

## SECTION 009113.01 - ADDENDA

### 1.1 PROJECT INFORMATION

- A. Project Name: Spectacle Pond Water Treatment Plant – PFAS Treatment Facility.
- B. Owner: Town of Ayer.
- C. Owner Project Number: 20DPW-12.
- D. Engineer: CDM Smith Michaela L. Bogosh, P.E., PMP.
- E. Date of Addendum: September 2, 2020.

### 1.2 NOTICE TO BIDDERS

- A. This Addendum is issued to all registered plan holders pursuant to the INSTRUCTIONS to Bidders. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.
- B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.
- C. The date for receipt of bids is unchanged by this Addendum, at same time and location.

### 1.3 ATTACHMENTS

- A. This Addendum includes the following attached Documents and Specification Sections:
  - 1. Document “Pre-Bid Meeting Agenda” dated August 25, 2020, 1-page. This is issued for information only and does not alter or supersede the contract documents.
  - 2. Document “Pre-Bid Meeting Sign In Sheet”, dated August 25, 2020, 2-pages. This is issued for information only and does not alter or supersede the contract documents.
  - 3. Drawing C-8, dated August 21, 2020, reissued.
  - 4. Drawing P-6, dated July 2020, new, as this drawing was unintentionally omitted from the original bid set.
  - 5. Drawing E-1, dated September 2020, reissued.
  - 6. Drawing E-6, dated September 2020, reissued.
  - 7. Drawing E-13, dated September 2020, reissued.

- B. This Addendum includes the following attached Sheets:
  - 1. Civil Sheet C-8, dated August 21, 2020, reissued.
  - 2. Plumbing Sheet P-6, dated July 2020, (new, as this sheet was unintentionally omitted from the original bid set.
  - 3. Drawing E-1, dated September 2020, reissued.
  - 4. Drawing E-6, dated September 2020, reissued.
  - 5. Drawing E-13, dated September 2020, reissued.

C. This Addendum includes the attached Addendum Drawings: (NOT USED)

1.4 REVISIONS TO PREVIOUS ADDENDA (NOT USED)

1.5 REVISIONS TO DIVISION 00 PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS

- A. Specification Section 001116 Invitation to Bid, (not reissued).
  - 1. Remove the first two paragraphs and replace with the following: “Sealed Bids for the General Contract for construction of Spectacle Pond Water Treatment Plant, PFAS Treatment Facilities will be received by the Town of Ayer, Massachusetts at the office of the Department of Public Works, 25 Brook Street, Ayer, MA 01432 until 2:00 PM, Thursday September 24, 2020 will be received by the at the office of the until, and at that time and place bids will be publicly opened and read aloud. Per the Governor’s declared state of emergency to support the Commonwealth’s response to the coronavirus, the bid opening will be closed to the public and live streamed. For access to the live stream, please email Dan Van Schalkwyk at [dvanschalkwyk@ayer.ma.us](mailto:dvanschalkwyk@ayer.ma.us).

Sealed Bids for the filed Sub-Contracts designated herein will be received at the office of the Department of Public Works, 25 Brook Street, Ayer, MA 01432 until 2:00 PM, Wednesday, September 9, 2020 and at that time and place bids will be publicly opened and read aloud. Per the Governor’s declared state of emergency to support the Commonwealth’s response to the coronavirus, the bid opening will be closed to the public and live streamed. For access to the live stream, please email Dan Van Schalkwyk at [dvanschalkwyk@ayer.ma.us](mailto:dvanschalkwyk@ayer.ma.us).”

1.6 REVISIONS TO DIVISION 01 GENERAL REQUIREMENTS

- A. Specification Section 013100 Project Management and Coordination, (not reissued).
  - 1. Delete paragraph 1.8B in its entirety and replace with “Web-Based Project Software: Provide, administer and use Engineer's preferred web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.
    - 1) Web-based Project software site includes, at a minimum, the following features:
      - a) Compilation of Project data, including Contractor, subcontractors, Engineer, architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.

- b) Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
  - c) Document workflow planning, allowing customization of workflow between project entities.
  - d) Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
  - e) Track status of each Project communication in real time, and log time and date when responses are provided.
  - f) Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
  - g) Processing and tracking of payment applications.
  - h) Processing and tracking of contract modifications.
  - i) Creating and distributing meeting minutes.
  - j) Document management for Drawings, Specifications, and coordination drawings, including revision control.
  - k) Management of construction progress photographs.
  - l) Mobile device compatibility, including smartphones and tablets.
- 2) Provide up to seven web based Project software user licenses for use of Owner and Engineer.
  - 3) At completion of project, provide digital archive in format that is readable by common desktop software application in format acceptable to Engineer.”

B. Specification Section 013300 Submittal Procedures, (not reissued).

1. Delete paragraph 1.12.B in its entirety.
2. Delete paragraph 1.12.C in its entirety.

## 1.7 REVISIONS TO DIVISIONS 02 - 49 SPECIFICATION SECTIONS

A. Specification Section 024116 Structure Demolition, (not reissued).

1. Insert new paragraph 3.3.A.6 as follows “Existing duct banks that will be made obsolete that are located in areas where new structures will be installed shall be removed in their entirety.”

B. Specification Section 090007 Painting, (not reissued).

1. In Paragraph 1.1.E, replace the period with a comma after A-12, replace the period with a comma after A-13, and replace the second citation of Drawing “A-6” with Drawing “A-16”.
2. In Paragraph 1.2.A, insert a new Paragraph 1.2.A.2 as follows “2. Section 090690 Paint Color Schedule.”

C. Specification Section 013233 Photographic Documentation, (not reissued).

1. Within paragraph 1.8.D before the word “until” insert “from initiation of construction activities.”

- D. Specification Section 220001 Plumbing, (not reissued).
1. In Paragraph 1.2.A, insert a new Paragraph 1.2.A.14 as follows “14. All the Work of Section 221126 Facility Liquified-Petroleum Gas Piping”, and re-number all subsequent numbered items in 1.2.A given this insertion.
- E. Specification Section 221119 Domestic Water Piping Specialties, (not reissued).
1. On Page 221119-1, in the title at the top of the page, revise title to read “SECTION 221119 – DOMESTIC WATER PIPING SPECIALTIES (Part of Work of Section 220001 “PLUMBING”, Filed Sub-Bid Required)”. Below that text, on a new line, insert “PART 1 – GENERAL”.
- F. Specification Section 221126 Facility Liquified-Petroleum Gas Piping, (not reissued).
1. On Page 221126-1, in the title at the top of the page, revise title to read “SECTION 221126 – FACILITY LIQUIFIED-PETROLEUM GAS PIPING (Part of Work of Section 220001 “PLUMBING”, Filed Sub-Bid Required)”.
- G. Specification Section 238126.10 Ductless Split-System Air-Conditioners, (not reissued).
1. In the right-hand footer of each page of this Section, insert the word “Ductless” before “Split System Air-Conditioners”.
- H. Specification Section 260001 Electrical Work
1. In paragraph 1.2.F insert additional sentence at the end of the paragraph that reads “The Electrical Sub-Contractor shall include an allowance of \$75,000 for these costs.”
- I. Specification Section 263213.16 Gaseous Emergency Engine Generators, (not reissued).
1. Paragraph 2.2.A, delete “231126” and replace with “221126”.
  2. Paragraph 2.2.C, delete “231126” and replace with “221126”.
- J. Specification Section 264113 Lighting Protection for Structures, (not reissued).
1. Paragraph 1.2.A, delete in its entirety and replace with the following:  
“Provide a complete lightning protection system for the PFAS Treatment Building. The system shall be UL labeled and shall be designed and installed in compliance with provisions of UL 96A and NFPA 780.

The Contractor shall employ the services of a licensed lightning protective systems engineering company to design and install the lightning protection system and prepare detailed installation drawings and material specifications. These drawings and specifications shall be submitted for review in accordance with Section 013300.

The lightning protection system shall be checked by a UL field inspector upon completion of the installation. The Contractor shall assume full responsibility for the correctness of the installation and shall make any and all corrections and additions deemed necessary by the UL inspector. The Contractor shall pay for all costs of the UL inspection and any subsequent re-inspections as required.

The lightning protection system for the buildings shall consist of conductors, air terminals, and accessories which shall be grounded to the building structural steel or ground grid at regular intervals. The contractor may submit alternate methods of lightning protection with their proposal, provided the alternate provides equal or greater lightning protection than specified.

The lightning protection system contractor shall coordinate their work with the electrical contractor. Each bidder or their authorized representatives shall, before preparing their proposal, visit all area of the existing buildings and structures in which work under this section is to be performed and inspect carefully the present installation. The submission of the proposal by this bidder shall be considered evidence that the bidder or their representative has visited the buildings and noted the locations and conditions under which the work will be performed and that the bidder/representative takes full responsibility for a complete knowledge of all factors governing their work.”

- K. Specification Section 333219 Sewerage Ejector Pump Station, (not reissued).
  - 1. Paragraph 3.4.F insert sentence that reads “The demonstration and training requirements of Section 017900 shall apply to this work.”
  
- L. Specification Section 400507 Hangers and Supports for Process Piping, (not reissued).
  - 1. Paragraph 1.1.C.6 delete in its entirety.
  - 2. Paragraph 2.4 delete in its entirety.
  - 3. Paragraph 2.16.A delete in its entirety.
  - 4. Paragraph 2.16.B delete in its entirety.
  - 5. Paragraph 3.2.E delete in its entirety.
  
- M. Specification Section 400531 Thermoplastic Process Pipe, (not reissued).
  - 1. Paragraph 3.3.K delete in its entirety.
  
- N. Specification Section 400551 Common Requirements for Process Valves, (not reissued).
  - 1. Paragraph 2.2 delete in its entirety.
  - 2. Paragraph 3.2.T delete in its entirety.
  - 3. Paragraph 3.2.X delete in its entirety.
  
- O. Specification Section 443117 Granular Activated Carbon (GAC) System, (not reissued).
  - 1. Add additional paragraph after 2.2.H titled 2.2.I and insert the following “Provide each vessel with an inlet distribution system connected to the inlet nozzle consisting of multiple radial arms. Drill each arm along its length to facilitate even distribution of water during normal operation and collection of backwash water. Construct the assembly using 304 stainless steel.”
  - 2. Add additional article 3.3 titled “MANUFACTURER’S SERVICES” and insert the following paragraphs:
    - 1) “Provide the services of a factory-certified service engineer who has complete knowledge of proper installation, startup, programming, testing, operation, and maintenance of specified equipment. Submit qualifications of service representative for approval who is a direct, full time employee of the manufacturer.”
    - 2) “Manufacturer shall advise, consult, and instruct the Contractor on:
      - a) Installation procedures and adjustments and inspect the equipment during installation as a condition of acceptance of the work.
      - b) Startup and testing of the finished installation.”

- 3) “Provide Owner’s training including operational and maintenance instruction to two separate operational and maintenance teams over two separate time periods. Give training at times convenient to operational or maintenance teams being trained in coordination with the Owner. Accordingly, some training may be conducted during hours outside a normal Monday through Friday, 8:00 a.m. to 4:00 p.m. workday. Include following operational training as a minimum:
  - a) Theory of operation.
  - b) Process flow description.
  - c) Unit capacity and design criteria.
  - d) Operational troubleshooting and diagnostics procedures.
  - e) Step-by-step startup and shutdown procedures.
  - f) System operation and optimization practices.
  - g) Control set point modification procedures.
  - h) Overall installed control system.”
- 4) “Man-hour requirements listed below are exclusive of travel time and do not relieve the manufacturer of the obligation to provide sufficient service to place equipment in satisfactory operation.
  - a) One-day trip for equipment evaluation when the Contractor reports having the installation mostly complete. Manufacturer shall provide the contractor a list of punch-list items and address anything they are unsure of to complete the installation properly.
  - b) A separate two-day trip for GAC loading and on-site training.”

#### 1.8 REVISIONS TO APPENDICES

- A. Appendix D – Blanding’s Turtle Protection Plan for Spectacle Pond Water Treatment Plant – PFAS Treatment Facility
  1. Change date called out on page 2 of the plan from “May 22, 2020” and replace with “April 1, 2021”.

#### 1.9 REVISIONS TO DRAWING SHEETS

- A. Sheet G-1 INDEX SHEET
  1. In the title for Drawing P-6, delete “DIAGRAMS AND NOTES” and replace with “DIAGRAMS AND DETAILS”.
- B. Sheet C-8 TREATMENT PLANT SITE/CIVIL DETAILS (reissued)
  1. This sheet is reissued - see attachment to this addendum – to include a detail on the sediment forebay calling for the use of an impervious liner.
- C. Sheet M-3 – EXISTING TREATMENT BUILDING DEMOLITION PLAN AND SECTION
  1. Replace note that reads “REMOVE LOUVER” with “LOUVER TO REMAIN AND CONTRACTOR TO FIT OPENING WITH NEW BLANK OFF PANEL ON THE INTERIOR SIDE, FILLING ENTIRE OPENING”.
- D. Sheet M-5 - PFAS Treatment Building Plan (not reissued).
  1. Replace callout for 24” manway with a 36” manway.

- E. Sheet M-6 – PFAS Treatment Building Sections (not reissued).
  - 1. Replace callout for 24” manway with a 36” manway.
- F. Sheet P-6 DIAGRAMS AND DETAILS (issued in this Addendum)
  - 1. This sheet is issued - see attachment to this Addendum – this sheet was inadvertently omitted from the original bid set and is being issued via this Addendum.

#### 1.10 QUESTIONS AND ANSWERS

- A. **Question:** Will other underdrain designs be accepted for the GAC vessel system? Not all underdrain designs are listed in Specification Section 443117.

**Response:** Yes, other underdrain designs, while not explicitly listed in the specification will be accepted if that manufacturer complies with the rest of the requirements outlined in the specification.

- B. **Question:** In Section 443117, Table 1, the Arsenic levels for well 1A and 2A are higher than the Finished water. Please advise how this is achieved.

**Response:** As per the design documents, existing greensand filters are located in the existing water treatment plant and remove an array of contaminants, which according to supplied water quality data could be inclusive of arsenic.

- C. **Question:** In Section 443117, Table 1, the turbidity for Well 1A and 2A are higher than the finished water. It is assumed that is a result of the greensand filtration and that it will be stable at less than <0.1 NTU as influent for the GAC System.

**Response:** The water quality data is provided to present manufacturers with historic representation of the typical water matrix observed at Spectacle Pond, any assumptions or inferences are for bidders to interpret.

- D. **Question:** Section 013233 requires a “Web Cam”. Please confirm that this requirement is for the duration of the project.

**Response:** Yes, this is for the duration of the project.

- E. **Question:** Section 013300 requires contractor to pay CDM \$500 per electronic file. Please confirm that all the plans and specifications can be on one file and that the contractor has to pay \$500.

**Response:** Refer to Addendum text above relative to changes to Section 013300.

- F. **Question:** Does the contractor have to pay for Submittal Exchange or similar per Section 013300 1.13 Electronic Submission requirements?

**Response:** Yes, the contractor is responsible for supplying the web-based project management software per specification Section 013300.

- G. **Question:** In regard to Section 017900 Demonstration and Training. Please provide a list of items that require Demonstration and Training.

**Response:** Various respective specification sections will reference 017900 for required demonstration and training or call it out directly in the specification. Additional training required for specific equipment has been added herein.

- H. **Question:** In regard to Section 019113 General Commissioning Requirements. Please provide a list of materials and equipment that will be included under this specification. Since this is going to add significant cost to each item being supplied on the project the list is required in order to make sure the suppliers include the added cost in their proposals.

**Response:** All systems on the HVAC schedule located on sheet H-4 will need commissioning. The tepid water system within the PLUM sheets will also need commissioning. For ELEC, all the testing/installation information can be found in Part 3 of each system's specification.

- I. **Question:** Please confirm that the pre-filed sub bidders will be responsible for 019113 General Commissioning Requirements costs for their materials and equipment.

**Response:** The specification state that the Contractor is responsible for commissioning services and the filed sub-bidders will support those services as required.

- J. **Question:** Why is Specification 310900 Geotechnical Instrumentation and Monitoring included as a requirement for this job. It is assumed that due to the ground water being well below the excavation of the structure, no sheeting is anticipated. Please confirm that this is not required for this contract.

**Response:** The specification was provided in the event that the conditions arise during construction which require monitoring.

- K. **Question:** Will the Owner pay for the compaction testing in Section 31200 Earthwork?

**Response:** No. The Contractor is responsible for the compaction testing and any other requirements unless otherwise stated.

- L. **Question:** Please confirm that the pre-filed roofing sub-contractor is responsible for removing and disposing of the roof shingles on the existing treatment plant building and for the weather protection during the removal and replacement of the existing roof.

**Response:** The Sub-Contractor is responsible for inclusion of such work.

- M. **Question:** Drawing H-2 shows the piping from SSO-1 to the SSI units being run on the outside of the building is this correct?

**Response:** Yes, the piping from SSO-1 to the SSI units should be running outside the building, as shown on the drawings.

- N. **Question:** Drawing H-2 Shows the drain piping being run exposed on the interior walls. Do the drains need to be insulated and painted?

**Response:** The drain piping shown on drawing H-2 should be insulated. Please refer to specification Section 230719 HVAC Piping Insulation. Painting is not required for this pipe.



- O. **Question:** Please confirm that the only ductwork that requires insulation is that connected to DHU-2.

**Response:** Refer to the Metal Ductwork and Insulation schedule on drawing H-4 for all ductwork insulation.

- P. **Question:** In regard to the HVAC sub bid there is no Section for Automatic Temperature Controls. Is the intent to just use the controls from each unit? IE Thermostats and on off switches?

**Response:** Confirmed, there is no BAS and all controls will be local.

- Q. **Question:** Was the Turtle Fencing installed on or before May 22, 2020, as referenced in Appendix D?

**Response:** See “REVISIONS TO APPENDICES” section above.

- R. **Question:** Will the Owner be paying for the costs of the turtle exclusionary fencing program?

**Response:** Per Section 011000 Summary Part 1.10, the Contractor is responsible for the turtle exclusionary fencing which needs to be in place by April 1, 2021.

- S. **Question:** Is the drawing set supposed to contain sheet P-6?

**Response:** See attached sheet P-6 as part of this Addendum.

- T. **Question:** Please confirm all filed sub-bid contractors are responsible for any scaffolding/staging and hoisting required for the execution of their work.

**Response:** Any scaffolding/staging/hoisting work from the ground elevation to five (5) feet above the ground is the responsibility of the Subcontractor doing that work; any scaffolding/staging/hoisting work required at greater than five (5) feet is to be coordinated with the General Contractor – the cost is to be carried by the General Contractor for this work.

- U. **Question:** Does the Contractor need to supply dumpsters for the Sub-contractor work?

**Response:** Yes, dumpsters required for any Subcontractor work are to be coordinated with the General Contractor – costs are to be carried by the General Contractor.

- V. **Question:** In section 007300-Supplemental Conditions, S.C. -6.05. A.16. states “include by express endorsement of coverage of damage to Contractors equipment” under the property insurance policy. Please confirm if it would be acceptable for the Contractor to provide their own insurance in lieu of including under item 16 above.

**Response:** It would be acceptable for the Contractor to provide proof of its own property insurance coverage instead of under the Builder’s Risk.

- W. **Question:** There was no mention of a flood sublimit for the Builder’s Risk policy. Please confirm if a \$1M flood sublimit on the builder’s risk policy would be acceptable. Please note that anything over the \$1M limit is extremely expensive and cost prohibitive.

**Response:** A flood sublimit will not be defined and the contractor should discuss individual concerns with its insurance broker.

- X. **Question:** In Section 013200, paragraph 1.10.D.5 –Cost and Resource Loading of schedule specifies a cost-resource loaded schedule, which is difficult to align with a standard Schedule of Values. Is it your intent to require a cost-resource loaded schedule for a project of this size?

**Response:** No, a resource loaded schedule will not be required for this job.

- Y. **Question:** Sections 271323-Communications Optical Fiber Backbone Cabling and 283100-Intrusion Detection do not state these sections are included as part of the electrical Pre-file scope of work. Please confirm that these sections are included as part of the electrical Pre-file scope of work.

**Response:** Regarding the Div. 27 and 28 specs, the scope is covered under Section 260001 “Electrical Work” under paragraphs 1.2.A.24 and 25.

- Z. **Question:** On drawing C-7, there is a detail for Redi-Rock retaining wall. Will any other product be accepted?

**Response:** Other products similar to Redi-Rock will be accepted assuming they are compliant with the specifications and other requirements.

- AA. **Question:** Drawing C-4 depicts a retaining wall which runs up to the existing Treatment Building. Can you provide TOW and BOW elevations at the building.

**Response:** Drawing C-4 calls out TOW elevations along the entire structure and the elevation should be carried consistently until it runs up to the existing treatment building.

- BB. **Question:** On Drawing C-4 there is a note pointing to the retaining wall location that states “350 SF permanent impact to bordering land subject to flooding”, please confirm what this means, if this pertains to the retaining wall, and how it relates to the construction.

**Response:** This note was included as part of Massachusetts permitting review requirements but does not impact the construction of the facility.

- CC. **Question:** Is the Contractor responsible for protecting the existing foundation and fireplace structure?

**Response:** Yes, as shown on Sheet C-2 the Contractor is responsible for the protection of this structure.

- DD. **Question:** Please confirm if local Town of Ayer, MA building permit fees are waived for the project.

**Response:** The Town waives the general Building Permit fee, but the electrical and plumbing permits will need to be paid. The Town will pay those directly, so the contractor does not need to carry any Building Permit related fees in the bid. The Town will also waive the trench permit fee.

EE. **Question:** Section 102800 – Please provide basis of design model numbers for bidding purposes.

**Response:** At this time and given the details provided in the drawings and specifications we believe that there is enough information to adequately bid this portion of the job.

FF. **Question:** Section 096723 – Please clarify where this spec section applies. The finish schedule calls for rubber tile (RT) and hardener (hard) for the floor finishes.

**Response:** Section 096723, Resinous Flooring, to be applied on top of concrete slab throughout Treatment Facility (room #102). See Ground Level Floor Plan on sheet A-6 for Treatment Facility room area. Additionally, the Finish Schedule on sheet A-18 should read “RES” instead of “HARD” for the floor finish of the Treatment Facility (room #102).

GG. **Question:** Drawing A-16, Detail 7 – unbacked vinyl sheet flooring is called out on the mezzanine detail. Please confirm that both Mezzanine 01 and 02 are to receive vinyl sheet flooring per Section 096516.

**Response:** Confirmed. Both Mezzanine 01 and Mezzanine 02 are to receive vinyl sheet flooring per Section 096516.

HH. **Question:** Specification section 013513.54 paragraph 1.2 C.4 states that Well 1 & 1A and associated buildings demolition will not commence until Well 1B is operational and function tested. Section 011000 paragraph 1.5.B.1 states that work for completing work at Well 1 is under a separate contract. Please confirm that this is to be Well 1B and not Well 1 and that this work is scheduled to be complete prior to this contract being awarded.

**Response:** The well work has been awarded and the Town is working to get this installed as quickly as possible, it is the Town’s intent to have this work completed prior to the beginning of construction of this job.

II. **Question:** Please confirm that the bituminous dampproofing is required on the building foundation.

**Response:** This is confirmed, bituminous dampproofing is required and was called out on the wall sections as keynote #6.

JJ. **Question:** On Door Schedule / Plan A-18: Exterior Door D-102B with Transom Frame Type F2; is the transom to be glass or a panel? Is the horizontal mullion at the transom to be welded in place or removable?

**Response:** This is an exterior door so it should be a fully welded frame, inclusive of the transom mullion. Glazing to be insulated tempered glass with argon fill and low-e.

KK. **Question:** In regard to Specification 055000 Metal Fabrications, 2.11 Free Standing Rooftop Guardrail, which drawings page has a layout of the system? Also, what are the dimensions to accompany this layout?

**Response:** The guardrail is shown on the ARCH sheets A-9 and A-10 and on the mezzanine, sheets A-11 and A-12. Dimensions can be obtained on the sheets.

LL. **Question:** In regard to Specification 055000 Metal Fabrications, 2.7 D “Provide a ladder Safety System as indicated on the Drawings”. Which drawings page is this located on? Also, can we be given the height of this ladder?

**Response:** Safety ladder is on sheets A-11 and A-12. Dimensions can be obtained on the sheets.

MM. **Question:** In regard to Specification 077100 Roof Specifications, 2.3 Fall Arrest Roof Stanchions, I see on drawing A-7, a total of three (3) of these Roof Stanchions. Are there any other additional Stanchions located in any other areas on this project?

**Response:** The roof is the only location of stanchions.

NN. **Question:** Section 013233 - Photographic Documentation, Part 1.8 Construction Webcam, calls for one fixed location, all weather camera to deliver web accessible static view images of the site in progress. Without an adjacent building roof, which would allow an overview vantage point, what could be delivered here other than one expensive view of the exterior of the PFAS building going up?

**Response:** There is another roof on an adjacent existing treatment building that is a potential location for the webcam.

OO. **Question:** The specification does not call out inlet distribution for the GAC vessel system, is this required?

**Response:** Yes, see revision to specification text in above Addendum language.

PP. **Question:** Which chart recorder will be removed in the existing treatment building?

**Response:** As for the chart recorder(s), both shall remain. The recorder that is located within the Existing Instrument Panel is the one that shall be relocated from within the panel to the wall of the Electrical Room.

QQ. **Question:** Please confirm that spec section 051200 - Structural Steel, 054000 - Cold-Formed Metal Framing, and 055000 - Metal Fabrication, do not need to be compliant with the American Iron and Steel Act?

**Response:** Given this is an SRF funded job, materials need to be compliant with the American Iron and Steel Act.

RR. **Question:** Drawing A-13 Wall Sections 1,2,3,4 call for mold resistant 5/8” Gypsum Board, however on Drawing A-15 Detail 13 identifies the wall board as 5/8” Impact Resistant Gypsum Board. Please clarify which is correct.

**Response:** 5/8” Impact Resistant Gypsum Board is correct. The 5/8” Mold Resistant Gypsum Board is to be provided in the Restroom (room #101) of the new PFAS Treatment Building only.

SS. **Question:** Please confirm there are no new fire extinguishers to be installed in the existing water treatment facility that is to be renovated.

**Response:** Confirmed. There are no new fire extinguishers to be installed in the Existing Treatment Building

TT. **Question:** Please advise if a course of pressure treated blocking is required to be installed on the top of CMU wall beneath the metal stud track.

**Response:** A continuous metal channel is to be provided at the top of the CMU wall. No other blocking is needed.

UU. **Question:** Please advise that an un-fastening system and re-installing is sufficient for the Translucent Panels. Additionally, please provide a detail for the supports for the Translucent Panels.

**Response:** Un-fastening and reinstallation of translucent panels is sufficient. The panels will be secured to the hollow structural steel columns along with a cold-formed metal box header. See details 3, 13, and 16 on sheet A-15.

VV. **Question:** Please confirm if the electrical FSB is responsible for the generator system's (bulk fuel tank & day tank, piping, generator, exhaust, intake duct, etc.) removal & disposal. If the GC is required to perform this demo, please indicate the fuel quantity to remove and dispose of

**Response:** Regarding the Div. 27 and 28 specs, the scope is covered under Section 260001 "Electrical Work" under paragraphs 1.2.A.24 and 25. The Contractor will be responsible for removing and properly disposing of up to 275 gallons of fuel and for alerting Town officials when fuel removal is taking place.

WW. **Question:** Is there any work in Well 1B for the general contractor under this contract other than the underground piping connections shown on DWG C-5? FE/FIT 0230 is provided by others?

**Response:** The Contractor is responsible for connection at pipe cap as shown on C-5. Refer to drawing I-4 and note 1 on drawing.

XX. **Question:** On DWG M-3 it states that the louver is to be removed, however, on DWG A-6 only the insect screen is to be removed from the louver and the louver is to remain. Is the louver to be removed or does it stay in place?

**Response:** Per drawing A-4 existing louver to remain, opening is to be fitted with new blank off panel to the interior side filling the entire opening. See Addendum text for changes to sheet M-3.

YY. **Question:** Specification section 013100 1.8B indicates that the engineer will provide the Contractor a web based project software, however, in specification 013300 1.13A.1 it states to use submittal exchange and then indicates for the General Contractor to carry the costs for this. Please clarify if the GC will provide submittal exchange or the Engineer will provide its software for the GC.

**Response:** See above addendum text to changes in specification Section 013100.

ZZ. **Question:** Can the Filed Sub-bid date be postponed due to the Labor Day Holiday? Receiving vendor pricing would be difficult due to the holiday.

**Response:** The filed sub-bid date will not be changed.

AAA. **Question:** Both the Davis-Bacon and Massachusetts prevailing wage rates are included in the specifications. Which wage rates apply to this project?

**Response:** Both wage rates apply to this project.

BBB. **Question:** Sheet E-1: Service and Metering - Note 3 states the EC must pay power company fees for the permanent service via bid allowance. The electrical FSB form does not have a bid allowance.

**Response:** Refer to changes in the Addendum to Section 260001.

CCC. **Question:** Specification 260001 1.2 F states the Electrical Sub-Contractor shall carry in the bid price all Utility Company and Municipal backcharges. Will the Littleton Electric Light backcharges be published to be available to all bidders?

**Response:** Refer to changes in the Addendum to Section 260001.

DDD. **Question:** What is the KVA rating of the new pad-mounted transformer? We need this information to properly size the transformer pad.

**Response:** Refer to changes in ELEC drawings reissued as part of this Addendum.

EEE. **Question:** The one-line diagram on E-6 shows the utility meter at the pad-mounted transformer. Will the utility allow mounting of the CT cabinet and meter socket to be mounted on the transformer?

**Response:** Refer to changes in ELEC drawings reissued as part of this Addendum.

FFF. **Question:** Specification 271323 1.4 lists cross-connects, mechanical terminations and patch cords. The Control System Architecture on I-3 only shows one 12 pair, single mode FO cable terminating in the FOPP-SPEC and FOPP-PFAS patch panels. Please confirm these FOPP panels are supplied by Division 40.

**Response:** The patch panels are under Section 271323 “Communications Optical Fiber Backbone Cabling” under Paragraph 2.3.H and are supplied as part of Division 26 scope of work as identified under Section 260001.

GGG. **Question:** Specification section 090007 list all the drawings that the Painting Sub contractor owns. On drawing M-3 Construction Sequence note 2 states “Contractor to paint existing filters and associated piping & equipment”. Does the painting sub-contractor own this drawing? Is it the intent for the painting sub-contractor to paint existing filters, pipes & equipment? Please advise.

**Response:** Yes, it is the intent that the painting sub-contractor will be responsible for painting the vessels and associated piping.

HHH. **Question:** Please confirm that the installation of the electrical work should be priced in accordance with the 2017 National Electrical Code (“NEC”) and that any requirement by a

building official or other authority for a contrary installation during construction shall be considered a change order under the Contract Documents.

**Response:** The installation should be priced with the current Massachusetts State Electrical Code. The current State Electrical Code currently in effect is based upon NFPA 70, 2020 edition, with Massachusetts Amendments.

- III. **Question:** Our bid shall be prepared in accordance with the Massachusetts public bidding laws. We understand the Massachusetts public bidding laws, and applicable decisions from the Bid Protest Unit of the Massachusetts Attorney General's Office, require all of the electrical work and materials included in the bid to be contained entirely, and described clearly, within the written electrical specifications. We understand that bidders also are responsible for the work and materials shown on the electrical drawings to the extent that work and those materials also are described and defined in the electrical specifications. We also understand that electrical work may be contained in drawings outside of the electrical drawings provided the work is described in the electrical specifications and there is a clear reference to the affected drawings in the electrical specifications. Please confirm we are correct in our understanding that work and materials described in non-electrical specifications or shown on non-electrical drawings, without also being described in the electrical specifications, is for coordination purposes only and shall not be part of the electrical contractor's bid for this project.

**Response:** Confirmed.

- JJJ. **Question:** Per electrical drawing E-1, Pay fees and charges for temporary/construction power for contractors use. Please confirm this cost will be by the General Contractor.

**Response:** Fees and charges for temporary power is by the General Contractor per Section 015000 "Temporary Facilities and Controls." See revised E-1.

- KKK. **Question:** Per electrical drawing E-4 - Existing underground conduits to Well 1 Building to be demolished. Please confirm the demolition of existing duct banks will be by the site contractor.

**Response:** Demolition of electrical equipment, including wiring, is covered under Section 260505 "Selective Demolition for Electrical" per this Addendum.

- LLL. **Question:** Per electrical drawing E-1 - Delegated Design/Professional Engineering Services. Please confirm that delegated design and professional engineering are not required and are not part of the electrical file sub bid.

**Response:** Refer to changes as part of this Addendum.

- MMM. **Question:** Is the plumbing FSB responsible to provide the propane tanks?

**Response:** Yes, storage containers are specified in Section 221126.

END OF DOCUMENT 009113.01

**Town of Ayer, Massachusetts**  
**Spectacle Pond Water Treatment Plant – PFAS Treatment Facilities**  
**Contract 20DPW12**  
**Pre-Bid Meeting**  
**August 25<sup>th</sup>, 2020 at 9:30 AM**  
**25 Brook Street, Ayer, MA**  
**Agenda**

**1. Introductions**

- a. Town of Ayer Staff
- b. CDM Smith Design Team
- c. Sign In Sheet for all attendees

**2. Bid Documents Availability**

- a. **View** copy at Town of Ayer, 25 Brook Street, Ayer, MA, at CDM Smith Office in Boston, or on-line
- b. **Purchase** a copy from CDM Smith office at 75 State Street, Suite 701, Boston, MA

**3. Bid Documents Overview**

- a. Overview and Recent History of Spectacle Pond WTP – wells, treatment building, spent filter backwash, site constrictions, chemical injection manhole, duplex pump station
- b. Purpose of project
- c. Testing of water, pressure vessels and granular activated carbon media
- d. Realize this is an operating WTP
- e. Treat water as soon as possible

**4. Bidding and Project Schedule**

- a. Last Day for Questions ..... September 14
- b. Last Day for Addenda ..... September 15
- c. Sub-Bid Opening ..... September 9
- d. General Bid Opening ..... September 24
- e. Contract Duration ..... Final Completion: 456 Days

**5. Questions**

**6. Drive to Spectacle Pond WTP for Site Overview**



Pre-Bid Meeting Sign In Sheet  
Town of Ayer, Massachusetts  
Spectacle Pond Water Treatment Plant - PFAS Treatment Facilities

Date: August 25th, 2020 Time: 9:30 am Eastern

Location: 25 Brook Street, Ayer, MA

	Company	Contact	Phone	Address	Email
1	CDM Smith	Az LeBlanc	603 222 8380	670 N. Commercial St Ste 208 Manchester NH	LEBLANCAG@CDMSMITH.COM
2	CDM Smith	Michael Bogish	617-452-6694	75 State Street Boston, MA 02109	BOGOSHML@CDMSMITH.COM
3	RH White	Jerrod Fowler	508-832-3295	41 Central Street Auburn, MA 01501	jfowler@rhwhite.com
4	RH White	Ryan Blinn	508-277-3538	41 Central Str Auburn, MA 01501	rblinn@rhwhite.com
5	GWTT	JAMES Miller	508-277-3536	39 River Street, Milbury	JamesMiller@GWTTLLC.COM
6	C H Nickerson	Bill Naragon	860-489-0455	49 Hayden Hill Rd Torrington, CT	bnaragon@CHNickerson.com
7	C.H. Nickerson	Adam Bisson	860-489-0455	"	abisson@chnickerson.com
8	Lafleur	Ken DeVries	774-452-2218	6 Elm St. Auburn MA	<del>Ken</del> Kdevries@lafleurelectric.com
9	CDM Smith	Tom Casey	617-452-6736	75 State St. Boston	CaseyT@CDMSMITH.COM
10	Town of Ayer	Dan Van Schalkwyk	978-772 8240	25 Brook St Ayer, MA	dvaneschalkwyk@ayer.ma.us
11	McEnroe Consulting	Rebecca McGrope	978-860- 6667	406 Super Rd Bolton MA	Becky@mcenroeconsulting.com
12	CDM Smith	Maddie Ledoux	603-222-8302	670 N. Commercial St Ste 208 Manch. NH	Ledoux.MR@cdmsmith.com

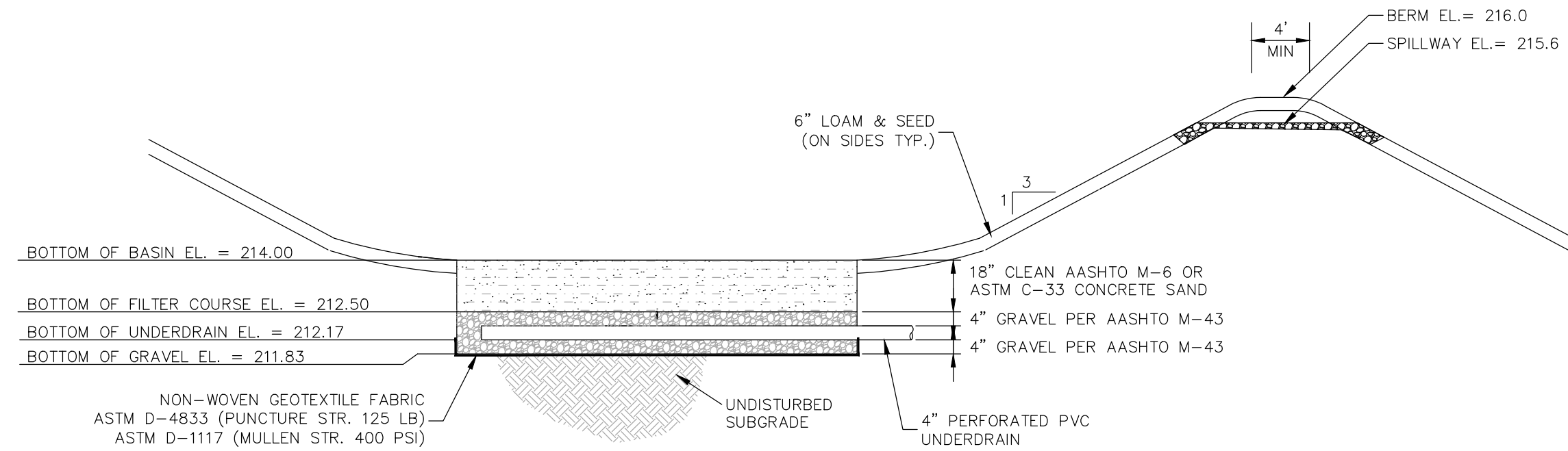
Pre-Bid Meeting Sign In Sheet  
 Town of Ayer, Massachusetts  
 Spectacle Pond Water Treatment Plant - PFAS Treatment Facilities

Date: August 25th, 2020 Time: 9:30 am Eastern

Location: 25 Brook Street, Ayer, MA

	Company	Contact	Phone	Address	Email
13	WINSTON BUILDERS	PAUL J. MARTINS	508 - 330-9261	55 HOPKINSON RD WESTBOLD, MA	PAUL.M. WINSTON @ AOL.COM
14	Waterline Inc	Ralph Dumke	603-474 7474	7 Londondale Seabrook NH	info@waterlineinc .com
15	Amp Electric	Kevin Bean	860-88 1145	1420 Union Steele St Auburn	KEVIN_B @ amp-electric.com
16	RH White	Tim Magliaro	508 928-4355	41 Central St Auburn	tmagliaro @ rhwhite .com
17	GWTT Dan Sullivan		508/735 3978	39 River St. Millbury MA	dsullivan @ gwttllc.com
18					
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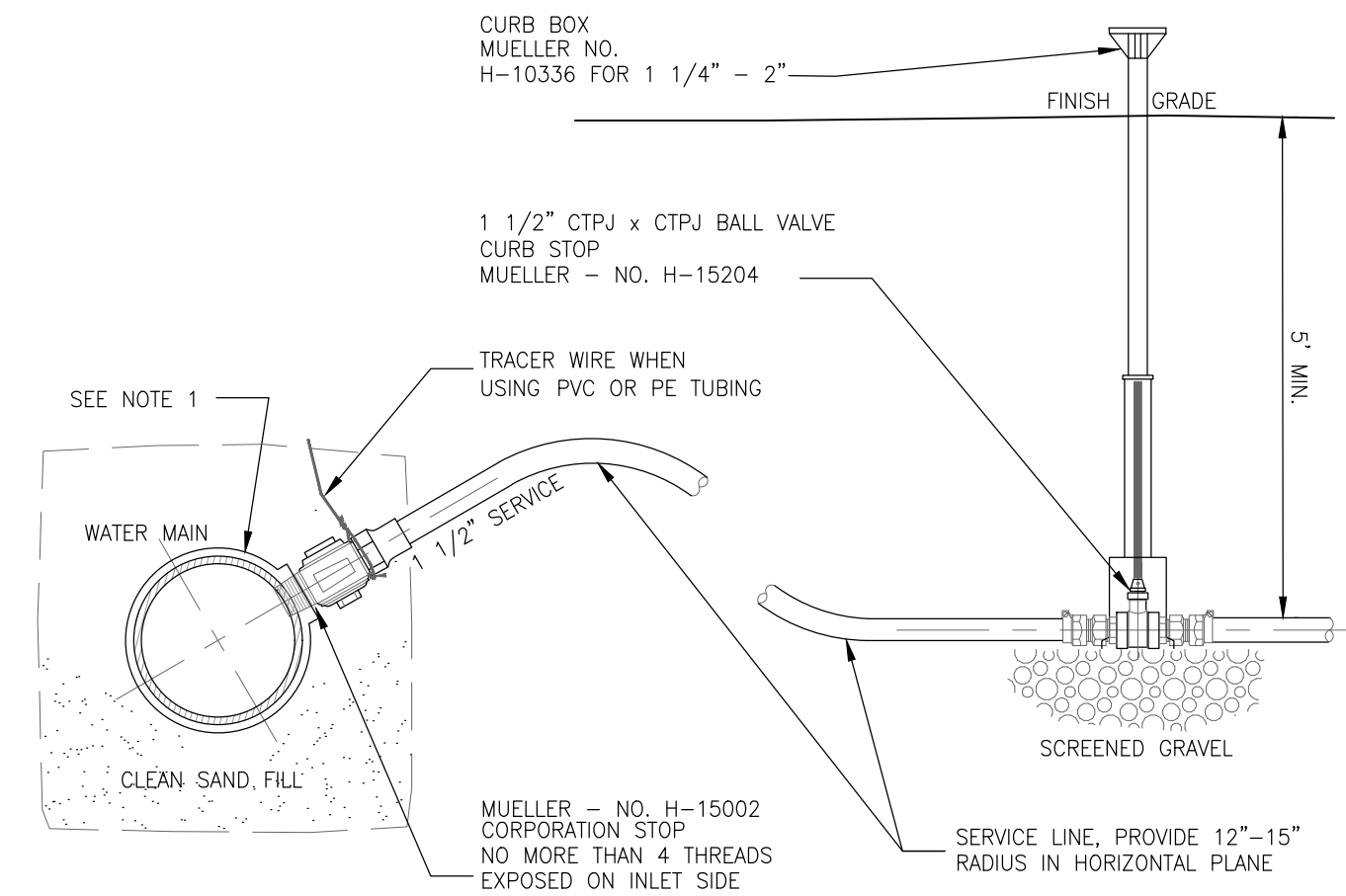


**FILTRATION AREA #1**

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**FILTRATION BASIN AREA CONSTRUCTION**

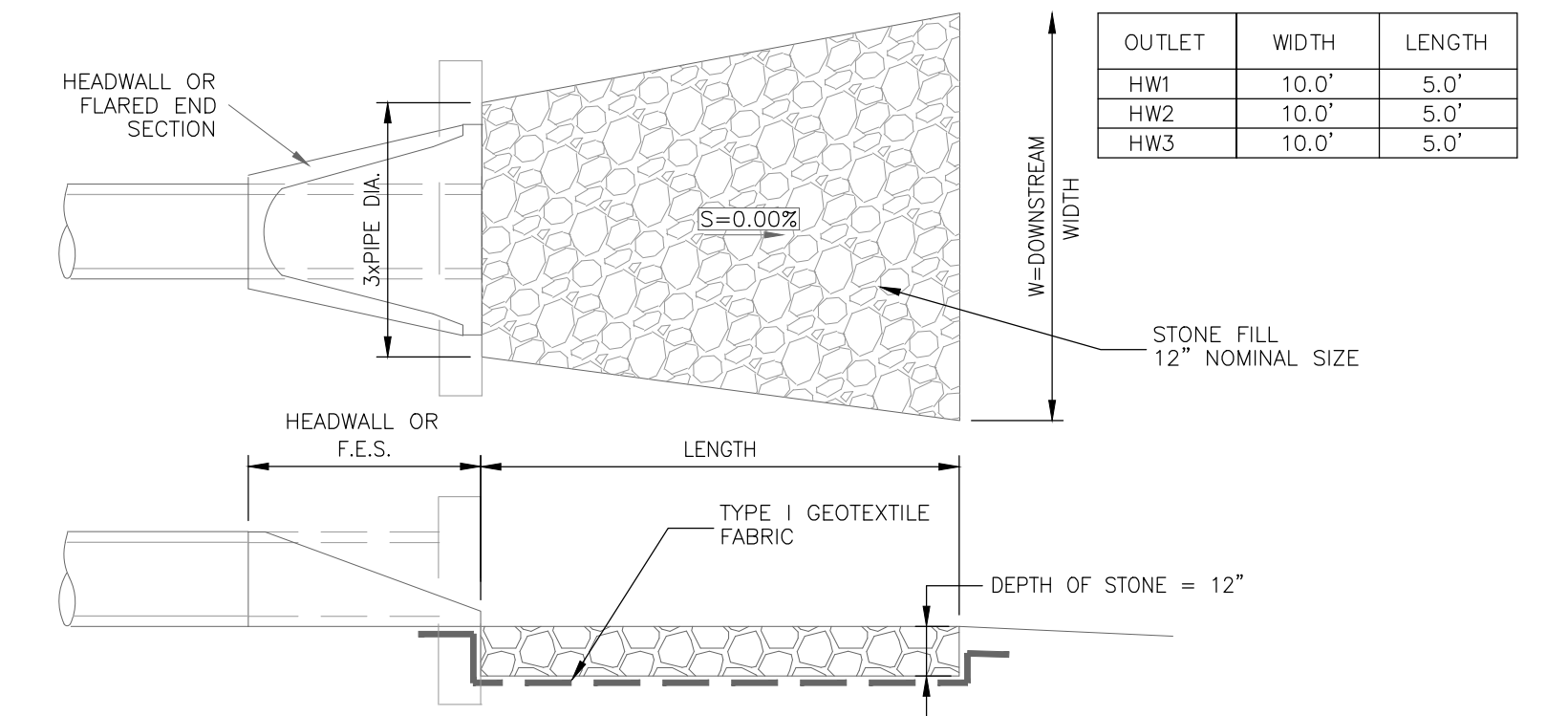
- CLEAR AND GRUB THE AREA WHERE THE DETENTION BASIN IS TO BE LOCATED. STOCKPILE LOAM FOR REUSE ON SLOPES.
- GRADE FILTER AREAS ACCORDING TO PLAN AND DETAILS. SIDE SLOPES SHALL HAVE 6" LOAM AND SEED.
- TOPSOIL/LOAM SHALL CONSIST OF LOOSE FRIABLE TOPSOIL WITH NO ADMIXTURE OF REFUSE OR MATERIAL TOXIC TO PLANT GROWTH. LOAM SHALL BE FREE FROM STONES, LUMPS, STUMPS, OR SIMILAR OBJECTS LARGER THAN ONE INCH (1") IN GREATEST DIAMETER, SUBSOIL, ROOTS, AND WEEDS. THE MINIMUM AND MAXIMUM PH VALUE SHALL BE FROM 5.5 TO 7.2. LOAM SHALL CONTAIN A MINIMUM OF FOUR PERCENT (4%) AND A MAXIMUM OF FIVE AND A HALF PERCENT (5.5%) ORGANIC MATTER AS DETERMINED BY WEIGHT. NOT MORE THAN TWENTY-FIVE PERCENT (25%) SHALL PASS A NO. 200 SIEVE. IN NO INSTANCE SHALL MORE THAN 20% OF THAT MATERIAL PASSING THE #4 SIEVE CONSIST OF CLAY SIZE PARTICLES. THE RATIO OF THE PARTICLE SIZE FOR 80% PASSING (D80) TO THE PARTICLE SIZE FOR 30% PASSING (D30) SHALL BE 6.0 OR LESS (D80/D30 ≤ 6.0). SATURATED HYDRAULIC CONDUCTIVITY OF TOPSOIL/LOAM SHALL BE BETWEEN 3 INCHES/HOUR AND 10 INCHES/HOUR ACCORDING TO ASTM D5856-95 WHEN COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR, ASTM 698.
- SEEDING FOR DETENTION AREA SIDE SLOPES SHALL HAVE A MINIMUM OF 6" LOAM MIXTURE INSTALLED WITH TYPICAL LAWN MIX (MIN. 200 LBS/ACRE):
  - 33% CREEPING RED FESCUE (MIN. 66 LBS/ACRE)
  - 42% PERENNIAL RYEGRASS (MIN. 84 LBS/ACRE)
  - 21% KENTUCKY BLUEGRASS (MIN. 42 LBS/ACRE)
  - 4% REDTOP (MIN. 8 LBS/ACRE)
- INSTALLER SHALL NOT ALLOW ANY VEHICULAR OR CONSTRUCTION EQUIPMENT TRAVEL TO OCCUR ACROSS THE PROPOSED FILTRATION BASIN AREA AT ANY TIME EXCEPT DURING EXCAVATIONS OF TOPSOIL, SUBSOIL AND OTHER MATERIALS NOT SUITABLE FOR BED BOTTOM CONDITIONS.
- CAUTION SHOULD BE EXERCISED DURING SITE PREPARATION TO AVOID COMPACTON OF THE INFILTRATIVE BOTTOM SURFACE FILTER MEDIA.



**NOTE:**  
1. A DOUBLE STAINLESS STEEL STRAP TAPPING SADDLE MUST BE USED TO CONNECT THE CORPORATION TO THE WATERMAIN.

**SERVICE CONNECTION**

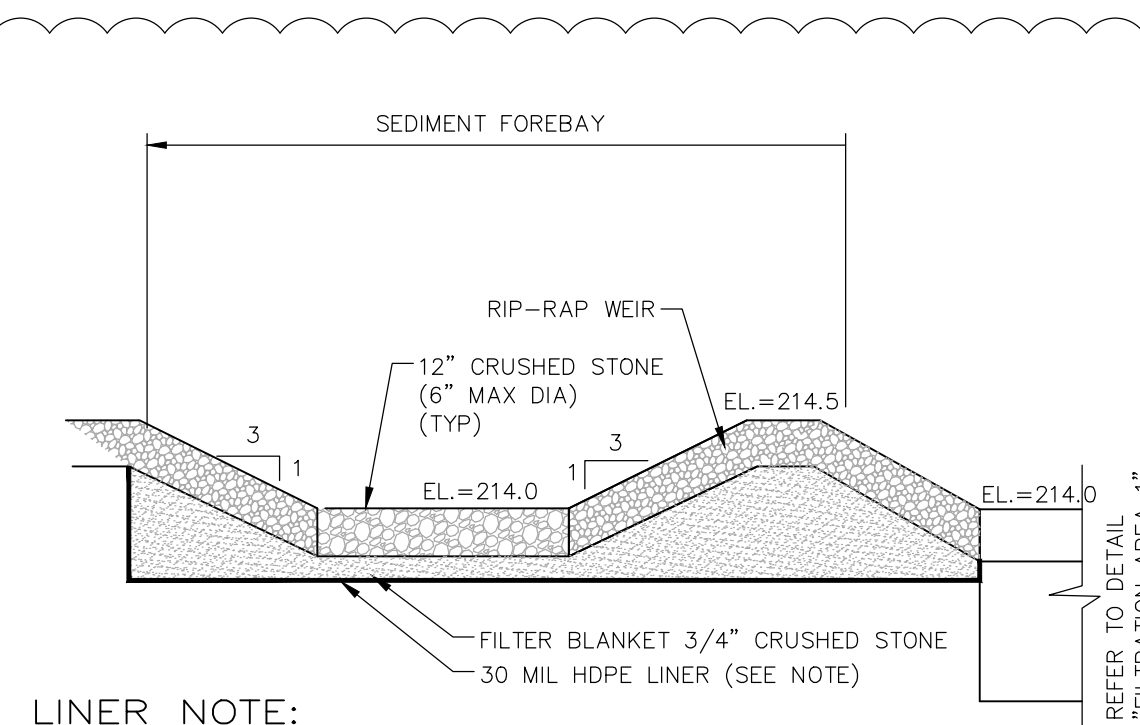
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- CONSTRUCTION SPECIFICATIONS:**
- THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP-RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
  - THE ROCK USED FOR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
  - GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
  - STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

**OUTLET APRON**

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**LINER NOTE:**

**SPECIFICATION SHEET**

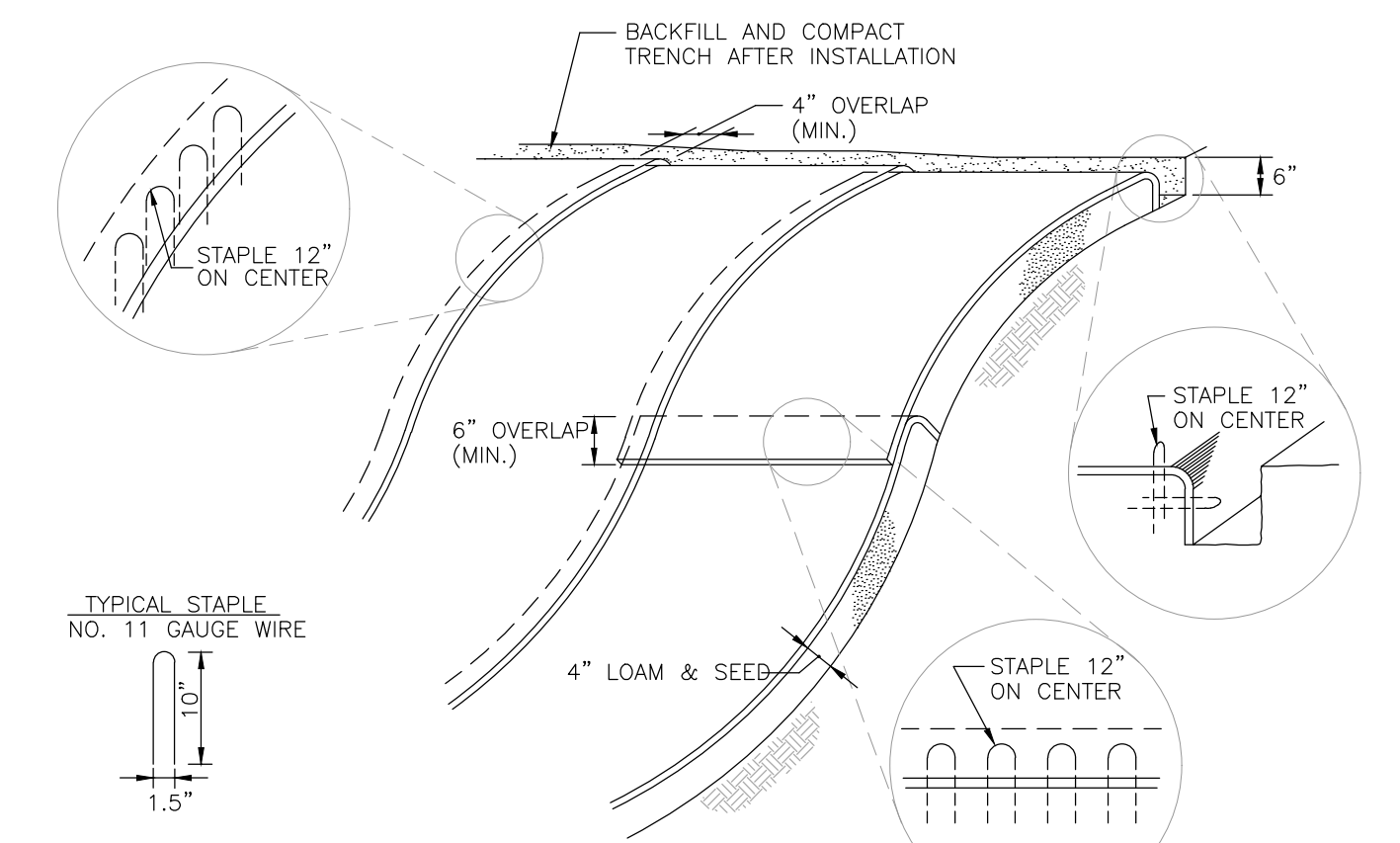
**High Density Polyethylene (HDPE)  
30 - 100 mil**

Property	Test Method	Values
Thickness (mils nominal)	ASTM 5199	30 40 60 80 100
Thickness (mils minimum)	ASTM 5199	27 36 54 72 90
Density (g/cm <sup>3</sup> minimum)	ASTM D792, Method B	0.94 0.94 0.94 0.94 0.94
Tensile Strength at Yield (lbs/in. width)	ASTM D6693, Type IV - 2 in./minute	66 88 132 176 220
Tensile Strength at Break (lbs/in. width)	ASTM D6693, Type IV	120 160 240 320 400
Elongation at Yield (%)	ASTM D6693, Type IV	13 13 13 13 13
Elongation at Break (%)	ASTM D6693, Type IV	700 700 700 700 700
Tear Resistance (lbs)	ASTM D 1004-Die C	23 30 45 60 72
Puncture Resistance (lbs)	ASTM D4833	60 80 120 160 190
Carbon Black Content (%)	ASTM D4218	2-3 2-3 2-3 2-3 2-3
Carbon Black Dispersion (Category)	ASTM D5596	10 views: 9 views in Cat. 1 or 2 and 1 view in Cat. 3
Stress Crack Resistance (Single Point NCTL)	ASTM D 5397, Appendix	300 hrs 300 hrs 300 hrs 300 hrs 300 hrs
Oxidative Induction Time (minutes)	ASTM D3895, 200°C, 1atm O <sub>2</sub>	≥100 ≥100 ≥100 ≥100 ≥100
Melt Flow Index (g/10 minutes)	ASTM D1238, 190°C, 2.16kg	≤1.0 ≤1.0 ≤1.0 ≤1.0 ≤1.0
Oven Aging with HP, OIT, (% retained after 90 days)	ASTM D5721	80 80 80 80 80
LUV Resistance with HP, OIT, (% retained after 1,600 hrs)	GRI GM11 ASTM D5885, 150°C, 500psi O <sub>2</sub>	50 50 50 50 50

These product specifications meet or exceed GRI's GM13

**SEDIMENT FOREBAY**

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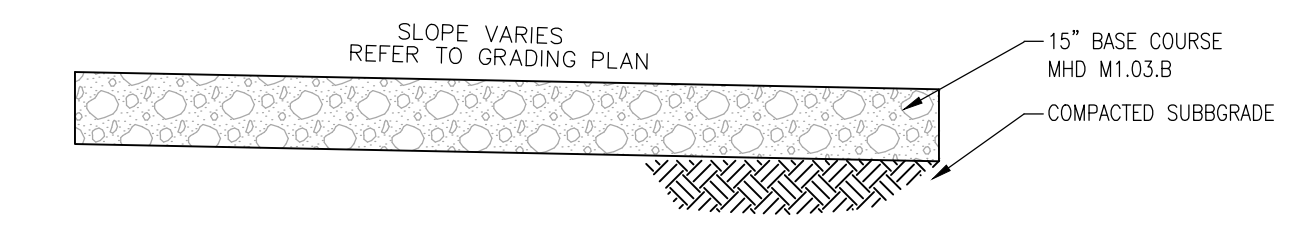


**NOTES**

- BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
- ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
- THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
- WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
- ALL BLANKET SHALL BE NORTH AMERICAN GREEN SC125BN OR APPROVED EQUAL.

**BLANKET SLOPE PROTECTION**

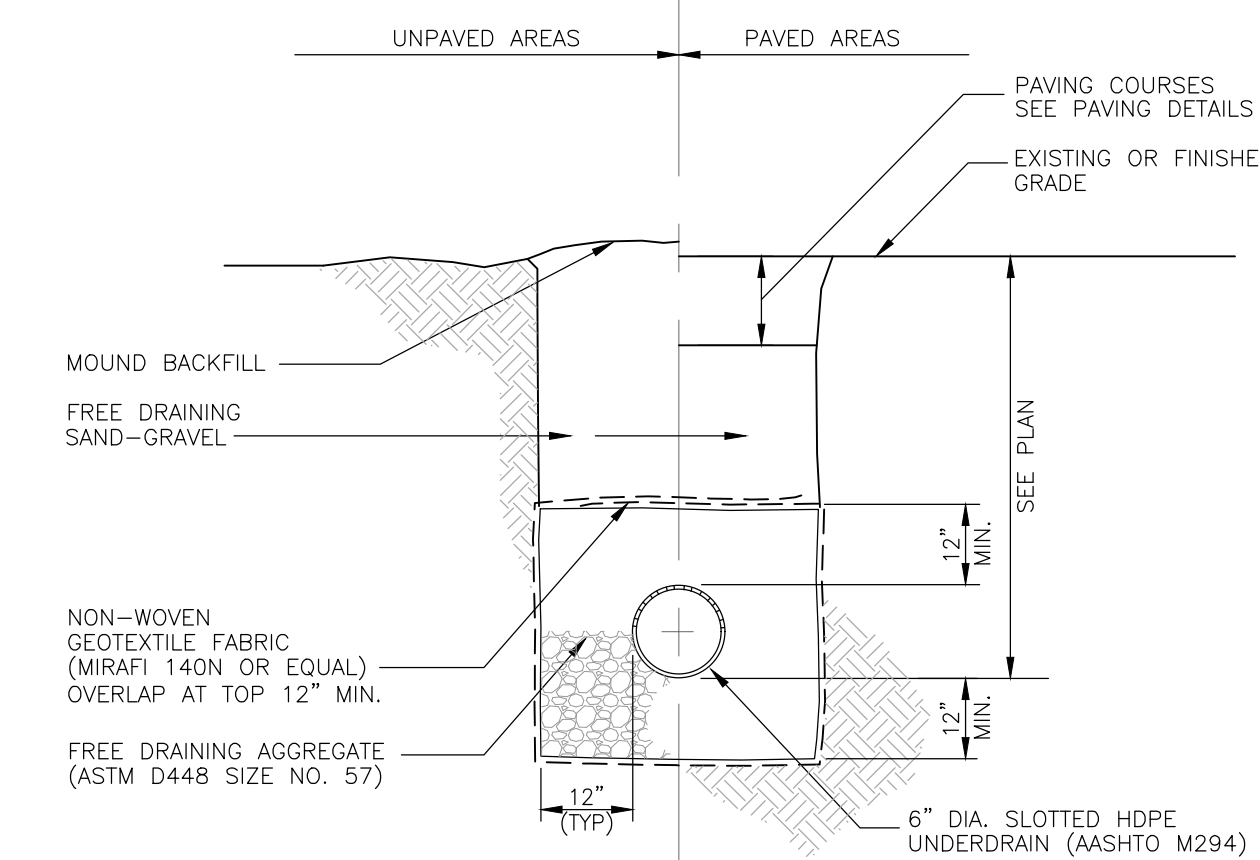
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**NOTES:**  
1. BASE COURSE TO BE TYPE B GRAVEL BORROW MHD M1.03.0

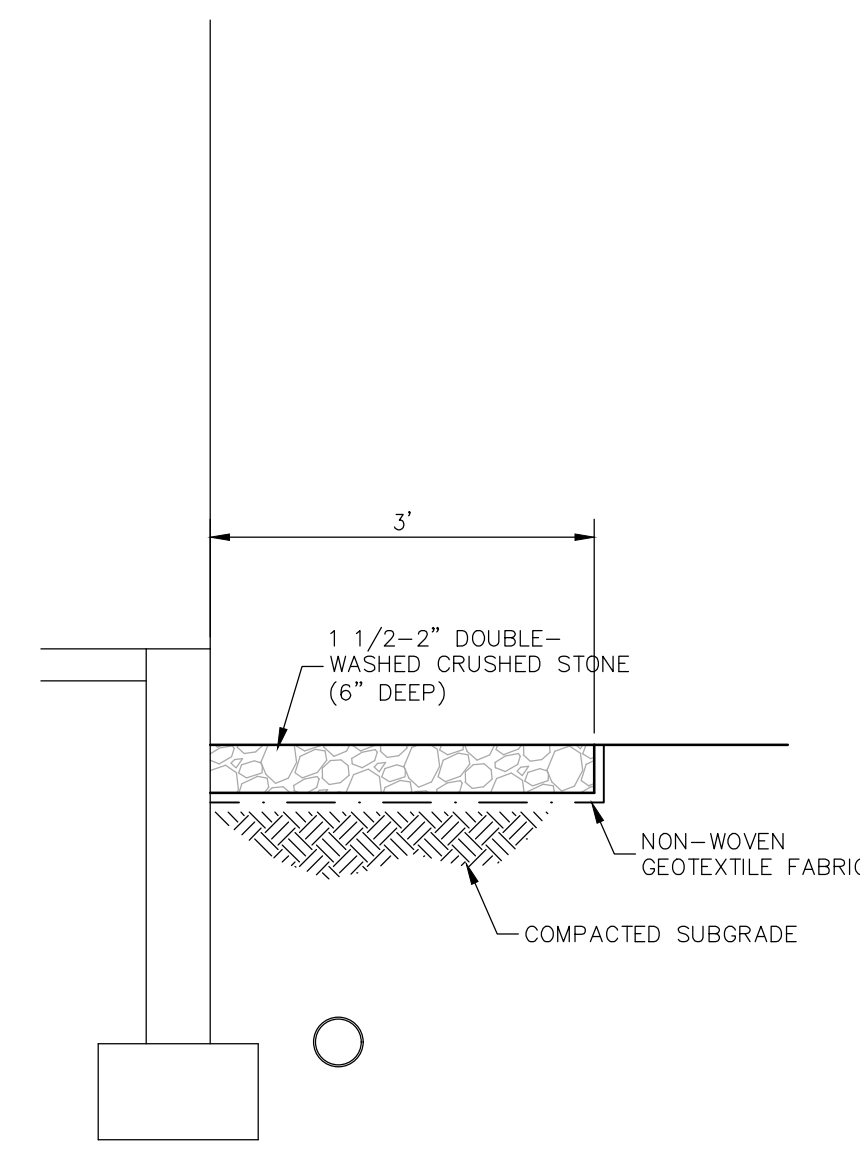
**TYPICAL SECTION- MAINT YARD**

NOT TO SCALE



**UNDERDRAIN TRENCH**

NOT TO SCALE



**MAINTENANCE STRIP**

NOT TO SCALE

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REV. NO.	DATE	DRWN	CHKD	REMARKS
1	8/21/2020	J.HILL	R.DUVAL	ADDED SEDIMENT FOREBAY DETAIL FOR ADDENDUM NO. 1

DESIGNED BY: J.HILL  
 DRAWN BY: P.HOUSTON  
 SHEET CHK'D BY: R.DUVAL  
 CROSS CHK'D BY: M.BOGOSH  
 APPROVED BY: R.DUVAL  
 DATE: JULY 2020

**CDM Smith** **TFM**

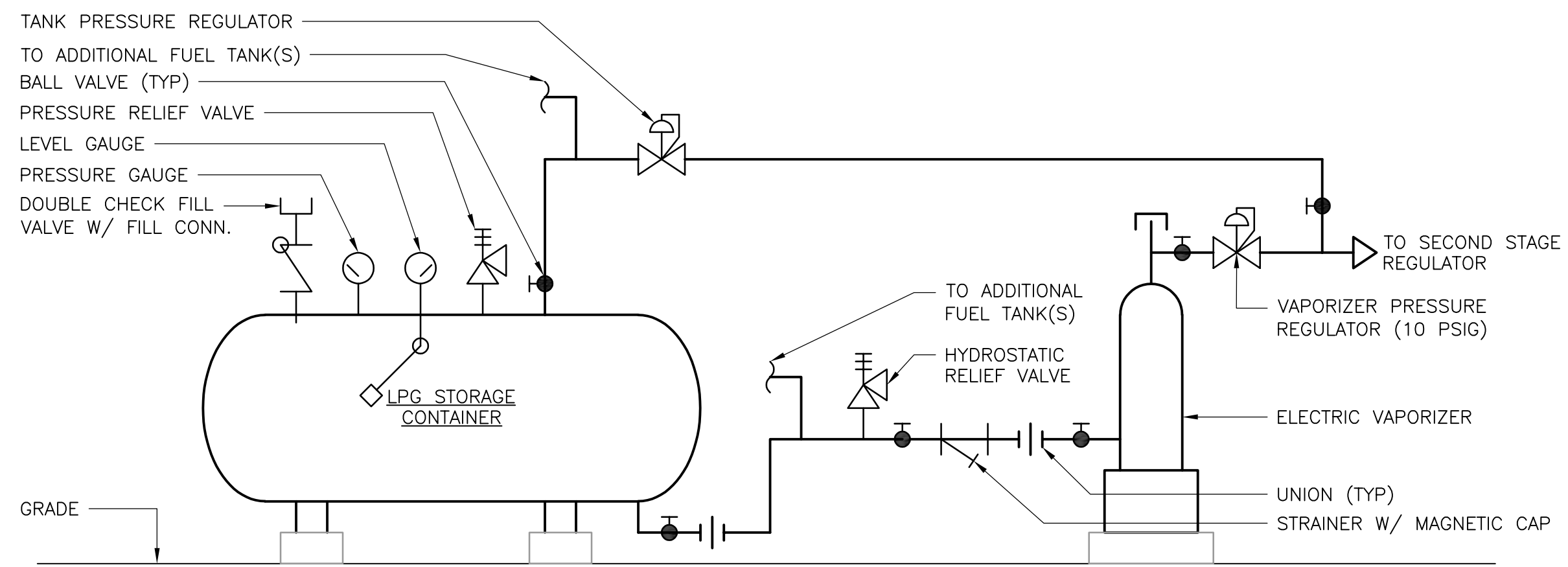
Civil Engineers  
Structural Engineers  
Traffic Engineers  
Land Surveyors  
Landscape Architects  
Scientists

75 State Street, Suite 701  
Boston, MA 02109  
Tel: (617) 452-6000

TOWN OF AYER, MA  
**SPECTACLE POND WATER TREATMENT PLANT  
 PFAS TREATMENT FACILITY**  
 CONTRACT NO. 20 DPW-12

TREATMENT PLANT  
 SITE/ CIVIL DETAILS

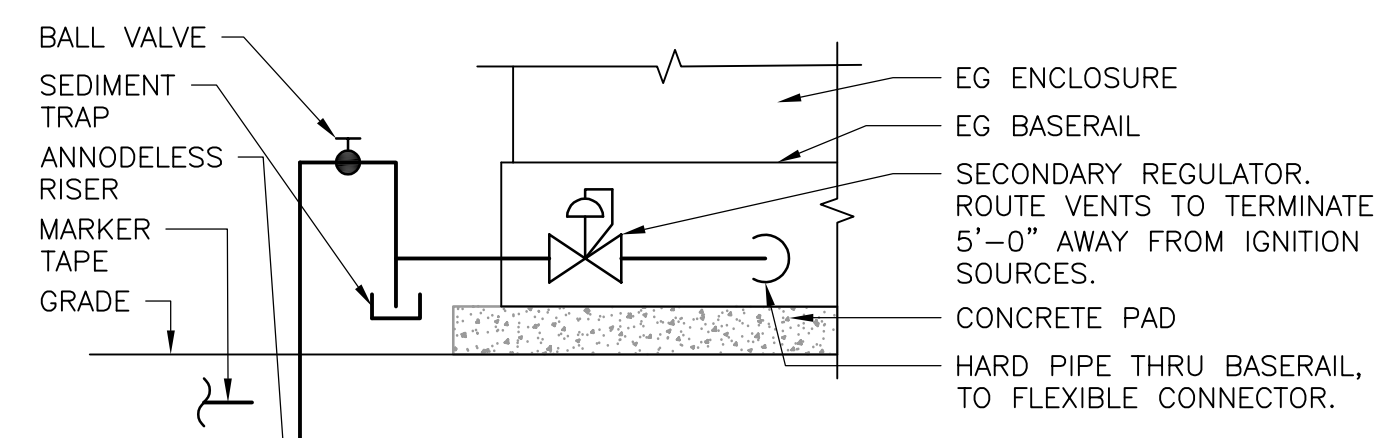
PROJECT NO. 0240-238501  
 FILE NAME: 31906-00 Site  
 SHEET NO.  
**C-8**



LPG STORAGE CONTAINER WITH VAPORIZER

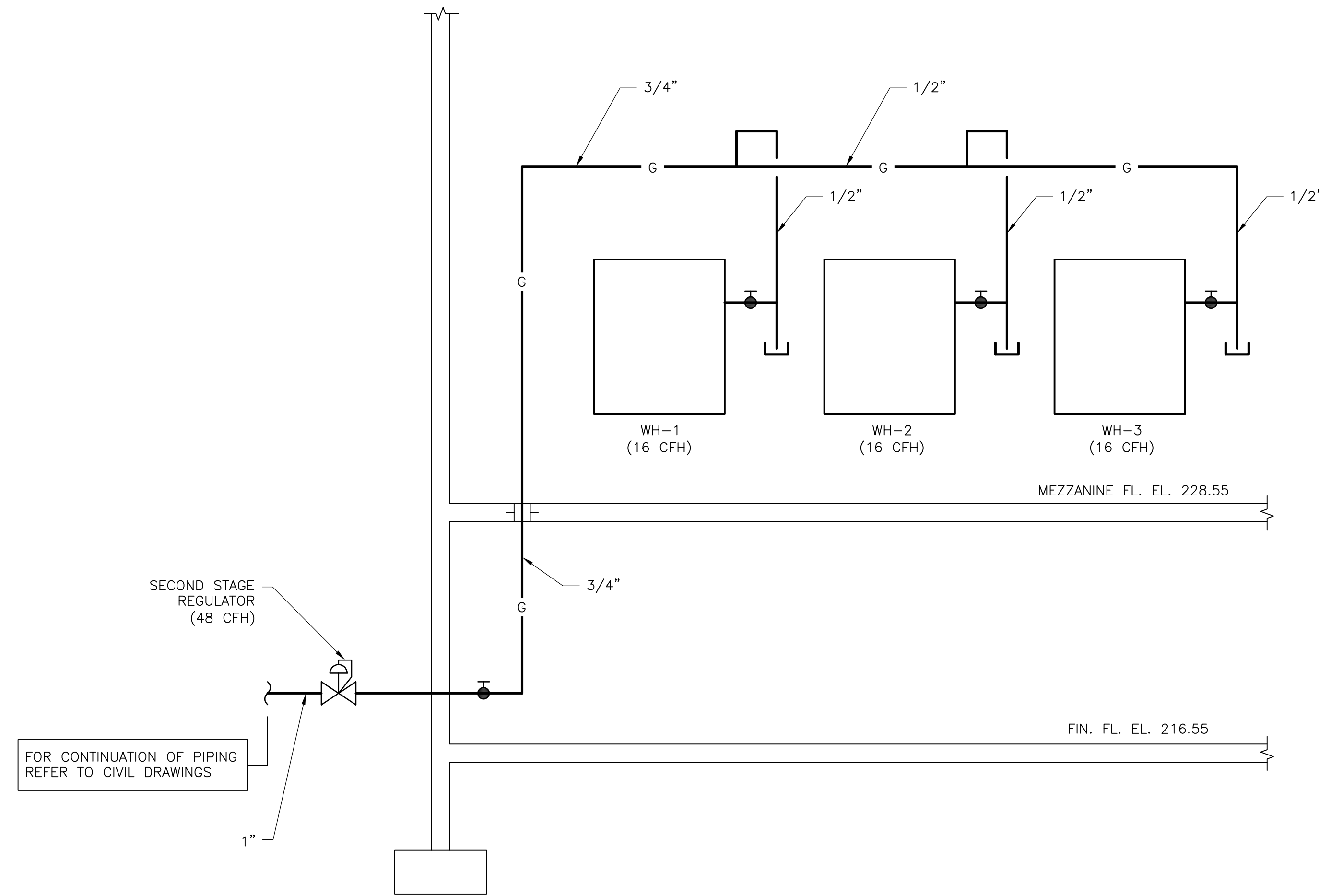
DIAGRAM 1  
NTS

- NOTES:
1. TANK PRESSURE REGULATOR 2 PSIG LOWER THAN VAPORIZER PRESSURE REGULATOR.
  2. LPG STORAGE TANK FITTINGS ARE TYPICAL FOR EACH TANK INSTALLED.



LPG ENGINE GENERATOR PIPING

DIAGRAM 2  
NTS



LPG WATER HEATER PIPING

DIAGRAM 3  
NTS

GENERAL NOTES:

1. PROVIDE ANODELESS RISERS WHERE PIPING GOES BELOW GRADE.
2. PROVIDE MARKER TAPE FOR ALL BELOW GRADE PIPING.
3. ROUTE REGULATOR VENTS TO TERMINATE 5'-0" AWAY FROM IGNITION SOURCES.
4. ALL LPG COMPONENTS AND APPLIANCES SHALL BE LISTED IN THE MASSACHUSETTS ACCEPTED PLUMBING PRODUCTS ONLINE DATABASE.

XREFs: [CDMS\_2436\_31906-00\_XRef\_SheetLayout] Images: [ ]  
 Last saved by: NITHIYANANDAM Time: 7/13/2020, 8:13:34 PM  
 pw\cdmsmith-cs2-cs2-pw.bentley.com:PW\_PL1\0240\238501\04 Design Services NM\_90%07 Plumbing\10 CADD\PO06DET.dwg  
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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: J. SHEEHAN  
 DRAWN BY: G. NITHIYAN  
 SHEET CHK'D BY: S. GOPIKUMAR  
 CROSS CHK'D BY: J. SHEEHAN  
 APPROVED BY: D. FLAHERTY  
 DATE: JULY 2020

**CDM Smith**  
 75 State Street, Suite 701  
 Boston, MA 02109  
 Tel: (617) 452-8000

TOWN OF AYER, MA  
 SPECTACLE POND WATER TREATMENT PLANT  
 PFAS TREATMENT FACILITY  
 CONTRACT NO. 20DPW-12

DIAGRAMS AND DETAILS  
 SHEET NO. P-6

PROJECT NO. 0240-238501  
 FILE NAME: PO06DET.dwg  
 SHEET NO. P-6





**SCOPE OF WORK:**

- PROJECT PROVIDES PFAS TREATMENT VIA GRANULAR ACTIVATED CARBON (GAC) FILTERING AT THE TOWN OF AYER SPECTACLE POND WATER TREATMENT PLANT. MAJOR IMPROVEMENTS INCLUDE, BUT ARE NOT LIMITED TO, THE ADDITION OF THE PFAS TREATMENT BUILDING, PROPANE ENGINE GENERATOR, NEW UTILITY SERVICE AND TRANSFORMER.
- PROVIDE LIGHTNING PROTECTION SYSTEMS IN ACCORDANCE WITH SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES."
- PROVIDE POWER SYSTEM SYSTEMS IN ACCORDANCE WITH 260573 "POWER SYSTEM STUDIES."

**GENERAL NOTES:**

- ELECTRICAL DRAWINGS ARE INTENDED TO SHOW THE GENERAL LAYOUT OF WORK TO BE INSTALLED UNDER THIS CONTRACT WITHOUT ATTEMPTING TO SHOW ALL DETAILS. FURNISH LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE CONTRACT DOCUMENTS.
- COORDINATE WORK WITH OTHER TRADES AND THE OWNER.
- MAINTAIN EXISTING PROCESS OPERATIONS. POWER INTERRUPTIONS TO ELECTRICAL EQUIPMENT SHALL BE AT OWNER'S CONVENIENCE WITH 72 HOURS MINIMUM NOTICE. EACH INTERRUPTION SHALL HAVE PRIOR WRITTEN APPROVAL.
- FIELD VERIFY EXISTING UNDERGROUND ELECTRICAL CONDUIT, CONCRETE DUCT BANKS, MANHOLES, PULL BOXES, ETC. AND MECHANICAL PIPING. CONTRACTOR SHALL INCLUDE IN BID COSTS ASSOCIATED WITH RELOCATION OR REMOVAL OF UNDERGROUND EQUIPMENT AS REQUIRED BY THIS CONTRACT. USE DUE CARE IN CONGESTED AREAS TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES.
- CONTRACTOR'S WORK SHALL INCLUDE COMPLETE TESTING OF EQUIPMENT AND WIRING INCLUDING MAKING MINOR CORRECTIONS, CHANGES, OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY.
- DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO MECHANICAL, STRUCTURAL DRAWINGS, AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR EXACT LOCATION OF EQUIPMENT. EXCEPT WHERE DIMENSIONS ARE SHOWN, LOCATIONS OF EQUIPMENT, FIXTURES, OUTLETS, AND SIMILAR DEVICES ARE APPROXIMATE.
- WORK SHALL COMPLY WITH NEC AND LOCAL CODES.
- DO NOT SPLICE CONDUCTORS EXCEPT AS NOTED.
- POWER AND CONTROL CONDUITS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR WIRE SIZED PER TABLE 250.122 OF THE NEC (UON).
- COORDINATE SEQUENCE OF CONSTRUCTION WITH CIVIL, MECHANICAL, AND STRUCTURAL DISCIPLINES. PROVIDE TEMPORARY POWER AND CONTROL CIRCUITS AS REQUIRED TO MAINTAIN FACILITY OPERATION. VERIFY EXISTING UTILITIES IN AREA OF CONSTRUCTION. REFER TO CIVIL DRAWINGS FOR ADDITIONAL UNDERGROUND INFORMATION.
- REPAIR, IN ACCORDANCE WITH SPECIFICATIONS, SIDEWALKS, WALLS, ROADWAYS, ETC. DISTURBED BY CONSTRUCTION ACTIVITIES WHETHER OR NOT SHOWN FOR REPAIR/REPAVING ON CIVIL DRAWINGS.
- CONCEAL CONDUITS TO GREATEST EXTENT PRACTICABLE. CONDUITS RUN AT EXISTING STRUCTURES SHALL BE RUN EXPOSED.
- WHERE LOCAL DISCONNECTS AND CONTROL PANELS ARE SHOWN ON PLAN VIEWS, LOCATIONS ARE APPROXIMATE. ADJUST LOCATION AS REQUIRED TO COMPLY WITH NEC ARTICLE 110 FOR WORKING CLEARANCES.
- DO NOT INSTALL MAJOR CONDUIT RUNS THROUGH AREAS DESIGNATED FOR FUTURE STRUCTURES.

**SEISMIC RESTRAINTS:**

- PROVIDE SEISMIC RESTRAINTS FOR ELECTRICAL EQUIPMENT AND SYSTEMS AS REQUIRED BY SECTION 018829 "SEISMIC PERFORMANCE REQUIREMENTS."

**SUBMITTALS:**

- SUBMIT SHOP DRAWINGS FOR EQUIPMENT, MATERIALS AND OTHER ITEMS FURNISHED UNDER DIVISION 26.
- SUBMIT CONDUIT SHOP DRAWINGS FOR YARD ELECTRICAL, WITHIN AND UNDER ROADS, BUILDINGS, AND STRUCTURES PRIOR TO COMENCING WORK. DO NOT POUR CONCRETE UNTIL ENGINEER HAS APPROVED THE ASSOCIATED SHOP DRAWINGS.
- SUBMIT POWER SYSTEM STUDY IN ACCORDANCE WITH SECTION 260573 "POWER SYSTEM STUDIES."
- SUBMIT OPERATION AND MAINTENANCE MANUALS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
- SUBMIT STARTUP/COMMISSIONING PLANS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
- SUBMIT TESTING AND SERVICE REPORTS FOR EQUIPMENT AND MATERIALS FURNISHED UNDER DIVISION 26.
- SUBMIT TRAINING PLANS FOR EQUIPMENT FURNISHED UNDER DIVISION 26.
- SUBMIT RECORD DOCUMENTATION TO ACCURATELY SHOW COMPLETED INSTALLATION. INCLUDE MODIFICATIONS TO CONTRACT DOCUMENTS (ONE LINE POWER DIAGRAMS, EQUIPMENT ELEVATIONS, PANEL SCHEDULES, ELEMENTARY CONTROL DIAGRAMS, RISER DIAGRAMS, PLANS, CONDUIT AND DUCT BANK ROUTING, ETC) ALONG WITH ADDITIONAL DRAWINGS OR SKETCHES CREATED TO CONVEY COMPLETED INSTALLATION.

**INTERPRETATION OF CONTRACT DOCUMENTS:**

- IF DURING PERFORMANCE OF WORK, THERE IS A CONFLICT, ERROR, OR DISCREPANCY BETWEEN OR AMONG CONTRACT DOCUMENTS AND LAWS AND REGULATIONS, PROVIDE THE HIGHER PERFORMANCE STANDARD UNLESS OTHERWISE DIRECTED BY ENGINEER.
- PRIORITY OF DOCUMENTS: FIGURED DIMENSIONS GOVERN OVER SCALED DIMENSIONS, DETAILED DRAWINGS GOVERN OVER GENERAL DRAWINGS, LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS, CHANGE ORDER DRAWINGS SUPERCEDE ORIGINAL CONTRACT DRAWINGS, AND CONTRACT DRAWINGS GOVERN SHOP DRAWINGS.
- IN GENERAL, DRAWINGS DO NOT SHOW CONDUIT ROUTING. PLAN AND ROUTE CONDUITS IN COMPLIANCE WITH SPECIFICATIONS AND DRAWING DETAILS. COORDINATE INSTALLATION WITH OTHER TRADES AND ACTUAL SUPPLIED EQUIPMENT.
- DUCT BANK ROUTING SHOWN ON ELECTRICAL SITE PLANS IS DIAGRAMMATIC IN NATURE AND MAY NOT INCLUDE INTERFERENCES THAT MAY BE PRESENT.
- SEE ADDITIONAL NOTES ON ELECTRICAL LEGEND II SHEET.

**ENCLOSURE AND CONDUIT TYPES:**

PROVIDE THE FOLLOWING NEMA TYPE ELECTRICAL ENCLOSURES, UNLESS OTHERWISE NOTED:

- NEMA 12 IN "DAMP" OR "DRY" LOCATIONS SHOWN ON THE DRAWINGS.
- NEMA 4X IN OUTDOOR AND "WET" LOCATIONS SHOWN ON THE DRAWINGS.

PROVIDE THE FOLLOWING CONDUIT TYPES, UNLESS OTHERWISE NOTED:

- ALUMINUM CONDUIT IN OUTDOOR AND "WET" LOCATIONS SHOWN ON THE DRAWINGS.
- GRS CONDUIT IN ALL OTHER LOCATIONS.

**MATERIALS AND EQUIPMENT:**

- PROVIDE NEW MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY NOTED OTHERWISE.
- ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE LISTED BY UNDERWRITER'S LABORATORIES, INC., AND SHALL BEAR APPROPRIATE UL LISTING MARK OR CLASSIFICATION MARKING. EQUIPMENT, MATERIALS, ETC. UTILIZED NOT BEARING A UL CERTIFICATION SHALL BE FIELD OR FACTORY UL CERTIFIED PRIOR TO EQUIPMENT ACCEPTANCE AND USE.
- PROVIDE MAJOR ELECTRICAL EQUIPMENT BY A SINGLE MANUFACTURER: I.E. UNIT SUBSTATIONS, SWITCHGEAR, MOTOR CONTROL CENTERS, DISCONNECT SWITCHES, TRANSFORMERS, PANELBOARDS, ETC.

**EQUIPMENT SIZE, HANDLING, AND STORAGE:**

- COORDINATE WITH EQUIPMENT MANUFACTURER SHIPPING SPLITS TO PERMIT SAFE HANDLING AND PASSAGE OF EQUIPMENT TO FINAL INSTALLATION LOCATION.
- COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR UPRIGHT EQUIPMENT ORIENTATION DURING TRANSPORTATION.
- PROTECT EQUIPMENT FROM MECHANICAL INJURY, OR EXPOSURE TO MOISTURE, CHEMICALS, OR CORROSIVE GASES. DO NOT STORE ELECTRICAL EQUIPMENT OUTDOORS.
- PROVIDE AND ENERGIZE TEMPORARY SPACE HEATERS IF REQUIRED TO CONTROL MOISTURE DURING STORAGE.

**CUTTING AND PATCHING:**

- CUT AND PATCH IN A WORKMANLIKE MANNER AS REQUIRED TO INSTALL ELECTRICAL WORK.
- CUTTING OF STRUCTURAL MEMBERS SUCH AS JOISTS, BEAMS, GIRDERS OR COLUMNS IS PROHIBITED.
- PATCH SURFACES TO RESTORE TO ORIGINAL INTEGRITY (WATERPROOF OR FIREPROOF AS REQUIRED) AND APPEARANCE.

**CLEANING:**

- REMOVE ALL RUBBISH AND DEBRIS FROM INSIDE AND AROUND ELECTRICAL EQUIPMENT AND ENCLOSURES.
- REMOVE DIRT, DUST OR CONCRETE SPATTER FROM INTERIOR AND EXTERIOR OF EQUIPMENT USING BRUSHES, VACUUM CLEANER OR CLEAN LINT-FREE RAGS. DO NOT USE COMPRESSED AIR.

**DELEGATED DESIGN / PROFESSIONAL ENGINEERING SERVICES:**

- WHEN ENGINEERING SERVICES ARE SPECIFIED TO BE PROVIDED BY CONTRACTOR, CONTRACTOR SHALL RETAIN A LICENSED PROFESSIONAL ENGINEER TO PERFORM THE SERVICES. ENGINEER SHALL BE LICENSED AT THE TIME SERVICES ARE PERFORMED AND LICENSED IN THE STATE IN WHICH PROJECT IS LOCATED. IF THE STATE ISSUES DISCIPLINE SPECIFIC LICENSES, ENGINEER SHALL BE LICENSED IN THE APPLICABLE DISCIPLINE. ENGINEER SHALL BE EXPERIENCED IN THE TYPE OF WORK BEING PERFORMED.
- ENGINEERING WORK SHALL BE DONE ACCORDING TO THE APPLICABLE REGULATIONS FOR PROFESSIONAL ENGINEERS TO INCLUDE SIGNING, SEALING AND DATING DOCUMENTS.

**SERVICE AND METERING:**

- ELECTRIC POWER COMPANY SERVING THIS PROJECT IS LITTLETON ELECTRIC LIGHT DEPARTMENT. POWER COMPANY CONTACT IS PATRICK LAVERTY, TELEPHONE (978) 540-2255, EMAIL PLAVERTY@LELWD.COM. COMPLY WITH POWER COMPANY STANDARDS.
- NOT USED.
- PAY FEES AND CHARGES FOR PERMANENT SERVICE VIA BID ALLOWANCE AND SUBMIT POWER COMPANY INVOICES TO OWNER FOR SUBSTANTIATION.
- POWER COMPANY WORK:
  - PROVIDE PRIMARY CONDUCTORS (OVERHEAD AND UNDERGROUND) TO UTILITY TRANSFORMER(S).
  - PROVIDE UTILITY TRANSFORMER(S) THAT ARE LESS-FLAMMABLE LIQUID-INSULATED IN ACCORDANCE WITH NEC ARTICLE 450.23.
  - TERMINATE UNDERGROUND PRIMARY CABLES AT THE UTILITY TRANSFORMER(S).
  - TERMINATE UNDERGROUND SECONDARY CABLES AT THE UTILITY TRANSFORMER(S).
  - PROVIDE METERING CURRENT TRANSFORMERS (CT'S), METER(S) AND METER WIRING.
- CONTRACTOR WORK:
  - ARRANGEMENTS WITH POWER COMPANY TO OBTAIN SERVICE, PAY POWER COMPANY FEES, AND PROVIDE LABOR AND MATERIALS REQUIRED FOR ELECTRICAL SERVICE.
  - PROVIDE PRIMARY UNDERGROUND 5" CONDUITS.
  - PURCHASE AND INSTALL TRANSFORMER PAD FROM POWER COMPANY.
  - PROVIDE UTILITY TRANSFORMER PAD GROUNDING.
  - PROVIDE SECONDARY UNDERGROUND CONDUITS AND CABLE FROM UTILITY TRANSFORMER(S) TO SERVICE ENTRANCE EQUIPMENT.
  - PROVIDE POWER COMPANY APPROVED METERING CURRENT TRANSFORMER (CT) ENCLOSURE.
  - INSTALL METER BASE ENCLOSURE.
  - PROVIDE EMPTY CONDUIT WITH PULL LINE FROM THE METERING CT ENCLOSURE TO THE METER BASE ENCLOSURE.

**MAJOR ELECTRICAL SEQUENCE OF CONSTRUCTION:**

THE FOLLOWING SEQUENCE IS RECOMMENDED TO MAINTAIN THE PLANT IN OPERATION. ADDITIONAL INFORMATION CAN BE FOUND IN SECTION 013513.54 "SPECIAL PROCEDURE FOR MOPO AND CONSTRUCTION SEQUENCE."

- COORDINATE WITH THE PCSS TO DEMOLISH EXISTING INSTRUMENT PANEL IN THE EXISTING TREATMENT BUILDING ELECTRICAL ROOM. MAINTAIN INSTRUMENT PANEL FUNCTIONALITY AND EXTEND SIGNALS TO MCP-SPEC. RELOCATE CHART RECORDER AS INDICATED ON SHEET E-8.
- PROVIDE TEMPORARY POWER, INSTRUMENTATION, AND CONTROLS TO WELL PUMP NO. 1B.
  - RELOCATE WELL PUMP NO. 1A VFD FROM WELL BUILDING NO. 1 TO THE EXISTING TREATMENT BUILDING ELECTRICAL ROOM.
  - PROVIDE TEMPORARY POLES TO CARRY TEMPORARY OVERHEAD POWER, INSTRUMENTATION, AND CONTROL WIRES FROM THE EXISTING TREATMENT BUILDING ELECTRICAL ROOM TO THE WELL PUMP NO. 1B LOCATION.
  - PROVIDE A LOCAL DISCONNECT FOR WELL PUMP NO. 1B.
- COORDINATE WITH THE GENERAL CONTRACTOR TO CONSTRUCT THE NEW PFAS TREATMENT BUILDING, INCLUDING THE DEMOLITION OF WELL BUILDING NO. 1 AND WELL BUILDING NO. 1A.
- AFTER THE NEW PFAS TREATMENT BUILDING IS COMPLETED AND ELECTRICAL SERVICE IS TESTED AND ENERGIZED, TRANSFER POWER AND CONTROLS FOR WELL PUMP NO. 1B TO THE NEW VFD LOCATED IN THE NEW PFAS TREATMENT BUILDING ELECTRICAL ROOM.
- DEMOLISH TEMPORARY OVERHEAD POWER, INSTRUMENTATION, AND CONTROL WIRES, TEMPORARY POLES, AND RELOCATED TEMPORARY VFD FOR WELL PUMP NO. 1B.
- DEMOLISH REMAINING EQUIPMENT DESIGNATED FOR DEMOLITION IN THE EXISTING TREATMENT BUILDING.

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DESIGNED BY:	B. CHARIS-MOLLING
DRAWN BY:	J. DRAWBAUGH
SHEET CHKD BY:	J. DONALDSON
CROSS CHKD BY:	A. LeBLANC
APPROVED BY:	B. CHARIS-MOLLING
DATE:	JULY 2020

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	09/20	BCM	JJD	REVISED PER ADDENDUM 1

75 State Street, Suite 701  
 Boston, MA 02109  
 Tel: (617) 452-6000

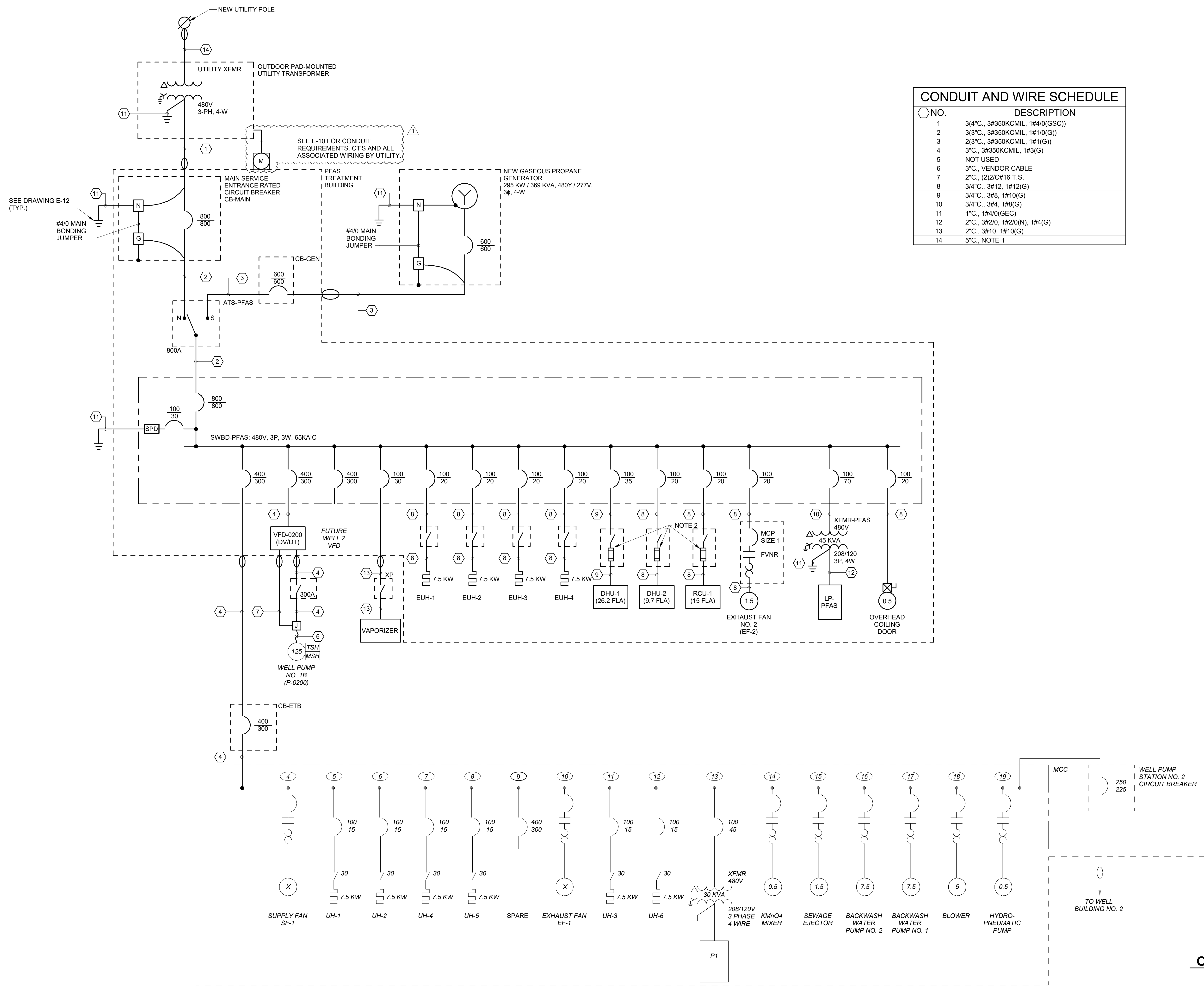


TOWN OF AYER, MA  
 SPECTACLE POND WATER TREATMENT PLANT  
 PFAS TREATMENT FACILITY  
 CONTRACT NO. 20DPW-12

ELECTRICAL GENERAL NOTES

PROJECT NO. 0240-238501  
 FILE NAME: MEP001TB  
 SHEET NO. E-1

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NO.	DESCRIPTION
1	3/4" C, 3#350KCMIL, 1#4/0(GSC)
2	3/3" C, 3#350KCMIL, 1#1/0(G)
3	2/3" C, 3#350KCMIL, 1#1(G)
4	3" C, 3#350KCMIL, 1#3(G)
5	NOT USED
6	3" C, VENDOR CABLE
7	2" C, (2)2/C#16 T.S.
8	3/4" C, 3#12, 1#12(G)
9	3/4" C, 3#8, 1#10(G)
10	3/4" C, 3#4, 1#8(G)
11	1" C, 1#4/0(GEC)
12	2" C, 3#2/0, 1#2/0(N), 1#4(G)
13	2" C, 3#10, 1#10(G)
14	5" C, NOTE 1

- NOTES:**
1. PRIMARY CABLES SHALL BE FURNISHED BY THE UTILITY COMPANY. PROVIDE PRIMARY CONDUIT. COORDINATE WITH THE UTILITY COMPANY TO INSPECT DUCTBANK PRIOR TO BACKFILLING. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION OF ALL UTILITY COMPANY REQUIREMENTS.
  2. COORDINATE FUSE SIZE WITH HVAC MANUFACTURER.
  3. ALL CIRCUIT BREAKERS ARE 3-POLE UNLESS OTHERWISE NOTED.

**OVERALL ONE LINE DIAGRAM**  
N.T.S.

1	09/20	BCM	JJD	REVISED PER ADDENDUM 1
REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: B. CHARIS-MOLLING  
 DRAWN BY: J. DRAWBAUGH  
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 CROSS CHKD BY: A. LeBLANC  
 APPROVED BY: B. CHARIS-MOLLING  
 DATE: JULY 2020

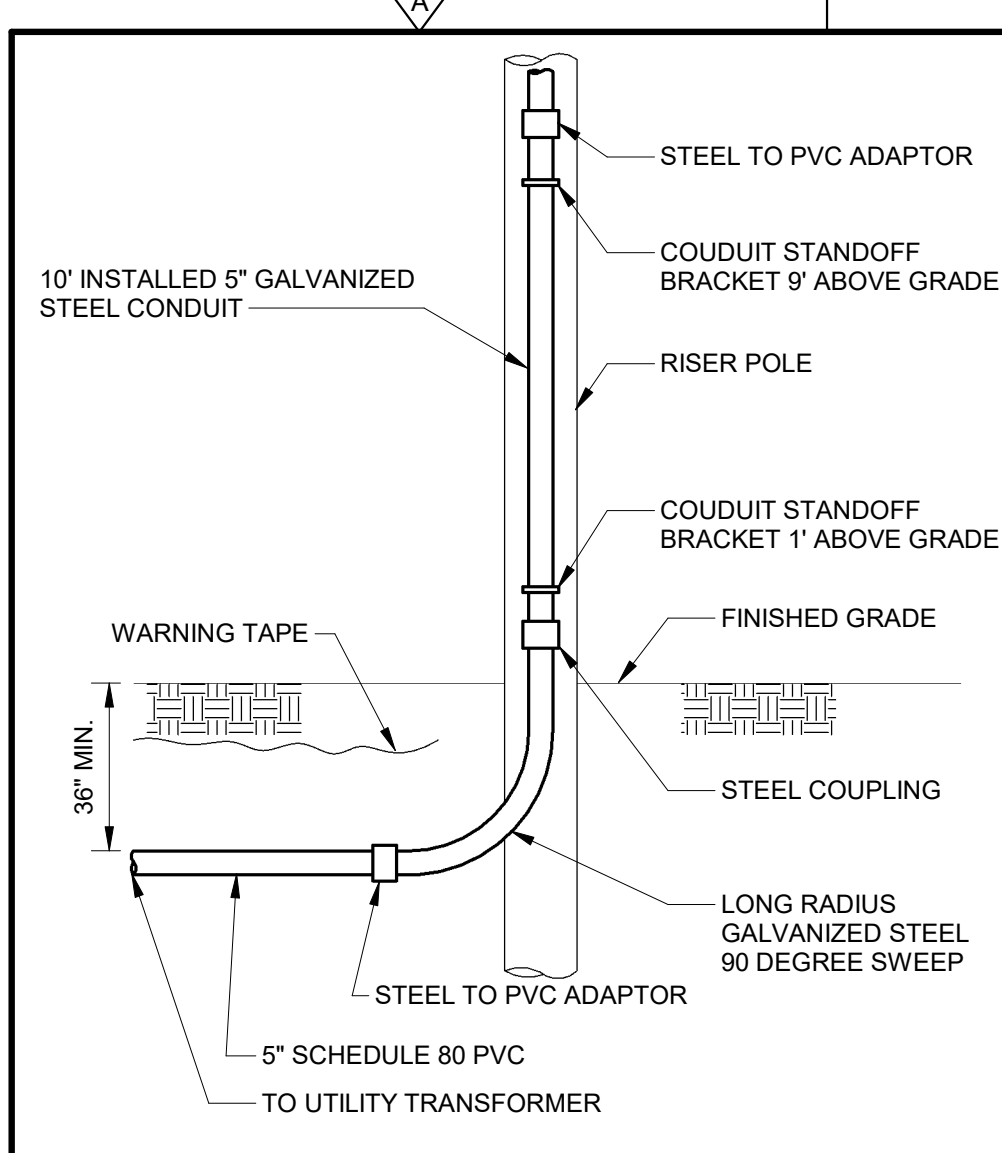
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TOWN OF AYER, MA  
 SPECTACLE POND WATER TREATMENT PLANT  
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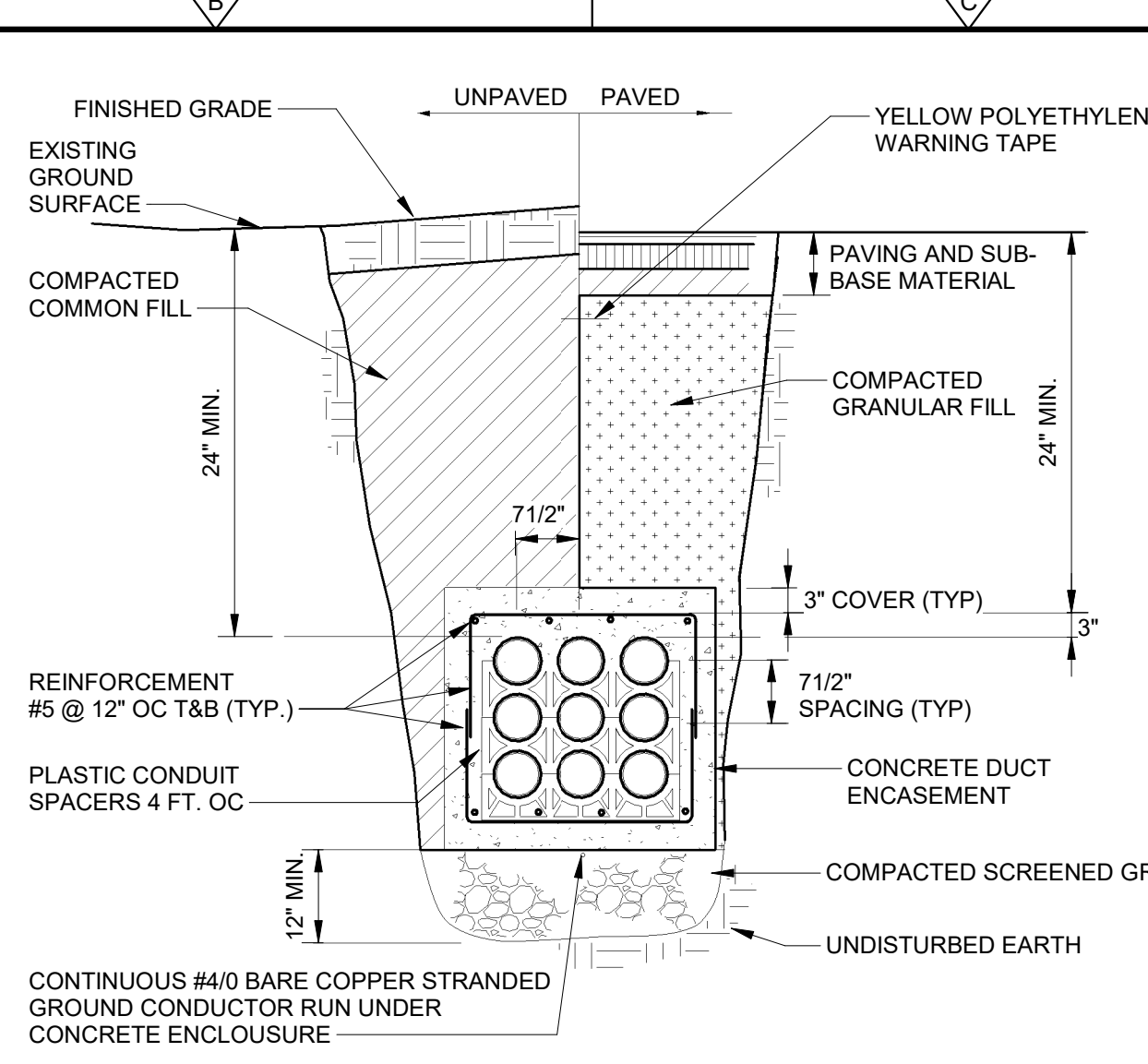
OVERALL ONE LINE DIAGRAM

PROJECT NO. 0240-238501  
 FILE NAME: MEP001TB.RVT  
 SHEET NO. E-6

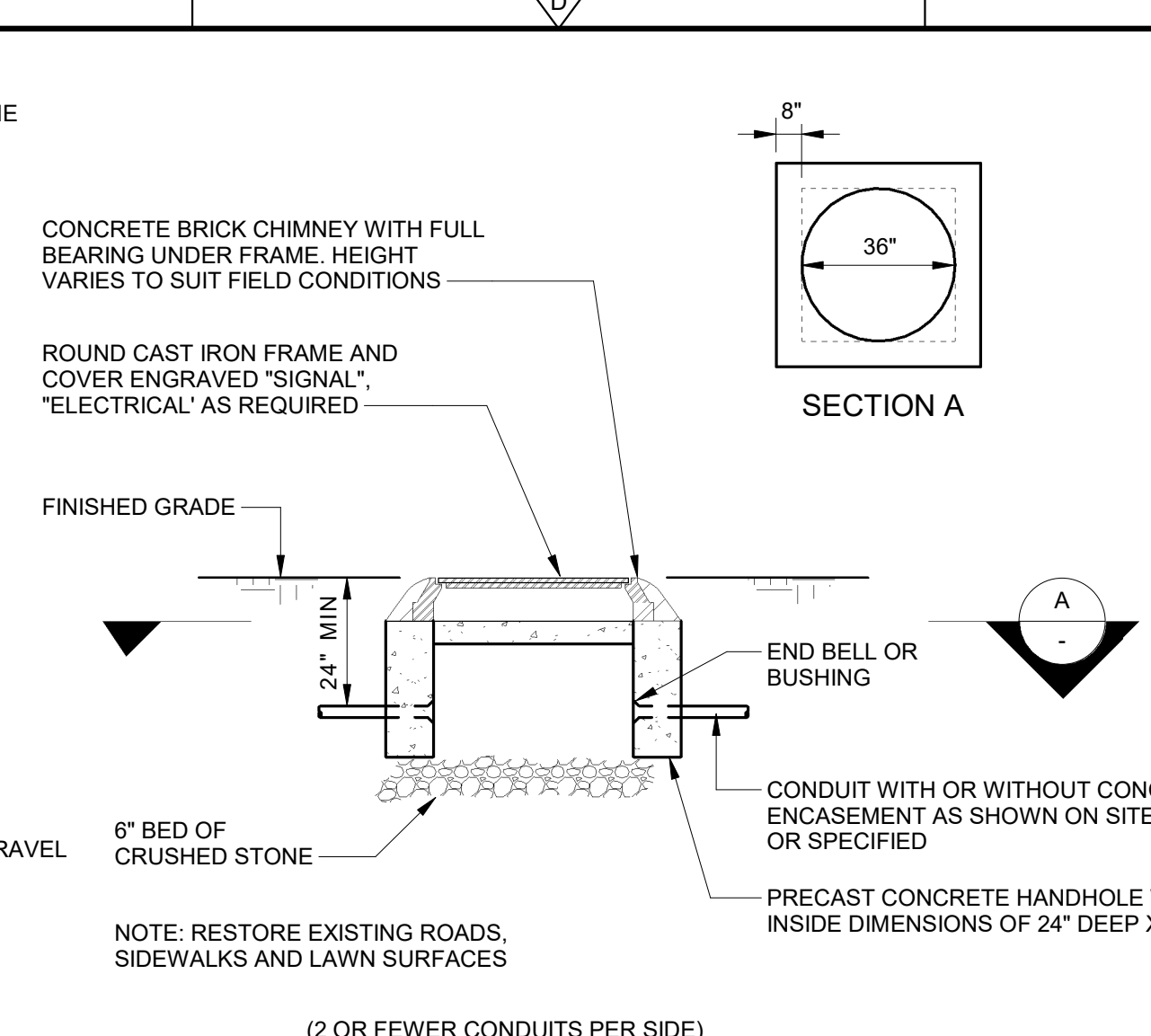
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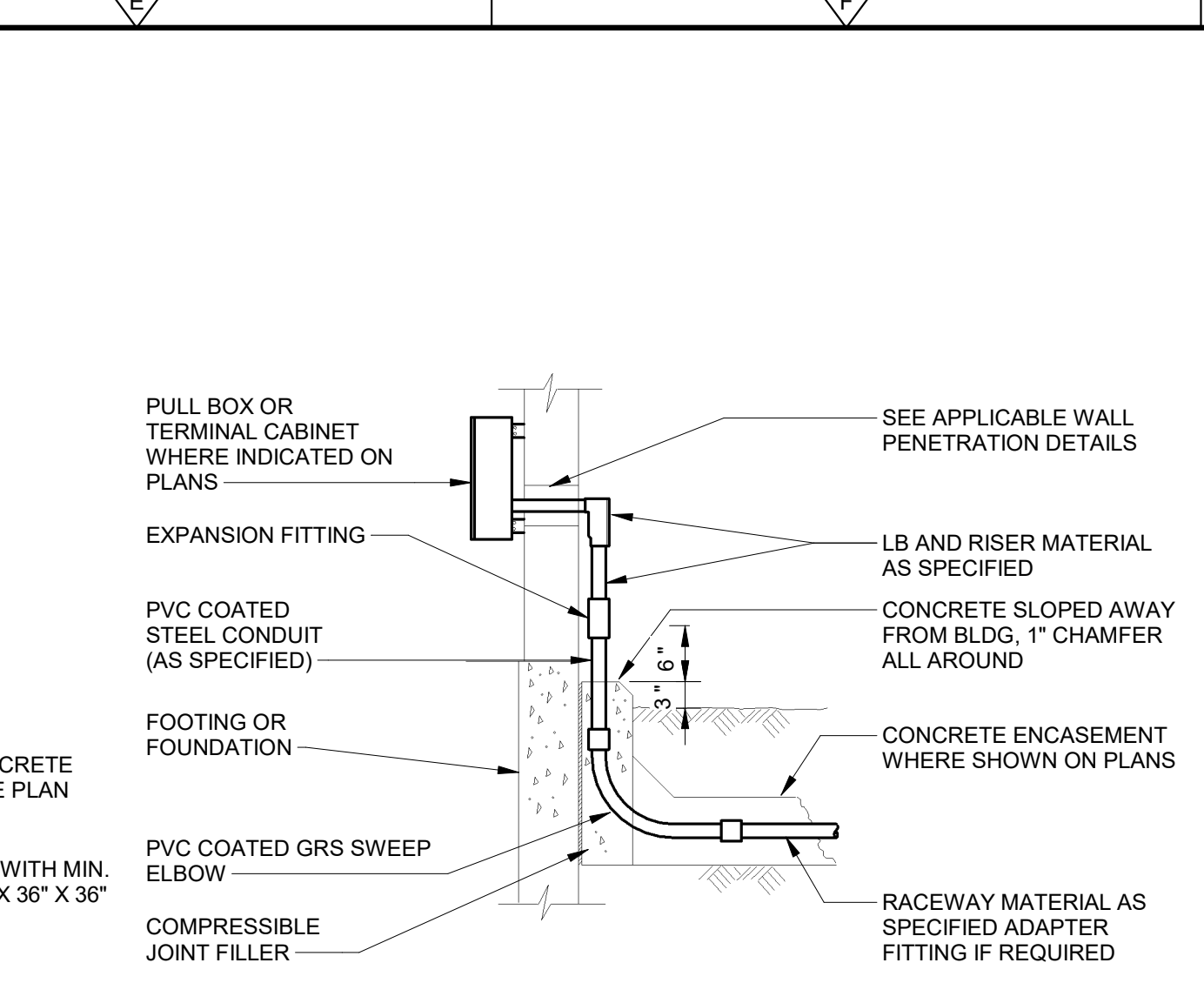
**A** POWER COMPANY RISER POLE  
N.T.S.



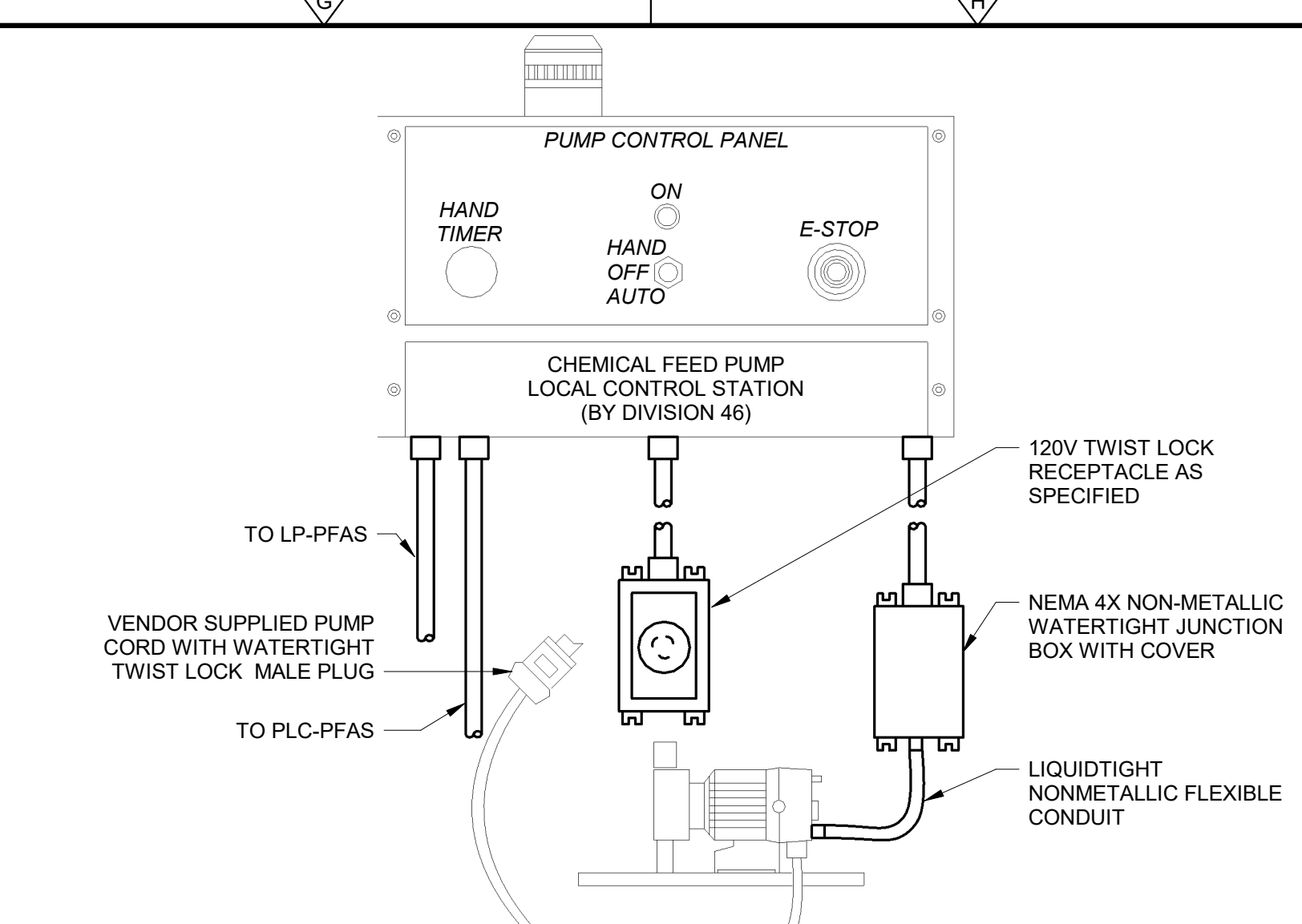
**B** UNDERGROUND POWER DUCT BANK  
N.T.S.



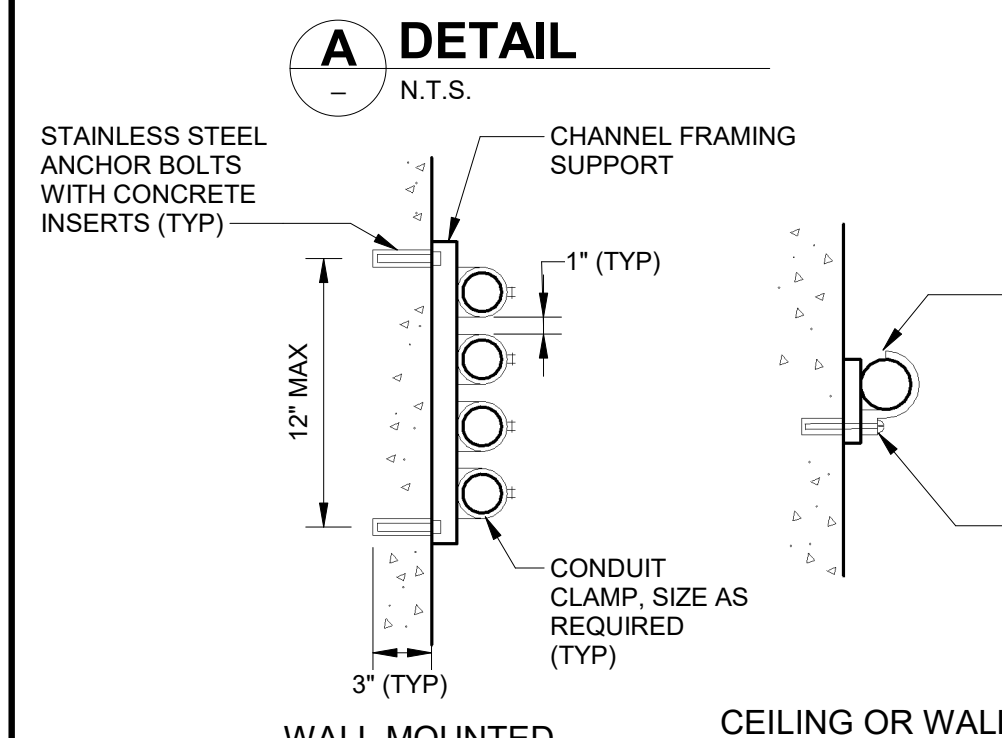
**C** ELECTRICAL HANDHOLE  
N.T.S.



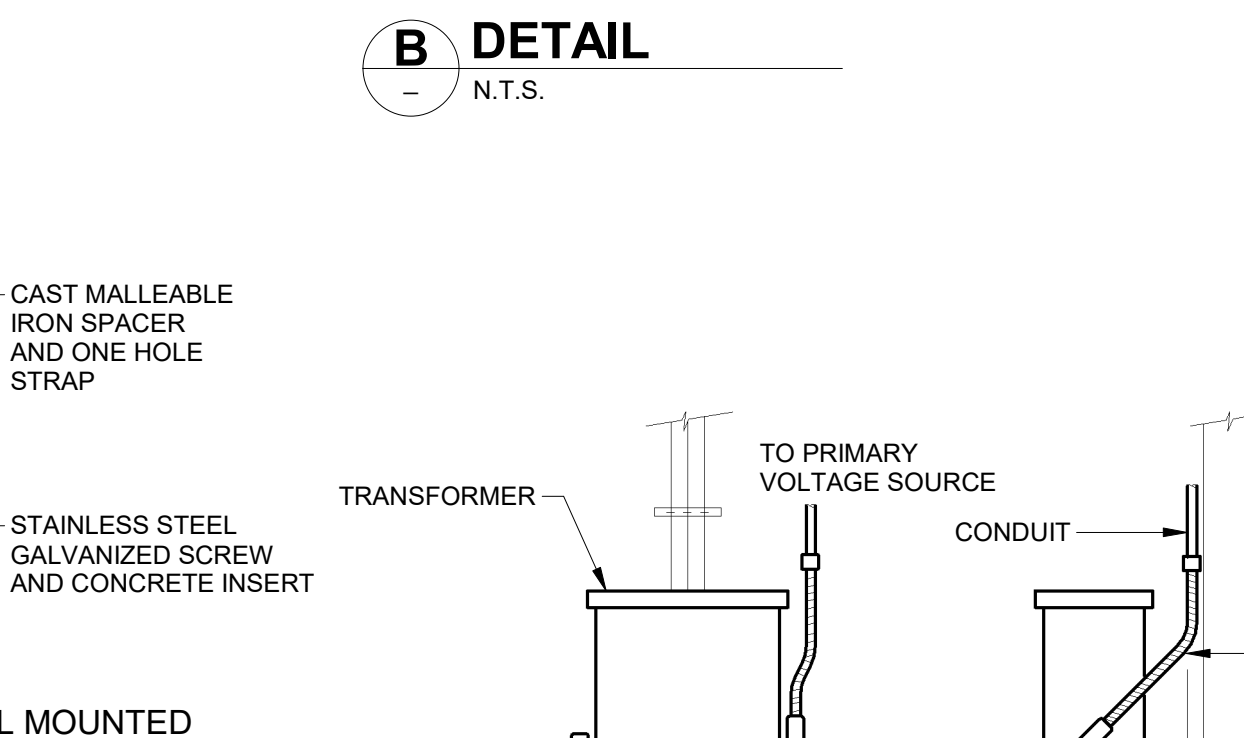
**D** ABOVE GRADE CONDUIT PENETRATIONS THROUGH EXISTING BUILDING OR STRUCTURES  
N.T.S.



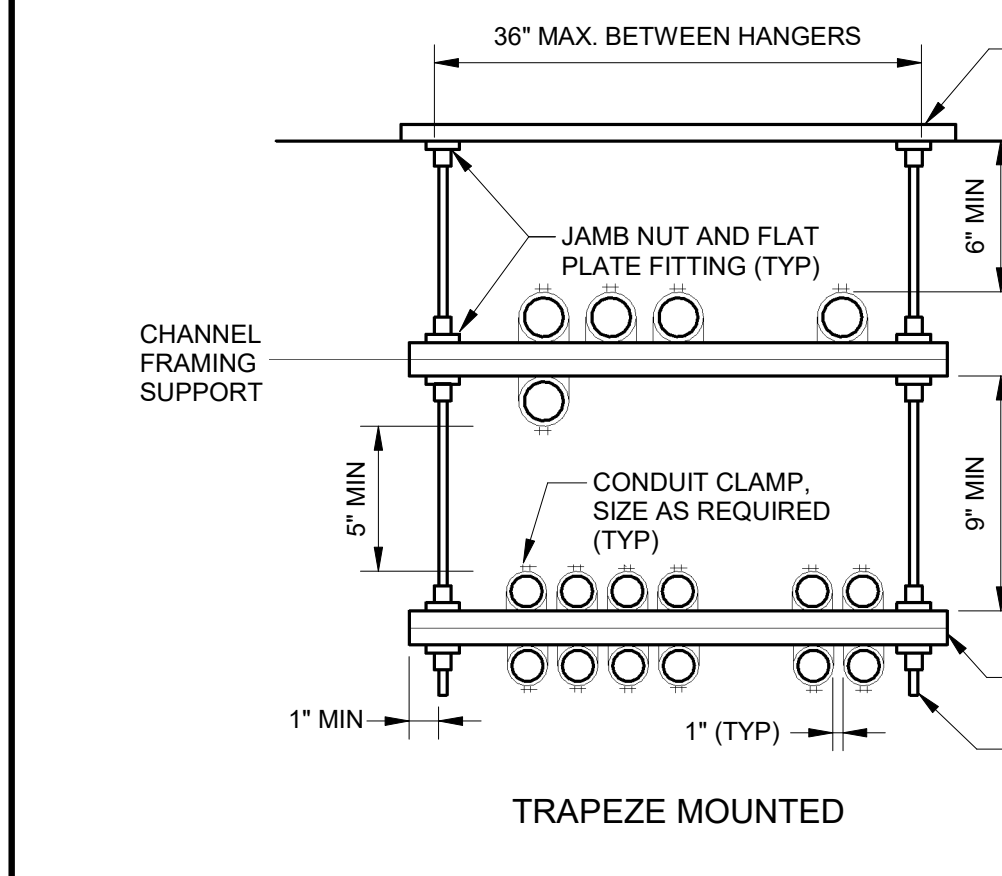
**E** CHEMICAL METERING PUMP  
N.T.S.



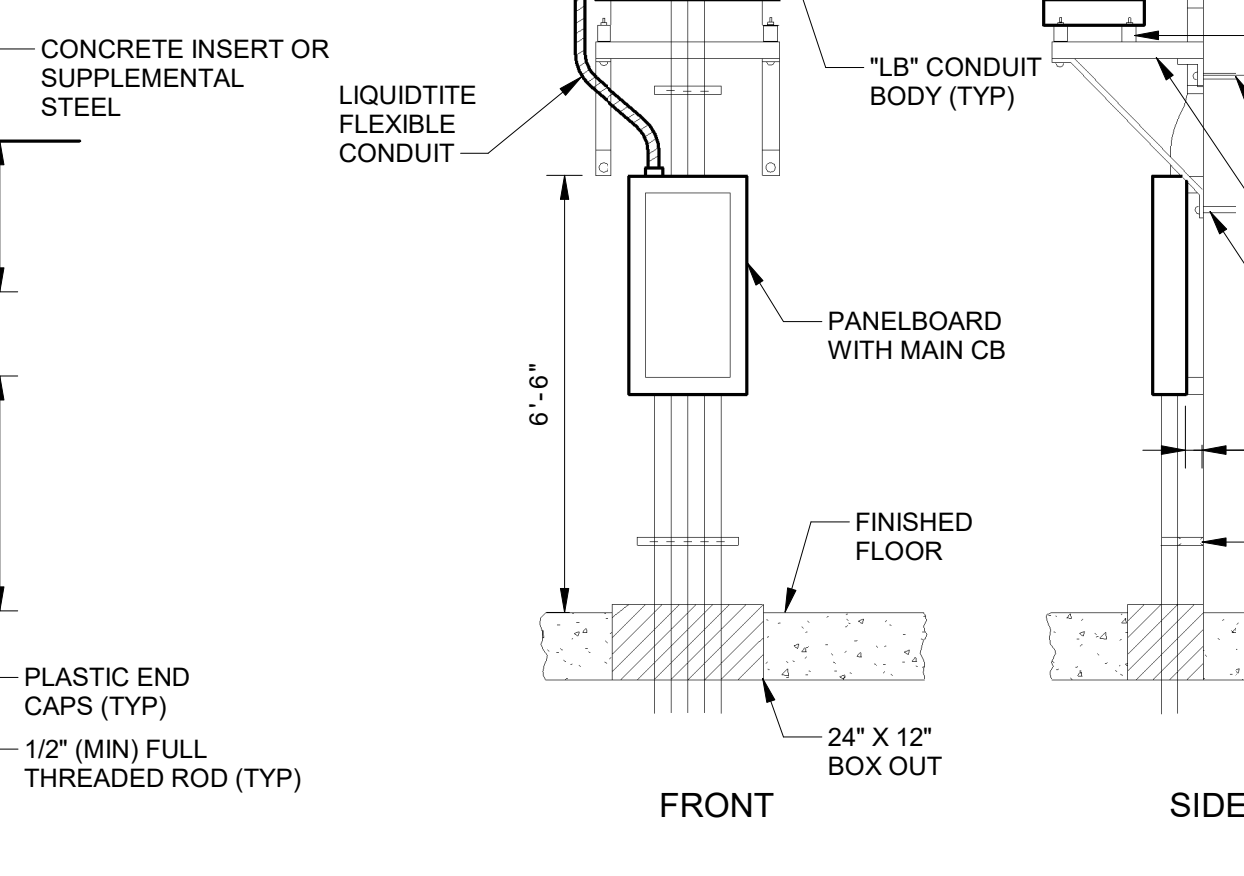
**A** WALL MOUNTED  
N.T.S.



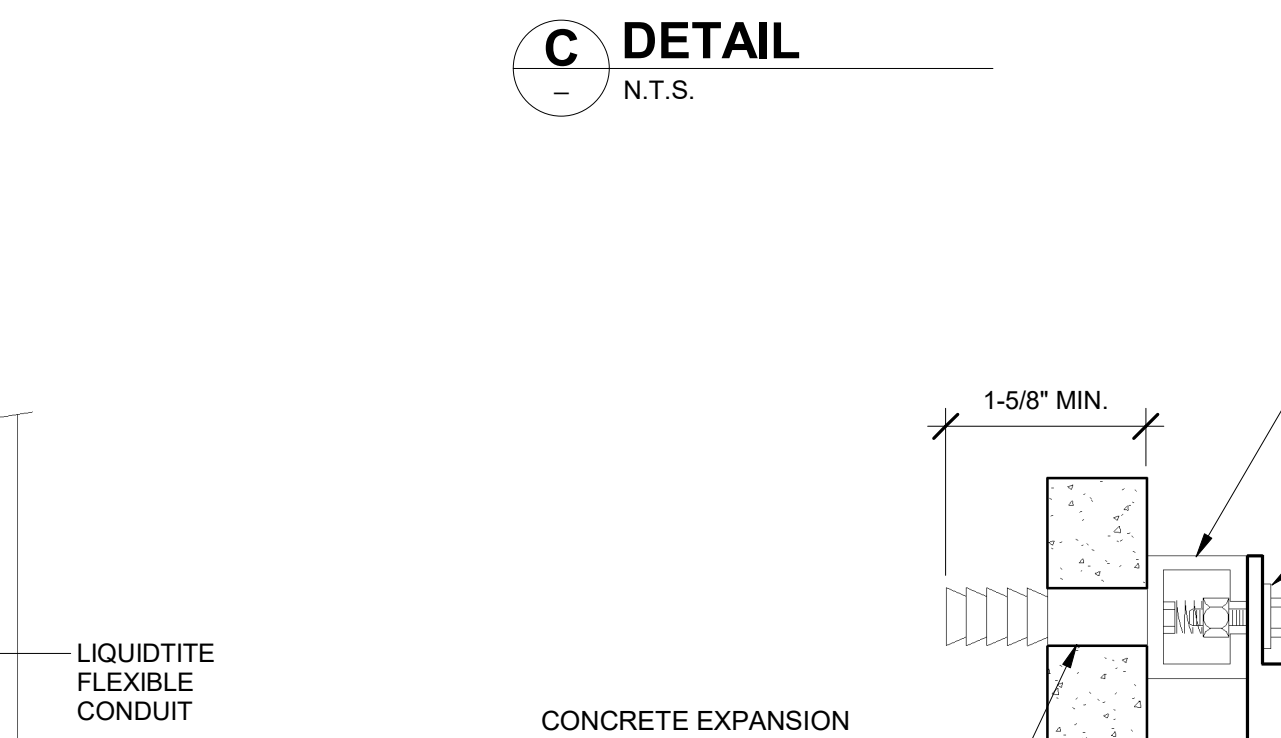
**B** CEILING OR WALL MOUNTED  
N.T.S.



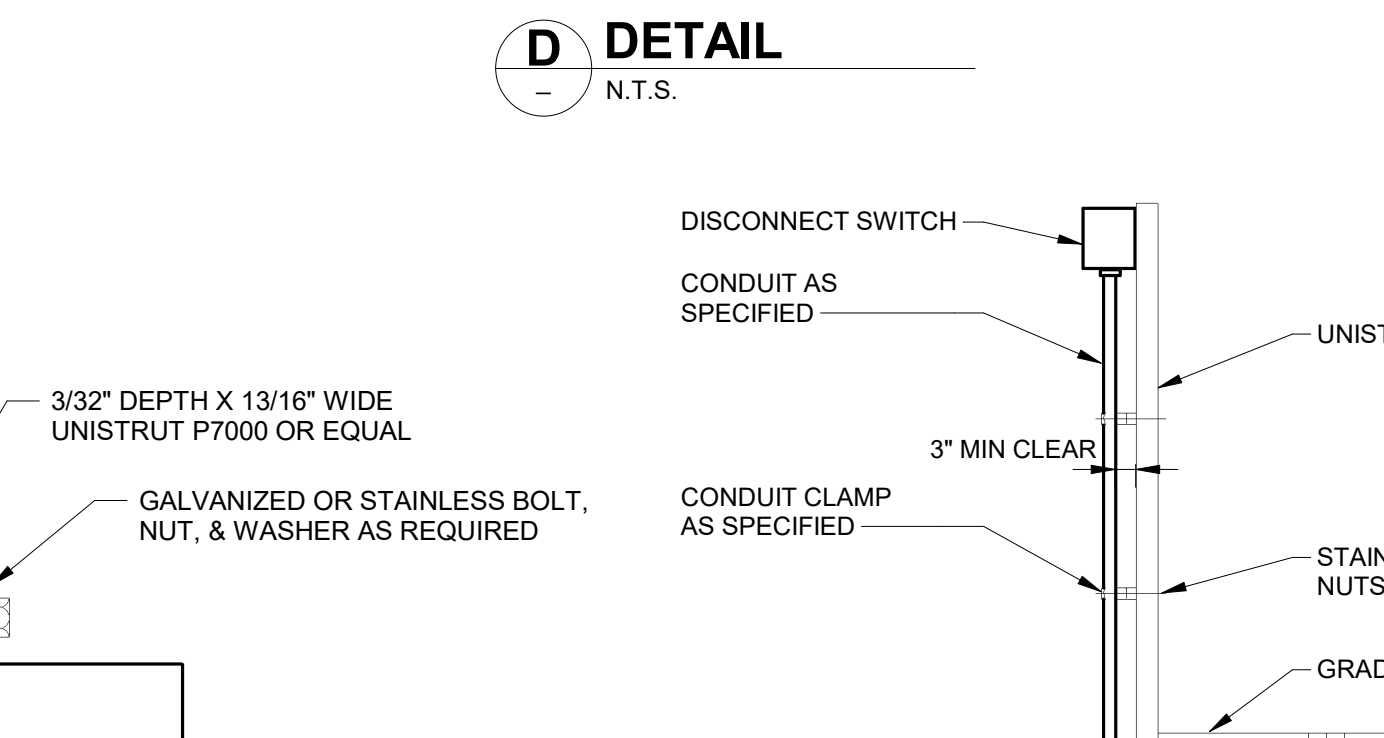
**C** TRAPEZE MOUNTED  
N.T.S.



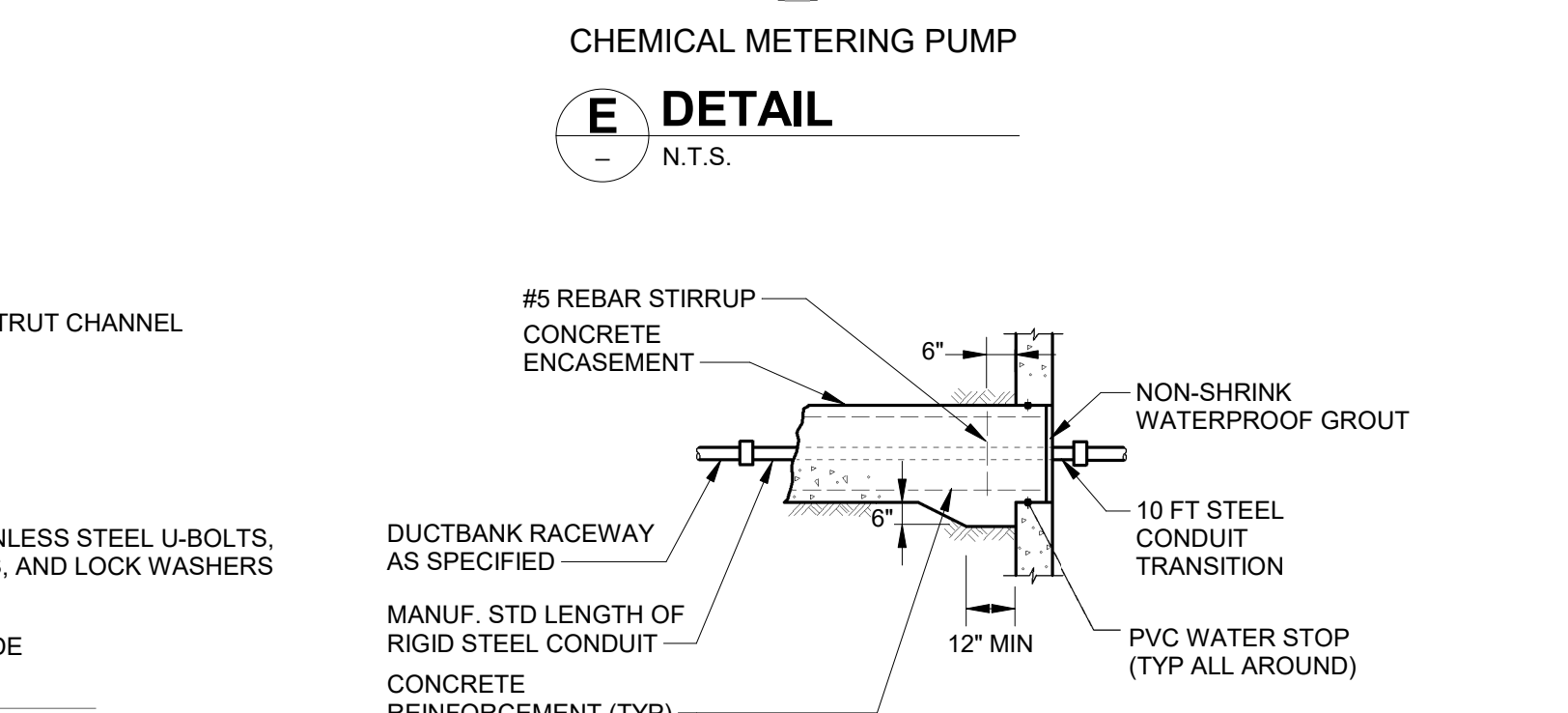
**D** WALL-MOUNTED TRANSFORMER AND PANELBOARD  
N.T.S.



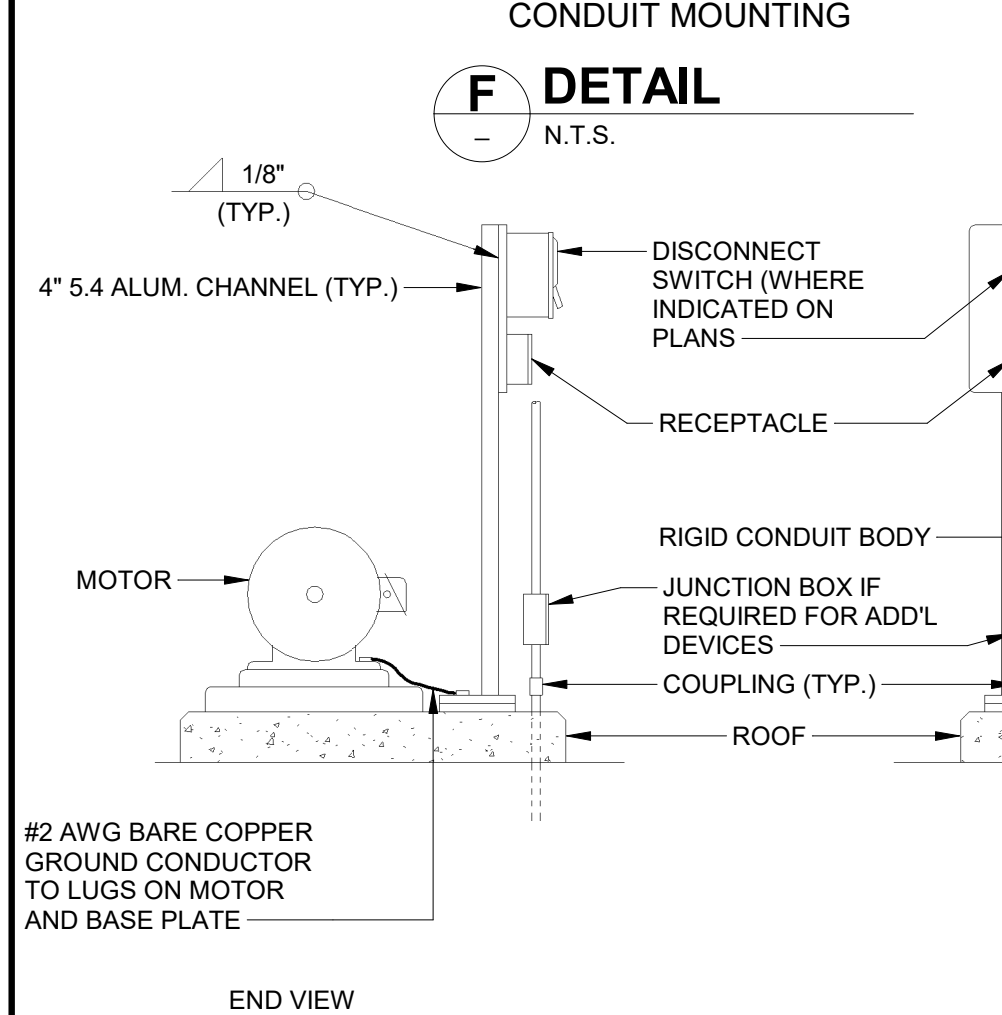
**E** EQUIPMENT ENCLOSURE MOUNTED ON CONCRETE WALL  
N.T.S.



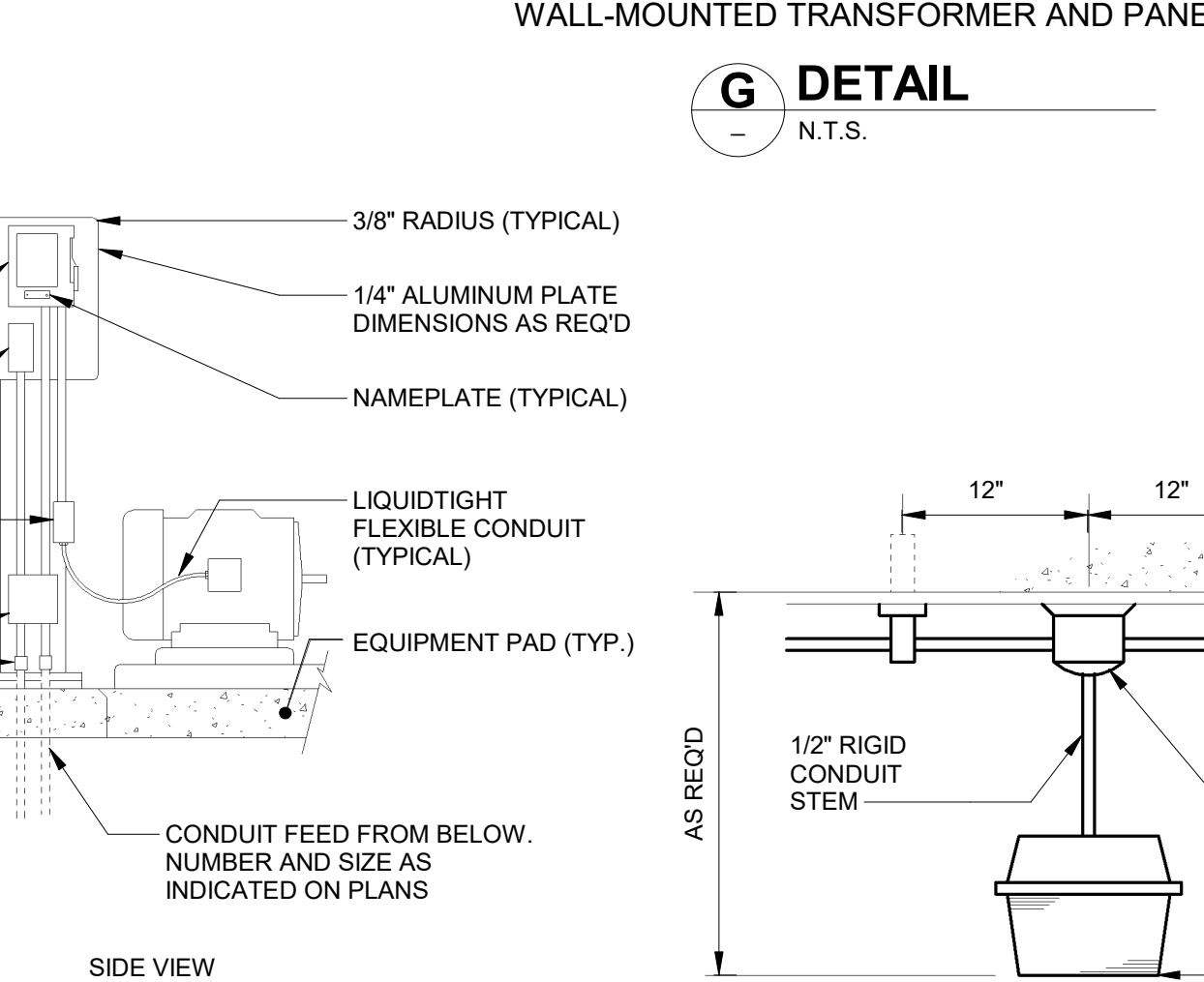
**F** UNISTRUT MOUNTED DISCONNECT SWITCH  
N.T.S.



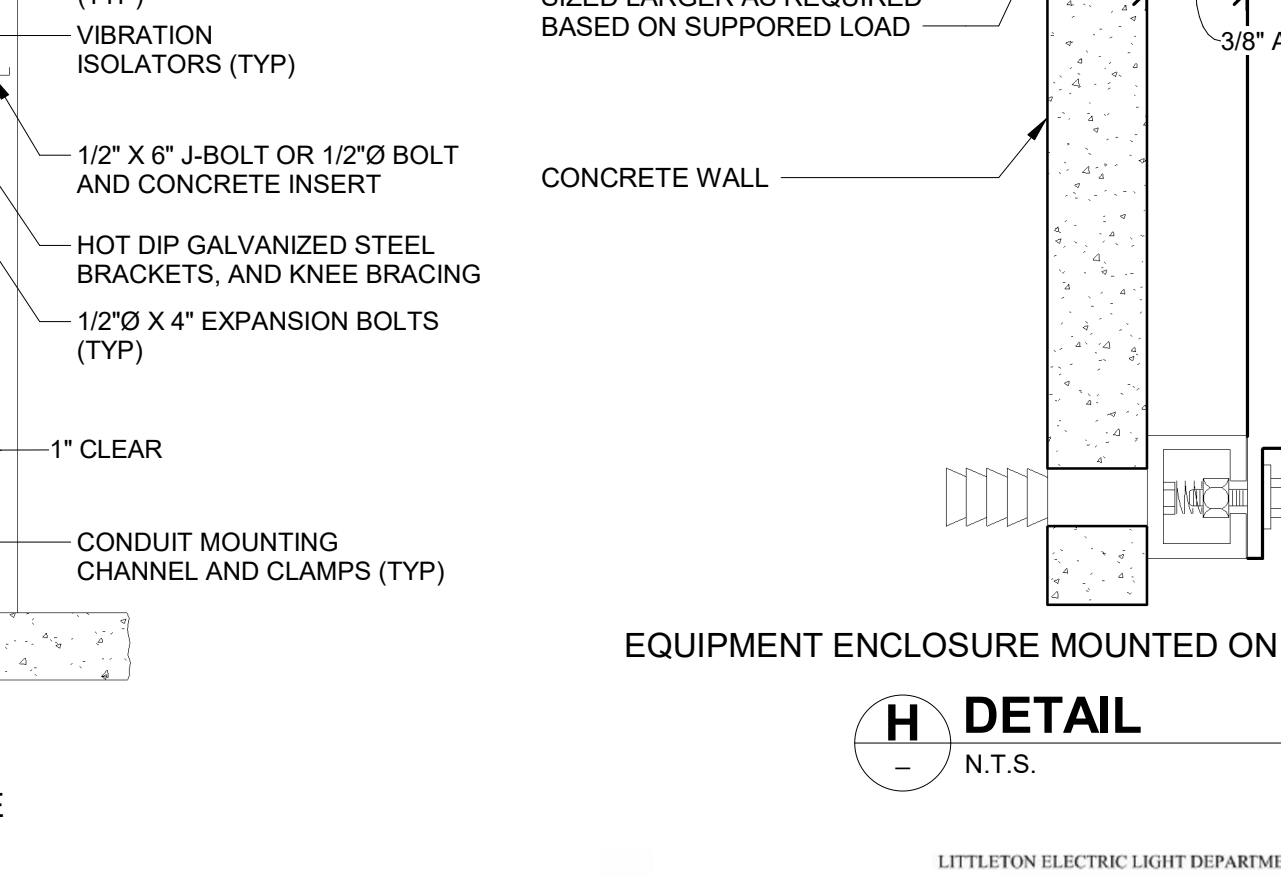
**G** STRUCTURE PENETRATION  
N.T.S.



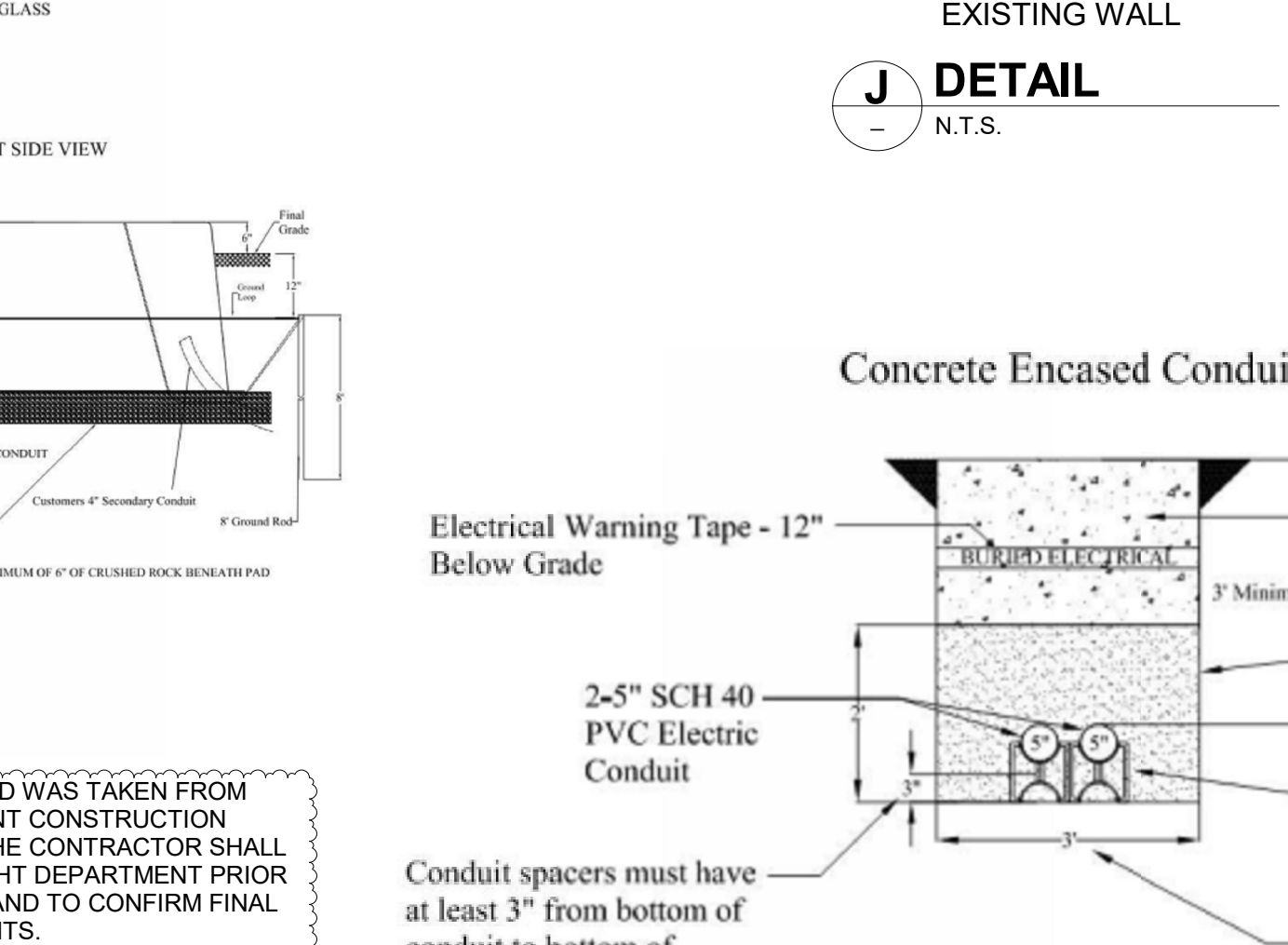
**H** TYPICAL MOTOR INSTALLATION  
N.T.S.



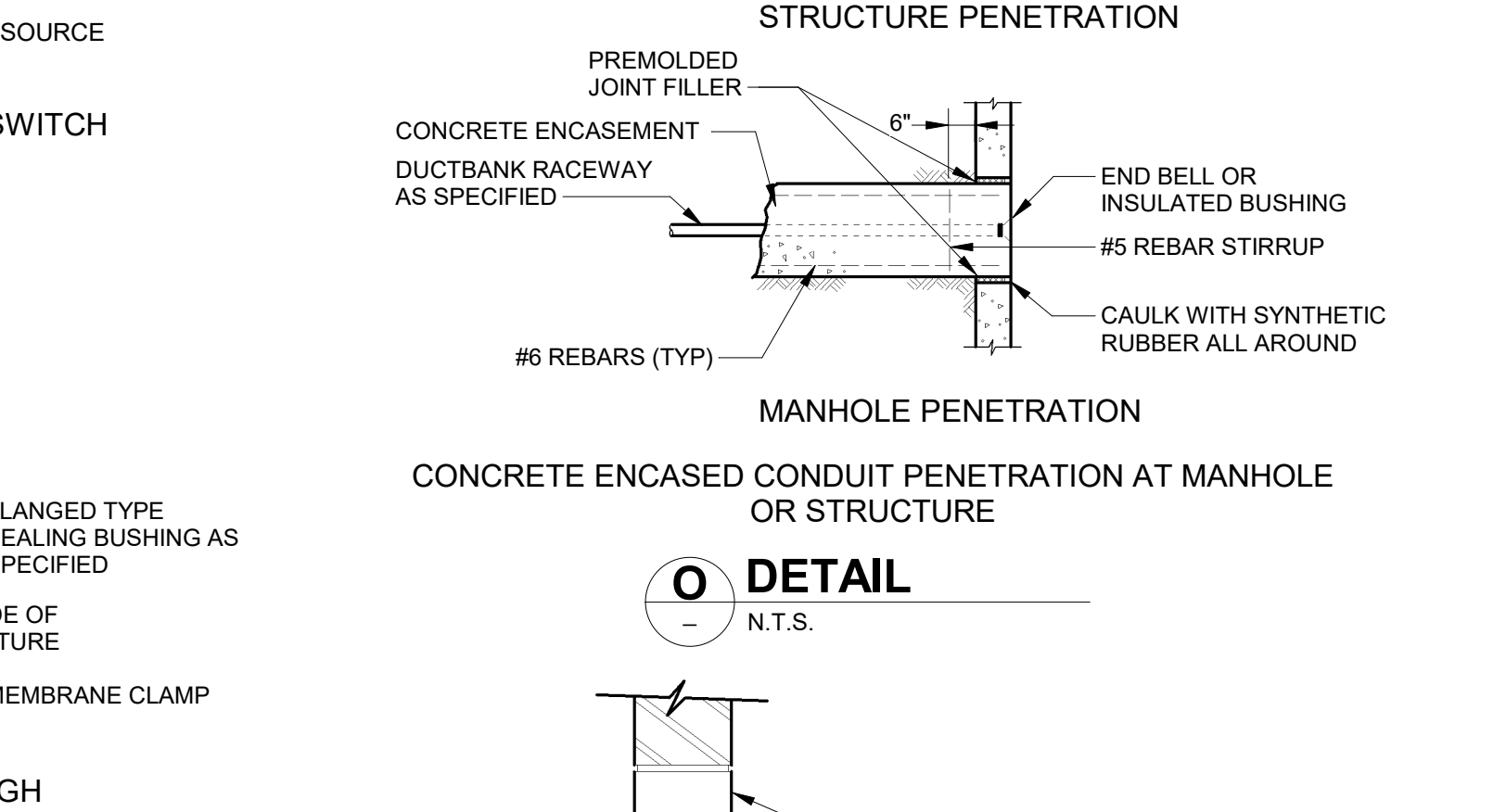
**I** LIGHTING FIXTURE INSTALLATION  
N.T.S.



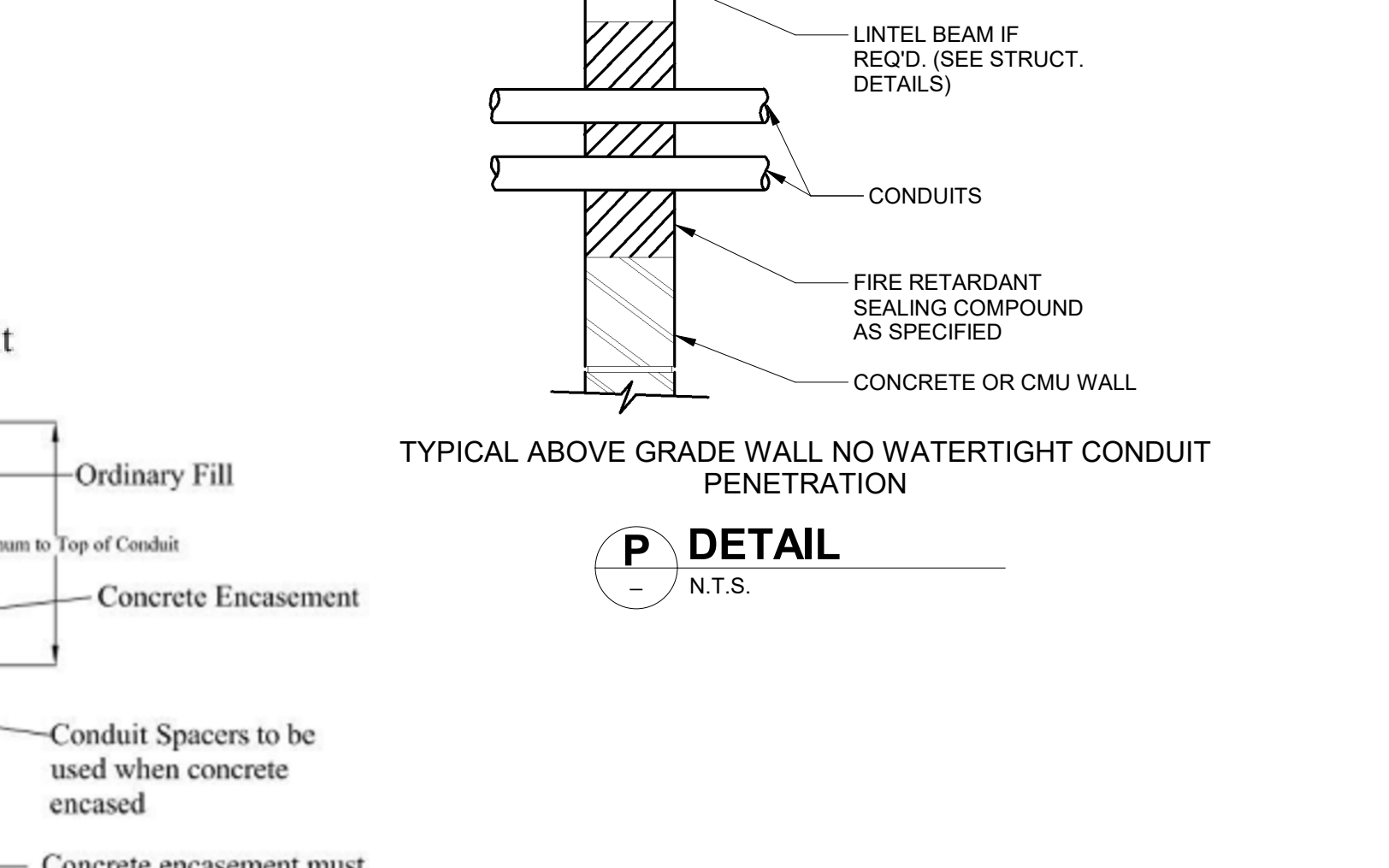
**J** CONDUIT PENETRATION THROUGH EXISTING WALL  
N.T.S.



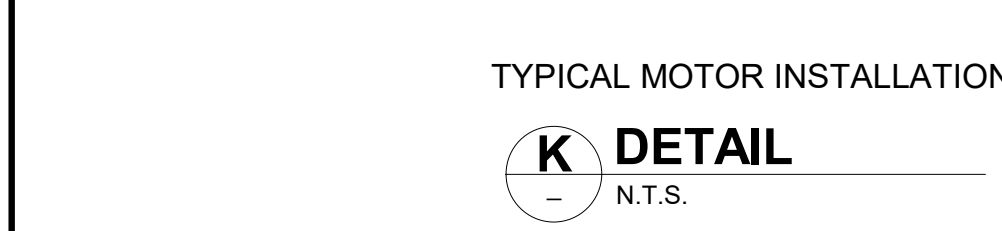
**K** CONCRETE ENCASED CONDUIT  
N.T.S.



**L** MANHOLE PENETRATION  
N.T.S.



**M** TYPICAL ABOVE GRADE WALL NO WATERTIGHT CONDUIT PENETRATION  
N.T.S.



**N** UTILITY TRENCH  
N.T.S.

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**ELECTRICAL DETAILS**