



Upper Occoquan Service Authority

Leader in Water Reclamation and Reuse

14631 COMPTON ROAD, CENTREVILLE, VIRGINIA 20121-2506
(703) 830-2200

February 8, 2019

TO ALL IFB RECIPIENTS:

For UOSA IFB 19-09, Phase II Nutrient Compliance Settleability Pilot Plant

SUBJECT: Addendum #2

The above numbered solicitation is amended as set forth below. The hour and date specified for receipt of offers:

| **X** | is not extended

| | is extended

OFFERORS MUST ACKNOWLEDGE receipt of this Addendum by one of the following methods:

- By SIGNING and RETURNING (1) copy of this Addendum with the bid or proposal;
- By acknowledgement of this Addendum on Transmittal Form submitted with the proposal;
- By referencing its receipt in your Transmittal Letter

If by virtue of this Addendum if you desire to change a proposal already submitted, such change may be made by letter, provided it includes reference to the solicitation and this Addendum and is received prior to the due hour and date specified.

DESCRIPTION OF ADDENDUM:

1. The purpose of this addendum is to provide answers to questions received prior to the deadline for questions:

Q: Have the conduits between building V/1 and 56/1 been checked to ensure that they are usable.

A: Yes.

Clarification: *During the walkthrough the air compressor located in the pipe gallery of structure 56/2 was missing. UOSA has verified that this compressor is being replaced and will be in place prior to the commencement of construction.*

2. This addendum also provides the pre-bid minutes as Attachment A to this addendum.
3. This addendum provides updated drawings as a result of corrections, changes or clarifications. Attachment B to this addendum provides the following updated drawings. Previous versions of these pages should be removed from the original package and replaced with the drawings provided as part of this addendum:
 - a. Electrical and Instrumentation and Control Notes and Specification, Drawing G-12, Sheet 12
 - b. Selector Basin 56/1 Pipe Gallery Electrical Top Plan, Drawing E-2, Sheet 29
 - c. Selector Basin 56/2 Pipe Gallery Electrical Lower Plan, Drawing E-4, Sheet 31

All other Terms, Conditions, Tables, Charts and Specifications, and Drawings not otherwise changed remain as originally stated or as shown.

ISSUED BY:

ACKNOWLEDGED BY:

Upper Occoquan Service Authority



2/8/2019

Kristen Hylton, Purchasing Mgr

Date

Company/Offeror Name

Signature of Authorized Agent

Date

Printed/Typed Name

ATTACHMENT A

**PRE-BID MEETING SCRIPT
FOR
P2NR – SETTLEABILITY PILOT PROJECT**

DATE: THURSDAY, JANUARY 31, 2019
TIME: 2:00 PM (EST)
PLACE: Sellman Meeting Center (Building G – first floor)

Meeting Attendees:

UOSA:	John Airhart Doug Hague Bob Angelotti Dustin Baker
CPP:	Kris Goodwin Vic Scarpelli
BGMC:	Richard Rawlings
ACE:	Wesley Zhao Tommy O'Connor
FJI:	Terry Anderson Fred Jones Jr.
JACOBS:	Don Forgacs

1. **Welcome to UOSA (Doug, UOSA):** Mr. Doug Hague opened the meeting at 2:01pm and welcomed the attendees to the P2NR-SP pre-bid conference. Mr. Doug Hague also introduced UOSA and CH2M Hill attendees.

Mr. Hague mentioned that, UOSA maintains a website, www.uosa.org, where information regarding Contract P2NR will be posted, including addenda.

Mr. Hague also reminded everyone to sign-in and that the meeting was being recorded for meeting minutes.

2. **Purpose of the Pre-Bid Conference (Doug, UOSA):** Mr. Doug Hague explained that the purpose for the Contract P2NR-SP, Settleability Project, Pre-Bid Conference is to
-

discuss the Project, cover key components, and provide a forum for potential bidders to ask questions pertaining to the Work.

In the course of reviewing the Contract Documents and preparing the Bid, Mr. Hague asked if there are any questions, they should be forwarded to: purchasing@uosa.org. All questions have to be submitted in writing and all questions will be answered in writing. Statements made during this conference do not change the Contract in any way.

Minutes will be prepared for this Pre-bid Conference. The minutes will include a list of all questions asked along with the appropriate responses. This information will be posted on the project website and mailed/emailed to all Official Bidding Document Holders and anyone else who formally requests a copy.

3. **Purpose of the Project (Doug, UOSA):** Mr. Doug Hague explained that the Purpose of the Settleability Project is to install the equipment and investigate the use of sludge granulation technology to improve settling in UOSA's secondary treatment process. The purpose is further detailed in the Summary of Work section 01 11 00 specifications.
4. **Bidder's Understanding (Doug, UOSA):** Mr. Doug Hague also explained that nothing said during this conference or during any site visit can change any of the terms and conditions of the Contract. The Contract can only be changed, prior to Bid, via addenda that are issued by the Owner.

Submission of a bid constitutes a representation that the Bidder has exercised due diligence in the inspection of the Site and familiarized itself with the Contract Documents. All record drawings are available for review by scheduling an appointment with Mr. Doug Hague.

Item 1.13 in the Invitation to Bid requires bidders to submit project references and contact information to the Owner of at least three similar projects in the last five years.

Mr. Hague stated that the Bidders are responsible for informing themselves of all codes, labor, environmental and safety regulations associated with the Contract P2NR-SP Project.

Per Mr. Hague, this pre-bid conference includes a site visit which will occur directly following this conference. Bidders will be allowed to take pictures today. You may also set up an individual site visit by contacting Mr. Doug Hague at 703-227-0290 or send your request to the project email.

5. **Bid Submittal Requirements (Doug, UOSA):** The Bid Submission Form is attachment 5 to the Invitation to Bid. It contains a Submission checklist at the bottom, bidder should review this prior to submitting their bids.
-

6. **Submission of Bids (Doug, UOSA):** Mr. Doug Hague explained that the Owner will open only those bids submitted in strict compliance with the Invitation to Bid. Any bids submitted after the deadline will be returned unopened. The clock on the wall (in Sellman Conference Room) is the official clock that will be used during this project.
7. **Insurance and Liability (Doug, UOSA):** Mr. Hague stated that the Bidders should reference Section 3.7 of the Standard Terms and Conditions for detailed insurance requirements.
8. **Payment (Doug, UOSA):** Please note Article 4.2, Paragraph A.1 of the Standard Terms and Conditions clearly indicates, "Except as provided below for bonds and insurance, acceptance by the Owner of the Schedule shall be a condition precedent to the obligation of the Owner to make any partial payment to the Contractor." We must have an accepted schedule before we make any partial payments, for anything other than bonds and insurance.
10. **Contract Time (Doug, UOSA):** Mr. Doug Hague explained Contract time is of the essence, hence the importance of scheduling on the Project. The Contractor is required to achieve Substantial Completion within 153 days of the Notice to Proceed and Final Completion within (30) days of Substantial Completion. These dates may be adjusted by Change Order pursuant to the Contract Provisions. By submitting a Bid, the Bidder acknowledges that the times set forth for the performance of the Work are reasonable and waives any objection.
11. **Project Overview/Coordination (Don Forgacs, CH2M HILL):**
Notes: 1. Two Notice to proceed, early activities, and permitting requirements.
(Building permit was submitted, February 1, 2019)
2. 4 weeks from NTP to receipt of Owner Procured Equipment. (Equipment is in fabrication as we speak)

Mr. Don Forgacs (JACOBS) took the floor and went into detail about what exactly the project entailed.

- 2 hydrocyclone skids with an associated control panel.
 - 2 feed pump skids with centrifugal pumps, which are also part of the package being supplied by the owner with an associated AFD panel.
 - Equipment will be installed at the selectors, structure, 56/1 Pipe Gallery as well as on top of the Roof Deck.
 - Inside of the Pipe Gallery there are 2 pumps.
 - On the Roof Deck there are:
 - 2 hydrocyclone skids that are installed onto equipment pads in a curbed area.
 - Control Panel for both skids, which will be coordinated with the AFD Panel down below.
-

- Communication with the plant DCS Fiber optics will be installed firm to the Panels on the deck to the plant DCS which is in an adjacent building, 56/2. There is an electrical room there with a DCS Panel.
- There is a pipe that is connected between the pumps downstairs and then the hydrocyclones upstairs. They will be connected to the existing pipe in the Pipe Gallery.
- Up on the deck there will be the discharge from the hydrocyclone, which will go to one of two places, either into the selectors themselves or back to the channel.
- In structure 56/2 there are some additional pipe modifications that are being provided, as well as, slight yard piping modifications that are required.
- Power supply is being provided from Building V/1, modifications to the existing MCC are required.

12. **Deadline for Questions (Doug, UOSA):** Mr. Doug Hague advised attendees that the advertised Bid is closing on February 19, 2019 at 2:00 PM. The deadline for questions is Tuesday, February 5, 2019 at 5:00 PM. All questions should be emailed to: purchasing@uosa.org. These questions with the answers will be distributed to all Official Bidding Document Holders as well as posted on the UOSA main website.

13. **Addenda (Doug, UOSA):** Mr. Doug Hague stated that one addendum has been issued as of today. Mr. Hague also explained that the Bidders must submit all signed addendums with their Bid Submission Form.

14. **Bid Opening (Doug, UOSA):** Mr. Doug Hague explained that the Bid Opening is presently scheduled for Tuesday, February 19, 2019 at 2:00 PM in the Sellman Meeting Center (this room) where all bids will be read publicly.

15. **Questions? (Doug, UOSA):** Mr. Doug Hague opened the floor up for any questions from potential Bidders reminding them to state their name and company prior to asking their question.

- Q: Who is getting building permit?
A: UOSA.
- Q: Have the spare ducts been checked to make sure they are clean and that they can be used?
A: We will get that verified for you.

16. **Adjourn (Doug, UOSA):** The "sit-down" portion of the Pre-Bid Conference was concluded by Mr. Doug Hague at 2:19pm.

17. **Site Visit (Doug, UOSA):** Mr. Doug Hague as well as all of the attendees left and continued their meeting in the field with a site visit. Mr. Hague stated that they would be walking across the plant property.

ATTACHMENT B

ELECTRICAL AND INSTRUMENTATION REQUIREMENTS

- 1. ELECTRICAL DRAWINGS SHOW GENERAL LOCATIONS OF EQUIPMENT, DEVICES, AND RACEWAY, UNLESS SPECIFICALLY DIMENSIONED. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL LOCATION OF EQUIPMENT AND DEVICES AND FOR PROPER ROUTING AND SUPPORT OF RACEWAYS, SUBJECT TO APPROVAL OF ENGINEER.
- 2. CHECK APPROXIMATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, ELECTRICAL OUTLETS, EQUIPMENT, AND OTHER ELECTRICAL SYSTEM COMPONENTS SHOWN ON THE DRAWINGS FOR CONFLICTS WITH OPENING, STRUCTURAL MEMBERS, AND COMPONENTS OF OTHER SYSTEMS AND EQUIPMENT HAVING FIXED LOCATIONS. IN THE EVENT OF CONFLICTS, NOTIFY THE ENGINEER.
- 3. INSTALL WORK IN ACCORDANCE WITH NECA STANDARD OF INSTALLATION, UNLESS OTHERWISE SPECIFIED.
- 4. KEEP OPENINGS IN BOXES AND EQUIPMENT CLOSED DURING CONSTRUCTION.
- 5. LAYOUT WORK CAREFULLY IN ADVANCE. DO NOT CUT OR NOTCH ANY STRUCTURAL MEMBER OR BUILDING SURFACE WITHOUT SPECIFIC APPROVAL OF ENGINEER. CAREFULLY PERFORM CUTTING, CHASING, OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS, PAVING, OR OTHER SURFACES REQUIRED FOR THE INSTALLATION, SUPPORT, OR ANCHORAGE OF CONDUIT, RACEWAYS, OR OTHER ELECTRICAL MATERIALS AND EQUIPMENT. FOLLOWING SUCH WORK, RESTORE SURFACES TO ORIGINAL CONDITION.
- 6. PROVIDE LONG RADIUS BENDS OR PULL BOXES AS NECESSARY FOR THE CONDUITS ASSOCIATED WITH THE FIBER OPTIC CABLES TO ALLOW A SMOOTH FIBER OPTIC CABLE ROUTING.

ELECTRICAL AND INSTRUMENTATION SUBMITTALS

- 1. CONTRACTOR SHALL SUBMIT THE FOLLOWING ITEMS FOR THE ENGINEER'S REVIEW AND APPROVAL DEMONSTRATING CONFORMANCE WITH THE CONTRACT.
 - A. CONDUITS, CONDUIT FITTINGS AND JUNCTION BOXES.
 - B. CONDUCTORS.
 - C. MOUNTING AND SUPPORT ELEMENTS.
 - D. LEVEL ELEMENT/TRANSMITTER LELT-1-52-1.
 - E. PRESSURE SEALS, ANNULAR, PE-0209-01A AND PE-0209-02A.
 - F. PRESSURE GAUGE, PI-0209-01 AND PI-0209-02.
 - G. NON-FUSED SAFETY DISCONNECT SWITCH.

FIELD TESTING AND STARTUP

- 1. REFER TO FIELD TESTING AND STARTUP REQUIREMENTS SPECIFIED ON DWG G-10.

ELECTRICAL AND INSTRUMENTATION COMPONENT SPECIFICATIONS

- 1. CONDUITS:
 - A. EXTERIOR EXPOSED CONDUITS AND CONDUIT FITTINGS SHALL BE PVC-COATED RIGID GALVANIZED STEEL. SEE DRAWINGS FOR SIZES.
 - B. INDOOR EXPOSED CONDUITS AND CONDUIT FITTINGS SHALL BE PVC-COATED RIGID GALVANIZED STEEL. SEE DRAWINGS FOR SIZES.
 - C. ALL ANCHORAGE AND ATTACHMENTS SHALL BE 316 STAINLESS STEEL.
 - D. PATCH ANY HOLES THROUGH WALLS WITH NON-SHRINK GROUT.
 - E. HOLE CUT ALL WALL PENETRATIONS, DO NOT HAMMER DRILL.
- 2. POWER AND CONTROL CONDUCTORS:
 - A. CONDUCTORS SHALL BE STRANDED COPPER, THHN OR THWN-2 INSULATION, 600 VOLT RATING. 120V POWER CIRCUITS SHALL BE BLACK AND WHITE, 480 V THREE PHASE CIRCUIT CONDUCTORS SHALL BE BROWN, ORANGE, AND YELLOW. CONTROL CONDUCTORS SHALL BE RED. ALL GROUND CONDUCTORS SHALL BE GREEN AND ALL NEUTRAL CONDUCTORS SHALL BE WHITE. SEE DRAWINGS FOR SIZES.
- 3. ANALOG SIGNAL CABLES:
 - A. ANALOG SIGNAL CABLES SHALL BE 16 AWG TWISTED SHIELDED PAIR, STRANDED COPPER, DOUBLE FUSED SHIELD, 20 AWG DRAIN WIRE, 600 V INSULATION, AND SUITABLE FOR CONDUIT AND PLENUM INSTALLATIONS. MANUFACTURERS SHALL BE OKONITE, ALPHA, OR BELDEN. BLACK OR RED CONDUCTOR SHALL BE POSITIVE AND WHITE CONDUCTOR SHALL BE NEGATIVE OR RETURN. GROUND SHIELDS AT BAILEY TERMINATION CABINETS. DO NOT GROUND SHIELDS AT BOTH ENDS.
- 4. ALL EXTERIOR AND INTERIOR JUNCTION BOXES LARGER THAN CONDUIT FITTINGS SHALL BE NEMA 4X 315 STAINLESS STEEL.
- 5. F4 FLOW ELEMENT AND TRANSMITTER, ELECTROMAGNETIC (TAG: FE/FIT-152-1) *X
 - A. GENERAL:
 - 1. FUNCTION: MEASURE, INDICATE, AND TRANSMIT THE FLOW OF A CONDUCTIVE PROCESS LIQUID IN A FULL PIPE.
 - 2. TYPE: ELECTROMAGNETIC FLOWMETER, WITH OPERATION BASED ON FARADAY'S LAW, UTILIZING THE PULSED DC TYPE COIL EXCITATION PRINCIPLE WITH HIGH IMPEDANCE ELECTRODES. FULL BORE METER WITH MAGNETIC FILED TRAVERSING ENTIRE FLOWTUBE CROSS SECTION. INSERT MAGNETERS OR MULTIPLE SINGLE POINT PROBES INSERTED INTO A SPOOL PIECE ARE UNACCEPTABLE.
 - B. SERVICE:
 - 1. STREAM FLUID: WAS
 - 2. SUITABLE FOR LIQUIDS WITH A MINIMUM CONDUCTIVITY OF 5 MICROS/CM.
 - C. OPERATING TEMPERATURE:
 - 1. ELEMENT:
 - a. AMBIENT: MINUS 4 TO 158 DEGREES F, TYPICAL, UNLESS OTHERWISE NOTED.
 - b. PROCESS: 21 TO 158 DEGREES F, TYPICAL, UNLESS OTHERWISE NOTED.
 - 2. TRANSMITTER:
 - a. AMBIENT: MINUS 4 TO 140 DEGREES F, TYPICAL, UNLESS OTHERWISE NOTED.
 - b. PROCESS: 21 TO 120 DEGREES F, TYPICAL, UNLESS OTHERWISE NOTED.
 - D. PERFORMANCE:
 - 1. FLOW RANGE: 0 TO 375 MGD.
 - 2. ACCURACY: PLUS OR MINUS 0.4 PERCENT OF ALL FLOW RATES GREATER THAN 1.7 FEET PER SECOND.

ELECTRICAL AND INSTRUMENTATION COMPONENT SPECIFICATIONS, CONT.

- E. FEATURES:
 - 1. NO OBSTRUCTIONS TO FLOW.
 - 2. VERY LOW PRESSURE LOSS.
 - 3. MEASURES BIDIRECTIONAL FLOW.
- F. PROCESS CONNECTION:
 - 1. METER SIZE (DIAMETER INCHES): 4-INCH.
 - 2. CONNECTION TYPE: ANSI/AWWA C20794 TO REQUIRED PRESSURE RATING.
 - 3. FLANGE MATERIAL: CARBON STEEL.
- G. POWER (TRANSMITTER): 120V AC, 60HZ.
- H. ELEMENT:
 - 1. METER TUBE MATERIAL: TYPE 304 STAINLESS STEEL
 - 2. LINER MATERIAL: TEFLON.
 - 3. LINER PROTECTORS: COVERS (OR GROUNDING RINGS) ON EACH END TO PROTECT LINER DURING SHIPMENT.
 - 4. ELECTRODE TYPE: CONICAL SELF-CLEANING.
 - 5. ELECTRODE MATERIAL: TYPE 316 STAINLESS STEEL OR AS RECOMMENDED BY MANUFACTURER.
 - 6. GROUNDING RING:
 - a. REQUIRED.
 - b. QUANTITY: TWO, UNLESS OTHERWISE NOTED.
 - c. MATERIAL: TYPE 316 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
 - 7. ENCLOSURE: NEMA 6P, MINIMUM, UNLESS OTHERWISE NOTED, SUBMERGENCE: CONTINUOUS IN WATER (UP TO 30 FEET), NEMA 6P/IP68 UNLESS OTHERWISE NOTED.
- I. TRANSMITTER: INTEGRAL MOUNTED
 - 1. DISPLAY: REQUIRED, UNLESS OTHERWISE NOTED.
 - a. DIGITAL LCD DISPLAY, INDICATING FLOW RATE AND TOTAL.
 - b. BI-DIRECTIONAL FLOW DISPLAY: REQUIRED UNLESS OTHERWISE NOTED.
 - 1. FORWARD AND REVERSE FLOWRATE
 - 2. FORWARD, REVERSE AND NET TOTALIZATION.
 - c. PARAMETER ADJUSTMENTS: BY KEYPAD OR NONINTRUSIVE MEANS.
 - d. ENCLOSURE: NEMA 4X, MINIMUM, UNLESS OTHERWISE NOTED.
 - e. EMPTY PIPE DETECTION: DRIVES DISPLAY AND OUTPUTS TO ZERO WHEN EMPTY PIPE DETECTED.
- J. SIGNAL INTERFACE (AT TRANSMITTER):
 - 1. ANALOG OUTPUT: ISOLATED 4 TO 20 MA DC FOR LOAD IMPEDANCE FROM 0 OHM TO AT LEAST 500 OHMS MINIMUM FOR 24V DC SUPPLY.
- K. CABLES:
 - 1. TYPES: AS RECOMMENDED BY MANUFACTURER.
 - 2. LENGTHS: AS REQUIRED TO ACCOMMODATE DEVICE LOCATIONS. CONTRACTOR TO VERIFY REQUIRED CABLE LENGTH.
- L. BUILT-IN DIAGNOSTIC SYSTEM:
 - 1. FEATURES:
 - a. FIELD PROGRAMMABLE ELECTRONICS.
 - b. SELF-DIAGNOSTICS WITH TROUBLE SHOOTING CODES.
 - c. ABILITY TO PROGRAM ELECTRONICS WITH FULL SCALE FLOW, ENGINEERING UNITS, METER SIZE, ZERO FLOW CUTOFF, DESIRED SIGNAL DAMPING, TOTALIZER UNIT DIGIT VALUE, ETC.
 - d. INITIAL FLOW TUBE CALIBRATION AND SUBSEQUENT CALIBRATION CHECKS.
- M. FACTORY CALIBRATION:
 - 1. CALIBRATED IN AN ISO 9001 AND NIST CERTIFIED FACTORY.
 - 2. FACTORY FLOW CALIBRATION SYSTEM MUST BE CERTIFIED BY VOLUME OR WEIGHT CERTIFIED CALIBRATION DEVICES.
 - 3. FACTORY FLOW CALIBRATION SYSTEM SHALL BE ABLE TO MAINTAIN CALIBRATION FLOW RATE FOR AT LEAST 5 MINUTES FOR REPEATABILITY POINT CHECKS.
- N. MANUFACTURERS AND PRODUCTS:
 - 1. ABB WATER MASTER WITH FEF181 FLOW TUBE.
 - 2. ROSEMOUNT:8705 SERIES.
 - 3. SEIMENS: SITRANS MAGFLOW MAG5100 SERIES
- 6. LEVEL ELEMENT/TRANSMITTER, SUBMERSIBLE, WASTEWATER: TAG: LE/LT-1-52-1
 - A. GENERAL:
 - 1. FUNCTION: MEASURE AND TRANSMIT A SIGNAL PROPORTIONAL TO LEVEL.
 - 2. TYPE: TOTALLY SUBMERSIBLE PRESSURE SENSOR (LOOP POWERED).
 - 3. PARTS: SENSOR, INTERCONNECTING CABLE, SENSOR ELECTRONICSTERMINATION ENCLOSURE.
 - B. SERVICE:
 - 1. FLUID: WASTEWATER, UNLESS OTHERWISE NOTED.
 - C. PERFORMANCE:
 - 1. PROCESS RANGE:
 - a. 0 - 5 FEET.
 - b. PROVIDE FIXED FACTORY RANGE SUCH THAT NOTED PROCESS RANGE IS BETWEEN 40 AND 80 PERCENT OF FIXED FACTORY RANGE.
 - 2. ACCURACY: 0.25 PERCENT OF FULL SCALE.
 - 3. TEMPERATURE, OPERATING: PLUS 14 TO 158 DEGREES F.
 - 4. OVERPRESSURE: RANGE DEPENDENT.
 - a. 4X FOR RANGES OF 5 PSIG AND ABOVE (TO A MAXIMUM OF 300 PSI).
 - b. GREATER THAN 20X FOR RANGES BELOW 5 PSIG.

ELECTRICAL AND INSTRUMENTATION COMPONENT SPECIFICATIONS, CONT.

- D. FEATURES:
 - 1. SENSOR:
 - a. CERAMIC SENSING ELEMENT WITH VITON SEAL.
 - b. TYPE 316 STAINLESS STEEL BODY.
 - c. NEMA 6 RATING (SUBMERSIBLE TO 2,300 FEET).
 - d. TEMPERATURE COMPENSATION: PLUS 28 TO 80 DEGREES F.
 - e. DIMENSIONS: 9 INCHES IN LENGTH BY 1.65 INCHES DIAMETER.
 - f. LOOP POWERED, 1030V DC.
 - 2. INTERCONNECTING CABLE:
 - a. LENGTH: AS REQUIRED.
 - b. POLYURETHANE SHEATHED.
 - c. 1.5 INCH NPT STAINLESS STEEL FITTING OR STAINLESS STEEL CABLE CLAMP.
 - d. INTEGRAL VENT TUBE WITH GORETEX FILTER.
 - 3. SENSOR ELECTRONICS/TERMINATION ENCLOSURE:
 - a. ENCLOSURE: NEMA 4X, PVC/POLYCARBONATE.
 - b. GORETEX FILTER.
 - c. WALL MOUNT.
- E. SIGNAL INTERFACE: 4 TO 20 MA DC OUTPUT WITH HART DIGITAL INTERFACE, FOR LOAD IMPEDANCE OF 0 TO 750 OHMS, MINIMUM FOR 24V DC SUPPLY WITHOUT LOAD ADJUSTMENT.
- F. AREA CLASSIFICATION: INTRINSICALLY SAFE; CERTIFIED FOR USE IN CLASS 1, DIVISION 1, GROUPS A, B, C, AND D ATMOSPHERES.
- G. MANUFACTURERS:
 - 1. ENDRESS AND HAUSER FMX 21 WATER PILOT.
 - 2. OR EQUAL.
- 7. PRESSURE GAUGE: TAGS: PI-0209-01 AND PI-0209-02
 - A. GENERAL:
 - 1. FUNCTION: LOCAL PRESSURE INDICATION.
 - 2. TYPE: BOURDON TUBE ELEMENT.
 - B. PERFORMANCE:
 - 1. SCALE RANGE: 0 - 60 PSI.
 - 2. ACCURACY: PLUS OR MINUS 0.50 PERCENT OF FULL SCALE.
 - C. FEATURES:
 - 1. DIAL: 41/2INCH DIAMETER.
 - 2. POINTER VIBRATION REDUCTION: REQUIRED, UNLESS OTHERWISE NOTED. USE THE FOLLOWING METHOD.
 - a. LIQUID FILLED GAUGE FRONT, UNLESS OTHERWISE NOTED.
 - 1. GLYCERINE FILL, UNLESS OTHERWISE NOTED.
 - 3. CASE MATERIAL: BLACK THERMOPLASTIC, UNLESS OTHERWISE NOTED.
 - 4. MATERIALS OF WETTED PARTS (INCLUDING ELEMENT, SOCKET/PROCESS CONNECTION, THROTTLING DEVICE (IF SPECIFIED) AND SECONDARY COMPONENTS):
 - a. STAINLESS STEEL, UNLESS OTHERWISE NOTED.
 - 5. POINTER: ADJUSTABLE BY REMOVING RING AND WINDOW.
 - 6. WINDOW: GLASS OR ACRYLIC, UNLESS OTHERWISE NOTED.
 - 7. THREADED REINFORCED POLYPROPYLENE FRONT RING.
 - 8. CASE TYPE: SOLID FRONT WITH BLOW-OUT BACK.
 - D. PROCESS CONNECTION:
 - 1. MOUNTING: LOWER STEM, UNLESS OTHERWISE NOTED.
 - 2. SIZE: 1/2INCH MNPT, UNLESS OTHERWISE NOTED.
 - E. ACCESSORIES:
 - 1. THROTTLING DEVICE: REQUIRED, UNLESS OTHERWISE NOTED.
 - a. TYPE SUITABLE FOR THE INTENDED SERVICE.
 - b. INSTALL IN GAUGE SOCKET BORE.
 - F. MANUFACTURERS AND PRODUCTS:
 - 1. ASHCROFT: DURAGAUGE MODEL 1259/MODEL, 1279/MODEL, 1279 PLUS!
 - 2. AMETEK U.S. GAUGE; SOLFRUNT MODEL 19XX/1981ADVANTATGE.
 - 3. WIKA, TYPE 2XX.34.



DSGN	A	SODEIFI						VERIFY SCALE
DR		I KHAN						BAR IS ONE INCH ON ORIGINAL DRAWING.
CHK		D DOAR						0 1"
APVD		DP FORGACS	1	02/08/19	ADDENDUM NO. 1	AS	DPF	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
			NO.	DATE	REVISION	BY	APVD	

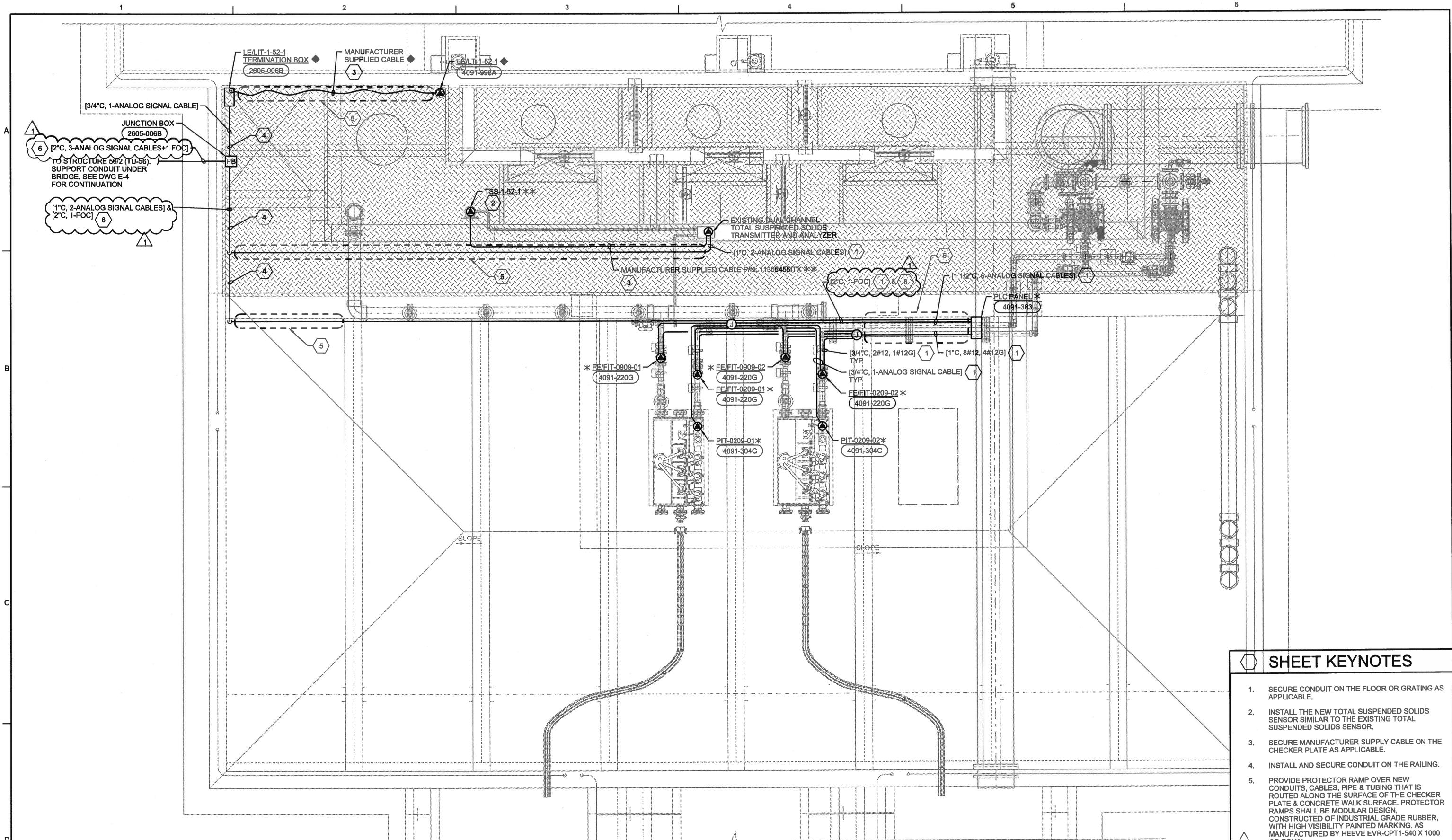


PHASE 2 NUTRIENT COMPLIANCE (P2NR)
SETTLEABILITY PILOT PLANT
UPPER OCCOQUAN SERVICE AUTHORITY
CENTREVILLE, VIRGINIA

GENERAL
ELECTRICAL AND INSTRUMENTATION AND CONTROL
NOTES AND SPECIFICATIONS

DATE	DECEMBER 2018
PROJ	699347
DWG	G-12
SHEET	12

THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL. CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2017. ALL RIGHTS RESERVED. 90% DESIGN



TOP PLAN
3/8"=1'-0"

- ### SHEET KEYNOTES
1. SECURE CONDUIT ON THE FLOOR OR GRATING AS APPLICABLE.
 2. INSTALL THE NEW TOTAL SUSPENDED SOLIDS SENSOR SIMILAR TO THE EXISTING TOTAL SUSPENDED SOLIDS SENSOR.
 3. SECURE MANUFACTURER SUPPLY CABLE ON THE CHECKER PLATE AS APPLICABLE.
 4. INSTALL AND SECURE CONDUIT ON THE RAILING.
 5. PROVIDE PROTECTOR RAMP OVER NEW CONDUITS, CABLES, PIPE & TUBING THAT IS ROUTED ALONG THE SURFACE OF THE CHECKER PLATE & CONCRETE WALK SURFACE. PROTECTOR RAMP SHALL BE MODULAR DESIGN, CONSTRUCTED OF INDUSTRIAL GRADE RUBBER, WITH HIGH VISIBILITY PAINTED MARKING, AS MANUFACTURED BY HEEVE EVR-CPT1-540 X 1000 OR EQUAL.
 6. PROVIDE ONE 3/4" INNERDUCT & PULL STRING IN THE CONDUIT FOR INSTALLATION OF FIBER OPTIC CABLE. INNERDUCT SHALL BE HDPE CORRUGATED OR MAXCELL EDGE TYPE.

COMMONWEALTH OF VIRGINIA
DAVID W. DOAR
Lic. No. 029912
2/8/19
PROFESSIONAL ENGINEER

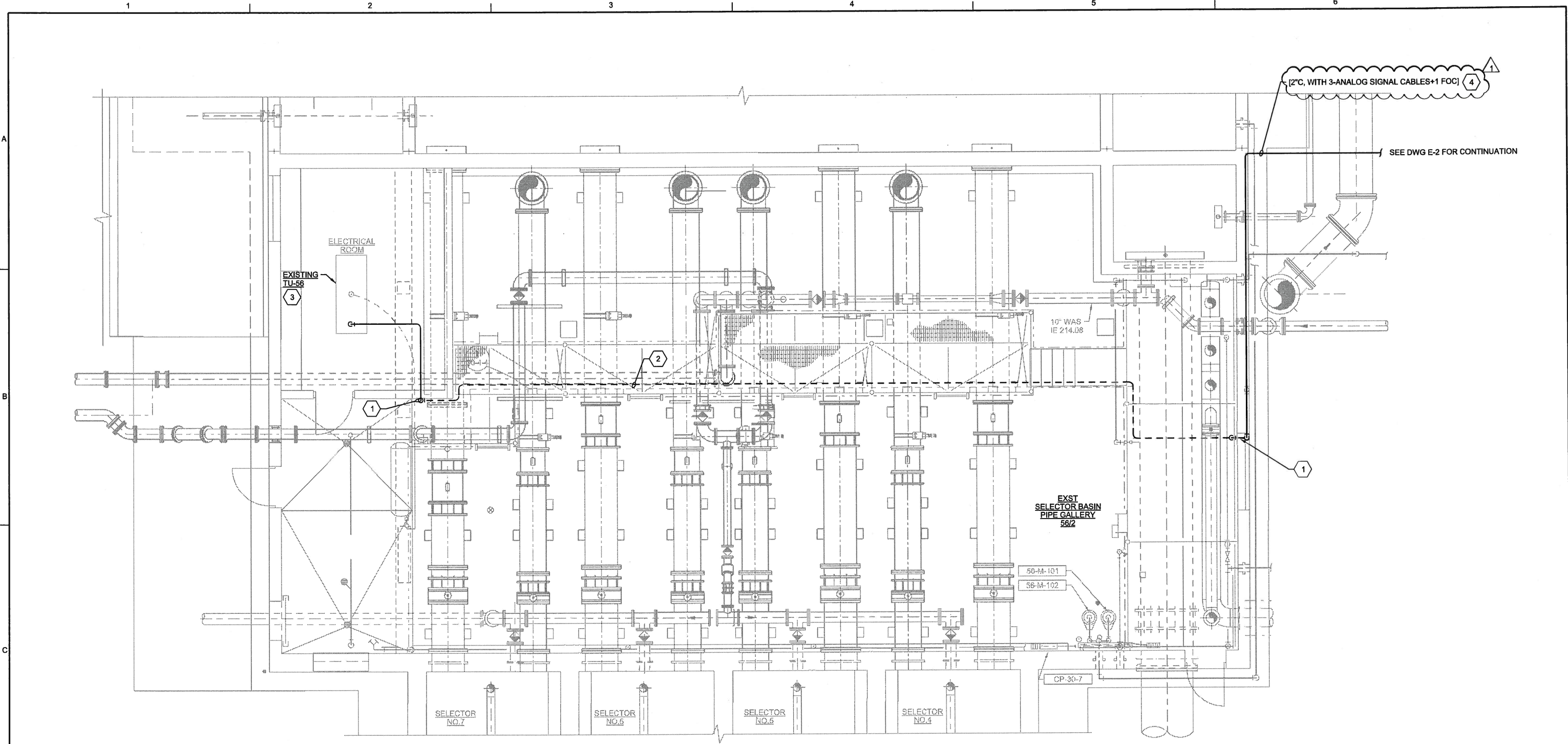
DSGN	A. SODEIFI					VERIFY SCALE
DR	I KHAN					BAR IS ONE INCH ON ORIGINAL DRAWING.
CHK	T. GALLAGHER	1	02/08/19	ADDENDUM NO. 1	AS DPF	0 1"
APVD	DP FORGACS	NO.	DATE	REVISION	BY	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ch2m

PHASE 2 NUTRIENT COMPLIANCE (P2NR)
SETTLEABILITY PILOT PLANT
UPPER OCCOQUAN SERVICE AUTHORITY
CENTREVILLE, VIRGINIA

ELECTRICAL
SELECTOR BASIN 56/1
PIPE GALLERY
ELECTRICAL TOP PLAN

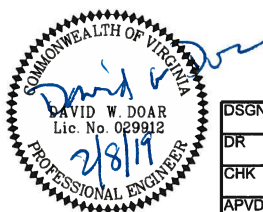
DATE	DECEMBER 2018
PROJ	699347
DWG	E-2
SHEET	29



z LOWER PLAN
1/4"=1'-0"

SHEET KEYNOTES

- CORE DRILL USING METHODS THAT LEAVE A SMOOTH OPENING. SEAL OPENING AROUND THE CONDUIT, INSIDE AND OUTSIDE, WITH ONE PART POLYURETHANE IMMERSIBLE SEALAND.
- ROUTE CONDUIT BELOW GRATING ALONG THE SAME ROUTING AS THE 3/8" AIR LINE SEE DWG M-5.
- COORDINATE WITH THE OWNER PRIOR TO COMMENCING ANY WORK ASSOCIATED WITH EXISTING TU-56, INCLUDING INSTALLATION OF NEW CONDUITS AND TERMINATION OF 3-ANALOG SIGNALS AND FIBER OPTIC CABLE.
- PROVIDE ONE 3/4" INNERDUCT & PULL STRING IN THE CONDUIT FOR INSTALLATION OF FIBER OPTIC CABLE. INNERDUCT SHALL BE HDPE CORRUGATED OR MAXCELL EDGE TYPE.



DSGN	A SODEIFI					VERIFY SCALE
DR	I KHAN					BAR IS ONE INCH ON ORIGINAL DRAWING.
CHK	T GALLAGHER	1	02/08/19	ADDENDUM NO. 1	AS DPF	0 1"
APVD	DP FORGACS	NO.	DATE	REVISION	BY APVD	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

ch2m:

PHASE 2 NUTRIENT COMPLIANCE (P2NR)
SETTLABILITY PILOT PLANT
UPPER OCCOQUAN SERVICE AUTHORITY
CENTREVILLE, VIRGINIA

ELECTRICAL
SELECTOR BASIN 56/2 PIPE GALLERY
ELECTRICAL LOWER PLAN

DATE	DECEMBER 2018
PROJ	699347
DWG	E-4
SHEET	31