PETERS TOWNSHIP SANITARY AUTHORITY
SEWER USE RULES AND REGULATIONS
APPENDIX B
November 29, 2004

Standard Specifications and Procedures for Construction of Building Sewers

Adopting Resolution: 01-09-02	Effective for Permits Issued After: October 1, 2002 And for all Installations After: December 31, 2002
Revision No. 1: Adopting Resolution: 12-08-03	Amending Procedures for Testing Exist. Building Drains Effective for Permits Issued After: August 15, 2003
Revision No. 2: **Adopting Resolution: 04-12-04**	**Amending Permitted Pipe Material & Appurtenances** **Effective for Permits Issued After: January 1, 2005**
Date Revision No. 2 Provided to Pa. Dept. L&I:	

These Rules and Regulations for the construction of building sewers apply to the construction of all new building sewers installed after the effective date, to all change of occupancy of any existing structure, and to all replacement, relocation, and addition of existing building sewers, including all repairs to the building sewer that require replacement of any portion of the sewer.

These specifications and procedures are intended to be in general conformance with accepted plumbing standards including the International Plumbing Code and the International Building Code, and the Pennsylvania Uniform Construction Code. The Department of Labor & Industry approved the portions of these specifications exceeding the UCC by letter dated August 30, 2004. Subsequent Township Ordinance adoption (Ordinance No. 647) occurred on November 22, 2004. Where differences exist between these specifications and the aforementioned codes, these specifications shall apply.

Interpretation of Specifications: Where circumstances arise that cause uncertainty in the application of these specifications, the Authority Manager is authorized to determine the procedure to be implemented.

Code Implementation Responsibility: Peters Township Ordinance No. 79 requires that all private sewer lines and building sewer laterals shall be in conformance with the rules and regulations established by the Peters Township Sanitary Authority, and shall be inspected by the Authority. The Peters Township Building Inspection Department is the responsible code official for enforcing the plumbing codes relative to interior plumbing and the building drain with the exception of non-residential establishments that generate grease and oils and are required to have grease traps. Peters Township Ordinance No. 219 as amended by Ordinance No. 232 assigned Peters Township Sanitary Authority the responsibility for prescribing the size and type of grease trap and inspecting their operation. The aforementioned ordinances provide for fines for violations of the established codes and procedures.

Prohibited Discharges: Refer to the complete Peters Township Sanitary Authority Rules & Regulations for a complete list of prohibited substances. The following is a summary: No person or user shall connect to the sanitary sewer any roof drain, area drain, or foundation drain thereto or permit any such drain to remain connected thereto, nor permit, allow, or cause to enter into any sanitary sewer or building sewer connected thereto any surface water, groundwater, or spring water from any source. Furthermore, no person or user shall discharge any grease or oils, or any substance that may cause an obstruction to the sewer or any waste containing liquids, solids, or gases which may cause fire, corrosion, explosion, or be in any way injurious to persons, structures or the Authority's wastewater treatment processes. Specific local, State and Federal discharge standards and prohibitions apply.

DEFINITIONS:

Certain words, when used in these specifications, shall have the following meanings:

1. Authority – The Peters Township Sanitary Authority (PTSA) or its agents.

2. Applicant – The property owner(s) or its agent(s), that acquires service from the Authority, either directly or by acquiring or occupying property with existing service.

3. Building Drain – The part of the lowest piping of the sanitary drainage system that receives discharge from soil, waste, and other sewer pipes inside the building and that extends beyond the walls of the building to the Building Trap and conveys sewage to the building sewer.

4. Building Sewer – The part of the sanitary drainage system that extends from the building trap and conveys sewage to the Authority's collector sewer main. The building sewer also encompasses the "service connection". The building sewer is sometimes commonly referred to as the "service sewer" or the "service lateral". The building sewer is owned by the property owner, and the property owner is solely responsible for the maintenance of the building sewer up to the point of connection with the sewer main.

5. Building Trap – A device, fitting, or assembly of fittings installed at the end of the building drain to prevent circulation of air and/or noxious gases from the building sewer to the building drain. The building trap shall be equipped with a fresh air vent on the inlet side of the trap which is carried above grade and is terminated in a screened, rodent proof outlet located outside the building.

6. Backwater Valve – A device equipped with a moveable flap or float that closes shut by reverse flow of water in the building drain or building sewer to prevent backflow of sewage into a building.

7. Cleanout – An access opening in the building sewer or building drain, equipped with a removable, watertight cover, utilized for the removal of obstructions in the building sewer. Cleanouts are required every 100 feet for 4-inch and 6-inch diameter sewers, and at all direction changes greater than 45 degrees, at the terminus of service connections crossing roadways (public and private), and where directed by the Authority's representative.

8. Collector Sewer Main – The portion of the public sewer system that collects sewage from the properties served. Sewer mains are typically 8-inches in diameter, but may be larger, and may also be 6-inches in diameter in older subsystems at the upper reaches of the subsystem.

9. Force Main – The discharge piping from a pump or pumps that coveys the liquid being pumped under pressure to a point of discharge.

10. Grease Trap – A device designed for the removal of grease, fats, and oils by flotation, and skimming. All non-residential establishments that process foods or generate grease or oils shall be equipped with a grease trap approved by the Authority. It may also be called grease interceptor. Grease traps are the devices used for food establishments. Oil interceptors are the devices used for automobile service establishments.

11. Grit/Sand Interceptor – A device designed for the removal of grit and sand from the wastewater stream of commercial establishments such as car washes.

12. Hair Interceptor – A device installed in the waste plumbing lines that consists of a straining element to trap hair. All barber shops, beauty salons, and veterinary hospitals or kennels are required to be equipped with hair interceptors.

13. Interceptor Sewer – Trunk sewers discharge to interceptor sewers which convey all wastewater to the headworks of the wastewater treatment plants. Seldom are building sewers connected directly to interceptor sewers. When they are, backflow valves may be required even if basement elevations are higher than upstream manholes because manhole covers may be locked tight to prevent flood conditions from entering the sewer system.

14. Lint Interceptor – A device installed in the discharge line from commercial laundry equipment that consists of a straining element to trap lint, strings of fabric, buttons, and other debris. Required at all commercial laundries.

15. Public Sanitary Sewage System – Sometimes called “sewer system” or “Publicly Owned Treatment Works (POTW)”. All collector sewers, trunk sewers, interceptor sewers, force mains, pump stations, and other sewage collection, conveyance, and treatment facilities owned or leased by the Peters Township Sanitary Authority. It does not include building sewers, service connections, or storm sewers.

16. Occupancy – The purpose for which a building or portion thereof is utilized or occupied.

17. Oil Interceptor – Similar in design to grease traps. Required on all automobile service stations including car washes to trap oils and other liquids with densities less than water.

18. Saddle – A device that connects the building sewer to the collector sewer main. Used only if a wye connection is not available and only with the specific approval of the Authority.

19. Service Connection – That portion of the building sewer installed at the time the collector sewer main is installed to provide convenient access for future connection and to prevent plumbers and contractors from excavating close to the sewer main when installing the remainder of the building sewer. Typically the service connection is a 13 foot or shorter stub extending from the wye in the sewer main, but may be substantially longer such as when a road is crossed. The service connection is part of the building sewer and is the maintenance responsibility of the property owner, regardless of the party installing the service connection. The wye is the property of the Authority. It is the property owner’s responsibility to make proper, watertight connection with the assigned wye.

20. Sewage – Includes all used water from domestic, commercial, and industrial sources. Also called wastewater.

21. Sewer Connection Permit – Sometimes called “Sewer Permit” or “Tap Permit”. A written permit issued by the Authority allowing a user to connect to the sewer system and discharge wastewater in accordance with the Authority’s Rules and Regulations and other criteria as may be established in the Permit.

22. Slope – The fall (pitch) of a sewer line in reference to a horizontal plane. The slope is expressed as the fall in units vertical per units horizontal (percent) for a length of pipe.

23. Trunk Sewer – A sewer that connects with collector sewer mains and discharges to interceptor sewers. Always at least 8-inch in diameter and frequently larger.

24. User – Any person, corporation, or institution which discharges, or permits the discharge of wastewater into the sewer system, either directly or indirectly.

25. Wye – A pipe joint that connects two pipes, forming the letter "Y".

REFERENCES:

1. International Plumbing Code, 2003
2. International Building Code, 2003
3. ASTM D-3034, *Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings*
4. ASTM D-2321, *Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.*
5. ASTM D-1785, *Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Schedules 40, 80, and 120.*
6. ASTM D-3212, *Specification for Joints for Drain and Sewer Plastic pipes Using Flexible Elastomeric Seals.*
7. ASTM D-2855, *Standard Practice for Making Solvent Cement Joints with PVC Pipe and Fittings*
8. ASTM D-2564, *Standard Specification for Solvent Cements for PVC Plastic Piping systems*
9. Various ASTM standards for piping materials
10. PDI-G101, *Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data.*
11. Ordinance 79 of Peters Township, Washington County, Pa.
12. Ordinance 219, as amended by Ord. 232 of Peters Township, Washington County, Pa.
13. Ordinance 647 of Peters Township, Washington County, Pa.

I. PROCEDURES – NEW CONSTRUCTION

These construction procedures apply to all new building construction, the reconstruction of demolished structures, the addition of new structures to existing structures, change in occupancy, and the connection of existing structures previously not connected to the public sewer. The Applicant is responsible for all costs associated with the installation of the building sewer to serve the premise.

A. CONNECTION TO PUBLIC SEWER SYSTEM

1. Every building in which plumbing fixtures are installed and all premises having drainage piping shall be connected to the public sewer of the Peters Township Sanitary Authority where available. For existing buildings, Peters Township Ordinance No. 79 requires that every owner of property whose property abuts upon a sewer of Peters Township Sanitary Authority shall connect all buildings within 150 feet of the sewer for the purpose of disposing of sewage.
2. Residential - Every building and all premises, such as individual units of multi-unit townhouses, shall have a separate connection with the public sewer.
3. Non-Residential - Where located on the same lot and not subject to different ownership, multiple buildings may connect to a common building sewer that connects to the public sewer.

B. APPLICATION FOR SEWER CONNECTION PERMIT

1. Applicant shall contact the Peters Township Sanitary Authority for availability of sewer service.
2. Applicant shall obtain copies of available as-built sewer plans from the Authority for the property desiring to be connected to the sewer. These plans will identify the location of the sewer collector main, manholes, wye location, and approximate length of service connection stub. All data shall be field verified by Applicant.
3. Applicant shall obtain an Application for Sewer Connection Permit from the Authority, complete the application and submit the application, the required Sewer Connection Permit Fee, and all required information and documents including:
    a) Application Form – Application for a permit shall be made by the owner of the property being served, or the owner's agent. If the application is made by a person other than the owner, it shall be accompanied by an affidavit of the owner authorizing the applicant to make application for the Sewer Connection Permit in the name of the owner; or a notarized affidavit of the Applicant that the proposed application is authorized by the owner.
    b) Construction Documents – The Authority may waive this requirement, or portion thereof, if the scope of the connection to the sewer is of a routine nature. The documents shall include (unless waived):
        i. Site Plan showing to scale the size and location of all new structures and all existing structures on the site, drawn in accordance with an accurate property boundary survey; the location of existing sanitary sewers and manholes; and indicate the proposed layout and route of the building sewer, locating bends, cleanouts, and building trap. The site plan shall also identify any other required appurtenances such as backwater valves, grease interceptor, etc, in addition to discharge point of all roof leaders and downspouts, foundation drains, and area drains. The plan shall also identify the location of proposed and existing driveways and walkways or parking areas.

ii. Identification of the proposed basement elevation (or first floor elevation if no basement) relative to the point of connection with the public sewer main and the top rim elevation of the next upstream manhole on the public sewer main. The Authority may waive this requirement where it is evident that gravity service is not available, or where it is evident that backwater valves are either required or not required. Where gravity service is not available the Applicant shall submit detailed plans and specifications for their proposed grinder pump unit.

iii. Identification of building sewer pipe material, diameter, estimated maximum depth of sewer and estimated minimum cover.

iv. Non-residential application shall also include information on any permit requirement such as grease interceptor, lint trap, or hair trap, depending on the proposed use of the structure.

v. Identification if a deduct meter will be utilized for lawn sprinkler systems, and if so, the layout, location, and other details of the installation.

vi. Customer information relative to billing address and procedures.

vii. Other permits – If work involves opening of Township roads or work in State Highway right of ways, evidence of the required permits shall be provided to the Authority.

c) Sewer Permit Connection Fee Determination – If a non-residential use is proposed the application shall include a copy of the Authority's determination of the required fee.

d) Sewer Permit Connection Fee – The required fee shall be provided in a check made out to "Peters Township Sanitary Authority".

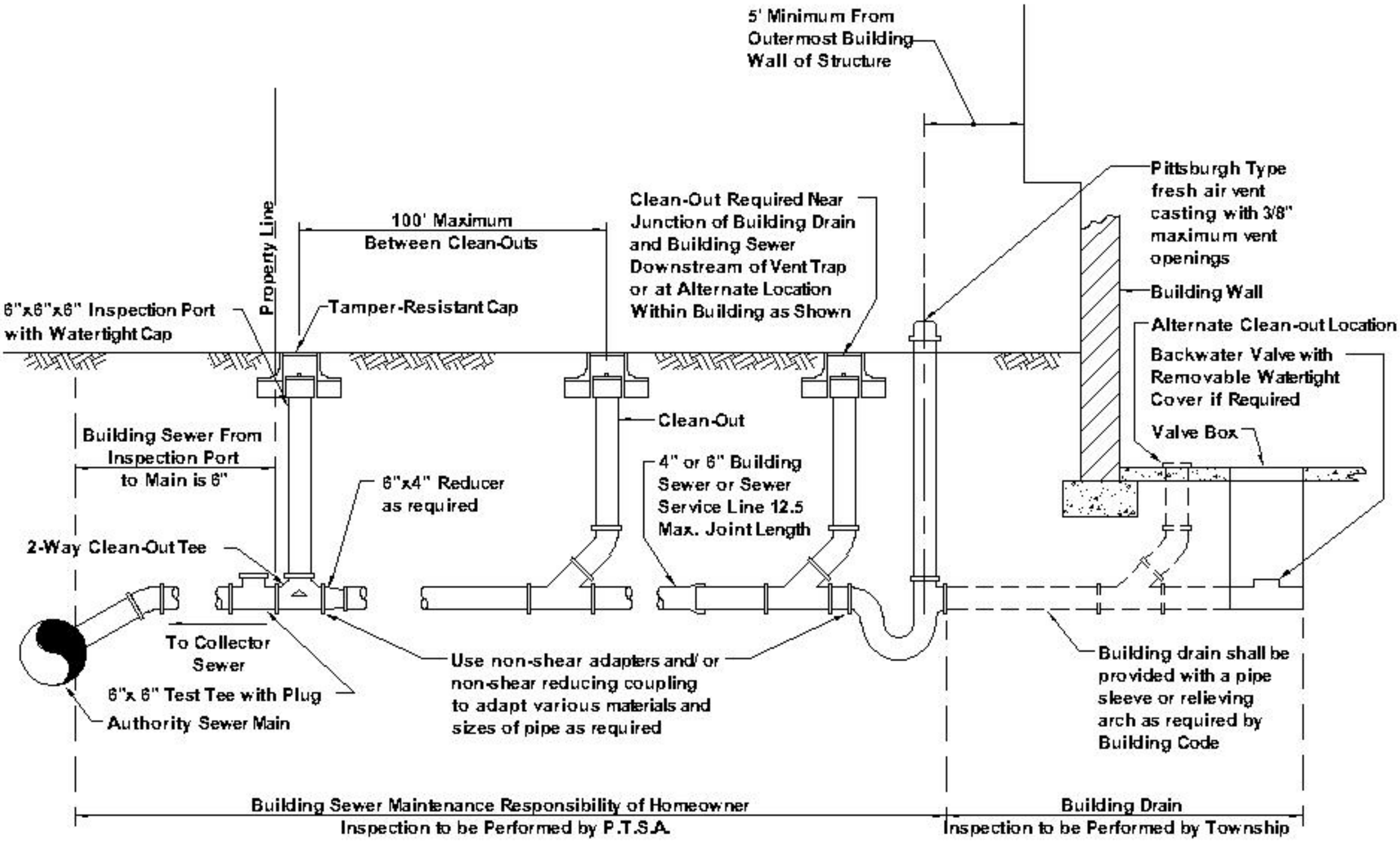
4. The Authority will review the application and notify the Applicant of its decision to issue a permit within ten business days of receiving a complete application. Incomplete applications will be returned to the Applicant without the issuance of a permit.
5. Upon issuance of the Sewer Connection Permit the installation of the building sewer may proceed in accordance with these specifications, however no building sewer shall be installed prior to the building being under roof to prevent the introduction of rain water into the sewer system.
6. **The Sewer Connection Permit shall be on-site at all times for review by the Authority inspector and other regulatory parties. Failure to have the permit on site will result in any scheduled inspection being cancelled.**

C. MATERIALS

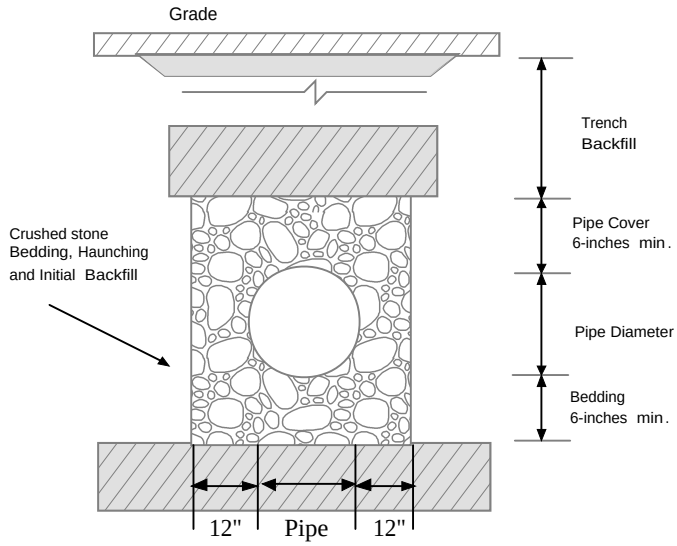
1. Building Sewer Pipe (Refer to Figure 1A on page 9)

All pipe used for the installation of building sewers shall be as follows unless otherwise approved or required by the Authority:

Material	Standard
Polyvinyl chloride (PVC), solid wall	
SDR 35, or SDR 26	ASTM D-3034
Schedule 40, 80 or 120	ASTM D-1785,
Type DWV	ASTM D-2665
Polyvinyl chloride (PVC), coextruded with cellular core	
IPS Schedule 40	ASTM F-891
Sewer and Drain Series, PS 50 or PS 100	ASTM F-891
Acrylonitrile butadiene styrene (ABS), solid and cellular core	ASTM D-2661, ASTM D-2751, ASTM F-628
Polyethylene (PE) plastic pipe SDR-PR	
DR 32.5 or lower DR value	ASTM F-714
Cast-iron Pipe	ASTM-A-74
Concrete Pipe	ASTM C-14, ASTM C-76
Copper or copper-alloy tubing Type K or L	ASTM B-75, ASTM B-88, ASTM B-251
Stainless steel drainage systems, types 304 & 316L	ASME A112.3.1
Asbestos-cement	ASTM C-428
Ductile Iron Pipe (cement lined, bituminous coated)	ANSI A21.51 Class 52



Revised- April 2004		
PETERS TOWNSHIP SANITARY AUTHORITY 111 BELL DRIVE McMurray, PA 15317-3153		BUILDING SEWER FIGURE 1A
Not to scale	August 2002	Standard Detail



Note:
All residential sewer shall be 4" or 6" diameter. Slope shall be 1/4" per foot for 4" pipe, and 1/8' per foot for 6" pipe.
All non-residential sewer pipe shall be minimum 6" diameter. Ductile iron pipe shall be installed where required by the Authority.
All service connections from sewer main to inspection port shall be 6".

NOTIFICATIONS AND INSPECTIONS:

1. NOTIFICATION - The Authority shall be notified at least 24 hours prior to the time that an inspection is requested. Arrange for the inspection by calling the Authority's office at 724/941-6709 between the hours of 8:00 am and 4:30 pm, Monday through Friday. All inspections will be scheduled for normal business hours.

2. BUILDING SEWER INSPECTIONS - The Authority conducts inspection of the installation of the building sewer at three phases of the installation as follows:

a) Pipe Placement. A visual inspection is after the bedding is placed and the pipe installed with haunching. All pipe shall laid with the ASTM designation stamp facing upward. After receiving the Authority's inspector's approval, the initial backfill, followed by the final backfill may be placed. Extended length building sewers may require multiple visits by the Authority inspector in order to minimize the length of trench left open for extended periods. If a completed connection to the building drain is not made at the time of the installation of the sewer, a temporary plug shall be installed into the end of the building sewer until work continues. Upon a completed connection to the building drain and approval of the installation shall initiate beneficial use of the Authority's sewer system and billing of the premise for sewer service shall begin.

b) Testing. After the building sewer is completely backfilled and connected to the building drain the Applicant shall schedule with the Authority either a low pressure air test or water test, at the Applicant's choice, of the building sewer in the presence of the Authority inspector. If the sewer fails the test the building sewer pipe shall be excavated and repaired as necessary, and retested until a satisfactory test is conducted in the presence of the Authority inspector. All repairs shall be inspected and approved by the Authority before backfilling.

c) Final Inspection. Immediately prior to the issuance of an Occupancy Permit by Peters Township, the Applicant shall schedule with the Authority a final inspection of the property by the Authority to ensure that all sewer related facilities located within the property have been installed and maintained in accordance with the Authority's specifications. The final inspection may include smoke testing, dye testing of downspouts or any other appropriate testing method deemed necessary by the Authority. If no deficiencies are detected the Authority's inspector will complete and sign a Final Inspection Form to be forwarded to the Township for their subsequent issuance of an Occupancy Permit. Any deficiencies cited during the Final Inspection must be corrected prior to the Authority's release of the Final Inspection Form to Peters Township.

PETERS TOWNSHIP SANITARY AUTHORITY 111 BELL DRIVE McMURRAY, PA 15317 724/941-6709 Not to Scale	BUILDING SEWER SUMMARY FIGURE 1B Standard Detail - August 2002 Revised November 2004

The minimum laying length of all pipe shall not be less than 10 feet, or as otherwise approved by the Authority.

The following materials are specifically prohibited:

1. Vitrified Clay Pipe (VCP) regardless of manufacturing standards
2. Coextruded composite ABS, manufactured under ASTM F1488
3. Coextruded composite PVC, manufactured under ASTM F1488
4. 3.25-inch PVC Drain, Waste, Vent, manufactured under ASTM D 2949
5. Any Thermoplastic pipe material (including PE) with an SDR or DR value greater than 35; or a pipe stiffness value of less than 46 psi

Alternate pipe materials may be accepted upon review and approval by the Authority's Engineer, however, the Authority has no obligations to accept alternate materials. Any alternative proposed shall meet or exceed the specifications of the approved materials.

2. Joint Type

PVC and ABS Pipe
Mechanical joints. Joints hall be elastomeric seal conforming to ASTM D-3212, *Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals,* ASTM 1173, or CAN/CSA-B602. Joints shall be installed in accordance with the manufacturer's instructions.

Solvent cementing. Joints shall be solvent welded in accordance with ASTM D-2564, *Standard Specification for Solvent Cements for PVC Plastic Piping systems,* ASTM D-2855, *Standard Practice for Making Solvent Cement Joints with PVC Pipe and Fittings; or* ASTM D-2235 and D-2661 for ABS pipe, and the solvent manufacturer's instruction, with particular attention to pipe surface temperature.

For other permitted pipe materials the joints shall conform to Section 705 of the IPC, and as approved by the Authority.

3. Fittings, Couplings, and Adapters

All fittings and adapters shall be with proper fittings for the type and size pipe used, having been specifically manufactured for the purpose for which they are to be utilized. All adapters shall be of the non-shear type. Where clamps or other hardware are required all materials shall be stainless steel.

Pipe Bedding and Initial Backfill

Pipe foundation, bedding, and initial backfill materials shall be in conformance with Class I materials as described in ASTM D-2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, consisting of crushed stone or rock, or crushed gravel, as amended and summarized in the table below. Crushed slag, cinders, or shells are prohibited. Gravel that is not crushed is prohibited.

ASTM Class	Type	Description	% Passing Sieve Sizes			Acceptable AASHTO or PaDOT
			0.75 in	No.4	No. 200	
1A	Manufactured Aggregate, open graded	Angular, crushed stone or crushed gravel: large void content with little or no fines	100%	<10%	<5%	No. 7 (AASHTO) No. 8 (AASHTO) No. 67(AASHTO) Pa DOT 1B Pa DOT 2
1B	Manufactured Aggregate, dense graded	Angular, crushed stone or gravel, with gradations selected to minimize migration of adjacent soils	100%	<50%	<5%	Pa DOT 2A Pa DOT 2RC

D. MININUM SIZE AND GRADES

1. All service connection stubs shall be 6-inches in diameter installed at a minimum slope of 1/8 inch per foot (1%). No building sewer or portion thereof installed between the sewer main and any property line or right of way line of the sewer main connected to shall be less than 6-inches in diameter.
2. Residential building sewers shall be a minimum of 4-inches in diameter installed at a minimum slope of ¼ inch per foot (2%). It is the Applicant's responsibility to determine if greater diameter pipe is required for the intended use of the building.
3. When 4-inch diameter building sewers are installed, connection to the 6-inch service connection stub shall be by a non-shear reducing coupling, approved by the Authority. Six-inch diameter pipe shall be used if the minimum slope for 4-inch pipe can not be attained. Minimum slope for 6-inch diameter pipe shall be 1/8 inch per foot (1%).
4. Non-Residential building sewers shall be a minimum of 6-inches in diameter installed at a minimum slope of 1/8 inch per foot (1%). It is the Applicant's responsibility to determine if greater diameter pipe is required for the intended use of the building.
5. Changes in pipe diameter are not permitted except as specifically identified in these specifications.

E. PIPE LAYING AND BACKFILL PROCEDURES

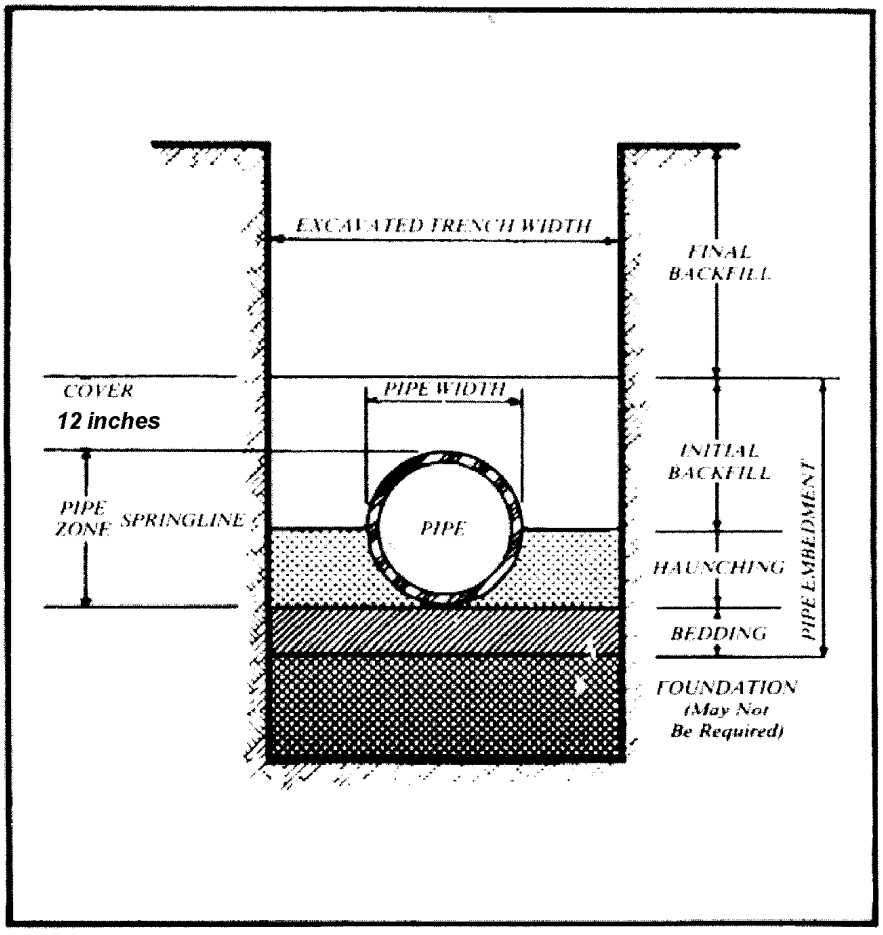
See Figure 2 on page 14 for illustration of the terms used in backfilling. Installation procedures shall be in general conformance with ASTM D-3231-00, *Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.*

a. Review Sewer Connection Permit and identify if any special conditions apply.
b. Trench Location. The sewer line and the water service pipe shall be separated by 5 feet of undisturbed or compacted earth. Exception: The required separation distance shall not apply where the bottom of the water service pipe within 5 feet of the sewer is a minimum of 12 inches above the top of the sewer. See Figure 3 on page 15 for illustration. There shall be 3 feet horizontal separation and 12" vertical separation from other pipelines such as gas lines, french drains, or storm sewers, unless prior approval is granted by the Authority. Trenches installed parallel to footers shall not extend below the 45-degree bearing plane of the footing or wall.
c. Before digging the trench, the installer shall locate and expose the service connection and the building drain. Prior to any further excavation, determine the elevations of the service connection and building drain.
d. Trenches shall be in compliance with OSHA, NIOSH, and all applicable safety rules and regulations, with adequate sloping and/or shoring. Authority inspectors will not enter a trench deemed unsafe, thereby terminating the inspection until the trench complies with safety standards.
e. Trench width shall be kept to a minimum and have uniform slope as near as possible at right angles to the sewer main.
f. Trench shall be kept dry as possible until the pipe is installed and sufficient backfill placed to prevent the pipe from floating. PVC pipe will float if not weighted down. The height of backfill material required to prevent flotation of an empty pipe is equal to 1.5 times the pipe diameter. (I.E. or 4-inch pipe that is 6 inches of backfill).
g. Control running water to prevent undermining of trench bottom and trench walls. Use clay dams and sumps as necessary. The presence of running water in a trench indicates the need for the use of Class 1B aggregate up to the springline of the pipe to aid in preventing migration of fines from the surrounding soil. See Table on page 10 and Figure 2 on page 12.
h. Excavate all trenches at least 6 inches below the bottom of the pipe. Place 6 inches of approved aggregate bedding material in the trench to grade of the pipe. The bedding shall be worked by shovel or tamping to compact the stone before placing the pipe. Provide for the bell ends in the bedding but no larger than needed.

EMBEDMENT:

Terms used in pipe installation are illustrated in this cross-section. The use of proper embedment materials is very important to trouble-free operation of the pipe system.

Figure 2

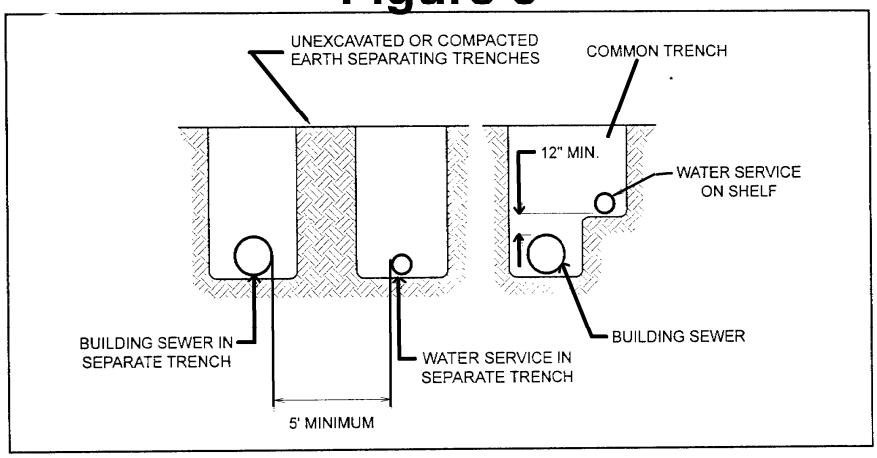


Separation of water service and building sewer/drain. The requirements for separating the water service from the building sewer are intended to reduce the possibility of contamination of the potable water supply.

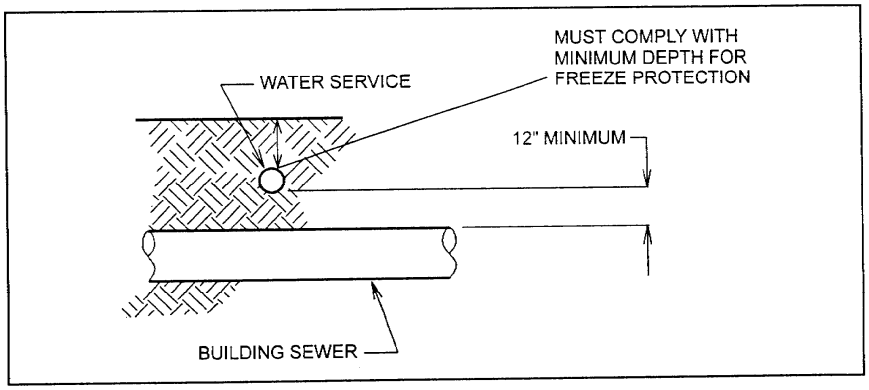
Contamination is possible when a leak occurs in the building sewer and the soil around the sewer becomes contaminated. If the water service pipe develops a leak, the contamination could enter the potable water supply. The code requirement is intended to prevent the contamination of soil around the water service pipe.

The exception permits the water service to be located within 5 feet horizontally of the building sewer, provided it is 12 inches above the sewer, and the sewer is constructed of ABS, PVC, cast iron or copper. This allows the water service to cross over the sewer or to be located in a common trench.

Figure 3



Separation of Water Service and Building Sewer



Water Service Crossing Over Building Sewer

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i. Install the pipe keeping any stone, dirt, or water from entering the pipe. Pipe shall be installed in strict accordance with pipe manufacturer's instruction. For

elastomeric joints use only lubricants recommended by the pipe manufacturer. The lubricant should be applied to the bevel of the spigot end and approximately mid-way back to the insertion line. For solvent weld joints follow recommendations of both pipe manufacturer and solvent manufacturer. Allow freshly made joints to set for the recommended time before moving or backfilling.

j. **Place pipe with ASTM designation facing upwards for inspector to verify that every length of pipe is stamped with the proper designation**.
k. Assemble elastomeric joint so that insertion line or stopmark on spigot is lined up with edge of the bell. Insert until the stopmark is adjacent to but not covered by the pipe bell. **Any pipe not driven home to the insertion line/stopmark will be rejected** (except on bends, couplings, and similar fittings where the inspector's judgment shall be applied).
l. Place haunching aggregrate up to springline of pipe. **This is the most important factor affecting pipe performance**. Haunching material shall be thoroughly shovel sliced and chucked around pipe. Exercise extreme care when moving trench boxes to not disturb the haunch.
m. Do not place haunching at the coupling connection at the junction with the service connection. The inspector needs to verify that proper fittings have been used. Backfill this area only after inspector approves pipe installation.
n. Install pipe and haunch material working from service connection to dwelling.
o. Install risers for inspection tee and cleanouts. Provide temporary side support if necessary until final backfill. Depending on depth, condition and width of trench, stability of subsurface, and other factors, the Authority's inspector may require concrete cradles, or concrete encasement of tees and wyes.
p. **Stop.** Do not proceed until Authority inspector approves pipe installation. Scheduling inspection requires a minimum of 24 hour advance notice.
q. After receiving the inspector's approval place initial backfill consisting of approved aggregate to 6 inches above the crown of the pipe in the presence of the inspector. The inspector expects to see adequate stockpile of aggregate to complete initial backfill. The purpose of this aggregrate cover is to protect the pipe as the final backfill is placed. Place in 3 inch layers and work by hand or small tampers. Do not tamp with backhoe bucket.
r. After placing 6 inches of aggregate, place final backfill, free of large rocks. If trench is in road shoulder or cartway, special backfill regulations apply, as required by Peters Township or PaDOT.
s. Exercise extra care around vertical risers such as inspection tee and cleanouts during initial backfill and final backfill. Provide uniform compaction as backfill is placed to prevent vertical or lateral movement.
t. The final backfill shall be placed in 18 inch layers or less and tamped into place.
u. A minimum cover of 42 inches (inclusive of initial backfill) shall be placed over crown of pipe before allowing vehicles or construction equipment to traverse the trench surface. Final cover shall be 3.5 feet, except in road shoulders, and driveway surfaces, including private drives, where the minimum final cover shall be 4 feet.

v. The maximum cover will dictate the permitted pipe material.
w. After final backfill is placed call the Authority office at 724/941-6709 to schedule with the Authority the air test/water test on the building sewer. See testing procedures in Section L beginning on page 24.

F. WHEN A WYE CONNECTION WITH THE SEWER MAIN IS NOT AVAILABLE

1. If a wye connection is not available the Authority personnel will physically tap the sewer and install a saddle fitting. The Applicant's contractor shall perform the excavation and uncover the sewer main to allow the work to be performed. Proper shoring of the trench shall be provided by the Applicant's contractor. Authority staff will not enter a trench that is not in compliance with OSHA regulations. The property owner will be charged the cost of the saddle connections and the labor required to make the tap and saddle installation.

G. BUILDING SEWERS IN FILLED GROUND

1. The installation of building sewers on ordinary fill or unstable ground which would allow further settlement is prohibited. Where the Authority has reason to suspect the stability of ground conditions, or where fill is used, the fill or suspected fill shall be placed and compacted under the supervision of a qualified engineer who shall certify the stability in writing to the Authority.

H. OTHER TRENCH CONDITIONS

1. Rock removal – Where rock is encountered in trenching, the rock shall be removed to a minimum of 6 inches below the installation level of the bottom of the pipe and the bottom of the trench shall be backfilled with a minimum of 6 inches of approved aggregate below the bottom of the pipe.
2. Soft load-bearing material - If soft materials of poor load-bearing quality are found at the bottom of the trench, stabilization shall be achieved by over-excavating a minimum of three pipe diameters and backfilling with approved aggregrate or a concrete foundation. For severe conditions, the Authority may require special foundations.

BUILDING TRAP INSTALLATION

1. Building sewers shall be installed with a building trap (house trap) which shall be the same size diameter as the building drain in which it is installed with a fresh air inlet and commercially manufactured cap/grille installed a minimum of 5 feet from the **face of the building** as shown in Figure l on page 9. Emphasis is placed here due to the potential for cantilevered living space away from the foundation wall. Vent stacks are not permitted to be located in driveways, cart paths, walkways or other finished surface areas where they may serve as area drains. A vent offset may

be utilized with prior approval. If a vent offset is used, a cleanout shall be provided with an approved cast iron cleanout cover and concrete base. (See Figure 4 on page 18). The vent cap shall be installed a minimum of 3 inches above grade to prevent the inflow of surface water into the sewer line. **Building trap vents that drain any surface water is a violation of these Rules & Regulations and is prohibited.**

I. BUILDING SEWER APPURTENANCES

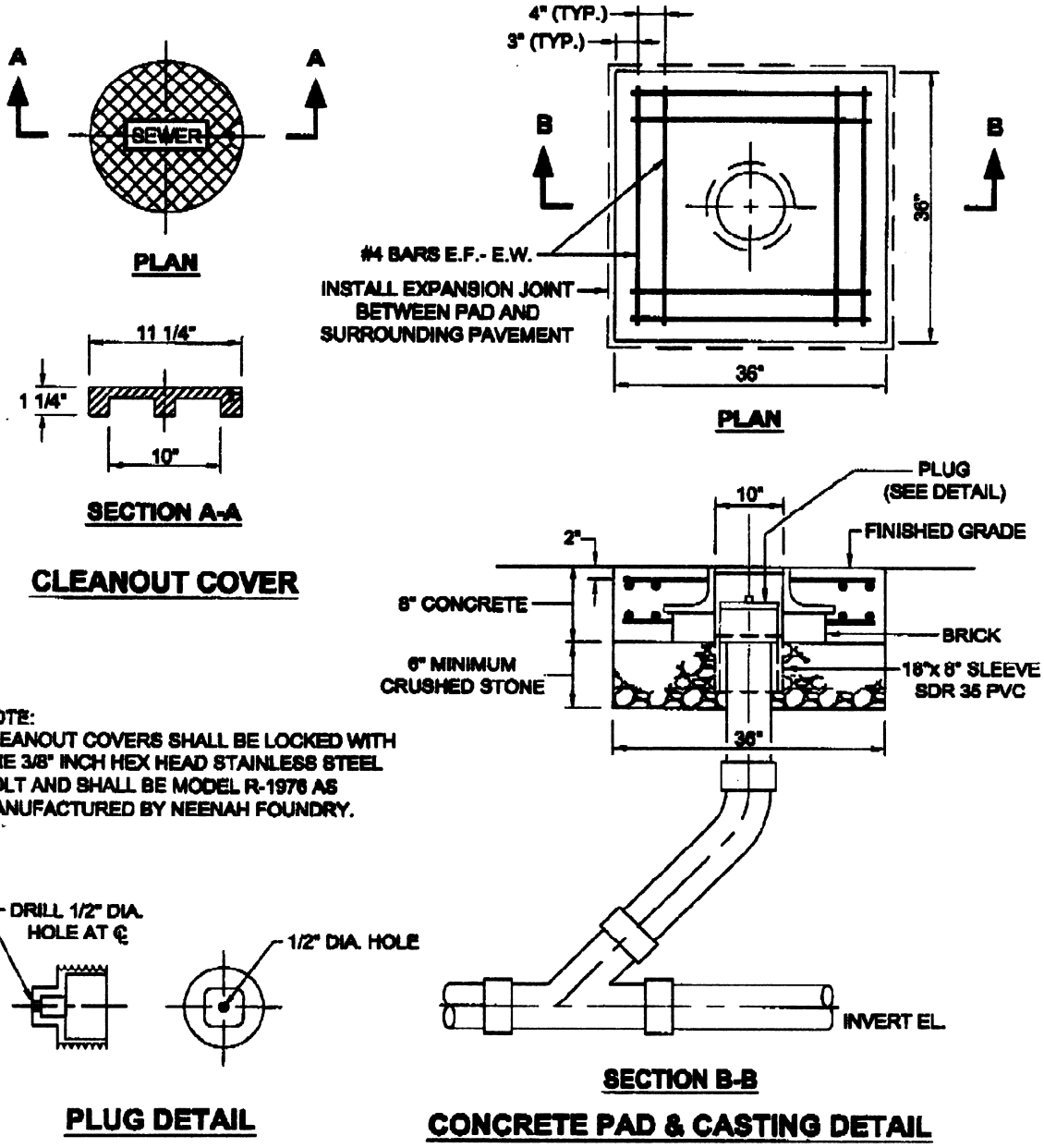
1. Cleanouts

Cleanouts, consisting of a wye branch fitting, a 45 degree bend, a riser pipe with a minimum diameter of 4-inches, and a watertight cap are required to be installed every 100 feet for 6-inch and 4–inch diameter building sewers, and at all directional changes greater than 45 degrees. Cleanouts located in lawns, open fields, or other unfinished surface areas, shall be installed as shown in Figure 5 on page 19. Cleanouts located in driveway or paved areas are subject to damage from vehicular traffic and should be avoided. If otherwise unavoidable, the cleanout shall be installed as shown in Figure 4 on page 18. Where service connection stubs extend under roadways a cleanout shall be installed on the building's side of the road at the property line.

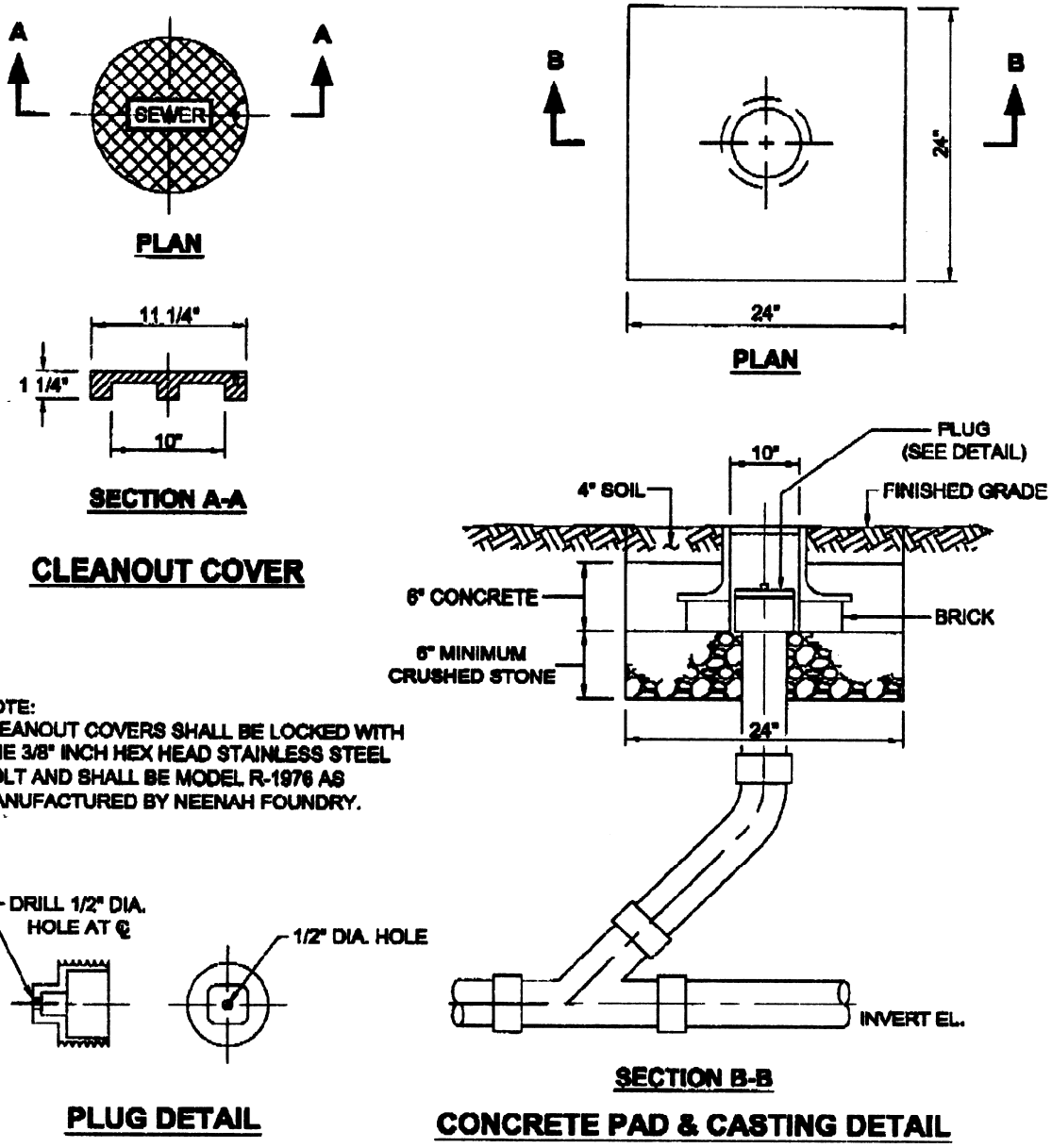
Building sewer and building drain junction. There shall be a cleanout near the junction of the building sewer and building drain. The cleanout shall be either inside or outside the building.

2. Inspection Tee and Port

Inspection ports shall be installed on all building sewers at the property line or easement line. The inspection port shall consist of a tee, a riser pipe with a minimum diameter of 6" and a tamper-resistant, water-tight cap (male end). The riser shall be: Alternate A - brought 6 inches above grade, or Alternate B - set just below grade with a cast -iron cleanout cover at grade (see specifications for cleanouts). Figure 1A depicts Alternate B.



PETERS TOWNSHIP SANITARY AUTHORITY 3244 Washington Road McMurray, PA 15317-3153		CLEANOUT IMPERVIOUS/ PAVED AREAS FIGURE 4
Not to scale	August 2002	Standard Detail



PETERS TOWNSHIP SANITARY AUTHORITY 3244 Washington Road McMurray, PA 15317-3153		CLEANOUT UNIMPROVED AREAS/ LAWNS FIGURE 5
Not to scale	August 2002	Standard Detail

3. Backwater Valves

In accordance with the International Plumbing Code, Section 715, where the flood level rims of plumbing drainage fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer such fixtures shall be protected by a backwater valve installed in the building drain, branch of the building drain or horizontal branch serving such fixtures, in accordance with the International Plumbing Code.

Backwater valves shall be constructed to provide a mechanical seal against backflow, be constructed of corrosion-resistant materials, and have a capacity not less than the capacity of the pipes in which they are installed.

Backwater valves shall be accessible for maintenance purposes.

Where backwater valves are required the property owner shall enter into a Backwater Valve Maintenance Agreement with the Authority wherein the property owner acknowledges that the property owner, its successor, and assigns are responsible for the maintenance of the valve.

4. Grease Traps/Interceptors

Food preparation establishments shall install grease traps conforming to the Plumbing and Drainage Institute G-101 (PDI G101). The establishments proposed grease trap and its installation details must be approved by the Authority before construction. The application for new installations must contain the size and type of the grease trap being proposed as well as a floor plan showing the location of the grease trap and all fixtures being connected to the trap, as well as discharge rates for each fixture.

The Authority reserves the right to require any establishment that generates greases or oils to install a large outdoor grease interceptor where the Authority deems it necessary due to the anticipated volume of grease and/oil generated. Such interceptors shall be designed in general conformance with PDI G-101, and shall provide a minimum detention time of 30 minutes with all fixtures discharging simultaneously. The interceptor shall be of the two-compartment type, have sampling ports as required by the Authority, and shall be water tested in accordance with testing procedures for sanitary sewer manholes.

<u>The use of chemical or biological additives for the cleaning of grease traps or interceptors are prohibited.</u>

5. Abandonment of Septic System and Use of Existing Building Sewer

Pursuant to Township Ordinance 79, upon connection to the Authority's sewer system any property previously served by septic tanks, the septic tank or tanks shall be abandoned by pumping and removal of the tank(s), or removal of the top and filling of tank with sand, gravel, lean concrete or other material approved by the Authority. For other on-lot systems, such as small flow treatment systems the Authority Manager shall determine the degree of closure required.

The existing building sewer shall connect with new building sewer or service connection only where found by examination and test to conform to the new building sewer in quality of material. Tests shall be the same as for new building sewer as identified in Section L on page 25-26 and shall be conducted by the applicant or its contractor in the presence of the Authority's representative. No building sewer or dwelling shall be connected to the public sewer without passing the required tests. A building trap shall be provided if not so equipped. Requirements for backwater valves shall also apply.

The building drain shall be demonstrated to free from all prohibited connections such as foundation footing drains, etc., and substantial structural damage that may allow the leakage of sewage from the building drain and/or the leakage of groundwater into the building drain. Substantial structural damage shall include but not be limited to: 1) obviously open pipe joints: 2) crushed or collapsed pipe; 3) broken pipe that appears unstable; 4) missing pipe; 5) holes in pipe; and 6) severe root intrusion.

The demonstration of the condition of the existing building drain under this Section J.5. shall be conducted by the Authority's representative with the assistance and cooperation of the applicant. The tests and methods used during the demonstration shall be determined by the Authority's representative and may include any or all of the following: 1) closed circuit camera inspection; 2) low pressure smoke testing; 3) dyed water injection or flooding; 4) dyed water tracing; 5) excavation; 6) water tests or low pressure air tests; and 7) other methods deemed necessary to establish the condition and integrity of the existing building drain.

Prohibited connections shall be removed by the applicant. Structural defects identified by the demonstration shall be repaired by the applicant and re-inspected prior to approval and connection to the public sewer.

Additionally, tests shall be conducted by the Authority's representative to verify that all interior plumbing fixture drains are connected to the building drain/building sewer system. Any drains not connected shall be connected by the applicant.

The Authority's tests and inspections of the existing building drain system is solely for the Authority's use to demonstrate that conditions that may be detrimental to the Authority's Publicly Owned Treatment Works and compliance with its operating permits are not present or the probability of their presence is low. The Authority does not warrant or imply warranty or guarantee that defects do not exist or may go undetected by the demonstration. The property owner remains responsible to be in compliance with all local, state, and federal regulations regarding building codes, plumbing codes, and sewage disposal practices.

6. Sewage Sumps and Grinder Pumps

Whenever possible gravity flow sewers shall be used. Building drains or sub drains that cannot discharge to the building sewer or sewer main by gravity flow shall discharge to a tightly covered and vented sump from which the liquid shall be lifted and discharged into the building gravity drainage system, if possible, or to the sewer main if otherwise, by automatic submersible pumping equipment designed for that purpose and approved by the Authority. The sump shall not receive drainage from any piping within the building capable of being discharged by gravity to the sewer. Shop drawings of the proposed equipment and design calculations shall be provided to the Authority for approval at the time application is made for a sewer connection permit.

Pumping System Design Requirements

(for typical residential use, non-residential use shall be designed specifically for the application)

a. Sump Pit Design. The sump shall be constructed of fiberglass reinforced plastic and shall be at least 24 inches in diameter, and provide a minimum of 30 inches of depth below the invert of the building drain entering the sump, providing a minimum of 50 gallons of holding volume. It shall be located interior to the building, be accessible and located such that all drainage flows enter the sump by gravity. The pit bottom shall be solid and provide permanent support for the pump. The sump pit shall be fitted with a gas-tight, removable cover adequate to support anticipated loads in the area of use. The sump pit shall be vented to the exterior. The sump pit shall be adequately weighted or anchored to prevent flotation.

b. **Capacity.** The sewage pump shall have the capacity and head for the application requirements, and shall be capable of discharging 2 times the peak fixture drainage load. Sumps that receive the discharge of water closets shall be grinder pumps with integral cutters. Sumps not receiving such waste shall be capable of handling spherical solids with a diameter of up to and including 1 inch. The minimum capacity of a sewage pump based on the diameter of the discharge pipe shall be as follows:

Dia. Of Discharge Pipe	Min. Pump Capacity
1.25 inches	10 gpm
2 inches	21 gpm
2.5 inches	30 gpm
3 inches	46 gpm

c. **Discharge Piping**. The discharge piping shall include a full open valve on the discharge side of the check valve. Access shall be provided to such valves, and the valves shall be located above the sump cover. Valves shall be same diameter as discharge piping. The discharge piping shall be PVC Schedule 40 or 80, ASTM D-1785. The piping shall be installed so that the high point is the discharge point into gravity flow sewer. If this is not possible, an automatic air release valve shall be provided at all high points where air may accumulate. Access shall be provided to the air release valve(s).

d. **Pump Controls**. A wall mounted control panel shall be provided that shall include motor circuit breakers and starters, control relays, indicator lamp and high level alarm light and buzzer with alarm silence. The controls shall provide the means to operate the pump automatically from float switches located in the sump or other approved liquid level control system. There shall be a minimum of two float switches consisting of pump on/off, and high level. The level control shall be adjusted and maintained at all times to prevent the level in the sump from rising within 2 inches of the invert of the gravity drain inlet to the sump.

J. NOTIFICATIONS AND INSPECTIONS

1. Notification – The Authority shall be notified at 24 hours prior to the time that an inspection is requested. Arrange for the inspection by calling the Authority's office at 724/941-6709 between the hours of 8:00 am and 4:30 pm, Monday through Friday. All inspections will be scheduled during normal business hours.

2. Building Sewer Inspections – The Authority conducts inspections of the installation of the building sewer at three phases of the installation:

a) **Pipe Placement**. A visual inspection is made after the bedding is placed and the pipe installed with haunching. The pipe shall be laid with the ASTM designation stamp facing upward. After receiving the Authority's inspector's approval, the initial backfill followed by final backfill may be placed. Extended length building sewers may require multiple visits by the Authority inspector in order to minimize length of trench left open for extended periods. If a completed connection to the building drain is not made at the time of the installation of the building sewer, a temporary plug shall be installed into the end of the building sewer until work continues on

the building sewer. Upon a completed connection to the building drain and approval of the installation shall initiate beneficial use of the Authority's sewer system and billing of the premise shall begin.

b) **Testing**. After the building sewer is completely backfilled and connected to the building drain the Applicant shall schedule with the Authority either a low- pressure air test or water test, at the Applicant's choice, of the building sewer in the presence of the Authority inspector. See Section L of this Appendix for procedures and requirements. If the sewer fails the test the building sewer line shall be excavated and repaired as necessary, and retested until a satisfactory test is conducted in the presence of the Authority inspector. All repairs shall be inspected by the Authority before backfilling.

c) **Final Inspection**. Immediately prior to the issuance of an Occupancy Permit by Peters Township, the Applicant shall schedule with the Authority a final inspection of the property by the Authority to ensure that all sewer related facilities located within the property have been installed and maintained in accordance with Authority specifications. The final inspection may include smoke testing, dye testing of downspouts or any other appropriate testing method deemed necessary by the Authority. If no deficiencies are detected the Authority's inspector will complete and sign a Final Inspection Form to be forwarded to the Township for their subsequent issuance of the Occupancy Permit. Any deficiencies cited during the Final Inspection must be corrected prior to the Authority's release of the Final Inspection Form to Peters Township.

K. REQUIRED TESTS

The Applicant shall make the applicable tests prescribed below in the presence of the Authority's inspector to determine compliance with these specifications. The equipment, material, power and labor necessary for the tests shall be furnished by the Applicant, and the Applicant shall be responsible for determining that the work will withstand the test pressure prescribed. The entire building sewer, with the exception of the existing service connection stub, shall be tested with either water or air, with the selection made by the Applicant. Once selected the test shall be completed using that selection. The option to switch to the alternate test method after a test failure shall not be permitted.

1. **Building Sewer Water Test**. A plug shall be inserted at the test tee at the junction with the service connection stub. The plug at the test tee shall remain in place until the building sewer and building drain pass the required tests. The building sewer shall be filled with water so that all portions of it shall be tested with 10 feet head of water, with inspection ports and cleanouts being capped after the water level has reached the overflow rims thereby expelling air as the building sewer is filled. The 10 feet of water head may be accomplished by a temporary extension to the fresh air vent on the building trap, or other approved temporary standpipe connection, or if

connected with the building drain then interior drainage plumbing may be used for this purpose. The water shall be kept in the system for at least 15 minutes with no loss in water level in the standpipe. If there is no loss of water the building sewer shall then be deemed tight at all points. If the sewer fails the test, the source of the leak shall be identified, repaired, and inspected by the Authority, and the sewer shall be scheduled for re-testing in the presence of the Authority until it passes.

2. **Building Sewer Air Test.** A plug shall be inserted at the junction with the service connection stub. The plug shall remain in place until the building sewer and building drain pass the required tests. An air test shall be made by forcing air into the sewer until there is uniform gauge pressure of 5.0 pounds per square inch (psi). The air source shall be disconnected and this pressure shall be held for a test period of 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperature or the seating of gaskets shall be prior to the beginning of the test period.

3. **Force Mains**. Force mains for grinder pumps and other sewage pumps shall consist of plugging the end of the force main at the point of connection with the public sewer and applying a pressure of 5.0 psi greater than the pump rating and maintaining such pressure for 15 minutes with no loss in pressure after disconnecting the source of the pressure.

4. **Excessive Re-inspections Required**. The Authority reserves the right to impose re-inspection fees where it deems that the applicant or its contractor is scheduling inspections prior to the work having been properly completed or prepared for the scheduled inspections. Said fees shall be based upon the cost of the labor and overhead expended by the Authority in inspecting work not properly completed or prepared for inspection.

5. **Disclaimer.** The Authority's inspection of the building sewer and other sewer appurtenances is for the Authority's benefit only and therein, neither the Applicant nor its contractor has any right to rely on said inspection in any manner whatsoever including but not limited to adequacy, sufficiency, timeliness or the like.

II. PROCEDURES – REPAIRS TO EXISTING BUILDING SEWERS

The foregoing sections I. C through I. K shall apply to all repairs. Section I. L. Required Tests shall apply only to repairs of existing force mains.

End of Appendix B