1	14				
TSH840MXR002	BCCT INDUC. MIXER HIGH TEMP SW	DI	NORMAL	HIGH				041/91	1	1	1	15				
HS840MXR002E	BCCT INDUC. MIXER L-R STATUS	DI	REMOTE	LOCAL				041/91	1	1	1	16				
HS840MXR002F	BCCT INDUC. MIXER ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	2	1				
MS840MXR002A	BCCT INDUC. MIXER RUN STATUS	DI	RUN	OFF				041/91	1	1	2	2				
TSH840MXR003	BCCT INDUC. MIXER HIGH TEMP SW	DI	NORMAL	HIGH				041/91	1	1	2	3				
HS840MXR003E	BCCT INDUC. MIXER L-R STATUS	DI	REMOTE	LOCAL				041/91	1	1	2	4				
HS840MXR003F	BCCT INDUC. MIXER ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	2	5				
MS840MXR003A	BCCT INDUC. MIXER RUN STATUS	DI	RUN	OFF				041/91	1	1	2	6				
TSH840MXR004	BCCT INDUC. MIXER HIGH TEMP SW	DI	NORMAL	HIGH				041/91	1	1	2	7				
HS840MXR004E	BCCT INDUC. MIXER L-R STATUS	DI	REMOTE	LOCAL				041/91	1	1	2	8				
HS840MXR004F	BCCT INDUC. MIXER ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	2	9				
MS840MXR004A	BCCT INDUC. MIXER RUN STATUS	DI	RUN	OFF				041/91	1	1	2	10				
FSL840PDW001	BCCT DEWATER PUMP 1 SEAL H2O STATUS	DI	NORMAL	LOW				041/91	1	1	2	11				
TSH840PDW001	BCCT DEWATER PUMP 1 HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	2	12				
HS840PDW001E	BCCT DEWATER PUMP	DI	ALARM	NORMAL				041/91	1	1	2	13				
HS840PDW001F	BCCT DEWATER PUMP ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	2	14				
MS840PDW001A	BCCT DEWATER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	1	2	15				
HS840PDW002E	BCCT DEWATER PUMP	DI	ALARM	NORMAL				041/91	1	1	2	16				
HS840PDW002F	BCCT DEWATER PUMP ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	3	1				
MS840PDW002A	BCCT DEWATER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	1	3	2				
FSL840PDW002	BCCT DEWATER PUMP 2 SEAL H2O STATUS	DI	NORMAL	LOW				041/91	1	1	3	3				
TSH840PDW002	BCCT DEWATER PUMP 2 HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	3	4				
HS840PDW003E	BCCT DEWATER PUMP FAULT	DI	ALARM	NORMAL				041/91	1	1	3	5				
HS840PDW003F	BCCT DEWATER PUMP ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	3	6				
MS840PDW003A	BCCT DEWATER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	1	3	7				
HS840PDW004E	BCCT DEWATER PUMP FAULT	DI	ALARM	NORMAL				041/91	1	1	3	8				
HS840PDW004F	BCCT DEWATER PUMP ESTOP STATUS	DI	E-STOP	NORMAL				041/91	1	1	3	9				
MS840PDW004A	BCCT DEWATER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	1	3	10				
HV840GCI001E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	3	11				
ZSO840GCI001	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	3	12				
ZSC840GCI001	BCCT INFLUENT CHAMBER VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	3	13				
HV840GCI002E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	3	14				
ZSO840GCI002	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	3	15				
ZSC840GCI002	BCCT INFLUENT CHAMBER VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	3	16				
HV840GCI003E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	4	1				
ZSO840GCI003	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	4	2				
ZSC840GCI003	BCCT INFLUENT CHAMBER VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	4	3				
HV840GCI004E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	4	4				
ZSO840GCI004	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	4	5				
ZSC840GCI004	BCCT INFLUENT CHAMBER VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	4	6				

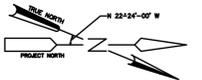
Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
HV840GCI005E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	4	7				
ZSO840GCI005	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	4	8				
ZSC840GCI005	BCCT INFLUENT CHMBR VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	4	9				
HV840GCI006E	BCCT INFLUENT CHAMBER VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	4	10				
ZSO840GCI006	BCCT INFLUENT CHAMBER VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	4	11				
ZSC840GCI006	BCCT INFLUENT CHMBR VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	4	12				
HV840GCI007E	BCCT DEWATERING PUMP GATE L-R	DI	REMOTE	LOCAL				041/91	1	1	4	13				
ZSO840GCI007	BCCT DEWATERING PUMP GATE OPEN	DI	OPEN	TRAVEL				041/91	1	1	4	14				
ZSC840GCI007	BCCT DEWATERING PUMP GATE CLOSE	DI	CLOSED	TRAVEL				041/91	1	1	4	15				
								041/91	1	1	4	16				
FSL840PDW003	BCCT DEWATER PUMP 2 SEAL H2O STATUS	DI	NORMAL	LOW				041/91	1	1	5	1				
TSH840PDW002	BCCT DEWATER PUMP 2 HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	5	2				
FSL840PDW002	BCCT DEWATER PUMP 2 SEAL H2O STATUS	DI	NORMAL	LOW				041/91	1	1	5	3				
TSH840PDW002	BCCT DEWATER PUMP 2 HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	5	4				
								041/91	1	1	5	5				
								041/91	1	1	5	6				
								041/91	1	1	5	7				
								041/91	1	1	5	8				
								041/91	1	1	5	9				
								041/91	1	1	5	10				
								041/91	1	1	5	11				
								041/91	1	1	5	12				
								041/91	1	1	5	13				
								041/91	1	1	5	14				
								041/91	1	1	5	15				
								041/91	1	1	5	16				
								041/91	1	1	6	1				
								041/91	1	1	6	2				
								041/91	1	1	6	3				
								041/91	1	1	6	4				
								041/91	1	1	6	5				
								041/91	1	1	6	6				
								041/91	1	1	6	7				
HV840BFV004E	BCCT CHANNEL VALVE L-R	DI	REMOTE	LOCAL				041/91	1	1	6	8				
HV840BFV002E	BCCT OUTFALL CHANNEL VALVE L-R	DI	REMOTE	LOCAL				041/91	1	1	6	9				
LSHH865THS001	SODIUM HYPO TANK 1 LEVEL ST.	DI	HI-HI	NOT HH				041/91	1	1	6	10				
LSHH865THS002	SODIUM HYPO TANK 2 LEVEL ST.	DI	HI-HI	NOT HH				041/91	1	1	6	11				
LSHH865THS003	SODIUM HYPO TANK 3 LEVEL ST.	DI	HI-HI	NOT HH				041/91	1	1	6	12				
HV865DIV005E	SODIUM HYPO TANK 1 VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	6	13				
ZSO865DIV005	SODIUM HYPO TANK 1 VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	6	14				
ZSC865DIV005	SODIUM HYPO TANK 1 VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	6	15				
		DI						041/91	1	1	6	16				
HV865DIV011E	SODIUM HYPO TANK 2 VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	7	1				
ZSO865DIV011	SODIUM HYPO TANK 2 VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	7	2				
ZSC865DIV011	SODIUM HYPO TANK 2 VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	7	3				
HV865DIV017E	SODIUM HYPO TANK 3 VLV L-R	DI	REMOTE	LOCAL				041/91	1	1	7	4				
ZSO865DIV017	SODIUM HYPO TANK 3 VLV OPEN	DI	OPEN	TRAVEL				041/91	1	1	7	5				
ZSC865DIV017	SODIUM HYPO TANK 3 VLV CLOSED	DI	CLOSED	TRAVEL				041/91	1	1	7	6				
								041/91	1	1	7	7				
MS865SPP001A	HYPO SUMP PUMP RUN STATUS	DI	RUN	OFF				041/91	1	1	7	8				
LSH865SPP001	HYPO SUMP PUMP LEVEL STATUS	DI	HIGH	NORMAL				041/91	1	1	7	9				
								041/91	1	1	7	10				
FSH865SSH001	HYPO STORAGE SAFETY SHOWER	DI	ALARM	NORMAL				041/91	1	1	7	11				
FSH865SSH002	HYPO PUMP AREA SAFETY SHOWER	DI	ALARM	NORMAL				041/91	1	1	7	12				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
FSH865SSH003	HYP0 UNLOAD AREA SAFETY SHOWER	DI	ALARM	NORMAL				041/91	1	1	7	13				
XA865HTC003	SAFETY SHOWER HEAT TRACING ALARM	DI	ALARM	NORMAL				041/91	1	1	7	14				
PSH865PHF001	HYP0 FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	1	7	15				
TSH865PHF001	HYP0 FEED PUMP HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	7	16				
MS865PHF001A	HYP0 FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	1	8	1				
HS865PHF001F	HYP0 FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	1	8	2				
HS865PHF001E	HYP0 FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	1	8	3				
XS865PHF001	HYP0 FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	1	8	4				
LSL865PHF001	BCCT HYP0 FEED PUMP 1 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	1	8	5				
PSH865PHF002	HYP0 FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	1	8	6				
TSH865PHF002	HYP0 FEED PUMP HIGH TEMP	DI	HIGH	NORMAL				041/91	1	1	8	7				
MS865PHF002A	HYP0 FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	1	8	8				
HS865PHF002F	HYP0 FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	1	8	9				
HS865PHF002E	HYP0 FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	1	8	10				
XS865PHF002	HYP0 FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	1	8	11				
LSL865PHF002	BCCT HYP0 FEED PUMP 2 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	1	8	12				
PSH865PHF003	HYP0 FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	1	8	13				
TSH865PHF003	HYP0 FEED PUMP HIGH TEMP							041/91	1	1	8	14				
MS865PHF003A	HYP0 FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	1	8	15				
HS865PHF003F	HYP0 FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	1	8	16				
HS865PHF003E	HYP0 FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	2	1	1				
XS865PHF003	HYP0 FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	2	1	2				
LSL865PHF003	BCCT HYP0 FEED PUMP 3 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	2	1	3				
PSH865PHF004	HYP0 FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	2	1	4				
TSH865PHF004	HYP0 FEED PUMP HIGH TEMP	DI	HIGH	NORMAL				041/91	1	2	1	5				
MS865PHF004A	HYP0 FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	2	1	6				
HS865PHF004F	HYP0 FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	2	1	7				
HS865PHF004E	HYP0 FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	2	1	8				
XS865PHF004	HYP0 FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	2	1	9				
HV865DIV057E	HYP0 FEED VALVE L-R	DI	REMOTE	LOCAL				041/91	1	2	1	10				
		DI						041/91	1	2	1	11				
		DI						041/91	1	2	1	12				
		DI						041/91	1	2	1	13				
		DI						041/91	1	2	1	14				
		DI						041/91	1	2	1	15				
		DI						041/91	1	2	1	16				
		DI						041/91	1	2	2	1				
		DI						041/91	1	2	2	2				
		DI						041/91	1	2	2	3				
		DI						041/91	1	2	2	4				
		DI						041/91	1	2	2	5				
HS865HTP001E	HYP0 TRANSFER PUMP L-R STATUS	DI	REMOTE	LOCAL				041/91	1	2	2	6				
HS865HTP001F	HYP0 TRANSFER PUMP ESTOP STAT.	DI	E-STOP	NORMAL				041/91	1	2	2	7				
MS865HTP001A	HYP0 TRANSFER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	2	2	8				
HS865HTP002E	HYP0 TRANSFER PUMP L-R STATUS	DI	REMOTE	LOCAL				041/91	1	2	2	9				
HS865HTP002F	HYP0 TRANSFER PUMP ESTOP STAT.	DI	E-STOP	NORMAL				041/91	1	2	2	10				
MS865HTP002A	HYP0 TRANSFER PUMP RUN STATUS	DI	RUN	OFF				041/91	1	2	2	11				
XA865HTC001A	HYP0 HEAT TRACING ALARM	DI	ALARM	NORMAL				041/91	1	2	2	12				
XA865HTC001B	HYP0 HEAT TRACING ALARM	DI	ALARM	NORMAL				041/91	1	2	2	13				
XA865HTC001C	HYP0 HEAT TRACING ALARM	DI	ALARM	NORMAL				041/91	1	2	2	14				
MS865AHU001	HYP0 AIR HANDLING UNIT STATUS	DI	RUN	OFF				041/91	1	2	2	15				
XA865AHU001	HYP0 AIR HANDLING UNIT FAIL	DI	ALARM	NORMAL				041/91	1	2	2	16				
								041/91	1	2	3	1				

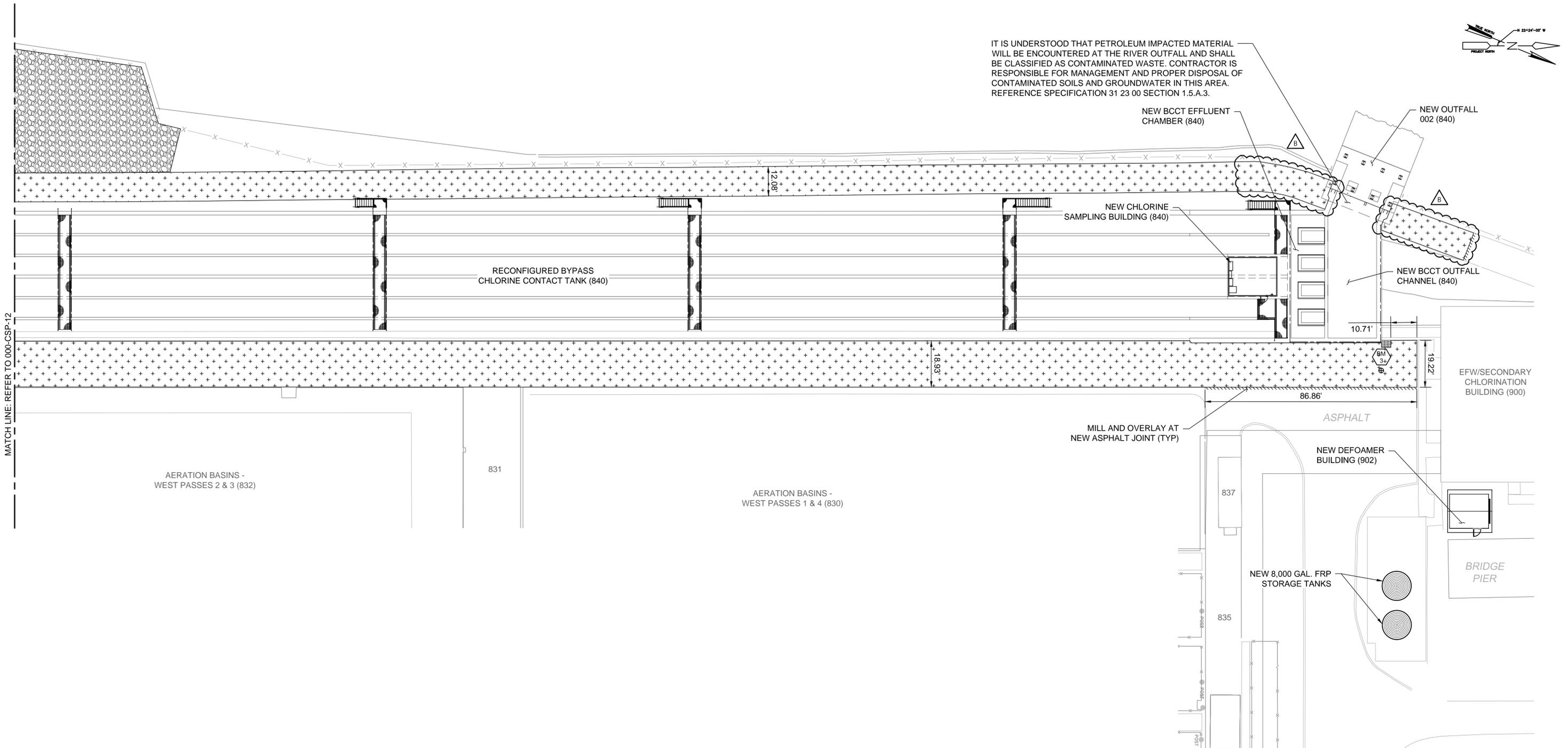
Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
								041/91	1	2	3	2				
								041/91	1	2	3	3				
LSL865PHF004	BCCT HYPO FEED PUMP 4 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	2	3	4				
PSH865PHF005	HYPO FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	2	3	5				
TSH865PHF005	HYPO FEED PUMP HIGH TEMP	DI	HIGH	NORMAL				041/91	1	2	3	6				
LSL865PHF005	BCCT HYPO FEED PUMP 5 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	2	3	7				
MS865PHF005A	HYPO FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	2	3	8				
HS865PHF005F	HYPO FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	2	3	9				
HS865PHF005E	HYPO FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	2	3	10				
XS865PHF005	HYPO FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	2	3	11				
HV865DIV100E	HYPO FEED VALVE L-R	DI	REMOTE	LOCAL				041/91	1	2	3	12				
ZSO865DIV100	HYPO FEED VALVE	DI	OPENED	TRAVEL				041/91	1	2	3	13				
ZSC865DIV100	HYPO FEED VALVE	DI	CLOSED	TRAVEL				041/91	1	2	3	14				
PSH865PHF006	HYPO FEED PUMP HIGH PRESS	DI	HIGH	NORMAL				041/91	1	2	3	15				
TSH865PHF006	HYPO FEED PUMP HIGH TEMP	DI	HIGH	NORMAL				041/91	1	2	3	16				
MS865PHF006A	HYPO FEED PUMP RUN STAT	DI	RUN	OFF				041/91	1	2	4	1				
HS865PHF006F	HYPO FEED PUMP ESTOP	DI	E-STOP	NORMAL				041/91	1	2	4	2				
HS865PHF006E	HYPO FEED PUMP L-R	DI	REMOTE	LOCAL				041/91	1	2	4	3				
XS865PHF006	HYPO FEED PUMP VFD FAULT	DI	ALARM	NORMAL				041/91	1	2	4	4				
LSL865PHF006	BCCT HYPO FEED PUMP 6 LUBRICANT LEAK	DI	ALARM	NORMAL				041/91	1	2	4	5				
								041/91	1	2	4	6				
								041/91	1	2	4	7				
								041/91	1	2	4	8				
								041/91	1	2	4	9				
								041/91	1	2	4	10				
								041/91	1	2	4	11				
								041/91	1	2	4	12				
								041/91	1	2	4	13				
								041/91	1	2	4	14				
								041/91	1	2	4	15				
								041/91	1	2	4	16				
	EMPTY SLOT	DI							1	2	5					
	EMPTY SLOT	DI							1	2	6					
	EMPTY SLOT	DI							1	2	7					
	EMPTY SLOT	DI							1	2	8					
								041/91	1	3	1	1				
								041/91	1	3	1	2				
								041/91	1	3	1	3				
								041/91	1	3	1	4				
								041/91	1	3	1	5				
								041/91	1	3	1	6				
								041/91	1	3	1	7				
		AI						041/91	1	3	1	8				
KIT865MCC621	FEEDER 1 POWER	AI			0	TBD	KWH	041/91	1	3	2	1				
KIT865MCC622	FEEDER 2 POWER	AI			0	TBD	KWH	041/91	1	3	2	2				
LIT865THS001	SODIUM HYPO TANK 1 LEVEL	AI			0	TBD	TBD	041/91	1	3	2	3				
LIT865THS002	SODIUM HYPO TANK 2 LEVEL	AI			0	TBD	TBD	041/91	1	3	2	4				
LIT865THS003	SODIUM HYPO TANK 3 LEVEL	AI			0	TBD	TBD	041/91	1	3	2	5				
ST865PHF005	HYPO FEED PUMP SPEED	AI			0	100	%	041/91	1	3	2	6				
ST865PHF006	HYPO FEED PUMP SPEED	AI			0	100	%	041/91	1	3	2	7				

Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
FIT865PHF005	SODIUM HYPOCHLRITE FEED FLOW	AI			1	TBD	TBD	041/91	1	3	2	8				
ST865PHF001	HYP0 FEED PUMP SPEED	AI			0	100	%	041/91	1	3	3	1				
ST865PHF002	HYP0 FEED PUMP SPEED	AI			0	100	%	041/91	1	3	3	2				
ST865PHF003	HYP0 FEED PUMP SPEED	AI			0	100	%	041/91	1	3	3	3				
ST865PHF004	HYP0 FEED PUMP SPEED	AI			0	100	%	041/91	1	3	3	4				
FIT865PHF001	SODIUM HYPOCHLRITE FEED FLOW	AI			0	TBD	TBD	041/91	1	3	3	5				
FIT865PHF002	SODIUM HYPOCHLRITE FEED FLOW	AI			0	TBD	TBD	041/91	1	3	3	6				
FIT865PHF003	SODIUM HYPOCHLRITE FEED FLOW	AI			0	TBD	TBD	041/91	1	3	3	7				
FIT865PHF004	SODIUM HYPOCHLRITE FEED FLOW	AI			1	TBD	TBD	041/91	1	3	3	8				
	EMPTY SLOT	AI							1	3	4					
	EMPTY SLOT	AI							1	3	5					
	EMPTY SLOT	AI							1	3	6					
	EMPTY SLOT	AI							1	3	7					
	EMPTY SLOT	AI							1	3	8					
								041/91	1	4	1	1				
								041/91	1	4	1	2				
SC865PHF005	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	1	3				
SC865PHF006	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	1	4				
SC865PHF001	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	2	1				
SC865PHF002	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	2	2				
SC865PHF003	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	2	3				
SC865PHF004	HYP0 FEED PUMP SPEED CTRL	AO			0	100	%	041/91	1	4	2	4				
	EMPTY SLOT	AO							1	4	3					
	EMPTY SLOT	AO							1	4	4					
HS840MXR001A	BCCT INDUC. MIXER S/S CONTROL	DO	START	STOP				041/91	1	4	5	1				
HS840MXR002A	BCCT INDUC. MIXER S/S CONTROL	DO	START	STOP				041/91	1	4	5	2				
HS840MXR003A	BCCT INDUC. MIXER S/S CONTROL	DO	START	STOP				041/91	1	4	5	3				
HS840MXR004A	BCCT INDUC. MIXER S/S CONTROL	DO	START	STOP				041/91	1	4	5	4				
HS840PDW001A	BCCT DEWATER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	5	5				
HS840PDW002A	BCCT DEWATER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	5	6				
HS840PDW003A	BCCT DEWATER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	5	7				
HS840PDW004A	BCCT DEWATER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	5	8				
HS840GCI001A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	5	9				
HS840GCI001B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	5	10				
HS840GCI002A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	5	11				
HS840GCI002B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	5	12				
HS840GCI003A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	5	13				
HS840GCI003B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	5	14				
HS840GCI004A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	5	15				
HS840GCI004B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	5	16				
HS840GCI005A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	6	1				
HS840GCI005B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	6	2				
HS840GCI006A	BCCT INFLUENT CHAMBER OPEN	DO	OPEN	TRAVEL				041/91	1	4	6	3				
HS840GCI006B	BCCT INFLUENT CHAMBER CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	6	4				
								041/91	1	4	6	5				

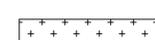
Point Name	IO English Description	IO Type	Set (1)	Reset (0)	BOTBAR	TOPBAR	Units	HW Address								
PN	ED		ST	RS	BW	TW	EU	DPU Number	Device	Branch	Module	Channel	Term +	Term -	Shield	Loop Supply
								041/91	1	4	6	6				
								041/91	1	4	6	7				
								041/91	1	4	6	8				
HS840GCI007A	BCCT DEWATERING GATE OPEN	DO	OPEN	TRAVEL				041/91	1	4	6	9				
HS840GCI007B	BCCT DEWATERING GATE CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	6	10				
								041/91	1	4	6	11				
								041/91	1	4	6	12				
								041/91	1	4	6	13				
								041/91	1	4	6	14				
								041/91	1	4	6	15				
								041/91	1	4	6	16				
								041/91	1	4	7	1				
								041/91	1	4	7	2				
								041/91	1	4	7	3				
								041/91	1	4	7	4				
								041/91	1	4	7	5				
								041/91	1	4	7	6				
HV865DIV005A	SODIUM HYPO TANK 1 VALVE OPEN	DO	OPEN	TRAVEL				041/91	1	4	7	7				
HV865DIV005B	SODIUM HYPO TANK 1 VALVE CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	7	8				
HV865DIV011A	SODIUM HYPO TANK 2 VALVE OPEN	DO	OPEN	TRAVEL				041/91	1	4	7	9				
HV865DIV011B	SODIUM HYPO TANK 2 VALVE CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	7	10				
HV865DIV017A	SODIUM HYPO TANK 3 VALVE OPEN	DO	OPEN	TRAVEL				041/91	1	4	7	11				
HV865DIV017B	SODIUM HYPO TANK 3 VALVE CLOSE	DO	CLOSE	TRAVEL				041/91	1	4	7	12				
		DO						041/91	1	4	7	13				
		DO						041/91	1	4	7	14				
		DO						041/91	1	4	7	15				
		DO						041/91	1	4	7	16				
HS865PHF001A	HYPO FEED PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	1				
HS865PHF002A	HYPO FEED PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	2				
HS865PHF003A	HYPO FEED PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	3				
HS865PHF004A	HYPO FEED PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	4				
		DO						041/91	1	4	8	5				
		DO						041/91	1	4	8	6				
		DO						041/91	1	4	8	7				
		DO						041/91	1	4	8	8				
		DO						041/91	1	4	8	9				
		DO						041/91	1	4	8	10				
		DO						041/91	1	4	8	11				
		DO						041/91	1	4	8	12				
HS865HTP001A	HYPO TRANSFER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	13				
HS865HTP002A	HYPO TRANSFER PUMP S/S CONTROL	DO	START	STOP				041/91	1	4	8	14				
HV865DIV100A	HYPO FEED VALVE CONTROL	DO	OPEN	STOP				041/91	1	4	8	15				
HV865DIV100B	HYPO FEED VALVE CONTROL	DO	CLOSE	STOP				041/91	1	4	8	16				

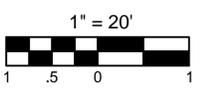


IT IS UNDERSTOOD THAT PETROLEUM IMPACTED MATERIAL WILL BE ENCOUNTERED AT THE RIVER OUTFALL AND SHALL BE CLASSIFIED AS CONTAMINATED WASTE. CONTRACTOR IS RESPONSIBLE FOR MANAGEMENT AND PROPER DISPOSAL OF CONTAMINATED SOILS AND GROUNDWATER IN THIS AREA. REFERENCE SPECIFICATION 31 23 00 SECTION 1.5.A.3.

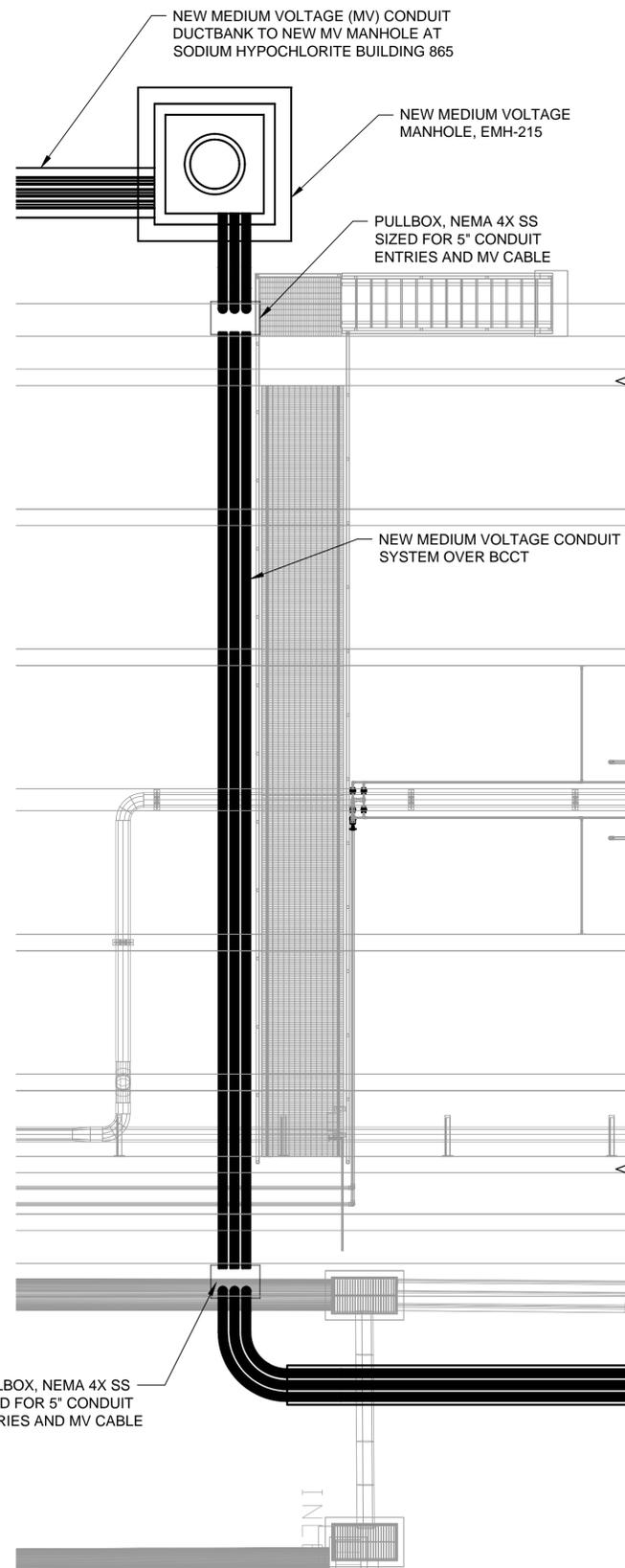


LEGEND

-  **6** 000-CD-62 GRAVEL PAVEMENT
-  **7** 000-CD-62 ASPHALT PAVEMENT

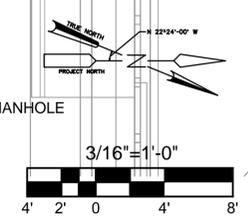
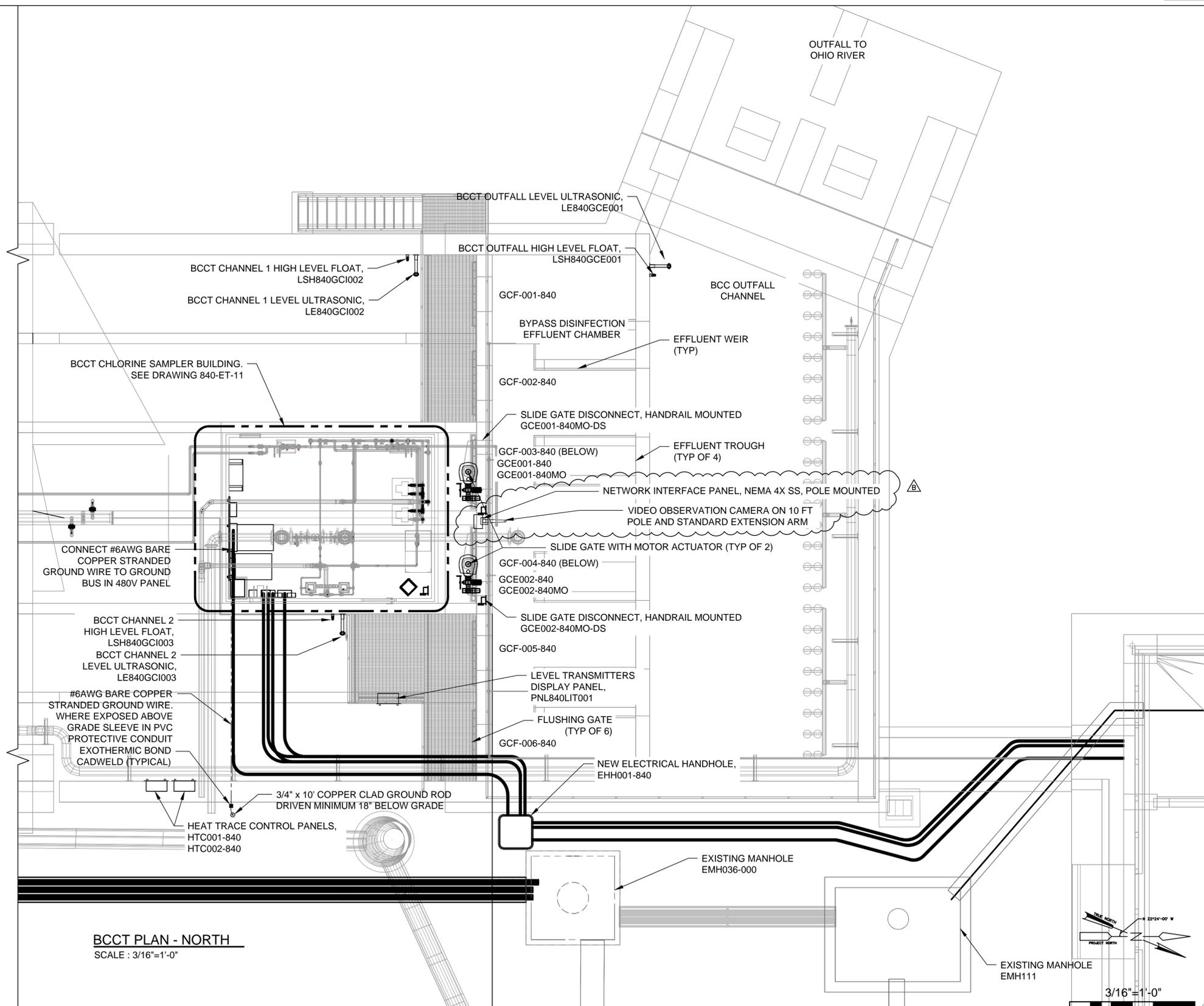


Designed by: VDN Drawn by: EMB Checked by: JCH	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">REVISION</th> </tr> <tr> <th>REV No.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>APPV</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>6/8/22</td> <td>ISSUED FOR BIDS</td> <td>JCH</td> </tr> <tr> <td>B</td> <td>7/29/22</td> <td>ADDENDUM No. 3</td> <td>JCH</td> </tr> </tbody> </table>	REVISION				REV No.	DATE	DESCRIPTION	APPV	A	6/8/22	ISSUED FOR BIDS	JCH	B	7/29/22	ADDENDUM No. 3	JCH	 <p>1100 NORTH MOUNTAIN ROAD HARRISBURG, PA 17112 717-533-9077 WWW.HONORENGINEER.COM</p>	 <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>allegheeny county sanitary authority www.alcosan.org</p>	<p>ARLETTA SCOTT WILLIAMS EXECUTIVE DIRECTOR, ALCOSAN</p> <p>3300 PREBLE AVE. PITTSBURGH, PA 15233 (412) 766 - 4810</p>	<p>ALLEGHENY COUNTY SANITARY AUTHORITY WASTEWATER TREATMENT PLANT CSO BYPASS AND DISINFECTION PROJECT</p> <p>000-CSP-13 ENLARGED SITE PLAN BCCT</p>	Contract: 1760 CAD File Name: 000-CSP-11 12.13.dwg Date: 06 / 08 / 2022 Sheet: 45 of 359
REVISION																								
REV No.	DATE	DESCRIPTION	APPV																					
A	6/8/22	ISSUED FOR BIDS	JCH																					
B	7/29/22	ADDENDUM No. 3	JCH																					

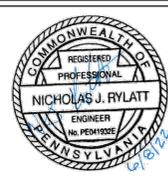


CHLORINE CONTACT CHANNEL No. 1
TCC001-840

CHLORINE CONTACT CHANNEL NO. 2
TCC002-840



Designed by:	TWD	REVISION		
Drawn by:	GRM	REV No.	DATE	DESCRIPTION
Checked by:	TWD	A	06/08/22	ISSUED FOR BIDS
		B	08/09/22	ADDENDA No. 3
				APPV
				CPM
				CPM



ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

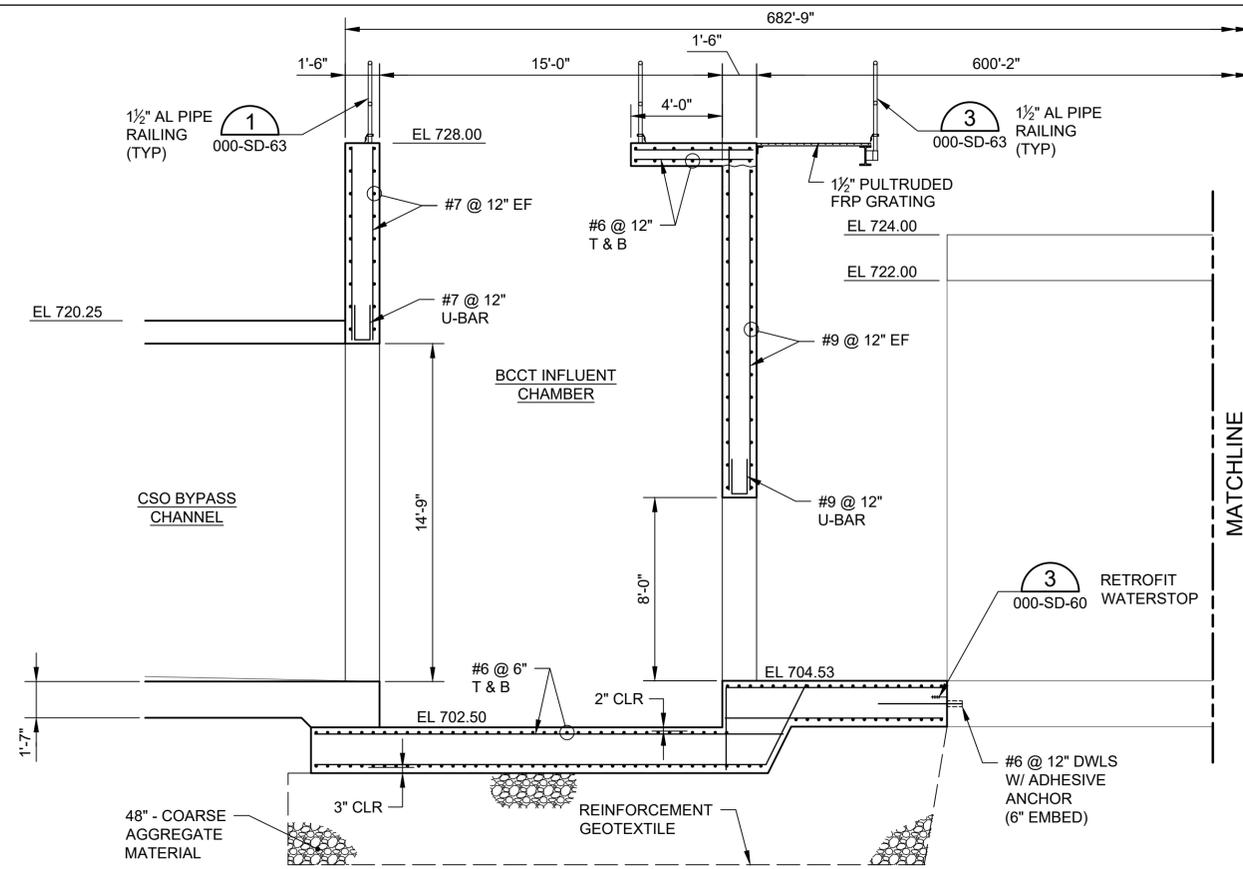
3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810

www.alcosan.org

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

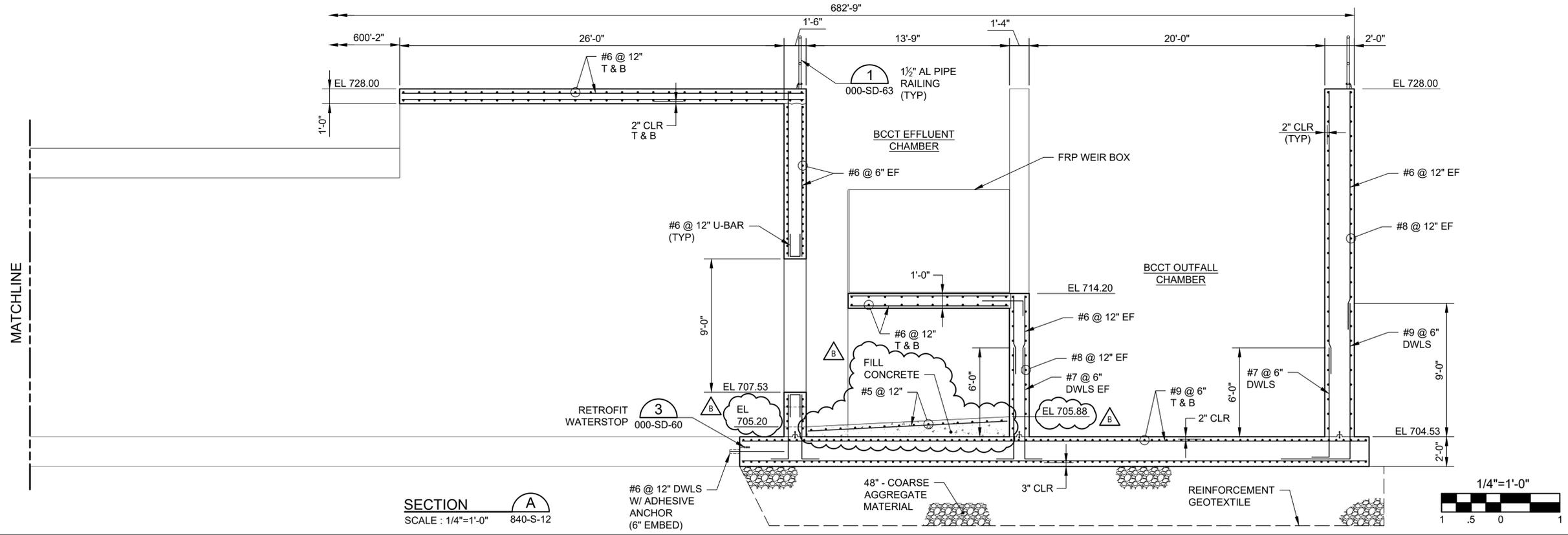
840-ET-10
CSO BYPASS DISINFECTION PROCESS
ELECTRICAL PLAN BCCT NORTH

Contract: 1760
CAD File Name: 840-ET-10.dwg
Date: 06 / 08 / 2022
Sheet: 295 of 359



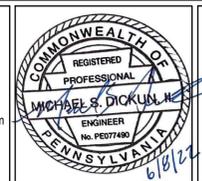
NOTES:

1. REFER TO DRAWINGS S-01 THROUGH SD-62 FOR "CONCRETE AND MASONRY NOTES" AND DETAILS.
2. COORDINATE PIPE AND EQUIPMENT LOCATIONS WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND DRAWINGS OF OTHER DISCIPLINES.
3. PROVIDE WALL/SLAB OPENING REINFORCEMENT IN ACCORDANCE WITH DETAIL 1 ON DRAWING SD-60.
4. ADDITIONAL HORIZONTAL WALL REINFORCEMENT DETAIL APPLIES TO ALL BUILDING AND TANK WALLS. REFER TO DETAIL 2 ON DRAWING 000-SD-61.



SECTION A
SCALE: 1/4"=1'-0" 840-S-12

Designed by:	JPF	REVISION		
Drawn by:	MGH	REV No.	DATE	DESCRIPTION
Checked by:	MSD	A	6/8/22	ISSUED FOR BIDS
		B	7/29/22	ADDENDUM No. 3
				APPV
				CPM
				CPM



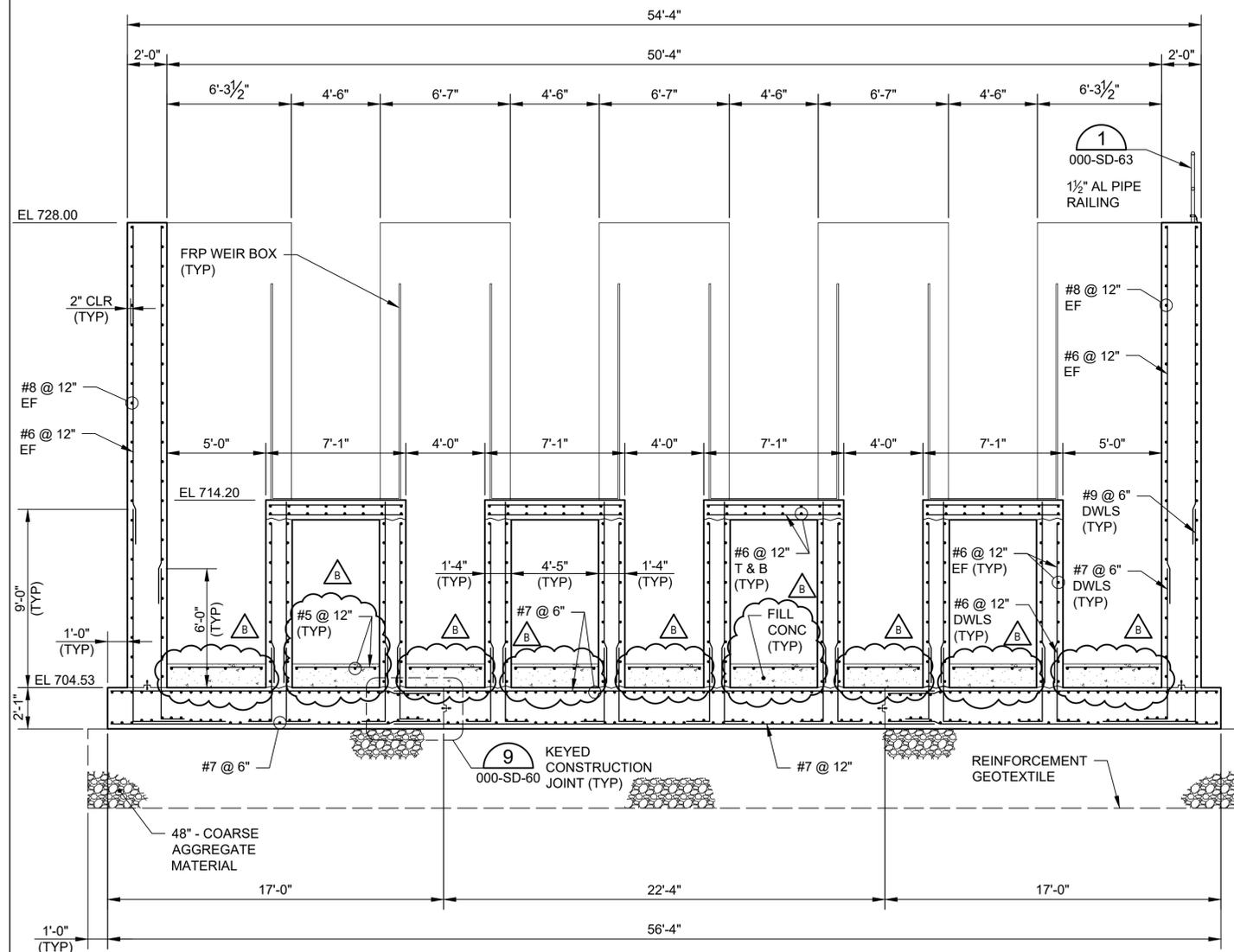
ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN
3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810

ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT
840-S-42
BCCT CHLORINE CONTACT CHAMBERS
STRUCTURAL SECTIONS

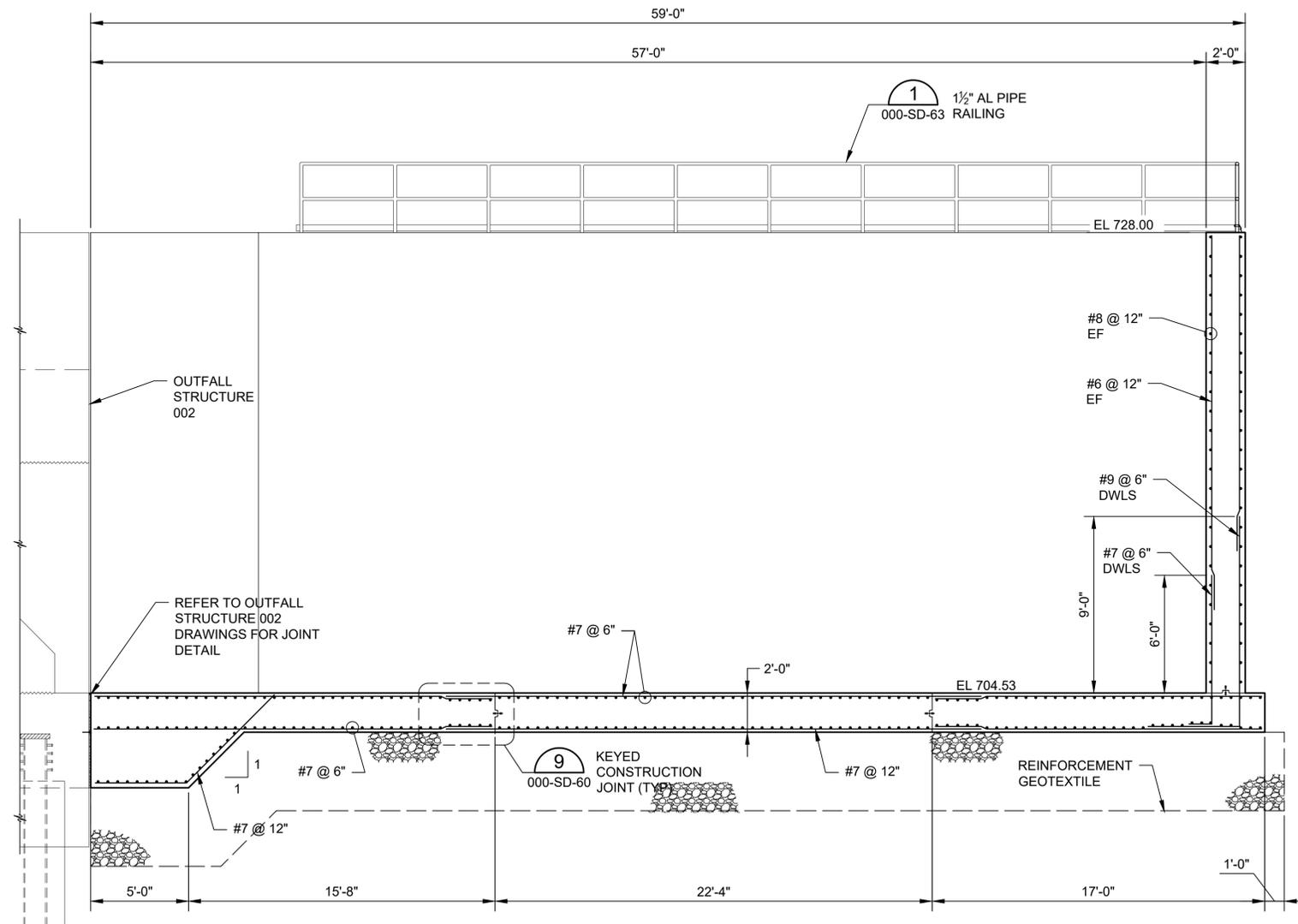
Contract:	1760
CAD File Name:	840-S-42.dwg
Date:	06 / 08 / 2022
Sheet:	100 of 359

NOTES:

1. REFER TO DRAWINGS S-01 THROUGH SD-62 FOR "CONCRETE AND MASONRY NOTES" AND DETAILS.
2. COORDINATE PIPE AND EQUIPMENT LOCATIONS WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND DRAWINGS OF OTHER DISCIPLINES.
3. PROVIDE WALL/SLAB OPENING REINFORCEMENT IN ACCORDANCE WITH DETAIL 1 ON DRAWING SD-60.
4. ADDITIONAL HORIZONTAL WALL REINFORCEMENT DETAIL APPLIES TO ALL BUILDING AND TANK WALLS. REFER TO DETAIL 2 ON DRAWING 000-SD-61.



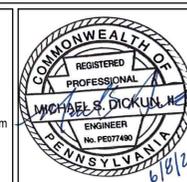
SECTION F
SCALE: 1/4"=1'-0" 840-S-14



SECTION G
SCALE: 1/4"=1'-0" 840-S-14



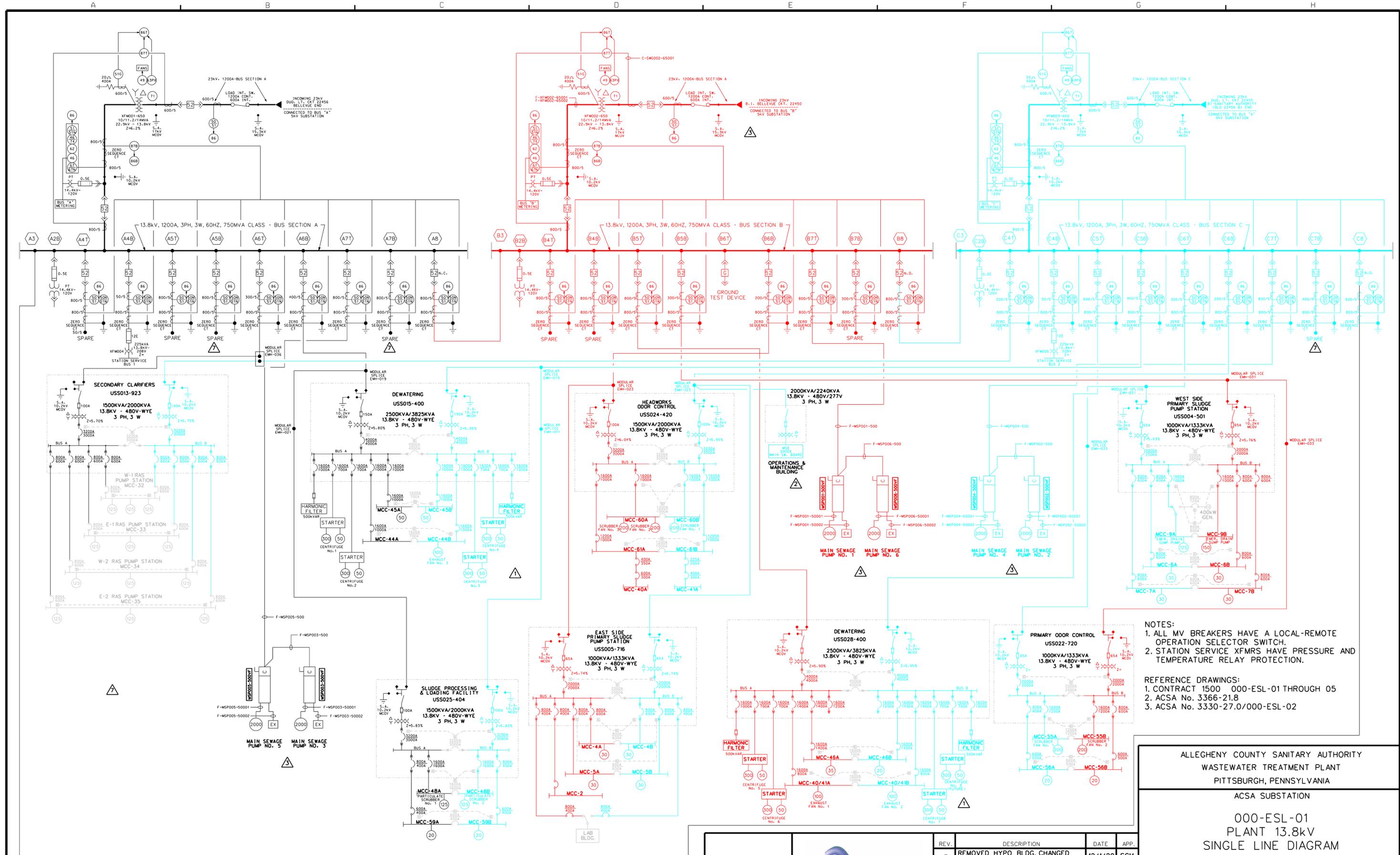
Designed by:	JPF	REVISION		
Drawn by:	MGH	REV No.	DATE	DESCRIPTION
Checked by:	MSD	A	6/8/22	ISSUED FOR BIDS
		B	7/29/22	ADDENDUM No. 3
				APPV
				CPM
				CPM



ARLETTA SCOTT WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN
3300 PREBLE AVE.
PITTSBURGH, PA 15233
(412) 766 - 4810
www.alcosan.org

ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
CSO BYPASS AND DISINFECTION PROJECT
840-S-45
BCCT CHLORINE CONTACT TANK
STRUCTURAL SECTIONS

Contract: 1760
CAD File Name: 840-S-45.dwg
Date: 06 / 08 / 2022
Sheet: 103 of 359



PROTECTIVE DEVICE LEGEND:

46 - NEGATIVE SEQUENCE	67 - DIRECTIONAL OVERCURRENT	63PX - XFMR SUDDEN PRESSURE
49 - XFMR TEMPERATURE	71 - XFMR OIL LEVEL	67N - NEUTRAL DIRECTIONAL OVERCURRENT
50 - INSTANTANEOUS OVERCURRENT	86 - LOCKOUT	86B - BUS DIFFERENTIAL LOCKOUT
51 - TIME OVERCURRENT	50N - NEUTRAL INST. OVERCURRENT	86T - XFMR DIFFERENTIAL LOCKOUT
62 - TIME DELAY	51G - GROUND TIME OVERCURRENT	87T - XFMR DIFFERENTIAL
	51N - NEUTRAL TIME OVERCURRENT	

S. MILLER
DRAWN BY:
D. SULLIVAN
CHECKED BY:
D. JACKSON
EXAMINED BY:

alcolsan allegheny county sanitary authority
ARLETTA S. WILLIAMS
EXECUTIVE DIRECTOR, ALCOSAN

REV.	DESCRIPTION	DATE	APP.
7	REMOVED HYPO BLDG, CHANGED ASB, A7B & C7B TO SPARE	12/1/20	SGM
6	CORRECTED FEEDS TO PUMPS 2 & 4 AND 3 & 5	7/1/19	SGM
5	CORRECTED HEADWORKS SCRUB FANS	2/12/19	SGM
4	ADDED NEW MAIN PUMPS 2,4,6	11/23/15	SGM
3	ADDED NEW MAIN PUMPS 1,3,5	3/16/15	DPS

NOTES:
1. ALL MV BREAKERS HAVE A LOCAL-REMOTE OPERATION SELECTOR SWITCH.
2. STATION SERVICE XFMRs HAVE PRESSURE AND TEMPERATURE RELAY PROTECTION.

REFERENCE DRAWINGS:
1. CONTRACT 1500 000-ESL-01 THROUGH 05
2. ACSA No. 3366-21.8
3. ACSA No. 3330-27.0/000-ESL-02

ALLEGHENY COUNTY SANITARY AUTHORITY
WASTEWATER TREATMENT PLANT
PITTSBURGH, PENNSYLVANIA
ACSA SUBSTATION

000-ESL-01
PLANT 13.8kV
SINGLE LINE DIAGRAM

SCALE: CONTRACT NO.

FILENAME: 000ESL01.ASB
DATE PLOTTED: 12-1-20
FORMERLY: 650ESL.DGN

3369-27.0

