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TECHNICAL SPECIFICATIONS

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PROJECT MANUAL

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SECTION 01010 – SUMMARY OF WORK

PART 1 – GENERAL

1.1 SITE LOCATION

A. Project locations are in the water service area of the South Middleton Township Municipal Authority, Cumberland County, Pennsylvania.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Without intending to limit or restrict the extent of Work required under these Specifications, the Work generally comprises construction of extensions to the existing water distribution system in accordance with these Specifications, Water Detail Drawings bound herein.

B. Drawings: The Water Detail Drawings represent the standards of construction of the Authority and are bound in the back of the Specifications.

1.3 PRELIMINARY REQUIREMENTS

A. Before any work is started; the Developer shall ascertain from the Authority whether or not the latter intends to employ a consultant as Engineer for the Project. If the Authority indicates that no Engineer will be employed, the word "Authority" is substituted for the word "Engineer" throughout these Specifications, and the Developer and Contractor shall be guided accordingly.

B. Where water mains are to be installed within the limits of existing streets, all removal and protection of street paving, backfilling of trenches, temporary and permanent replacement of street paving, restoration of shoulders and the maintenance and protection of traffic will be performed in strict conformance with the requirements of the South Middleton Township or other governing municipality, or the Commonwealth of Pennsylvania Department of Transportation, as applicable. The cost of inspection by personnel of the Commonwealth of Pennsylvania Department of Transportation or the local municipality, utilities, railroads, etc. shall be paid by the Developer. Perform work within the right-of-way of State Highways in accordance with the requirements of the latest edition of the Commonwealth of Pennsylvania, Pennsylvania Code, Title 67, Transportation, Department of Transportation, Chapter 459, Occupancy of Highways by Utilities. The Regulations are made a part of these Specifications.

C. When service connections are required as work of this project, construct them from the watermain to the building using materials required by the latest version of these Specifications.

D. All water lines shall be installed in public street rights-of-way, except as follows. Installation in rights-of-way over private property will only be considered for approval when the Authority determines such installation is in the best interest of the Authority and the Authority is provided with an easement and/or right-of-way agreement acceptable to the Authority Solicitor. If any part of a main extension intended to be dedicated to the Authority is to be installed anywhere other than in publicly dedicated streets, before the

Authority gives its final approval of the plans, the Developer shall provide the Authority with easements and/or rights-of-way in form and substance satisfactory to the Authority and its Solicitor, evidencing the right of the Developer and the Authority to install, maintain and reconstruct lines across private property. Any easement shall have a width of not less than twenty (20) feet. Such easement and/or right-of-way agreement shall be recorded before commencement of construction.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 01010

SECTION 01015 - CONTRACTOR USE OF PREMISES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Section includes general use of the site including properties inside and outside of rights-of-way, work affecting roads, ramps, streets and driveways and notification to adjacent occupants.

B. Comply with South Middleton Township Ordinance 02 of 2006.

1.2 RIGHTS-OF-WAY

A. Confine access and operations and storage areas to rights-of-way provided by the Owner; trespassing on abutting lands or other lands in the area is not allowed.

B. Contractor may make arrangements, at Contractor's cost, for temporary use of private properties, in which case Contractor and Contractor's surety shall indemnify and hold harmless the Authority and the Township against claims or demands arising from such use of properties outside of rights-of-way. Submit copy of agreement between private property owner and Contractor for materials storage prior to use of the area.

C. Obtain appropriate permits for storage of materials within rights-of-way. Submit copies of permits prior to use of the area.

D. Restrict total length which materials may be distributed along the route of the construction at any one time as approved in writing by the Authority.

1.3 PROPERTIES OUTSIDE OF RIGHTS-OF-WAY

A. Altering the condition of properties adjacent to and along rights-of-way will not be permitted.

B. Means, methods, techniques, sequences, or procedures which will result in damage to properties or improvements in the vicinity outside of rights-of-way will not be permitted.

C. Any damage to properties outside of rights-of-ways shall be repaired or replaced to the satisfaction of the Authority.

1.4 USE OF SITE

A. Comply with South Middleton Township Ordinance 02 of 2006.

B. Obtain approvals of governing authorities (i.e., Township and/or PennDOT) prior to impeding or closing public roads or streets.

C. Notify Owner 48 hours prior to closing a street or a street crossing. Permits for street closures are required in advance and are the responsibility of the Contractor.

D. Maintain access for emergency vehicles including access to fire hydrants.

E. Avoid obstructing drainage ditches or inlets; when obstruction is unavoidable due to requirements of the Work, provide grading and temporary drainage structures to maintain unimpeded flow.

F. Locate and protect private lawn sprinkler systems which may exist on rights-of-ways within the site. Repair or replace damaged systems to condition equal to or better than that existing at start of Work.

G. Perform daily clean-up of dirt outside the construction zone, and debris, scrap materials, and other disposable items. Keep streets, driveways, and sidewalks clean of dirt, debris and scrap materials. Do not leave building, roads, streets or other construction areas unclean overnight.

1.4 NOTIFICATION TO ADJACENT OCCUPANTS

A. Notify individual occupants in areas to be affected by the Work of the proposed construction and time schedule. Notification shall be not less than 72 hours or more than 2 weeks prior to work being performed within 200 feet of the homes or businesses.

B. Include in notification names and telephone numbers of two company representatives for resident contact, who will be available on 24-hour call. Include precautions which will be taken to protect private property and identify potential access or utility inconvenience or disruption.

C. Submit proposed notification to the Authority for approval.

1.5 PUBLIC, TEMPORARY, AND CONSTRUCTION ROADS AND RAMPS

A. Construct and maintain temporary detours, ramps, and roads to provide for normal public traffic flow when use of public roads or streets is closed by necessities of the Work.

B. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment or exceptionally large or heavy trucks or equipment.

1.6 EXCAVATION IN STREETS AND DRIVEWAYS

A. Avoid hindering or needlessly inconveniencing public travel on a street or any intersecting alley or street for more than two blocks at any one time, except by permission of the Authority and Township.

B. Obtain Authority and Township approval when the nature of the Work requires closing of an entire street. Permits required for street closure are the Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners.

C. Remove surplus materials and debris and open each block for public use as work in that block is complete.

D. Acceptance of any portion of the Work will not be based on return of street to public use.

E. Avoid obstructing driveways or entrances to private property.

F. Provide temporary crossing or complete the excavation and backfill in one continuous operation to minimize the duration of obstruction when excavation is required across drives or entrances.

G. Provide barricades and signs in accordance with the Pennsylvania Department of Transportation.

1.7 TRAFFIC CONTROL

A. Comply with traffic regulations as specified by the Authority, Township and/or PennDOT, as applicable.

1.9 SURFACE RESTORATION

A. Restore site to condition existing before construction to satisfaction of the Authority and Township.

B. Repair paved areas per the requirements of Section 02575 - Paving and Resurfacing and applicable road opening or highway occupancy permits.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01015

SECTION 01060 - REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDE

A. Comply with requirements of permits obtained by the Developer or Developer's Engineer.

B. Obtain and pay for all other permits required to perform the Work in compliance with applicable local, state and federal laws and regulations.

C. Pay all inspection fees related to permits or requirements of governing agencies, utilities, railroads, etc.

D. If, throughout the process of the Work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation to post field inspectors on that portion of the project within their right of way, the Contractor/Developer shall reimburse the Pennsylvania Department of Transportation for the cost of the inspection so applied.

1.2 PERMITS TO BE ACQUIRED BY THE DEVELOPER IN THE NAME OF SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

A. PennDOT "Highway Occupancy Permit"

B. South Middleton Township Road Occupancy Permit

C. Cumberland County Conservation District "Erosion and Sediment Pollution Control Plan" approval

D. Department of Environmental Protection "Notice of Intent for Coverage under the General NPDES Permit"

NOTICE: The General NPDES Permit will be transferred to the Contractor prior to the beginning of construction.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 01060

SECTION 01300 – SUBMITTALS

PART 1 – GENERAL

1.1 SUBMISSIONS REQUIRED FOR AUTHORITY CONTRACTS

A. Contract Drawings for Authority Contract work shall be submitted by the Engineer.

1.2 SUBMISSIONS REQUIRED FOR NEW SUBDIVISIONS

A. General: The descriptions under the SUBMITTALS Article in each Specifications Section indicate the type of submission required. In addition, submit copies of Developer's plans and a construction progress schedule.

1. Make all submissions to the office of the Authority unless otherwise directed by the Authority.

B. Definition: The term shop drawing used throughout this Section includes manufacturer's product data in the forms of descriptive literature, specifications and published detail drawings, and also Contractor prepared drawings, certified test records or reports and such other certificates required by the Specifications.

1.3 GENERAL OUTLINE OF STEPS FOR DEVELOPER WATER EXTENSIONS

A. All subdivision and/or land development plans regardless of size shall be required to submit digital drawings to the Authority for review and comment.

B. Planning Phase:

1. Upon notice to the Authority of the intent to propose an extension, Authority staff will provide a preliminary planning conference to provide information about Authority extension approval procedures and to receive general information from the Developer about the proposed extension.

2. Developer must obtain a copy of the Authority's "Standard Construction and Material Specifications for Water Distribution System".

3. Table 1 contains a checklist to assist the developer in completing the "Proposed Water Distribution System Extension Feasibility Study."

C. Design Phase:

1. The Developer should submit drawings in pdf format via email or share site for each submission to the Authority for review and comment. The initial submission shall be done during the preliminary planning stages at the local municipality.

a. When the drawings are delivered to the Authority a check for extension review fees should be submitted to cover the initial costs to the Authority for plan review.

b. The amount of the fees will be determined by the Authority Manager. No plans will be reviewed without receipt of the extension review fees.

c. As the design review progresses and the Authority incurs costs greater than the initial extension review fees deposit, the Authority will request additional escrow deposits from the Developer.

2. The Developer should submit documentation to the Authority indicating permission from neighboring property owners when a right-of-way is required from a property not owned by the Developer, or when the Developer intends to use an easement not explicitly stated to be used by the Authority. These may include gas, electric or phone easements.

3. If a Highway Occupancy Permit is needed for installation of water mains, the Developer should prepare the permit in the name of the Authority. The Developer should then deliver the application to the Authority for signature and subsequent delivery to PennDOT.

4. The Developer shall submit sets of drawings to the Authority's Engineer in pdf format via email or share site. These drawings will be stamped "Approved for Construction". During the Preconstruction Meeting, these drawings will be distributed to Developer, Contractor, Authority, Construction Inspector and Authority's Engineer.

D. Agreement Phase:

1. Upon approval of the design drawings, a Developer's Agreement shall be entered into between the Developer and the Authority. Construction agreements apply to both private and public water extensions.

a. Construction Cost Estimate for Financial Security when constructing a public water extension (Not required for Private extensions):

(1) The amount of financial security shall be equal to 110% of the cost of the required improvements for which financial security is to be posted. The cost of the required improvements shall be established by submitting to the Authority an estimate of cost by the Developer's engineer

(2) The Developer or contractor performing the work shall submit a construction sequence/schedule at this time to aid in the determination of an adequate inspection escrow amount.

(3) The Developer shall then provide a letter of credit, bond or cash using language provided by the Authority's Solicitor.

b. Upon receipt of the above information, the Authority will develop two (2) original copies of the Developer's Agreement and attach the Developer's financial security:

(1) If additional escrow is required, the Developer's Agreement will also indicate that additional money shall be deposited with the Authority for costs to be incurred by the Authority.

(2) The Authority Manager will determine the amount of escrow needed.

(3) The Authority Manager will then forward the Developer's Agreement to the Developer for execution.

2. The following items must also be submitted to the Authority prior to proceeding with construction:

a. Developer shall submit all Shop Drawings to the Authority's Engineer for review and comment.

b. Developer's Engineer shall submit to the Authority's Engineer, in digital format, a complete set of the approved plans prior to construction.

c. Developer shall have executed the Developer's Agreement.

d. Developer shall have established the escrow account to the dollar amount specified in the Developer's Agreement.

(1) If additional escrow money is needed during construction, the Authority will duly notify the Developer that an escrow deposit is required.

E. Construction Phase:

1. The Developer will be approved to proceed with construction when all of the above items are addressed.

2. The Developer is responsible for issuing a ten (10) day notice to the Authority indicating the intent to start construction.

a. At this time, a Preconstruction Meeting will be held. Attendees at the Preconstruction meeting include at a minimum, the Contractor, Developer, Authority, Construction Inspector and Authority's Engineer.

3. Developer's Contractor shall install the water mains in accordance with these Specifications.

a. The Contractor is responsible for record keeping of water service locations, final elevations and final location of all piping.

b. The Contractor is responsible for survey and layout of water mains and services.

4. The Authority's Construction Inspector shall observe testing of the water extension.

5. The Authority's Construction Inspector shall prepare a list of punch list items.

6. The Developer's Contractor shall complete all punch list items.

F. Post Construction:

1. Record Drawings as outlined later in Section 01300 – Submittals must be submitted to the Authority at the close of construction. All costs associated with the preparation of these drawings shall be the responsibility of the Developer. No permits to connect to the sewer system will be issued until Record Drawings are submitted and approved by the Authority.

2. After completion of construction, satisfactory inspection by the Authority Engineer of all construction, payment of any outstanding fees or charges owed to the Authority, and approval of the Record Drawings, Developer may request that the Authority accept dedication of the water extension. The Authority shall have no obligation to maintain any facilities until such facilities are formally accepted by the Authority at a public meeting. The Developer shall reimburse the Authority for all costs associated with the processing of a request that the Authority accept dedication of the water extension.

3. Developer shall submit to the Authority maintenance security in a form acceptable to the Authority Solicitor. The maintenance security shall expire no earlier than 18 months from the date of acceptance of dedication and shall be in the amount of 15% of the actual cost of installation of the improvements. Thirty days prior to the expiration of the maintenance security, the Authority or the Authority Engineer shall inspect the accepted sewer facilities. The Developer shall correct any deficiencies or, if the Developer refuses to correct the deficiencies, the Authority may draw upon the maintenance security and correct the deficiencies.

4. Upon approval of the above information, the Authority will then permit issuance of individual connection permits in accordance with the Developer's Agreement.

1.4 CONTRACT DRAWINGS – DEVELOPER SUBMISSION

A. General:

1. Submit drawings for review in pdf format via email or share site. After review of these drawings, make any corrections required and resubmit corrected sets.

2. If a WQM permit is required from DEP, submit four (4) sets.

3. Sheet Size: 24 × 36 inches.

4. Base all elevations on USGS datum, State Plane Coordinate System and refer to Authority record drawing elevations of the existing water mains and indicate the difference between USGS and Authority datum.

5. Include the following note on each drawing: "All materials used and construction methods employed shall be in accordance with the latest standards of the AUTHORITY STANDARD CONSTRUCTION SPECIFICATIONS."

6. Include the following note on each drawing: “For water detail drawings, reference the STANDARD CONSTRUCTION SPECIFICATIONS.”

7. Include the following note on each drawing: “Contractor shall test pit all utility crossings prior to installing any water main pipe to verify existing horizontal and vertical elevations to assure no conflict with new water system.”

8. Show details of bedding, encasement, service connections, etc., on drawings.

9. Bind drawings in sets and number them consecutively.

10. Include a copy of the design checklist found in Table 1 of this section indicating that all items meet the Authority’s Standards with the initial submission.

B. Indicate on the design drawings the following general items:

1. Name of the Design Engineer/Surveyor.

2. Seal of the Design Engineer/Surveyor (on Final Approved Drawings).

3. Signature of the Design Engineer/Surveyor (on Final Approved Drawings).

4. Name of the development and the owners.

5. Original Date and all subsequent revision dates.

6. Act 287 list of utilities, PA One Call Serial Number and Logo (and all subsequent amendments thereto).

C. Include the following drawings:

1. Location Plan: Showing approximate area of the municipality in which the project is located. No particular scale is required.

2. Overall: Plan sheet indicating proposed water facilities. All designs will be on “State Plan Coordinate System.”

3. Plan and Profile Drawings: Plan View drawn to a scale of 1” = 50’ and Profile View drawn to a horizontal scale of 1” = 50’ and a vertical scale of 1” = 10’ and having the following items included thereon:

a. Table 1, at the end of this section, is a checklist of minimum design criteria for water extensions. This completed list must be included with each plan submission.

b. Water ties to existing permanent and semi-permanent features (Plan View).

c. Top elevations of vaults (Profile View).

d. Minimum depth, to top of pipe, of water mains shall be four (4) feet.

e. Water mains shall be made of Class 52 cement lined ductile iron pipe.

f. Field Lok gaskets are required three (3) joints prior and three (3) joints after any bend or fitting.

g. For water mains installed in fill areas, a note should be placed on the drawings indicating that the "fill shall be compacted to a minimum of 95% of ASTM D698 Standard Proctor." The Authority may request testing data to verify that at the invert elevation of the water main that the compaction requirements have been met. Any water mains located in fill areas shall have Field Lok gaskets in each joint.

h. Size of proposed water main (Profile View); Minimum 8-inch main with 1-inch Service Connections.

i. Location, size and elevation of all existing and proposed underground utilities (Plan View and Profile View); minimum ten (10) feet horizontal clearance to sewer mains and five (5) feet to all other utilities.

j. Service Lateral Installation Location:

(1) Service Connections will be a minimum of 1" diameter.

(a) A note should be included indicating that no Service Connections shall be placed in driveways, sidewalks, 5 feet from a sewer lateral, and a minimum of 5 feet from any street tree planting.

k. All water mains will be extended to the furthest edge of the property, in all directions when applicable.

m. All Rights-of-Way for water mains will be a minimum of twenty (20) feet with an additional ten (10) foot buffer set on either side restricting the construction of any structures, houses, buildings, sheds, decks, pools, any underground and/or overhead facilities, etc. within that area. Also, no trees, shrubs, bushes, fences, etc. will be constructed within the Rights-of-Way.

Table 1

Technical Review for Water Distribution System Extensions

Item No.	Item	Acceptable	Unacceptable
1	Note on each drawing "All materials used and construction methods employed are to be in accordance with the latest standards of the South Middleton Township Municipal Authority."		
2	Note on drawings "For water system detail drawings reference Standard Construction Specifications, South Middleton Township Municipal Authority."		

3	Note on drawings “Contractor shall test pit all existing utility crossings prior to installing any waterlines to verify existing horizontal and vertical elevations to assure no conflict.”		
4	Note on drawings when sewer is installed through Authority right-of-way including planter ‘islands,” “No trees, landscape walls, etc. shall be installed within limits easement in accordance with the Authority’s standard Deed of Dedication.”		
5	Name of Engineer/Surveyor		
6	Seal of Engineer/Surveyor		
7	Signature of Engineer/Surveyor		
8	Name of Development and Owner		
9	Act 287 Utility List and Serial Number		
10	Location of building(s)		
11	Plan view 1”=50’ Profile 1”=10’		
12	Minimum cover of 4’ *(from top of pipe)*		
13	Check for horizontal clearance with sewer (5’ for laterals and 10’ for mains)		
14	Check for horizontal clearance with storm sewers, gas mains and electric (5’)		
15	Do the plans indicate utilities to be installed in the water line easement? None allowed		
16	Minimum pipe size 8”, type DIP Class 52 CL		
17	Valves three (3) @ Tees; four (4) @ Crosses; one (1) every 1,000’ on every transmission main		
18	Fire hydrant locations 600’ maximum – locations to be determined by Township		
19	Right-of-Way – 20’ (minimum) with Right-of-Way beginning a minimum of 10’ from any proposed building		
20	Constructability		
21	Maintenance		
22	Water Consumption/Demand Data		
23	Hydraulic Model Run		
24	Size of water services and locations shown		
25	Water services sleeved in 3” conduit		
26	Fire flow data and service shown, if applicable		
27	Indicate all utilities on the plans and profiles		
28	Stream crossings meet County standards		
29	Sheet size 24”x36”		

30	Revision date shown		

D. Final Acceptance Submissions:

1. Record Drawings:

a. Before Water Connection Permits will be issued and the work will be accepted by the Authority, submit a digital copy of the plans and profiles containing pipe sizes and horizontal and vertical location, including elevations, of all valves, meter pits, curb stops, vaults, reconnection fittings and other appurtenances. The information will be provided digitally and consistent with the Plan Datum and Control as shown on the drawings. The contractor will employ the services of a Registered Professional Surveyor licensed in the Commonwealth of Pennsylvania to provide the information. Information will be provided in AutoCAD format.

b. The Authority intends to use prints of the reproducibles to provide information to designers and contractors as required by the Commonwealth of Pennsylvania Act 287 and its amendments thereto.

c. Record drawings shall indicate:

(1) Sheet size 24” × 36”.

(2) Lot lines and lot number adjacent to water easement or roadway.

(3) All information as identified in Section 01300.1.4.C.3. - Plan and Profile Drawings.

(4) Name of Design Engineer/Surveyor including seal and signature.

(5) Name of Developer including address.

(6) Name of Owner if different than Developer.

(7) All fire hydrant numbers as provided by the Authority.

2. Straight Line Diagrams: Contractor shall prepare and submit one copy of the lateral locations to the Authority and one copy to the Owner/Developer. Water facilities including fire hydrant numbers shall be indicated.

3. Final Acceptance Tests, as specified under the various Sections, completed and successful.

Table 2

Record Drawings

Technical Review Checklist

Job Number _____

Developer _____

Development _____

Date _____

Submittal No. _____

Job Number _____

Item Number	Item	Yes	No
1	Drawings titled “Record Drawings” (“As Built” is not acceptable)		
2	Name of Engineer/Surveyor		
3	Seal of Engineer/Surveyor		
4	Signature of Engineer/Surveyor		
5	Name of Development and Owner		
6	Locations of building(s)		
7	Plan 1”=50’ Profile 1”=10’		
8	Right-Of-Way – 20’		
9	Water service connection stationing		
10	Size of water service shown		
11	Water service length – from Main to R/W line		
12	Water service depth at end		
13	Size of fire service		
14	Fire service length – from Main to R/W line		
15	Fire service depth at end		
16	Sheet Size 24”x36”		
17	Type of water pipe		

4. Final Acceptance Affidavits: An affidavit and such other satisfactory evidence as is required that all labor, material, rentals, contractors and subcontractors, and indebtedness arising out of performance of the water contract work have been paid; and that all other claims against the Owner/Developer, Contractor or Subcontractors arising out of performance of the water contract work either have been paid or that the Owner/Developer, Contractor or Subcontractor has and will maintain in force such Public Liability and Property Damage Insurance as will fully protect them and the Authority from any such claims as may be pending or that may thereafter arise, to include any work performed during or at the end of the

Contractor's Guarantee period of 18 months. Such guarantee work as may be required as a result of the Authority's Guarantee Reinspection which will take place at the end of the 18 month Guarantee time period.

5. Deed of dedication/Bill of Sale of all water mains and appurtenances to the Authority. All services, and off-street water mains not covered by a right-of-way shall remain with the property owner, Developer or by a homeowner's association where required by Township regulations.

6. Submit the Table 2 Technical Review Checklist for Record Drawings when submitting the Record Drawings to the Authority.

1.5 RIGHT-OF-WAY DRAWINGS

A. Provide 3 copies of all required descriptions of Right-of-Ways. Proposed generic form for Deed of Easement shall be provided by the Authority. The Authority shall record all Rights-of-Way in the courthouse.

B. Provide Deed of dedication/Bill of Sale of all water mains and appurtenances to the Authority. All services, and off-street water mains not covered by a right-of-way shall remain with the property owner, Developer or by a homeowner's association where required by Township regulations.

1.6 CONSTRUCTION PROGRESS SCHEDULE – CONTRACTOR SUBMISSION

A. Contractor shall submit a letter to the Authority indicating its intent to start construction at least ten (10) days prior to the desired start date. A Pre-construction meeting shall be held at the Authority office prior to commencement of construction.

B. At least seven (7) days before work is commenced, submit a practicable and feasible progress schedule showing the order in which the Work is to be carried on, the dates on which salient features will start (including procurement of materials and equipment), and the contemplated dates for completing same.

C. Prepare the schedule in chart form and of a suitable scale so as to appropriately indicate the percentage of Work completed at any time.

D. At the end of each month, or more frequently, update the Construction Progress Schedule by entering the actual progress of the Work on the schedule. Deliver copies of the updated Construction Progress Schedule immediately after its completion.

1.7 SHOP DRAWINGS – CONTRACTOR SUBMISSION

A. Submit all shop drawings in pdf format electronically with such promptness as to avoid delay in the work.

B. Each submission of shop drawings must be accompanied by a letter of transmittal listing the items in the submission. Each shop drawing must be marked with the name of the Project and the name of the Contractor and be numbered consecutively.

C. When making a submission for approval, the Contractor shall do so with the understanding that he is considered to have checked the items in the shop drawing before submitting them and that he is satisfied that, in their present state, they not only meet the requirements of the Specifications, but will present no difficulties in erection and completing his Contract, and shall clearly note his approval on all shop drawings prior to their submission to the Engineer. Failure of the Contractor to note his approval will be reason for the Engineer to return such submission to the Contractor unchecked.

1. If it appears that shop drawings submitted by the Contractor to the Engineer have not been properly checked, even though the Contractor's approval has been noted thereon, it will also be considered reason for the Engineer to return such submission to the Contractor unchecked.

2. Markings, written or otherwise, made by the Contractor or by his suppliers or manufacturers must be made on the Submittal in a color other than red. RED is reserved for the exclusive use of the Engineer in marking Submittals.

E. If shop drawings show variations from the Specifications requirements because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in his letter of submission in order that (if accepted) suitable action may be taken for proper adjustment in the Contract; otherwise, the Contractor will not be relieved of the responsibility for executing the Work in accordance with the Specifications even though the shop drawings have been approved.

F. The approval of shop drawings will be general and shall not relieve the Contractor from the responsibility for proper fitting and construction of the Work nor from furnishing materials and work required by the Specifications which may not be indicated on the shop drawings when approved.

G. After review by the Engineer, shop drawings will be returned marked as follows: Approved, Approved as Noted, Revise and Resubmit or Not Approved.

1. Approved: When shop drawings are returned "Approved", that means the shop drawings have been found to be in conformance with the Specifications. The Engineer's approval of the shop drawings does not relieve the Contractor from responsibility for errors or discrepancies in such shop drawings.

2. Approved As Noted: When shop drawings are returned "Approved As Noted" that means the shop drawings have been found to be in conformance with the Specifications, provided the changes noted by the Engineer are incorporated in the shop drawings. Shop drawings returned "Approved as Noted" will not require resubmission.

3. Revise and Resubmit: When shop drawings are returned noted "Revise and Resubmit" that means the Contractor shall make the required corrections and resubmit corrected shop drawings digitally to the Engineer.

4. Not Approved: When shop drawings are returned "Not Approved" that means the Contractor shall make completely new shop drawings and submit digital copies to the Engineer for review.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 01300

SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.1 TEMPORARY SERVICES

A. General: Provide temporary services at the site of the Work throughout the entire period of construction and until the Work of the Contract is completed and the new facilities are placed in operation of the Authority's personnel.

B. Temporary Water Control:

1. At all times during the construction of work of this Contract maintain the flow of storm water, naturally occurring water and wastewater in existing facilities and channels affected by the Work.

2. Contractor assumes risk from floods or other causes, and any damages done to the work in progress or to work completed under Contract. Make repairs and replacements to the satisfaction of the Engineer.

3. Contractor assumes responsibility for damages to property caused by flooding or back flooding of property due to blocking or restriction of storm water passages, natural waterways and wastewater facilities capacity during normal or excessive periods of water flow.

4. The means and methods the Contractor employs to meet above requirements are at his discretion but will be subject to the Engineer's approval.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.1 REMOVAL

A. Contractor shall dismantle (if required) and remove such temporary facilities as required during construction of the project.

END OF SECTION 01500

SECTION 01570 – TRAFFIC REGULATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Purpose: The purpose of this Section is to provide the Contractor with general guidelines for the control of traffic while the work of the Project within street right-of-way is being performed. The goal is to help ensure safe and efficient traffic movement through work areas and provide safety for the Contractor's work force.

1.2 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Furnish, erect and maintain at closures, intersections and throughout the Project, the necessary approved barricades, suitable and sufficient lights, approved reflectors, danger signals, warning, detour and closure signs. Provide a sufficient number of watchmen and take the necessary and legal precautions for protection of work and safety of the public. Barricades, danger signals, signs and obstructions shall be illuminated from sunset until sunrise. Materials and safety devices (i.e., barricades, flashing warning lights, torches, reflectors and signs) shall conform to the State Department of Transportation Specifications.

2. Traffic regulation on Authority service area streets shall conform in all respects to the requirements for traffic control on State Highways except enforcement, which will also be by the State police.

a. Provide a traffic control plan (modeled after a state Highway plan) to the Authority prior to start of work and also keep a copy of the plan at the site of the work at all times.

3. State Highways:

a. The Contractor is advised that he is required to provide traffic control in complete compliance with the rules and regulations of the Pennsylvania Department of Transportation (PADOT), including but not necessarily limited to the following:

(1) PA Code Title 67, Transportation: Chapter 212 – Official Traffic Control Devices.

(2) PA Code Title 67, Transportation: Chapter 441 – Access to and Occupancy of Highways by Driveways and Local Roads.

(3) PA Code Title 67, Transportation: Chapter 459 – Occupancy of Highways by Utilities.

(4) Section 901 "Maintenance and Protection of Traffic During Construction" of the Commonwealth of Pennsylvania Department

of Transportation Specifications Publication 408, as supplemented, and such other sections therein which complement this Section.

b. Fines and related costs resulting from the Contractor's failure to provide adequate traffic control shall be borne solely by the Contractor.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials, flagman and safety devices such as barricades, flashing warning lights, reflectors and signs, provided for the purpose of protecting the work and the safety of the public, and for maintaining and protecting traffic, must conform to the requirements specified in Section 901 of the current edition of the Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408 (as supplemented) and to requirements specified in the current edition of PA Code Title 67, Transportation: Chapter 212 – Official Traffic Control Devices which complements Section 901.

B. Provide danger signals and warning signs in the approved color.

PART 3 – EXECUTION

NOT USED

END OF SECTION 01570

SECTION 02010 – SUBSURFACE EXPLORATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Digging Test Pits:

1. In locations where new water mains are to be connected to existing water mains, the Contractor will not be permitted to proceed with new construction until he has dug test pits and determined the exact location and elevation of any existing facilities.

2. All appropriate approvals (i.e. street cut permits) must be obtained by the contractor from the Township or PennDOT prior to any subsurface exploration.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

A. Sink Holes:

1. Should the Developer or Developer's contractor encounter a sinkhole during construction, Developer or Developer's contractor shall employ the services of a registered professional geo-technical firm to assist in abatement of sinkholes.

END OF SECTION 02010

SECTION 02211 - ROCK REMOVAL

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Rock Removal- Mechanical Method.

B. Rock Removal- Explosive Method.

1.2 RELATED WORK

A. Section 02221 – Trenching, Backfilling and Compacting, comply with paragraph 1.04.B Protection of existing utilities and structures as applicable.

1.3 QUALITY ASSURANCE

A. Contractor: Contractor shall have five years documented experience with the use of explosives for disintegration of subsurface rock.

1. Blaster shall be licensed in accordance with all applicable Federal, State and/or local laws, ordinances and regulations.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable Federal, State and/or local laws, ordinances and regulations for explosive disintegration of rock.

B. Obtain and display permits on site from authorities having jurisdiction before explosives are brought to site or drilling is started.

C. Contractor to obtain blasting permit from Township.

1.5 REFERENCES

A. NFPA-495-Code for the Manufacturer, Transportation, Storage, and Use of Explosive Materials.

B. PA Code- Chapter 211 – Storage, Handling and Use of Explosives.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Rock Definition: Solid mineral material with a volume in excess of 1/3 cu. yd., that cannot be machine excavated as determined by the ENGINEER.

B. Explosives: Type recommended by explosives firm and required by authorities having jurisdiction.

C. Delay Devices: Type recommended by explosives firm.

D. Blasting Mat Materials: Type recommended by explosives firm.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify site conditions and note irregularities affecting work of this Section.

B. Beginning work of this Section means acceptance of existing condition.

3.2 ROCK REMOVAL - MECHANICAL METHOD

A. Excavate for and remove rock by the mechanical method.

B. Cut away rock at excavation bottom to form level bearing.

C. Remove shaled layers to provide sound and unshattered base for footings, slabs and embankments.

D. In utility trenches, excavate to 8 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

E. Remove excess or unsuitable materials from site.

F. Correct unauthorized rock removal in accordance with backfilling and compaction requirements of Section 02221 - Trenching, Backfilling and Compacting.

3.3 ROCK REMOVAL - EXPLOSIVES METHODS

A. If rock is uncovered requiring the explosives method for rock disintegration, notify the Engineer and execute as follows:

B. Advise owners of adjacent building or structures in writing and conduct pre-blast survey of wells and structures on adjacent properties, as applicable.

C. Provide seismographic monitoring during progress of blasting operations or limit charges as prescribed in regulations of the Pennsylvania Department of Environmental Protection.

D. Disintegrate rock and remove from excavation.

1. Conduct blasting operations to avoid injury to persons and property.

2. Use explosive quantity and strength required to break rock approximately to intended lines and grades and yet leave rock in unshattered condition.

3. Cover rock with logs or mats, or both where required.

4. Issue sufficient warning to all persons prior to detonating a charge.

5. Store caps and exploders separately from explosives.

6. Remove all explosives from site at completion of blasting operations.

E. Provide the Engineer with copies of daily blasting Records as prescribed in Chapter 211 *"Storage, Handling and Use of Explosives"*, Section 211.46 of the Pennsylvania Department of Environmental Protection regulations.

F. Repair any damage to structures, walls, paving, etc. resulting from blasting activities to satisfaction of property owners.

G. The Owner reserves the right to prohibit blasting and the right to require that rock be removed by drilling and/or drilling and wedging.

3.4 FIELD QUALITY CONTROL

A. Provide for visual inspection of bearing surfaces and cavities formed by removed rock.

END OF SECTION 02211

SECTION 02221 - TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Cutting paved surfaces.

2. Trench excavation, backfill and compaction.

3. Support of excavation.

4. Pipe bedding requirements.

5. Control of excavated material.

6. Rough grading.

7. Restoration of unpaved surfaces.

B. Related Work specified elsewhere:

1. Section 02300 - Boring, Tunneling and Jacking.

3. Section 02485 - Finish Grading and Seeding.

4. Section 02575 - Paving and Resurfacing.

C. Applicable Standard Details:

1. Pipe embedment and trench backfilling

2. Typical trench width at top of pipe

D. Definitions:

1. Subgrade: Trench or excavation bottom prepared as specified herein to receive pipe bedding, concrete cradle or encasement, or structures.

2. Unclassified Excavation: Excavation of all material encountered including soil, shale, rock, boulders, fill or other material on-site.

3. Rock Excavation: Excavation of solid mineral rock greater than one-half cubic yard in volume requiring, with the Authority’s Engineer's approval, drilling, blasting and wedging for its removal.

4. Pipe Bedding: Placement of material as specified herein for full trench width from the subgrade a minimum of six (6) inches or one-fourth the internal diameter of

the pipe, whichever is greater, below the pipe invert to half-way up the outside diameter of the pipe.

5. Pipe Embedment: Placement of material as specified herein for full trench width from the top of the pipe bedding (halfway up pipe) to a point a minimum of six (6) inches above the pipe.

6. Backfill: Placement of material as specified herein for full width of excavation from the top of the pipe embedment to the ground surface or, in the case of paved areas, to the bottom of replacement base course or paving.

1.2 QUALITY ASSURANCE

A. Testing Agency:

1. Compaction testing shall be performed by a Soils Testing Laboratory engaged and paid for by the Contractor and approved by the Engineer.

B. Reference Standards:

1. Pennsylvania Department of Transportation:

a. Regulations Governing Occupancy of Highways by Utilities (67 PA Code, Chapter 459).

b. Publication 408 Specifications.

c. Pennsylvania Test Method, PTM 106.

d. Pennsylvania Test Method, PTM 402.

e. Publication 203, Work Zone Traffic Control.

2. American Society for Testing and Materials (ASTM):

a. ASTM C33 Specifications for Concrete Aggregates

b. ASTM D698 Tests for Moisture-Density Relations of Soils

c. ASTM D2922 Test for Density of Soil and Soil Aggregate in Place by Nuclear Methods

C. Compaction Testing:

1. Conduct one test for each 50 linear feet of pipeline. Conduct compaction tests at locations as directed by the Authority's Engineer during backfilling operations.

2. Determine compaction in state highways and shoulders by the testing procedure contained in Pennsylvania Test Method PTM 106, Method B or PTM 402.

3. Determine compaction in areas other than state highways and shoulders by the testing procedure contained in ASTM D698 or ASTM D2922.

1.3 SUBMITTALS

A. Certificates:

1. Submit certification attesting that the composition analysis of pipe bedding and select backfill materials meet specification requirements.

2. Submit certified compaction testing results from the soils testing laboratory.

B. Compaction Equipment List:

1. Submit a list of all equipment to be utilized for compacting, including manufacturers' lift thickness limitations.

1.4 JOB CONDITIONS

A. Control of Traffic:

1. Employ traffic control measures in accordance with Pennsylvania Department of Transportation Publication 203, “Work Zone Traffic Control.” Refer to Section 01570 – Traffic Regulation of the Specifications.

2. Comply with all local authorities. Obtain approval of traffic control plan from the Authority and Township prior to start of excavation.

B. Protection of Existing Utilities and Structures:

1. Take all precautions and utilize all facilities required to protect existing utilities and structures. Advise each Utility at least 3 working days in advance of intent to excavate, do demolition work or use explosives and give the location of the job site. Request cooperative steps of the Utility and suggestions for procedures to avoid damage to its lines.

2. Advise each person in physical control of powered equipment or explosives used in excavation or demolition work of the type and location of utility lines at the job site, the Utility assistance to expect, and procedures to follow to prevent damage.

3. Immediately report to the Utility and the Authority any break, leak or other damage to the lines or protective coatings made or discovered during the work and immediately alert the occupants of premises of any emergency created or discovered.

4. Allow free access to Utility personnel at all times for purposes of maintenance, repair and inspection.

5. The Contractor shall be held liable for any damage done by reason of breaking of water, sewer, gas, telephone, electrical, or other utility service. In case, during the course of his work, he shall damage any of the aforementioned utilities, he shall immediately begin to repair the same and send notice to the proper authorities. Whenever the Contractor, during the progress of the excavation shall uncover service pipes or lines, which because of age or injury, are in poor condition, he

shall immediately notify the proper Authority in order that steps may be taken for replacement or repair. To prevent dispute with property owners as to cause of damages, the Contractor shall notify his foreman to carefully note and properly report such damage.

6. Keep all fire hydrants, water valves, gas valves, fire alarm boxes, and letter boxes accessible for use.

PART 2 - PRODUCTS

2.1 PIPE BEDDING MATERIAL

A. Standard Pipe Bedding:

1. AASHTO No. 8 (formerly 1B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

B. Alternate Pipe Bedding only where Approved by the Engineer:

1. AASHTO No. 57 (formerly 2B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

2.2 PIPE EMBEDMENT MATERIAL

A. Standard Pipe Embedment:

1. AASHTO No. 8 crushed stone or gravel aggregate. Do not use slag or cinders.

B. Alternate Pipe Embedment (Only where approved by the Authority's Engineer):

1. AASHTO No. 57 crushed stone or gravel aggregate. Do not use slag or cinders.

2.3 BACKFILL MATERIAL

A. Native Backfill (Not permitted within existing paved road areas):

1. Material excavated from the site if free of stones larger than 6" in size and free of wet, frozen, and organic materials and refuse.

B. Clean Earth Backfill:

1. Material excavated from the trench if free of stones larger than 2" in size and free of wet, frozen, or organic materials and refuse.

C. Select Backfill:

1. Type 2A aggregate shall be limestone or shall demonstrate a weight in pounds per cubic foot equivalent to or greater than limestone.

PART 3 - EXECUTION

3.01 MAINTENANCE AND PROTECTION OF TRAFFIC

A. Coordinate the work with the Authority and the Township to ensure the least inconvenience to traffic and maintain traffic in one or more unobstructed lanes unless closing the roadway is authorized.

B. Maintain access to all streets and private drives by hauling of excavated and backfill materials, if necessary, in suitably covered and leakproof trucks.

C. Provide and maintain signs, flashing warning lights, barricades, markers, and other protective devices as required to conform with construction operations and to keep traffic flowing with minimum restrictions.

D. Comply with state and local codes, permits and regulations.

3.2 STRIPPING

A. The Contractor shall remove all paving, subpaving, curbing, gutters, brick, paving block, granite curbing or flagging, or grub and clear the surface over the area to be excavated and shall properly classify the materials removed, separating them as required. Where pipe trenches underlie permanent resurfacing, the surface material shall be machine cut before excavation is begun.

B. The Contractor shall properly store, guard, and preserve material as may be required for future use in backfilling, surfacing, repaving, etc. All materials which may be removed and all rock, earth, and sand taken from the excavation shall be stored, if practical, in certain parts of the roadway or such other suitable place and in such manner as the Authority shall approve. The Contractor shall be responsible for any loss or damage to the said materials because of careless removal or neglectful or wasteful storage, disposal, or use of these materials.

C. In case more materials are created from any trench that can be backfilled over the completed pipe or stored in the street, leaving space for traffic, the excess material shall be removed to some convenient place provided by the Contractor or as directed by the Authority. The Contractor shall bring back as much of the material so removed as may be required to properly refill the trench, if of the proper kind, or if so directed by the Authority, he shall furnish such other material as may be necessary.

3.3 TEST PITS

A. The Contractor shall excavate test pits at such points and of such dimension and depths as indicated on the Drawings or as the Authority's Engineer may direct. It is understood that the purpose of these test pits is to verify, so far as practical, the location of various subsurface structures or utilities.

3.4 CUTTING PAVED SURFACES

A. Where installation of pipelines, miscellaneous structures, and appurtenances necessitate breaking a paved surface, make saw cuts using a diamond wheel or similar instrument in a

neat uniform fashion forming straight lines parallel with the centerline of the trench. Cut offsets at right angles to the centerline of the trench.

B. Protect edges of cut pavement during excavation to prevent raveling or breaking, square edges prior to pavement replacement.

3.5 TRENCH EXCAVATION

A. Depth of Excavation:

1. Water Mains:

a. Excavate trenches to the minimum depth necessary to place required pipe bedding material as above and to provide a minimum of 4' from the top of the pipe to the finished ground elevation, except where specific depths are otherwise shown on the drawings.

2. Care shall be taken not to excavate below the depths required. Any such excessive excavation shall be refilled with crushed stone and compacted to the satisfaction of the Authority's Engineer.

3. When the material encountered at subgrade is unsuitable and in the opinion of the Authority's Engineer does not afford a sufficiently firm foundation, the Contractor shall excavate to such increased depth as directed. The bottom of the trench shall be brought to the required elevation with crushed stone compacted to the satisfaction of the Engineer.

4. When the pipe is to be laid in fill, the embankment shall be brought to a height of at least nine inches above the proposed top of the pipe before the trench is excavated.

5. If rock below the specified grade is shattered due to excessive drilling or blasting or other negligence of the Contractor, and if in the opinion of the Engineer it is unfit for foundations, such shattered rock shall be removed and the area backfilled to the proper grade with crushed stone.

B. Width of Excavation:

1. Pipe trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench. The trench widths shall be such as to provide a free working space on each side of the pipe as laid, but shall not exceed the outside diameter of the barrel of the pipe plus sixteen inches at a point one foot above the top of the pipe.

2. Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting or shoring as placed.

Whenever, for any reason, the maximum trench width is exceeded, the Contractor may be ordered by the Engineer to encase the pipe in a concrete cradle.

3. For pressure pipeline fittings, excavate trenches to a width that will permit placement of concrete thrust blocks. Provide earth surfaces for thrust blocks that are perpendicular to the direction of thrust and are free of loose or soft material.

4. If the Contractor is required to excavate the trench to a width greater than that specified above, because of slides, caves, obstructions or by reason of the condition and character of the material, he shall refill any cavities so caused with suitable and satisfactory material, including concrete or other masonry if so directed.

C. Length of Open Trench:

1. The Engineer reserves the right to limit the length of distance that a trench may be opened in advance of the pipe laid at all times.

2. Do not advance trenching operations more than 200 feet ahead of completed pipeline, except where approved by the Engineer or otherwise specified in the State Highway Occupancy Permit.

3. Where rock excavation is encountered, all trenches must be opened at least 30 feet in advance of any pipe being laid.

4. If the work is stopped on the whole or any part of the trench and the same is left open for an unreasonable length of time in advance of the construction of the pipe line, the Contractor shall, when directed, refill such trench and he shall not again open the trench or part thereof until he is ready to proceed with construction of the pipe line.

3.6 SUPPORT OF EXCAVATION

A. Support excavations with sheeting, shoring, and bracing or a "trench box" as required to comply with Federal and State laws and codes.

B. Install adequate excavation supports to prevent ground movement or settlement to adjacent structures, pipelines or utilities. Damage due to settlement because of failure to provide support or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor.

C. Withdraw shoring, bracing, and sheeting as backfilling proceeds unless otherwise directed by the Engineer.

D. All voids caused by withdrawal shall be immediately filled with concrete, sand, current ASTM Designation C-33 or other satisfactory material and compacted by ramming or other methods satisfactory to the Engineer.

3.7 CONTROL OF EXCAVATED MATERIAL

A. Keep the ground surface, within a minimum of 2' of both sides of the excavation free of excavated material.

B. Provide temporary barricades to prevent excavated material from encroaching on private property, walks, gutters, and storm drains.

C. Maintain accessibility to all fire hydrants, valve pit covers, valve boxes, curb boxes, fire and police call boxes, and other utility controls at all times. Keep gutters clear or provide other satisfactory facilities for street drainage. Do not obstruct natural water courses. Where necessary, provide temporary channels to allow the flow of water either along or across the site of the work.

D. In areas where pipelines parallel or cross streams, ensure that no material slides, is washed, or dumped into the stream course. Remove cofferdams immediately upon completion of pipeline construction.

E. Conform to all applicable soil erosion and sediment control regulations.

3.8 DEWATERING

A. Keep excavations dry and free of water. Dispose of precipitation and subsurface water clear of the work.

B. Maintain pipe trenches dry until pipe has been jointed, inspected, and backfilled, and concrete work has been completed. Prevent trench water from entering pipelines under construction.

C. Intercept and divert surface drainage away from excavations. Design surface drainage systems so that they do not cause erosion on or off the site, or cause unwanted flow of water.

D. Comply with Federal and State regulations for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

3.9 PIPE BEDDING AND EMBEDMENT

A. Prepare trench bottom as shown on Standard Detail.

B. Place and compact Standard Pipe Bedding of AASHTO No. 8 in accordance with Standard Detail and specifications.

C. Shape bedding recesses for joints and bells to assure pipe is supported on barrel for entire length.

D. Lay pipe as specified in Section 02710 – Piped Utilities - Waterline of these Specifications.

3.10 THRUST RESTRAINT

A. Provide pressure pipe with concrete thrust blocking or use restrained joint fittings at all bends, tees, valves, and changes in direction, in accordance with the Specifications and Standard Details.

3.11 BACKFILLING TRENCHES

A. Unless otherwise directed by the Authority's Engineer, backfilling shall be started immediately after preliminary alignment inspection is made and shall continue without interruption to completion.

B. The satisfactory compaction of all backfills shall be the responsibility of the Contractor regardless of the methods used and he shall protect the Authority from any loss, damage, or claims occasioned by trench settlement.

C. Compaction:

1. From the height of 6" inches above the top of the pipe, the backfill material shall be placed in 6" inch vibrator layers mechanically tamped to obtain maximum compaction.

2. Tamping shall proceed from the center of the trench to the sides to prevent arcing.

3. Backfill shall be compacted to a dry density at least equal to 95 percent of the maximum dry density obtained in the modified reactor tests, ASTM D1557-70.

4. Backfill shall be placed and compacted to within 6 ½ inches of the existing road grad, unless otherwise directed by the Authority. Refer to Section 02575 - Paving and Resurfacing.

D. Open Fields or Grassed Areas:

1. The initial backfill above the pipe embedment shall be a minimum of one foot in depth and shall be filled with clean earth placed in six-inch layers and carefully compacted with pneumatic hand tampers, except in rock where a suitable material approved by the Engineer shall replace the excavated rock. Above this point to a depth of 18 inches below the finished grade, the backfill material may contain small stones not larger than six inches in their greatest dimension in an amount not greater than 20 percent of the volume of backfill and well-distributed throughout the mass. The remaining 18 inches of backfill shall consist of clean earth. Clean earth shall be considered the original material taken from the ditch less any stones, rocks or foreign materials.

2. In open fields or grass areas, the trench shall be mounded as shown on the Standard Details.

E. Streets(State Highways and other than State Highways):

1. The entire depth of trench above the pipe embedment to a point six and one-half (6 ½") inches below the existing surface (two inches if temporary resurfacing is to be used), or as directed by the Authority's Engineer shall be filled with Select Granular Material in conformance with PENNDOT 408 Specifications, Section 703.3. Such backfill shall be placed for the entire width of the trench in six-inch (6") maximum layers and well compacted by approved vibratory compactor, in conformance with Section 601.3(e).

F. Unsuitable Backfill Material:

1. Where the Authority's Engineer deems backfill material to be unsuitable and rejects all or part thereof due to conditions prevailing at the time of construction, remove the unsuitable material and replace with suitable backfill material at Contractor's expense.

3.12 BACKFILLING AND GRADING AROUND STRUCTURES

A. The ground around structures shall be brought to the grades shown on the plans or as directed by the Authority's Engineer. Generally, backfilling shall be made in accordance with the specifications for trench backfilling to open fields or grass areas, except where practical, compacting may be performed by rolling. Grading shall be done by ploughing, harrowing, scraping, or by other methods to bring the ground to the required elevations in preparing the ground for the deposition of the topsoil. When the site has been properly graded to provide drainage, the topsoil shall be placed to a depth of four inches and then harrowed to provide a reasonably smooth surface, ready for seeding. Where compaction is made by rollers, the rollers shall weigh not less than ten tons and shall not be permitted within eight feet of any wall or structure or where, in the opinion of the Engineer, damage may result to existing underground piping.

B. The Contractor shall be responsible for the stability of the fill and shall replace any portion thereof damaged by natural causes, or by careless or negligent work.

C. Sufficient grading shall be done during the progress of the work so that no water is allowed at any time to flow toward the wall or structures or to accumulate in large puddles on the project site.

3.13 DISPOSAL OF EXCAVATED MATERIAL

A. Excavated material remaining after completion of backfilling shall remain the property of the Contractor, removed from the construction area, and disposed of in accordance with Section 01564.

3.14 ROUGH GRADING

A. Rough grade areas disturbed by construction to a uniform finish. Form the bases for terraces, banks, lawns and paved areas.

B. Grade areas to be paved to depths required for placing sub-base and paving materials.

C. Rough grade areas to be top-soiled and seeded to 3" below indicated finish contours.

3.15 FINAL LEVELING AND CLEANUP

A. Whenever the trenches have not been properly filled, or if settlement occurs, they shall be refilled, compacted, leveled, and finally graded to conform to the surface of the ground. Trenches in streets, sidewalks, alleys, etc., shall be refilled with crushed stone, graded as shown on the plans. Trenches in open fields or unpaved plant areas shall be mounded with clean earth to a minimum depth of three inches.

B. As the work is completed, the Contractor shall remove and dispose of all surplus earth, stone, or other material on-site or distant from the work in such manner and at such point or points as he may select or provide, subject to the approval of the Authority's Engineer, and shall leave all roads, sidewalks, and other places free, clear, and in good order.

C. The level of trench fill is to be maintained for a period of one year within dedicated and pre-existing legal roads and right-of-ways.

3.16 DUST CONTROL

A. Where dust or wind erosion is a problem, the unstable surface shall be lightly sprinkled with water or a dust suppressor shall be applied as necessary or as directed by the Authority's Engineer. Care shall be taken so as not to cause any water erosion to the unstable surface.

END OF SECTION 02221

SECTION 02270 – EROSION AND SEDIMENT POLLUTION CONTROL

PART 1 - GENERAL

1.1 DEVELOPER WATER EXTENSIONS

A. The Developer and Developer's Engineer and Contractor assume all responsibility for design and implementation of the Erosion and Sedimentation Control Plan.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

A. Erosion and Sediment and Pollution Control Plan:

1. Conduct soil erosion and sediment pollution control work in accordance with rules, regulations and requirements adopted by the Pennsylvania Department of Environmental Protection (DEP).

2. Detail requirements for the control plan are described in an Erosion and Sediment Pollution Control Program Manual that may be obtained from the Bureau of Soil and Water Conservation, Division of Soil Resources and Erosion Control, Harrisburg, Pennsylvania.

B. Fines and related costs resulting from failure to provide adequate protection against soil erosion and sediment pollution control are the obligation of the Contractor.

C. Erosion and sediment pollution control measures employed will be subject to approval and inspection by the Pennsylvania Department of Environmental Protection and/or County Conservation District.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 02270

SECTION 02300 – TUNNELING, BORING AND JACKING

PART 1 – GENERAL

1.1 RELATED WORK

A. Section 02211 - Rock Removal.

B. Section 02221 - Trenching, Backfilling and Compacting.

C. Section 02710 - Piped Utilities - Waterline.

1.2 QUALITY ASSURANCE

A. Workmen Qualifications:

1. Employ in the work only personnel thoroughly trained and experienced in the skills required.

2. Have welds made only by welders, tackers and welding operators who have been previously qualified by tests as prescribed in the Structural Welding Code AWS D1.1 of the American Welding Society to perform the type of work required.

B. Design Criteria:

1. Provide encasing conduit under highways of sufficient strength to support all superimposed loads, including an American Association of State Highway and Transportation Officials H-20 Loading with 50 percent added for impact.

C. Requirements of Regulatory Agencies:

1. Work of this Section within State Highway right-of-way will be subject to inspection by representatives of the Commonwealth of Pennsylvania Department of Transportation, and the work must be performed in accordance with the requirements of the latest edition of the Commonwealth of Pennsylvania, Pennsylvania Code, Title 67, Transportation, Department of Transportation, Chapter 459, Occupancy of Highways by Utilities.

2. Inspection, insurance or other charges demanded by the Commonwealth of Pennsylvania Department of Transportation, or other authority having jurisdiction shall be paid for by the Developer.

D. Source Quality Control:

1. Shop Tests: In accordance with Article 1.06 of the General Instructions, factory test pipe materials listed in the following. Each pipe manufacturer must have facilities to perform listed test. The Engineer reserves the right to require the manufacturer to perform such additional number of tests as the Engineer may deem necessary to establish the quality of the material offered for use.

a. Smooth steel wall casing pipe conforming to ASTM A-252 Grade 2 or ASTM A-139 Grade B, minimum plate thickness 0.312-inches for 10-inch casing and 0.375-inches for 36-inch casing. Casing shall be uncoated. Minimum yield strength of 35,000 psi.

2. Laboratory Tests: The Engineer reserves the right to require that laboratory tests also be conducted on materials that are shop tested. Furnish labor, materials, and equipment necessary for collecting, packaging, and identifying representative samples of materials to be tested and the shipping of such samples to the Testing Laboratory.

3. Minimum casing diameter will be 36"for main lines.

4. Casing for service laterals will be on a case by case basis. Minimum casing size for service laterals is 10".

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials (H-20): (AASHTO) Loading for Conduits Installed Under Streets, Road, or Highways.

B. American Society for Testing and Materials:

1. ASTM A 53, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

2. ASTM A 123, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

3. ASTM A 139, Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 in. and Over).

4. ASTM A 307, Specification for Carbon Steel Externally Threaded Standard Fasteners.

5. ASTM A 569, Specification for Steel, Carbon (0.15 Maximum Percent, Hot-Rolled Sheet and Strip, Commercial Quality.

6. ASTM A 615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

7. ASTM C 32, Specification for Sewer and Manhole Brick (Made from Clay or Shale).

8. ASTM C 33, Specification for Concrete Aggregates.

9. ASTM C 150, Specification for Portland Cement.

10. ASTM C 270, Specification for Mortar for Unit Masonry.

C. American Welding Society: AWS D1.1 Structural Welding Code.

D. Commonwealth of Pennsylvania Department of Transportation (PDT), Specifications Publication 408, as supplemented.

1. PDT Section 703.2 Coarse Aggregate.

1.4 SUBMITTALS

A. Shop Drawings and Products Data: Furnish completely dimensioned shop drawings, cuts or other data as required to provide a complete description of Products to be installed.

B. Certificates: Certified records or reports of results of shop tests, such records or reports to contain a sworn statement that shop tests have been made as specified.

C. Furnish PennDOT for approval, detail drawings, accompanied by design calculations, for the tunneling shield, tunneling pits, including sheeting and bracing therefore, tunnel liner plate and tunneling procedure and grouting method and all such drawings and computations shall bear the seal of a Registered Professional Engineer.

D. Furnish PennDOT for approval, detail drawings, accompanied by design calculations, for boring or jacking pits including sheeting and bracing therefore, steel pipe and boring or jacking procedure and grouting method and all such drawings and computations shall bear the seal of a Registered Professional Engineer.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Transport, handle and store materials and Products specified herein in a manner recommended by the respective manufacturers of such to prevent damage and defects.

1.6 SITE CONDITIONS

A. Scheduling:

1. Perform tunneling, boring or jacking operations continuously on a 24-hour basis if required by PennDOT or railroad company.

B. Protection: As specified in Section 02221 - Trenching, Backfilling and Compacting and such added requirements included herein.

1. Adequately support and protect utilities and facilities that are encountered in, or may be affected by, the work.

2. Accommodation of Traffic: As specified in Section 01570 – Traffic Regulation.

3. Explosives and Blasting: Not permitted in performance of work of this Section.

4. Excavation Conditions: As specified in Section 02221 - Trenching, Backfilling and Compacting.

5. Excess Materials: As specified in Section 02221 - Trenching, Backfilling and Compacting.

6. Borrow Material: As specified in Section 02221 - Trenching, Backfilling and Compacting.

PART 2 - PRODUCTS

2.1 ENCASING CONDUIT

A. Steel Tunnel Liner Plate: Cold formed, steel, four flanged liner plates.

1. Minimum Inside Neutral Axis Diameter: As shown on the Drawings or as indicated by the Engineer.

2. Minimum Thickness: U.S. Standard Gauge 8, marked on each liner plate by manufacturer.

3. Steel: Structural quality hot rolled carbon steel; ASTM A 569.

4. Provide tapped grout holes and plugs (minimum 1 ½ inch diameter) in every third plate.

5. Hot Dipped Galvanized: ASTM A 123.

6. Nuts and Bolts: Minimum ½ inch diameter, coarse thread, conforming to ASTM A 307, Grade A.

7. Coating: Factory coat inside and outside with asphaltic material to a minimum thickness of 0.05 inch.

8. Acceptable Manufacturers:

a. Armco Drainage and Metal Products, Inc.

b. Republic Steel Corp.

c. Commercial Shearing and Stamping Company.

d. Or equal.

B. Steel Pipe: ASTM A 139, Grade B or ASTM A 53, Grade B:

1. Minimum Diameter for Water Mains: *36" Diameter.*

2. Minimum Wall Thickness: As required by design criteria.

2.2 WATER PIPE AND FITTINGS

A. Class 52 DI: As specified in Section 02710 – Piped Utilities - Waterline.

2.3 MISCELLANEOUS MATERIAL

A. Casing Spacers:

1. Spacers shall be made of Stainless Steel and UHMW polymer plastic runners.

2. Shall be supplied by Advance Products & Systems, Inc., PO Box 53096, Lafayette, LA 70505-3096. 1-318-233-6116.

B. End Seals:

1. 1/8" thick synthetic rubber with S.S. Bands.

2. Model AC Pull on End Seal by Advance Products & Systems, Inc.

C. Aggregate Backfill:

1. AASHTO No. 8 (PennDOT 1B stone) Coarse Aggregate conforming to PDT Section 703.2.

D. Sand: ASTM C 33, fine aggregate.

E. Hold Down Rod: Reinforcement bar, ASTM A 615, Grade 60, deformed.

1. Field coat with Bitumastic No. 300-M as manufactured by Koppers Company, Inc., or equal.

2.4 CONTRACTOR OPTIONS IN PRODUCTS

A. The Contractor may install a larger diameter encasing conduit than is shown on the Drawings, provided that the Contractor has secured the prior written approval of the applicable agencies having jurisdiction. If the Contractor elects to install a larger diameter encasing conduit than is shown on the Drawing, all necessary clearances under the roadways, pipe lines or other structures shall be maintained.

PART 3 – EXECUTION

3.1 INSPECTION

A. Inspect Materials and Products before installing in conformance with the inspection requirements of the appropriate referenced standard.

B. Remove rejected Materials and Products from the Project.

3.2 PREPARATION

B. As specified in Sections 02221 - Trenching, Backfilling and Compacting and 02211 – Rock Removal.

3.3 PERFORMANCE

A. Excavation: As specified in Sections 02221 - Trenching, Backfilling and Compacting and 02211 – Rock Removal and such added requirements included herein:

1. Should the Contractor in constructing any tunneling, boring or jacking pit excavate below the subgrade for the water main, he will be required to backfill the area excavated below the subgrade with Aggregate Backfill or with concrete as required by the Engineer.

B. Tunneling:

1. Tunneling shall conform to the applicable requirements of Section 02221 - Trenching, Backfilling and Compacting and all applicable requirements of PennDOT:

a. Install the tunnel liner plate to the limits indicated on the Drawings or required by the Engineer or PennDOT.

b. Tunneling pits shall be as shown on the Water Detail Drawing entitled "Tunnel Work Pit and Tunnel Liner Plate".

c. Exercise care in trimming the surface of the excavated section in order that the steel liner plates fit snugly against undisturbed material.

d. Do not advance excavation ahead of the previous installed liner plates any more than is necessary for the installation of the succeeding liner plate.

e. Support vertical face of the excavation as necessary to prevent sloughing. Completely bulkhead the heading at any interruption of the tunneling operation.

f. Paint field bolt heads and nuts.

2. Grouting:

a. Place a uniform mixture of grout under pressure behind the liner plate and the undisturbed material.

b. Provide grout holes tapped for no smaller than 1 ½ inch pipe, spaced at approximately 3 feet around the circumference of the tunnel liner plates in every third ring.

c. Start grouting at the lowest hole in each grout panel and proceed upwards simultaneously on both sides of the tunnel.

d. Install a threaded plug in each grout hole as the grouting is completed at that hole.

e. Proceed with grouting as required by the Engineer, but in no event shall more than six linear feet of tunnel be progressed beyond the grouting.

C. Boring:

1. Boring shall conform to the applicable requirements of the regulatory agency and additional requirements specified herein:

a. Install the encasing conduit by the boring method to the limits indicated on the Drawings or such additional limits required by the Engineer or regulatory agency.

b. Excavate and sheet boring pit.

c. Provide devices at the front of the pipe to prevent auger and cutting heads from leading the encasing conduit. Unsupported excavation ahead of pipe is prohibited.

d. Over-cut by cutting head not to exceed the outside diameter of the encasing conduit by more than one-half inch.

e. The use of water or other liquids to facilitate casing placement and spoil removal is prohibited.

f. If voids develop or if bored hole diameter is more than 1 inch greater than the outside diameter of the encasing conduit, place Grout to fill voids.

g. Check conduit alignment in a manner and at times required by Engineer. Check alignment and grade at least once per shift as the work progresses.

h. Completely bulkhead heading at interruptions in boring operation.

i. Completely weld joints around the circumference between sections of steel pipe encasing.

D. Jacking:

1. Jacking shall conform to all applicable requirements of the regulatory agencies and additional requirements specified herein. This operation shall be conducted without hand mining ahead of the pipe and without the use of any type of boring, auguring, or drilling equipment.

a. Install the encasing conduit by the jacking method to the limits indicated on the Drawings or such additional limits required by the Engineer or the regulatory agencies.

b. Preliminary work shall consist of excavating and sheeting an acceptable shaft on the downstream side of the crossing and the installation of a backstop and guide timbers.

c. Design: Bracing and backstops shall be so designed, and jacks of sufficient rating used so that the jacking can be progressed without stoppage except for adding lengths of pipe.

d. Accurately place guide timbers online and grade.

e. Support: The vertical face of the excavation shall be supported as necessary to prevent sloughing.

f. Use poling boards and bulkheads as required if subgrade conditions in the heading are unstable.

g. Jacking and excavation within the pipe shall proceed simultaneously with the ground being cut no more than 2 inches outside the pipe at the top and sides and not less than 2 inches above subgrade at the bottom.

h. The use of water or other liquids to facilitate casing placement and spoil removal is prohibited.

i. If voids develop or if jacked hole diameter is more than 1 inch greater than the outside diameter of the encasing conduit place grout to fill voids in manner approved by the regulatory agencies.

j. Check conduit alignment in a manner and at times required by Engineer. Check alignment and grade at least once per shift as the work progresses.

k. Completely bulkhead heading at interruptions in jacking operation.

l. Completely weld joints around the circumference between sections of steel pipe encasing.

E. Laying and Testing Pipe: Lay and test pipe in encasing conduit as specified in Section 02710 – Piped Utilities - Waterline and such added requirements included herein:

1. Support and maintain the alignment and grade of water piping until the concrete cradle is installed and concrete has cured.

2. Provide concrete cradle as indicated on Detail Drawings.

3. Paint exposed portion of hold down rod if used.

F. Encasing Conduit Filling and Closing: After the water main has been installed in the encasing conduit and has been tested, fill the encasing conduit with sand or AASHTO No. 8 stone. Concrete is not considered acceptable fill material.

1. Close one end of encasing conduit with rubber boot before filling encasing conduit. Close other end of encasing conduit with rubber boot after filling encasing conduit or as operation dictates.

G. Cleanup: As specified in Section 02221 - Trenching, Backfilling and Compacting.

3.4 FIELD QUALITY CONTROL

A. Testing: After laying pipe in encasing conduit and before filling conduit conduct line acceptance testing as specified in Section 02710 – Piped Utilities - Waterline.

END OF SECTION 02300

SECTION 02485 - FINISH GRADING AND SEEDING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work of this section includes, but is not limited to:

1. Placing topsoil.

2. Soil conditioning.

3. Finish grading.

4. Seeding.

5. Maintenance.

B. Restore unpaved surfaces to a condition similar to that prior to excavation as specified and indicated on the Drawings.

C. Seeding and restoration to be in accordance with approved E & S Plan.

1.2 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation Publication 408 Specifications.

2. Pennsylvania Seed Act of 1965, Act 187, as amended.

3. Agricultural Liming Materials Act of 1978, P.L. 15, No. 9 (3P.S. 132-1), as amended.

4. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3P.S. 68.2), as amended.

5. Rules for Testing Seeds of the Association of Official Seed Analysts.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Seed:

1. Deliver seed fully tagged and in separate packages according to species or seed mix. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION 02485

SECTION 02575 - PAVING AND RESURFACING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Temporary Paving.

2. Permanent Paving.

3. Shoulder Restoration.

B. Paving and resurfacing requirements for project roads are as indicated on the resurfacing schedules and miscellaneous details provided on the Standard Details sheets. All paving shall comply with the local ordinances and PennDOT Specifications, where applicable.

C. Related work specified elsewhere:

1. Section 02221 - Trenching, Backfilling and Compacting.

2. Section 03300 - Concrete for Utility Construction.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. Pennsylvania Department of Transportation:

a. Publication 408 Specifications.

b. Publication 27 - Specification for Bituminous Materials (Bulletin 27).

c. Publication 37 - Specification for Bituminous Materials (Bulletin 25).

d. Publication 203 - Work Zone Traffic Control (See Special Conditions - Section 01570 – Traffic Regulation).

e. Chapter 459 - Occupation of Highways by Utilities (See Supplemental General Conditions - Section OHU).

B. South Middleton Township Ordinance No. 02 of 2006.

1.3 SUBMITTALS

A. Certificates:

1. Submit certification from bituminous and aggregate suppliers attesting that materials conform to the state specifications.

1.4 JOB CONDITIONS

A. Control of Traffic:

1. Take measures to control traffic during repaving operations. Do not allow traffic on repaved areas until authorized by the Authority and the Township.

2. Employ traffic control measures in accordance with Publication 203 - "Work Zone Traffic Control."

B. Restore existing paving outside the limits of the work that is damaged by the Contractor's operations to its original condition.

PART 2 - PRODUCTS

2.1 CONCRETE

A. See Section 03300 – Concrete for Utility Construction.

2.2 BITUMINOUS PAVING MATERIALS AND AGGREGATES

A. Refer to Publication 408 Specifications and Township Ordinance No. 02 of 2006. All bituminous materials and aggregates used in paving and resurfacing are designated in these Specifications by and shall conform to the applicable portions of the Publication 408 Specifications and Township Ordinance No. 02 of 2006.

PART 3 - EXECUTION

3.1 WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY

A. Inspection: If throughout the progress of the work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation (PennDOT) to post field inspectors on that portion of the project within their right-of-way, the Developer shall reimburse PennDOT for the cost of the inspection so applied.

B. Blasting if necessary: All blasting shall be conducted in accordance with applicable PennDOT, state and local regulations.

C. Detour: If a state highway detour is required, application must be made to District Office Traffic Unit and approval received for rerouting traffic before detour is put into effect.

3.2 TEMPORARY PAVING

A. Place 3" compacted thickness temporary paving immediately upon completion of trench backfilling.

B. Shape and compact subgrade material, then place and compact crushed stone base course to the required thickness.

C. Place temporary paving material. Compact to 3” minimum thickness with trench roller having minimum 300 pounds per inch-width of compaction roll.

D. Continuously maintain temporary paving to the satisfaction of the Township’s Engineer and the state and local road departments. Temporary paving on state roads must remain in place for a minimum of ninety (90) days. On Township roads, permanent restoration must be completed within thirty (30) days after substantial completion of piping work, unless otherwise approved by the Township Engineer.

3.3 PERMANENT PAVING

A. The Authority and/or Township reserve the right to delete any and all permanent paving from the Contract.

B. Saw cut back 12” from the limit of the trench using a diamond wheel or similar instrument. Cut straight joint lines and right angle offsets.

C. Remove temporary paving material. Construct permanent base and surface courses to the required compacted thicknesses shown on the standard details and in accordance with Publication 408 Specifications and Township Ordinance No. 02 of 2006.

D. Maintain permanent paving to the satisfaction of the Authority and the local and state road departments throughout the contract maintenance period.

3.4 BITUMINOUS OVERLAY

A. Where indicated on the Drawings, standard details, Surface Restoration Tables or directed by PennDOT, the Authority Engineer or Township, place a bituminous overlay.

B. Construct in accordance with Section 401.3, Publication 408 Specifications.

3.5 PAVED SHOULDER RESTORATION

A. At the expiration of the appropriate time period, unless otherwise directed by the Pennsylvania Department of Transportation or the Township Engineer, the temporary restoration and the compacted trench fill shall be removed to a minimum depth of six and one-half inches (6 ½”) below the surface of the roadway. A Super Pave base course with a minimum depth of five inches (5") shall be constructed and shall be topped with one-and-one-half inch (1½”) minimum of Super Pave wearing course.

B. All Paved Shoulder Restoration shall be in accordance with the Pennsylvania Department of Transportation, Form 408.

C. All edges of the existing roadway surface disturbed during construction shall be cut in a straight line. Cutting of edges shall be done prior to placing of the wearing surface and shall be as directed by the Pennsylvania Department of Transportation on state roads and Township Ordinance No. 02 of 2006 on Township roads.

3.6 BITUMINOUS TACK COAT

A. Bituminous Tack Coat shall conform to PennDOT Form 408 for materials and construction requirements, including all revisions.

B. Bituminous Tack Coat shall be applied on the surface of the base course prior to the construction of a bituminous binder course and/or bituminous wearing course.

3.7 SCRATCH COAT

A. Scratch Coat or leveling course placement shall consist of Super Pave wearing course and shall be placed on a roadway where it is necessary to remove any irregularities, at the locations and depth as determined by PennDOT or the Township Engineer.

3.08 MILLING OF ROADWAY

A. Paving shall be removed to a depth below the roadway surface to allow construction of the specified pavement course. Milling shall be performed to a depth as shown on the "Construction Details" and in accordance with requirements of PennDOT Publication 408, Specifications, current edition.

B. Prior to Milling, all edges of existing roadway surface that are to be disturbed shall be cut or sawed in a straight line with a diamond wheel or similar instrument, as directed by the Authority Engineer.

3.09 SEAMS

A. When the road surface is disturbed all seams shall be sealed with PG 64-22 in accordance with PennDOT Form 408.

3.10 PAINT IDENTIFICATION

A. Upon completion of temporary and permanent resurfacing, the resurfacing date shall be painted on the pavement immediately adjacent to the cut. The painted date shall indicate the month and year numerically. The numerals shall be at least six inches in height. The paint shall be of a durable wearing quality and shall be green in color.

B. All new pavement shall be re-striped by the Contractor where previously painted. All traffic lines and markers shall be in accordance with applicable requirements of PennDOT Publication 408, current edition.

3.11 DRIVEWAYS

A. Trim concrete and bituminous driveway surfaces to removed damaged areas. Saw cut straight joint lines parallel to the centerline of the trench. Cut offsets at right angles to the trench centerline.

B. Restore existing concrete driveways trenched through with a 6” layer of concrete reinforced with 6 X 6 10/10 wire mesh.

C. Restore existing blacktop driveways trenched through in kind or with minimum 1 ½” layer wearing course over 6” layer of 2A aggregate.

D. Restore earth driveways with a 6” layer of 2A stone backfill.

E. Restore stone or gravel driveways in kind.

END OF SECTION

SECTION 02710 - PIPED UTILITIES- WATERLINE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Piping and Fittings.

2. Valves, Tapping Sleeves and Valves.

3. Specials.

4. Meters Pits, Meters and Accessories.

5. Air Release Valves.

6. Pressure Reducing Valves.

7. Service Connections.

1.3 QUALITY ASSURANCE

A. Piping, valves, and specials specified herein shall be essentially the standard products of manufacturers who have been regularly engaged in the successful production of high quality materials of this type for at least ten years.

B. Repair or replace defective piping or specials.

C. Pressure Tests:

1. All completed pipe shall be tested for leakage between valves or bulkheads.

2. Piping shall hold the test pressure for 2 hours without pumping. Repair any visible leaks.

3. Hydrostatic pressure tests shall not be made until at least seven (7) days after concrete thrust blocks are installed. The Contractor, at his option and expense, may use high early strength concrete for thrust blocks in which case hydrostatic pressure tests shall not be made until at least three (3) days have elapsed.

4. The section of water main being tested shall be filled with water a minimum of 24 hours before the main is tested. The Contractor shall insure that air is expelled from the pipeline in accordance with AWWA C-600, Section 4.1.3. Any taps necessary to release air or water from the main during testing shall be made at the

Contractor's expense. Taps not required for proposed services shall then be plugged.

5. After the pipeline has been filled with water for 24 hours, the Contractor shall conduct a hydrostatic or pressure test. Each section of water main shall be tested at a minimum of 150 psi or 1 1/2 times the working pressure measured at the low point of the section of main being tested. The Contractor shall not employ a test pressure, which exceeds the allowable pressure of any installed pipe, valve, or appurtenance.

D. Leakage Tests:

1. The leakage test shall be in accordance with AWWA C-600, Section 4.1, except that the Contractor shall provide an approved means for measuring the leakage. The leakage test may be conducted at the same time as the pressure test, provided leakage is suitably measured during the pressure test and a two (2) hour record is kept of water added to the pipeline.

2. All testing must be witnessed by Owner's representative. Documentation of all testing must be submitted to Owner.

1.4 SUBMITTALS

A. Submit shop drawings or catalog cuts, as appropriate, for materials listed under Article 2.1 of this Section. Submit only those materials that are actually to be used in the work. These will usually be as follows:

1. Ductile iron pipe and fittings.

2. Copper tubing and fittings.

3. PE Tubing

4. Gate valves and valve boxes.

5. Tapping sleeves and valves.

6. Fire hydrants.

7. Curb stops and boxes.

8. Detection tape.

9. Water meters, meter pits and accessories.

B. Submit manufacturer's Certification of Compliance in accordance with Section 01300 - Submittals.

C. Make submittals prior to start of construction. Make submittals to Engineer.

D. For each development and / or water line extension, the developer will provide the Authority with:

1. One (1) Hydrant wrench.

2. One (1) Valve wrench a minimum of 7’ in length.

3. One (1) Curb stop key.

4. One (1) Curb box top key.

5. One (1) Meter pit key (if meter pits are located within the project).

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle the piping, valves and specials in accordance with requirements specified in Division 1, the manufacturer's recommendations, and as supplemented herein.

B. Pipe and related materials shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such material be dropped or skidded against piping already on the ground.

C. Pipe and related materials shall at all times be handled with care to avoid damage. The interior shall be kept free from dirt and foreign matter. All pipe, valves and appurtenances shall be carefully lowered or raised into place, with suitable equipment in a manner that will prevent damage to the material. Under no circumstances shall pipe or accessories be dropped or dumped.

D. Pipe, pipe linings, fittings, valves, fire hydrants and all related materials shall be thoroughly inspected for defects prior to their being installed. Any defective, damaged, or unsound material, as determined by the Owner, shall be repaired or replaced as directed at no additional cost to the Owner.

E. All lumps, blisters and excess coating shall be removed from the ends of each pipe. The joints shall be wire brushed and wiped clean, and dry and free from oil and grease before the pipe is installed.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. Ductile iron pipe:

1. Pipe:

a. Ductile iron pipe shall be centrifugally cast, annealed ductile iron manufactured in accordance with ANSI A21.51.

b. Pipe joints shall be push-on or mechanical joint with retainer glands and shall conform to ANSI specification A21.11. Furnish joints with all required accessories. Number of joints to be restrained shall be determined

by the pipe manufacturer for the conditions encountered (minimum of four (4) joints on each side of the fitting and/or bend shall be restrained). Restrained joint pipe shall be as manufactured by U. S. Pipe, Clow, Griffin, American or approved equal. The use of mechanical joint pipe with retainer glands may also be used.

c. Mega lugs shall also be provided at each fitting and/or bend.

d. Furnish Class 52 pipe.

e. Gaskets for restrained joints shall be Field Lok 350 gaskets as manufactured by U. S. Pipe or approved equal.

2. Fittings:

a. Furnish fittings in accordance with ANSI 21.10 250 psi rating.

b. Joints shall be push-on or mechanical joint with retainer glands in accordance with ANSI A21.11. Furnish joints with required accessories.

c. If restrained joint pipe is furnished, furnish fittings of the same type and manufacturer as pipe furnished.

d. Compact fittings may be used.

3. Cement and Mortar Lining:

a. Cement and Mortar line all pipe and fittings in accordance with ANSI A21.4.

b. Paint seal coat in accordance with ANSI A21.4.

4. Tar Coat exterior of ductile iron pipe and fittings.

5. Furnish gaskets in accordance with ANSI A21.11.

B. Copper Tubing. (To be used to repair existing copper services)

1. Tubing: ASTM B88 Type K Annealed.

2. Joints: Compression.

3. Fittings: Cast copper alloy compression tube fittings.

4. Manufacturer (no substitutes allowed):

a. Ford.

b. Mueller.

C. PE Water Service Tubing:

1. Tubing: SDR 9, CTS, NSF Standards 14 and 61, AWWA C901 or C904. All services shall be 1-inch diameter.

2. Joints: Compression.

3. Fittings: Cast copper alloy compression tube fittings.

4. Tubing Manufacturer:

a. ADS.

b. Rehau.

c. Or approved equal.

5. Fittings Manufacturer (no substitutes allowed):

a. Ford.

2.2 VALVES AND SPECIALS

A. Gate Valves 4-12 inches in diameter.

1. Gate valves shall be resilient seated meeting or exceeding AWWA C509. Gate valves shall have mechanical joint ends and be equipped with a 2-inch operating nut and be suitable for buried applications. Valves shall open when turned to the left. Valve shall have fusion-bond epoxy coating on the inside and outside of the valve. The valve shall be as manufactured by American Darling or approved equal.

B. Tapping sleeves and valves.

1. The Contractor shall verify the type of existing pipe and the outside diameter of pipe on which the tapping sleeve is to be installed. The tapping sleeve shall have bell or caulked type ends. The sleeves shall be made in two halves, which can be assembled and bolted around the main. Gaskets shall extend the entire length of the sleeve to form a watertight joint when the side bolts are properly tightened.

2. The tapping valves shall have flanged inlets with mechanical joint outlets. All valves shall be vertical iron body, bronze mounted, inside screw valves with 2-inch operating nuts, and resilient seated. The valve shall open to the left and shall be fitted with O-ring seals. Furnish valve with bypass on valves 16" and greater. The tapping valves shall conform to the applicable sections of AWWA Standard C500.

3. The Contractor shall furnish manufacturer's certified shop drawings. In addition, the manufacturer shall furnish an affidavit that the tapping valves furnished comply with all applicable provisions of AWWA Standard C500.

4. The interior surface of each valve shall receive two coats of Asphaltic Varnish in accordance with Federal Specification TT-V-51C.

5. The exterior surface of each valve shall receive two coats of bituminous coating in accordance with AWWA Specifications.

6. Manufacturer (No Substitutes Allowed):

   a. Mueller.

   b. American Darling.

   c. U.S. Pipe.

   d. Clow.

C. Mechanical Couplings:

1. General: Steel mechanical couplings of the gasketed, sleeve type shall be furnished and installed as required. The coupling shall be of the proper diameter to make a tight joint. The coupling shall not have stops. All couplings shall be for 150 psi working pressure.

2. Material: Each coupling shall consist of one middle ring of a thickness and length suitable for the proposed application and test pressures; two followers; two rubber compounded wedge section gaskets and sufficient trackhead bolts to properly compress the gaskets.

3. Manufacturer:

   a. American Darling.

   b. Mueller.

D. Valves Boxes:

1. All valves buried in the ground where applicable shall be provided with cast iron extension type valve boxes of the roadway type.

2. The valve boxes shall be of three-piece construction and shall be of the screw type.

3. The valve boxes shall have a 5¼-inch shaft and shall be furnished with covers.

4. The valve boxes shall be hot coated inside and out with a tar or asphalt compound.

5. Acceptable Manufacturers:

   a. Bingham and Taylor, Culpepper, VA.

   b. BIBBY-STE-CROIX Foundries, Inc., PA.

   c. Approved equal.

6. Valve boxes shall be equipped with a valve box alignment saddle as manufactured by:

   a. Trumbull.

   b. Box Lok.

   c. Or approved equal.

E. Meter Pit and Accessories:

1. Meter pit shall be purchased from the Authority.

F. Copper Service Connector and Stops:

1. Service saddles: Design to conform to AWWA C100.

   a. Saddle shall be Ford Double Strap Model# F202-979-107. (Only to be used when directed by the Owner.)

2. Corporation stop: Design to conform to AWWA C800. All bronze construction, key operated, with gasket and eighth bend coupling. All corporations shall be compression fitted type.

   a. Manufacturer (no substitutes allowed):

      (1) Ford.

3. Curb stop and box: Design to AWWA C800:

   a. All bronze construction inverted key stop.

   b. Box: Adjustable screw type, arch pattern, locking lid.

4. Manufacturer (no substitutes allowed):

   a. Curb Stop to be Ford B44-444-G.

   b. Curb Box to be Tyler Union.

5. All curb boxes shall have an alignment device as manufactured by Vadle Industries or approved equal.

G. Fire Hydrants:

1. Fire hydrants shall be compression type with 5¼-inch main valve, and a 6-inch mechanical joint inlet.

2. The hydrant shall have two 2½-inch hose nozzles, and one unpainted 4½-inch Storz pumper nozzle, complete with nozzle cap chains.

3. The hydrant shall be traffic type with breakable safety flange and stem coupling and shall open counter clockwise.

4. The hydrant shall have a hexagonal operating nut and shall be provided with National Standard Threads on the hose and a Storz connection on the pumper nozzle.

5. Hydrants shall conform to AWWA C502 and shall be leakproof at the design pressure.

6. Hydrant shall be, yellow, traffic type, as manufactured by American-Darling Valve and Manufacturing Model B-62-B or Mueller Super Centurion 250 A-423. Storz nozzle to be unpainted. Hydrants that are to remain private are to be of the above model(s) but be painted red.

H. Detection Tape and Detection Cable:

1. Detectable marking tape shall be 5 mil overall thickness, aluminum center core with permanent printing under a mylar layer. Minimum width will be 6-inches. Tape shall be color coded and stamped according to its application.

2. Non-Detectable marking tape shall be 4 mil overall thickness, with permanent printing under a mylar layer. Minimum width will be 4-inches. Tape shall be color coded and stamped according to its application.

3. Manufacturer will be Omega Marking Company or approved equal.

4. Detection cable shall 12 gage multi-strand stainless steel cable. Location boxes will be placed every 450 feet or as shown on the contract drawings.

5. Detection cable splices and connections to service locator cables shall be made with waterproof connectors and wrapped with electrical tape to secure the connection.

I. Air Release/ Vacuum Valve:

1. The air release valve shall close drop tight, incorporating an adjustable Buna-N orifice button. All internal metal parts shall be of stainless steel. The float shall be of stainless steel and be capable of withstanding a test pressure of 1,000 PSIG. The linkage/lever mechanism shall be able to be removed from the valve without disassembly of the mechanism, and shall be designed to prevent jamming.

2. The body and cover shall be cast iron conforming to ASTM A126, Class B, and shall be designed to withstand a test pressure of 450 PSIG. (Operating pressure 250 psi).

3. The air release valve shall be as manufactured by GA, APCO or Valve Matic.

J. Double Check Valves and Reduced Pressure Zone Backflow Preventors:

1. Acceptable manufacturers Wilkins and Watts.

2. Type of valve shall be approved by the Engineer.

K. Miscellaneous Valves and Specials:

1. Lever operated ball valves shall be bronze suitable for 225 pounds services. Valves shall be one piece body design, blowout proof stem, reinforced Teflon seats and seals, threaded ends and lever operated. Valve shall be manufactured by Stockham, NIBCO or Crane.

2. Pressure Gauges shall be 4½-inch dial size, with range suitable for line pressure. Valves shall be furnished with shut-off valve and diaphragm seals to protect gauges from surges and solids. Gauges shall be as manufactured by the Mueller Brass Company, Lukenhiemer, Stockham or Crane.

3. Meter pit valves shall be Ford Ball Meter Valves with locking caps up to 2" in size. If greater than 2" in size, the valves shall be a gate valve with a hand wheel operator.

L. Water Meters:

1. To be purchased from the Authority.

PART 3 - EXECUTION

3.1 LAYING PIPE

A. General:

1. Following trench excavation, pipe laying shall proceed upgrade with pipe laid carefully, hubs upgrade, spigot ends fully centered into adjacent hubs, and true lines and grades given.

2. Each section of pipe shall rest upon the pipe bed for the full length of its barrel, with recesses excavated to accommodate bells and joints. Each pipe shall be firmly held in position so that the invert forms a continuous grade with the invert of the pipe previously placed.

3. Under no conditions shall pipe be laid in water, on subgrade containing frost, and/or when trench conditions are unsuitable for such work. In all cases, water shall be kept out of the trench until concrete cradles, supports, encasement, or saddles, where used, and materials in the joints have hardened.

4. Any pipe that has its grade or joint disturbed after laying shall be taken up and relaid. Any section of pipe already laid and found to be defective shall be taken up and replaced with new pipe without expenses to the Owner.

5. Walking or working on top of the completed pipeline, except as may be necessary in backfilling or tamping, shall not be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the pipeline.

6. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by watertight plug.

7. Every precaution must be taken to ensure that foreign materials are kept from entering the pipe, both while it is setting above ground and especially while it is being installed. At no time should any debris, tools, rags, or any other material, be placed inside the pipe or fittings. If pipes are dirty from sitting, or from transport, they must be washed and swabbed out before being installed.

8. Pipe shall be laid with bell ends facing the direction of laying, unless otherwise shown on the drawings. Before placing the pipe in the trench the pipe should be inspected for any dirt or foreign debris. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and the pipe forced home and brought to the correct line and grade. The pipe may never be forced home by putting a piece of equipment on the bell end of the pipe.

9. Water services are to be installed with sand bedding and a minimum of six (6) inches of sand over the service prior to backfilling. Sleeve services, in a 3" PVC sleeve, under sidewalks and curb line utilities.

10. All water mains shall be a minimum of four (4) feet in depth as measured from the top of pipe.

B. Ductile Iron Pipe shall be installed in accordance with AWWA A600 and as follows:

1. Push-on Type Joints:

a. The inside of the bell and the outside of the spigot end shall be thoroughly cleaned to remove oil, grit, excess coating, and other foreign matter. These parts shall be kept clean throughout assembly at the joint.

b. The circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket. Care shall be taken to ensure that the gasket is properly seated.

c. A minimum amount of lubricant shall be evenly applied to the spigot end with a brush. Gasket lubricant shall be as supplied by the manufacturer.

d. The spigot end shall be properly centered and force applied, using a ratchet jack-type tool or a roller chain-type ratchet jack, until the white stripe at the spigot end is just visible at the face of the bell. Any required deflection shall be made only after the joint assembly has been made.

e. Proper positioning of the gasket shall be checked with a "feeler" gauge after each joint is made.

f. The edges of "field cut" pipe shall be touched up with a file or grinder so as to remove rough edges and facilitate assembly.

2. Mechanical Joints:

a. Thoroughly clean the bell and the spigot end of the pipe of all foreign matter and wash them with soapy water.

b. Slip the gland and gasket over the plain end and seat the spigot end in the bell (the small end of the gasket and the lip on the gland shall face the bell).

c. Push gasket into position with fingers, making sure it is evenly seated.

d. Move gland into position for bolting, insert bolts and make all nuts finger-tight, keeping the spigot centrally located within the bell.

e. Bolts shall be tightened in accordance with the Manufacturer's written instructions.

f. If effective sealing is not obtained at the maximum torque indicated by manufacturer's instructions, the joint must be disassembled and reassembled after thorough cleaning. Under no circumstances are bolts to be over stressed.

g. After joint is completed, tighten retainer gland in place in accordance with the manufacturer's instructions.

3. Mechanically Coupled Joints. Mechanical couplings shall be installed in strict accordance with the manufacturer's instructions, and in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting, and settlement. The required torque ranges for the joint harness shall be as specified by the pipe manufacturer.

C. Copper Pipe:

1. Install in accordance with the manufacturer's written instructions and details on the drawings.

2. All copper water services shall be bedded in sand and a minimum of six (6) inches of sand over top of the copper piping.

3.2 SETTING VALVES AND VALVE BOXES

A. All valves shall be provided with a valve box or precast concrete valve manhole as detailed on the Drawings.

B. Unless otherwise directed by the Engineer, all valves shall be set with their stems truly vertical.

C. The tops of the valve box shall be set neatly to the grade of the surface of the existing ground, unless directed otherwise by the Engineer.

D. The valve box shall not transfer shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve.

3.3 CONNECTIONS TO EXISTING WATER MAIN

A. Connections shall be made to existing water mains as required or as directed by Engineer. These connections shall be made in strict accordance with the requirements set forth by the South Middleton Municipal Authority and as specified hereinafter.

B. General:

1. The Contractor shall take special precautions so as not to disturb in any way the functional operation of the existing water mains, except on a preplanned scheduled basis, the time and date of which will be established in advance with the Engineer and Owner.

2. The Contractor shall at no time operate water valves in the existing water system without the presence of a duly qualified representative of the Owner.

3. If an existing water main is damaged, service shall be restored promptly, and Contractor will be billed for the expense.

4. All preparatory work must be totally finished one day before a shutdown will be scheduled. All work requiring a shutdown, once started, must be worked on continuously until all service is restored.

5. Methods used to complete the work must minimize the duration of the shutdown. Should the owner determine that a shutdown would be detrimental to service for existing customers, owner may require an alternate piping or tie-in arrangement to preclude the need for a shutdown.

C. Schedule of Work:

1. In locations where new mains are to be connected to existing mains, the Contractor will not be permitted to proceed with the construction of the connection until he has dug test pits, and determined the exact location, elevation, and type of the existing pipe and its outside diameter. The Contractor is reminded that older pipe may vary in roundness and outside diameter and consider this factor in ordering materials for the connection. The cost of excavating, maintaining, and backfilling test pits shall be considered incidental to the work, and no separate payment will be made. Pits shall be protected and backfilled, if required, by the Contractor.

2. If the conditions and geometry of the connection warrant, as determined by data obtained from the excavation of the test pits, the Contractor shall order any necessary additional materials.

3. The Contractor shall notify the Owner at least 5 days in advance of the time he proposes to install the connection and shall establish with the Owner the procedures to be followed in installing the connection, including the day and time of the proposed shutdown, and establish a new date and time for the shutdown, based on the Owner's knowledge of system conditions. The Contractor is hereby warned that the Owner reserves the right to require that any particular connection be made at night or on a Sunday.

4. Before the start of the installation of a connection, the Contractor shall do as much work in advance as practicable prior to actually shutting down the main, and shall have all necessary tools, equipment, materials, and labor on hand at the start of the work.

5. Once the existing main is cut, work shall be continuous until service is restored.

6. Retainer glands or other types of restrained joints, and tie rods and clamps shall be used to the maximum extent possible, in lieu of concrete thrust blocks when installing connections, unless shown otherwise on the Drawings. If it is necessary to use concrete thrust blocks, the high early strength cement-concrete shall be used.

3.4 CONCRETE FOUNDATIONS

A. Where required by the ENGINEER, pipe shall be placed on a formed concrete cradle, or unformed concrete shall be placed around pipe for bedding and encasement.

B. Concrete cradles shall consist of structures requiring forms and be composed of concrete, built-in trenches to support pipes, and to the dimensions shown on the Detail Drawings.

C. Concrete bedding and encasement shall be composed of concrete placed in trenches, without forms as pipe bedding, or encased around pipe, to the dimensions and in the locations indicated on the Detail Drawings.

3.5 REACTION BACKINGS

A. Concrete reaction backings shall be provided for all bends/elbows, both horizontal and vertical, for the waterline piping. Concrete shall be Class A in accordance with PennDOT Form 408.

3.6 DISINFECTION:

A. New water mains shall be disinfected in accordance with AWWA C651, using calcium hypochlorite tablets in accordance with Section 5.1 tablet method of AWWA C651. Mains after chlorination shall be flushed and tested in accordance with Sections 6 and 7 respectively of the standard.

B. It is preferred that the chlorination process be completed prior to the water main being tapped for service line connections. If services from the main to the curb stop are to be installed before chlorination, the water mains must have previously passed hydrostatic pressure testing and each water service line shall be visually checked for leakage prior to backfill. At no time shall customer side service lines be connected to the curb stop before the main has been thoroughly sterilized and passed water quality testing.

3.7 WATERLINE SERVICE INSTALLED

A. Service lines are to be installed as indicated on the Drawings or as directed by Engineer. Provide new curb box, curb stop, etc. as indicated or as directed by Engineer.

B. All water service lines shall be bedded and covered with sand as indicated in the detail drawings.

C. All curb boxes to have an alignment device as manufactured by Vadle (or approved equal), installed.

3.8 INSTALLING FIRE HYDRANTS

A. Fire hydrants are to be installed at a location approved in writing by the local Municipality. Ideal locations for fire hydrants are on property lines. Hydrants are to be installed with the steamer nozzle cap fifteen (15) inches behind the face of the curb or as otherwise directed by the Engineer or Owner. All hydrants are to be installed with six (6) inch Pressure Class 350 cement lined ductile pipe, and a six (6) inch mechanical joint resilient seat valve attached to a fire hydrant tee or tapping sleeve. All buried elements of fire hydrant assemblies shall be encased in polyethylene wrap.

B. Where possible the fire hydrant lead should be one straight run of pipe with no additional joints other than the mechanical joint at the hydrant. All joints should be restrained with retaining rings for mechanical joints and field-lok gaskets for push-on joints.

C. The fire hydrant base should be blocked against un-disturbed earth with concrete. All hydrant leads are to be installed at four (4) feet of cover so that a four (4) foot six (6) inch hydrant will be used behind the curb. The Safety flange should be buried up to the bury line that is marked on the hydrant. If there is an obstruction which causes the hydrant lead to be deeper than four (4) feet an offset should be used to bring the lead back to four (4) feet of cover so an extension will not have to be installed on the hydrant. If offsets are needed, they should be restrained and blocked according to the main installation specifications.

D. The trench must be dug six (6) inches deeper than the bottom of the pipe, filled with suitable bedding material and tamped to bring the trench back to the required depth. The bottom of the trench should be hand leveled to insure a good bed for the pipe. A hydrant should be set on a flat piece of` concrete block to keep it from settling. When the hydrant is blocked with concrete care must be taken to ensure the drain holes are not clogged with concrete. The area around the hydrant base must then be back-filled with clean 3/4 inch stone at least to one (1) foot above the drain holes and a minimum of 1/3 cubic yards, and covered with a heavy mil plastic cover to prevent dirt from encasing the drain holes and to insure proper drainage. The hydrant trench must then be back-filled in six (6) inch layers and mechanically tamped until it is brought up to the finished grade.

E. Sufficient time must be allowed for the concrete blocking to set up before the hydrant is placed into service.

F. Hydrants must be covered with a black plastic bag until it has been placed in service to warn that the hydrant is not usable.

END OF SECTION 02710

SECTION 03300 - CONCRETE FOR UTILITY CONSTRUCTION

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Cast-in-place cement concrete construction.

2. Reaction and support blocking.

3. Cradles and encasement.

B. Related Work Specified Elsewhere:

1. Section 02221 - Trenching, Backfilling & Compaction.

2. Section 02575 - Paving and Resurfacing.

C. Applicable Standard Details:

1. Concrete Encasement.

2. Concrete Cradle.

3. Thrust Blocks.

4. Concrete Pipe Anchor.

5. Stream Crossing.

1.2 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation:

a. Publication 408 Specifications.

2. American Society for Testing and Materials (ASTM):

a. C31 Making and Curing Concrete Test Specimens in the Field.

b. C39 Test for Compressive Strength of Cylindrical Concrete Specimens.

c. C42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.

d. C172 Sampling Fresh Concrete.

1.3 SUBMITTALS

A. Certificates:

1. Submit certification from the concrete producer attesting that the cement concrete conforms to Section 704, Publication 408 Specifications for the class of concrete being used.

2. Submit certified results of compressive strength tests performed by an independent testing laboratory.

B. Shop Drawings:

1. Submit detailed shop drawings of reinforcing steel.

PART 2 – PRODUCTS

2.1 CEMENT CONCRETE

A. Ready-mixed, conforming to Section 704, Publication 408 Specifications.

1. Requirements for state approved batch plants, design computations and plant inspection shall not apply. The acceptability of concrete will be based on conformance with the cement concrete criteria specified blow and the results of the specified tests.

B. Cement Concrete Criteria:

1. Class A:

a. 28-day compressive strength: 3300 psi.

b. Slump: 1 to 3 inches.

2. Class C:

a. 28-day compressive strength: 2000 psi.

b. Slump: 2 to 6 inches.

3. High Early Strength:

a. 3-day compressive strength: 3000 psi.

b. Slump: 1 to 3 inches.

4. Cement factor and maximum water-cement ratio conforming to Table A. Section 704.1(b), Publication 408 Specifications.

2.2 REINFORCEMENT STEEL

A. Reinforcement Bars:

1. New billet-steel conforming to Section 709.1, Publication 408 Specifications.

2. Deformed, Grade 40.

B. Steel Wire Fabric:

1. Conforming to Section 709.3, Publication 408 Specifications.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Comply with Section 1001, Publication 408 Specifications for construction requirements including formwork, curing, protection and finishing of cement concrete.

B. Excavate and shape trench bottoms and sides to accommodate thrust block forms, encasement, manhole bases, inlets and vaults.

C. Support pipe, valves and fittings at the required elevation with brick or concrete block. Do not use earth, rock, wood or organic material as supports.

D. Construct manhole bases, reaction and support blocking, cradles, encasements, and miscellaneous mass concrete of Class C concrete.

E. Construct cast-in-place vaults, inlets, endwalls, curbs, sidewalks and miscellaneous reinforced structures of Class A concrete.

F. Construct reinforced and plain cement concrete pavements and base courses of High Early Strength concrete as specified in Section 02575 - Paving and Resurfacing.

G. Provide spacers, chairs, bolsters, ties and other devices for properly placing, spacing, supporting and fastening reinforcement in place.

H. Place concrete utilizing all possible care to prevent displacement of pipe or fittings. Return displaced pipe or fittings to line and grade immediately.

I. Ensure tie rods, nuts, bolts and flanges are free and clear of concrete.

J. Do not backfill structures until concrete has achieved its initial set, forms are removed, and concrete work is inspected by the Engineer.

K. Perform backfilling and compaction as specified in Section 02221 - Trenching, Backfilling and Compacting.

3.2 FIELD TESTS OF CONCRETE DURING CONSTRUCTION

A. Test each 50 cubic yards or fraction thereof of each class of concrete for compressive strength. Retain an independent testing laboratory to test cylinders.

1. Sample concrete in accordance with ASTM C172.

2. Prepare and cure two test cylinders in accordance with ASTM C31.

3. Test cylinders in accordance with ASTM C39.

B. If test cylinders fail to meet strength requirements, the Engineer may require additional core tests in accordance with ASTM C42.

END OF SECTION 03300

POLICIES FOR WATER MAIN EXTENSIONS

1. All mains shall be extended at the sole expense of the person or persons requesting such extension.

2. All mains shall be extended to the furthermost property lines of the person or persons requesting such extension. The only exception shall be where lines cannot be further extended, as determined by the Authority, or as directed by South Middleton Township.

3. The size and location of the mains shall be determined by the Authority's Engineer so as to comply with the Authority's long-range facilities plan. To the greatest extent possible all mains shall be placed within the road or road rights-of-way, unless otherwise directed by South Middleton Township.

4. Prior to the commencement of review of a subdivision or land development plan, the Developer shall deposit with the Authority ample monies, as determined by the Authority Manager, to cover all costs the Authority may incur in the review of the proposed extension. The drawings shall be provided in paper and electronic format.

5. If a Subdivision or Land Development Plan is approved which will result in an extension to the water system, a copy of the Plan, as recorded at the Court House, shall be provided to the Authority in an acceptable electronic format.

6. Design:

   A. Developer's Agreement shall be signed and security placed in escrow for the review and any legal costs the Authority may incur in the furtherance of the proposed extension, as more fully discussed in Section 9 below.

7. All Extension Plans shall follow specifications as set forth in Section 01300, of the Technical Specifications.

   All Plan Sheets shall be done on computer in a file format conforming to AutoCAD, using or saved-to the current version in use by the Authority's consulting engineer.

   The Authority's datum (USGS Datum of 1929) must be used for establishing elevations. Developer shall contact the Authority's Engineer to obtain a General Plan for the area encompassing the proposed extension. All Plan Sheets shall be oriented with the north arrow pointing the same direction as the General Plan. In accordance with Act 287 and any subsequent legislation, all existing utilities shall be indicated on the Plans.

   A survey data point file shall be provided for all bends, fittings, valves, corporations, curb stops, etc. providing the X,Y and Z coordinates of all facilities. Refer to the specification section 1300 for additional information required.

8. After the proposed extension has been approved by the Authority's Engineer, the Developer will apply for all applicable permits, as required. All permits shall be approved under the name of the Authority in accordance with applicable regulations.

9. A Developer's Agreement shall be signed and security placed in escrow for applicable engineering fees, inspection services, as-constructed drawings and legal fees incurred or reasonable anticipated costs to be incurred in connection with the proposed construction. In addition, a "Letter of Credit", or bond executed by a surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department shall be provided. Said security shall be in an amount acceptable to the Authority, to guarantee the satisfactory and timely completion of all water facilities as set forth in a cost estimate, as prepared by the Developer's Engineer, that has been reviewed and approved by Authority's engineer.

10. Construction:

    Construction shall be done under the following procedure:

    A. Developer shall utilize his own construction forces to perform the work, providing, however, that the following is submitted and approved by the Authority:

        (1) Name of Contractor performing the work.

        (2) Shop Drawings and pipe certifications shall be submitted prior to the start of any construction. Copies shall be submitted in pdf format via email to Authority's Engineer.

        (3) Estimated length of time for construction to be used for estimating the initial amount of security to be placed in escrow.

        (4) Submit insurance certificates and Hold-harmless Agreements naming the Authority, Township and Engineer as co-insureds and certificate holders.

        (5) The limits of liability shall be as determined by the Authority's insurance carrier.

        (6) Submit a one-and-one-half-year (1½ year) Performance and Maintenance Bond to the Authority after construction is complete and final acceptance and certification is received from the Authority and/or Authority's Engineer.

11. As work proceeds on the project and additional funds may be required by the Developer, the Authority will inform the Developer of any deficiencies, and additional monies must be deposited with the Authority. After completion of the project, if any monies remain in the construction account, all monies will be returned to the Developer.

12. After completion, testing, and preparation of as-built drawings, the utilities shall be dedicated to the Authority and a Deed of Dedication shall be prepared by the Authority for execution by the Authority and the Developer. As a further condition of the Deed of Dedication, any easements and/or rights-of-way through or on private property required

for the water extension shall be provided by the Developer, or shall be prepared by the Authority at the Developer's expense.

INFORMATION AND SPECIAL CONDITIONS – WATER

GENERAL

It shall be the intent of the South Middleton Township Municipal Authority to have the Developer provide a complete water distribution system installation. All work and materials specified or intended shall be supplied by the developer.

DEFINITIONS

"Authority" shall mean the South Middleton Township Municipal Authority.

"Owner" shall mean the South Middleton Township Municipal Authority.

"Developer" shall mean the party or parties constructing improvement to a tract of land, or his agent.

"Contractor" shall mean the agent of the Developer.

"Engineer" shall mean the Engineer of the South Middleton Township Municipal Authority.

DESIGN CRITERIA

The water system including all water mains and appurtenances, shall be designed in accordance with the latest revision of the Department of Environmental Protection Guidelines and these specifications.

It shall further be the responsibility of the Developer to comply with all local, county, state and federal regulations.

SPECIAL CONDITIONS

1. These specifications are intended as a guide to the Developer, and the Authority reserves the right to make necessary corrections, additions or deductions to these specifications.

2. The Authority reserves the right to request additional work and materials where, in its opinion, conditions warrant such work and materials.

3. Prior to the start of construction the Developer shall submit copies of shop drawings to the Authority's Engineer for all materials to be utilized and receive approval of such materials. Shop Drawings are to be sent in pdf format via email.

AUTHORITY REQUIREMENTS

1. All work on this project shall be done in compliance with all applicable federal, state, county or local laws and regulations whether herein stated or not. In the event of conflict between the requirements herein stated and the rules and regulations of other federal, state, county or local agencies, the more stringent shall apply.

2. Developer and/or Contractor shall obtain insurance in an amount specified by the Authority. See Page ISC-3 for insurance requirements. This insurance should include, but not be limited to, coverage for bodily injury (BI) and property damage (PD) caused by blasting.

3. Proof of all necessary insurance coverages shall be submitted to the Authority in the form of a Certificate of Insurance prior to the inception of any construction activities conducted by the Developer and/or Contractor.

4. Furthermore, the South Middleton Township Municipal Authority, South Middleton Township and the Authority's Engineer shall be listed on the Developer's and/or Contractor's General Liability Policy as an additional insured, in respect to this project.

5. Contractor is responsible for following all applicable Township Ordinances regarding noise and dust control.

OSHA REQUIREMENTS

All work on this project must be done in compliance with state and federal Occupational Health and Safety Regulations. Contractor is responsible for following all OSHA guidelines.

INSURANCE

Insurance coverages are required to be written on an "occurrence basis." Furthermore, coverage should be written through an insurance company rated as A- or better by AM Best. The limits of liability for insurance coverages shall be, at the minimum, as follows:

1. Workers' Compensation:

a. All state requirements for Workers' Compensation coverage shall be met, including:

(1) Employer's liability:

Bodily Injury by Accident:	$100,000 each accident
Bodily Injury by Disease:	$500,000 policy limit
Bodily Injury by Disease:	$100,000 each employee

2. Comprehensive General Liability:

(Includes Premises – Operations, Independent Contractors Protection, Contractual Liability, Products and Completed Operations, Broad Form Property Damage):

a. Bodily Injury (including Completed Operations and Products Liability):

$1,000,000 each occurrence
$2,000,000 annual aggregate

b. Property Damage:

$1,000,000 each occurrence
$2,000,000 annual aggregate

c. Comprehensive General Liability Insurance will provide coverage at the limits indicated above for the exposures of:

Explosion
Collapse
Underground

d. If operations involve or require the use of blasting, the Contractor will provide blasting coverage to protect bodily injury and property damage per the above minimum general liability limits.

3. Comprehensive Automobile Liability:

Bodily Injury and Property Damage:

$1,000,000 each person/occurrence

4. Owner's Protective Liability:

Bodily Injury/Property Damage:

$1,000,000 each occurrence
$2,000,000 annual aggregate

5. Excess/Umbrella Liability:

Limit of Liability:

$1,000,000 Products/Completed Operations Aggregate
$1,000,000 General Aggregate
$1,000,000 BI/PD Any One Occurrence

6. As stated under Authority requirements:

Prior to the initiation of any construction activities all Developers and/or Contractors shall have submitted an approved Certificate of Insurance outlining the required

insurance coverages. Submit insurance certificates and Hold-harmless Agreements naming the Authority, Township and Engineer as co-insureds and certificate holders. The certificates shall contain a provision that coverages will not be cancelled or non-renewed unless at least thirty (30) days' written notice has been provided to the Authority.

END OF SECTION

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY
CUMBERLAND COUNTY, PENNSYLVANIA

WATER SYSTEM

RATES, RULES AND REGULATIONS

2025

New Rates Effective 1st Quarter 2025

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY
WATER RATES RULES AND REGULATIONS

TABLE OF CONTENTS

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY
CUMBERLAND COUNTY, PENNSYLVANIA

The following Rates, Rules and Regulations shall be and are hereby declared to be the Rates, Rules and Regulations of the South Middleton Township Municipal Authority for the Municipal Water System, effective by resolution duly adopted May 11,1998, and as subsequently amended, by resolution of the Board of the Authority.

The Rates, Rules and Regulations are a part of the contract with every consumer who utilizes the water facilities; and every consumer, by utilizing the facilities, agrees to be bound hereby.

No officer, agent for or employee of the Authority or the Township of South Middleton may vary these Rates, Rules and Regulations without action of the Board of the Authority, nor can the Board be bound by any agreement, representation or act except when authorized in writing by action of said Board to do so, executed by the Chairman or Vice Chairman of the Authority.

This Authority reserves the right to adopt, from time to time, such additional Rates, Rules and Regulations as it shall deem necessary and proper in connection with use and operation of the Water System and to revise and amend these Rates, Rules and Regulations by resolution with respect to any rates charged or by motion and/or resolution of the Board of the Authority for all other revisions or amendments from time to time.

Under provisions of Township Ordinance No. 30 of 2011, all occupied properties for which water service is available must be connected to the system.

SECTION I – DEFINITIONS

Unless the context specifies and clearly indicates otherwise, the meaning of items and phrases used in these Rates, Rules and Regulations shall be as follows:

A. **"Apartment Complex"** means a building or buildings consisting of several one-family living units.

B. **"Authority"** shall mean South Middleton Township Municipal Authority, a Pennsylvania municipal authority, organized and existing under the Authorities Act.

C. **"Authorities Act"** means the Municipalities Authorities Act of 1945, as amended and supplemented.

D. **"Building Permit"** means a written statement issued by an appropriate official of the Township, including the Zoning Officer, authorizing building, structures or uses consistent with the terms of Township Ordinance No. 10 - 1989 as amended.

E. **"Building Water Connection"** means the extension to the Water System of any structure to the Service Connection of the Water Line.

F. **"Commercial Establishment"** means any structure or any portion thereof intended to be used wholly or in part for the purpose of carrying on a trade, business or profession or for social, amusement, religious, educational, charitable or public uses, and which contains plumbing for kitchen, toilet, water fountain or washing facilities.

G. **"Connection Fee"** means a fee based upon the actual cost of the Building Water Connection of an Improved Property extending from the Authority's lateral to the property line or curb stop of the property so connected, including reasonable costs for inspection and restoration. A Connection Fee shall be considered the fee referred to as a "connection fee" in the Authorities Act.

H. **"Consumer"** shall mean the Owner of any Improved Property.

I. **"Domestic Establishment"** means any room, group of rooms, apartment, house trailer, building or other enclosure connected, directly or indirectly, to the Water System and occupied or intended for occupancy as separate living quarters by a family or any other group of Persons living together, or by a Person living alone, excluding institutional dormitories.

J. **"Elderly Cottage Housing Opportunity (ECHO Housing)"** means an additional dwelling unit placed on a property for occupancy by either an elderly, handicapped, or disabled person related by blood, marriage or adoption, to the occupants of the principal dwelling.

K. **"EDU"** means an "equivalent dwelling unit" being the amount of water consumed by an average Domestic Establishment in a day, which is estimated to be 65 gallons per capita per day (GPCD) times the average number of persons per household in South Middleton Township, Pennsylvania according to the most recent United States Census Bureau data. All Non-Domestic Establishments shall be assigned a number of EDU's based upon the estimated or actual water consumption divided by the amount of water consumed by an average Domestic Establishment in a day. This result shall be considered an EDU with such consumption being calculated using the consecutive ninety (90) day period with the highest consumption.

L. **"Improved Property"** means any property located within this Township upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals and from which structure water shall be or may be supplied.

M. **"Industrial Establishment"** means any structure intended to be used wholly or in part for the manufacturing, fabricating, processing, cleaning, laundering or assembly of any product, commodity or article.

N. **"Mobile Home Court"** means large tracts of land used for the prime purpose of parking mobile homes or travel trailers for permanent living purposes.

O. **"Non-Domestic Establishment"** means any room, or group of rooms, building or other enclosure connected, directly or indirectly, to the Water System, including institutional dormitories, which do not constitute a Domestic Establishment.

P. **"Non-Profit Public Emergency Services"** means those services provided generally by an organization that has been established as a non-profit entity to respond to and deal with emergencies, including but not limited to ambulance, EMTs, firefighters, etc.

Q. **"Owner"** shall mean any Person vested with ownership, legal or equitable, sole or partial, of any Improved Property.

R. **"Person"** shall mean any individual, partnership, estate, trust, association, corporation, municipality, municipal authority or any other group or entity.

S. **"Plumbing Inspector"** means the person or persons appointed by the Authority to enforce the terms of these Rules and Regulations.

T. **"Private Dwelling or Living Unit"** means a structure or dwelling intended to be occupied as a whole by one family or an apartment intended to be occupied by one family or any other one-family unit.

U. **"Public Establishment"** means any structure or any portion thereof intended to be used wholly or in part for the purpose of carrying on a Municipal, State or Federal Business, or any other facility owned and operated as an Instrumentality of the Commonwealth of Pennsylvania, and which contains plumbing for kitchen, toilet, water fountain or washing facilities.

V. **"Service Area"** means a designated geographic area of the Township, established by Resolution of the Board of the Authority, which (1) requires the addition of facilities to the Water System, such as booster pumps, to provide adequate service; or (2) is provided with service through an extension of the Water System made by a private person who has requested reimbursement from the Authority in accordance with applicable provisions of the Authorities Act; or (3) is provided with water service by an extension of the Water System financed or paid for by the Authority and is connected to the Water System by the Authority.

W. **"Service Connection"** means that part of the Water System extending from the Water Line to the Curb Line, or if no such Water Connection shall be provided, the Service Connection shall mean that portion of, or place in, a Water Line which is provided for connection of any Building Water Connection.

X. **"Tapping Fee"** means a fee imposed and allowed under the authority of the Authorities Act to enable the recovery of the Authority's equity in the Water System which shall be composed of a capacity part and a distribution part and may, in the future, if warranted, include for some customers a special purpose part and/or a reimbursement part.

Y. **"Township"** means the Township of South Middleton, Cumberland County, Pennsylvania, acting by and through its Board of Supervisors or, in appropriate cases, by and through its authorized representatives.

Z. **"Water Consumer or Consumer"** as used hereinafter means an owner of Improved Property who applies for service and enters into an agreement for a supply of water to his property.

AA. **"Water Line"** means any pipe or main constituting part of the Water System used or unused for water supply purposes.

BB. **"Water Rental"** means that quarterly charge for direct or indirect connection with the use of the Water System of the Authority.

CC. **"Water System"** shall mean all facilities, as of any particular time for pumping, transporting and/or treating water and owned by the Authority.

DD. **"Yoke"** means that device required to be installed on the Service Line for the installation of the meter.

SECTION II – REQUIRED CONNECTIONS TO WATER SUPPLY SYSTEM

A. The Owner of any Improved Property whose principal building is located within one hundred fifty (150) feet of the Water System or any part or extension of the Water System, or on which Improved Property the principal building has no supply of water which is safe for human consumption, shall connect to the Water System in such manner as this Township may require, within 90 days after notice to such Owner from this Township to make such connection, for the purpose of procuring such Owner's supply of water for such Improved Property, subject to such limitations and restrictions as shall be established herein or otherwise by this Township, from time to time. This requirement to connect shall be subject to such exceptions as may be provided in Article XVI of The Second Class Township Code, Act of July 10, 1947, P.L. 1481, as amended and supplemented.

B. The notice by this Authority or the Township to make a connection to the Water System, referred to in paragraph A of this section, shall consist of a written or printed document requiring such connection to be made within (90) days from the date such notice is given. Such notice may be given at any time after the Water System is in place and can supply water to the particular Improved Property. Such notice shall be served upon the Owner either by personal service or by certified mail or by such other method as at the time may be provided by law.

SECTION III – BUILDING WATER CONNECTIONS

A. No person shall uncover, connect with, make any opening into or use, alter or disturb, in any manner, the Water System without first making application for and securing a permit, in writing, from this Authority. The cost of the permit shall be in accordance with **Appendix A, Item 1**.

B. The application for a permit required under paragraph A of this section shall be made by the Owner of the Improved Property.

C. No person shall make or cause to be made a connection of any Improved Property to the Water System until such Person shall have fulfilled each of the following conditions:

1. Such Person shall have notified the Authority of the desire and intention to connect such Improved Property to the Water System.

2. Such Person shall have applied for and obtained a permit as required by paragraph A of this section.

3. Such Person shall have given the Authority at least twenty-four hours prior notice of the time when such connection will be made, so that the Authority may supervise and inspect the work and necessary testing.

4. Such person shall have paid or furnished satisfactory evidence of payment to the Authority of any tapping and/or connection fees charged and imposed by the Authority against the Owner of each Improved Property who connects such Improved Property to the Water System.

D. Except as otherwise provided in this section, each Improved Property shall be connected separately and independently with the Water System through the Improved Property’s Water Connection. Grouping of Building Water Connections shall not be permitted, except under special circumstances and then only after permission of this Authority, in writing, shall have

been secured and subject to such rules, regulations, terms and conditions as may be prescribed by this Authority.

E. All costs and expenses of construction of a Building Water Connection and all costs and expenses of connection to the Service Connection shall be borne by the Owner of the Improved Property to be connected; and such Owner shall indemnify and save harmless the Authority and the Township from all loss or damage that may be occasioned, directly or indirectly, as a result of construction of and/or connection of a Building Water Connection.

F. A Building Water Connection shall be connected to the Service Connection at the place designated by this Authority or where the Service Connection has been provided.

G. Every Building Water Connection of any Improved Property shall be maintained in a sanitary and safe operating condition by the Owner.

H. Every excavation for a Building Water Connection shall be guarded adequately with barricades and lights to protect all persons from damage and injury; and streets, sidewalks and other public property disturbed in the course of installation shall be restored, at the cost of the Owner of the Improved Property being connected, in a manner satisfactory to this Authority and to any other governmental agency having jurisdiction.

I. If any person shall fail or refuse, within sixty (60) days from receipt of a notice of this Authority, in writing, to remedy any unsatisfactory condition with respect to a Building Water Connection, this Authority may refuse to permit such Person to receive water from the Water System until such unsatisfactory condition shall have been remedied to the satisfaction of this Authority.

J. Elderly Cottage Housing Opportunity (ECHO Housing):

1. Housing permitted as ECHO Housing by South Middleton Township will be permitted to connect to the existing lateral of the existing dwelling unit on the property.

2. The Owner of ECHO Housing will not be required to pay a Tapping Fee or User Fee provided the criteria for ECHO Housing are met as established by South Middleton Township.

3. Should a dwelling cease to be ECHO Housing for any reason, the lateral of the former ECHO Housing unit must be disconnected from the lateral of the principal dwelling unit within thirty (30) days and the connection at the principal dwelling unit must be terminated to the satisfaction of the Authority.

Building Water Connections And Connection To The Water System

A. After connection of any Improved Property to the Water System, all existing private water systems must be severed from the Authority's Water System, and the Authority shall have the right to inspect said Improved Property at the discretion of the Authority. Notwithstanding the foregoing, upon specific approval of the Authority, a limited outside connection to a private water system may be permitted.

B. No cross connections shall be made to the Water System. Where cross connections or causes of pollution may exist, the Consumer shall in addition to the backflow preventer, place a double check valve assembly at the source of a potential pollution.

C. No building Water Connection shall be covered until it has been inspected and approved by the Township Codes Department, and if any part thereof is covered before so being inspected and approved, it shall be uncovered for inspection at the cost and expense of the Owner involved.

Installation Of Building Water Connections

Building Water Connections or Service Lines shall be subject at all times to the inspection and approval of the Authority or its duly authorized representative who shall have supervision and control over the same.

A. Service Lines must be direct and continuous. No sleeves will be permitted on the Service Lines.

B. Pipe used for Service Lines shall be Type "K" Copper for two-inch lines and smaller, ductile iron class 52 for four-inch lines and class 52 for six-inch through 54 inch lines.

C. No other utility line shall be within four (4) feet of the service line trench, unless previous written approval is secured from the Authority or its representative.

D. The Authority or its representative may permit a water service line to be placed in the same trench with a building sewer upon the following conditions:

1. The customer service line shall be installed not less than three and one half (3.5) feet below finish grade.

2. The bottom of the water service line shall be at least 18 inches above the top of the sewer line at all points.

3. The water service line shall be placed on a solid shelf excavated at one side of the common trench.

E. Ditches shall be promptly backfilled after inspection and approval by the Township Codes Department. Care shall be taken to prevent damage to the pipe in backfilling and to secure a well-compacted and firm trench.

F. When a customer desires a change in location or size of an existing service line, he shall bear the entire cost of the change.

G. The installation of a building water service line shall be subject to all relevant requirements as found in the latest revision to **South Middleton Township Municipal Authority Subdivision and Land Development Policies and Specifications for Construction of Extensions to the Sanitary Sewer System and Water Distribution System.**

H. All contractors/plumbers and qualified individuals making connection to the South Middleton Township Municipal Authority Water System shall comply with all Federal, State and Township requirements and the requirements of any other governmental agency having jurisdiction thereof.

Rules for Water Meter Installation

A. All 3/4-inch domestic connections to the Water System shall be through 3/4-inch meters. The water meter, yoke and backflow preventer shall be accessible to and subject to the

Authority's control and inspection. All domestic connections to the Water System shall require the installation of a meter pit as furnished by the Authority and paid for by the Consumer. All domestic meter pits shall be equipped with 1" diameter components unless a smaller diameter service is already installed from the main to the property line in which case the Consumer will be offered the option to install a ¾" meter pit if desired.

B. All connections to the Water System shall be metered. Unless otherwise approved by the Authority, all meters, backflow preventers, yokes and other facilities, which are desired by either the Consumer or the Authority shall be approved and purchased by the Authority and shall be paid in full by the Consumer before installation.

C. Maintenance of Water Meters and Backflow Preventers

1. All meters, whether domestic or non-domestic, 1" or less in size, along with the backflow preventer, yoke, remote reader and radio read unit, will be maintained by the Authority so far as ordinary wear and tear are concerned. All costs associated with damage due to freezing or external causes due to the negligence or intentional act of the Consumer or any third party shall be paid by the Consumer.
2. All meters, whether domestic or non-domestic, greater than 1" in size, along with the backflow preventer, yoke, remote reader and radio read unit, will be maintained by the Authority. All costs associated with the maintenance, repair or replacement of the meter, backflow preventer, yoke, remote reader or radio read unit shall be reimbursed to the Authority by the Consumer.

D. Meter must be mounted in a horizontal and upright position.

E. Meter location must be accessible and the meter unobstructed.

F. Meter installation must be complete before lock will be removed.

G. Remote reader installation must be complete before lock will be removed.

H. Curb box must be backfilled to grade and positioned to allow access to curb valve before lock will be removed.

I. The Authority must be contacted at least 24 hours before a meter is to be unlocked. (every effort will be made to unlock the meter as soon as possible)

J. Failure to install the water meter before the property is occupied will result in a fine in accordance with the Second Class Township Code and any other applicable code, law or ordinances.

K. Tampering with the meter lock will result in a fine in accordance with the Second Class Township Code and any other applicable code, law or ordinances.

L. Quarterly billing will start on the date that the meter is unlocked.

SECTION IV – FAILURE TO MAKE REQUIRED CONNECTIONS

If the owner of any Improved Property located in this Township fails to connect an Improved Property to the Water System after ninety (90) days notice from this Authority or the Township, in accordance with Section II, paragraph A, the Township may make such connection and may collect from such Owner the costs and expenses thereof. In such case, this Authority shall forthwith, upon completion of the work, send an itemized bill of the cost of the construction of

such connection to the Owner of the Improved Property to which connection has been made, which bill shall be payable forthwith. In case of neglect or refusal by Owner of such Improved Property to pay said bill, this Authority may file a municipal lien for said construction, the same to be subject in all respects to general law providing for the filing and recovery of municipal liens, and/or initiate proceedings at law or in equity.

SECTION V – TAPPING, CONNECTION AND CUSTOMER FACILITIES FEES FOR WATER SERVICE

No person shall connect any Improved Property with any part of the Water System without first making application for and securing a permit, in writing, from the Authority. Such application shall be made on a form provided by the Authority. The permit fee shall include the Authority's reasonable costs for administration and inspection to insure that the Service Connection of the Improved Property is connected to the Water System in accordance with the Rates, Rules and Regulations of the Authority. The cost of the permit shall be in accordance with **Appendix A, Item 1**.

A. Connection Fee

The Authority shall charge a Connection Fee against the Owner of an Improved Property who or which shall physically connect such Improved Property to the Water System, for the costs of making such connection to the Water System, such change being authorized under Section 5607 (d)(24) of the Authorities Act.

The amount of the Connection Fee for each Improved Property connection to the Water System shall be the actual cost incurred by the Authority, including the cost of inspection and restoration of the property. The owner of the Improved Property shall deposit with the Authority the sum in accordance with **Appendix A, Item 2**, to be placed in escrow in order to insure reimbursement of the Authority's actual costs in connecting Owner's Improved Property to the Water System. In the event the actual expenses incurred by the Authority in connecting the Owner's Improved Property to the Water System exceed the escrow amount, the Owner shall pay such excess amount within thirty (30) days of receipt of the Authority's invoice for such expenses. In the event that the actual expense incurred by the Authority in connecting the Owner's Improved Property to the Water System is less than the escrow amount, the Authority shall refund such excess amount, without interest, to the Owner.

The Authority may, by Resolution, establish separate Service Areas and impose a Connection Fee for each individual connection within such Service Area. The Service Areas shall be set forth in Appendix A . Connection Fees for each separate Service Area shall be set forth in column form within **Appendix A, Item 2**. All areas of the Township not located within designated Service Areas shall pay the system-wide Connection Fee set forth first in **Appendix A, Item 2**.

All Connection Fees shall be payable to the Authority.

The Authority shall enforce payment of Connection Fees in any manner appropriate under the laws at the time in effect.

B. Tapping Fee

A Tapping Fee as set forth herein is imposed upon and shall be collected by the Authority from the Owner of each Improved Property who or which shall physically connect such Improved Property, to the Water System, for the use of the Water System, whether such

use shall be direct or indirect, with such charge being authorized under the Authorities Act. Such Tapping Fee is charged for connection of each Domestic Establishment, each Commercial Establishment and Industrial Establishment as set forth herein.

A Tapping Fee for use of the Water System shall be calculated as follows:

1. The fees for capacity and distribution-related facilities, which provide service to Domestic, Commercial, Industrial, and Public Establishments, shall be as follow:

Tapping Fee – Capacity Part
Domestic, Commercial, Industrial, Public Establishment **Appendix A, Item 3**

Tapping Fee – Capacity Part
Porches at Allenberry **Appendix A, Item 4**

Tapping Fee – Distribution Part
Domestic, Commercial, Industrial, Public Establishment
(for each EDU or portion thereof) **Appendix A, Item 5**

Tapping Fee – Distribution Part
Porches at Allenberry **Appendix A, Item 6**

The Authority reserves the right to establish, by Resolution, separate Service Areas which may have a capacity and/or distribution part of the Tapping Fee different from that imposed throughout the Water System. Any Service Areas, which have been established, are set forth in Appendix A . The Tapping Fees for Domestic, Commercial, Industrial, and Public Establishments are set forth in column form within **Appendix A, Items 3, 4, 5 and 6**, respectively. All areas of the Township not located within designated Service Areas shall pay the system wide Tapping Fees set forth first in **Appendix A, Items 3, 4, 5 and 6**..

2. The Authority reserves the right to establish, by Resolution, Service Areas within the Township. Such Service Areas may require special purpose facilities applicable only to Water Customers within that Service Area. Each Service Area so established shall be identified in **Appendix A, Item 8** .

3. Where an extension of the Water System has been made at the expense of a private person, the Authority reserves the right to require payment of a reimbursement part of the Tapping Fee. Each Service Area so established shall be identified in Appendix A . Reimbursement part by Tapping Fees which have been established are listed by Service Area in **Appendix A, Item 9** .

4. In case of a combination of one or more Domestic Establishments and each thereof having use of the Water system through one shared water connection, then each such Domestic Establishment shall be charged the Tapping Fee herein provided as though each Domestic Establishment has a direct and separate connection to the Water System. Each Domestic Establishment in a double house, multiple unit dwelling row or connecting house, any multi-unit dwelling unit or in a Mobile Home Court shall be considered as a separate entity for the purpose of calculating the Tapping Fee. In the case of Apartment Complexes, each apartment unit shall be considered a Domestic Establishment and one Tapping Fee shall be paid for each Domestic Establishment within the Apartment Complex.

5. The amount of the Tapping Fee for connection of each Non-Domestic Establishment to the Water System shall be based upon each EDU or portion thereof of water estimated to be consumed daily. In no event shall the Tapping Fee for a Non-Domestic Establishment be less than the Tapping Fee for one EDU.

   If necessary, Non-Domestic Tapping Fee adjustments may be required and shall be determined in accordance with Resolution 11-10-08-1.

6. Should any Owner of any Improved Property heretofore connected to the Water System or here after connected to the Water System expand the use of said Improved Property, a Tapping Fee, calculated in the manner set forth herein, is hereby imposed upon the expanded portion of such Improved Property. An expansion of the use of an Improved Property shall include, but not be limited to, the installation of an additional dwelling unit or units in an existing dwelling. Any fees shall be due and payable prior to the issuance of a Building Permit.

C. **Customer Facilities Fee**

All owners of Improved Properties shall pay to the Authority a Customer Facilities Fee. The Customer Facilities Fee shall reimburse the Authority for its costs relating to the provision of a water meter, meter yoke, backflow preventer, remote reader, and other necessary facilities. The Customer Facilities Fee shall be an amount which represents the cost of said facilities paid by the Authority, plus necessary installation costs and inspections.

The Authority reserves the right to establish, by Resolution, separate Service Areas. Any Service Area so established shall be set forth in **Appendix A, Item 7**. Any customer Facilities Fee applicable to a Service Area shall be set forth in the Resolution, which establishes the Service Area and shall be listed in **Appendix A, Item 7**.

D. **Fire Sprinkling System**

Should any Owner of any Improved Property heretofore connected to the water system or hereafter connected to the water system install a fire sprinkler system, a water permit must be obtained from the Authority. The cost of the permit shall be in accordance with **Appendix A, Item 1**.

E. **Lawn Sprinkling System**

Should any Owner of any Improved Property heretofore connected to the water system install a lawn sprinkler system, a water permit must be obtained from the Authority. The cost of the permit shall be in accordance with **Appendix A, Item 1**.

F. **Effect of Receipt of Grants**

If an extension to the Water System is financed in whole or in part by one or more grants awarded to the Authority by any department or agency of the United States, the Commonwealth of Pennsylvania or the County of Cumberland, and if the terms of such grant or grants require that the Authority not impose tapping, connection or other fees for connection to the Water System upon low or moderate income (as such terms are defined in the applicable federal or state regulations) Owners of Improved Properties, the Authority may waive tapping, connection or other fees which would be imposed upon Owners of Improved Properties under these Rates, Rules and Regulations. Such a waiver of fees shall be granted to the extent required by the terms of the grant or grants,

and Owners of Improved Properties shall present all necessary documentation to the Authority to prove eligibility under the applicable regulations for the waiver of such fees.

G. **Agreements With Developers Who Extend The Water System**

The Authorities Act permits the Authority to enter into agreements with developers concerning the extension of the Water System. The Authority may, from time to time, enter into agreements with developers concerning the extension of the Water System which will relate to the sharing of costs of improvements to the Water System, the reimbursement to the developer of the distribution portion of the tapping fee paid by Owners of Improved Properties who connect to an extension financed by the developer, or other matters as authorized by the Authorities Act. The Authority shall have the right to waive or modify the terms of this Section in any such agreement.

SECTION VI – DISCONTINUANCE AND RECONNECTION OF SERVICE

Should a Consumer request discontinuance or reconnection of a service, a disconnection or a re-connection fee in accordance with **Appendix A, Item 10**, will be imposed.

The Authority may discontinue service to any Consumer for reasons deemed to be in the Authority's best interest. The reasons for discontinuance of service shall include, but are not limited to, the following:

A. The use of water for any other property than that described in the permit.

B. Willful waste of water through improper pipes, fixtures, underground leaks or otherwise.

C. Damaging, whether intentional or otherwise, any service pipe, meter, curb stop or seal, or any other system appurtenance of the Authority.

D. Refusal to sever or make corrections in accordance with Section VII, Paragraph C of any cross connection between a pipe or fixture carrying water from any other source and a pipe or fixture carrying water furnished by Authority.

E. Failure to pay any sewer charges as noted in Section IX.B.

SECTION VII – WATER RENTALS AND CHARGES

Water rentals and charges are imposed upon and shall be collected from the owners of properties which shall be connected to the Water System, whether such use or benefit resulting therefrom or such connection shall be direct or indirect, in accordance with **Appendix A, Items 11, 12, and 13**.

A. In case of a combination of one or more Domestic Establishments with a similar unit or units and each thereto having the use of the Water System through one water connection, then each such Domestic Establishment shall be charged the rates herein provided as though each thereof were in a separate structure and as though each thereof had a direct and separate connection to the Water System.

B. Mobile Home Court And Apartment Complex Service: The Owner of each Improved Property shall make one connection to the Authority's Water System and use one meter to furnish water to the Improved Property for which he will be subject to the minimum charge per quarter for each mobile home pad located in the Mobile Home Court or for each apartment unit located in the Apartment Complex. Water consumed in excess of

the total minimum gallons allowed for such minimum charges paid shall be billed to the Owner in accordance with the schedule provided in **Appendix A, Item 11**.

C. The quantities of quarter-annual water consumption allowable to each Mobile Home Court or Apartment Complex before excess usage charges shall be placed in effect will be determined by multiplying the total number of mobile homes, unoccupied pads or apartment units times 6,000 gallons.

D. For service less than a full quarter-annual period, the listed rates will be prorated for the period of usage or prorated on the usage, whichever is greater.

E. In addition to any water usage at the same premises, every public or private automatic fire sprinkler system connected to the Water System shall pay a quarter-annual charge in accordance with **Appendix A, Item 14.**

G. In addition to any water usage at the same premises, every public or private fire hydrant connected to the Water System shall pay an annual charge in accordance with **Appendix A, Item 16**.

H. The owner of any Improved Property who or which is required to connect to the Water System shall pay the applicable quarter-annual minimum charge for each Non-domestic Establishment or for each Private Dwelling or Living Unit, each Mobile Home pad, or each Apartment in the event such Owner refuses to use the Water System. Charges shall accrue from the date the Owner of the Improved Property shall have been required by Township Ordinance to connect to the Water System.

The Authority reserves the right to establish, by Resolution, separate service areas which may have different water rentals and charges than that imposed throughout the water system. Any service area which has been established is set forth in Appendix A .

SECTION VIII – BILLING AND COLLECTION OF WATER RENTS, RATES AND CHARGES

A. Bills for water service will be rendered quarterly on or about the first days of January, April, July and October, respectively, or on such other dates as the Authority shall specify, for service rendered in the applicable quarterly period. All bills are payable upon presentation or delivery at the Authority office, 345 Criswell Drive, Boiling Springs, Pennsylvania.

B. Every Owner of an Improved property who is connected to the Water System shall provide the Authority with and thereafter shall keep the Authority advised of said Owner's correct address. **Failure of any person to receive bills for water rentals or charges shall not be considered an excuse for nonpayment nor shall such failure result in an extension of the period of time during which the net bill shall be payable.**

C. All bills paid on or before the 30th day following the date of the mailing of the bill shall be payable at the Net Amount indicated on the bill (which Net Amount shall be the charge based upon the appropriate rate set forth above). All bills paid from and after the 31st calendar day following the due date listed on the current printed bill and on or before the 60th day following said date of mailing shall be payable at the Gross Amount indicated on the bill (which Gross Amount shall be the Net Amount plus ten per centum (10%) of said Net Amount). All bills paid from and after the 61st calendar day following the due date listed on the current printed bill shall be payable at Gross Amount plus one and one-half per centum (1 1/2%) per month until paid in full.

D. All bills remaining unpaid after thirty days have elapsed from the date they are due, shall be cause for termination of service. Unpaid bills may be collected by legal action in the name of the Authority against the Owner of the Improved Property charged and/or may be enforced against such Improved Property by filing a municipal claim . Unless exigent circumstances require otherwise, municipal claims shall be filed against delinquent residential and non-residential accounts when the charges for two quarterly billings have not been timely paid. Any municipal claims filed shall bear interest in the amount of six percent (6%) per annum until paid in full.

E. Water rates and charges shall be due and payable upon delivery by the Authority to the person responsible for payment thereof. In the case of delivery by mail, the receipt thereof shall be presumed to occur on the date following the mailing thereof.

F. Whenever service to any Improved Property shall begin after the first day or shall terminate before the last day of any quarter-annual billing period, water rates and charges for such period shall be prorated equitably, if appropriate, for that portion of the billing period during which such Improved Property was served by the Water System.

G. A fee of $40.00 or the fee imposed by the financial institution, whichever is greater, will be charged for all returned checks.

SECTION IX – LIENS FOR WATER RENTALS; FILING AND COLLECTION OF LIENS

A. All bills remaining unpaid after thirty days have elapsed from the date they are due shall be cause for termination of service. Unpaid bills may be collected by legal action in the name of the Authority against the Owner of the Improved Property charged and/or may be enforced against such Improved Property by filing a municipal claim. Unless exigent circumstances require otherwise, municipal claims shall be filed against delinquent residential and non-residential accounts when the charges for two quarterly billings have not been timely paid. Any municipal claims filed shall bear interest in the amount of six percent (6%) per annum until paid in full.

B. This Authority shall have the right to shut off the supply of water to any premises served by the Water System if the Owner or occupant of such premises shall neglect or fail to pay, for a period of thirty (30) days from the due date thereof, any rental, rate or charge for water service imposed by this Authority or by any municipality or other municipal authority organized by any borough or any township of the first or second class, in accordance with the Act of April 14, 1949, P.L. 482, as amended.

C. Attorney's fees may be assessed and imposed together with costs in the collection of any delinquent account in accordance with 53 P.S. Section 7106 (or any amended or successor provision) in such amounts as may be established from time to time by Resolution of the Board of the Authority.

SECTION X – RESPONSIBILITY OF OWNERS OF IMPROVED PROPERTY

A. The Owner of any Improved Property connected to the Water System shall be responsible for all acts of tenants or other occupants of such Improved Property insofar as such acts shall be governed by provisions of these Rates, Rules and Regulations.

B. All connections, service lines and fixtures furnished by the Consumer shall be maintained by the Consumer in good order, and all valves, meters and appliances, furnished and owned by the Authority and on the property of the Consumer shall be protected properly

and cared for by said Consumer. All leaks in the service or any other pipe or fixture in or on the premises supplied must be repaired immediately by the Consumer.

C. The Authority shall in no event be responsible for maintaining any portion of the Building Water Connection owned by the Consumer or for damage done by water escaping therefrom or from lines or fixtures on the Consumer's property; and the Consumer shall at all times comply with all ordinances and regulations with reference thereto and make changes therein required on account of change or grade relocation of mains or otherwise.

D. Consumers shall not turn the water on or off at any corporation stop, curb stop or disconnect, or remove the meter or yoke or permit their disconnection or removal without the prior written consent of the Authority.

E. Consumers shall not tamper or permit tampering with or in any way cause or permit injury to any meter or any other property of the Authority.

SECTION XI – ADDITIONS TO AND CHANGES OF WATER RENTALS OR CHARGES; ADOPTION OF ADDITIONAL RULES AND REGULATIONS

A. This Authority reserves the right to adopt and promulgate, from time to time, additional classifications and water rentals or charges therefor, or modifications of the schedule of water rentals of charges as set forth in these Rates, Rules and Regulations, which additional classifications and water rentals or charges, or modifications, as the case may be, shall be construed as a part of these Rates, Rules and Regulations immediately upon adoption.

B. This Authority reserves the right to adopt, from time to time, such additional rules and regulations as it shall deem necessary and proper in connection with the use and operation of the Water System, which rules and regulations shall be, shall become and shall be construed as part of the Rates, Rules and Regulations immediately upon adoption.

SECTION XII – AUTHORITY'S RIGHTS AND OBLIGATIONS

A. The Authority will use all reasonable and practical measures to notify Consumers of such discontinuance of service as necessity may arise in case of breakdowns, emergency or for any other unavoidable cause. The Authority shall have the right to terminate the water supply temporarily in order to make necessary repairs, connections, etc. In all events, Authority shall not be liable for any damage, economic or other loss or inconvenience suffered by Consumer or anyone claiming under Consumer or for any claim of any nature against the Authority at any time, for interruption of service, lessening of the supply, inadequate pressure, poor quality of water or for any causes whether or not beyond the Authority's control.

B. The Authority shall have the right to reserve a sufficient supply of water at all times in its tanks and systems to provide for fire and other emergencies or make restrictions or regulate the quantity of water used by a Consumer in case of scarcity or whenever the public welfare may so require.

APPENDIX A – WATER RATES RULES AND REGULATIONS
ALL CHARGES LISTED REFER TO 1 EDU

APPROVED PER RESOLUTIONS 07-11-2024-02 (TAPPING FEES) AND 12-19-2024-01 (QUARTERLY RATES)

ITEM NO		SYSTEM WIDE
1.	COST OF PERMIT (CONNECTION AND SPRINKLER)	$ 50.00
2.	CONNECTION FEE ESCROW DEPOSIT	AS ESTIMATED
3.	TAPPING FEE – CAPACITY PART DOMESTIC, COMMERCIAL, INDUSTRIAL, PUBLIC ESTABLISHMENT	$1400.00
4.	TAPPING FEE – CAPACITY PART PORCHES AT ALLENBERRY	$ 939.00
5.	TAPPING FEE – DISTRIBUTION PART DOMESTIC, COMMERCIAL, INDUSTRIAL, PUBLIC ESTABLISHMENT	$1466.00
6.	TAPPING FEE – DISTRIBUTION PART DOMESTIC, COMMERCIAL, INDUSTRIAL, PUBLIC ESTABLISHMENT PORCHES AT ALLENBERRY	$ 878.00
7.	CUSTOMER FACILITY FEE (ESCROW DEPOSIT)	AS ESTIMATED
8.	SPECIAL PURPOSE PART	$ 0.00
9.	REIMBURSEMENT PART	$ 0.00
10.	DISCONNECTION OR RECONNECTION FEE	$ 25.00

11. QUARTERLY CHARGES
RESIDENTIAL ESTABLISHMENTS

FIRST	6,000 GALLONS	$ 43.00 MINIMUM
NEXT	244,000 GALLONS	$ 3.60/THOUS.GAL.
OVER	250,000 GALLONS	$ 1.80/THOUS. GAL.

12. QUARTERLY CHARGES
COMMERCIAL, AND PUBLIC ESTABLISHMENTS

FIRST	12,000 GALLONS	$ 72.00 MINIMUM
NEXT	88,000 GALLONS	$ 3.60/THOUS.GAL.
OVER	100,000 GALLONS	$ 1.80/ THOUS.GAL.

13. QUARTERLY CHARGES
INDUSTRIAL ESTABLISHMENTS

ALL CONSUMPTION $ 2.80 / THOUS.GAL.

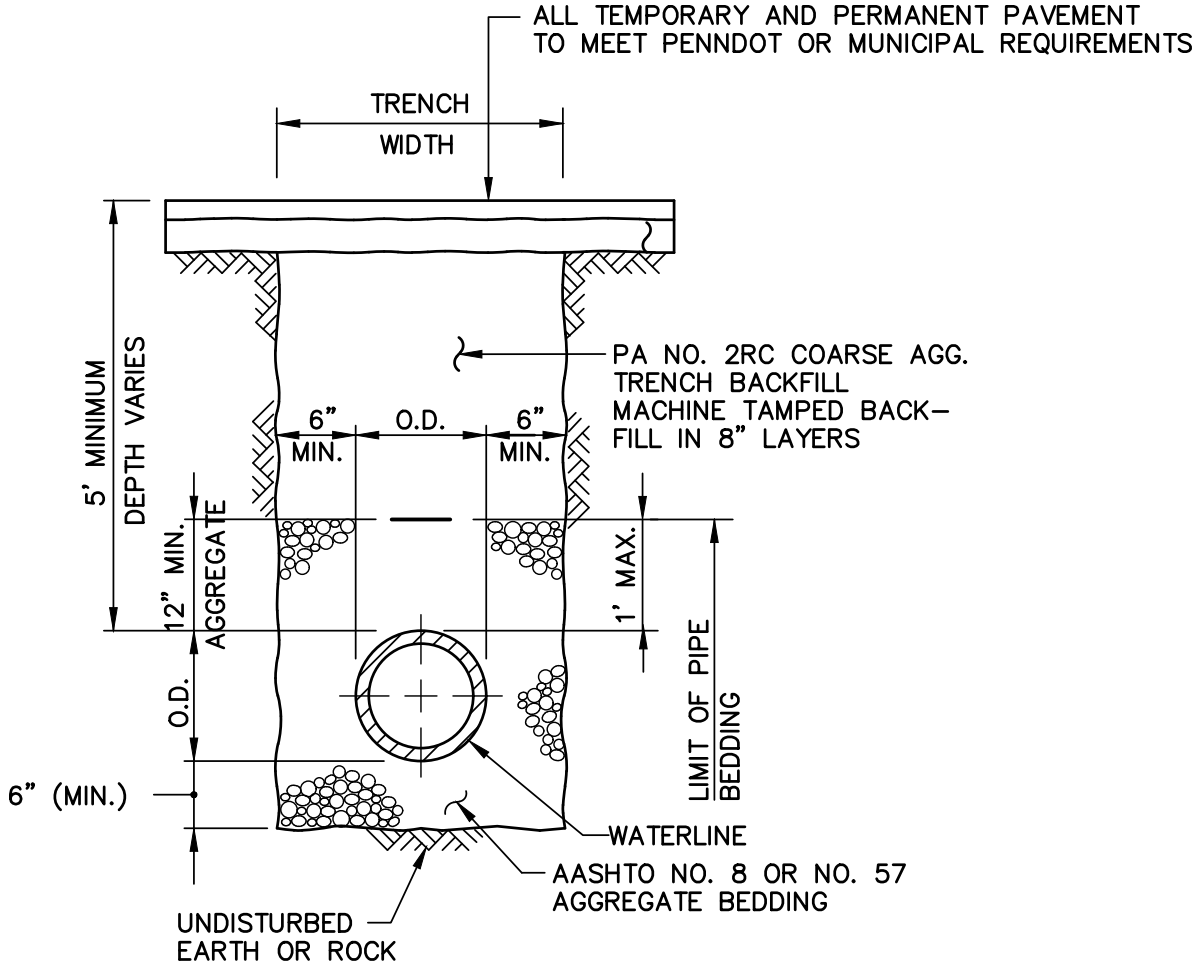
14. FIRE SUPPRESSION SYSTEM RATES

METER	WITH TANK WITH PUMP		WITHOUT TANK WITHOUT PUMP		WITHOUT TANK WITH PUMP	
SIZE	METERED	UNMETERED	METERED	UNMETERED	METERED	UNMETERED
2”	$75.00	$150.00	$100.00	$200.00	$150.00	$300.00
3”	$100.00	$200.00	$150.00	$300.00	$225.00	$450.00
4”	$150.00	$300.00	$225.00	$450.00	$300.00	$600.00
6”	$225.00	$450.00	$337.50	$675.00	$450.00	$900.00
8”	$300.00	$600.00	$450.00	$900.00	$600.00	$1,200.00
10”	$375.00	$750.00	$562.50	$1,125.00	$750.00	$1,500.00
12”	$450.00	$900.00	$675.00	$1,350.00	$900.00	$1,800.00
ALL NON-PROFIT PUBLIC EMERGENCY SERVICES NO CHARGE						

15. NON-PROFIT PUBLIC EMERGENCY SERVICES $ .00

16. PUBLIC AND PRIVATE FIRE HYDRANTS $ 25.00

17. BULK WATER RATE PER THOUSAND GALLONS $ 5.50
BULK WATER SET-UP CHARGE $100.00



TOWNSHIP ROADS

NOTE:

1. WHEN IN PAVED AREAS SUCH AS DRIVEWAYS OR PARKING LOTS, PAVING RESTORATION SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS.

FILE NAME: TRENCH-1-PAVED.dwg

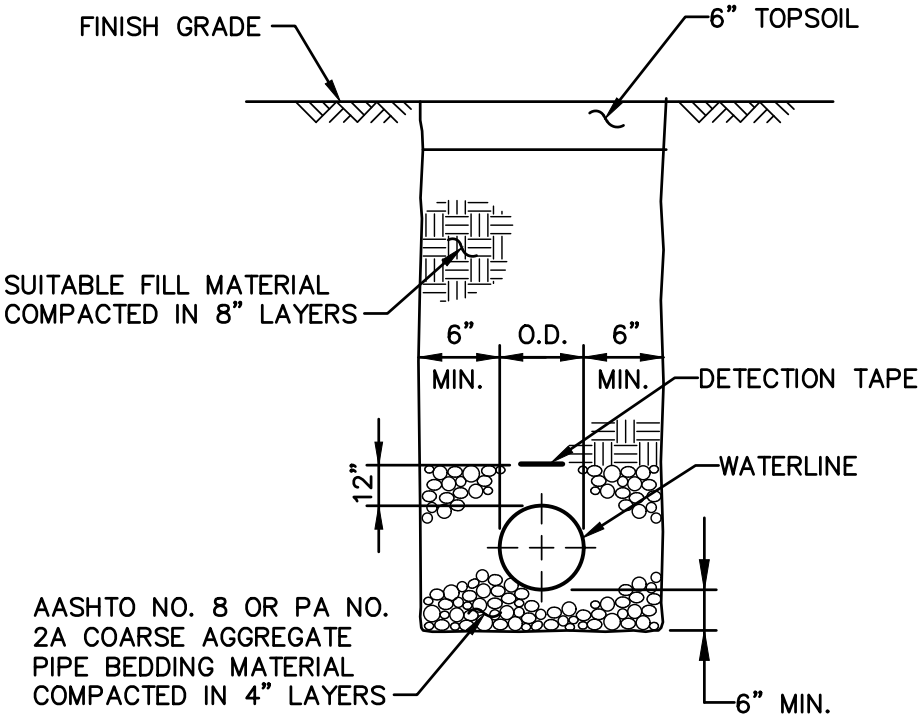
STANDARD DETAILS - WATER

TRENCH DETAIL IN PAVED AREAS

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	TR-1



NOTE:

1. WHEN OUTSIDE EDGE OF TRENCH IS CLOSER THAN THREE (3) FEET TO EXISTING PAVEMENT 2A COARSE AGGREGATE WILL BE USED AS BACKFILL MATERIAL.

FILE NAME: TRENCH-2-ROW.dwg

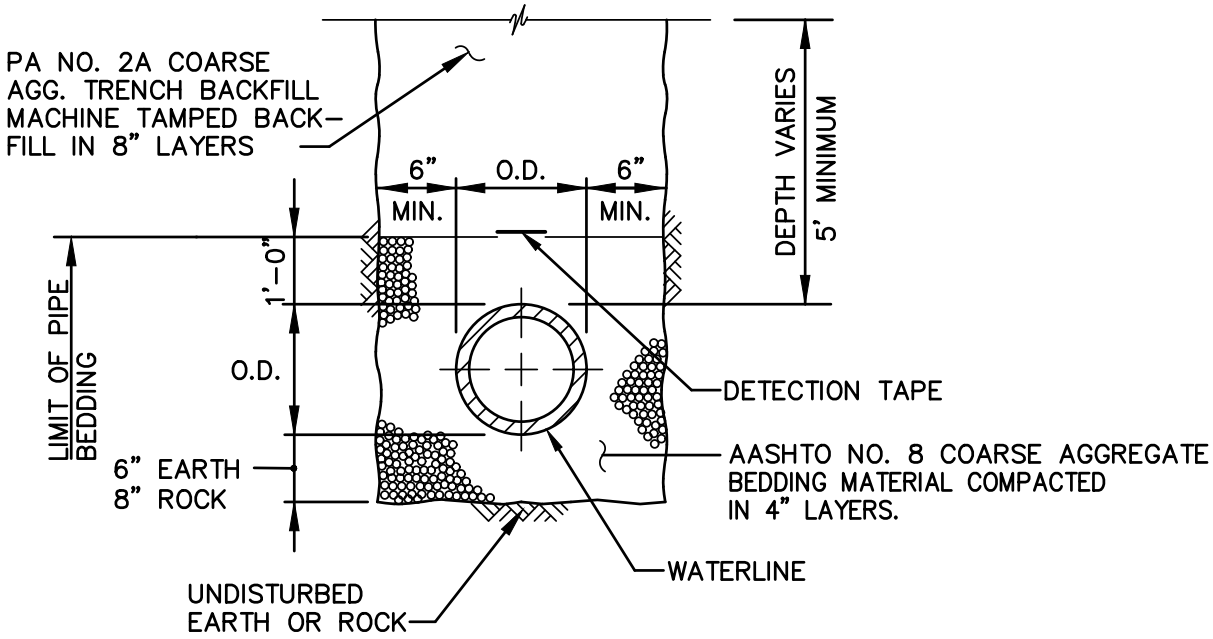
STANDARD DETAILS - WATER

TRENCH DETAIL IN RIGHT-OF-WAY AREAS

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	TR-2



NOTE:

1. SHOULDER ARE IS ANY AREA WHERE THE OUTSIDE EDGE OF THE TRENCH IS WITHIN THREE(3) FEET OF ANY PAVEMENT.

FILE NAME: TRENCH-3-SHLD-PAVED.dwg

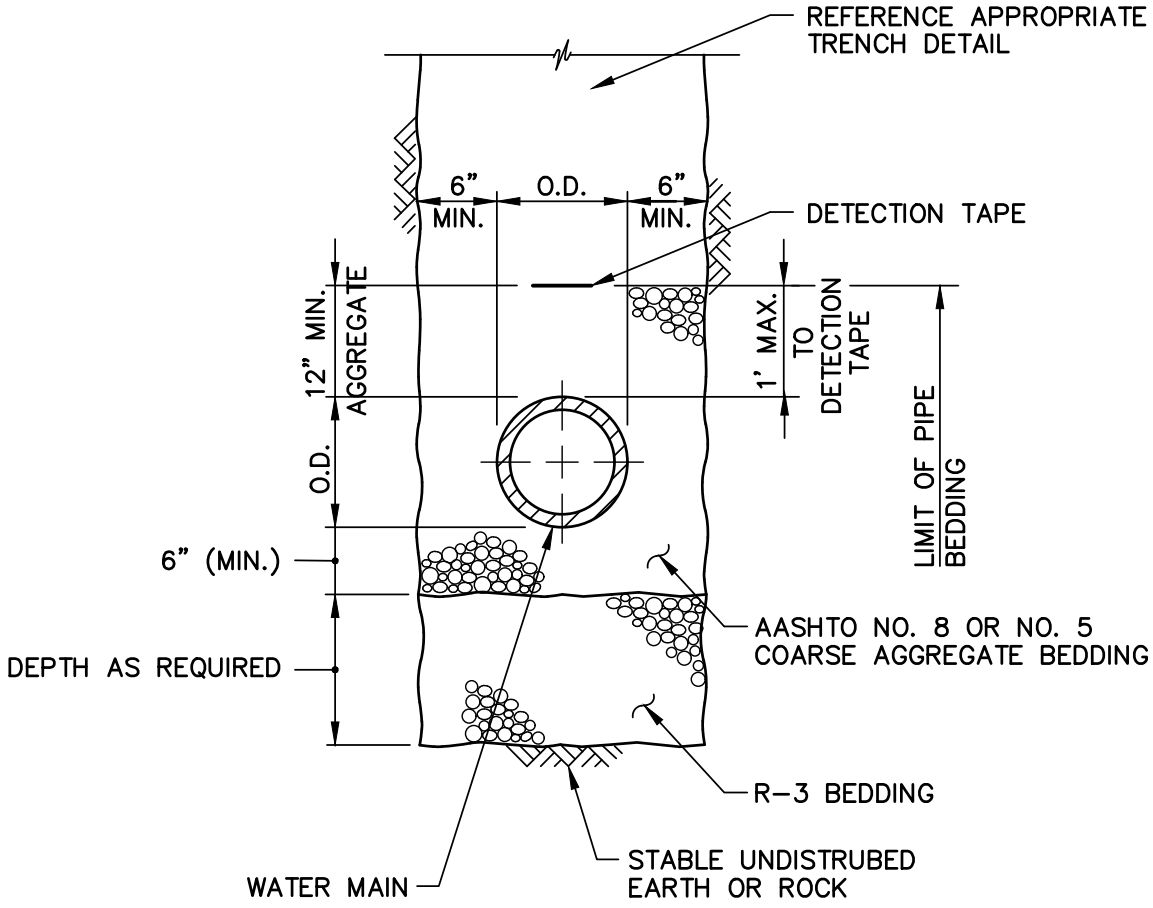
STANDARD DETAILS

TRENCH DETAIL IN PAVED AND SHOULDER AREAS

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	TR-3



FILE NAME: TRENCH-4-UME.dwg

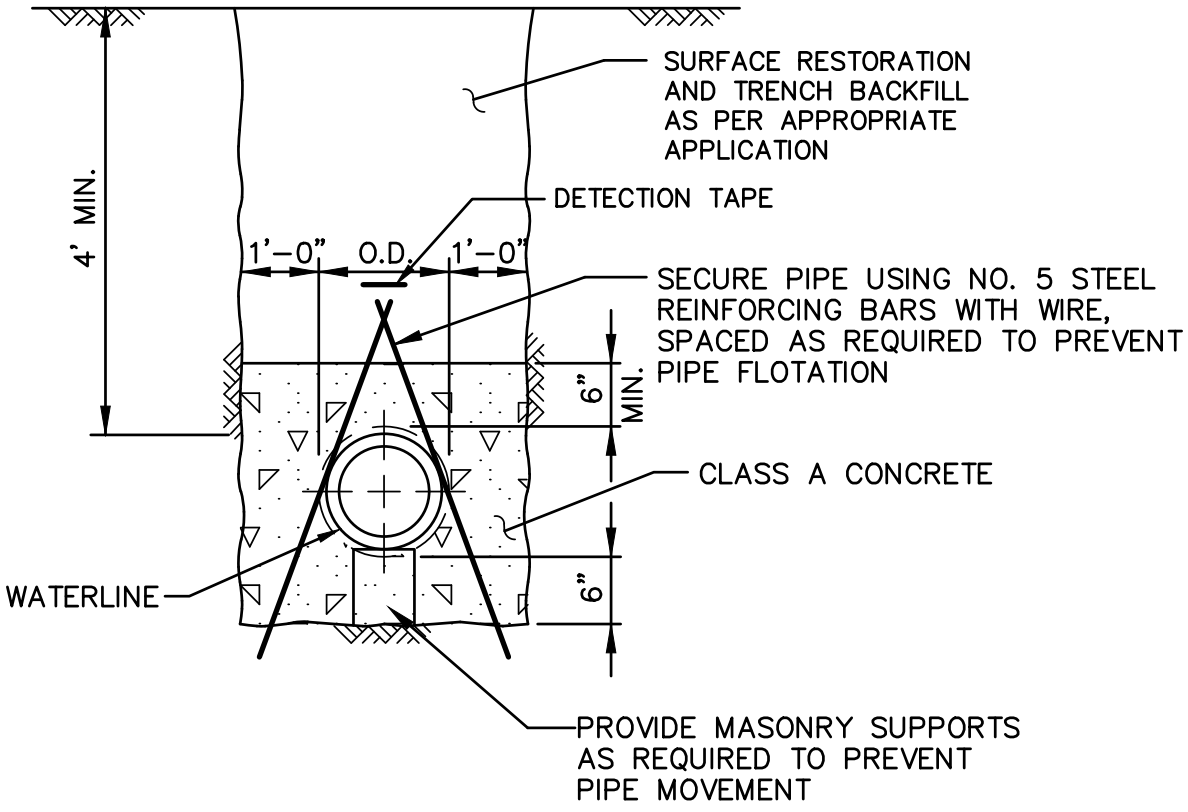
STANDARD DETAILS – WATER

UNSUITABLE MATERIAL EXCAVATION

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	TR-4



NOTES:

1. CONCRETE ENCASEMENT TO BE USED WHERE MINIMUM CLEARANCE CANNOT BE OBTAINED BETWEEN WATERLINE AND SANITARY SEWERS AND STORM SEWER. ENCASEMENT WIL BE INSTALLED AS DIRECTED BY THE ENGINEER IN THE FIELD.

FILE NAME: TRENCH-5-CONC-ENCAS.dwg

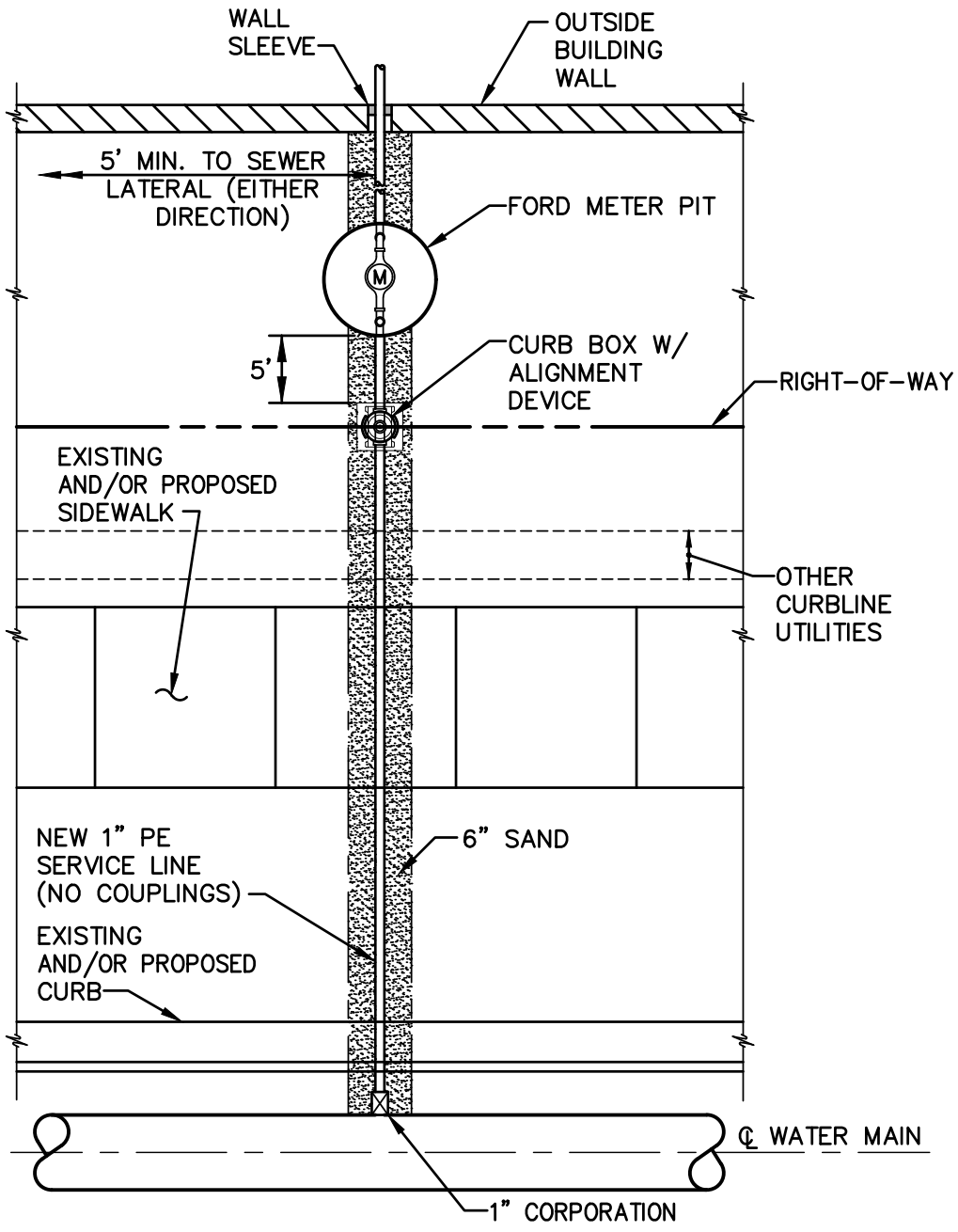
STANDARD DETAILS - WATER

CONCRETE ENCASEMENT DETAIL

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	TR-5



PLAN

NOTE:

1. SEE NOTES ON THE NEW AND/OR REPLACEMENT OF 1" WATER SERVICE ELEVATION DETAIL.

• METER PIT MODEL: PSBHC488-20C-48

FILE NAME: W-1-SERVICE-W-METER-PLAN.dwg

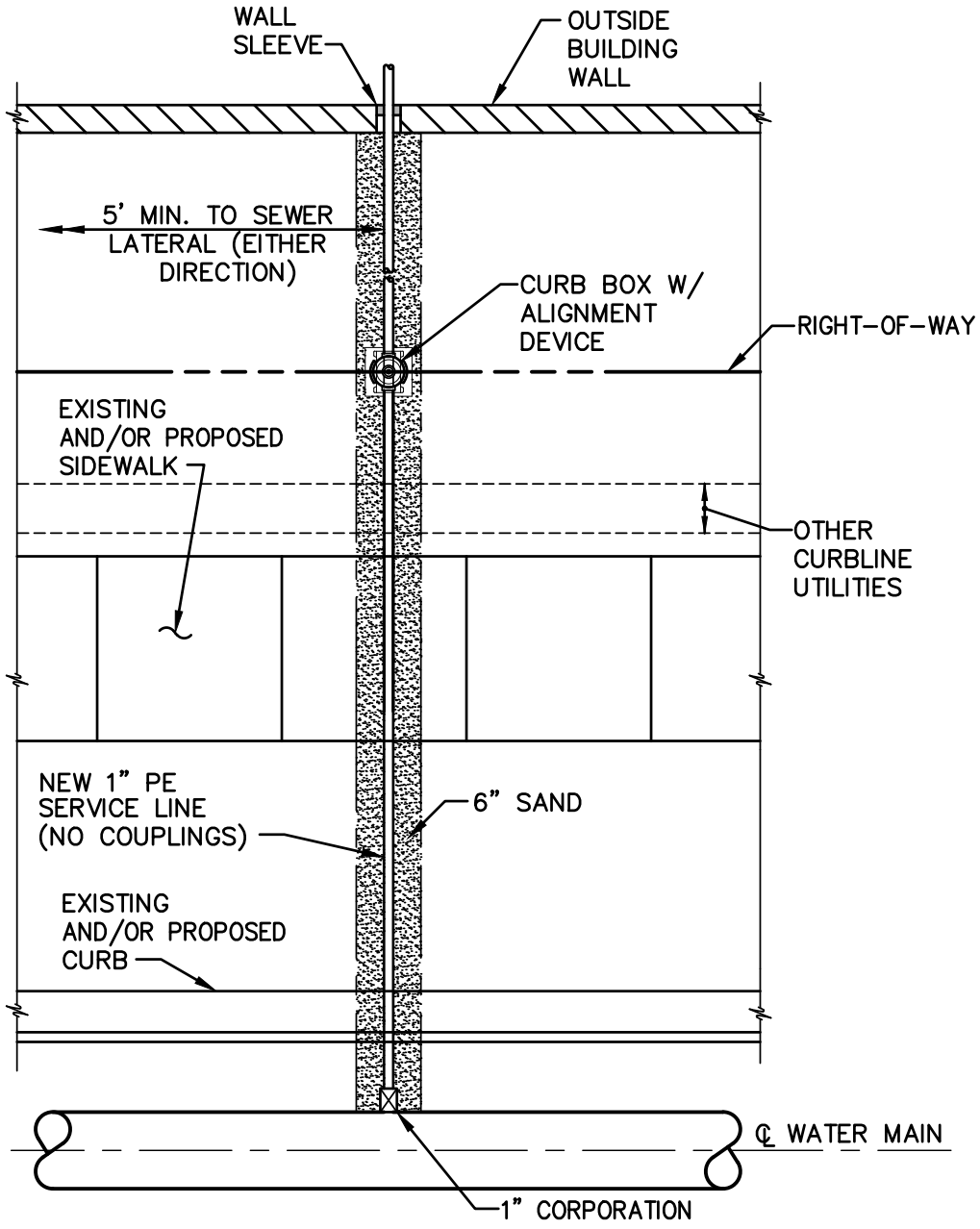
STANDARD DETAILS – WATER

NEW AND/OR REPLACEMENT OF 1-INCH WATER SERVICE WITH METER PIT

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-1



PLAN

NOTE:

1. SEE NOTES ON THE NEW AND/OR REPLACEMENT OF 1" WATER SERVICE ELEVATION DETAIL.

FILE NAME: W-2-SERVICE-WOUT-METER-PLAN.dwg

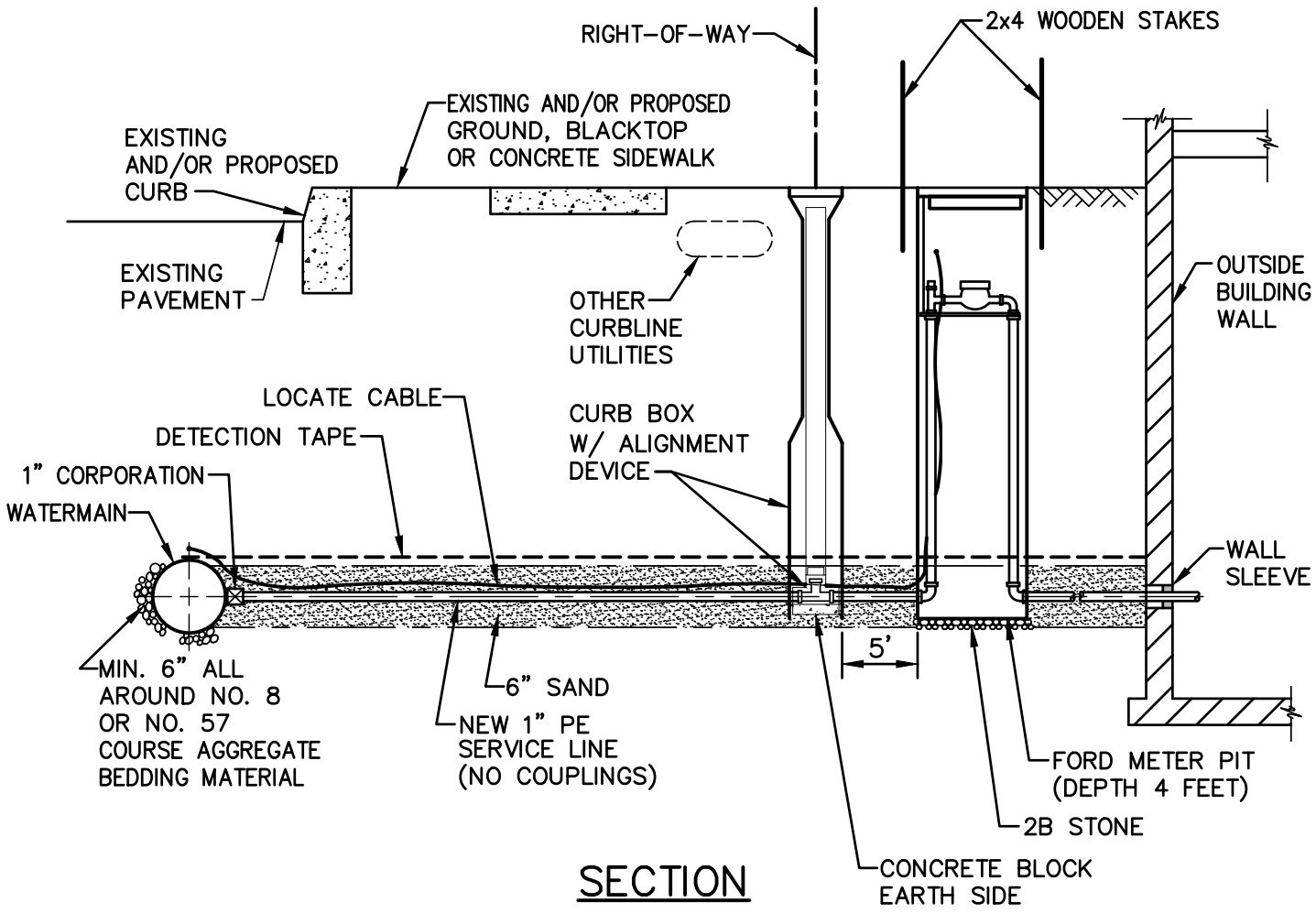
STANDARD DETAILS – WATER

NEW AND/OR REPLACEMENT OF 1-INCH WATER SERVICE WITHOUT METER PIT

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-2



SECTION

NOTES:

1. ALL COPPER FITTINGS SHALL BE COMPRESSION TYPE. FLARED FITTINGS MAY ONLY BE USED WHEN REPLACING EXISTING FLARED CONNECTIONS.
2. EXISTING SERVICE SIZE, TYPE AND LOCATION TO BE VERIFIED BY CONTRACTOR.
3. BED ALL SERVICES IN A MINIMUM OF 6" OF MASONRY SAND.
4. BED METER PIT IN 2B STONE.
5. WATER SERVICE WILL BE LOCATED A MINIMUM OF FIVE (5) FEET FROM THE EDGE OF A DRIVEWAY.
6. CURB BOX AND/OR METER PITS WILL NOT BE LOCATED IN SIDEWALKS, CURBS, BLACKTOP AND/OR DRIVEWAYS.
7. ANY SERVICES GREATER THAN 4 FEET IN DEPTH AT THE CURB WILL HAVE A CONCRETE METER PIT.

• METER PIT MODEL: PSBHC488-20C-48

FILE NAME: W-3-SERVICE-W-METER-SECTION.dwg

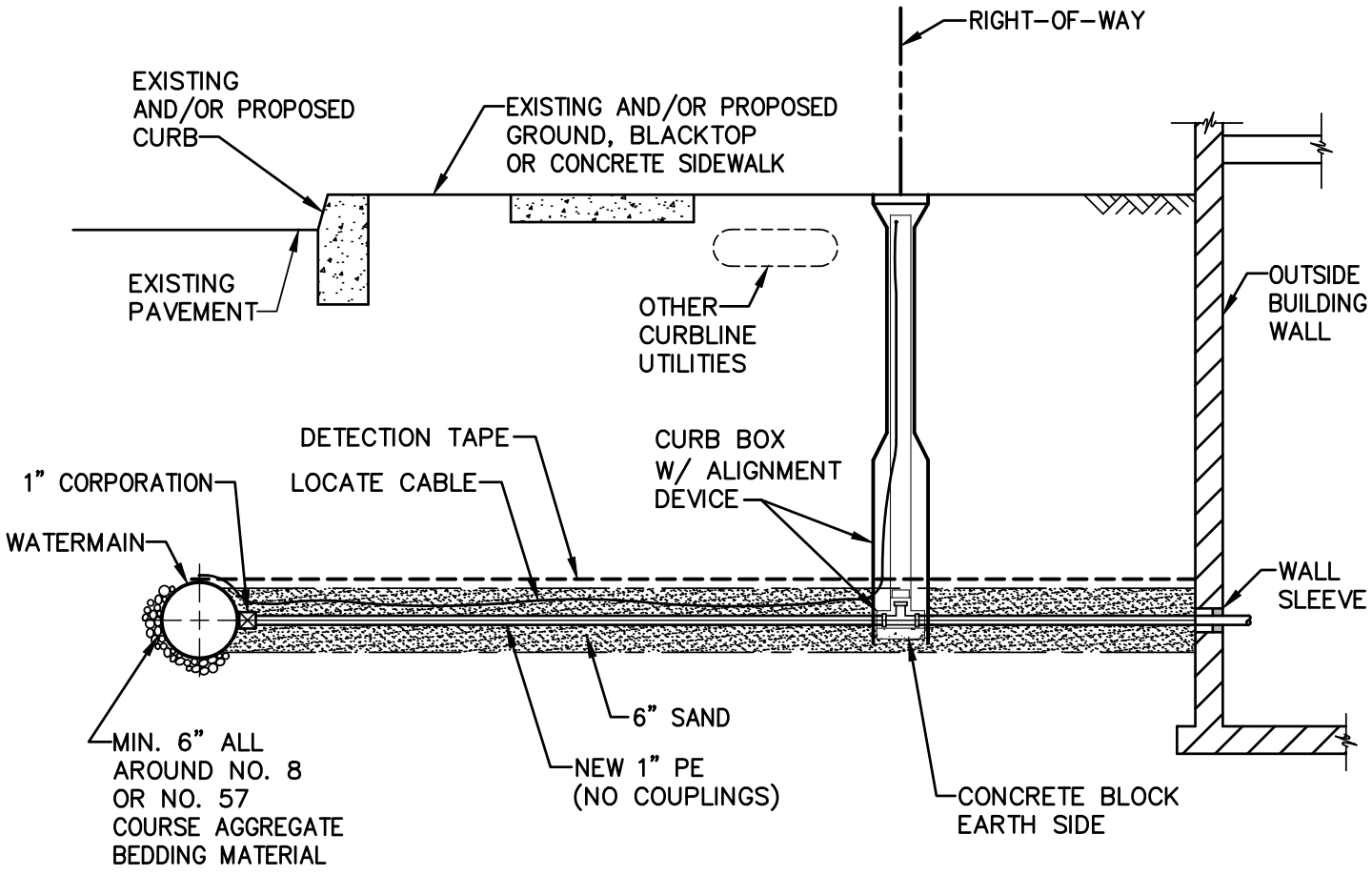
STANDARD DETAILS – WATER

NEW AND/OR REPLACEMENT OF 1-INCH WATER SERVICE WITH METER PIT

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-3



ELEVATION

NOTES:

1. ALL COPPER FITTINGS SHALL BE COMPRESSION TYPE. FLARED FITTINGS MAY ONLY BE USED WHEN REPLACING EXISTING FLARED CONNECTIONS.
2. EXISTING SERVICE SIZE, TYPE AND LOCATION TO BE VERIFIED BY CONTRACTOR.
3. WATER SERVICE WILL BE LOCATED A MINIMUM OF FIVE (5) FEET FROM THE EDGE OF A DRIVEWAY.
4. CURB BOX WILL NOT BE LOCATED IN SIDEWALKS, CURBS, BLACKTOP AND/OR DRIVEWAYS.

FILE NAME: W-4-SERVICE-WOUT-METER-SECTION.dwg

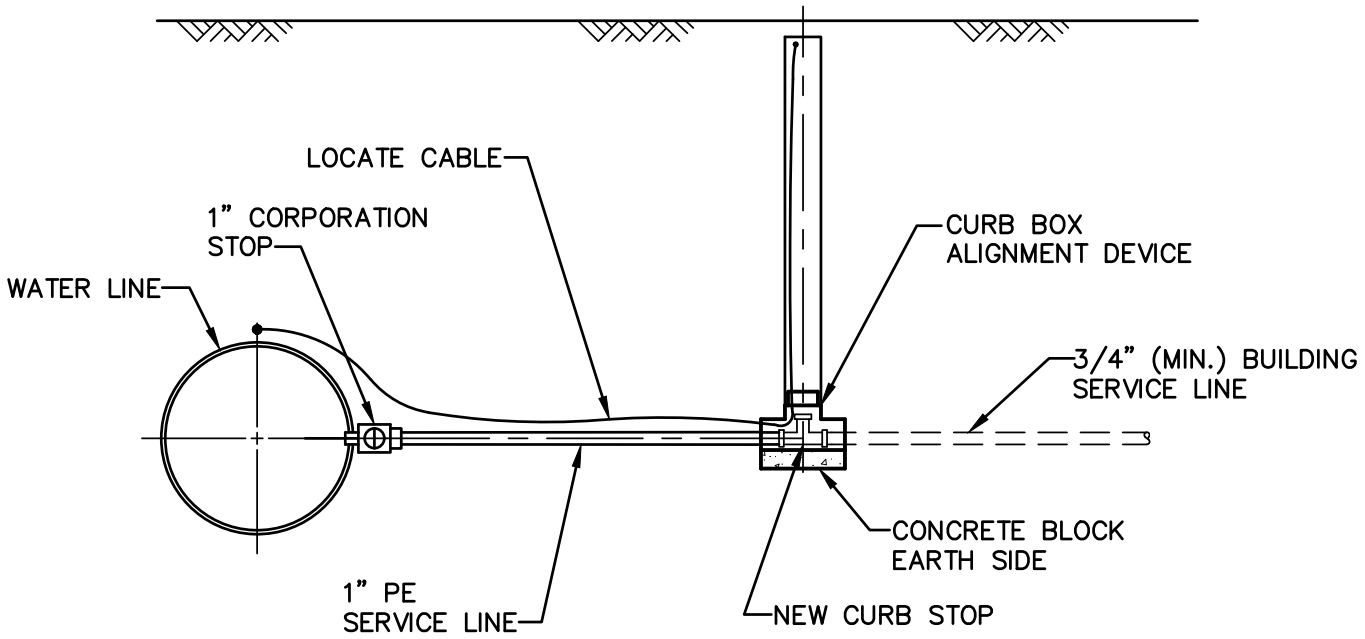
STANDARD DETAILS – WATER

NEW AND/OR REPLACEMENT OF 1-INCH WATER SERVICE WITHOUT METER PIT

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-4



NOTE:

1. ALL COPPER FITTINGS SHALL BE COMPRESSION TYPE.

FILE NAME: W-5-SERVICE-EVR-STRATE.dwg

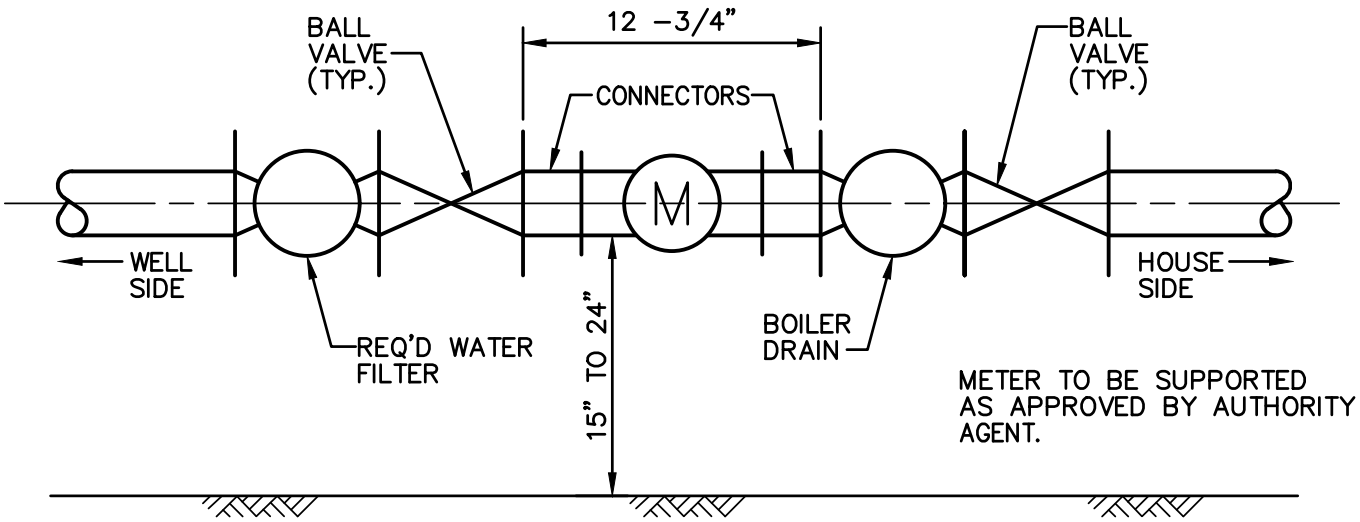
STANDARD DETAILS – WATER

SERVICE CONNECTION DETAIL

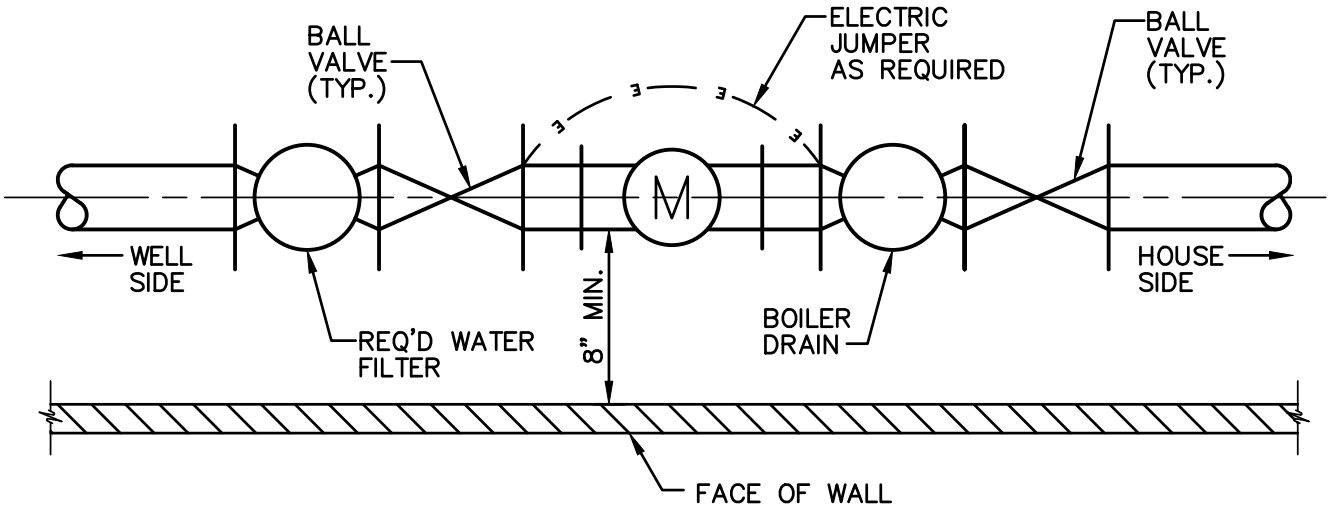
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-5



ELEVATION



PLAN

NOTES:

1. FEMALE FITTING TO RECEIVE 1" PIPE, STD. THREAD.
2. PROVIDE A MINIMUM OF 36" HEAD ROOM ABOVE METER.
3. METER TO BE LOCATED AT A READILY ACCESSIBLE PLACE.
4. AUTHORITY WILL INSTALL METER AND CONNECTORS AND A REMOTE READER. WIRING FOR REMOTE DEVICE TO BE PLACED DURING ROUGH FRAMING UPON CONTACT FROM BUILDER.
5. REFER QUESTIONS TO THE AUTHORITY OFFICE.
6. WATER FILTER AVAILABLE AT ANY PLUMBING SUPPLY STORE.

FILE NAME: W-6-WATER-METER.dwg

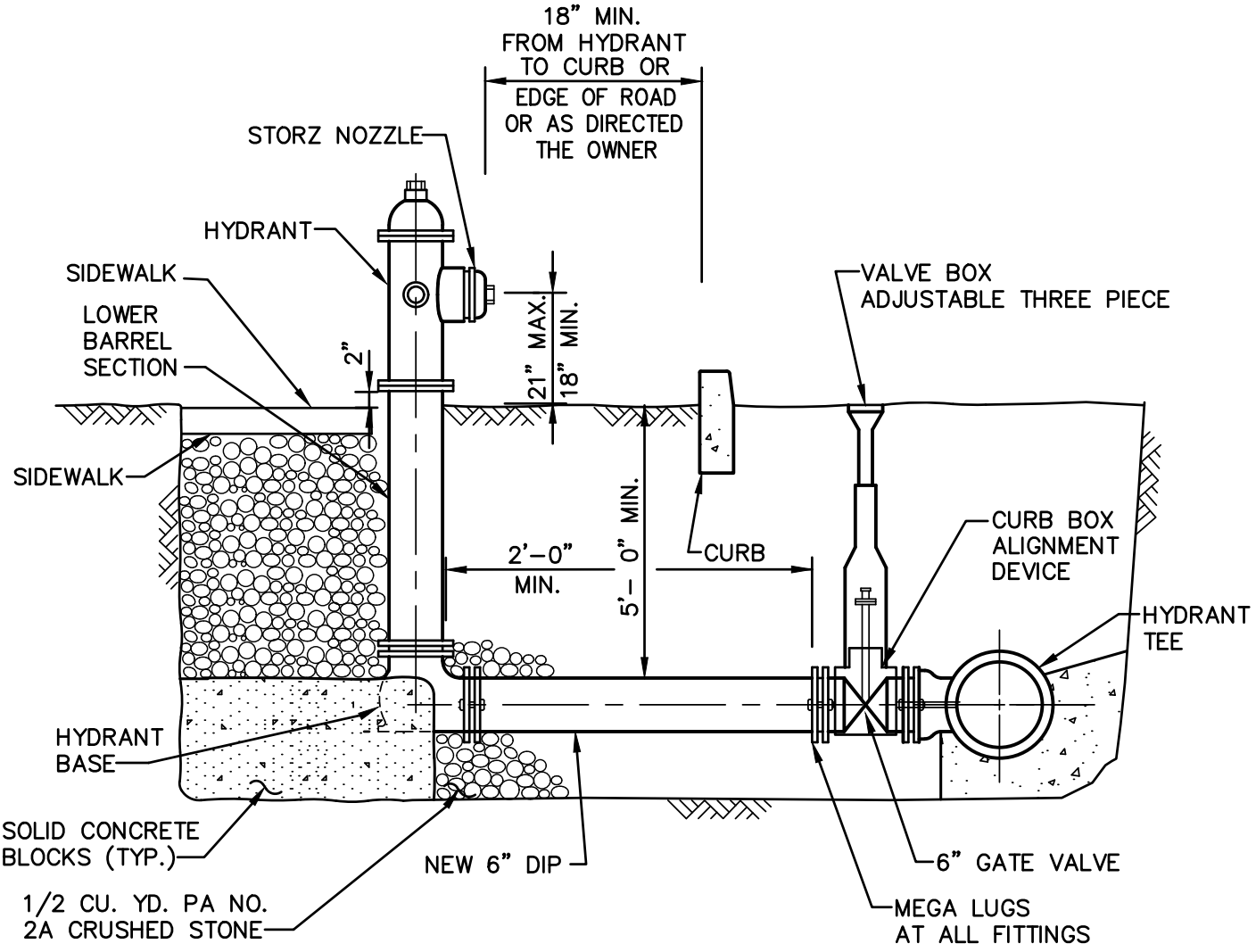
STANDARD DETAILS – WATER

INSTALLATION OF WATER METER FOR SEWER ONLY CUSTOMER

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-6



NOTE:

1. PROVIDE FIELD–LOK GASKETS ON ANY JOINTS ON THE 6–INCH HYDRANT PIPING.

FILE NAME: W–7–FIRE–HYDRANT.dwg

STANDARD DETAILS – WATER

FIRE HYDRANT DETAIL

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

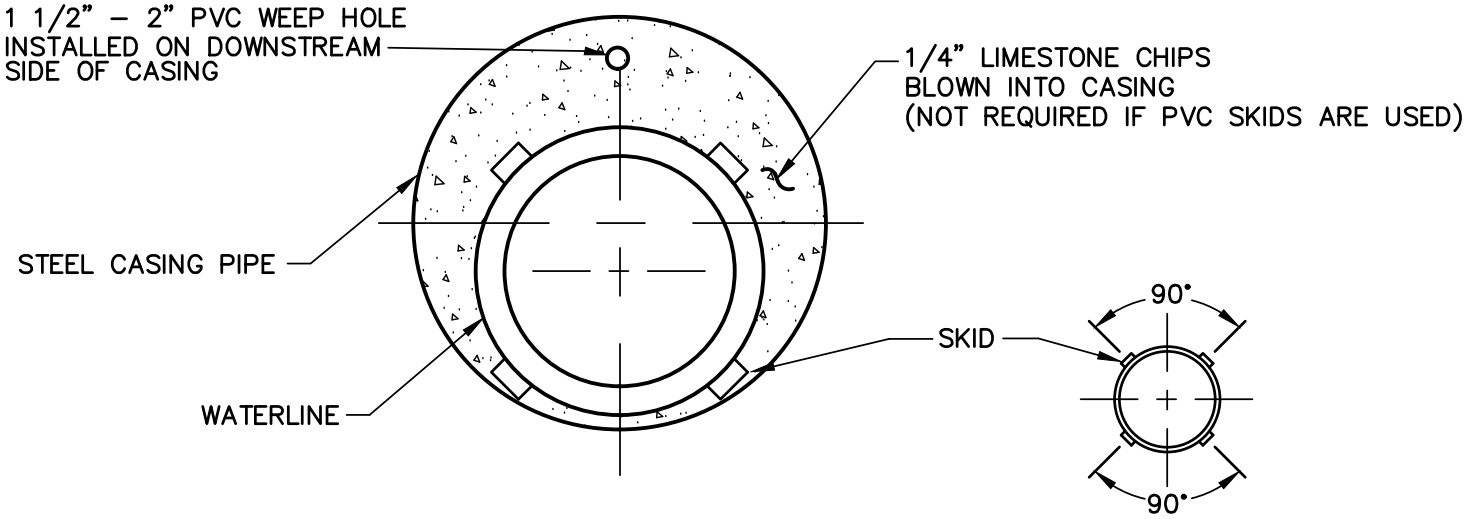
DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W–7

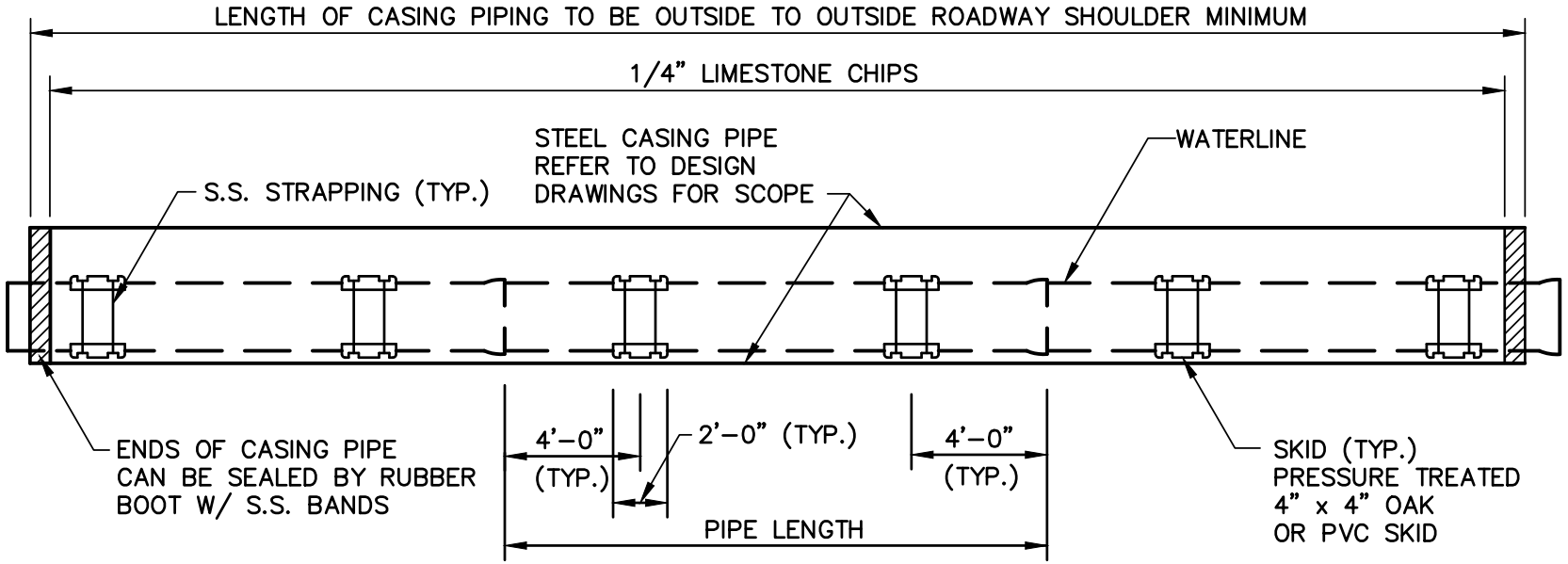
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

STANDARD DETAILS – WATER

CASING DETAILS FOR PIPE BORINGS/TUNNELS



CASING SECTION

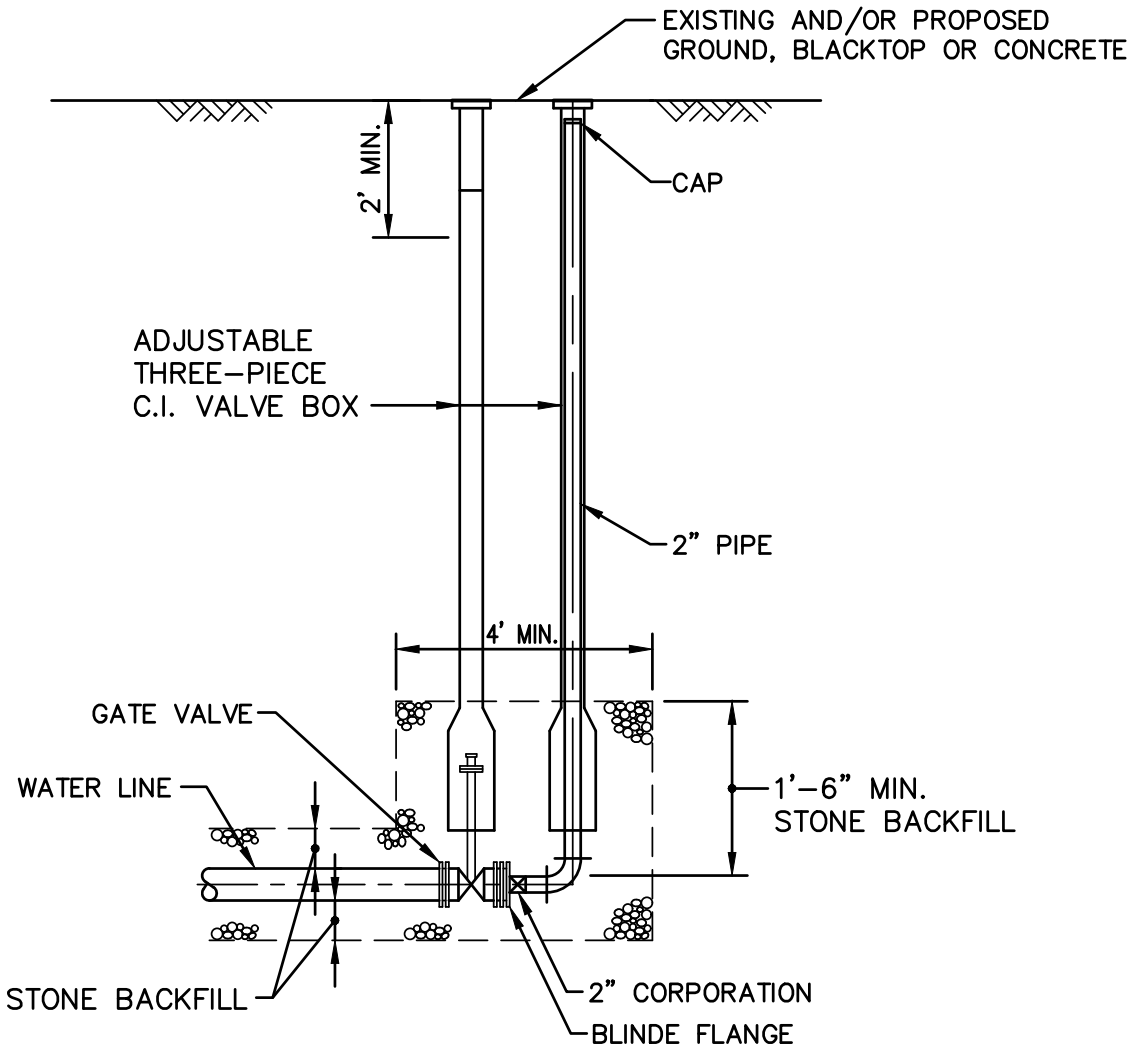


CASING ELEVATION

SCALE	DWG. NO.
NO SCALE	W-8

DATE	REVISIONS
2/18	DWG. CREATED

FILE NAME: W-8-CASING-BACKING.dwg



FILE NAME: W-9-BLOW-OFF.dwg

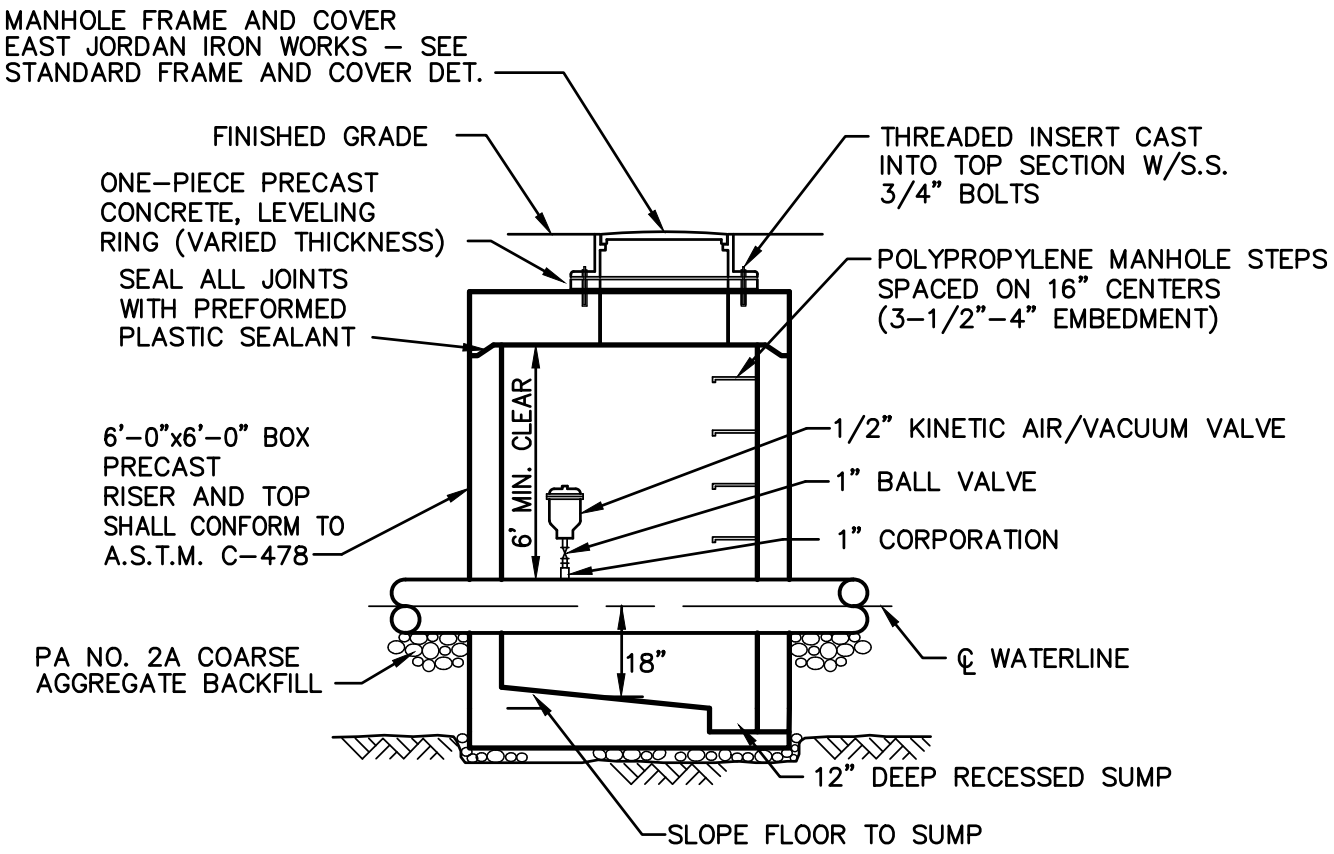
STANDARD DETAILS - WATER

BLOW OFF DETAIL

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-9



FILE NAME: W–10–AIRRELCHAMB.dwg

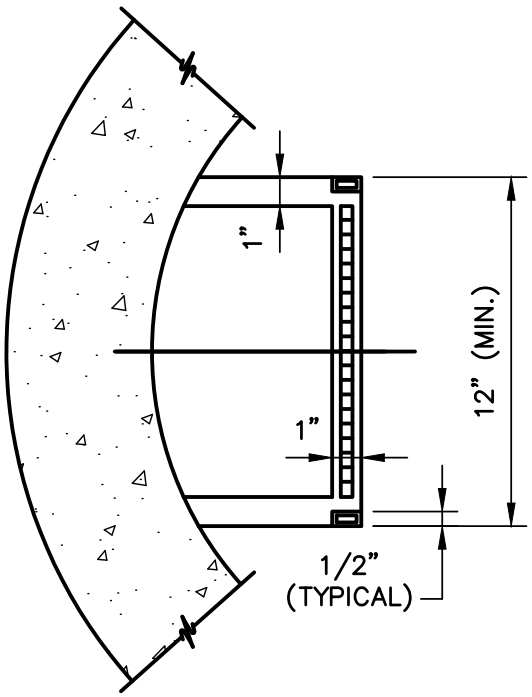
STANDARD DETAILS – WATER

AIR RELEASE VALVE CHAMBER DETAIL

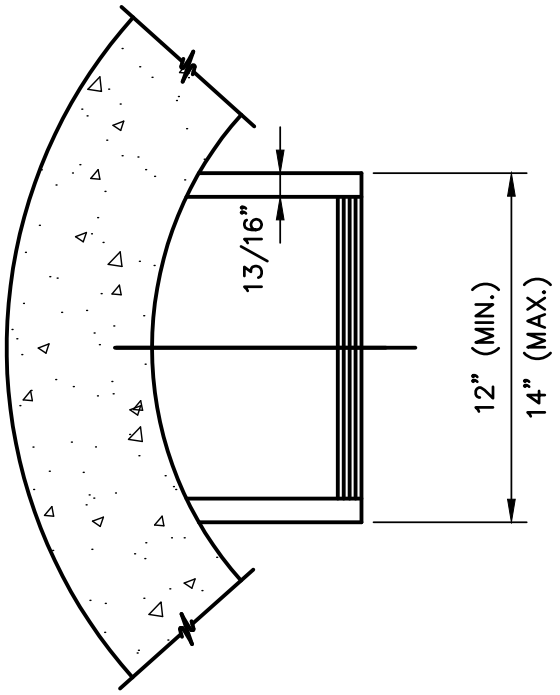
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

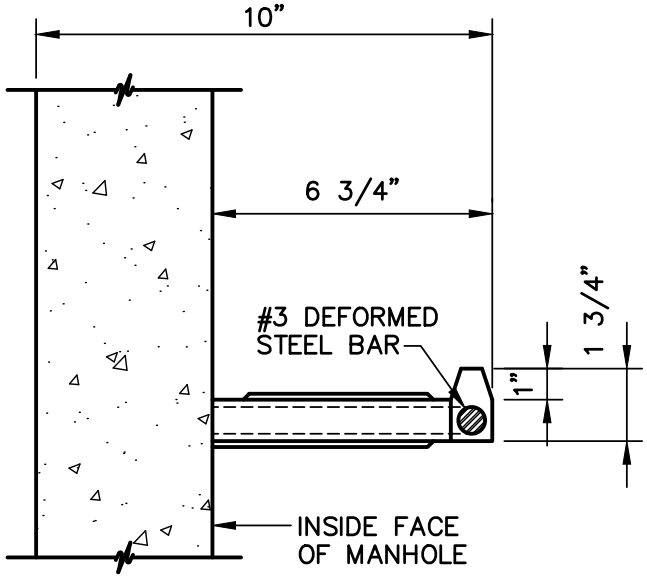
SCALE	DWG. NO.
NO SCALE	W–10



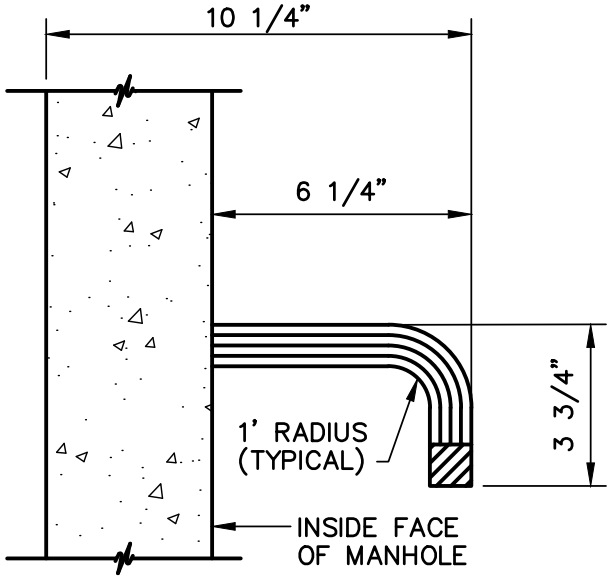
PLAN



PLAN



SECTIONAL ELEVATION
REINFORCED PLASTIC



SECTIONAL ELEVATION
ALUMINUM

FILE NAME: W-11-MANHOLESTEPS.dwg

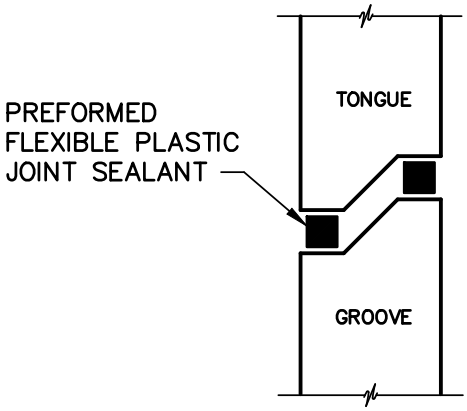
STANDARD DETAILS – WATER

MANHOLE STEPS

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-11



SECTION

FILE NAME: W-12-MHGASKET.dwg

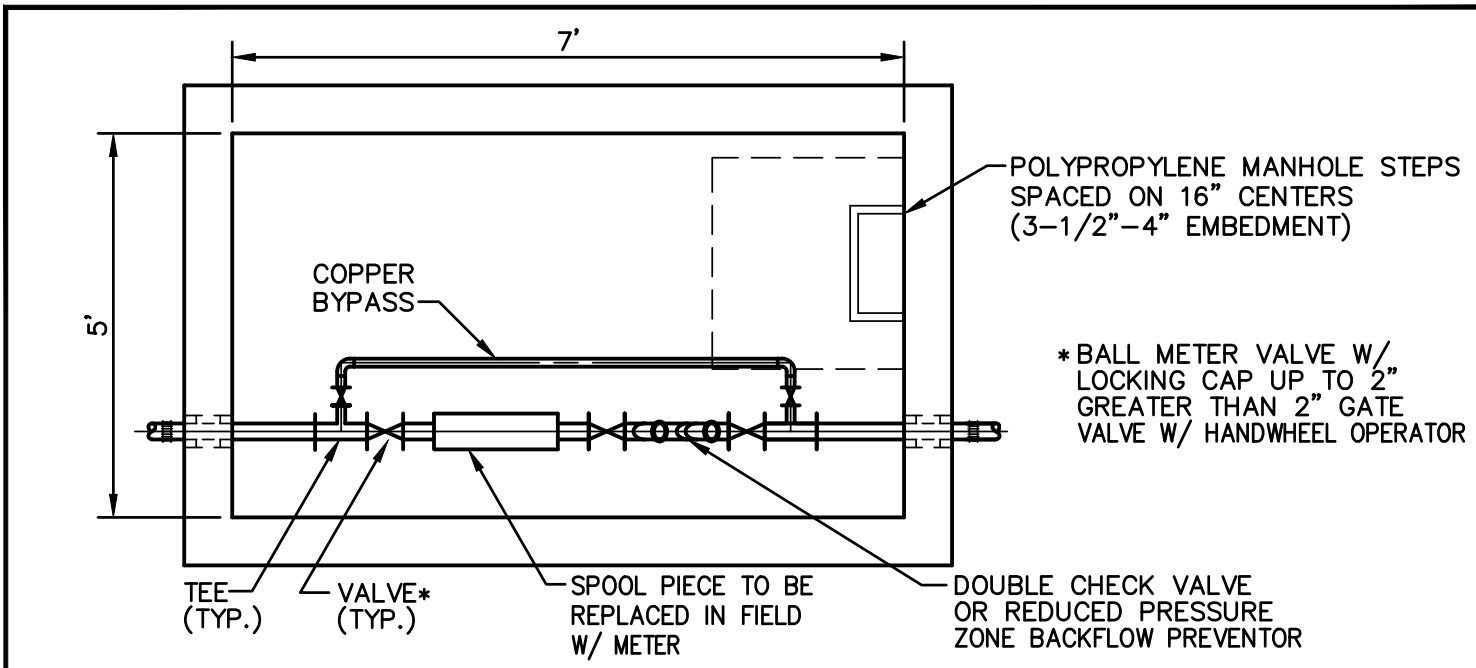
STANDARD DETAILS – WATER

MANHOLE GASKET

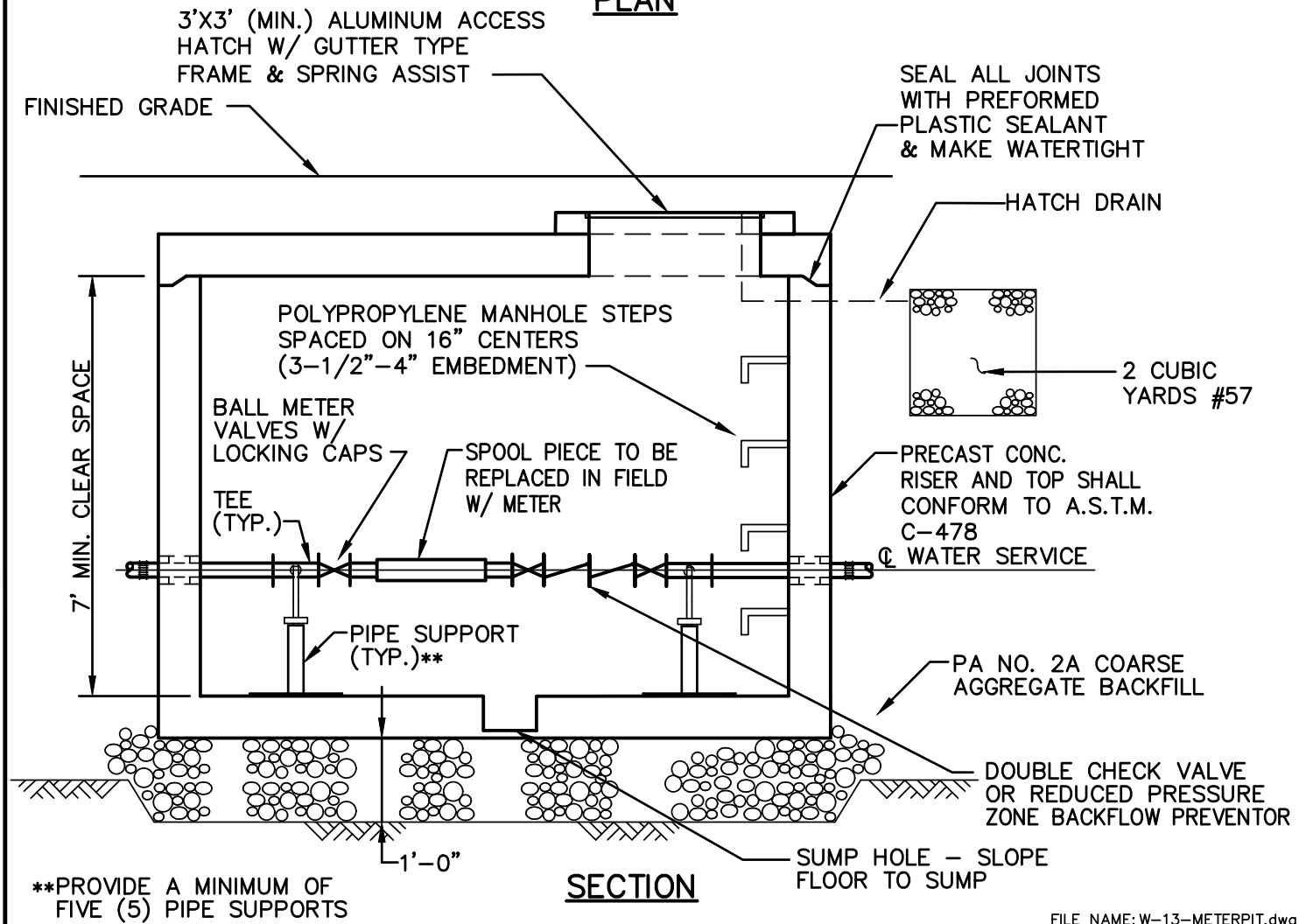
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-12



PLAN



SECTION

**PROVIDE A MINIMUM OF
FIVE (5) PIPE SUPPORTS

FILE NAME: W-13-METERPIT.dwg

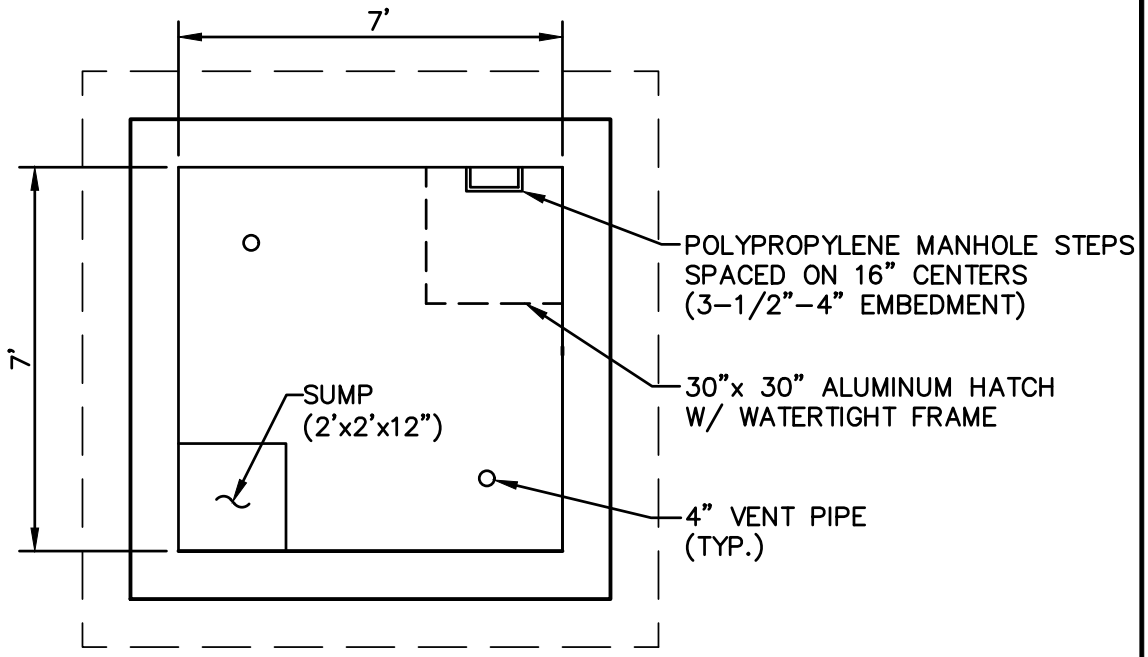
STANDARD DETAILS - WATER

WATER METER CHAMBER DETAIL FOR GREATER THAN 1-1/2" METER

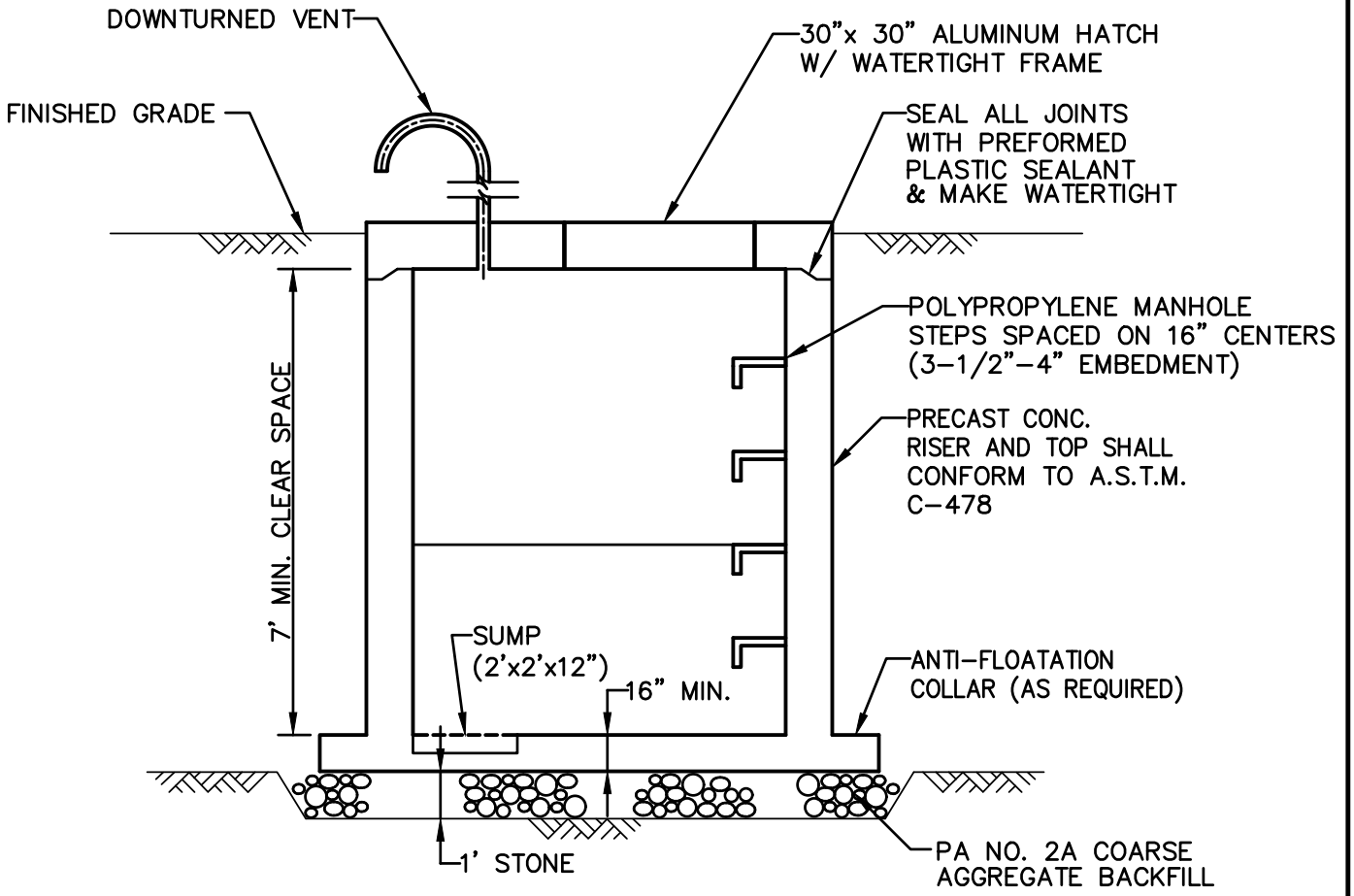
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-13



PLAN



SECTION

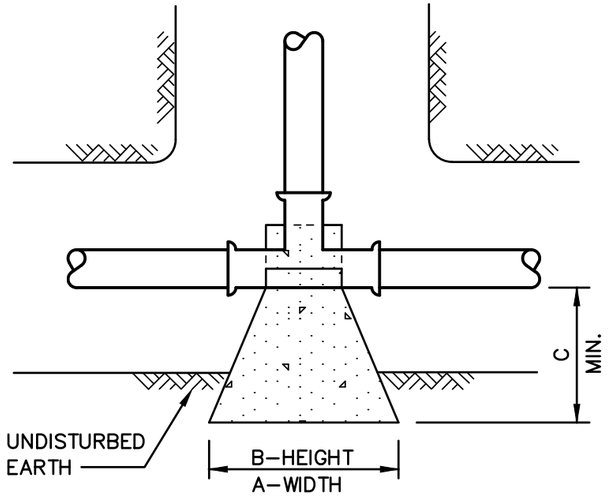
FILE NAME: W–14–PRV–VAULT.dwg

STANDARD DETAILS – WATER

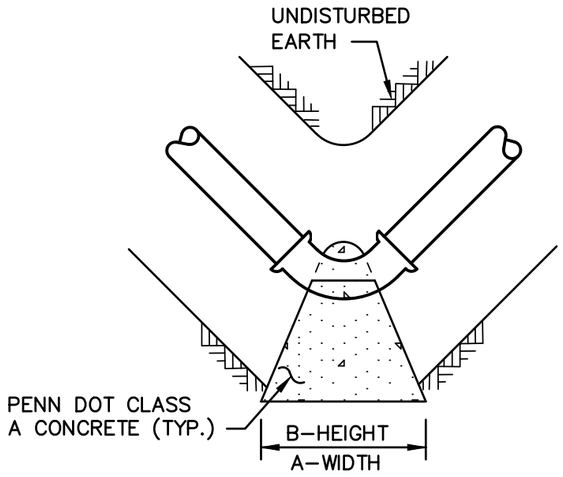
PRV VAULT
(7'–0" x 7'–0")

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

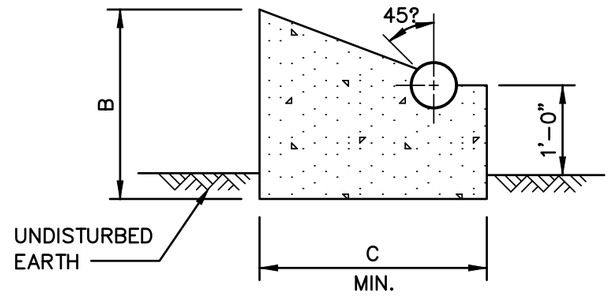
DATE	REVISIONS
2/18	DWG. CREATED
SCALE: NO SCALE	DWG. NO.: W–14



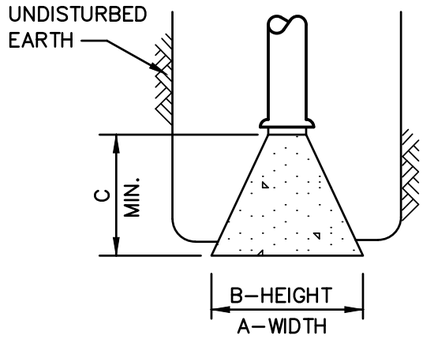
TEES
PLAN



BENDS
PLAN



TYPICAL
ELEVATION

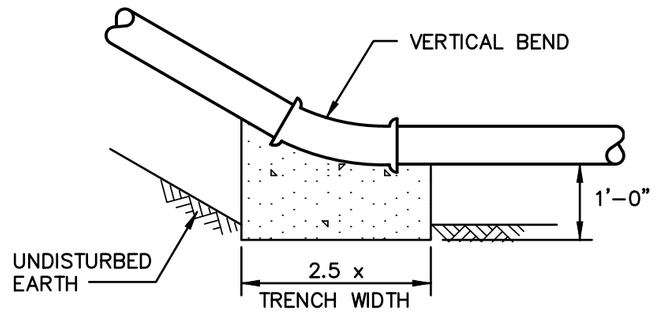


PLUGS
PLAN

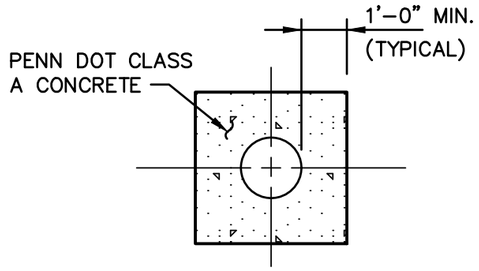
PIPE DIA.	11 1/4°			22 1/2°			45°			90°			PLUG OR TEE		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
3"	1'–0"	1'–0"	1'–6"	1'–0"	1'–0"	1'–6"	1'–0"	1'–0"	1'–6"	1'–6"	1'–6"	1'–6"	1'–0"	1'–0"	1'–0"
4"	1'–0"	2'–0"	2'–0"	1'–3"	2'–0"	2'–0"	1'–6"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–6"	2'–0"	2'–0"
6"	1'–0"	2'–0"	2'–0"	1'–3"	2'–0"	2'–0"	1'–6"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–6"	2'–0"	2'–0"
8"	1'–0"	2'–0"	2'–0"	1'–3"	2'–0"	2'–0"	1'–6"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–6"	2'–0"	2'–0"
10"	1'–0"	2'–0"	2'–0"	1'–6"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–6"	2'–0"	2'–0"	3'–0"	2'–6"	2'–0"
12"	1'–0"	2'–0"	2'–0"	2'–0"	2'–0"	2'–0"	3'–0"	3'–0"	2'–0"	3'–6"	3'–6"	2'–0"	4'–0"	4'–0"	2'–0"
16"	2'–0"	2'–0"	2'–0"	2'–6"	2'–6"	2'–0"	3'–6"	3'–6"	2'–0"	5'–0"	5'–0"	2'–0"	5'–6"	5'=6"	2'–0"

HORIZONTAL REACTION BACKING DETAILS
NO SCALE

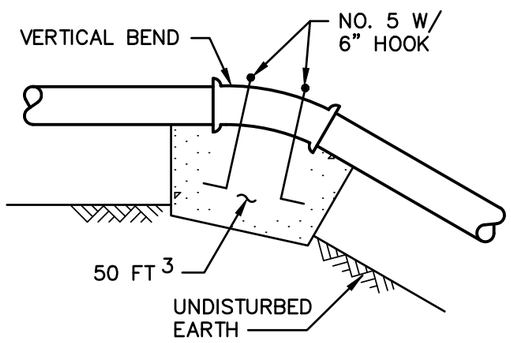
NOTE:
ALL MJ FITTINGS TO BE
WRAPPED IN PLASTIC PRIOR
TO POURING REACTION BACKINGS



VERTICAL REACTION BACKING DETAIL
NO SCALE



CONCRETE ENCASEMENT DETAIL
NO SCALE



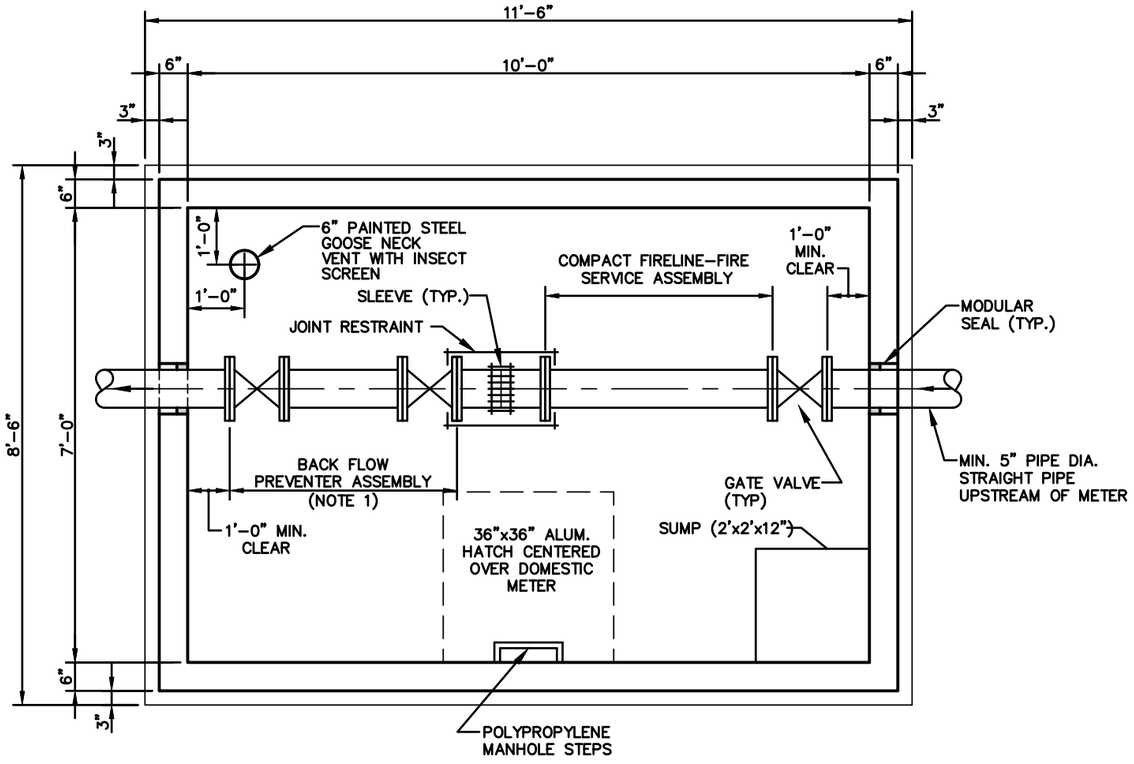
VERTICAL REACTION BACKING DETAIL
NO SCALE

FILE NAME: W–15–REACTION–BACKING.dwg

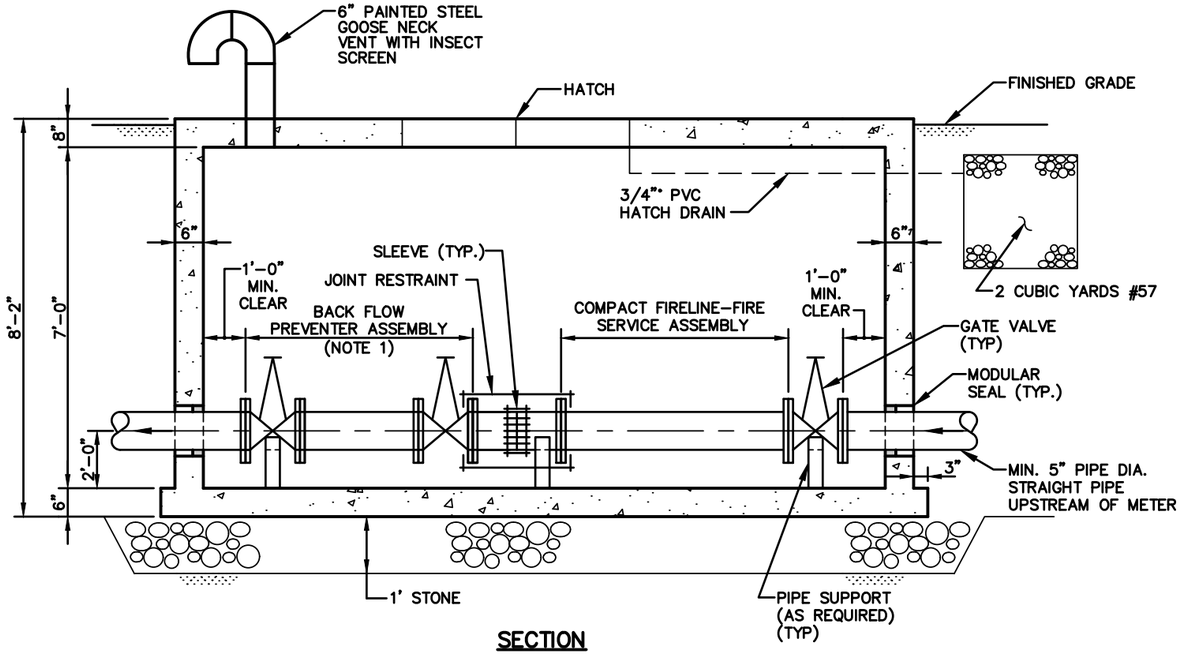
STANDARD DETAILS
REACTION BACKINGS AND CONCRETE ENCASEMENT
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W–15



PLAN



SECTION

NOTES:

1. TYPE OF BACKFLOW PREVENTER, DCV OR RPZ, TO BE DETERMINED BY AUTHORITY DEPENDING ON APPLICATION.
2. SIZE VARIES DEPENDING ON DIAMETER OF PIPING, VALVES AND SPECIALS.
3. SUMP HOLE RECESSED IN FLOOR. SLOPE FLOOR TO SUMP HOLE.
4. PROVIDE REMOTE READOUT FOR METERS.

FILE NAME: W-16-FIRE-CHAMBER.dwg

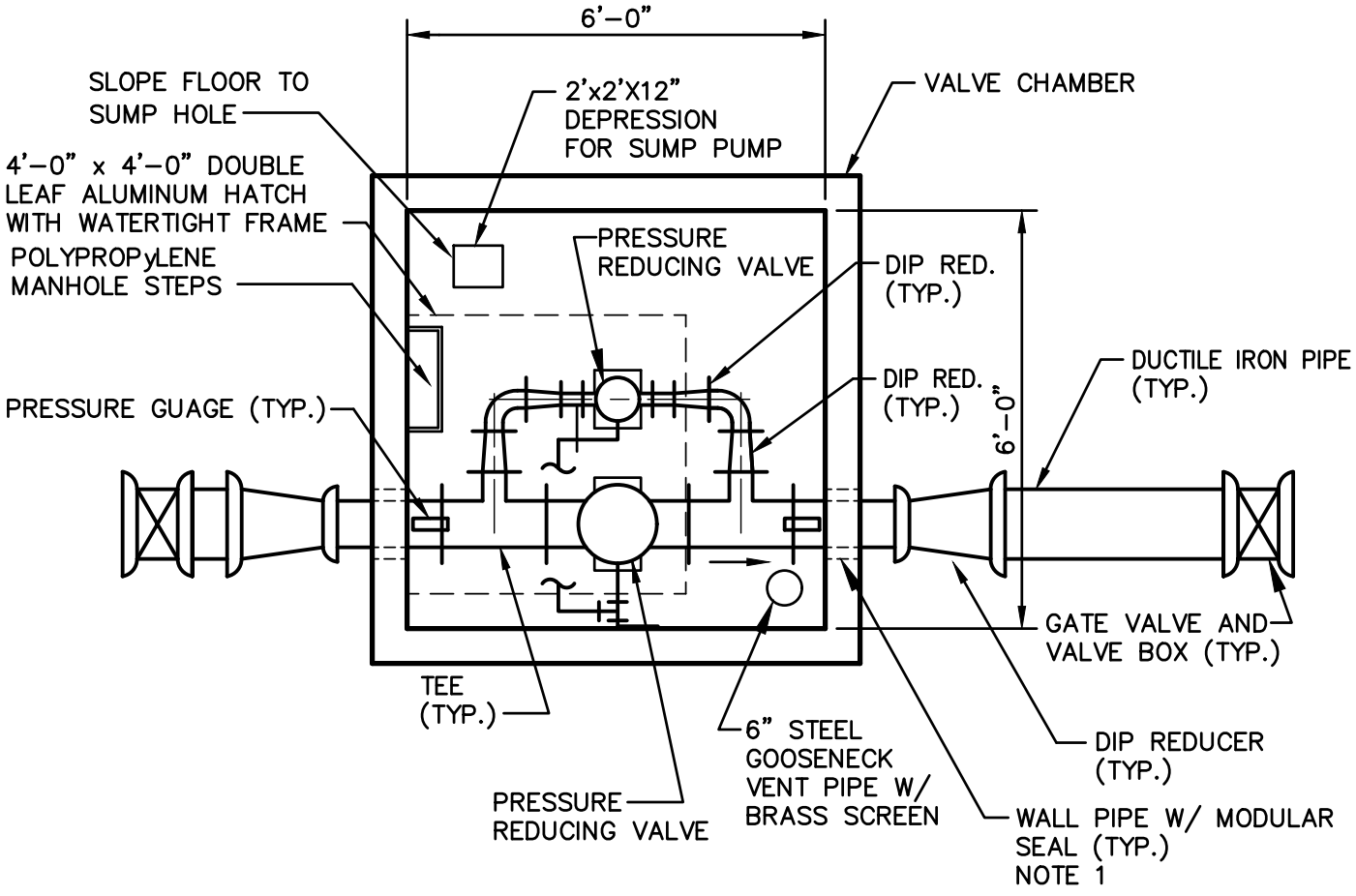
STANDARD DETAILS – WATER

DOMESTIC AND FIRE SERVICE METERING CHAMBER

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-16



NOTES:

1. PRV DIAMETERS AS PER MANUFACTURER RECOMMONDATIONS.

FILE NAME: W–17–PRV–CHAMBER.dwg

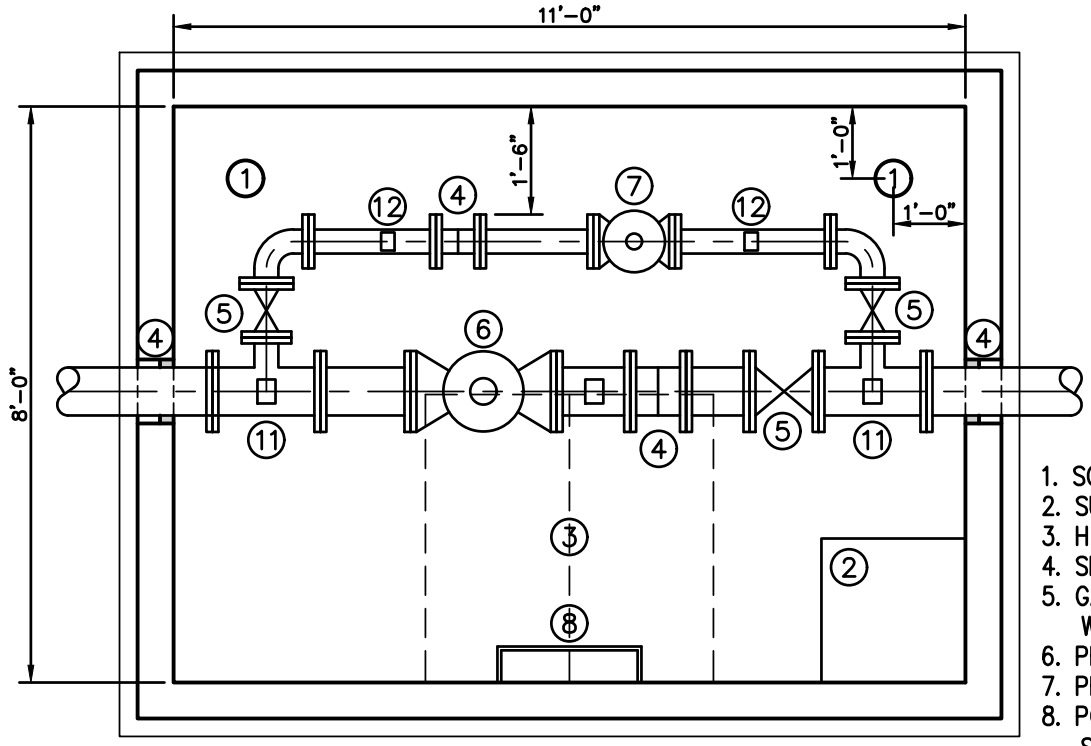
STANDARD DETAILS – WATER

PRESSURE REDUCING VALVE CHAMBER

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

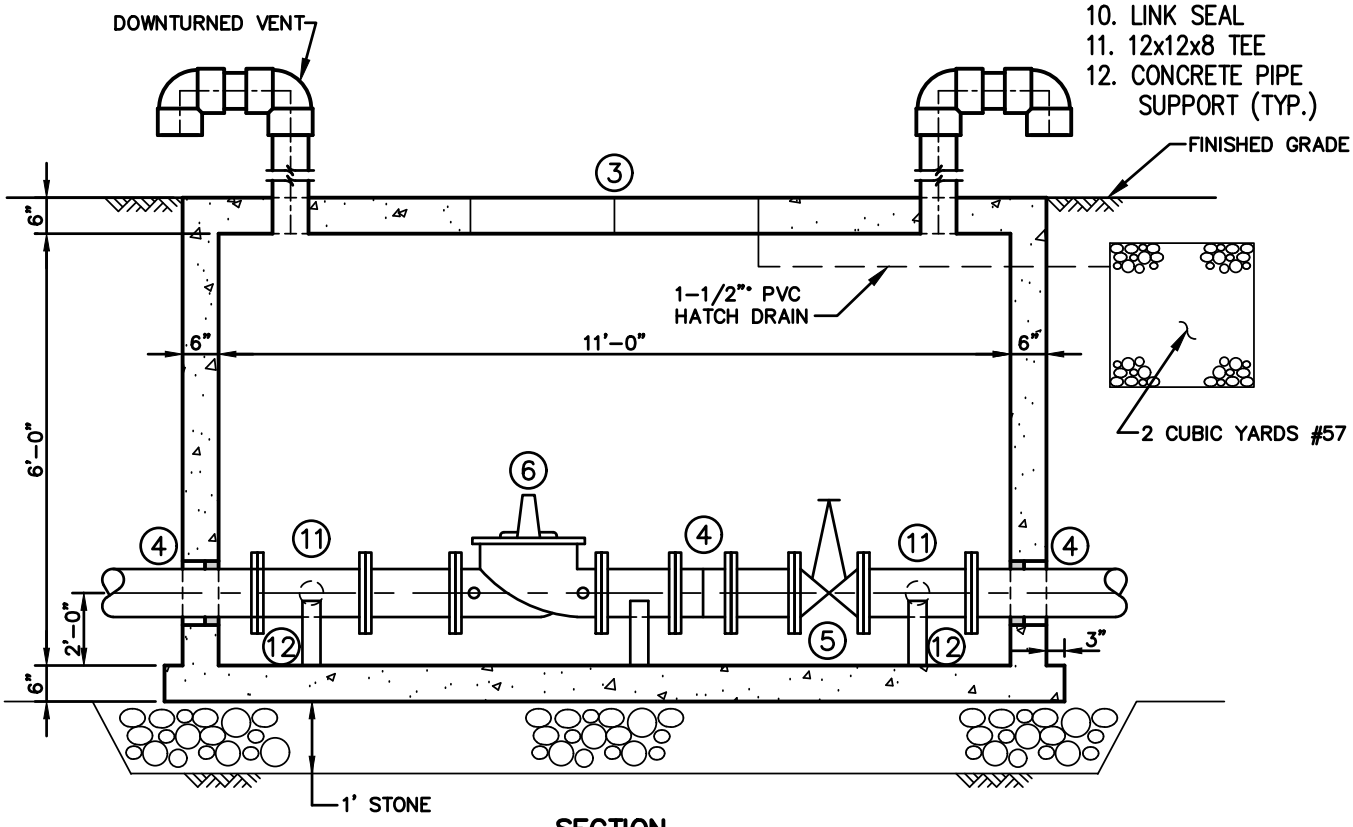
DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W–17



PLAN

1. SCH. 40 VENTS 6" ø
2. SUMP (2'x2'x12")
3. HATCH (48"x48")
4. SLEEVE (TYP.)
5. GATE VALVE W/ HAND WHEEL OPERATORS
6. PRV 8"
7. PRV 4"
8. POLYPROPYLENE MANHOLE STEPS
9. PRESSURE GAUGE
10. LINK SEAL
11. 12x12x8 TEE
12. CONCRETE PIPE SUPPORT (TYP.)



SECTION

** SUMP TO BE RECESSED INTO FLOOR SLOPE FLOOR TO SUMP. DO NOT DAYLIGHT

FILE NAME: W-18-PRV-VAULT.dwg

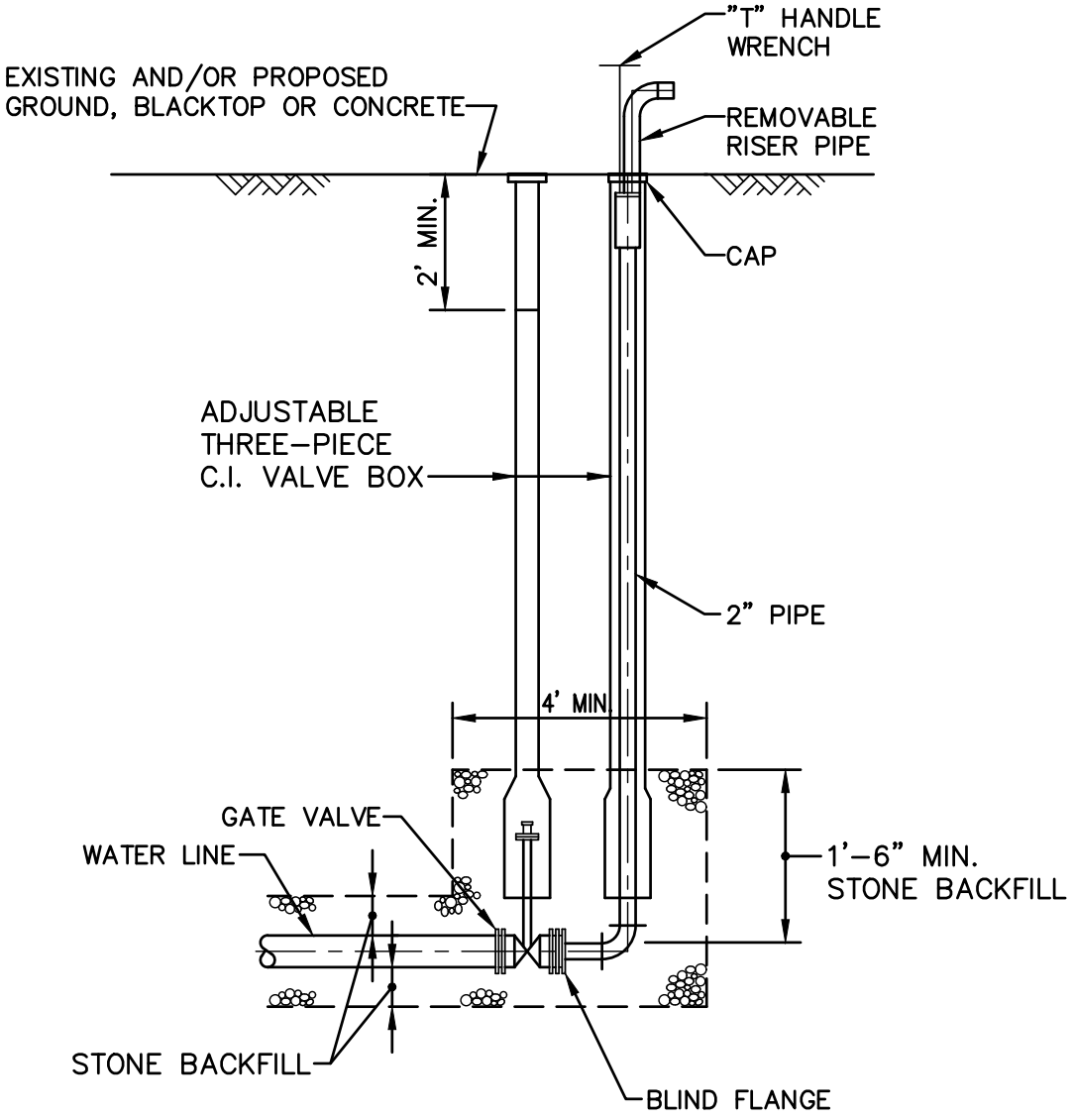
STANDARD DETAILS - WATER

PRECAST CONCRETE PRV VAULT

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-18



NOTE:

1. BLOW OFF HYDRANT TO BE TRUFLO TF500 BY KUPFERLE OR APPROVED EQUAL.

FILE NAME: W-19-FIRE-HYD-BLOW-OFF.dwg

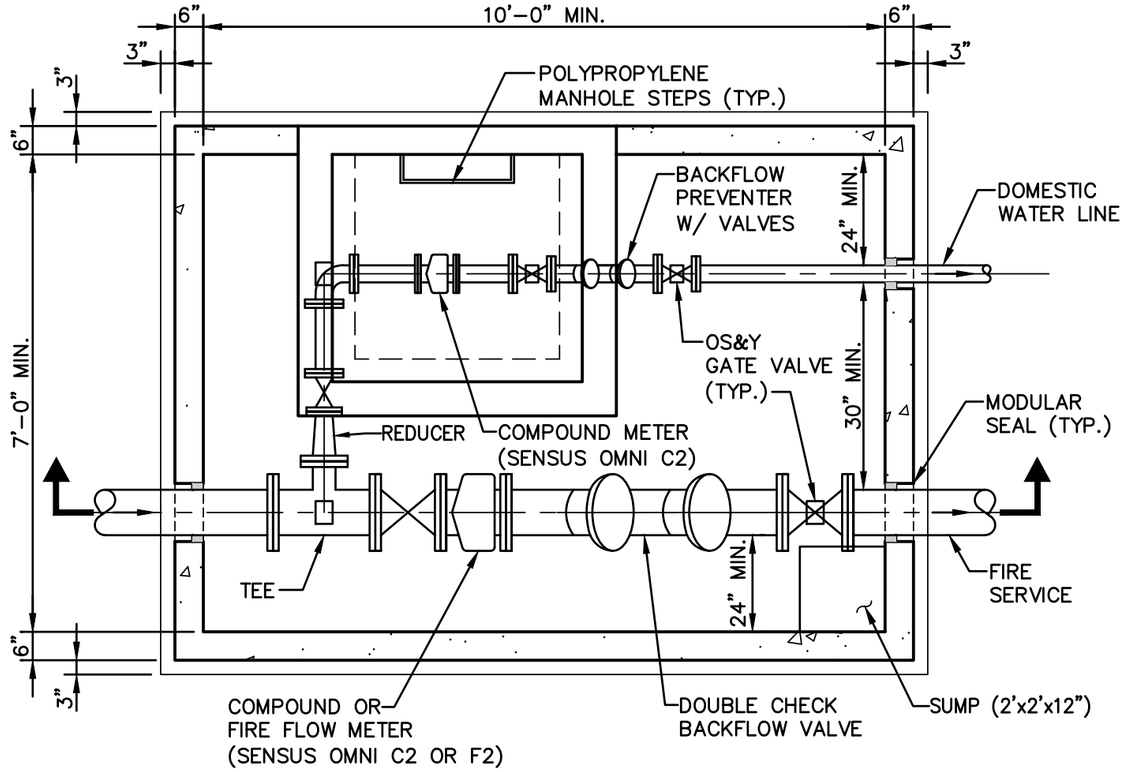
STANDARD DETAILS - WATER

2" BLOW-OFF HYDRANT DETAIL

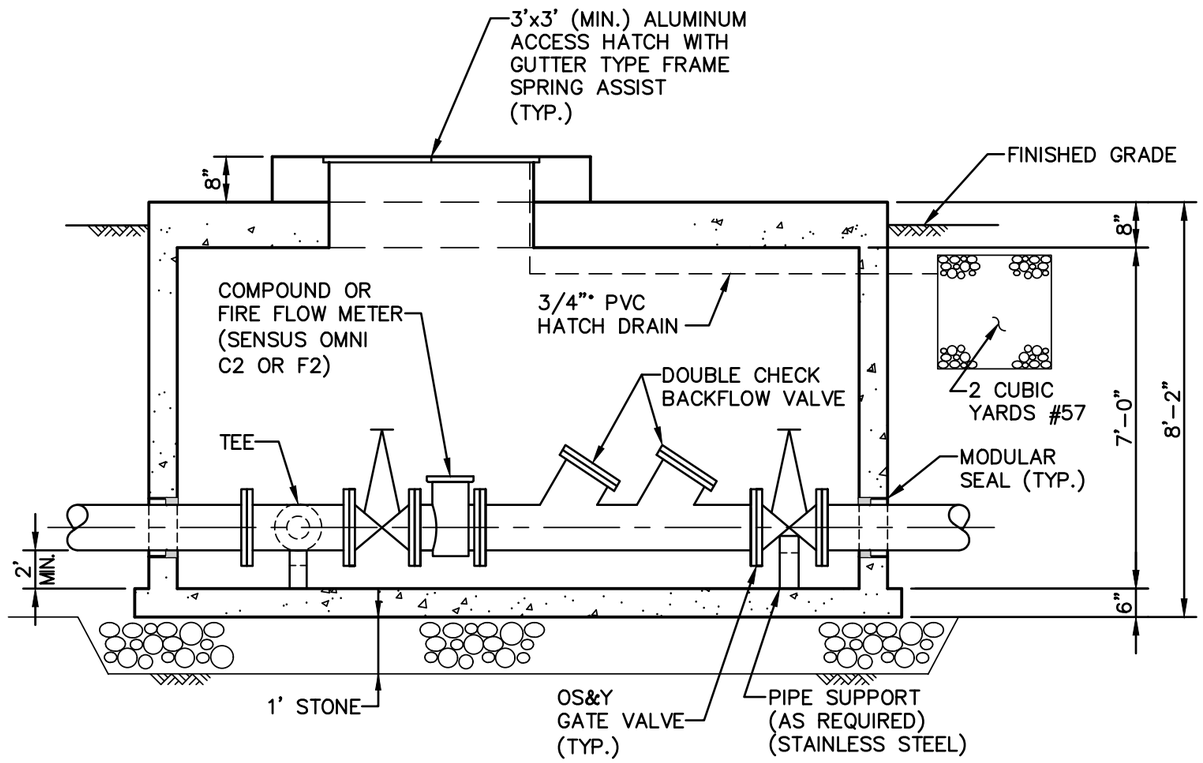
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-19



PLAN



SECTION

NOTES:

1. TYPE OF BACKFLOW PREVENTER, DCV OR RPZ, TO BE DETERMINED BY AUTHORITY DEPENDING ON APPLICATION.
2. SIZE VARIES DEPENDING ON DIAMETER OF PIPING, VALVES AND SPECIALS.
3. SUMP HOLE RECESSED INTO FLOOR. DO NOT DAYLIGHT.
4. PROVIDE REMOTE READOUT FOR METERS.
5. METER REQUIRED FOR FIRE LINE (SENSUS OMNI C2 OR F2).
6. ALL VALVES TO HAVE HAND WHEELS.
7. MINIMUM CLEARANCE:
   DOMESTIC AND FIRE LINE TO INSIDE WALL = 24"
   DOMESTIC TO FIRE LINE = 30".

FILE NAME: W–20–Dom–Fire–Meter–Chamber–2.dwg

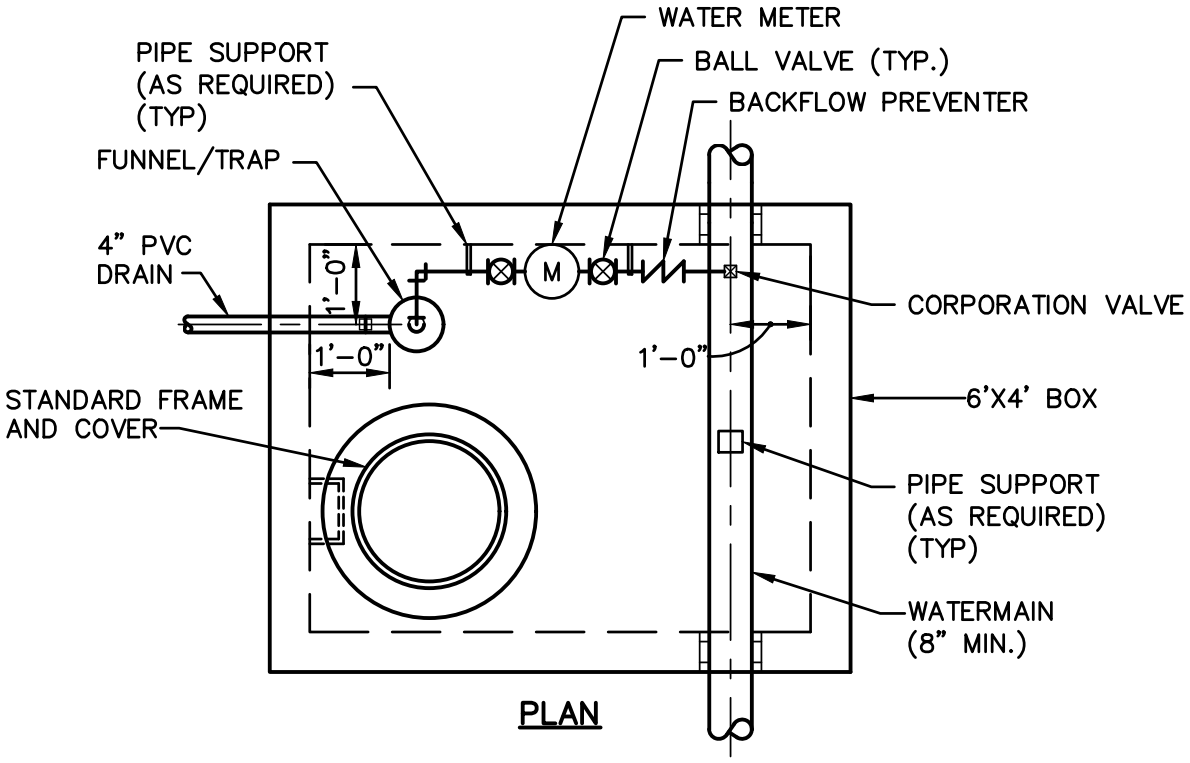
STANDARD DETAILS – WATER

DOMESTIC AND FIRE SERVICE METERING CHAMBER

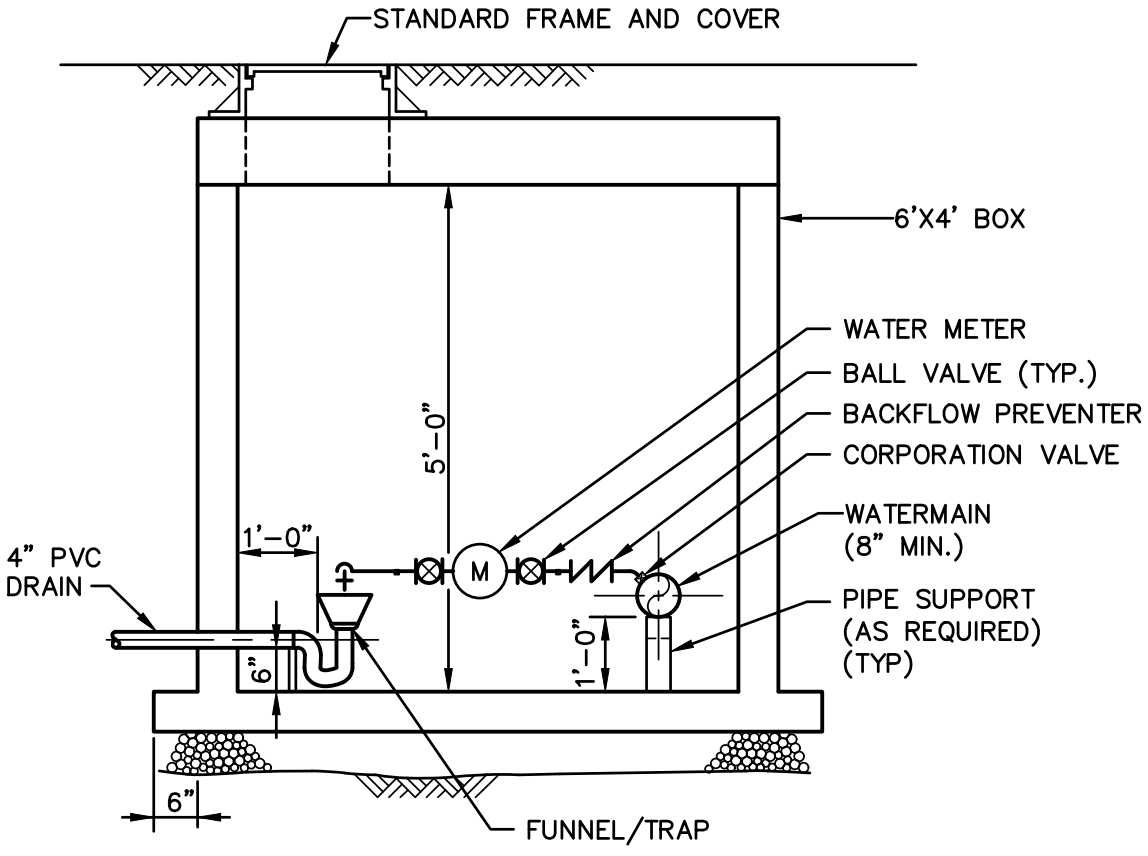
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED
9/22	DWG. UPDATED

SCALE	DWG. NO.
NO SCALE	W–20



PLAN



SECTION

FILE NAME: W-21-DIST-SYS-FLUSH-CHBR.dwg

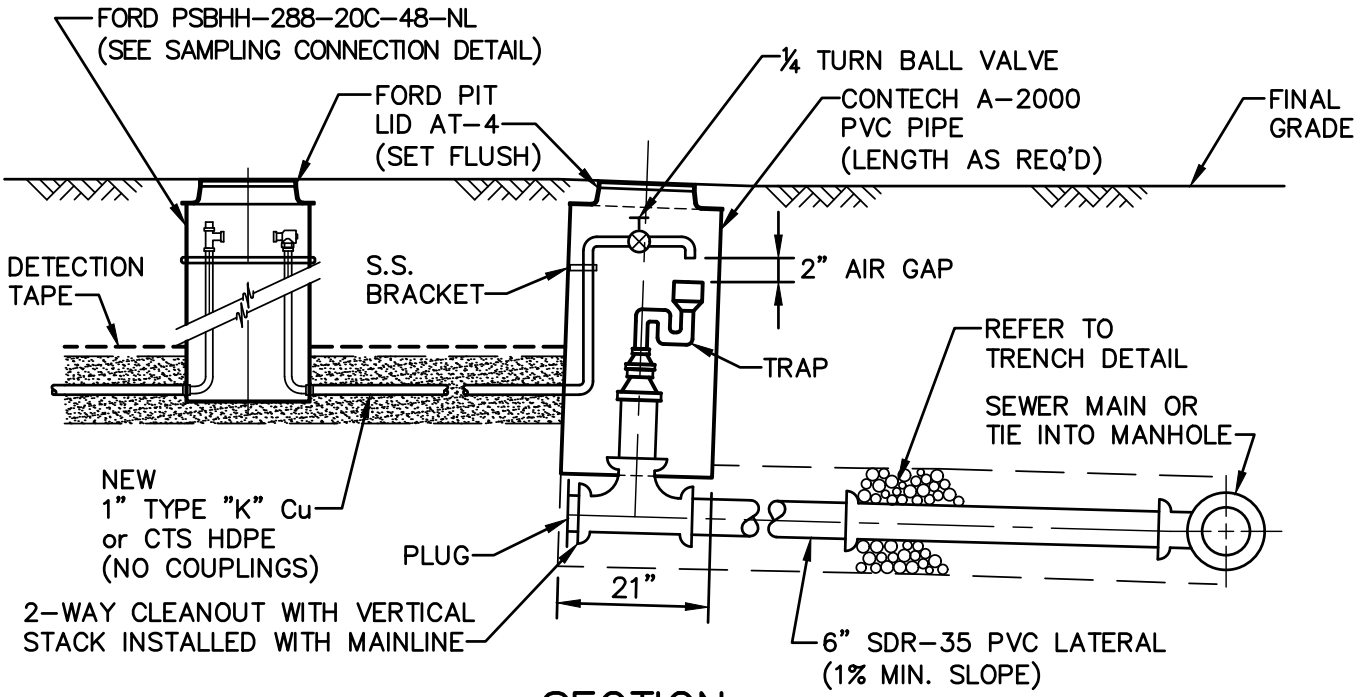
STANDARD DETAILS

DISTRIBUTION SYSTEM FLUSHING CHAMBER

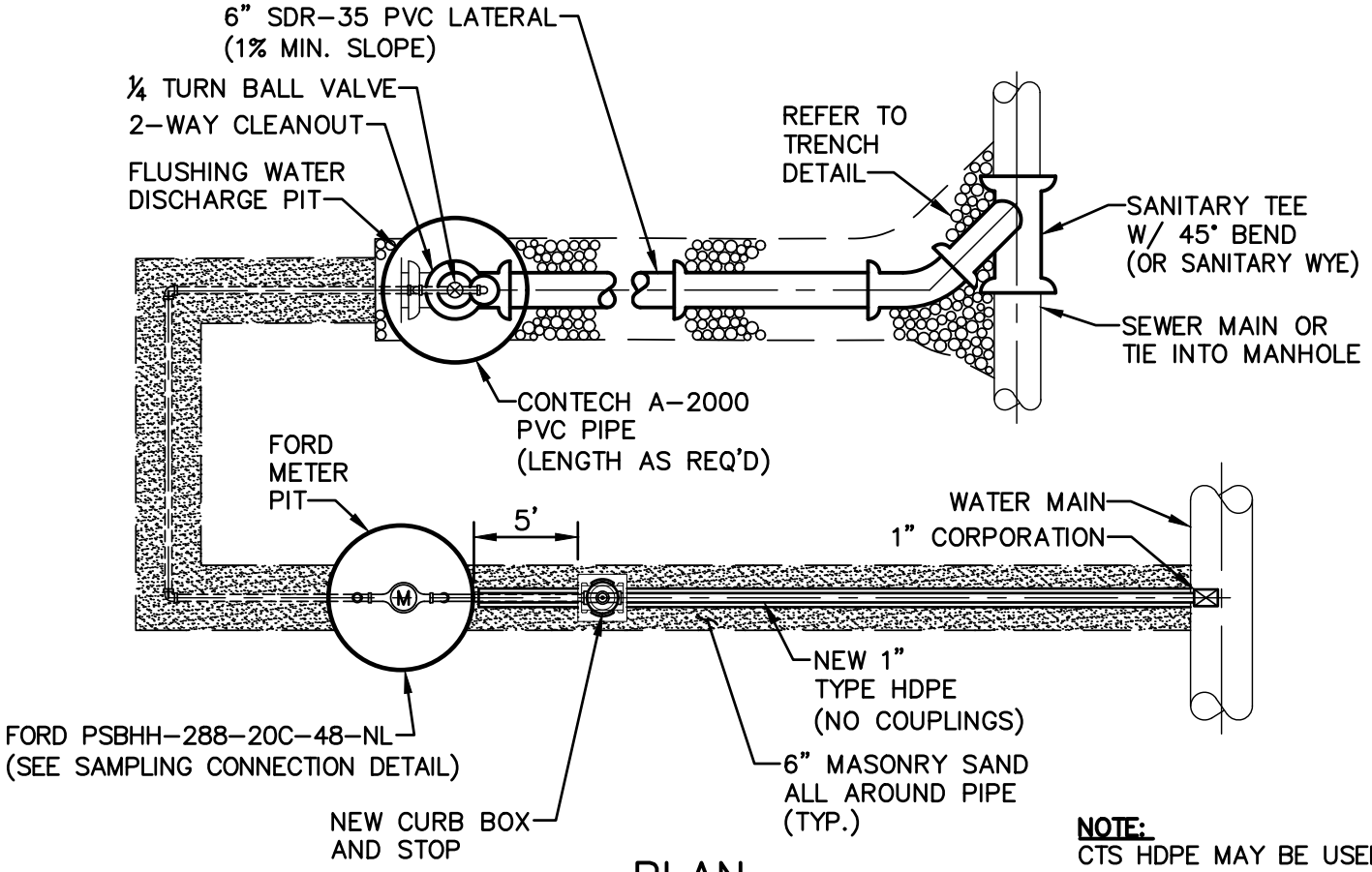
SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
2/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-21



SECTION



PLAN

NOTE:
CTS HDPE MAY BE USED IN PLACE OF TYPE "K" Cu

FILE NAME: W-22-DIST-SYS-FLUSH-SERV.dwg

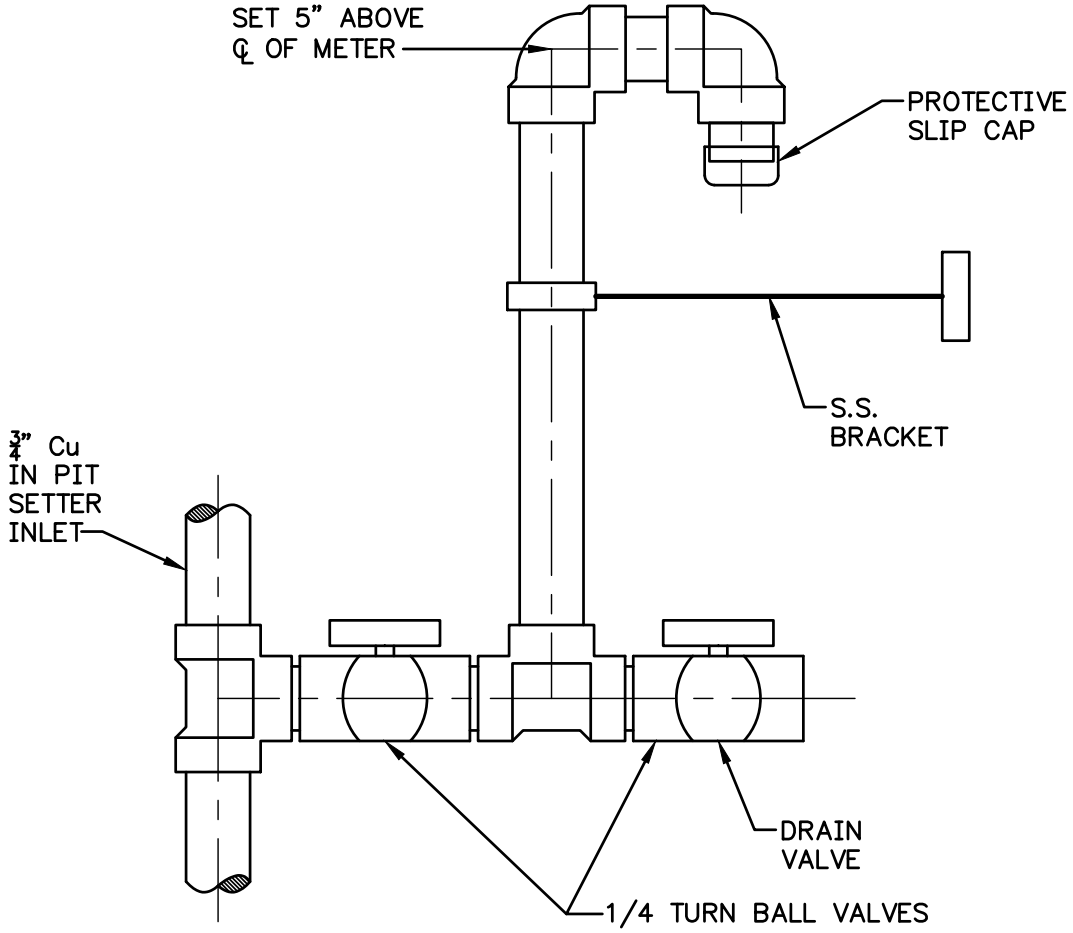
STANDARD DETAILS

DISTRIBUTION SYSTEM FLUSHING

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
7/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-22



FILE NAME: W-23-SAMP-CONN-PL-PITSETTER.dwg

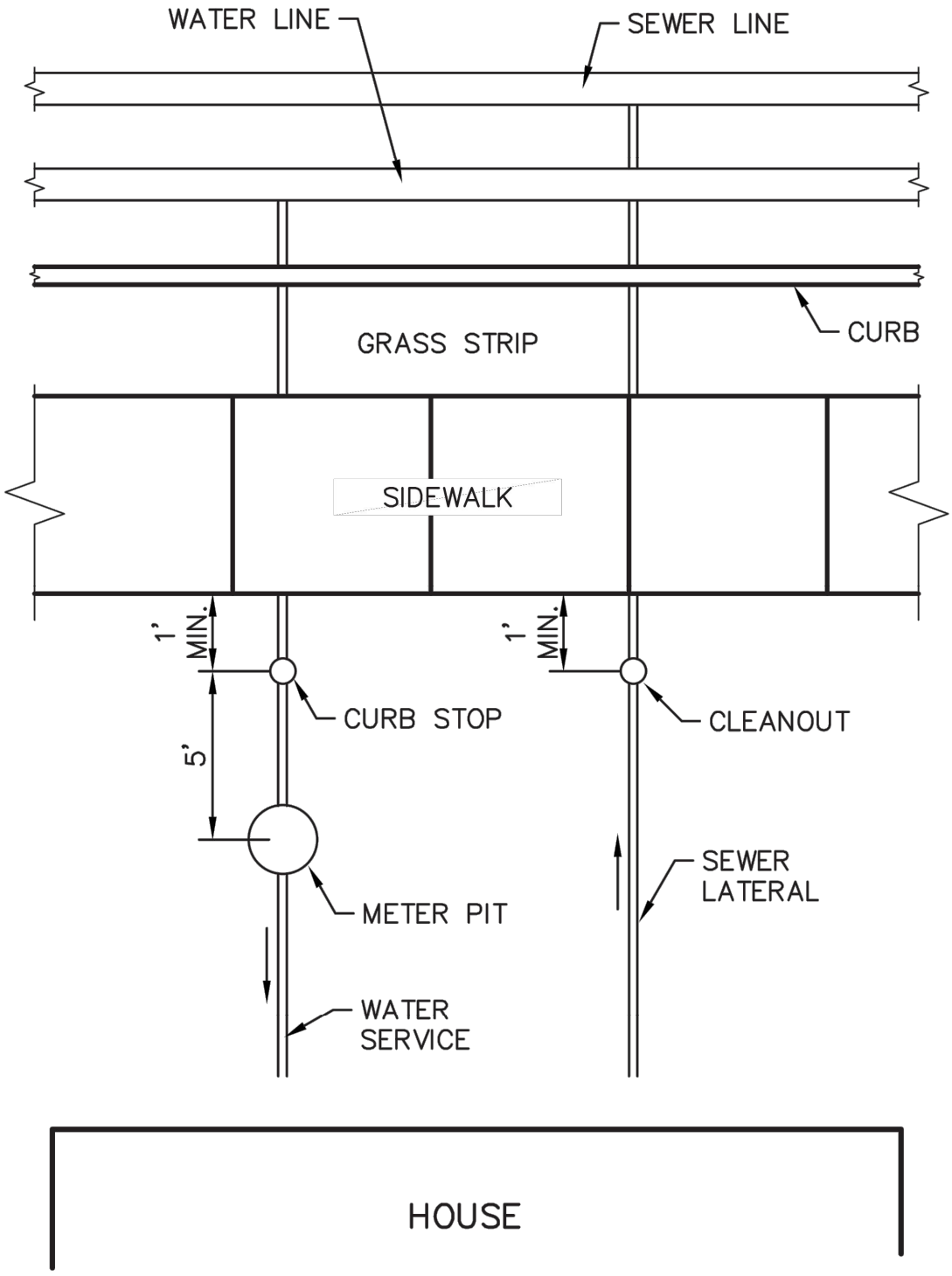
STANDARD DETAILS

SAMPLING CONNECTION IN PLASTIC PITSETTER

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
7/18	DWG. CREATED

SCALE	DWG. NO.
NO SCALE	W-23



SERVICE LINE CONNECTION DETAIL

N.T.S.

FILE NAME:W-24-SERV-LOC.dwg

STANDARD DETAILS

SERVICE LINE CONNECTION DETAIL

SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY

DATE	REVISIONS
5/21	DWG. CREATED
SCALE: NO SCALE	DWG. NO.: W-24