

Pittsburgh Water and Sewer Authority

Allegheny County, Pennsylvania

Procedures Manual for Developers

Revised March 2014



PROCEDURES MANUAL FOR DEVELOPERS

TABLE OF CONTENTS

	Page No.
EXECUTIVE SUMMARY	ix
INTRODUCTION	x
Purpose of the Manual	x
Submittal Process.....	x
Review Process	xi
Review Fees	xii
Charts of the Permit Process for Homeowners and Developers	xiii
CHAPTER 1 – PWSA REQUEST FORM FOR WATER AND SEWER	
AVAILABILITY	1-1
1.1 Purpose of the PWSA Request Form.....	1-1
1.2 Single Family Residential Development	1-1
PWSA Request Form for Water and Sewer Availability.....	1-2
CHAPTER 2 - PWSA WATER AND SEWER USE APPLICATION.....	2-1
2.1 Purpose of the PWSA Water and Sewer Use Application.....	2-1
2.2 Instructions for the PWSA Sewer Use Application.....	2-2
2.3 Flow Calculation Sheet and Project Narrative.....	2-10
2.3.1 Sanitary Flow Calculation Sheet.....	2-10
2.3.2 Project Narrative	2-12
2.4 Plumbing Floor Plans.....	2-13
2.5 Administrative Checklist	2-13
2.6 Technical Checklist.....	2-13
2.7 Additional Information	2-13
2.7.1 DEP Planning Module	2-14
2.8 PWSA Review Process	2-16
2.9 Contact Names and Addresses.....	2-16
CHAPTER 3A – SANITARY SEWER TAP-IN.....	3A-1
3A.1 Single Family Residential Development.....	3A-1
3A.2 Tap-in Drawing Basic Guidelines.....	3A-2
3A.3 Tap-in Drawing Specific Guidelines.....	3A-5
3A.4 Administrative Checklist.....	3A-5
3A.5 Technical Checklist.....	3A-5
3A.6 Review of Tap-in Drawings.....	3A-6

**PROCEDURES MANUAL FOR DEVELOPERS
TABLE OF CONTENTS (CONT.)**

	Page No.
3A.7 Tapping, Connection, and Customer Facilities Fees.....	3A-7
3A.8 Tap-in Procedure.....	3A-8
3A.9 Tap Termination.....	3A-8
3A.9.1 Termination Permit	3A-8
3A.9.2 Termination Drawings	3A-8
3A.9.3 Termination Procedure.....	3A-9
CHAPTER 3B – STORM SEWER TAP-IN	3B-1
3B.1 Tap-in Drawing Basic Guidelines	3B-1
3B.2 Tap-in Drawing Specific Guidelines.....	3B-5
3B.3 PWSA Water Quality Requirements.....	3B-6
3B.4 Administrative Checklist.....	3B-8
3B.5 Technical Checklist	3B-8
3B.6 Review of Tap-in Drawings	3B-8
3B.7 Tapping, Connection, and Customer Facilities Fees.....	3B-9
3B.8 Tap-in Procedure	3B-9
3B.9 Tap Termination.....	3B-10
3B.9.1 Termination Permit	3B-10
3B.9.2 Termination Drawings.....	3B-10
3B.9.3 Termination Procedure	3B-10
3B.10 References	3B-11
CHAPTER 4 – DOMESTIC WATER SERVICE.....	4-1
4.1 Single Family Residential Development	4-1
4.2 General Requirements.....	4-1
4.3 Demand Calculation Sheet.....	4-2
4.4 Tap-in Drawing Basic Guidelines.....	4-4
4.5 Other Requirements	4-5
4.6 Taps Log and New Service Questionnaire.....	4-9
4.7 Administrative Checklist	4-9
4.8 Technical Checklist.....	4-9
4.9 Review of Tap-in Drawings.....	4-12
4.10 Tapping, Connection, and Customer Facilities Fees	4-13
4.11 Tap-in Procedure.....	4-14

PROCEDURES MANUAL FOR DEVELOPERS TABLE OF CONTENTS (CONT.)

	Page No.
4.12 Tap Termination.....	4-15
4.12.1 Termination Permit	4-15
4.12.2 Termination Drawings	4-15
4.12.3 Termination Procedure.....	4-16
CHAPTER 5 – FIRE PROTECTION SERVICE	5-1
5.1 Other Review Agencies	5-1
5.2 Hydrant Flow Test	5-2
5.3 Tap-in Drawing Basic Guidelines.....	5-3
5.4 Other Requirements	5-6
5.5 Taps Log and New Service Questionnaire.....	5-9
5.6 Administrative Checklist	5-9
5.7 Technical Checklist.....	5-9
5.8 Review of Tap-in Drawings.....	5-9
5.9 Tapping, Connection, and Customer Facilities Fees	5-12
5.10 Tap-in Procedure.....	5-13
5.11 Tap Termination.....	5-14
5.11.1 Termination Permit	5-14
5.11.2 Termination Drawings	5-14
5.11.3 Termination Procedure.....	5-14
CHAPTER 6 – PRIVATE WATER AND SEWER CONSTRUCTION	6-1
6.1 General Requirements.....	6-1
6.2 Development Agreement	6-4
6.3 Construction Plans	6-5
6.4 Notes Section	6-9
6.5 Specifications.....	6-9
6.5.1 Storm Sewers	6-9
6.5.2 Sanitary Sewers.....	6-10
6.5.3 Water Mains.....	6-11
6.6 Hydrant Flow Test	6-11
6.7 Other Requirements	6-12
6.8 Tap-in Drawings	6-13

PROCEDURES MANUAL FOR DEVELOPERS TABLE OF CONTENTS (CONT.)

Page No.

Appendix A	
Administrative Checklist	
Appendix B	
Example Of Calculating Stormwater Flow Using The Rational Method	
Appendix C	
PWSA Water and Sewer Use Application Technical Checklist	
Appendix D	
PWSA Forms GEN, HYD, SWR, TERM, and WTR	
Appendix E	
PWSA Standard Details for Sewer Tap-Ins & An Example of a Sewer Tap-In Drawing	
Appendix F	
Technical Checklist for Sewer Tap-In Drawings	
Appendix G	
PWSA Standard Details for Water Tap-Ins & An Example of a Water Tap-In Drawing	
Appendix H	
Technical Checklist for Water Tap-In Drawings	
Appendix I	
Symbol Legend for Private Water and Sewer Construction Plans	
Appendix J	
PWSA Notes Section for Private Water and Sewer Construction Plans	
Appendix K	
PWSA Water and Sewer Standard Details for Private Construction	
Appendix L	
Sample Developer Agreement for Private Construction	

PROCEDURES MANUAL FOR DEVELOPERS TABLE OF CONTENTS (CONT.)

Page No.

Appendix M

DEP Letter Sent to PWSA For Sewage Facilities Planning Modules

LIST OF TABLES

	Page No.
Table 2-1 Sanitary Sewage Flow Estimates	2-5
Table 2-2 Values for the Coefficient of Runoff	2-7
Table 3A-1 Water and Sewer Flow Data	3A-2
Table 3B-1 Water and Sewer Flow Data	3B-2
Table 4-1 Water and Sewer Flow Data	4-4
Table 5-1 Hydrant Flow Test Data	5-4
Table 5-2 Water and Sewer Flow Data	5-5
Table 6-1 Pipe Material Minimum Requirements for Sanitary Sewer Mains.....	6-10
Table 6-2 Hydrant Flow Test Data	6-13

LIST OF FIGURES

	Page No.
Figure 3A-1	
Sample Tap-in Drawing Title Block.....	3A-3
Figure 3A-2	
PWSA Approval Block.....	3A-4
Figure 3B-1	
Sample Tap-in Drawing Title Block.....	3B-3
Figure 3B-2	
PWSA Approval Block.....	3B-4
Figure 4-1	
Sample Tap-in Drawing Title Block.....	4-5
Figure 4-2	
PWSA Approval Block.....	4-6
Figure 5-1	
Sample Tap-in Drawing Title Block.....	5-5
Figure 5-2	
PWSA Approval Block for Tap-In Drawings.....	5-7
Figure 6-1	
Sample PWSA Title Block for Construction Plans	6-6
Figure 6-2	
PWSA Private Construction Approval Block.....	6-6

PROCEDURES MANUAL FOR DEVELOPERS EXECUTIVE SUMMARY

The Pittsburgh Water and Sewer Authority (PWSA) Procedures Manual for Developers provides a guide on the procedures for developments tapping into new and existing PWSA sewer or water mains and for constructing extensions to existing PWSA facilities. The purpose of this manual is to describe the PWSA application process, the requirements of the application materials, and the developer's responsibilities. Each chapter of the manual discusses a separate portion of the application process. Depending on the type of development proposed by the applicant/developer, more than one chapter of the manual may be applicable to the development. In instances where the manual does not address a specific or unique issue of a proposed development, then the applicant/developer should contact the PWSA Engineering Department to determine if additional information is required by the PWSA. **Accordingly, the applicant/developer is strongly encouraged to schedule a pre-application meeting with the PWSA staff in order to discuss the particular water and/or sewer service(s) for the proposed development.** The applicant/developer is expected to use this manual in conjunction with maintaining an open dialogue with the PWSA, so that all applications and relevant materials are completed and submitted as required by the PWSA. The applicant/developer is also required to coordinate with **all related local, state and/or federal agencies** such as the City of Pittsburgh Department of City Planning, Bureau of Building Inspection and Department of Public Works as well as the Pennsylvania Department of Environmental Protection, the Allegheny County Health Department and the Pennsylvania Department of Transportation to ensure familiarity and compliance with/on the most current policy standards.

The Pittsburgh Water and Sewer Authority (PWSA) Procedures Manual for Developers was revised in February of 2013. The revisions were promulgated to authenticate the Pittsburgh Water and Sewer Authority's continuous efforts to comply with the latest regulations and construction standards, including the Pennsylvania Department of Environmental Protection, the Allegheny County Health Department and the City of Pittsburgh.

PROCEDURES MANUAL FOR DEVELOPERS

INTRODUCTION

Purpose of the Manual

The Pittsburgh Water and Sewer Authority (PWSA) Procedures Manual for Developers is divided into six distinct chapters. Each chapter is written as its own stand alone document. However, some types of development may require the applicant to follow the instructions in more than one chapter and/or coordinate with other agencies. The flow charts in this section are provided as a general guide for the applicant to determine which chapters and appendices of the manual apply to his/her development.

The term “development” is used throughout the manual to describe changes to private and/or public infrastructure such as a new sanitary sewer tap, new storm sewer tap, new water service tap, termination of existing taps, and/or construction (by a private entity) of new public PWSA sewers or water mains. The term development also includes the types of buildings that will be served by the proposed changes. Therefore, the type of development is defined by both the type of building and the type of infrastructure change.

Submittal Process

Prior to the submittal of the permit application, the applicant/developer is strongly encouraged to schedule a pre-application meeting with the PWSA staff in order to discuss the available water and/or sewer service for the proposed development. The applicant/developer is encouraged to bring a site location map, site plan or survey and must be prepared to discuss the existing and proposed use(s).

The applicant/developer is also required to coordinate with all related local, state and/or federal agencies such as the City of Pittsburgh Department of City Planning, Bureau of Building Inspection and Department of Public Works as well as the Pennsylvania Department of Environmental Protection, the Allegheny County Health Department and/or the Pennsylvania Department of Transportation to ensure familiarity and compliance with the most current policy standards.

The PWSA submittal process varies for each type of development. There are three basic categories of applications submitted to the PWSA:

- Water and/or sewer service for a single family residential home.
- Water and/or sewer service for a large multi-residential development (larger than a single family residential home), commercial development, institutional development, and/or industrial development.
- Construction of an extension of a PWSA system or facility (i.e., PWSA water main or PWSA sewer main).

The permit application process for these categories can be described as follows:

- The permit application process for a single family residential home occurs at the PWSA permit counter.
- Please note that all submittals that are larger than a single family residential home are required to submit the PWSA Request Form for Water and Sewer Availability.
 - The form requires the applicant to notify the PWSA of where the water and/or sewer service is needed.
 - The PWSA will return a copy of the form to the applicant stating if a public water main or sewer main is located contiguous to/in the vicinity of the address provided.

The following additional requirements apply to developments that are larger than a single family residential home (e.g., water consumption or sanitary sewer flow is greater than 799 gallons per day calculated per PA Code Title 25 Chapter 73 Section 73.17):

- The PWSA Water and Sewer Use Application (Application) shall be submitted to the PWSA for any project larger than a single family residential home.
- A completed Administrative Checklist (see Appendix A) shall accompany every Application, tap-in drawing, and construction drawing submittal sent to the PWSA.
- Refer to each chapter for other checklists or attachments that are required when submitting the Application or any other materials discussed in the Manual.

The flowcharts at the end of the Introduction depict the steps in the permit application process for these three scenarios.

Review Process

The review process for applications for water and/or sewer service for the single family residential home may occur at the PWSA Permit Counter. The majority of these single family residential permits are issued same-day.

The review process for other types of development mandates that an Administrative Checklist be submitted with each permit application form and tap-in drawing. The applicant will complete all portions of the Administrative Checklist and shall provide reasons why any items listed on the checklist are not included in the submittal. Once the submittal is received by the PWSA, the checklist along with the submittal materials will be used to determine if the submittal is administratively complete. The PWSA will make this determination typically within one week of receiving the submittal.

If the submittal is deemed to be administratively incomplete (e.g., a check for the review fee is not included or a required attachment of the submittal is not included), then the submittal shall be returned to the applicant. PWSA will include a copy of the checklist indicating the reason(s) why the submittal is administratively incomplete.

If the submittal is determined to be administratively complete, then the PWSA will conduct a technical review of the submittal and issue a response to the applicant within 30 working days contingent upon project complexity and completeness.

Review Fees

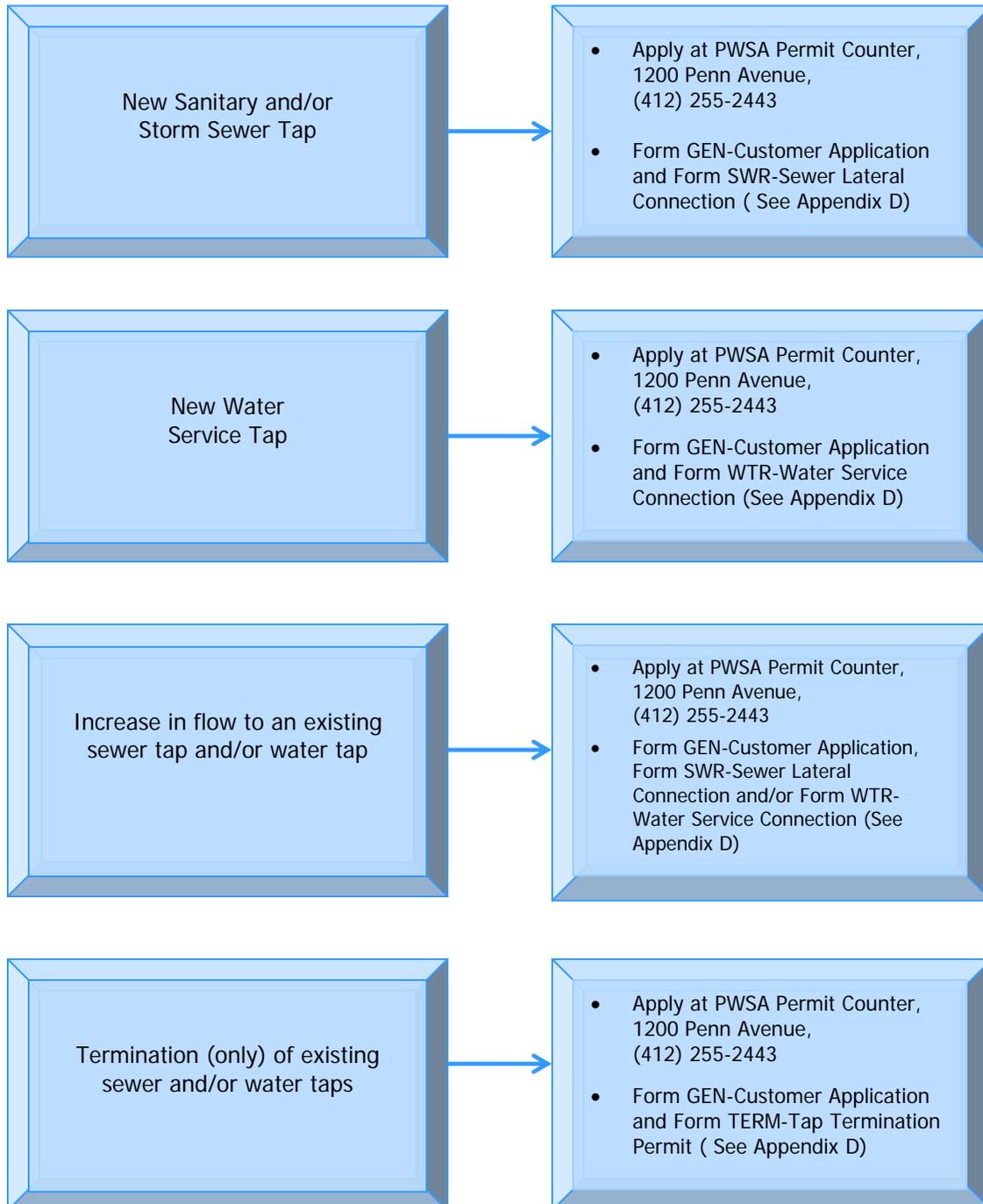
The PWSA Review Fee schedule for the Application, tap-in drawings, and private construction drawings is summarized below:

- The applicant shall send a check for the review fee in the amount of \$250 with the initial submittal complete with the PWSA Water and Sewer Use Application and Tap-In Drawing(s).
- For private construction, the applicant shall send a check for the review fee in the amount of \$250 to the PWSA.
- If the submittal is administratively incomplete, then PWSA will return the submittal package and the check to the applicant.
- If the submittal is administratively complete, PWSA will begin a technical review of the contents.

During the first technical review, PWSA will review the submittal for technical completeness and correctness and will process the applicant's check. If the submittal is technically incorrect, then the submittal will be returned to the applicant and PWSA will retain the applicant's check. **This \$250 check will cover only the first and second technical reviews.**

The applicant will correct the deficient items and resubmit the entire package. An additional review fee is not charged for the second technical review of the submittal. Should the second technical review result in a determination that the submittal is still technically incomplete, then the applicant is required to send an additional check in amount of the \$250 for each subsequent review submittal to the PWSA.

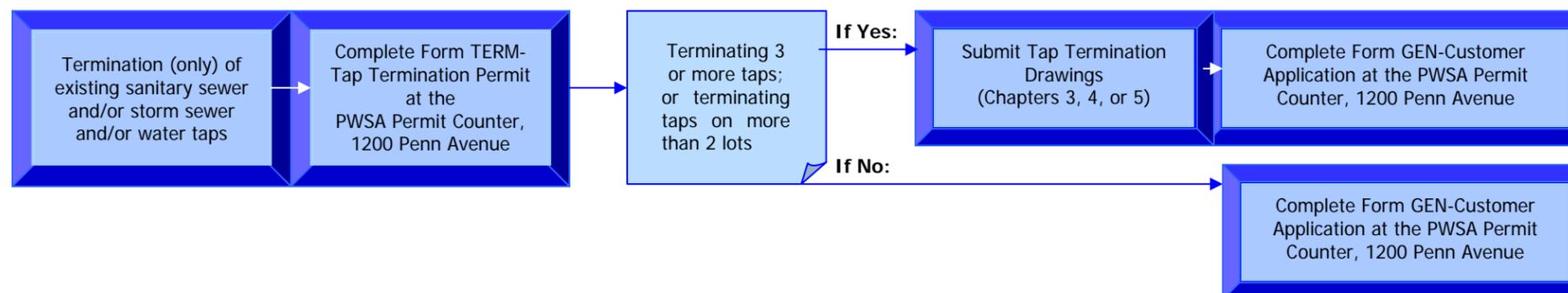
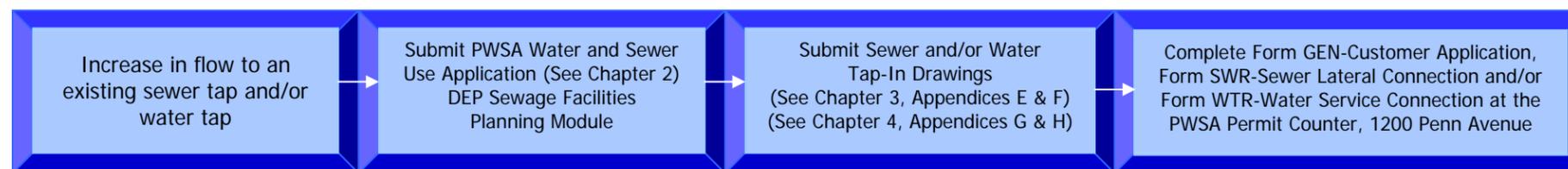
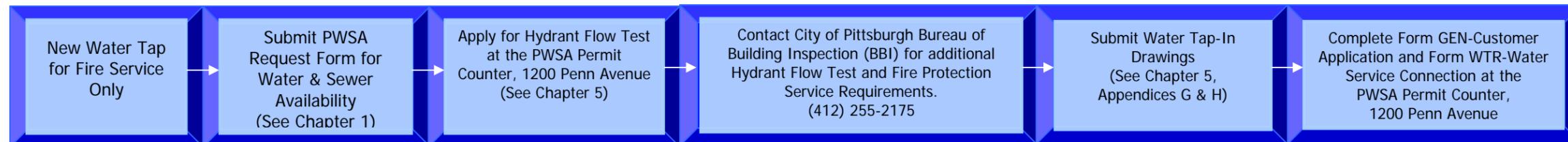
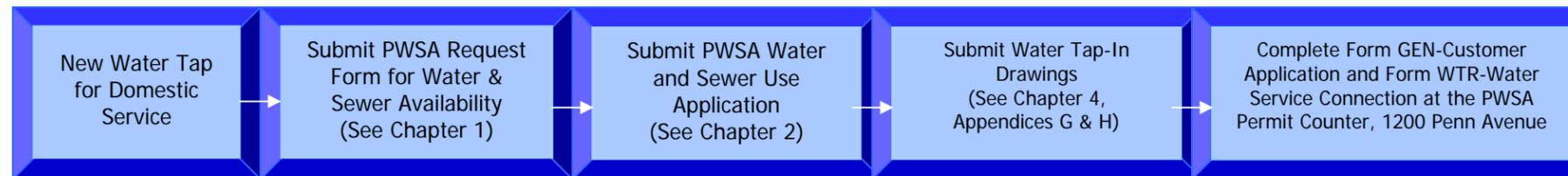
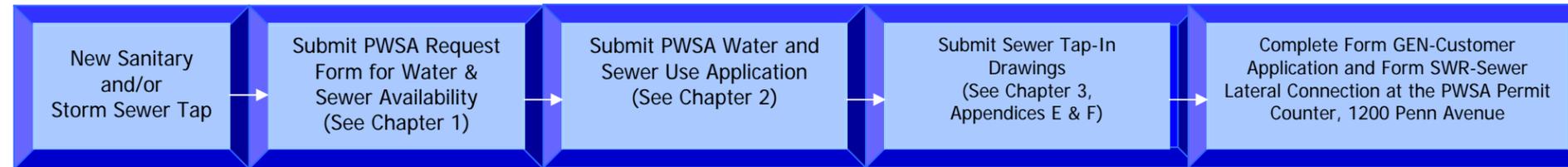
Single Family Residential Development



NOTE: Each flow chart contains a basic description of the portions of the Manual that the applicant should refer to in order to properly complete the application.

Larger Developments

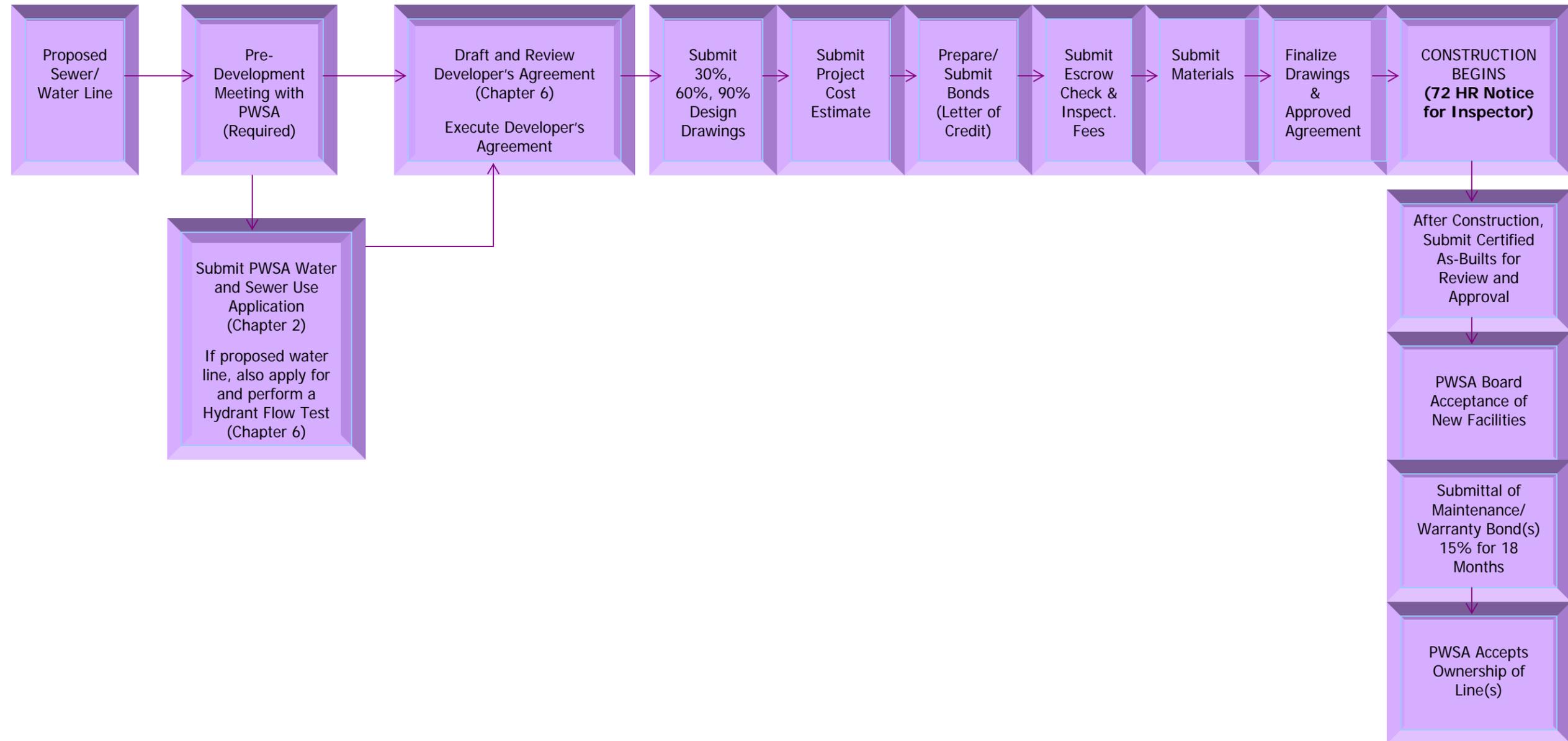
- ✓ Multi-Residential Development
(Larger than single family residence (> 799 gallons per day))
- ✓ Commercial Development
- ✓ Industrial Development
- ✓ Institutional Development



NOTE: Each flow chart contains a basic description of the portions of the Manual that the applicant should refer to in order to properly complete the application.

Private Construction (Chapter 6)

- ✓ Private construction of a new public sewer and/or water main that will be dedicated to the PWSA for ownership and maintenance.



Each flow chart contains a basic description of the portions of the Manual that the applicant should refer to in order to properly complete the application.

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 1 - PWSA REQUEST FORM FOR WATER AND SEWER AVAILABILITY

1.1 Purpose of the PWSA Request Form

The Pittsburgh Water and Sewer Authority (PWSA) requires that all permit applications for water and/or sewer service begin with the PWSA Request Form for Water and Sewer Availability. The applicant is asked to complete a Request Form and submit the form to the PWSA Engineering Department. PWSA will respond by completing the bottom section of the Request Form, indicating if PWSA-owned waterlines and/or sewer mains are physically located near the project site. A copy of the form will be returned to the Applicant along with known Facility Mapping.

PWSA's response to the Request Form is not a permit. Once the applicant receives the Request Form from PWSA then the applicant must follow the existing procedures for obtaining approval for the water and/or sewer service(s) needed for the development(s). The applicant/developer is strongly encouraged to schedule a pre-application meeting with the PWSA staff in order to discuss the available water and/or sewer service for the proposed development. The applicant /developer is encouraged to bring a site location map, site plan or survey and must be prepared to discuss the existing and proposed use(s).

A copy of the Request Form is found on the following page.

1.2 Single Family Residential Development

Applications for water and sewer service for single family residential homes are **not required** to submit this Request Form. If the applicant desires to apply for water and/or sewer service for a single family residential home, then contact the PWSA permit counter at (412) 255-2443. The applicant must pay any associated fees related to the water and/or sewer tap-in permitting before the work can proceed.



PITTSBURGH WATER AND SEWER AUTHORITY

WATER AND SEWER AVAILABILITY LETTER REQUEST FORM

All persons planning to perform construction, demolition, or renovation work that will involve water and/or sewer services are recommended to complete this form and submit to PWSA. PWSA will review the request and reply to indicate if PWSA-owned water and/or sewer utilities are present at the site of the proposed work.

This request form is **required** for all of the following types of development. (Please note that the term "sewer" refers to sanitary sewers, combined sewers, and storm sewers.)

1. New water and/or sewer tap(s) for all approved/recorded subdivisions.
2. Change of Use and/or increase in water and/or sewer flows for residential development(s), commercial, industrial and institutional developments (i.e. total project sanitary flow is greater than 799 gallons per day).
3. New water and/or sewer tap(s) for all residential, commercial, industrial, and institutional developments.

Information to be submitted by the Applicant:			
Property Owner Name:			
Address of Property:			
Proposed Use of Site:			
Closest street intersection to the property:			
Requestor Name:		Date of Request:	
Requestor Address:			
Requestor Phone Number:			

Please submit the completed form to:

Pittsburgh Water and Sewer Authority
 Engineering and Construction Division
 1200 Penn Avenue
 Pittsburgh, PA 15222
 Attn: Ms. Michelle Carney (mcarney@pgh2o.com)

PWSA Use Only:			
PWSA Water Service Available:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Water Size / Location: _____
PWSA Sewer Service Available:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sewer Size / Location: _____
Applicant must contact separate agency for water service:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Name of separate agency:	_____		
PWSA Approval Authority:	Signature and Date	_____	
	Name (printed)	_____	
	Title	_____	

Disclaimer: The information provided by PWSA does not guarantee capacity of the PWSA-owned water and/or sewer lines to satisfy the needs of the proposed development. The permit application process required by PWSA evaluates the water demand and sewer flows of the development, as provided by the Applicant, and renders a decision on the capacity of the PWSA facilities.

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 2 - PWSA WATER AND SEWER USE APPLICATION

2.1 Purpose of the PWSA Water and Sewer Use Application

The Pittsburgh Water and Sewer Authority (PWSA) requires that a **PWSA Water and Sewer Use Application** (Application) be completed by an applicant for public water and sewer facilities planning. This form and its attachments are precursors to any sewage facilities planning modules required separately by the Pennsylvania Department of Environmental Protection (DEP). As of March 24, 2011, the local DEP office changed the Sewage Facilities Planning Module process within the ALCOSAN service area including the City of Pittsburgh (See Appendix M for DEP letter). Due to prevailing regulations made by DEP, all projects proposing an increase in sanitary sewer flows of 799 GPD or greater are required to complete a DEP Sewage Facilities Planning Module Component 3 and submit to the PWSA/City. The PWSA will then review the module for content, complete with the now required approved City of Pittsburgh Resolution approving the Sewage Facilities Planning Module, and if completed correctly, the PWSA will grant preliminary approval. The applicant must forward to DEP for their review and approval.

Accordingly, the applicant is required to demonstrate to the PWSA, the DEP, and other related public agencies that the proposed site sanitary sewage flows will not cause an overload to the present sewer infrastructure and hence will not pollute existing streams and waterways located in the Commonwealth of Pennsylvania (Commonwealth). **The applicant is responsible for contacting the DEP and other public agencies to obtain the relevant applications and permits.**

The PWSA requires that the Application be completed and submitted for the following scenarios:

1. New water and/or sewer tap(s) for residential development larger than a single family residential unit (total project flow is greater than 799 gallons per day).
2. New water and/or sewer tap(s) for all subdivisions (2 EDU's or more).
3. New water and/or sewer tap(s) for all multi-units, commercial, industrial, and institutional developments.
4. Change of use of facility/property with an increase in sanitary flows (greater than 799 gallons per day) to an existing sewer tap conveying to an existing PWSA sewer.

The Application is not required if the only proposed change is the termination of a water and/or sewer tap. In this case the applicant must prepare and submit Form TERM–Termination Permit. Termination drawings may also be required. Instructions for preparing Form TERM are found in Chapter 3A or 3B for sewer taps and Chapter 4 or 5 for water taps.

The applicant can obtain the Application from the PWSA website (www.pgh2o.com), or via mail by calling (412) 255-0841 to request a copy. The following pages provide a sample of the Application. Instructions for completing the application are included following the sample.

Note: Please be advised there could be ferrule charges billed for unremoved taps.

2.2 Instructions for the PWSA Sewer Use Application

The instructions provided below are numbered according to the sections of the Application.

A. General Information

1. Print the name of the land development. For location of land development use a landmark coordinate (i.e., north side of Liberty Avenue, 75 feet west of intersection of Liberty Avenue and 6th Street).
2. Check the type of development. Check commercial if the development is commercial, industrial, or institutional.

Enter the proposed **peak** daily water consumption in gallons per day (gpd).

a. Sanitary Flows

Calculate peak sanitary sewage flows in gallons per day. The calculation of total sanitary flows shall be based on the projected peak (not average) sewage flows (see Table 2-1). The projected flows are **peak** daily flows from each type of establishment. The table below is to be used as a guide for projecting peak daily flows. Actual flows can vary significantly from the flows listed in the figure below. PWSA revised flows are based upon a number of factors, including such items as industry type, building occupancy, square footage, etc. The applicant is encouraged to submit as much supporting documentation as possible to support **peak** daily flow projections.

Project No.

(PWSA USE ONLY)

THE PITTSBURGH WATER AND SEWER AUTHORITY ENGINEERING AND CONSTRUCTION DIVISION

WATER AND SEWER USE APPLICATION

(Return completed submittal package to The Pittsburgh Water and Sewer Authority (PWSA), Engineering and Construction Division

This application is used for commercial or residential projects that propose connecting to the PWSA water or sewer system or propose changing the amount of PWSA water consumed and/or flows discharged to the PWSA sewer system.

A. GENERAL INFORMATION

1. Name of Land Development Project _____
 Location of land development project. *Use landmark or address, if available (e.g., north side of Liberty Ave 75 ft. east of intersection of Liberty Ave and 6th St.)* _____

2. Nature of Development. Check appropriate box and provide total flows.

	Total Water Consumption (gpd)	Total Sanitary Flows (gpd)	Total Storm Flows (cfs)
<input type="checkbox"/> Residential	_____	_____	_____
<input type="checkbox"/> Commercial	_____	_____	_____

3. Acreage of development _____ acres

4. Allegheny County Block & Lot Nos. _____

5. Ownership of Land Development	Address
Name	
_____	_____
_____	_____

6. Applicant (Subdivider, Developer, or Responsible Project Agent)
 Name _____
 Address _____
 Telephone _____

B. WASTEWATER AND STORMWATER FACILITIES

Provide information on collection and treatment facilities.

1. **COLLECTION SYSTEM**

- a. Number of proposed connections (sanitary and/or storm) _____
- b. Name of existing collection or conveyance system _____
- c. Name of interceptor _____
- d. Name of treatment facility _____

2. **SITE PLAN (24" x 36" maximum size accepted)**
 The following information is to be submitted on a site plan of the proposed subdivision.

a. Existing building.	f. Existing and proposed right(s)-of-way.
b. Lot lines and lot sizes.	g. Existing and proposed street, roadway, etc.
c. Remainder of tract.	h. Water bodies and wetland areas.
d. Orientation to North.	

e. Show proposed sewer line to the point of connection to existing collection system. Including all components (collection & conveyance lines, pumps, etc.)

_____ Applicant Signature	_____ Date
-------------------------------------	----------------------

Project No.

(PWSA USE ONLY)

C. FALSE SWEARING STATEMENT (To be completed by individual completing the form)

I verify that the statements made in the Component are true and correct to the best of my knowledge, information, and belief. I understand that false statements in this Components are made subject to the penalties of 18 PA C.S.A. § 4904 relating to unsworn falsification to authorities.

Name of Land Development Project (Same as on Page 1, Section A.1)

Name (Print)

Title

Signature

Address

Telephone Number

Date

D. CHAPTER 94 CONSISTENCY (See PA Department of Environmental Protection Current Regulations)

The following certification is to be completed by the Pittsburgh Water and Sewer Authority agent and agency responsible for completing the (DEP) Chapter 94 report for the collection, conveyance, and treatment facilities.

I/we certify that the sewerage facilities proposed to serve the new land development described in this Planning Module are in compliance with the provisions of DEP Chapter 94, Municipal Wasteload Management and have adequate capacity to serve the sewage flows to be generated by this development, without creation of an overload or projected overload.

Collection System**Conveyance and Treatment**

Signature of Responsible Agent Date
Pittsburgh Water and Sewer Authority

Signature of Responsible Agent Date
ALCOSAN

E. PLANNING AGENCY REVIEW**City of Pittsburgh Municipal Planning Agency**

This development/project has been reviewed and:

- is consistent
 is not consistent (objections attached)

with programs of planning for the area of the proposed development administered by this planning agency under the municipalities Planning Code (53 P.S. § 10101-11202).

City of Pittsburgh _____ _____
Department of City Planning Zoning Administrator Date

Stormwater Management

This development/project has been reviewed and:

- is consistent
 is not consistent (objections attached)

With programs of planning for the area of the proposed development administered by this planning agency under the current City of Pittsburgh storm water management regulations.

City of Pittsburgh _____ _____
Department of City Planning Environmental Planner Date

County or Joint County Health Department

This development/project has been reviewed and:

- approval is recommended
 approval is not recommended (objections attached)

Allegheny County Health _____ _____
Department Signature of Responsible Agent Date

**Table 2-1
Sanitary Sewage Flow Estimates**

(Flows are referenced from the PA Code Title 25 Chapter 73 Paragraph 73.17)

Type of Establishment	Projected Sewage Flow (gallons per unit per day)
Single family dwelling (For units of 3 bedrooms or less. For each bedroom over 3, add 100 gallons.)	400
Multiple family dwellings, including townhouses, duplexes, and condominiums	400
Apartments:	
1 bedroom	150
2 bedroom	300
Larger than 2 bedrooms	400
Efficiency Apartments	150
Hotels and motels (per unit)	100
Rooming houses (per unit)	200
Airline catering (per meal served)	3
Airports (per passenger—not including food)	5
Airports (per employee)	10
Schools, day (without cafeterias, gyms or showers per student and employee)	15
Beauty shops (per customer chair)	200
Bus service areas not including food (per patron and employee)	5
Country clubs not including food (per patron and employee)	30
Drive-in theaters (not including food—per space)	10
Factories and plants exclusive of industrial wastes (per employee)	35
Laundries, self-service (gallons/regular washer)	400
Laundries, self-service (gallons/front loading washer)	200
Mobile home parks, independent (per space)	400
Theaters (not including food, per auditorium seat)	5
Offices (per employee)	10
Restaurants (toilet and kitchen wastes per patron) (Additional for bars and cocktail lounges)	10 2
Restaurants (kitchen and toilet wastes, single-service utensils/person)	8.5
Restaurant, fast food (kitchen and toilet wastes/patron)	6
Restaurants (kitchen waste only, single-service utensils/patron)	3
Stores (per public toilet)	400
Stores (per public urinal)	200
Stores (per public sink)	200
Warehouses (per employee)	35
Work or construction camps (semi-permanent) with flush toilets (per employee)	50
Work or construction camps (semi-permanent) without flush toilets (per employee)	35
Churches (per seat)	3
Churches (additional kitchen waste per meal served)	3
Churches (additional with paper service per meal served)	1.5
Hospitals (per bed space, with laundry)	300
Hospitals (per bed space, without laundry)	220
Institutional food service (per meal)	20
Institutions other than hospitals (per bed space)	125
Personal care home (per bed space)	125

**Table 2-1
Sanitary Sewage Flow Estimates (continued)**

(Flows are referenced from the PA Code Title 25 Chapter 73 Paragraph 73.17)

Type of Establishment	Projected Sewage Flow (gallons per unit per day)
Schools, boarding (per resident)	100
Schools, day (with cafeterias, but no gym or showers per student and employee)	20
Schools, day (with cafeterias, gym and showers per student and employee)	25
Camps, day (no meals served)	10
Camps, winter and summer residential (night and day) with limited plumbing including water-carried toilet wastes (per person)	50
Campgrounds, with individual sewer and water hookup (per space)	100
Campgrounds with water hookup only and/or central comfort station which includes water-carried toilet wastes (per space)	50
Fairgrounds and parks, picnic—with bathhouses, showers, and flush toilets (per person)	15
Fairgrounds and parks, picnic (toilet wastes only, per person)	5
Swimming pools and bathhouses (per person)	10
HVAC condensate from commercial, industrial & institutional facilities	*

* Applicant must estimate the flow in gallons per day of HVAC condensate that will be discharged to a PWSA sanitary or combined sewer.

b. Surface/Storm Flows

Calculate peak storm flows in cubic feet per second (cfs). Calculation of stormwater flow shall be based on the Rational Method using a 25-year storm event, as described in Section 906.07 of the City of Pittsburgh Code and Pennsylvania Department of Transportation Drainage Manual, Publication 584 (unless otherwise directed).

Other PWSA approved engineering methods may be used to calculate stormwater flows. However all methods and calculations are subject to the review and approval of the PWSA.

The Rational Method for calculating the quantity of stormwater is defined by the following equation:

$$Q = CIA$$

Q = maximum rate of runoff, cubic feet per second (cfs)

C = coefficient of runoff based on type(s) and character of surface

(use values as described in Table 2-2)

I = average rainfall intensity, inches per hour

(use the 25-year storm)

A = drainage area, acre

(Divide site area in square feet by 43,560 to calculate the area in acres.)

The coefficient values provided in Table 2-2 are provided as a guide. The applicant is encouraged to submit supporting documentation for the C values used.

Table 2-2
Values for the Coefficient of Runoff

<u>TYPE OF SURFACE</u>	<u>C VALUE</u>
Improved Surface (concrete, asphalt, brick, surface treated)	0.95
Improved Surface (stone, gravel, or slag)	0.60
Building Footprint	0.95
Unimproved Surface (Dense residential sections)	0.70
Unimproved Surface (Suburban, normal residential areas)	0.60
Unimproved Surface (Rural areas, parks, golf courses)	0.30
Urban Areas – Composite Values	
Flat residential, with approximately 30% of impervious area	0.45
Moderately steep residential, with approximately 50% of impervious area	0.65
Moderately steep built up area, with approximately 70% of impervious area	0.80

A sample calculation using the Rational Method is provided in Appendix B. **Other PWSA approved engineering methods may be used to calculate stormwater flows.** All methods and calculations are subject to review and approval of the PWSA. PWSA requires that all stormwater calculations be signed and sealed by a Professional Engineer registered in the Commonwealth of Pennsylvania. (unless otherwise directed)

3. Enter the total acreage of the development.
4. Enter the Allegheny County Block and Lot numbers for the development property.
5. Enter the name and address of the owner of the land development project.
6. Enter the name and address of the applicant. This may be the subdivider, developer, owner, or responsible agent.

B. Wastewater and Stormwater Facilities

1. Collection System

- a. Enter the total number of sanitary sewer and/or storm sewer connections to PWSA sewers.
- b. Enter the name of the PWSA collector sewer or trunk sewer to which the proposed development will be connected. Typically this will be a street name or watershed name (e.g., Banksville Road and/or Streets Run).
- c. Enter the name of the ALCOSAN interceptor located downstream of the PWSA collector sewer or trunk sewer(s) that will convey flow from the proposed development. In most cases this will be one of the Allegheny County Sanitary Authority (ALCOSAN) interceptor sewers (i.e., Allegheny River, Monongahela River, Ohio River, Chartiers Creek or Saw Mill Run).
- d. Enter the name of the sewage treatment facility. Typically, this will be the ALCOSAN plant at Woods Run.

2. Site Plan

At a minimum the applicant must submit a Site Plan with the Application. Subsequently, the applicant will be required to submit tap-in drawings once the Application is approved. Therefore the applicant can choose to prepare and submit the tap-in drawings in advance and submit those drawings in lieu of the Site Plan. Instructions for preparing tap-in drawings can be found in Chapters 3A, 3B, 4, and 5 of this Manual.

- a. Show all existing structures located within the project property boundary lines.
- b. If development is a subdivision, show all lot lines and indicate lot sizes. If development is not a subdivision, then show property lines.
- c. If development is a subdivision, then show the remaining tract, if any, that is not part of development and label as such.
- d. Show all sanitary and storm connections to PWSA sewers.
 - 1) Where the existing PWSA sanitary sewer and storm sewer are separated, two taps to the existing sewers are required: one for storm flows and one for sanitary flows. **If a dedicated storm and/or sanitary sewer abuts and/or is contiguous to the project area, the**

storm and/or sanitary connection(s) must be made to the dedicated storm and/or sanitary sewer(s). This includes sewers currently designated as combined sewers which are slated for future conversion to either designated storm or sanitary sewers under future separation projects; as directed by the PWSA.

- 2) Where the **only** existing PWSA sewer is a combined sewer, the applicant can connect both sanitary and storm flows from the development into the combined sewer(s) unless a storm and/or sanitary sewer is available. (See Note 1 above.)
- 3) Private sewer(s) and/or lateral(s) are not permitted to tap PWSA manholes.
- 4) Connection to PWSA sewer(s) must be made through an existing wye or through a new PWSA approved tap on the PWSA sewer main. If the connection(s) is proposed to be made through an existing wye(s), then the location of the existing wye(s) must be shown and stationed on the site plan (and sewer tap-in drawing(s)). Known existing wye(s) stationing can be obtained from PWSA records/ video location of taps. If a new connection is proposed using a new wye(s), then a detail of the connection must be shown and stationed on the site plan (and sewer tap drawing(s)).

C. False Swearing Statement

The property owner/designee completing the Application must complete the False Swearing Statement in ink making sure to complete all parts including the name of the project as it is written on the first page of the form and signed as directed. Submittals without the False Swearing Statement properly completed and/or signed will not be accepted.

The applicant is to complete Sections A, B, and C. Submit the Application with all required attachments to the PWSA. Additional contact information can be found at the end of this chapter.

D. Chapter 94 Consistency

PWSA Signature

PWSA will sign the Application after the Application and its required attachments have been reviewed and approved. Once PWSA approves the Application, PWSA will upload the application to the website for the other

responsible agencies to review electronically. The applicant does not have to mail the original Application to the other related agencies for their review.

ALCOSAN Signature

The Application must be reviewed, approved, and electronically accepted by ALCOSAN in conjunction with prevailing regulations for the conveyance and treatment of wastewater. Contact information for ALCOSAN can be found at the end of this chapter.

E. Planning Agency Review

The Application must be reviewed, approved, and electronically accepted by the City of Pittsburgh Zoning Administrator, the City of Pittsburgh Environmental Planner, and the Allegheny County Health Department. The appropriate officials and addresses are included in the Contact Name and Addresses section at the end of this chapter

Once the Application has been electronically accepted by all agencies, PWSA will contact the applicant. The Pennsylvania Department of Environmental Protection approval must also be obtained. See Section 2.7.1 for additional information defining the DEP Planning Module process. The applicant must provide PWSA with a completed original DEP Sewage Facilities Planning Module Application. PWSA will sign the Module and the applicant will be required to forward the information to the DEP for its review.

2.3 Flow Calculation Sheet and Project Narrative

The flow calculation sheet and project narrative are required attachments to the Application and must be completed by the applicant or the applicant's designee. These attachments must provide more detailed information on the current and proposed uses of the facility and the proposed changes to water consumption and sewer flows.

2.3.1 Sanitary Flow Calculation Sheet

The flow calculation sheet shall be typed and include the name of the proposed development and the name of the applicant. A brief summary of the existing and proposed uses of the facility is required (e.g., existing use of the property is a church which will be converted into a restaurant). The applicant shall provide calculations of all proposed water demand and sanitary flows from the proposed development. The water and sanitary calculations may be presented together. The calculation of total water demand and sanitary flows shall be based on the peak daily flow estimates found in Figure 1 or PA Code Title 25 Chapter 73. However the applicant can choose to submit PWSA approved flow calculations based on alternative estimation methods, but all methods must reflect the peak daily flow(s). Any alternative method shall be explained by the applicant. All calculations are subject to PWSA approval. Commercial, industrial and

institutional properties must include HVAC condensate in the sanitary flow calculations.

The calculated sanitary flows must be shown for each floor of an establishment and also for each type of establishment if the proposed development is a multi-use facility (e.g., hotel with a restaurant). The calculations will be based upon the peak maximum use of space within the establishment or occupancy per building code. Square footage of each floor and the total square footage of the proposed establishment shall be provided. The flow calculations shall be provided for the following categories where applicable:

- Restaurant and/or Bar:
 - Number of seats and/or barstools.
 - Number of turnovers per day (3 typically).
 - Number of sinks and water closet fixtures in bathrooms.
 - Number of public and private (employee only) restrooms.
 - Number of employees.
 - Estimate of any condensate from HVAC units.
- Hotel:
 - Number of hotel rooms, including number and types of beds (1 ½ people per bed).
 - Number of sinks and water closet fixtures in bathrooms.
 - Presence of a swimming pool, hot tub, and/or gym with showers.
 - Number of public and private (employee only) restrooms.
 - Presence of any retail or restaurant facilities (see above).
- Residential:
 - Number of single family residences (Per EDU).
 - Number of multiple-family residences, including apartments, townhouses, duplexes, and condominiums (Per EDU).
 - Type of laundry facilities provided, if any.
 - Presence of a community center or other central facility.
 - Presence of a swimming pool(s).

- Offices:
 - Estimated number of employees. The method of estimation chosen by the applicant must be shown and explained on the calculation sheet. If the applicant does not have a preferred method, then the number of employees can be estimated by dividing the gross square footage of the facility by 150 square feet per employee.
 - Number of any public restrooms.

All applicable items described above are to be shown in the flow calculations. The total peak daily flow for the proposed development is to be shown on the plans and is used to determine proposed flow demands. PWSA credit for past uses is only in regard to fees.

Once the peak daily flow has been calculated for the proposed development, the peak daily flow may be calculated for the PWSA approved previous use of the property, if any, using the same methods as the calculation for the proposed development. Note that PWSA only grants credit for past uses if the structures were existent at the time the property was purchased by the current owner or developer and the lot maintains the same contiguous lot limits. PWSA may not grant credit for parcels where the lot lines have been altered and will not for vacant properties and/or for demolished structures. Also note that PA DEP bases sanitary sewage credit requirements for past use on overall system capacity, whereas the PWSA bases credit requirements for past use on local system capacity and thus credit from one entity does not imply credit from the other. If there is a question regarding credit for the past use of a property, PWSA should be contacted for a specific answer in writing.

Once the peak daily flows are calculated, subtract the past use flow from the proposed development flows. The result is the net proposed PWSA approved increase in sanitary flow. Tap-In Fees are based on this final agreed net increase.

2.3.2 Project Narrative

The project narrative describes the existing conditions and use of the site in addition to the new proposed use for the site. The project narrative is to be completed by the applicant and attached to the completed Application. The narrative shall elaborate upon the calculations and descriptions included in the calculation sheet. The narrative shall discuss the existing and proposed uses as they relate to:

- The type of establishment (e.g., restaurant, hotel, residence, etc.).
- Number of public and private bathrooms.
- Number of fixtures in bathrooms and kitchens.

- Occupancy of the facility (e.g., restaurant that serves three meals per day seven days per week, hotel with X number of rooms, single-family residence, etc.).
- Any other items with flow calculations on the calculation sheet.
- And any additional information the applicant deems applicable to accurately describe the proposed development.

The project narrative must include the name of the land development project, name of the applicant, and the location of the land development project. The document shall be typed and preferably double-spaced.

2.4 Plumbing Floor Plans

The applicant is required to submit complete plumbing floor plans for the proposed development. The minimum size of plans accepted is 11-inch x 17-inch sheets. The plans shall be drawn to scale and shall be readable and scalable. The PWSA will review the plans in conjunction with the project narrative. The drawings shall display the square footage of each floor and the total square footage of the proposed establishment and also noting any special conditions or features.

2.5 Administrative Checklist

The applicant is required to submit the Administrative Checklist with the Application. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Administrative Checklist is included in Appendix A.

2.6 Technical Checklist

The applicant is required to submit the Technical Checklist for the Application along with the Application and all other attachments. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Technical Checklist is included in Appendix C.

2.7 Additional Information

All submittal items can be delivered to the PWSA office or mailed to the following address:

Pittsburgh Water and Sewer Authority
 Penn Liberty Plaza I
 1200 Penn Avenue
 Pittsburgh, PA 15222
 Attn: Engineering and Construction

- The applicant's signatures on the Application must be original and in ink.

- The site plan, calculation sheet, project narrative, plumbing floor plans, Administrative Checklist, and Technical Checklist are to be included with the completed Application when submitting to PWSA.
- Allow a maximum of 30 days for review of the Application by the PWSA.
- The applicant is responsible for contacting/completing all the DEP forms to obtain the DEP Sewage Facilities Planning Module.
- The applicant should expect additional review time (60 days more or less) once the application is submitted to the City of Pittsburgh City Council for Approval Resolution and then final submission to the DEP. **DEP approval must be obtained prior to the issuance of construction permits.**

2.7.1 DEP Planning Module

As of March 24, 2011, the local DEP office changed the Sewage Facilities Planning Module process within the ALCOSAN service area including the City of Pittsburgh (See Appendix M for DEP Letter). Due to the prevailing regulations made by DEP, all projects proposing an increase in sanitary sewer flows of 799 GPD or more are required to submit a DEP Sewage Facilities Planning Module Component 3 to the PWSA. The PWSA will review the module for content. If acceptable to the PWSA, The PWSA will sign the DEP Sewage Facilities Planning Module and return it to the applicant for further processing. The applicant must contact the City to initiate the City Council resolution process. An approved City of Pittsburgh resolution approving the proposed sewer connection named in the Sewage Facilities Planning Module is required after obtaining the required signatures from ALCOSAN and the PWSA. The applicant must then forward all of the above mentioned documentation to DEP for their review and approval. **Be advised the PWSA cannot approve Tap In Plans or issue permits without DEP approval.**

The following information is meant to assist developers in preparation of the required documents; however, DEP must be consulted. DEP may require additional and/or different documents to be filed. The information below does not replace nor supersede the directions provided on the PA DEP website at http://www.depweb.state.pa.us/portal/server.pt/community/dep_home/5968.

The following information is only meant as a supplement containing select information specific to the PWSA service area.

- Calculation of site flows:

The **peak** daily sanitary flow (do not use average) for the proposed development must be calculated using the criteria from Table 2-1 of this manual and/or PA Code Title 25 Chapter 73 Paragraph 73.17. All occupancies must be based on maximum sanitary flow capacity and/or

occupancy per current building code(s). Any situations not covered in the document(s) must be accounted for based on **peak** daily flow(s) (not average flows).

- Credit for previous flows:

Once the **peak** daily flow has been calculated for the proposed development, the past **peak** daily flow must be proven historically for the previous use of said property credit(s), if any, using the same methods as the calculation for the proposed development. **Note that this is a DEP document and the DEP has different criteria than PWSA regarding credit for past uses. If there is a question regarding credit for the past use of a property, DEP should be contacted for a specific answer(s).**

Once the peak daily flows are calculated, subtract the past use flow from the proposed development flow. The result is the net proposed increase in sanitary flow. If the net proposed increase is 799 GPD or less, submit the calculations with a brief narrative and PWSA approved back up historical documentation for credit review. If the documentation and calculations are accepted by DEP, no farther action is required regarding the DEP Planning Module Component 3. If the net proposed increase in sanitary sewer flow is 799 GPD or greater, DEP Planning Module process must be followed as per DEP regulations.

- City of Pittsburgh Resolution process:

Component 3 requires an approval resolution by the City of Pittsburgh City Council. This approved City resolution must be included with the final DEP Sewage Facilities Planning Module documentation submitted to DEP.

- Other DEP Sewage Facilities Planning Module approval:

In general, PWSA is responsible for sewage collection. ALCOSAN is responsible for conveyance and treatment. ALCOSAN must be contacted directly regarding the proper information and signatures for the conveyance and treatment portions of DEP sewage facilities Planning Module Sections G & J of Component 3. These portions must be filled out properly and approved by ALCOSAN (in addition to the portions signed by the PWSA) prior to submission to City Council and DEP.

- Client (Municipality) Information must include the PWSA, Deputy Director of Engineering or his designee as the Contact Individual. See Section 2.9 for complete contact information.

- In Section G 1. b. The existing collection system is typically named after the street right-of-way or watershed that the sanitary or combination sewer is located. The public collection system(s) is typically owned by PWSA. The interceptor is typically owned by ALCOSAN.
- In Section J Part 2, the table must be filled out properly. PWSA does not maintain flow records for individual sewer mains. The dry weather depth of flow must be measured and/or monitored and the average flow rate calculated from this. The slope of the sewer is also required to calculate the flow. The slope can be taken from PWSA records if available, or measured in the field. Per DEP criteria, the peak is 3.5 times the average flow for combination sewers or 3.0 times the average flow for sanitary sewers. The peak design flow is the full flow pipe capacity. The average design flow is the peak design flow divided by 3.5 for a combination sewer or 3.0 for a sanitary sewer. The projected flows should represent a 5% increase from the sum of the present flows and the project flow due to increased density (i.e. conversion of houses to apartments). (5% represents an average projected flow for current city developments.)
- Section J. 3. b. Collection System must include the PWSA, Deputy Director of Engineering or his designee as the Contact Individual. See Section 2.9 for complete contact information.
- Refer to DEP instructions for the proper way to fill out the remaining sections.

2.8 PWSA Review Process

Refer to the Introduction of this Manual for a description of the review process and discussion of review fees.

2.9 Contact Names and Addresses

The contact information presented below is current as of December 2013.

1. Mr. Don R. Waldorf, Deputy Director of Engineering
Pittsburgh Water and Sewer Authority (PWSA)
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Phone: (412) 255-8682; Fax: (412) 393-0517

- Ms. Michelle Carney, Engineering Technician II
Pittsburgh Water and Sewer Authority (PWSA)
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222-2219
Phone: (412) 255-0841; Fax: (412) 393-0517
2. Mr. Michael Lichte, P.E., Manager of Planning
Allegheny County Sanitary Authority (ALCOSAN)
3300 Preble Avenue
Pittsburgh, PA 15233-1092
Phone: (412) 732-8004
 3. Ms. Susan Tymoczko, Zoning Administrator
Office of Zoning Administrator
City of Pittsburgh, Department of City Planning
200 Ross Street, 3rd Floor
Pittsburgh, PA 15219
Phone: (412) 255-2470
 4. Mr. Dan Sentz, Environmental Planner
Office of Environmental Planner
City of Pittsburgh, Department of City Planning
200 Ross Street, 4th Floor
Pittsburgh, PA 15219
Phone: (412) 255-2233
 5. Ms. Michelle Buys, Environmental Health Engineer
Public Drinking Water & Waste Management
Allegheny County Health Department
Frank B. Clark Health Center
3901 Penn Avenue, Building #5
Pittsburgh, PA 15224-1347
Phone: (412) 578-8046; Fax: (412) 578-8053
 6. Mr. Michael Scheer, Compliance Coordinator
Public Drinking Water & Waste Management
Allegheny County Health Department
Frank B. Clark Health Center
3901 Penn Avenue, Building #5
Pittsburgh, PA 15224-1347
Phone: (412) 578-8388; Fax: (412) 578-8053

8. Mr. Thomas E. Flanagan, Sewage Planning Specialist II
Pennsylvania Department of Environmental Protection
400 Waterfront Drive
Pittsburgh, PA 15222
Phone: (412) 442-4047; Fax: (412) 442-4328
9. Allegheny County Conservation District
33 Terminal Way, Suite 325B
Pittsburgh, PA 15219
Phone: (412) 241-7645; Fax: (412) 242-6165
E-mail: conservation@accdpa.org
10. U.S. Army Corps of Engineers, Pittsburgh District
2200 William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222-4186
(412) 395-7100
Fax: (412) 644-2811

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 3A –SANITARY SEWER TAP-IN

Sewer tap-in drawings are required for proposed developments if the:

- Development is greater than one single family residential unit (i.e., proposed flows are greater than 799 gallons per day) with new sanitary sewer connection and/or relocation.

OR

- Development is greater than one single family residential unit (i.e., proposed flows are greater than 799 gallons per day) with an increase in flow at existing combination sanitary sewer lateral or storm sewer lateral tap(s).

Any combination, sanitary sewer or storm sewer taps that are being terminated by the customer must be shown on the tap-in drawings (located and/or stationed as directed). However, if terminating a tap is the only proposed change and no new taps are proposed, then the applicant must complete the Form TERM–Termination Permit and may also have to prepare termination drawings (if directed). Information on the termination-only application can be found at the end of this chapter. Instructions for preparing the tap-in drawings are provided below.

In addition to following the application procedure described above, the applicant must also obtain an Allegheny County Plumbing Permit. This can be accomplished by calling the Allegheny County Health Department (412) 578-8393. The office is located at 3901 Penn Avenue, Building No. 5, Pittsburgh, PA 15224.

3A.1 Single Family Residential Development

As per current DEP regulations, a single family residential development is considered a development equal to or less than a single family residential unit. A single family residential development involving new sewer taps or changes in sewer flow does not require tap-in drawings. However, the applicant will need to fill out several forms documenting the proposed changes.

Several PWSA forms (i.e., GEN, HYD, SWR, TERM, and WTR) will be filled out, as needed, based upon the type of development requested by the applicant. Samples of these forms can be found in Appendix D.

Contact the PWSA permit counter at (412) 255-2443 to arrange for completion of these forms. The applicant must have all forms completed and approved plus pay any associated fees related to the sewer tap before the work can proceed.

3A.2 Tap-in Drawing Basic Guidelines

Tap-in drawings must comply with the following basic requirements.

- Drawing size shall be 24 inches x 36 inches (Landscape).
- Drawing shall be readable and scalable with a north arrow pointing to the top or the right of said sheet.
- Drawing shall include a plan view of the entire site. All existing topographic information shall be shown either 50 percent screened or half-toned.
- Existing building(s) footprint(s) shall be displayed and shall show the address, type of building, number of floors, the square footage of each floor and the total square footage of the building.
- Existing manholes and wyes must be shown by survey stationing. Certain sewer related stationing information can be obtained from most PWSA records.
- Existing sewer mains that will be tapped shall be displayed.
- Proposed location of size of the service line(s) shall be shown. Proposed sewer lateral information is to be shown in bold line weight and text.
- The appropriate scalable plan view, profiles, and details shall be displayed. Examples of the PWSA standard details are included in Appendix E of this Manual.
- Tapping detail(s) and termination detail(s) (if applicable) shall be displayed.
- The summary table entitled “Water and Sewer Flow Data” (see Table 3A-1) must be completed by the applicant and shown on each drawing.

**Table 3A-1
Water and Sewer Flow Data**

<u>WATER AND SEWER FLOW DATA</u>	
WATER CONSUMPTION	gpd
SANITARY FLOW	gpd
STORM FLOW	cfs
APPLICATION NUMBER (ASSIGNED BY PWSA)	
DEP APPROVAL DATE (ASSIGNED BY PWSA)	

On tap-in drawing display table at 4 inches wide by 3 inches tall.

The tap-in drawing shall show all existing water and sewer lines connected to the existing building or servicing the site including abandoned facilities (as directed). Any existing service line(s) that will not be used by the proposed project must be terminated by the owner. The service line(s) must be terminated at the main as per PWSA Specification and in a manner acceptable to the PWSA. Be advised that new tap(s) will not be provided until all site related abandoned existing services are terminated and witnessed by a PWSA representative. All costs associated with the termination of existing private service lines are the responsibility of the property owner.

PWSA reserves the right to monitor the flows of new facilities. PWSA may compare the actual flows to the estimated flows provided in the PWSA Water and Sewer Use Application (Application) and related tap-in drawings. PWSA reserves the right to charge additional tapping fees if the actual flows differ from the projected estimated flows.

Each tap-in drawing must also include an appropriate title block in the lower right-hand corner of the drawing (see Figure 3A-1).

**Figure 3A-1
Sample Tap-in Drawing Title Block**

ABC DEVELOPERS, INC.			
FIRST AVENUE CONDOMINIUMS			
123 FIRST AVENUE PITTSBURGH, PA 15222			
SCALE:	SHEET	ACCESSION No.	_____
DATE:	_____ OF _____	CASE No.	_____

On tap-in drawing display table at 6 inches wide by 4 inches tall.

Each tap-in drawing must also include the PWSA approval block (see Figure 3A-2) to the left of the title block (see sample drawing in Appendix E). The approval block provides the PWSA staff with a space to track the review process.

**Figure 3A-2
PWSA Approval Block**

THE PITTSBURGH WATER AND SEWER AUTHORITY

*** APPROVAL FOR:**

_____ NEW WATER TAP, BACKFLOW PREVENTOR,
AND METER INSTALLATION

_____ NEW SANITARY AND/OR STORM SEWER TAP

_____ INCREASE IN FLOW AT EXISTING
SEWER AND/OR WATER CONNECTION

_____ SEWER TAP TERMINATION

_____ WATER TAP TERMINATION

*** DISCLAIMER:**

Signatures / Approval by PWSA are for the physical connection(s) to the water and/or sewer system only.

Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the project Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design demands.

PWSA Project Reviewer certifies that he/she has reviewed the above noted document(s) in accordance with the Authority's established rules and regulations. Based on this review, approval is hereby recommended

Date

PWSA Project Reviewer

Approval

Date

Director of Sewer Operations

Deputy Director of Engineering

Director of Engineering and Construction

On tap-in drawing display table at 6 inches wide by 8 inches tall.

The approval block contains several options for the type of development proposed by the applicant. The applicant **does not** complete any sections of the approval block. Once PWSA begins review of the tap-in drawings, PWSA will mark and indicate which types of development are applicable.

3A.3 Tap-in Drawing Specific Guidelines

Included in Appendix E of this Manual are PWSA standard details relating to sewer tap-ins. The applicant should refer to these details when preparing tap-in drawings and should use only those details that apply to the proposed development. When reviewing the standard details, the applicant is reminded of the following requirements.

- If an existing sanitary sewer line is present, then the applicant must propose connecting the sanitary flows from the proposed development to the existing sanitary sewer unless otherwise directed by PWSA.
- If only an existing combined sewer is present, then the applicant must propose connecting both the sanitary and storm flows from the proposed development to the combined sewer with two separate laterals, one for sanitary flows and one for storm flows.
- Construction of private sanitary sewer laterals to tap PWSA manholes and catch basins or storm inlets is not permitted.
- Connection to PWSA sewer can be made through an existing wye or through a new approved connection into the PWSA sewer main. If connection is proposed to be made through an existing wye, then the location of the existing wye must be shown and stationed to the nearest PWSA manhole on the sewer tap-in drawing. Existing wye stationing can be obtained from PWSA records/video location of taps. If a new connection is proposed using a new wye, then a detail of the connection must be shown and stationed on the sewer tap drawing. New connections must follow current PWSA guidelines and standards.

3A.4 Administrative Checklist

The applicant is required to submit the Administrative Checklist with the Application. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Administrative Checklist is included in Appendix A.

3A.5 Technical Checklist

The applicant is required to submit the sewer tap-in drawings Technical Checklist along with the drawings. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Technical Checklist is included in Appendix F.

All submittal items can be delivered to the PWSA office or mailed to the following address:

Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Attn: Engineering and Construction

3A.6 Review of Tap-in Drawings

Before the PWSA will review the tap-in drawings, the following prerequisite conditions must be satisfied:

- The applicant shall have submitted a PWSA Request Form for Water and Sewer Availability (see Chapter 1).
- The applicant shall have submitted a complete PWSA Water and Sewer Use Application (see Chapter 2).
- If applicable, DEP Sewage Facilities Planning Module must be under review and/or approved.
- The PWSA Water and Sewer Use Application has been approved by all agencies listed on the Application.
- The applicant has submitted an Administrative Checklist and a Technical Checklist.

The sewer tap-in drawings will initially undergo an administrative review. If the drawings are determined by PWSA to be administratively complete, then the PWSA will conduct a technical review of the drawings and related information.

Refer to the Introduction of the Manual for a description of the review process and discussion of review fees.

Once PWSA grants final approval of the tap-in drawings, PWSA will contact the applicant in writing stating that the final review of the tap-in drawings is complete. The letter will request that the applicant submit one set of 24 inches x 36 inches (Landscape) four mil thick, double-matte, archival quality, permanent, reproducible Mylar drawings. PWSA will review the Mylars submitted by the applicant. Once PWSA approves the Mylars, PWSA will contact the applicant with the calculated amount owed for any tapping, connection, or customer facilities fees. PWSA provides a photographic **copy** of the approved Mylars for the applicant's records, when the permit is picked up.

The applicant has several forms to complete in order to finalize the approval process. Contact the PWSA permit counter at (412) 255-2443 to arrange for completing these forms and paying the required fees. The additional forms are as follows:

- Form GEN–Customer Application.
- Form SWR–Sewer Lateral Connection.
- Form TERM–Termination Permit (if applicable).

Samples of the forms are provided in Appendix D.

3A.7 Tapping, Connection, and Customer Facilities Fees

PWSA will calculate the appropriate fees based upon current tapping fees and the related project information submitted by the applicant. The tapping and/or connection fee(s) will be charged to new customers of the PWSA sewer system(s) to recover the cost of constructing the public sewer(s) and related facilities. The sewer tapping fee(s) includes a capacity part and a collection part. The capacity part covers the PWSA trunk sewers and sewage pumping stations and the collection part includes the collector sewers. **The current PWSA sewer tapping fees are set at \$210 for capacity and \$290 for collection per equivalent dwelling unit (EDU). 300 gallons per day (GPD) of peak daily flow is considered to be one (PWSA) EDU.** See Chapter 4 regarding fees for water taps.

PWSA’s current policy on sewer connections is that the customer is responsible for excavating, connecting the service lateral (including the wye) at the PWSA main line as per PWSA standards and specifications, and installing the private service lateral from the PWSA main to the building to be served. PWSA must be notified at least three working days in advance for inspection of tap installation on the sewer main. (see 3A.8 below)

A fee is currently not charged by the PWSA for connecting to the public sewer because the customer makes the physical connection. Currently, a customer facilities fee can be charged by the PWSA for inspecting the installation of the new service lateral connections. All fees must be paid before sewer service is established.

The above capacity and conveyance fees apply to all new structures/facilities and modifications **creating an increased demand** at existing structures/facilities. The PWSA **may** accept requests to credit past/existing usage against the proposed new capacity and conveyance fees **at their discretion** provided **all** of the following conditions are met:

- The past/existing structure/facility has not been removed nor condemned and has **maintained an active connection** to PWSA infrastructure as determined by the PWSA.
- Both past/existing and proposed usages and peak flows can be satisfactorily documented and calculated by the applicant. The PWSA reserves the right to determine whether said information is acceptable.
- The past/existing structure/facility and the proposed structure/facility are both located on the same single existing lot/parcel of land and there are no proposed subdivisions, consolidations, or any other significant modifications

(as determined by the PWSA) to the legal boundaries of said existing lot/parcel.

No credit will be granted to existing vacant lots including previously demolished structures/facilities, or reconfigured lots/parcels.

If credit is granted for past/existing usage, the peak daily flow calculated for the past/existing structures/facilities is subtracted from the calculated peak daily flow for the proposed structure/facility. **The applicant will be required to pay for any additional new capacity and conveyance fees.**

3A.8 Tap-in Procedure

PWSA cannot allow the tap to be made until the Application (see Chapter 2) is signed by PWSA, DEP approval has been granted and all other required parties and the sewer tap-in drawings are approved by PWSA. The applicant must notify PWSA three working days in advance of the proposed connection date. **A PWSA inspector must be on site during the connection procedure and backfilling of pipe sewer zone.** Notification point of contact is the Sewer/Service Section at (412) 231-0891 or (412) 231-0892.

3A.9 Tap Termination

3A.9.1 Termination Permit

If terminating a water or sewer tap is the only proposed change and no new taps are proposed, then the applicant must complete Form TERM–Termination Permit. The Termination Permit provides the PWSA with information such as the service address of the customer, the type of tap(s), and method(s) of termination. A sample of the permit can be found in Appendix D. Tap termination drawings are required when the applicant proposes to terminate two or more taps or the termination involves more than two lots. PWSA reserves the right to determine when and where a tap termination plan will need to be submitted.

The Termination Permit must be completed as per PWSA regulations and fees paid for all terminations before the work can proceed. The applicant shall obtain the permit from the PWSA permit counter by calling (412) 255-2443. All applicants must complete and sign page one of the permit. If no termination drawings are required, then the applicant will pay the termination fee to the PWSA permit counter staff before commencing the termination work. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard PWSA details for terminations. Forms and details are also available in the appendices of this manual.

3A.9.2 Termination Drawings

If termination drawings are required, then the applicant will also be required to complete and sign page two of the permit form. Upon request, the PWSA permit

counter staff will provide the applicant with the appropriate standard PWSA details for terminations. Sewer termination details can also be found in Appendix E. The applicable standard details must be shown on the applicant's drawings. Once the drawings are complete, the applicant must submit the drawings and both pages of the application to the PWSA permit counter. If the PWSA approves the drawings and permit, then the applicant will pay the termination fee(s) before the work can proceed.

3A.9.3 Termination Procedure

PWSA must verify the termination of the existing connection(s). **The applicant shall notify PWSA three working days in advance of the proposed termination date. A PWSA inspector must be on site during the termination procedure and witness said terminations(s) and pipe zone backfilling.** Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892. Removal of existing portions of abandoned or unused sewer laterals is the responsibility of the property owner. Absent the written agreement of the PWSA to the contrary, should the PWSA remove a property owner's abandoned sewer lateral(s), the total PWSA cost of that removal shall be a lien on the said property.

If the applicant proposes to terminate the connection using trenchless technology, then the applicant must conduct closed-circuit televised video (CCTV) inspections of the pipe before and after the termination(s). Copies of the videos must be submitted to the PWSA. All CCTV inspection must be compatible with PWSA electronic media and adhere to current PWSA standards.

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 3B –STORM SEWER TAP-IN

Storm sewer tap-in drawings are required for proposed developments if the:

- Development is greater than a single family residential unit (i.e., proposed flows are greater than 799 gallons per day) with new sanitary sewer lateral or storm sewer lateral tap(s);

OR

- Development is greater than a single family residential unit (i.e., proposed flows are greater than 799 gallons per day) with an increase in flow at existing combination sanitary sewer lateral or storm sewer lateral tap(s).

OR

- Development is a non-single family residential use proposing to use a new or existing stormwater connection(s) to a PWSA owned sewer and/or connecting private system, unless otherwise directed by PWSA.

Any combination, sanitary sewer or storm sewer taps that are being terminated by the customer must be shown on the tap-in drawings (located and stationed as directed). However, if terminating a tap is the only proposed change and no new taps are proposed, then the applicant must complete the Form TERM–Termination Permit and may also have to prepare termination drawings (if directed). Information on the termination-only application can be found at the end of this chapter. Instructions for preparing the tap-in drawings are provided below.

In addition to following the application procedure described above, the applicant must also obtain an Allegheny County Plumbing Permit and any other State, County, and local approvals as needed. This can be accomplished by contacting the Allegheny County Health Department at 3901 Penn Avenue, Building No. 5, Pittsburgh, PA 15224 (412) 578-8393 and City Planning at 200 Ross Street, 4th Floor, Pittsburgh, PA 15219 (412) 255-2200.

3B.1 Tap-in Drawing Basic Guidelines

Tap-in drawings must comply with the following basic requirements.

- Drawing size shall be 24 inches x 36 inches (Landscape).
- Drawing shall be readable and scalable with a north arrow pointing to the top or the right of said sheet.
- Drawing shall include a plan view of the entire site. All existing topographic information shall be shown either 50 percent screened or half-toned.

- Existing building(s) footprint(s) shall be displayed and shall show the address, type of building, number of floors, the square footage of each floor and the total square footage of the building.
- Existing manholes and wyes must be shown by survey stationing. Certain sewer related stationing information can be obtained from most PWSA records.
- Existing sewer mains that will be tapped shall be displayed.
- Proposed location of size of the service line(s) shall be shown. Proposed sewer lateral information is to be shown in bold line weight and text.
- The appropriate scalable plan view, profiles, and details shall be displayed. Examples of the PWSA standard details are included in Appendix E of this Manual.
- Tapping detail(s) and termination detail(s) (if applicable) shall be displayed.
- The summary table entitled “Water and Sewer Flow Data” (see Table 3B-1) must be completed by the applicant and shown on each drawing.

**Table 3B-1
Water and Sewer Flow Data**

<u>WATER AND SEWER FLOW DATA</u>	
WATER CONSUMPTION	gpd
SANITARY FLOW	gpd
STORM FLOW	cfs
APPLICATION NUMBER (ASSIGNED BY PWSA)	
DEP APPROVAL DATE (ASSIGNED BY PWSA)	

On tap-in drawing display table at 4 inches wide by 3 inches tall.

The tap-in drawing shall show all existing water and sewer lines connected to the existing property and/or building or servicing the site including abandoned facilities. Any existing service line(s) that will not be used by the proposed project must be terminated by the owner. The service line(s) must be terminated at the main as per PWSA specifications and standards in a manner acceptable to the PWSA. A new tap(s) will not be provided until all related unused existing services are terminated and witnessed by a PWSA representative. All costs associated with the termination of existing private service lines are the responsibility of the property owner.

Each tap-in drawing must also include an appropriate title block in the lower right-hand corner of the drawing (see Figure 3B-1).

**Figure 3B-1
Sample Tap-in Drawing Title Block**

ABC DEVELOPERS, INC.			
FIRST AVENUE CONDOMINIUMS			
123 FIRST AVENUE PITTSBURGH, PA 15222			
SCALE:	SHEET	ACCESSION No.	_____
DATE:	_____ OF _____	CASE No.	_____

On tap-in drawing display table at 6 inches wide by 4 inches tall.

Each tap-in drawing must also include the PWSA approval block (see Figure 3B-2) to the left of the title block (see sample drawing in Appendix E). The approval block provides the PWSA staff with a space to track the review process.

The approval block contains several options for the type of development proposed by the applicant. The applicant **does not** complete any sections of the approval block. Once PWSA begins review of the tap-in drawings, PWSA will indicate which types of development are applicable.

**Figure 3B-2
PWSA Approval Block**

THE PITTSBURGH WATER AND SEWER AUTHORITY

*** APPROVAL FOR:**

_____ NEW WATER TAP, BACKFLOW PREVENTOR,
AND METER INSTALLATION

_____ NEW SANITARY AND/OR STORM SEWER TAP

_____ INCREASE IN FLOW AT EXISTING
SEWER AND/OR WATER CONNECTION

_____ SEWER TAP TERMINATION

_____ WATER TAP TERMINATION

*** DISCLAIMER:**

Signatures / Approval by PWSA are for the physical connection(s) to the water and/or sewer system only.

Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the project Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design demands.

PWSA Project Reviewer certifies that he/she has reviewed the above noted document(s) in accordance with the Authority's established rules and regulations. Based on this review, approval is hereby recommended

Date

PWSA Project Reviewer

Approval

Date

Director of Sewer Operations

Deputy Director of Engineering

Director of Engineering and Construction

On tap-in drawing display table at 6 inches wide by 8 inches tall.

3B.2 Tap-in Drawing Specific Guidelines

Included in Appendix E of this Manual are PWSA standard details relating to sewer tap-ins. The applicant should refer to these details when preparing tap-in drawings and should use only those details that apply to the proposed development. When reviewing the standard details, the applicant is reminded of the following requirements.

- It is encouraged, where feasible to use best management practices (BMPs) to achieve an approved method of surface/stormwater collection, conveyance, detention, and/or retention for stormwater which may minimize or even eliminate the use of PWSA sewer conveyance. Facilities on private property are usually regulated by other agencies including, but not limited to City of Pittsburgh, Allegheny County Health Department, and Pennsylvania Department of Environmental Protection. The Stormwater Management Officer, located at the Department of City Planning for the City of Pittsburgh (City), can provide more information on private property surface/stormwater detention and retention requirements. Contact information for the City Stormwater Management Officer can be found at the end of Chapter 2. The applicant must also comply with all current state stormwater regulations.
- If an existing storm sewer line is present, then the applicant must propose connecting the surface/storm flows from the proposed development to the existing PWSA storm sewer.
- If both existing sanitary sewers and existing storm sewers are present, then the applicant must connect the flows from the proposed development to the appropriate sewers unless otherwise directed. This includes areas where existing combination sewers are intended to become designated storm and/or sanitary sewers in the future as directed by the PWSA.
- If **only** an existing combined sewer is present, then the applicant must propose connecting the flows from the proposed development to the combined sewer with two separate laterals, one for sanitary flows and one for storm flows as per current PWSA regulations.
- Construction of private storm sewer and/or storm sewer laterals to tap PWSA manholes and catch basins/storm inlets and/or related laterals is not permitted.
- Connection to PWSA sewer can be made through an existing wye or through a new approved connection into the PWSA sewer main. If connection is proposed to be made through an existing wye, then the location of the existing wye must be shown and stationed to the nearest PWSA manhole on the sewer tap-in drawing. Existing wye stationing can be obtained from PWSA records/video location of taps. If a new connection is proposed using a new wye, then a detail of the connection must be shown and also stationed as stated above on the sewer tap drawing. New connections must follow current PWSA specifications and standards.

3B.3 PWSA Water Quality Requirements

The following regulations for private stormwater connections to PWSA sewers are designed to comply with the current Pennsylvania Department of Environmental Protection's suggested guidelines for stormwater quality as expressed in the current edition of the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual) (<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-68851/363-0300-002.pdf>). Chapter 3, Section 3.5 of this manual states "Achieve an 85 percent reduction in post-development particulate associated pollutant load (as represented by Total Suspended Solids [TSS]), an 85 percent reduction in post-development total phosphorus loads, and a 50 percent reduction in post-development solute loads (as represented by NO₃-N), all based on post-development land use." Any structural or nonstructural methods of achieving the stormwater quality guidelines above are acceptable, provided that appropriate documentation and worksheets from the Pennsylvania Stormwater best Management Practices Manual are submitted to PWSA and found to verify the claimed performance after review. All surface drainage areas except for unoccupied elevated roof space must be captured and treated. All structural and nonstructural designs must meet the following requirements:

- Design must capture grit/silt, floatable debris and/or other pollutants as noted in these specifications or as directed.
- The device must be detailed on the plans and all certified pertinent sizing information, options, weirs, orifices, settings, flow capacity, etc. must be noted. PWSA reserves the right to request design certification from an engineer registered in Pennsylvania.
- Provide documentation of required approval(s) by other private and/or government agencies.
- The property(s) owner(s) must provide a signed statement outlining the maintenance requirements as stated by the manufacturer and/or designer and agreeing to accepting responsibility for this required private maintenance. PWSA reserves the right to request a recorded copy of this document.

Due to the congested nature of development within the City of Pittsburgh, many sites will be required to use water quality filters and/or hydrodynamic devices as standalone units. If the surface drainage area excluding unoccupied roof space is less than 5000 ft², PWSA may grant approval to use inlet filter bags designed for permanent installation and/or maintenance and meeting the same stormwater quality requirements. Water quality filters and/or hydrodynamic devices and/or inlet filter bags must meet the following requirements:

- 85% total suspended solids (TSS) removal with a mean particle size distribution of 50 microns or smaller. It is assumed that removal of the smaller particles will result in the desired nitrogen and phosphorus removal.

- Design must not release previously captured pollutants during high flows or when in need of maintenance.
- Design must capture above noted grit/silt, floatable debris and/or other pollutants as directed.
- The device must be detailed on the plans and all certified pertinent sizing information, options, weirs, orifices, settings, flow capacity, etc. must be noted.
- The property owner(s) must provide a signed and/or legally recorded statement/agreement outlining the maintenance requirements as stated by an approved manufacturer and agrees to accepting responsibility for this required private maintenance.
- The stormwater quality device must be located where it is accessible for PWSA review and/or for maintenance by the owner
- PWSA may request test results from an independent source.

Other private BMPs that work well in an urban environment are predominantly based on subsurface storage detention and/or retention, which are usually located beneath parking lots, landscaping, or other surface features. The surface feature may or may not be part of the BMP.

In its simplest form, subsurface storage consists of an excavated area filled with crushed stone which stormwater is directed to. The reservoiring water fills the void space between the individual stones. Perforated pipes and/or proprietary structures are often added to increase the storage capacity. The excavation is lined with geotextile to deter fine soils from entering the storage space.

Stormwater **retention** refers to runoff which is kept onsite and usually allowed to infiltrate into the existing earth. This is preferred over stormwater detention, but site conditions may limit the ability to infiltrate stormwater. Percolation testing should be done to verify the site conditions during design and the area protected from compaction damage during construction activities if stormwater retention is proposed.

Stormwater **detention** refers to the storage and slow release of stormwater. This minimizes the peak flow rate in the storm sewer and/or receiving body of water. Most BMPs are designed to retain a portion of the stormwater and detain the remainder.

The Pennsylvania DEP BMP Manual has many more specific BMPs based on the general concepts above, such as Pervious Pavement with Infiltration Bed, Infiltration Basin, Infiltration Trench, and Rain Garden. The BMP Manual also includes BMPs based on other concepts which are well adapted to an urban environment, such as Vegetated Roofs and Runoff Capture & Reuse. Many companies have developed proprietary versions of BMPs which may also be used, provided they are compliant with current local, state, and PWSA regulations. As long as sound design principals and methodologies are used,

BMPs may be mixed, matched, modified, and linked together. Also refer to current municipal and Allegheny County guidance and regulations for additional information.

3B.4 Administrative Checklist

The applicant is required to submit the Administrative Checklist with the Application. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Administrative Checklist is included in Appendix A.

3B.5 Technical Checklist

The applicant is required to submit the sewer tap-in drawings Technical Checklist along with the drawings. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Technical Checklist is included in Appendix F.

All submittal items can be delivered to the PWSA office or mailed to the following address:

Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Attn: Engineering and Construction

3B.6 Review of Tap-in Drawings

Before the PWSA will review the tap-in drawings, the following prerequisite conditions must be satisfied:

- The applicant shall have submitted a PWSA Request Form for Water and Sewer Availability (see Chapter 1).
- The applicant shall have submitted a complete PWSA Water and Sewer Use Application (see Chapter 2).
- If applicable, DEP Sewage Facilities Planning Module must be under review and/or approved.
- The PWSA Water and Sewer Use Application has been approved by all agencies listed on the Application.
- The applicant has submitted an Administrative Checklist and a Technical Checklist.

The sewer tap-in drawings will initially undergo an administrative review. If the drawings are determined by PWSA to be administratively complete, then the PWSA will conduct a technical review of the drawings and related information.

Refer to the Introduction of the Manual for a description of the review process and discussion of review fees.

Once PWSA grants final approval of the tap-in drawings, PWSA will contact the applicant in writing stating that the final review of the tap-in drawings is complete. The letter will request that the applicant submit one set of 24 inches x 36 inches (Landscape) mil thick, double-matte, archival quality, permanent, reproducible Mylar drawings. PWSA will review the Mylars submitted by the applicant. Once PWSA approves the Mylars, PWSA will contact the applicant with the calculated amount owed for any tapping, connection, or customer facilities fees. PWSA provides a photographic **copy** of the approved Mylars for the applicant's records, when the permit is picked up.

The applicant has several forms to complete in order to finalize the approval process. Contact the PWSA permit counter at (412) 255-2443 to arrange for completing these forms and paying the required fees. The additional forms are as follows:

- Form GEN–Customer Application.
- Form SWR–Sewer Lateral Connection.
- Form TERM–Termination Permit (if applicable).

Samples of the forms are provided in Appendix D.

3B.7 Tapping, Connection, and Customer Facilities Fees

There are currently no fees associated with storm connections. See Chapters 3A & 4 regarding fees for sanitary sewer and water taps.

PWSA's current policy on sewer connections is that the customer is responsible for excavating, connecting the service lateral (including the wye if directed) at the PWSA main line as per PWSA specifications and standards, and installing the private service lateral from the PWSA main to the property and/or building to be served. PWSA must be notified at least three working days in advance for inspection of tap installation on the sewer main. (see 3B.8 below)

A connection fee is currently not charged by the PWSA for connecting to the public sewer because the customer typically makes the physical connection(s). Currently, a customer facilities fee can be charged by the PWSA for inspecting the installation of the new service lateral connections. All fees must be paid before sewer service is established.

3B.8 Tap-in Procedure

PWSA cannot allow the proposed tap(s) to be made until the Application (see Chapter 2) is signed by PWSA, approval has been granted by DEP and/or all other required agencies and the sewer tap-in drawings are approved by PWSA. The applicant must notify PWSA three working days in advance of the proposed connection date. **A PWSA inspector must be on site during the connection and backfilling procedure. Notification point of contact is the Sewer/Service Section at (412) 231-0891 or (412) 231-0892.**

3B.9 Tap Termination

3B.9.1 Termination Permit

If terminating a water or sewer tap is the only proposed change and no new taps are proposed, then the applicant must complete Form TERM–Termination Permit. The Termination Permit provides the PWSA with information such as the service address of the customer, the type of tap(s), and method(s) of termination. A sample of the permit can be found in Appendix D. Tap termination drawings are required when the applicant proposes to terminate three or more taps or the termination involves more than two lots.

The Termination Permit must be completed and fees paid for all terminations before the work can proceed. The applicant shall obtain the permit from the PWSA permit counter by calling (412) 255-2443. All applicants must complete and sign page one of the permit. If no termination drawings are required, then the applicant will pay the termination fee to the PWSA permit counter staff before commencing the termination work. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Forms and details are also available in the appendices of this manual.

3B.9.2 Termination Drawings

If termination drawings are required, then the applicant will also be required to complete and sign page two of the permit form. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Sewer termination details can also be found in Appendix E. The applicable standard details must be shown on the applicant’s drawings. Once the drawings are complete, the applicant must submit the drawings and both pages of the application to the PWSA permit counter. If the PWSA approves the drawings and permit, then the applicant will pay the termination fee before the work can proceed.

3B.9.3 Termination Procedure

PWSA must witness and verify the termination of the connection(s). The applicant shall notify PWSA three working days in advance of the proposed termination date. **A PWSA inspector must be on site during the termination procedure and witness said terminations(s). Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892.** Removal of those portions of abandoned or unused sewer laterals is the responsibility of the property owner. Absent the written agreement of the PWSA to the contrary, should the PWSA remove a property owner’s abandoned sewer lateral(s), the entire cost of that removal shall be a lien on the property.

If the applicant proposes to terminate the connection using trenchless technology, then the applicant must conduct closed-circuit televised video (CCTV) inspections of the pipe before and after the termination. Copies of the videos must be submitted to the PWSA. All CCTV inspection must be compatible with PWSA electronic media and adhere to current PWSA standards.

3B.10 References

City of Pittsburgh Zoning Code Article III, Chapter 906: Environmental Overlay Districts
<http://library.municode.com/index.aspx?clientId=13525&stateId=38&stateName=Pennsylvania>

City of Pittsburgh Zoning Code Article VI, Chapter 915: Environmental Performance Standards
<http://library.municode.com/index.aspx?clientId=13525&stateId=38&stateName=Pennsylvania>

Allegheny County Health Department Plumbing Code, Article 15, Chapter 11: Storm Drainage
<http://www.achd.net/legal/legal.html>

Pennsylvania Stormwater Best Management Practices Manual
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-68851/363-0300-002.pdf>

City of Pittsburgh Stormwater Management Website
<http://www.city.pittsburgh.pa.us/main/html/stormwater.html>

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 4 – DOMESTIC WATER SERVICE

Water tap-in drawings are required for proposed developments for:

- Proposed domestic water taps into an existing PWSA water main for development greater than a single family residential unit (i.e., water consumption greater than 799 gallons per day);

OR

- Proposed domestic water taps into an existing PWSA water main for all customer service taps and larger than 1 inch.

Any existing water taps that are being terminated by the customer must also be shown on the tap-in drawings. However, if terminating a tap is the only proposed change and no new taps are proposed, then the applicant must complete Form TERM–Termination Permit form and may also have to prepare termination drawings. Information on the termination-only application can be found at the end of this chapter. Instructions for preparing the tap-in drawings are provided below.

4.1 Single Family Residential Development

A single family residential development is considered development equal to a single family residential unit. A single family residential development involving a new water tap or changes in water flow does not require tap-in drawings. However, the applicant will need to fill out several forms documenting the proposed changes.

Several PWSA forms (i.e., GEN, HYD, SWR, TERM, and WTR) will be filled out, as needed, based upon the type of development requested by the applicant. Samples of these forms can be found in Appendix D.

Contact the PWSA permit counter at (412) 255-2443 to arrange for completion of these forms. The applicant must also pay any associated fees related to the water tap before the work can proceed.

4.2 General Requirements

The owner/applicant or his agent must submit the PWSA Request Form for Water and Sewer Availability (see Chapter 1). The applicant should obtain copies of the water maps depicting available water mains and any existing water service to the project property. The information on the maps must be field verified by the owner. The PWSA permit counter can be contacted at (412) 255-2443.

It is the policy of the PWSA that it is the responsibility of all the owner's design consultants, engineers, and/or architects to determine the adequacy of the existing water systems to fulfill proposed flow demand needs at their time and expense. The presence of an existing PWSA water main and/or an existing private water service line in no way implies that PWSA has adequate capacity or pressure for the proposed development.

In addition to following application procedure described below, the applicant should obtain any required Allegheny County Plumbing Permit. This can be accomplished by calling Allegheny County Health Department at (412) 578-8393. The office is located at 3901 Penn Avenue, Building No. 5, Pittsburgh, PA 15224.

4.3 Demand Calculation Sheet

The demand calculation sheet shall be typed and include the name of the proposed development and the name of the owner/applicant. A brief summary of the existing and proposed uses of the facility is required (e.g., existing use of the property is a church which will be converted into a restaurant). The applicant shall provide calculations of all proposed water demand(s) and sanitary flows from the proposed development. The water and sanitary calculations may be presented together. The calculation of total water demand shall be based on the peak daily flow estimates found in Figure 1 or PA Code Title 25 Chapter 73 (Do not average). However the applicant can choose to submit demand calculations based on alternative estimation methods, but all methods must reflect the peak daily demand. Any alternative method shall be explained by the applicant. All calculations are subject to PWSA review. Any irrigation or other water uses not returned to the public sewer system must be included.

The calculated demand must be shown for each floor of an establishment and also for each type of establishment if the proposed development is a multi-use facility (e.g., hotel with a restaurant). The calculations will be based upon the maximum use of space within the establishment or occupancy per building code. Square footage of each floor and the total square footage of the proposed establishment shall be provided. The demand calculations shall be provided for the following categories where applicable:

- Restaurant and/or Bar:
 - Number of seats and/or barstools.
 - Number of turnovers per day (3 typically.).
 - Number of sinks and water closet fixtures in bathrooms.
 - Number of public and private (employee only) restrooms.
 - Number of employees.
 - Estimate of any condensate from HVAC units.

- Hotel:
 - Number of hotel rooms, including number and types of beds.
 - (1 ½ people per bed).
 - Number of sinks and water closet fixtures in bathrooms.
 - Presence of a swimming pool, hot tub, and/or gym with showers.
 - Number of public and private (employee only) restrooms.
 - Presence of any retail or restaurant facilities (see above).
- Residential:
 - Number of single family residences (Per EDU).
 - Number of multiple-family residences, including apartments, townhouses, duplexes, and condominiums (Per EDU).
 - Type of laundry facilities provided, if any.
 - Presence of a community center or other central facility.
 - Presence of a swimming pool(s).
- Offices:
 - Estimated number of employees. The method of estimation chosen by the applicant must be shown and explained on the calculation sheet. If the applicant does not have a preferred method, then the number of employees can be estimated by dividing the gross square footage of the facility by 150 square feet per employee.
 - Number of any public restrooms.

All applicable items described above are to be shown in the demand flow calculations. The total peak daily demand (do not average) for the proposed development is to be shown on the plans and is used to determine requirements. PWSA credit for past uses is only in regard to fees.

Once the peak daily demand has been calculated for the proposed development, the peak daily demand may be calculated for the previous use of the property, if any, using the same methods as the calculation for the proposed development. Note that PWSA only grants credit for past uses if the structures were existent at the time the property was purchased by the current owner or developer. PWSA may not grant credit for parcels where the lot lines have been altered. If there is a question regarding credit for the past use of a property, PWSA should be contacted for a specific answer.

Once the peak daily demands are calculated, subtract the past use demand from the proposed development demand. The result is the PWSA approved net proposed increase in water demand. Water Tap-In Fees are based on this final agreed net increase.

4.4 Tap-in Drawing Basic Guidelines

Tap-in drawings must comply with the following requirements.

- Drawing size shall be 24 inches x 36 inches (Landscape).
- Drawing shall be to scale with a north arrow pointing to the top or the right of the sheet.
- Drawing shall include a plan view of the entire site. All existing topographic information shall be shown either 50 percent screened or half-toned.
- Existing building(s) footprint(s) shall be displayed and shall show the square footage of each floor and the total square footage of the building.
- Existing water mains that will be tapped shall be displayed.
- On all taps greater than 4 inches, supporting thrust block calculations shall be provided as a separate attachment.
- Proposed location and size of the service line shall be shown. Proposed water information to be shown in bold line weight and text.
- The appropriate scalable planview, profiles, and details shall be displayed. Examples of the PWSA standard details are included in Appendix G of this Manual.
- Tapping detail(s) and termination detail(s) (if applicable) shall be shown.

There are three separate items that the applicant is required to show on all domestic water tap-in drawings. These are the Water and Sewer Flow Data (Table 4-1), the PWSA Title Block (Figure 4-1), and the PWSA Approval Block (Figure 4-2). Examples of the remaining items are shown below.

**Table 4-1
Water and Sewer Flow Data**

WATER AND SEWER FLOW DATA	
WATER CONSUMPTION	gpd
SANITARY FLOW	gpd
STORM FLOW	cfs
APPLICATION NUMBER (ASSIGNED BY PWSA)	
DEP APPROVAL DATE (ASSIGNED BY PWSA)	

On tap-in drawing display table at 4 inches wide by 3 inches tall.

Each tap-in drawing must also include an appropriate title block in the lower right-hand corner of the drawing. At a minimum the title block must include the name of the applicant, name of the building or development, and the services address (see Figure 4-1).

**Figure 4-1
Sample Tap-in Drawing Title Block**

ABC DEVELOPERS, INC.			
FIRST AVENUE CONDOMINIUMS			
123 FIRST AVENUE PITTSBURGH, PA 15222			
SCALE:	SHEET	ACCESSION No.	_____
DATE:	_____ OF _____	CASE No.	_____

On tap-in drawing display table at 6 inches wide by 4 inches tall.

Each tap-in drawing must also include the PWSA Approval Block (see Figure 4-2) to the left of the title block (see sample drawing in Appendix G). The Approval Block provides the PWSA staff with a space to track the review process. The Approval Block contains several options for the type of development proposed by the applicant. The applicant **does not** complete any sections of the Approval Block. Once PWSA begins review of the tap-in drawings, then PWSA will indicate which types of development are applicable and cross out the descriptions that do not apply.

4.5 Other Requirements

Water meters and remote reading devices will be required on each water service line. PWSA’s current policy is one meter and remote reading device per water service line/connection tap-in to the PWSA public water main. Each meter and remote reading device must be associated with a specific billing address and legally responsible individual or organization. Any sub metering and/or division of the bill are solely the responsibility of the individual or organization mentioned above.

**Figure 4-2
PWSA Approval Block**

<u>THE PITTSBURGH WATER AND SEWER AUTHORITY</u>	
* APPROVAL FOR:	
_____	NEW WATER TAP, BACKFLOW PREVENTOR, AND METER INSTALLATION
_____	NEW SANITARY AND/OR STORM SEWER TAP
_____	INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
_____	SEWER TAP TERMINATION
_____	WATER TAP TERMINATION
* DISCLAIMER:	
Signatures / Approval by PWSA are for the physical connection(s) to the water and/or sewer system only.	
Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the project Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design demands.	
PWSA Project Reviewer certifies that he/she has reviewed the above noted document(s) in accordance with the Authority's established rules and regulations. Based on this review, approval is hereby recommended	<u>Date</u>
_____	_____
PWSA Project Reviewer	
<u>Approval</u>	<u>Date</u>
_____	_____
Director of Sewer Operations	
_____	_____
Deputy Director of Engineering	
_____	_____
Director of Engineering and Construction	

On tap-in drawing display table at 6 inches wide by 8 inches tall.

The tap-in drawing shall include a schematic detail for each meter and remote reading device servicing the development. This detail must show size, type, and model number of PWSA approved meter and remote reading device for each service line. The applicant must provide peak domestic water demand in gallons per minute (gpm) on the drawing. This will assist PWSA in determining the proper size and type of meter and remote reading device for the building to be served.

The PWSA prefers meter pits/vaults for all installations particularly residential units unless otherwise directed. If the distance from the PWSA water main to the point of entry of the water service line at the building is greater than 50 feet, then the applicant is required to install a meter pit or vault. The meter pit or vault must be located at the property line no farther than 36 inches from the edge of the public right-of-way or property line that contains the PWSA water main. Any meter installed inside a building must be located no more than 36 inches from the point of entry (at the inside face of the exterior wall) of the water service line inside the building unless otherwise directed/approved by the PWSA. Where a meter is installed in a building, the remote reading device shall also be installed on the outside wall of the premises or building being served at the driveway or at any other location that in the PWSA's judgement is accessible under most conditions. It shall be securely attached to the building at a level between 3-1/2 and 4-1/2 feet above finished grade, outside of any fenced-in areas if possible, and clear of obstructions. It shall be located on the front of the building or on a side near the front. If two buildings are separated by a driveway, it shall be located on the sides of the buildings facing each other to facilitate reading. Exceptions to these requirements will be made only if approved by the PWSA in writing.

Service lines two inches and smaller may use a meter pit such as those manufactured by the Ford Meter Box Company, Inc or approved equal. Service lines four inches (4 inches is minimum PWSA D.I. size) and larger will require a vault. Vaults must meet the following requirements:

- All vaults must have two hinged doors capable of being locked open, such as those manufactured by Bilco or approved equal. Both doors must be large enough for human entry. One of the doors must be centered over the meter and large enough for the easy installation, removal, and maintenance of the meter. It is suggested that the second door be placed over the backflow prevention device.
- An aluminum ladder is required at each door of the vault for access.
- The property owner will own and is responsible for the vault and its maintenance (including cleaning).
- The vault must have a method of drainage. A drain line day lighting to open air is preferred, but a sump for pumping out the vault is the minimum requirement where a drain line is not possible (the drain line can not be connected to the public sewer system).

- Vaults or pits located in roads, driveways, or other areas subject to traffic must be live load rated.
- Projects where domestic and fire lines are connected to the public main via a single tap as shown in PWSA Detail WSC-1 may use a single vault for both services. In this application, one door is required to be centered over the domestic meter and another is required to be centered over the double detector check backflow prevention device and by-pass meter used on the fire service.
- PWSA requires a cut sheet submittal for all vaults prior to installation to insure the above criteria is met.

The PWSA has an active backflow prevention program and requires a backflow prevention device to be installed on every service line. When applying for a new or replacement water service tap, it is required that all active existing service lines be equipped with an approved backflow prevention device. In no case will a plan be approved until all existing and new service lines are appropriately protected against backflow. The following requirements apply to all backflow prevention devices.

- Backflow prevention devices must be installed immediately after the water meter and remote reading device and before any branch lines leading off of the water service line.
- Backflow prevention devices must be installed so as to be readily accessible and with adequate space for inspection, testing, maintenance, and disassembly.
- Backflow prevention devices must be **mounted in a horizontal position** except for two models which permit horizontal or vertical mounting.
- Backflow prevention devices such as a reduced pressure zone (RPZ) type with a drain must be protected from freezing by installation in a heated building. Pit or vault installation is also prohibited. Such pit or vault applications must have a dual check type backflow prevention device directly after the meter within the pit or vault in addition to the RPZ type within the building.
- PWSA requires reduced pressure zone (RPZ) type backflow prevention on all non-residential developments.
- Backflow prevention devices with drains must be installed so that the relief port is always readily visible and vented to drain.
- Preferably, the backflow prevention device should be located a minimum of 18 inches from the nearest wall and the center line of the pipe and should be located between 24 inches and 48 inches off the deck for horizontal installation.
- The property owner owns and is responsible for the proper maintenance and/or protection of all backflow prevention devices.

- Each installation has specific design problems that must be considered. However, the above guidelines and manufacturers' recommendations will be emphasized when plans are submitted for approval.

Each backflow prevention device must be tested annually by the property owner. Single-family units are not required to annually test the backflow prevention device. PWSA will send a reminder letter to the property owner with a test report form. The property owner is responsible for completing the test report form and sending it back to the PWSA with the required certifications.

The tap-in drawing shall show all existing water service lines connected to the existing building or servicing the site. Existing service lines, whether active or abandoned, will not be permitted to be used for new residential construction. New commercial, industrial, or institutional developments may utilize existing service lines at the expense and maintenance of the owner.

Any existing service line, which will not be used by the proposed project, must be terminated by the owner. The unused service line must be terminated at the main in a manner acceptable to the PWSA (see appropriate detail in Appendix G). A new tap will not be provided until the service is terminated and witnessed by a PWSA representative. All costs associated with the termination of existing water service lines are the responsibility of the property owner (unless otherwise directed).

One-inch connections shall have a minimum distance of five feet between taps when the taps are made on the same side of the water main. One-inch connections made on opposite sides of the water main require a minimum distance of 30 inches (alternate offset). Connections larger than one-inch require a minimum distance of five feet between taps.

4.6 Taps Log and New Service Questionnaire

Along with the tap-in drawings, the applicant must submit the Taps Logs and the New Service Questionnaire. Copies of these forms are provided on the following pages of this Manual.

4.7 Administrative Checklist

The applicant is required to submit the Administrative Checklist with the Application. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Administrative Checklist is included in Appendix A.

4.8 Technical Checklist

The applicant is required to submit the water tap-in drawings Technical Checklist along with the drawings. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Technical Checklist is included in Appendix H.

Pittsburgh Water and Sewer Authority
Engineering & Construction Division
TAPS LOG

Firm Name: _____ Initiating Date: ____/____/____

Contact Person: _____ Phone Number: _____

Contact Address: _____ Fax Number: _____

Project Name: _____

Project Address: _____

Tap Purpose: (Domestic, Fire Protection, Sanitary, or Storm): _____

Comments: _____

(Office Use ONLY)

Drawings Received: ____/____/____

Reviewed: ____/____/____

Firm Contacted: ____/____/____

Mylars Received: ____/____/____

Comments: _____

Mylars Signed Off On:

RECEIVED

SIGNED

Proj. Coord. ____/____/____

____/____/____

Sewer/Service: ____/____/____

____/____/____

Operations: ____/____/____

____/____/____

Engineering: ____/____/____

____/____/____

Firm Notified of Approval: ____/____/____ Approved Mylars Picked-up: ____/____/____

Date: ____/____/____

P.W.S.A. Number: C-____

**Pittsburgh Water and Sewer Authority
Engineering & Construction Division
New Service Questionnaire**

Owner's Name: _____

Billing Address: _____

Billing City: _____ State: _____ Zip Code: _____

Contact Person: _____ Phone #: _____

Building Name: _____

Service Address: _____ Zip Code: _____

Building Use: _____

Construction Started: ____/____/____ Expected Construction Finished: ____/____/____

(PWSA Use Only)

WATER:

Tap Size: _____

Domestic	Meter Size.....: _____	BPD Size.....: _____
Water	Meter Type.....: _____	BPD Model.....: _____
Service	Meter Manufacturer.....: _____	BPD Manufacturer.....: _____

Tap Size: _____

Fire	Meter Size.....: _____	BPD Size.....: _____
Service	Meter Type.....: _____	BPD Model.....: _____
	Meter Manufacturer.....: _____	BPD Manufacturer.....: _____

SEWER:

SANITARY: Tap Size: _____ Sewer Main Size: _____

STORM: Tap Size: _____ Sewer Main Size: _____

Existing Water / Sewer Service Comments: _____

Need to Purchase: _____

Engineering & Construction Division Contact: Michelle Carney

cc: Howard Street / Permit Counter / Engineering & Construction
ACHD

All submittal items can be delivered to the PWSA office or mailed to the following address:

Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Attn: Engineering and Construction

4.9 Review of Tap-in Drawings

Before the PWSA will review the tap-in drawings, the following prerequisite conditions must be satisfied:

- The applicant shall have submitted a PWSA Request Form for Water and Sewer Availability (see Chapter 1).
- The applicant shall have submitted a complete PWSA Water and Sewer Use Application (see Chapter 2).
- The PWSA Water and Sewer Use Application has been approved by all agencies listed on the Application.
- The applicant has submitted an Administrative Checklist and a Technical Checklist.

After the approval of the Application, the water tap-in drawings will initially undergo an administrative review. If the drawings are determined by PWSA to be administratively complete, then the PWSA will conduct a technical review of the drawings.

Refer to the Introduction of this Manual for a description of the review process and a discussion of review fees.

Once PWSA grants final approval of the tap-in drawings, PWSA will contact the applicant in writing stating that the final review of the tap-in drawings is complete. The letter will request that the applicant submit one set of 4 mil thick, double-matte, archival quality, permanent, reproducible Mylar drawings. PWSA will review the Mylars submitted by the applicant. Once PWSA approves the Mylars, PWSA will contact the applicant with the amount owed for any tapping, any connection, or customer facilities fees. If the applicant so requests, PWSA can provide a photographic copy of the approved Mylars for the applicant's records.

The applicant has several forms to complete in order to finalize the approval process. Contact the PWSA permit counter at (412) 255-2443 to arrange for completing these forms and paying the required fees. The additional forms are as follows:

- Form GEN–Customer Application.
- Form WTR–Water Service Connection.

- Form TERM–Termination Permit (if applicable).

Samples of the forms are provided in Appendix D.

4.10 Tapping, Connection, and Customer Facilities Fees

PWSA will calculate the appropriate fees based upon the current tapping fees and the proposed project information submitted by the applicant. The tapping fee can be charged to new customers of the PWSA water system to recover the cost of constructing the water related facilities. The water tapping fee includes a capacity part and a distribution part. The capacity part includes raw water pumping facilities, a water filtration and treatment plant, finished water pumping stations, large diameter water transmission mains, booster pumping stations, finished water storage reservoirs, and finished water storage tanks. The distribution part covers smaller diameter water mains. **The current PWSA water tapping fees are \$390 for capacity and \$110 for distribution per equivalent dwelling unit.**

PWSA shall perform all drilling of taps on PWSA water mains. The customer is responsible for excavation and installation of the water service line(s) from the building to be serviced to the point of connection at the PWSA main. The connection fee charged by PWSA can vary based upon the size of the service line and the type of tap-in procedures required by the PWSA regulations.

The customer facilities fee includes the cost for certain sizes of water meters and remote reading devices. A water meter and remote reading device is required for each customer service line, and PWSA will supply and install all water meters and remote reading devices regardless of size. All meters and remote reading devices must be purchased from the PWSA.

The above capacity and conveyance fees apply to all new structures/facilities and modifications **creating an increased demand** at existing structures/facilities. The PWSA **may** accept requests to credit past/existing usage against the proposed new capacity and conveyance fees **at their discretion** provided **all** of the following conditions are met:

- The past/existing structure/facility has not been removed or condemned and has **maintained an active connection** to PWSA infrastructure as determined by the PWSA.
- Both past/existing and proposed usages and peak flows can be satisfactorily documented and calculated by the applicant. The PWSA reserves the right to determine whether said information is acceptable.
- The past/existing structure/facility and the proposed structure/facility are both located on the same single existing lot/parcel of land and there are no proposed subdivisions, consolidations, or any other significant modifications (as determined by the PWSA) to the legal boundaries of said existing lot/parcel.

No credit will be granted to existing vacant lots including previously demolished structures/facilities, or reconfigured lots/parcels.

If credit is granted for past/existing usage, the peak daily flow calculated for the past/existing structures/facilities is subtracted from the calculated peak daily flow for the proposed structure/facility. **The applicant will be required to pay for any additional new capacity and distribution fees.**

4.11 Tap-in Procedure

The applicant is hereby advised that no tap will be performed unless all water meters and remote reading devices and backflow devices have been installed and subsequently inspected by PWSA. The PWSA must perform the waterline tap, meter and remote reading device installation, and any valve shutdowns. Forty-eight hours advance notification from the owner is required before the tap is performed. Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892.

Construction personnel employed by the applicant are responsible for all excavation and domestic water service line installations from the building to the point of the tap-in at the PWSA water main. The responsibility of the remaining work is as follows:

- For customer water service lines 1 inch and 1½ inches in size, only the PWSA drills and/or connects the ferrule (corporation cock) to the PWSA water main. For new connections, the customer is responsible for installing the service line from the ferrule to the building (including all associated trenching and surface restoration). For water service lines 1 inch in diameter or less serving a single family residential development, the PWSA assumes the maintenance responsibility (after initial connection and installation is made) for the curb stop, the curb box, and the portion of that portion of the water service line running from the curb stop to the water main. The property owner owns and is responsible for the maintenance of that portion of the water service line running from the premises being served with PWSA water to the curb stop, including the connection to the curb stop but not the curb stop itself. If the owner of a single family residential development installs or wishes to have installed a water service line greater than 1 inch in diameter, then ownership and maintenance responsibility for the entire water service line and related appurtenances, from the premises being served with PWSA water upto and including the connection of the water service line to the PWSA water main, including the curb stop and curb box, and the corporation stop or mechanical joint tee, lies with the property owner.
- If a 2 inch service line is required, a 4 inch cut in or mechanical tapping tee/sleeve will be required. After the tapping tee/sleeve, the service line size can be reduced.

- For customer water service lines 4 inches and larger, where the customer desires to install a cut in tee/tapping sleeve, the customer is responsible for installing the tapping sleeve on the PWSA water main. Then, PWSA shall drill the PWSA water main to install the connection. The customer is also responsible for installing the private gate valve, service line and appurtenances from the tapping sleeve to the building.
- When the customer desires to install a cut-in tee, PWSA must shut down the water main. The customer is responsible for installing the cut-in tee and the private gate valve and service line from the tee to the building.

The applicant's construction personnel must have proper equipment on site to conduct these tasks and complete the job.

4.12 Tap Termination

4.12.1 Termination Permit

If terminating a water tap is the only proposed change and no new taps are proposed, then the applicant must complete the Form TERM–Termination Permit. The Termination Permit provides the PWSA with information such as the service address of the customer, the type of tap(s), and method(s) of termination. A sample of the permit can be found in Appendix D. **Tap termination drawings are required** when the applicant proposes to terminate three or more taps, or the termination involves more than two lots.

The Termination Permit must be completed and fees paid for all terminations before the work can proceed. The applicant shall obtain the permit from the PWSA permit counter by calling (412) 255-2443. All applicants must complete and sign page one of the permit. If no termination drawings are required, then the applicant will pay the termination fee to the PWSA permit counter staff before commencing the termination work. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Forms and details are also available in the appendices of this manual.

4.12.2 Termination Drawings

If termination drawings are required, then the applicant will also be required to complete and sign page two of the permit form. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Water termination details can also be found in Appendix G. The applicable standard details must be shown on the applicant's drawings. Once the drawings are complete, the applicant must submit the drawings and both pages of the application to the PWSA permit counter. If the PWSA approves the drawings and permit, then the applicant will pay the termination fee before the work can proceed.

4.12.3 Termination Procedure

PWSA must witness and verify the termination of the connection(s). The applicant shall notify PWSA three (3) working days in advance of the proposed termination date. A PWSA inspector must be on site during the termination procedure. Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892. Once the service is terminated, the applicant shall return the meter and remote reading device to PWSA and provide PWSA with the account number and the service address.

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 5 – FIRE PROTECTION SERVICE

Tap-in drawings for fire protection service are required by the PWSA for all proposed developments that are required by the City of Pittsburgh Bureau of Building Inspection (BBI) Office of Fire Prevention to install a fire suppression system. **You must contact the City of Pittsburgh Office of Fire Prevention to determine the fire protection requirements for the development.**

City of Pittsburgh Bureau of Building Inspection Office of Fire Prevention
200 Ross Street, 3rd Floor
Pittsburgh, PA 15219
(412) 255-2175
http://www.city.pittsburgh.pa.us/BBI/html/fire_protection.html.

Any existing water taps that are being terminated by the customer must be shown on the tap-in drawings. However, if terminating a tap is the only proposed change and no new taps are proposed, then the applicant must complete Form TERM–Termination Permit form and may have to prepare termination drawings. Information on the termination-only application can be found at the end of this chapter. Instructions for preparing the tap-in drawings are provided below.

5.1 Other Review Agencies

The applicant or his agent must submit the PWSA Request Form for Water and Sewer Availability (see Chapter 1). The applicant should obtain copies of the water maps depicting available water mains and any existing water service to the property. The information on the maps should be field verified by the owner. The PWSA permit counter can be contacted at (412) 255-2443.

It is the policy of the PWSA that it is the responsibility of all design consultants, engineers, and/or architects to determine the adequacy of the existing water systems to fulfill proposed needs at their time and expense. The presence of an existing PWSA water main or an existing water service line in no way implies that PWSA has adequate capacity or pressure for the proposed development.

The applicant is responsible for submitting all required permit applications with the City of Pittsburgh Office of Fire Prevention and/or other related agencies. The Office of Fire Prevention reviews the calculations and requirements for fire suppression systems against the National Fire Protection Association (NFPA) regulations; and issues permits for Underground Fire Mains and Fire Suppression Systems. The Applicant can contact the City of Pittsburgh Office of Fire Prevention by visiting their web site at http://www.city.pittsburgh.pa.us/BBI/html/fire_protection.html or by phone at (412) 255-2039 for more information.

In addition to the PWSA and City of Pittsburgh permit requirements, the applicant must also obtain any applicable Allegheny County Plumbing Permit(s). This can be accomplished by calling (412) 578-8393; the office is located at 3901 Penn Avenue.

5.2 Hydrant Flow Test

Before any tap-in drawings can be submitted, the applicant must first apply for a hydrant permit in order to conduct the hydrant flow test.

- Contact the PWSA permit counter at (412) 255-2443 to apply for a hydrant permit.
 - The PWSA staff will issue a hydrant permit number. The applicant will complete Form HYD–Hydrant Permit (see Appendix D for an example) and will pay associated fees to the PWSA before the test can take place.
 - The applicant must select the pressure hydrant for the test.
 - The applicant must select two flow hydrants for the test. The first choice flow hydrant must be tested. If the required pressure drop is not achieved, then the applicant is required to flow the second hydrant.
 - PWSA will review the applicant’s hydrant selections. PWSA reserves the right to modify the hydrant selections before the applicant performs the test.
- The Operations Division of PWSA will operate all valves and hydrants during the flow tests.
- The applicant must conduct the tests using his own equipment and personnel.
 - The Office of Fire Prevention requires compliance with NFPA 291.
 - The pressure drop during the test must be 20 percent or greater as required by NFPA 291.

PWSA will not permit hydrant flow tests when the outside air temperature is below 40°F and falling. The outside air temperature must be at least 40°F and rising. (When the outside air temperature is below 40°F, PWSA can authorize a hydrant flow test to be conducted only if additional safety measures are taken and permitted by the city. (i.e. salt truck, etc.) This is also dependent upon the availability of the PWSA crew to operate the hydrants. Due to an unforeseen circumstance or emergency, a hydrant flow test should be rescheduled when the outside air temperature is above 40°F.) Results from a hydrant flow test are valid for a period of one year from the date of the test. In certain areas with heavy development, PWSA may determine that the test results are valid for only six months from the date of the test.

All hydrant flow test data must be sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.

The applicant must complete the Hydrant Flow Test Data table (shown in Table 5-1) with the data from the test and additional information regarding the domestic and fire protection water demands. This table must be displayed on all water tap-in drawings.

5.3 Tap-in Drawing Basic Guidelines

Tap-in drawings must comply with the following requirements.

- Drawing size shall be 24 inches x 36 inches (Landscape).
- Drawing shall be readable and drawn to scale with a north arrow pointing to the top or the right of the sheet.
- Drawing shall include a plan view of the entire site. All existing topographic and/or unrelated information shall be shown either 50 percent screened or half-toned.
- Existing building(s) footprint(s) shall be displayed and shall show the square footage of each floor and the total square footage of the building.
- Existing water mains that will be tapped shall be displayed.
- On all taps greater than 4 inches, supporting thrust block calculations shall be provided as a separate attachment.
- Proposed location and size of the service line shall be shown. Proposed water information to be shown in bold line weight and text and stationed.
- The appropriate schematic details shall be displayed. Examples of the PWSA standard details are included in Appendix G of this Manual.
- Tapping detail and termination detail (if applicable) shall be shown.
- All fire service line tap-in drawings shall be sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.
- All fire line facilities shall comply with NFPA 13 and all current regulations.

There are four separate items that the applicant is required to show on all water tap-in drawings. These are the Hydrant Flow Test Data (Table 5-1), the Water and Sewer Flow Data (Table 5-2), the PWSA Title Block (Figure 5-1), and the PWSA Approval Block (Figure 5-2).

**Table 5-1
Hydrant Flow Test Data**

<u>HYDRANT FLOW TEST DATA</u>		
(REQUIRED FOR TAPS LARGER THAN 1-INCH)		
Date of Test:	____ / ____ / ____	Hydrant Permit No.: _____
Test Performed By:	_____	
	FLOW HYDRANT	PRESSURE HYDRANT
Hydrant Number		
Location		
Static Pressure (psi)	XXXXXXXXXXXXXXXXXXXX	
Residual Pressure (psi)	XXXXXXXXXXXXXXXXXXXX	
Flow Observed (gpm)		XXXXXXXXXXXXXXXXXXXX
Fire Protection Demands:		
Sprinkler System Peak Demand	_____	gpm _____ psi
Inside Hose Demand	_____	gpm
Outside Hose Demand	_____	gpm
Domestic System Peak Demand	_____	gpm
Private Fire Hydrant Demands:	_____	gpm

On tap-in drawing display table at 6 inches wide by 5 inches tall.

**Table 5-2
Water and Sewer Flow Data**

WATER AND SEWER FLOW DATA	
WATER CONSUMPTION	gpd
SANITARY FLOW	gpd
STORM FLOW	cfs
APPLICATION NUMBER (ASSIGNED BY PWSA)	
DEP APPROVAL DATE (ASSIGNED BY PWSA)	

On tap-in drawing display table at 4 inches wide by 3 inches tall.

Note: If applicant is applying for only a fire line tap, this Title Block is not required.

Each tap-in drawing must also include an appropriate title block in the lower right-hand corner of the drawing. At a minimum the title block must include the name of the applicant, name of the building or development, and the services address (see Figure 5-1).

**Figure 5-1
Sample Tap-in Drawing Title Block**

ABC DEVELOPERS, INC.			
FIRST AVENUE CONDOMINIUMS			
123 FIRST AVENUE PITTSBURGH, PA 15222			
SCALE:	DATE: _____	ACCESSION NO.	C- _____
SHEET:	_____ OF _____	CASE NO.	_____

On tap-in drawing display table at 6 inches wide by 4 inches tall.

Each tap-in drawing must also include the PWSA Approval Block (see Figure 5-2) located to the left of the title block (see sample drawing in Appendix G). The Approval Block provides the PWSA staff with a space to track the review process. The Approval Block contains several options for the type of development proposed by the applicant. The applicant **does not** complete any sections of the Approval Block. Once PWSA begins review of the tap-in drawings, then PWSA will indicate which types of development are applicable and cross out the descriptions that do not apply.

5.4 Other Requirements

Water meters and remote reading devices will be required on each water service line (one meter and remote reading device per one line). The drawing shall include a schematic detail for each meter and remote reading device servicing the development. This detail must show size, type, manufacturer, and model number for each meter and remote reading device. The applicant should provide flow calculations on the drawing showing peak fire protection water demand in gallons per minute (gpm). These calculations will assist PWSA in determining the proper size and type of meter and remote reading device for the building.

The PWSA recommends meter pits/vaults for all installations. PWSA requires meter pits for all residential units as directed. If the distance from the PWSA water main to the point of entry of the water service line at the building is greater than 50 feet, then the applicant is required to install a meter pit. The meter pit or vault must be located no farther than 36 inches from the edge of the public right-of-way that contains the PWSA water main. If the distance from the water main to the point of entry at the building is less than 50 feet, then the PWSA will permit the meter to be installed inside the building unless the building is constructed on a slab on grade. Any meter installed inside a building must be located no more than 36 inches from the point of entry (at the inside face of the wall penetration) of the water service line inside the building unless otherwise approved by PWSA. Where a meter is installed in a building, the remote reading device shall also be installed on the outside wall of the premises or building being served at the driveway or at any other location that in the PWSA's judgement is accessible under most conditions. It shall be securely attached to the building at a level between 3-1/2 and 4-1/2 feet above finished grade, outside of any fenced-in areas if possible, and clear of obstructions. It shall be located on the front of the building or on a side near the front. If two buildings are separated by a driveway, it shall be located on the sides of the buildings facing each other to facilitate reading. Exceptions to these requirements will be made only if approved by the PWSA in writing.

The PWSA has an active backflow prevention program and requires a backflow prevention device to be installed on every service line. When applying for a new or replacement water service tap, it is required that all active existing service lines be equipped with an approved backflow prevention device. In no case will a plan be approved until all existing and new service lines are appropriately protected against backflow. The following requirements apply to all backflow prevention devices.

**Figure 5-2
PWSA Approval Block for Tap-in Drawings**

<u>THE PITTSBURGH WATER AND SEWER AUTHORITY</u>	
* APPROVAL FOR:	
_____	NEW WATER TAP, BACKFLOW PREVENTOR, AND METER INSTALLATION
_____	NEW SANITARY AND/OR STORM SEWER TAP
_____	INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
_____	SEWER TAP TERMINATION
_____	WATER TAP TERMINATION
* DISCLAIMER:	
Signatures / Approval by PWSA are for the physical connection(s) to the water and/or sewer system only.	
Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the project Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design demands.	
PWSA Project Reviewer certifies that he/she has reviewed the above noted document(s) in accordance with the Authority's established rules and regulations. Based on this review, approval is hereby recommended	<u>Date</u>
PWSA Project Reviewer	_____
<u>Approval</u>	<u>Date</u>
Director of Sewer Operations	_____
Deputy Director of Engineering	_____
Director of Engineering and Construction	_____

On tap-in drawing display table at 6 inches wide by 8 inches tall.

- Backflow prevention devices must be installed immediately after the water meter and before any branch lines leading off of the water service line.
- Backflow prevention devices must be installed so as to be readily accessible and with adequate space for inspection, testing, maintenance, and disassembly.
- Backflow prevention devices must be mounted in a horizontal position except for two models which permit horizontal or vertical mounting.
- Backflow prevention devices such as a reduced pressure zone (RPZ) type with a drain must be protected from freezing by installation in a heated building. Pit or vault installation is prohibited.
- Backflow prevention devices with drains must be installed so that the relief port is always readily visible and vented to drain.
- Preferably, the backflow prevention device should be located a minimum of 18 inches from the nearest wall, and the center line of the pipe and should be located between 24 inches and 48 inches off the deck for horizontal installation.
- Each installation has specific design problems that must be considered. However, the above guidelines and manufacturers' recommendations will be emphasized when plans are submitted for approval.

Each backflow prevention device must be tested annually by the property owner. Single-family units currently are not required to annually test the backflow protection device. PWSA will send a reminder letter to the designated property owner(s) with a test report form. The property owner is responsible for completing the test report form and sending it back to the PWSA with the required flow certifications.

Fire protection systems are directed to have a separate tap from the PWSA water main, domestic water service line(s) or they can be tapped onto said fire line but separated in the public right-of-way with shut-off valve, if deemed acceptable by the PWSA. However, it is the responsibility of the applicant to determine, at his own expense, the adequacy of the existing water system to fulfill the proposed fire system demand. The applicant must include the following information on the Hydrant Flow Test Data block (see Table 5-1) on each tap-in drawing:

- Total Fire Protection Demand (in gpm).
- Domestic System Peak Demand (in gpm).

The tap-in drawing shall show all existing water service lines connected to the existing building or servicing the site. Existing service lines, whether active or abandoned, will not be permitted to be used for new residential construction. New commercial, industrial, or institutional developments may utilize existing service lines at the expense and maintenance of the owner.

Any existing service line, which will not be used by the proposed project, must be terminated by the owner. The unused service line must be terminated at the main in a manner acceptable to the PWSA (see appropriate detail in Appendix G). A new tap will not be provided until the abandoned service is terminated and witnessed by a PWSA representative. All costs associated with the termination of existing water service lines are the responsibility of the property owner.

One-inch connections shall have a minimum distance of 5 feet between taps when the taps are made on the same side of the water main. One-inch connections made on opposite sides of the water main require a minimum alternating distance of 30 inches. Connections larger than 1 inch require a minimum distance of 5 feet between taps unless otherwise directed.

5.5 Taps Log and New Service Questionnaire

Along with the tap-in drawings, the applicant must submit the Taps Log and the New Service Questionnaire. Copies of these forms are provided on the following pages of this Manual.

5.6 Administrative Checklist

The applicant is required to submit the Administrative Checklist with the Application. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Administrative Checklist is included in Appendix A.

5.7 Technical Checklist

The applicant is required to submit the water tap-in drawings Technical Checklist along with the drawings. Submittals received without a completed and signed checklist will be returned to the applicant. A copy of the Technical Checklist is included in Appendix H.

All submittal items can be delivered to the PWSA office or mailed to the following address:

Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Attn: Engineering and Construction

5.8 Review of Tap-in Drawings

Before the PWSA will review the tap-in drawings, the following prerequisite conditions must be satisfied:

- The applicant shall have submitted a PWSA Request Form for Water and Sewer Availability (see Chapter 1).

Drawing Number: _____

Pittsburgh Water and Sewer Authority
Engineering & Construction Division
TAPS LOG

Firm Name: _____ Initiating Date: ____/____/____

Contact Person: _____ Phone Number: _____

Contact Address: _____ Fax Number: _____

Project Name: _____

Project Address: _____

Tap Purpose: (Domestic, Fire Protection, Sanitary, or Storm): _____

Comments: _____

(Office Use ONLY)

Drawings Received: ____/____/____

Reviewed: ____/____/____

Firm Contacted: ____/____/____

Mylars Received: ____/____/____

Comments: _____

Mylars Signed Off On:

RECEIVED

SIGNED

Proj. Coord. ____/____/____

____/____/____

Sewer/Service: ____/____/____

____/____/____

Operations: ____/____/____

____/____/____

Engineering: ____/____/____

____/____/____

Firm Notified of Approval: ____/____/____ Approved Mylars Picked-up: ____/____/____

Date: ____/____/____

P.W.S.A. Number: C-____

**Pittsburgh Water and Sewer Authority
Engineering & Construction Division
New Service Questionnaire**

Owner's Name: _____

Billing Address: _____

Billing City: _____ State: _____ Zip Code: _____

Contact Person: _____ Phone #: _____

Building Name: _____

Service Address: _____ Zip Code: _____

Building Use: _____

Construction Started: ____/____/____ Expected Construction Finished: ____/____/____

(PWSA Use Only)

WATER:

Tap Size: _____

Domestic	Meter Size.....: _____	BPD Size.....: _____
Water	Meter Type.....: _____	BPD Model.....: _____
Service	Meter Manufacturer.....: _____	BPD Manufacturer.....: _____

Tap Size: _____

Fire	Meter Size.....: _____	BPD Size.....: _____
Service	Meter Type.....: _____	BPD Model.....: _____
	Meter Manufacturer.....: _____	BPD Manufacturer.....: _____

SEWER:

SANITARY: Tap Size: _____ Sewer Main Size: _____

STORM: Tap Size: _____ Sewer Main Size: _____

Existing Water / Sewer Service Comments: _____

Need to Purchase: _____

Engineering & Construction Division Contact: Michelle Carney

cc: Howard Street / Permit Counter / Engineering & Construction
ACHD

- The applicant shall have submitted a complete PWSA Water and Sewer Use Application (see Chapter 2).
- The PWSA Water and Sewer Use Application has been approved by all agencies listed on the Application.
- The applicant has submitted an Administrative Checklist and a Technical Checklist.

After the approval of the Application, the water tap-in drawings will initially undergo an administrative review. If the drawings are determined by PWSA to be administratively complete, then the PWSA will conduct a technical review of the drawings.

Refer to the Introduction of this Manual for a description of the review process and a discussion of review fees.

Once PWSA grants final approval of the tap-in drawings, PWSA will contact the applicant in writing stating that the final review of the tap-in drawings is complete. The letter will request that the applicant submit one set of 4 mil thick, double-matte, archival quality, permanent, reproducible Mylar drawings. PWSA will review the Mylars submitted by the applicant. Once PWSA approves the Mylars, PWSA will contact the applicant with the amount owed for any tapping, connection, or customer facilities fees. If the applicant so requests, PWSA can provide a photographic copy of the approved Mylars for the applicant's records.

The applicant has several forms to complete in order to finalize the approval process. Contact the PWSA permit counter at (412) 255-2443 to arrange for completing these forms and paying the required fees. The additional forms are as follows:

- Form GEN–Customer Application.
- Form WTR–Water Service Connection.
- Form TERM–Termination Permit (if applicable).

Samples of the forms are provided in Appendix D.

5.9 Tapping, Connection, and Customer Facilities Fees

PWSA will calculate the appropriate fees based upon the current tapping fees and the proposed project information submitted by the applicant. The tapping fee can be charged to new customers of the PWSA water system to recover the cost of constructing the water related facilities. The water tapping fee includes a capacity part and a distribution part. The capacity part includes raw water pumping facilities, a water filtration and treatment plant, finished water pumping stations, large diameter transmission waterlines, booster pumping stations, finished water storage reservoirs, and finished water storage tanks. The distribution part covers smaller diameter waterlines.

PWSA shall perform all taps on PWSA water mains. The customer is responsible for required permitting, excavation, backfill, trench restoration and installation of the service

line from the building to be serviced to the point of connection at the PWSA main. The connection fee charged by PWSA can vary based upon the size of the service line and the tap-in procedures required by the PWSA.

The customer facilities fee includes the cost for certain sizes of water meters and remote reading devices. A water meter and remote reading device is required for each customer service line (one meter and remote reading device one line), and PWSA will install, own and maintain all water meters and remote reading devices. A 5/8-inch x 3/4-inch by-pass fire line meter and remote reading device must be purchased from the PWSA:

5.10 Tap-in Procedure

The applicant is hereby advised that no tap will be performed unless all water meters and remote reading devices and backflow devices have been installed and subsequently inspected by PWSA. The PWSA must perform the waterline tap, meter and remote reading device installation, and any public valve shutdowns. Forty-eight hours advance notification from the owner is required before the tap is performed. Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892.

Construction personnel employed by the applicant are responsible for all excavation, and fire service line installations from the building to the point of the tap-in at the PWSA water main. The responsibility of the remaining work is as follows:

- For customer fire service lines 1 inch and 1½ inches in size, only the PWSA drills and/or connects the ferrule (or corporation cock) to the PWSA water main. For new connections, the customer is responsible for installing the service line from the ferrule to the building.
- If a 2 inch fire service line is required, a 4 inch mechanical tapping tee/sleeve will be required. After the tapping tee/sleeve, the service line size can be reduced.
- For fire service lines 4 inches and larger, where the customer desires to install a tapping sleeve, the customer is responsible for installing the tapping sleeve on the PWSA water main. Then, PWSA shall drill the PWSA water main to install the connection. The customer is also responsible for installing the service line and related appurtenances from the tapping sleeve to the building.
- When the customer desires to install a cut-in tee, PWSA must shut down the water main. The customer is responsible for installing the cut-in tee and the service line from the tee to the building.

The applicant's construction personnel must have proper equipment on site to conduct these tasks and complete the job.

5.11 Tap Termination

5.11.1 Termination Permit

If terminating a water tap is the only proposed change and no new taps are proposed, then the applicant must complete the Form TERM–Termination Permit. The Termination Permit provides the PWSA with information such as the service address of the customer, the type of tap(s), and method(s) of termination. A sample of the permit can be found in Appendix D. Tap termination drawings are required when the applicant proposes to terminate three or more taps or the termination involves more than two lots.

The Termination Permit must be completed and fees paid for all terminations before the work can proceed. The applicant shall obtain the permit from the PWSA permit counter by calling (412) 255-2443. All applicants must complete and sign page one of the permit. If no termination drawings are required, then the applicant will pay the termination fee to the PWSA permit counter staff before commencing the termination work. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Forms and details are also available in the appendices of this manual.

5.11.2 Termination Drawings

If termination drawings are required, then the applicant will also be required to complete and sign page two of the permit form. Upon request, the PWSA permit counter staff will provide the applicant with the appropriate standard details for terminations. Water termination details can also be found in Appendix G. The applicable standard details must be shown on the applicant's drawings. Once the drawings are complete, the applicant must submit the drawings and both pages of the application to the PWSA permit counter. If the PWSA approves the drawings and permit, then the applicant will pay the termination fee before the work can proceed.

5.11.3 Termination Procedure

PWSA must witness and verify the termination of the connection(s). The applicant shall notify PWSA three (3) working days in advance of the proposed termination date. A PWSA inspector must be on site during the termination procedure. Notification point of contact is the PWSA Sewer/Service Section at (412) 231-0891 or (412) 231-0892. Removal of those portions of abandoned or unused water service lines is the responsibility of the property owner. Absent the written agreement of the PWSA to the contrary, should the PWSA be required to remove a property owner's abandoned water service line(s), the entire cost of that removal shall be a lien on the property.

PROCEDURES MANUAL FOR DEVELOPERS

CHAPTER 6 – PRIVATE WATER AND SEWER CONSTRUCTION

This chapter applies to any developer who proposes to construct, reconstruct, or modify a public sewer, water main, or associated public infrastructure such as hydrants and catch basins; connect the proposed facility to an existing Pittsburgh Water and Sewer Authority (PWSA) system or facility, and transfer the ownership of the proposed facility to the PWSA. The following sections provide information on the requirements of the PWSA and of various departments of the City of Pittsburgh (City), Allegheny County (County), and the Commonwealth of Pennsylvania (Commonwealth).

All correspondence, related agreements and drawings can be mailed to the PWSA engineering office at the following address:

Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222
Attn: Engineering and Construction

6.1 General Requirements

Before the developer initiates the application process with the PWSA, there may be other steps involved depending on the type of development proposed. For example:

- Allegheny County Conservation District (ACCD) should be contacted regarding State Stormwater NPDES Permit regulations and Erosion and Sediment Pollution Control Plans.
- The City Zoning Department should be contacted by the developer to obtain proper zoning approval(s).
- City of Pittsburgh Department of Public Works (DPW) should be contacted regarding street grading and/or paving regulations and/or elevations.
- All subdivisions must be approved by the City and recorded by the County.

Certain developments may require the submittal of the PWSA Water and Sewer Use Application (Application). Chapter 2 of this manual discusses when an Application is required and provides guidelines for preparing the DEP sewage facilities planning module and related attachments. If an Application is required, then the Application must be approved by the PWSA before the PWSA will review any construction drawings.

Prior to the commencement of any work on the project drawings, **the PWSA requires a pre-development meeting**. The following is a list of general requirements:

1. Meeting with the PWSA;

2. Approved Developer's Agreement;
3. Plan reviews and approvals for 30%, 60%, 90% and Final Design Drawings;
4. Project Cost Estimate;
5. Preparation/Submittal of required Performance Bonds and/or certified Letter of Credit (L.O.C.);
6. Submittal of Escrow Check for the PWSA's Engineering and/or Field Inspection Fees;
7. Construction Material Submittals;
8. Pre-Construction Meeting;
9. Construction Begins (72 Hour Notice for Inspector);
10. Submittal of Final Archival As-Builts/Record Information for Review and Approval by the PWSA;
11. Formal Board Acceptance of New Public Facilities; and
12. Warranty Bond (15% of Performance Bond for 18 Months).

PWSA encourages the private use of 'Green Infrastructure' such as the use of open channels or vegetated swales for the conveyance of stormwater, but according to current agreements/regulations will only accept the ownership and maintenance of conventional public sewers and waterlines as per separate agreement. PWSA requires all public facilities to be sized for the water service zone and/or sewer/water shed and built within public rights-of-way where feasible. Any public facilities constructed through private property must have all the proper recorded easements and any other site specific legal documentation, agreements, permits, etc. PWSA will review each project on a case by case basis and will only accept ownership for public facilities that are determined to be in the best interest of the authority.

Private shared infrastructure such as detention basins serving multiple properties will require recorded Maintenance Agreements and may also require easements, variances, and other documentation as described in greater detail below.

Past work not properly permitted and/or accepted via recorded agreement by the PWSA is the responsibility of the current property owner(s). This includes a wide range of structures ranging from unauthorized private sewer taps to storm culverts. Any past maintenance and/or repairs done to said private facilities by the PWSA for the sake of public health and safety does not imply ownership by the PWSA.

Common reasons why facilities may not be accepted by PWSA are as follows:

1. The facilities only serve a single customer. In such a situation, the facilities would be considered private sewer lateral(s) or private water service line(s). Documentation must be provided to PWSA that the correct permits and

- variances are in place for these private structure/facilities. This may include encroachment permits for facilities in the right-of-way, variances from the City of Pittsburgh/ACHD, recorded easements for other properties crossed, and other requirements depending on the specific site.
2. Newly constructed roads in which the facilities are also constructed, and not accepted by the City of Pittsburgh. (Hence, will remain private.)
 3. Lack of inspection by the PWSA, as-built drawings, or other requested documentation to verify the proper construction of the proposed water and/or sewer facilities.
 4. Facilities that cross private property when it is not required by site conditions as interpreted by PWSA.
 5. Facilities that do not have all the required recorded legal agreements, easements and/or permits. It is the developer's responsibility to research and acquire at their expense all permits and/or recorded easements prior to dedication of public water and sewer facilities to PWSA.
 6. Facilities built do not match materials, methods, or general locations on approved plan. Any departures from approved plans must be approved in writing by PWSA.

If the proposed facilities constructed by the developer are located in a public street right-of-way and PWSA chooses not to accept said facilities, or if the proposed facilities constructed by the developer cross and serve multiple adjoining private lots, then the proposed utilities will be classified as private and ownership will not be accepted by the PWSA. The developer would be required to obtain a private sewer/water line variance from the ACHD and/or the City of Pittsburgh. The developer is also required to properly record with the City and the County Recorder of Deeds the ownership/maintenance agreement between all parties that share use of the private utilities. The PWSA will not permit the connection of the proposed facilities to existing PWSA public facilities if the maintenance agreement is not recorded. **Copies of the ACHD variance letter, recorded easement(s), and recorded maintenance agreement must be submitted to the PWSA.**

If the proposed development will involve earth movement the developer is required to contact ACCD and the City and acquire all necessary State and City permits. If the developer constructs streets that will be dedicated to the City, then the developer needs to coordinate with the City for the acceptance of said streets. PWSA will require confirmation from the City that the developer is entering into an agreement with the City for the public acceptance of the rights-of-way and cart-ways within the proposed development. The developer is also required to review and comply with the City requirements for proper grading, paving, and curbing of said proposed public rights-of-way.

A Stormwater Management Analysis and Design Report must be prepared by the developer as per the current City of Pittsburgh regulations and submitted to the Stormwater Management Officer at the Department of City Planning. ACCD and/or PA DEP must also be contacted regarding Stormwater NPDES Permit requirements. Contact information can be found in Chapter 2 of this Manual. When the report has been approved, the developer must request that the Stormwater Management Officer provide written confirmation of approval to the PWSA. The developer must also provide documentation of any necessary State, County and/or local permits.

Projects involving construction along rivers, streams, and other bodies of open water and/or involving flood plains, wetlands or saturated soils may require permitting from the United States Army Corps of Engineers (USACE). PWSA reserves the right to require documentation of the proper permits from the USACE.

6.2 Development Agreement

The Development Agreement (Agreement) must be executed by both the developer and PWSA before the construction drawings can have final approval. Review of the Agreement and construction drawings can occur simultaneously. A sample of the Developer Agreement is provided in Appendix L. (Per request, the PWSA can supply a digital word document sample for editing.)

The Agreement will address the bonds required. The developer/owner must furnish the PWSA with a Performance Bond or an approved Certified Letter of Credit each in the amount equal to 100 percent of the total project construction cost as determined by the PWSA. The developer/owner shall also furnish PWSA with a Maintenance Bond for the warranty of all construction for a period of eighteen months from the date of the PWSA Board acceptance of the completed work. The Maintenance Bond shall be in an amount equal to 15 percent of the total construction cost. PWSA must be named as the only obligee on all bonds. Please note that the City may impose separate bonding requirements also.

The developer must prepare and submit a construction cost estimate to PWSA for review. The PWSA reserves the right to adjust the cost estimate as it deems necessary. The construction cost estimate will be used to determine the value of the Bonds. The Agreement will also address the fees to be paid by the developer to PWSA for review/processing of the construction drawings, shop drawing review, and construction inspection. **Fees shall be deposited in an escrow account or as directed by PWSA.** The Escrow amounts must be at a minimum of ten (10) percent of the Performance Bond/Letter of Credit and must be made payable to **the PWSA**.

Please be advised that the Escrow amount values will be drawn down as PWSA inspection/engineering costs are invoiced. If Escrow account is exhausted, all work will stop until an additional agreed amount is deposited in said account.

If monies are left over, these funds will be refunded back to the developer.

PWSA will provide a standard sample Agreement to the developer for review. The developer is encouraged to review the Agreement with his legal counsel so that the Agreement can be tailored to the specific project. Once the developer completes the editing of the document, the developer will submit the revised Agreement back to PWSA for review.

Where a property owner or developer constructs or causes to be constructed at the property owner or developer's expense any private extension of the water or sewer system(s) to be dedicated to and accepted for public use by the PWSA, upon request the PWSA shall provide for partial reimbursement to the property owner or developer if, within 10 years of the public infrastructure dedication, the owner of another property not in the development for which the extension was constructed connects a water service line or sewer lateral directly to the dedicated extension(s). Reimbursement shall be calculated and made as provided in 53 Pa. C.S. § 5607(d)(31).

6.3 Construction Plans

The preparation of construction plans will begin with a preliminary meeting between the developer and PWSA. The meeting will allow for the developer to become familiar with the PWSA requirements for said plans. Subsequent plan reviews will follow when the construction plans are at 30 percent, 60 percent, and 90 percent complete as well as a final review. The 30 percent progress review can be bypassed, if both parties agree, until the plans are 60 percent complete. The remaining reviews are mandatory. The developer should allow for a minimum of 30 working days for PWSA's review of each submittal of the construction plans. PWSA's review time will be contingent upon the project complexity, completeness and accuracy of the plans and the timeliness of each submittal.

The construction plans must contain the PWSA Title Block in the lower right-hand corner of each sheet. Each sheet may include the PWSA Approval Block to the left of the title block unless otherwise noted. Figure 6-1 depicts an example of the PWSA Title Block for Construction Plans whereas Figure 6-2 depicts an example of the PWSA Private Construction Approval Block.

The following requirements shall apply to all construction plans.

- All plans shall be drawn on 24-inch x 36-inch sheets and shall include a North point preferably oriented to the top of the sheet.
- Sheet titles shall be used that provide basic project location information per sheet (e.g., Fifth Avenue, Darraugh Street to Lothrop Street).
- In the plan view, the street address shall be shown for each lot and the proposed and/or existing building footprint locations shall be outlined.
- All plan views and profiles must be tied to the City monumentation and precise (not temporary) City benchmark elevations as recorded at the City of Pittsburgh Department of Public Works, Survey Division.

**Figure 6-1
Sample PWSA Title Block for Construction Plans**

PROJECT No. _____ PRIVATE SEWER CONTRACT THE PITTSBURGH WATER AND SEWER AUTHORITY SANITARY SEWER/STORM SEWER/WATERLINE (RE)CONSTRUCTION FIFTH AVENUE DARRAUGH STREET TO LOTHROP STREET* CITY OF PITTSBURGH ALLEGHENY COUNTY, PA		
SCALE:	SHEET _____	ACCESSION No. _____
DATE:	_____ OF _____	CASE No. _____

*Display Title Block on drawings 6 inches wide by 4 inches tall.
Title block to provide a description of the project limits of work.

**Figure 6-2
PWSA Private Construction Approval Block**

<u>THE PITTSBURGH WATER AND SEWER AUTHORITY</u>	
PWSA Project Reviewer certifies that he/she has reviewed the above noted document(s) in accordance with the Authority's established rules and regulations. Based on this review, approval is hereby recommended	<u>Date</u> _____
_____ PWSA Project Reviewer	_____
<u>Approval</u> _____ Deputy Director of Engineering	<u>Date</u> _____
_____ Director of Engineering and Construction	_____
_____ Executive Director	_____

Display Title Block on drawings 6 inches wide by 4 inches tall.

- The plans must be drawn to scale; 20-scale is preferred but 30-, 40-, and 50-scale are acceptable (as directed).
- The plans shall depict plan views, profiles, and details, showing typical cross-sections as needed.
- On profiles existing and proposed final grades shall be identified. Distort the vertical scale. (Suggested: Horizontal 1" = 20', Vertical 1" = 10')
- The existing background features and proposed topography shall be shown 50 percent screened or half-toned with **all proposed new public sewer and waterline information shown in bold line weight and text.**
- A symbol legend will be provided to the developer to indicate the preferred symbols of PWSA or as directed (see Appendix I).
- Proposed pipe materials and pipe sizes shall be shown on all plan views (as directed).
- City rights-of-way and City boundaries shall be shown on plan views.
- Legal rights-of-way and property boundaries shall be identified.
- Next to each street name, the right-of-way width (i.e., Fifth Avenue 60-feet) and the type of street surface pavement shall be identified.
- All existing underground utilities and appurtenances (i.e., gas, telecommunication, etc.) shall be shown 50 percent screened or half-toned.
- Text over-writes must be eliminated. Do not crop text on match-lined drawings.

Where applicable to the type of development, the following specific requirements shall be followed.

- Proposed sanitary sewer, storm sewer, and waterline plan views must be shown on the same sheets and designed to accept the entire sewer shed and/or water service zone, not just the project limits.
- All new storm sewers and sanitary sewers must be constructed separately. **No new construction of combined public sewers will be permitted in areas of new development or redevelopment previously served by existing combined sewers.** Provisions must be made for sewer separation as directed by the PWSA. Normally where flow capacities and self-cleaning velocities can be applied, the existing combined sewer may be designated for conversion to either a designated storm or a designated sanitary sewer (as determined by the PWSA) and a new sewer built for the other service (storm or sanitary). All such sewers shall be designed to serve the upstream watershed/sewer shed and to allow for future extension. The PWSA reserves the right to make final

determination as to the size, type, and location(s) of all new or rehabilitated facilities.

- The location of the proposed sewer shall be stationed and typically dimensioned off the edge of the right-of-way or the centerline of the cart-way, if it coincides with the centerline of the right-of-way and/or survey base running line.
- The profile of the proposed sewer including elevations of all manholes and the percent slope of all piping. Elevations must be per City monumentation and datum.
- The location of all proposed sanitary and storm sewer manholes and the wye connections must be shown for each lot by stationing.
- Sewer wye connections for the proposed lots shall be installed in the trunk sewers during construction. Wye connections shall be constructed at the 10 o'clock and 2 o'clock positions.
- Locations of valve boxes and meter pits for waterlines must also be shown by stationing.
 - Please note that the developer can construct a proposed public waterline without installing taps and customer service lines. However, if the developer desires to install the water taps, then they must be dry taps performed when the waterline is uncharged. After making the dry taps, the developer will also be required to install each customer service line from the tap to either a meter pit or the building to be serviced. Installation of all meter pits will be the responsibility of the developer. The PWSA must install all water meters and remote reading devices at the time of service installation. No unmetered taps and/or wild ends are permitted. Taps for vacant properties must be metered and billed in the name of the contractor/developer/owner.

The developer will prepare and include a plan view of the Recorded Plan of Lots, which shall include the deed book, volume, and page reference from the County Recorder of Deeds as well as signatures from the City Planning Commission as proof of said recording. A minimum 20-foot wide easement is required for public sanitary sewers, storm sewers, and waterlines (24 inch diameter or less). Where feasible, utilities shall be constructed on a 5-foot offset from the edge of the right-of-way. The exact easement width and location shall be determined by the size of the conduit(s). The developer is required to obtain/pursue all easements. The developer must show recorded proof that all easements and/or encroachments exist in the records of the City and/or County Recorder of Deeds.

After PWSA reviews and approves the 90 percent complete construction plans, PWSA will instruct the developer to finalize plans. From the finalized plans, the developer will

prepare and submit one set of 4 mil thick, double-matte, archival quality, permanent, reproducible Mylar drawings to PWSA for final approval. Each sheet of the Mylars shall be stamped, signed, and dated by a Professional Engineer registered in the Commonwealth. The Mylars will be reviewed by PWSA, and the developer will be contacted once the Mylars are approved. Once PWSA approves the Mylars, the developer shall also submit the construction plans in a PWSA-approved digital format.

6.4 Notes Section

The developer shall include the applicable PWSA notes on one of the sheets of the construction plan set. The notes address general requirements such as the bonds the developer must obtain and working hours of the project. There are also specific notes for storm sewer, sanitary sewer, and waterline construction. The developer will be directed to select the appropriate notes from the list provided by PWSA (see Appendix J) and only include those applicable notes on the plans.

6.5 Specifications

6.5.1 Storm Sewers

All public storm sewers must be sized for the entire drainage area, both water and/or sewer shed, not just the current project site. All changes in direction and grade of the storm sewer shall be accomplished at a manhole. Public inlets may not be used in lieu of manholes to change direction or grade. Inlets shall also be installed at every low point and/or intersection (before each crosswalk preferred) and at intervals determined by using Pennsylvania Department of Transportation (PennDOT) Design Manual 2 but shall not exceed 300 feet. The location of each manhole and inlet/catch basin shall be indicated by offset distance and survey running line stationing. The PWSA reserves the right to make final decisions at all catch basin and storm inlet locations.

Storm sewer pipe shall be reinforced concrete pipe (RCP) Class IV, or PWSA-approved equal.

All manholes must be precast concrete with poured-in-place concrete bases and/or precast bases as directed. In sewer manholes the crown of the incoming pipe should be matched at a minimum to the crown of the outgoing pipe if the outgoing pipe has a larger diameter than the incoming pipe.

PWSA encourages the private use of natural and/or nonstructural techniques such as vegetated swales or open air channels to control and direct stormwater in lieu of storm sewers where feasible.

PWSA does not and will not maintain or own any private storm retention tanks, basins, or culverts for stormwater control. PWSA facilities shall not be constructed on or under any of these private stormwater facilities. PWSA

facilities must stand alone and not discharge into any of these types of private facilities without written approval from the PWSA and/or recorded agreement.

On the sewer line profiles the developer must show pipe material, strength class, the distance between storm manholes, grades, pipe lengths, pipe slopes, and pipe and manhole inverts. Pipe slopes should be rounded off to the nearest quarter-foot where feasible. Inlet elevations shall be displayed. Inlets on the near side of the profile shall be depicted in solid lines while inlets on the far side shall be shown in dashed lines (as directed). Each individual profile shall include a title that provides the names of related streets relevant to the profile shown. Profiles shall use a horizontal scale of 1 inch equals 20 or 30 feet and a vertical scale of 1 inch equals 10 feet (unless otherwise directed).

6.5.2 Sanitary Sewers

Sanitary sewer design shall be in accordance with the DEP Domestic Wastewater Facilities Manual and the Allegheny County Health Department regulations except where current PWSA requirements and/or specifications apply or supersedes.

All turns and breaks in grade must be located at a manhole. Spacing between sanitary manholes shall not exceed 300 feet. The top of the manhole castings shall be constructed to established grades as determined by the City street grades. It is recommended that the sanitary sewers be constructed at a minimum of 2 feet below basement elevations to accommodate drainage from building basements. However, the depth of the sanitary sewers will be contingent upon location of the project. PWSA reserves the right to modify, raise or lower the depth of proposed sewers as it deems necessary. The sanitary sewers must be designed for a minimum **design velocity** under average daily flow conditions of 2 feet per second (fps) and preferably at a minimum grade of 2 percent.

The minimum size of all sanitary sewers shall be 8 inches in diameter or as directed. The required pipe materials are listed in Table 6-1.

**Table 6-1
Pipe Material Minimum Requirements for Sanitary Sewer Mains**

Pipe Diameter (inches)	Required Pipe Material
15 or less	Polyvinyl chloride (PVC) SDR 26, Vitrified clay pipe (VCP), Ductile iron pipe (DIP)
Greater than 15, up to and including 24	Vitrified clay pipe (VCP), Ductile iron pipe (DIP)
Greater than 24	Reinforced concrete pipe (RCP) with a special mix design. The special mix required by PWSA includes Type II cement and limestone aggregate, Class IV pipe.

Ductile iron pipe (DIP) and other pipe materials will be reviewed by PWSA and accepted on a case-by-case basis. **The PWSA reserves the right to make final decisions on all pipe sizes and materials used.**

All manholes must be precast concrete with poured-in-place concrete bases, pre-cast as directed. All castings must be approved gray iron. In the manholes the crown of the incoming pipe should be matched to the crown of the outgoing pipe if the outgoing pipe has a larger diameter.

On the profiles the developer must show the distance between sanitary manholes, centerlines, grades, pipe lengths, pipe slopes, and pipe and manhole inverts. Pipe slopes should be rounded off to the nearest quarter-foot where feasible. Basement elevations shall be displayed. Buildings on the near side of the profile shall be depicted in solid lines while buildings on the far side shall be shown in dashed lines. Each individual profile shall include a title that provides the names of streets relevant to the profile. Profiles shall use a horizontal scale of 1 inch equals 20 or 30 feet and a vertical scale of 1 inch equals 10 feet (unless otherwise directed).

Whenever sewers must cross under water mains and other conduits, the sewer shall be laid at such an elevation that the top of the outer diameter of the sewer is at least 18 inches below the bottom outer diameter invert of the said conduits. When the elevation of the sewer cannot be varied to meet the above requirements, the water main shall be relocated to provide this separation, for a distance of 10 feet extending on each side of the sewer.

6.5.3 Water Mains

Water mains shall be DIP, Class 52, cement-lined. Valves and water boxes shall be approved ductile iron.

Minimum depth for a water main is 4 feet from the finished grade to the crown of the outside diameter (O.D.) of the pipe. Minimum PWSA water main size is 8-inches in diameter, or as-determined by PWSA.

If the developer proposes to construct waterlines that will not be part of the PWSA service area and will be owned by another water authority, then the developer shall display 50 percent screen or half tone those waterlines on plans submitted to PWSA.

6.6 Hydrant Flow Test

If the developer proposes to construct a waterline that will connect to an existing PWSA water main, then the developer must perform a hydrant flow test prior to development of

construction plans. The developer must apply for a hydrant permit in order to conduct the hydrant flow test. Applications must be made in person at the PWSA permit counter.

The applicant must select two flow hydrants and one pressure hydrant on the permit application. The PWSA will verify that the hydrant selections are appropriate. The applicant will complete Form HYD–Hydrant Permit and pay any associated fees to the PWSA before the test can take place. Form HYD also contains a table to record the results of the hydrant flow test.

The Operations Division of PWSA will operate all valves and hydrants during the flow tests. The applicant must conduct the tests using his own equipment and personnel. The pressure drop must be equal to or greater than 20 percent using the first choice flow hydrant. If the required pressure drop is not achieved, then the applicant is required to flow the second hydrant.

PWSA will not permit hydrant flow tests when the outside air temperature is below 40°F and falling. The outside air temperature must be at least 40°F and rising. When the outside air temperature is below 40°F, PWSA can authorize a hydrant flow test to be conducted only if additional safety measures are taken and permitted by the city. (i.e. salt truck, etc.) This is also dependent upon the availability of the PWSA crew to operate the hydrants. Due to an unforeseen circumstance or emergency, a hydrant flow test should be rescheduled when the outside air temperature is above 40°F.) Results from a hydrant flow test are valid for a period of one year from the date of the test. In certain areas with heavy development, PWSA may determine that the test results are valid for only six months from the date of the test.

All hydrant flow test data must be sealed by a Professional Engineer licensed in the Commonwealth of Pennsylvania.

A sample of Form HYD–Hydrant Permit can be found in Appendix D. The applicant must complete the Hydrant Flow Test Data (shown in Table 6-2) with the data from the test and additional information regarding the domestic and fire protection water demands. The completed data table shall be displayed on at least one sheet of the construction plan set. If the developer is also required to prepare water tap-in drawings (see Chapters 4 and 5), then the Hydrant Flow Test Data table must be displayed on each tap-in drawing as well.

6.7 Other Requirements

At any time during the construction plan reviews, the developer can submit catalog cut-sheets for all materials proposed for the development. The PWSA must review and approve the cut-sheets before construction can commence. PWSA review time is estimated at 15 to 30 days depending on the completeness and accuracy of the cut-sheets submittal.

The developer must provide PWSA with 72 hours advance notice before construction begins. A PWSA inspector must be present on site. Contact the PWSA Director of Engineering at (412) 255-8987 to request an inspector.

6.8 Tap-in Drawings

Tap-in drawings **are** required when the development includes **all** of the following:

- Development of lots,
- Construction of public storm sewer and/or sanitary sewer and/or waterline,
- Construction of building(s), and
- Construction of laterals and service lines from building(s) to the new sewer and/or waterlines.

**Table 6-2
Hydrant Flow Test Data**

<u>HYDRANT FLOW TEST DATA</u>		
(REQUIRED FOR TAPS LARGER THAN 1-INCH)		
Date of Test: _____ / _____ / _____	Hydrant Permit No.: _____	
Test Performed By: _____		
	FLOW HYDRANT	PRESSURE HYDRANT
Hydrant Number		
Location		
Static Pressure (psi)	XXXXXXXXXXXXXXXXXXXX	
Residual Pressure (psi)	XXXXXXXXXXXXXXXXXXXX	
Flow Observed (gpm)		XXXXXXXXXXXXXXXXXXXX
Fire Protection Demands:		
Sprinkler System Peak Demand	_____ gpm	_____ psi
Inside Hose Demand	_____ gpm	
Outside Hose Demand	_____ gpm	
Domestic System Peak Demand	_____ gpm	
Private Fire Hydrant Demands:	_____ gpm	

On drawing display table at 6 inches wide by 5 inches tall.

Tap-in drawings **are not** required when the development is **limited to** the following:

- Development of lots, and
- Construction of public storm sewer and/or sanitary sewer and/or waterline.

Under the second scenario where the developer only develops the lots and constructs the PWSA facilities, the responsibility of applying for sewer and water taps falls on the future property owner whenever that owner decides to connect to the PWSA facilities.

If the development involves all items listed in the first scenario in this section, the tap-in drawings will be required if any of the following conditions are present:

6.8.1 Sewers

- Developments greater than a two-family residential unit (i.e., flow greater than 799 gallons per day) with new sanitary sewer or storm sewer tap(s).

6.8.2 Water

- Proposed taps into an existing PWSA waterline for development greater than a two-family residential unit (including all commercial, institutional, and industrial development).

OR

- Proposed taps into an existing PWSA waterline for all customer service taps larger than 1 inch.

OR

- Fire service taps on the water main are proposed because fire suppression system(s) is (are) required by the City of Pittsburgh.

Tap-in drawings for storm sewers, sanitary sewers, and waterlines can be submitted at any time but cannot be approved until the private construction drawings have been approved by PWSA. Please refer to Chapters 3A, 3B, 4, and 5 of this manual for instructions on preparing sewer tap-in drawings and water tap-in drawings.

APPENDIX A

ADMINISTRATIVE CHECKLIST

Project No.

(PWSA USE ONLY)

THE PITTSBURGH WATER AND SEWER AUTHORITY ENGINEERING AND CONSTRUCTION DIVISION

Administrative Checklist

The following is a list of items that are to be completed or included with the submittal of any sewer or water application to the PWSA. Place a checkmark in the column provided for all items completed and/or attached. Provide a reason why any item is not included with the submittal. The checklist **must be** enclosed with **all** materials submitted to the PWSA. Failure to include a properly completed checklist will result in the submittal materials being returned to the applicant.

Applicant Name:					
Name of Land Development and Address:					
Applicant Phone Number:					
PWSA Water and Sewer Use Application		Yes	No	Explanation	PWSA Use Only
1.	Sections A through C are completed.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
2.	Technical Checklist is attached.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
3.	Site Plan (or Tap-in Drawing) is attached.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
4.	Plumbing floor plans are attached.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
5.	Review fee submitted with this Checklist.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
Water and/or Sewer Tap-in Drawings		Yes	No	Explanation	PWSA Use Only
1.	PWSA Water and Sewer Use Application has been submitted.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
2.	PWSA Water and Sewer Use Application has been approved by PWSA.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
3.	Appropriate Technical Checklist(s) is (are) attached.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
4.	Tap-in drawings are attached.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	
5.	Review fee submitted with this Checklist.	<input type="checkbox"/>	<input type="checkbox"/>	If No, explain why.	

Applicant Signature _____

Date _____

APPENDIX B EXAMPLE OF CALCULATING STORMWATER FLOW USING THE RATIONAL METHOD

PWSA BASIC INFORMATION FOR CALCULATION OF STORMWATER FLOW USING THE RATIONAL METHOD

The rational method for calculating the quantity of stormwater for the PWSA Water and Sewer Use Application is defined by the following equation:

$$Q = CIA$$

where Q = maximum rate of runoff, cubic feet per second (cfs)
 C = coefficient of runoff based on type and character of surface
 I = average rainfall intensity, inches per hour (use 5.8 in/hr for the 25-year storm)
 A = drainage area, acre

COEFFICIENT OF RUNOFF

Type of Surface	C Value
Improved Surface (concrete, asphalt, brick)	0.95
Improved Surface (stone, gravel, or slag-surface treated)	0.80
Building	0.95
Improved Surface (gravel, stone, slag)	0.60
Unimproved Surface (grass and landscaped areas)	0.40

EXAMPLE

Assume a lot of 1 acre.

Proposed building has area of 0.3 acre – AREA 1

Proposed asphalt parking lot and concrete sidewalk has area of 0.2 acre – AREA 2

Proposed landscaped area of 0.5 acre – AREA 3

Calculate stormwater flow for PWSA Water and Sewer Use Application using rational method.

AREA NO.	C VALUE	FORMULA	AMOUNT OF STORMWATER (cfs)
1	0.95	$Q = (0.95)(5.8)(0.3)$	1.653
2	0.95	$Q = (0.95)(5.8)(0.2)$	1.102
3	0.40	$Q = (0.40)(5.8)(0.5)$	1.160
TOTAL STORMWATER FLOW			3.915

PWSA reserves the right to require stormwater calculations sealed by a Pennsylvania registered professional engineer.

If a stormwater management report is required for the project by other agencies, it must be prepared and sealed by a Pennsylvania registered professional engineer.

10 X 30 DRIVEWAY
300 SF GRAVEL

20 X 30 GARAGE
600 SF ROOF

REMAINDER 2500 SF
UNIMPROVED

5 X 20 WALK
100 SF PAVED

30 X 50 HOUSE
1500 SF ROOF

RATIONAL EQUATION Q-CIA

PAVED AREA: C = 0.95

ROOF AREA: C = 0.95

GRAVEL AREA: C = 0.60

UNIMPROVED: C = 0.30

25 YEAR STORM = 5.8"

1 ACRE = 43560 SF

HOUSE ROOF = 1500 SF

GARAGE ROOF = 600 SF

PAVED WALK = 100 SF

ROOF & PAVING

$0.95 \times 5.8" \times 2200 \text{ SF} / 43560 = 0.28 \text{ CFS}$

GRAVEL DRIVE = 300 SF

UNIMPROVED = 2500 SF

GRAVEL AND UNIMPROVED

$0.60 \times 5.8" \times 2800 \text{ SF} / 43560 = 0.22 \text{ CFS}$

TOTAL AREA = 5000 SF = 0.115 AC

TOTAL RUNOFF = 0.50 CFS

**APPENDIX C
PWSA WATER AND SEWER
USE APPLICATION
TECHNICAL CHECKLIST**

THE PITTSBURGH WATER AND SEWER AUTHORITY ENGINEERING AND CONSTRUCTION DIVISION

Technical Checklist for PWSA Water and Sewer Use Application

The following is a list of items that are to be completed or included with the submittal of the PWSA Sewer Use Application. Place a checkmark in the column provided for all items completed and/or attached. Failure to provide all of the requested information could result in the rejection of the submittal package.

Applicant Name:			
Name of Land Development and Address:			
Applicant Phone Number:			
		Check if Included	PWSA Use Only
A.1	Name and Location of Land Development Project	<input type="checkbox"/>	
A.2	Nature of Development	<input type="checkbox"/>	
	Total Water Consumption (gpd)	<input type="checkbox"/>	
	Total Sanitary Flows (gpd)	<input type="checkbox"/>	
	Total Storm Flows (cfs)	<input type="checkbox"/>	
A.3	Acreage of Development	<input type="checkbox"/>	
A.4	Allegheny County Lot and Block Nos.	<input type="checkbox"/>	
A.5	Ownership of Land Development	<input type="checkbox"/>	
A.6	Applicant Information	<input type="checkbox"/>	
B.1	Number of proposed connections	<input type="checkbox"/>	
	Name of existing collection or conveyance system	<input type="checkbox"/>	
	Name of interceptor	<input type="checkbox"/>	
	Name of treatment facility	<input type="checkbox"/>	
B.2	Site Plan (or Tap-in Drawings)	<input type="checkbox"/>	
	a. Existing building	<input type="checkbox"/>	
	b. Lot lines and lot sizes	<input type="checkbox"/>	
	c. Remainder of tract	<input type="checkbox"/>	
	d. Orientation to North	<input type="checkbox"/>	
	e. Proposed sewer line shown to point of connection to existing system.	<input type="checkbox"/>	
	f. Existing and proposed right(s)-of-way.	<input type="checkbox"/>	
	g. Existing and proposed street, roadway, etc.	<input type="checkbox"/>	
	h. Water bodies and wetland areas	<input type="checkbox"/>	
---	Signature and Date on Page 1.	<input type="checkbox"/>	
C.	Applicant contact information and signature	<input type="checkbox"/>	
---	Calculation sheet is completed and attached.	<input type="checkbox"/>	
---	Project Narrative is attached.	<input type="checkbox"/>	
---	Review fee submitted with this Checklist.	<input type="checkbox"/>	

Applicant Signature

Date

APPENDIX D

PWSA FORMS GEN, HYD, SWR, TERM, AND WTR

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(PWSA Use Only)

The Pittsburgh Water and Sewer Authority Form WTR – Water Service Connection

FEE SCHEDULE *(One PWSA Water EDU Equals 300 gpd)* **PWSA WATER MAP ATTACHED**

1. **TAPPING FEE:** **Distribution: \$110 per EDU** **Capacity: \$390 per EDU**

Total Project Water Demand (gpd): _____ = _____ Project EDUs

300 gpd/EDU

Distribution Fee: _____ Project EDUs x \$110.00/EDU = _____

Capacity Fee: _____ Project EDUs x \$390.00/EDU = _____

Total Tapping Fee: _____

2. **CONNECTION FEE:** *Fees are double the listed amounts for work performed outside normal business hours

<p>Ferrule (Corporation Cock) Fees including Tailpieces: (based on service line size)</p> <p><input type="checkbox"/> 1" _____ x \$175.00 = _____</p> <p><input type="checkbox"/> 1½" _____ x \$325.00 = _____</p>	<p>Tap onto PWSA Main Line: (based on service line size)</p> <p><input type="checkbox"/> 4" Tap _____ x \$1,090.00 = _____</p> <p><input type="checkbox"/> 6" Tap _____ x \$1,295.00 = _____</p> <p><input type="checkbox"/> 8" Tap _____ x \$1,330.00 = _____</p> <p><input type="checkbox"/> 10" Tap _____ x \$1,395.00 = _____</p> <p><input type="checkbox"/> 12" Tap _____ x \$1,460.00 = _____</p>
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Service Fees for Valve Operations (if required; based on PWSA main size):

<input type="checkbox"/> 4" – 12" Diameter Waterlines	_____ x \$1,215.00 = _____
<input type="checkbox"/> 16" – 24" Diameter Waterlines	_____ x \$1,980.00 = _____
<input type="checkbox"/> 30" – 48" Diameter Waterlines	_____ x \$3,235.00 = _____

** Existing PWSA Water Main Size and Location: _____

Sub-Total - Tapping Fee(s) & Connection Fee(s): \$ _____

3. **CUSTOMER FACILITIES FEE – NEW METER PURCHASE:**

NOTE: All meters will be purchased from PWSA and installed by PWSA.

Meter Purchase – See Attached (pg. 2 of 2) for Detailed Fee Schedule and Purchase Summary

Total Meter(s) Purchased _____ / **Total Cost of Meters** \$ _____

PAYMENT PRIOR TO WORK: All charges shall be paid prior to performance of the applicable work.

COMPUTATION: Fees shall be computed on the basis of prevailing costs incurred by the PWSA and taking into account wages paid, fringe benefits, overhead, and other costs that might accrue. The PWSA shall issue regulations listing such charges and shall update them as necessary.

EFFECTIVE DATE: All standard charges shall become effective on the day they are filed with the PWSA.

GRAND TOTAL OWED: \$ _____

4. **Make Check Payable to:** *The Pittsburgh Water and Sewer Authority or PWSA*

Payment Received Date: _____ Check Number: _____ Check Amount: _____

Permit Application Clerk Signature

Date

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(PWSA Use Only)

The Pittsburgh Water and Sewer Authority Form WTR – Water Service Connection – Continued

FEE SCHEDULE Continued

3. CUSTOMER FACILITIES FEE – NEW METER PURCHASE:

(NOTE: All meters will be purchased from PWSA and installed by PWSA)

(Neptune T-10)

- 5/8" or 5/8" x 3/4" _____ x \$235.00 = _____
- 3/4" _____ x \$252.00 = _____
- 1" _____ x \$289.00 = _____
- 1 1/2" _____ x \$492.00 = _____
- 2" _____ x \$592.00 = _____

- 5/8" or 5/8" x 3/4" _____ x \$235.00 = _____ (Deduct Meter)

(Turbine Domestic Meters)

- 2" _____ x \$771.50 = _____
- 3" _____ x \$1,045.50 = _____
- 4" _____ x \$1,334.00 = _____
- 6" _____ x \$2,189.50 = _____
- 8" _____ x \$3,144.50 = _____
- 10" _____ x \$5,068.00 = _____
- 12" _____ x \$9,286.50 = _____
- 16" _____ x \$10,468.00 = _____

(Compound Meters)

- 2" compound _____ x \$1,243.50 = _____
- 3" compound _____ x \$1,668.00 = _____
- 4" compound _____ x \$1,970.50 = _____
- 6" compound _____ x \$2,961.00 = _____
- 8" compound _____ x \$4,881.00 = _____

(Fire System Meters - Turbine)

- 3" _____ x \$1,997.50 = _____
- 4" _____ x \$2,268.00 = _____
- 6" _____ x \$3,041.00 = _____
- 8" _____ x \$3,593.50 = _____
- 10" _____ x \$4,761.50 = _____

(Fire System Meters - Compound)

- 4" _____ x \$2,362.00 = _____
- 6" _____ x \$4,433.50 = _____
- 8" _____ x \$7,173.50 = _____
- 10" _____ x \$11,219.00 = _____

Number of Meters Sold: _____

Total Cost of Meters Sold: \$ _____

Permit Application Clerk Signature

Date

T						
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(PWSA Use Only)

The Pittsburgh Water and Sewer Authority Form TERM – Tap Termination Permit

TERMINATION DRAWING REQUIREMENTS

The following is a checklist of the requirements for the tap termination drawings. The applicant must complete the entire checklist and return the form to the PWSA Permit Counter with the proper termination drawing(s).

Service Line / Lateral Address:	
Applicant / Owner Name:	
County Block and Lot Number(s):	
Applicant Phone Number:	
PWSA Account Number(s):	
PWSA Meter Number(s):	

Tap Termination Drawing		Check if Included	PWSA Use Only
1.	Acceptable Drawing size: (minimum 8½" x 11" to maximum 24" x 36")	<input type="checkbox"/>	
2.	Drawn to scale and readable with a North arrow.	<input type="checkbox"/>	
3.	Drawing includes a plan view of the site.	<input type="checkbox"/>	
4.	Existing building footprint is displayed in plan view.	<input type="checkbox"/>	
5.	Existing manholes and wyes are shown by stationing.	<input type="checkbox"/>	
6.	Drawing shows existing sewer and water mains where the tap(s) will be terminated stationed from PWSA Manhole / Water Valve / Other.	<input type="checkbox"/>	
7.	Service lines to be abandoned are shown as dotted lines.	<input type="checkbox"/>	
8.	Location and size of abandoned service lines are displayed.	<input type="checkbox"/>	
9.	Applicable termination details must be shown.	<input type="checkbox"/>	
10.	Existing and proposed rights-of-way are shown.	<input type="checkbox"/>	
11.	Lot lines and lot sizes are displayed.	<input type="checkbox"/>	
12.	Existing and proposed streets and roadways are shown.	<input type="checkbox"/>	
13.	Sizes of existing PWSA facilities are displayed.	<input type="checkbox"/>	
14.	Existing PWSA facilities are labeled by type (i.e., storm sewer, sanitary sewer, combination sewer, water main)	<input type="checkbox"/>	
15.	A Title Block is present on each drawing and includes the name of the applicant, service address, and the date. (as directed)	<input type="checkbox"/>	
16.	Sewer Televising CD/DVD with Logs for verification	<input type="checkbox"/>	

Applicant Signature

Date

PWSA Permits Approval - Signature

Date

PWSA Inspector - Signature

Date

Termination Permit No.

T							
----------	--	--	--	--	--	--	--

(PWSA Use Only)

The Pittsburgh Water and Sewer Authority Form TERM – Tap Termination Permit

GENERAL REQUIREMENTS

The termination permit is applicable under the following circumstances:

- Termination of sewer and/or water taps is the only proposed activity.
- No new taps are proposed.

APPLICANT INFORMATION

1. Owner's Name _____
 Customer Name (if different) _____
 Lateral/Service Address _____
 City _____ State _____ Zip _____
 Mailing Address (if different) _____
 City _____ State _____ Zip _____
 Owner's Phone Number: (_____) _____
2. Allegheny County Block and Lot No(s). _____ Ward No. _____

TAP INFORMATION (List each Tap to be Terminated)

Location	Type of Tap (Sanitary, Storm, Water)	Tap Size (inches)	Reason(s) for Termination	Method of Termination	Termination Fee (PWSA Use Only)

Applicant Signature

Date

TAP TERMINATION DRAWINGS

Drawings are Required and Attached

3. Termination drawings are required for the termination of all water and/or sewer service connections.
4. The requirements for the drawings are shown on Page 1 of this form.

Make Check Payable to: *The Pittsburgh Water and Sewer Authority or PWSA*

Payment Received Date _____ Check Number _____ Check Amount _____

Permit Application Clerk Signature

Date

PWSA INSPECTION USE ONLY

1. Allegheny County Plumbing Permit No. Yes No _____
2. City Department of Public Works, Street Opening Permit No. Yes No _____
3. Approved Not Approved Explain: _____

Hydrant Permit No.

Form HYD No.

--	--	--	--	--	--	--

(PWSA Use Only)

The Pittsburgh Water and Sewer Authority Form HYD – Hydrant Permit

GENERAL REQUIREMENTS

The PWSA shall regulate the use of water from all fire hydrants and outlets, including private hydrants.

- A. **PERMIT FOR USE:** No person shall use any fire hydrant without first applying to the PWSA which may issue a permit upon evaluation of the request. The permit fee shall include costs for compensation of inspection by Authority personnel and those costs incurred for billing.
- B. **RESTRICTIONS & RESPONSIBILITY:** This permit is restricted to the hydrant(s) listed below, and it is understood the permission for these fire hydrants will be granted only to responsible persons/firms.
- C. **PROHIBITED USES:** The use of fire hydrant(s) in freezing weather or when the ground is frozen is not permitted. The outside air temperature must be at least 40° F and rising.
- D. **CANCELLATIONS:** The PWSA may cancel this permit in cases of water shortage, cold weather, damage to private or City property resulting from hydrant use, or whenever the public interest requires.

FEE SCHEDULE

1. HYDRANT FLOW TEST: For hydrant flow tests, PWSA will determine the applicable flow hydrant and residual hydrant for testing.

Flow Test

Date/Time Requested: _____

	FLOW HYDRANT	PRESSURE HYDRANT
Hydrant Number:		
Location:		
Static Pressure (psi)	XXXXXXXXXXXXXXXXXX	
Residual Pressure (psi)	XXXXXXXXXXXXXXXXXX	
Flow Observed (gpm)		XXXXXXXXXXXXXXXXXX

HYDRANT FEE: _____ x \$500.00 = _____
No. of Days

2. HYDRANT USE WITH METER (CONSTRUCTION / TEMPORARY USE):

Hydrant Use with Meter

Date/Time Requested: _____

Fire Hydrant No. and Location _____

HYDRANT FEE: _____ x \$500.00 = _____
No. of Days

****Meter for hydrant use:**

<input type="checkbox"/>	5/8" or 5/8" x 3/4"	_____ x \$ 680.00 = _____
<input type="checkbox"/>	3/4"	_____ x \$ 780.00 = _____
<input type="checkbox"/>	1"	_____ x \$ 960.00 = _____
<input type="checkbox"/>	Fire Hydrant Meter (2 1/2" meter)	_____ x \$1,039.50 = _____

** Cost Includes Meter, Adaptors, Installation and Deposit **

PAYMENT PRIOR TO WORK: All charges shall be paid prior to performance of the applicable work.

COMPUTATION: Fees shall be computed on the basis of prevailing costs incurred by the PWSA and taking into account wages paid, fringe benefits, overhead, and other costs that might accrue. The PWSA shall issue regulations listing such charges and shall update them as necessary.

EFFECTIVE DATE: All standard charges shall become effective on the day they are filed with the PWSA.

TOTAL OWED: \$ _____

3. Make Check Payable to: *The Pittsburgh Water and Sewer Authority or PWSA*

Payment Received Date: _____ Check Number: _____ Check Amount: _____

Permit Application Clerk Signature

Date

The Pittsburgh Water and Sewer Authority

Form GEN – Customer Application

GENERAL INFORMATION *(Please Print in Ink)*

THIS PERMIT IS NOT TRANSFERABLE

1. Owner's Name _____
Customer Name (if different) _____
Lateral/Service Address _____
City _____ State _____ Zip _____
Mailing Address (if different) _____
City _____ State _____ Zip _____
Owner's Phone Number: (_____) _____
2. Allegheny County Block and Lot No(s). _____ Ward No. _____
3. Acreage of Development or Lot Size(s) _____
4. NATURE OF DEVELOPMENT: Residential Multi-Unit Commercial Institutional
Building Permit No. _____ Zoning Approved For _____
5. PLOT PLAN (OR TAP-IN DRAWING):
Plot Plan Included? Yes No Tap-in Drawing Included? Yes No
Check Type(s) of Tap-in Drawings, if included: Sewer Drawing No. _____
Water Drawing No. _____
6. FALSE SWEARING STATEMENT

I verify that the statements made in this Application are true and correct to the best of my knowledge, information and belief. I understand that false statements in this Application are made subject to the penalties of 18 PA C.S.A. § 4904 relating to unsworn falsification to authorities.

Property Owner's Signature

Date

Form HYD No.

--	--	--	--	--	--	--	--

(PWSA Use Only)

Hydrant Permit No.

--	--	--	--	--	--	--	--

PWSA WATER MAP ATTACHED

PWSA SEWER MAP ATTACHED

Form SWR No.

--	--	--	--	--	--	--	--

(PWSA Use Only)

Form WTR No.

--	--	--	--	--	--	--	--

(PWSA Use Only)

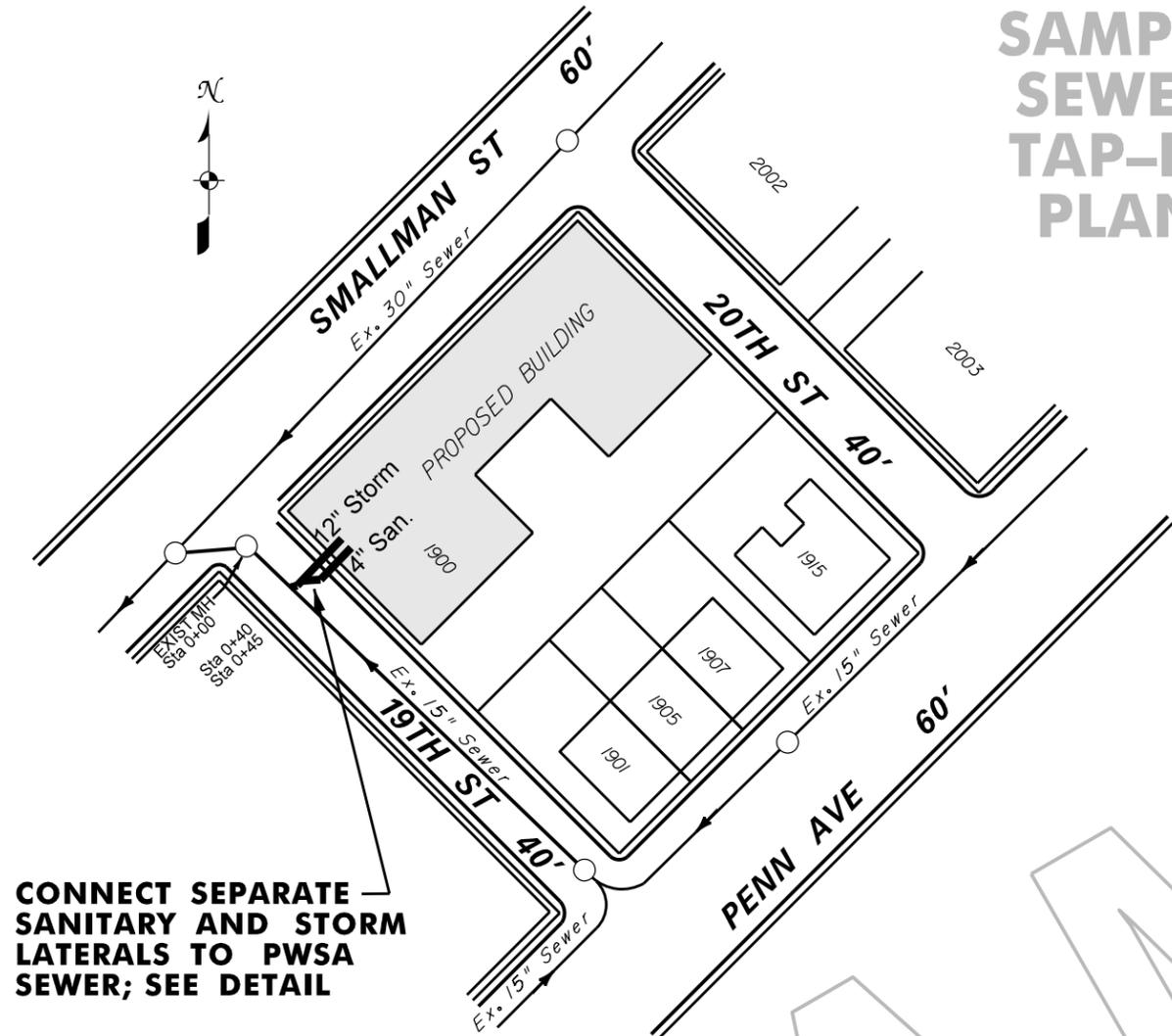
Form TERM No.

--	--	--	--	--	--	--	--

(PWSA Use Only)

APPENDIX E
PWSA STANDARD DETAILS FOR
SEWER TAP-INS & AN EXAMPLE OF
A SEWER TAP-IN DRAWING

SAMPLE SEWER TAP-IN PLAN

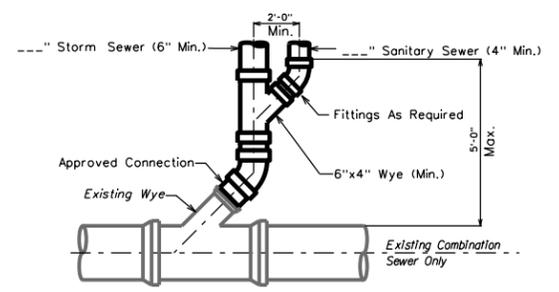


CONNECT SEPARATE SANITARY AND STORM LATERALS TO PWSA SEWER; SEE DETAIL

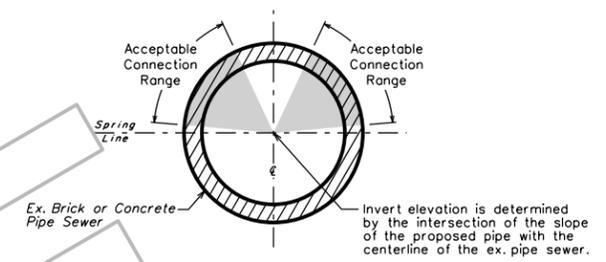
LOCATION MAP

(MUST BE TO ENGINEERING SCALE)

NOTE: DRAWING TO BE 24"x36"



SEPARATED HOUSE LATERALS ONE CONNECTION TO MAIN



PIPE SEWER ZONE CONNECTION DETAIL

WATER AND SEWER FLOW DATA

Water Consumption		GPD
Sanitary Flow		GPD
Storm Flow		CFS
PWSA Application Number (Assigned by PWSA)		
DEP Approval Date (Assigned by PWSA)		

PITTSBURGH WATER & SEWER AUTHORITY

- APPROVAL FOR:
- NEW WATER TAP, BACKFLOW PREVENTER AND METER INSTALLATION
 - NEW SANITARY AND/OR STORM SEWER TAP
 - INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
 - SEWER TAP TERMINATION
 - WATER TAP TERMINATION

* DISCLAIMER
Signatures / Approvals by PWSA are for the physical connections to the water and/or sewer system only.
Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design.

Project Coordinator/Project Management Engineer/Reviewer
DATE

Project Coordinator/Project Management Engineer/Reviewer
DATE

Director of Water Operations/Sewer Operations

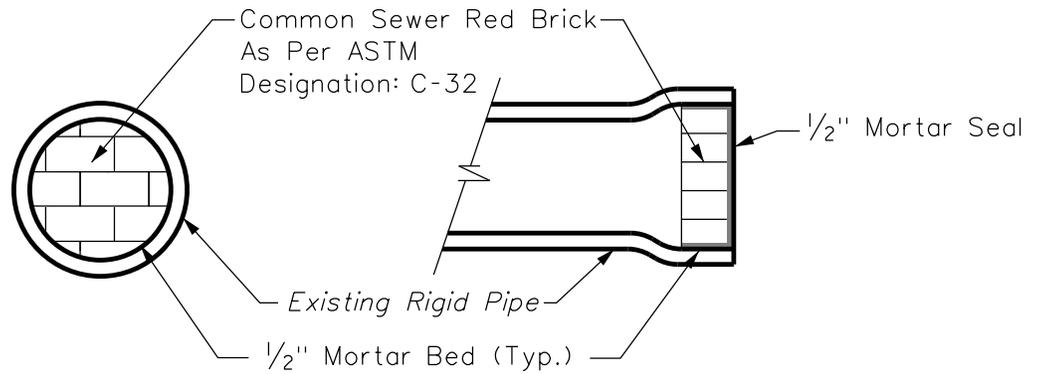
Deputy Director of Engineering and Construction

Director of Engineering and Construction

APPLICANT NAME

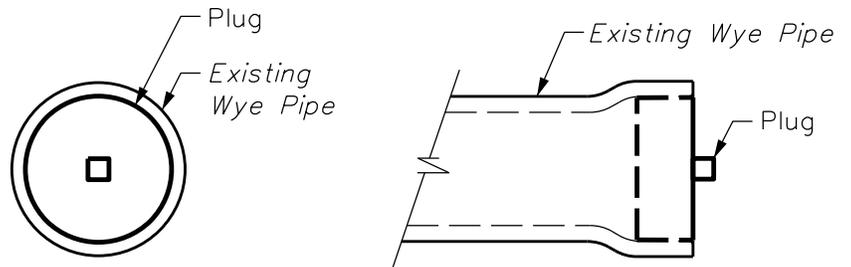
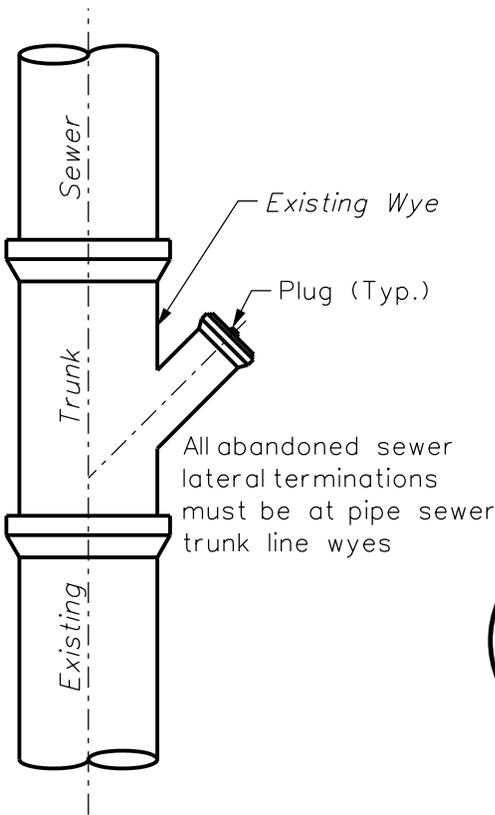
BUILDING NAME / DEVELOPMENT NAME
SERVICE ADDRESS

DATE **ACC. NO.**

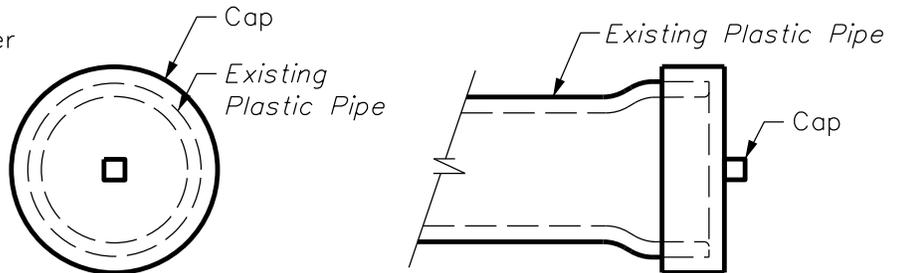


Approved Alternative: Masonry Or Plastic Cap/Plug May Be Permitted (As Directed).

**BRICK/MASONARY BULKHEAD
FOR RIGID PIPE SEWER**



ALT. PLASTIC END PLUG DETAIL



ALT. PLASTIC END CAP DETAIL

NOTE:

ALL TERMINATION PLUGS OR CAPS MUST BE APPROVED, WATER TIGHT, AND PERMANENTLY SEALED.

2/24/2014

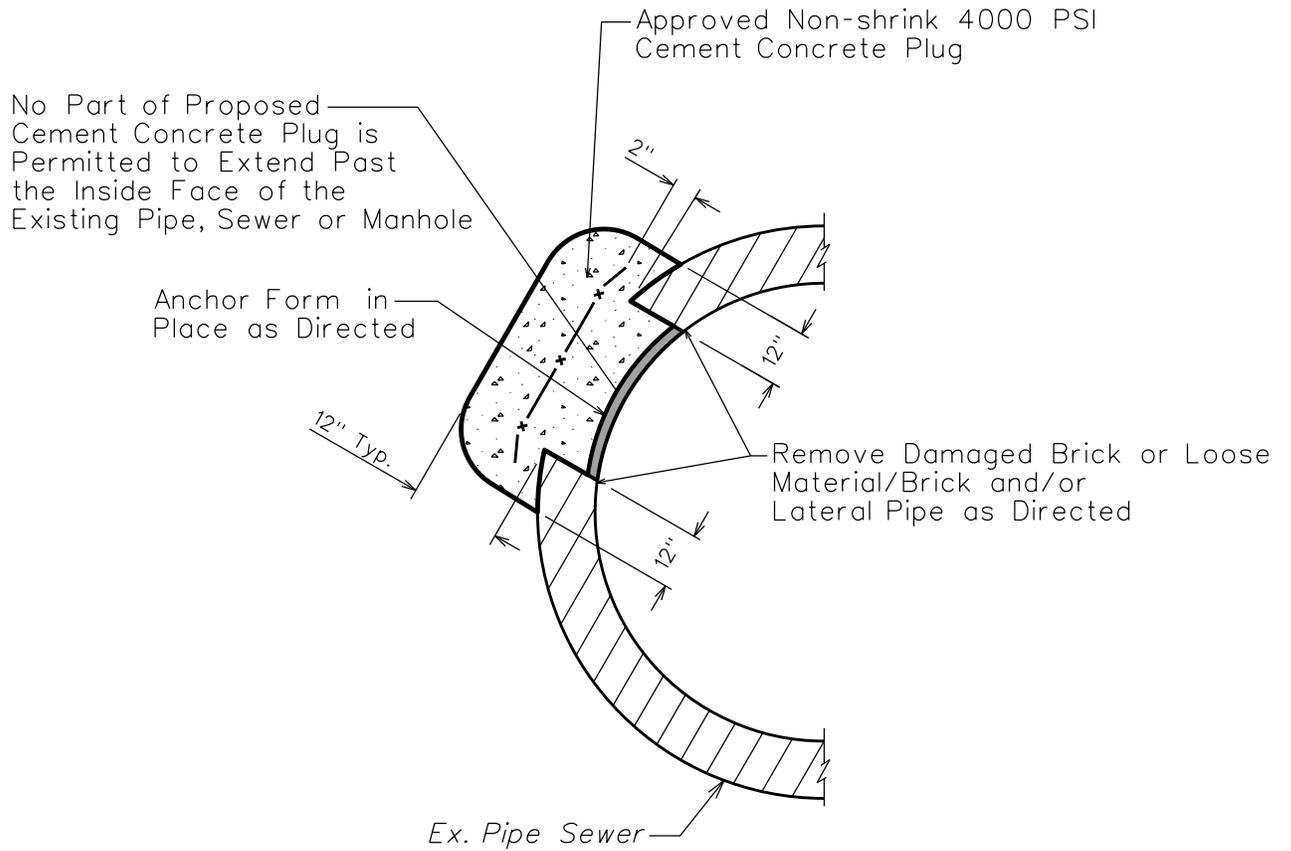
R E V I S I O N S	
1. MAC 3-13-03	
2. MAC 3-2-05	
3. DWP 10-14-05	
4. LRC 1-31-14	
Approved by:	


PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Termination Sewer Lateral
For Rigid Pipe Sewer

Scale: N.T.S. Supplemental Detail Drawing: **LTPC**

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2/24/2014

R E V I S I O N S	
1. MAC 3-2-04	
2. LRC 1-31-14	

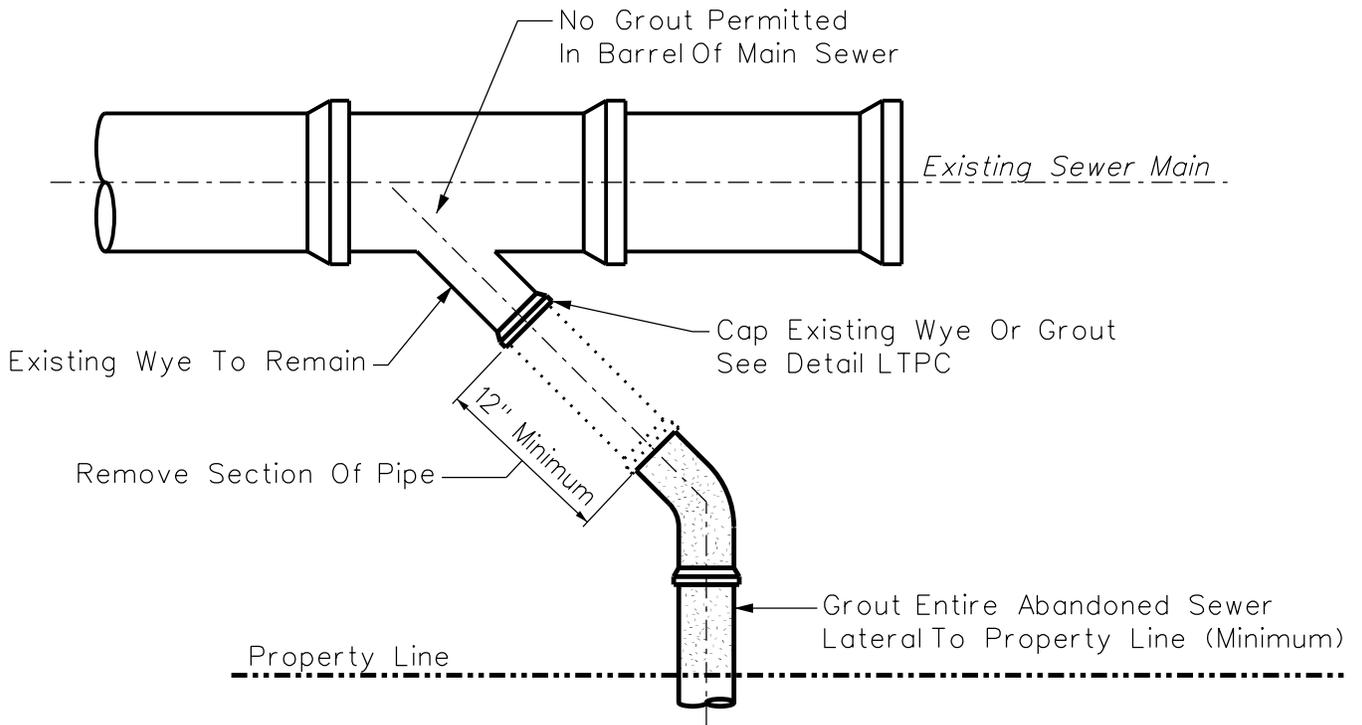
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Cement Concrete Plug
For Brick Sewer/ Manhole

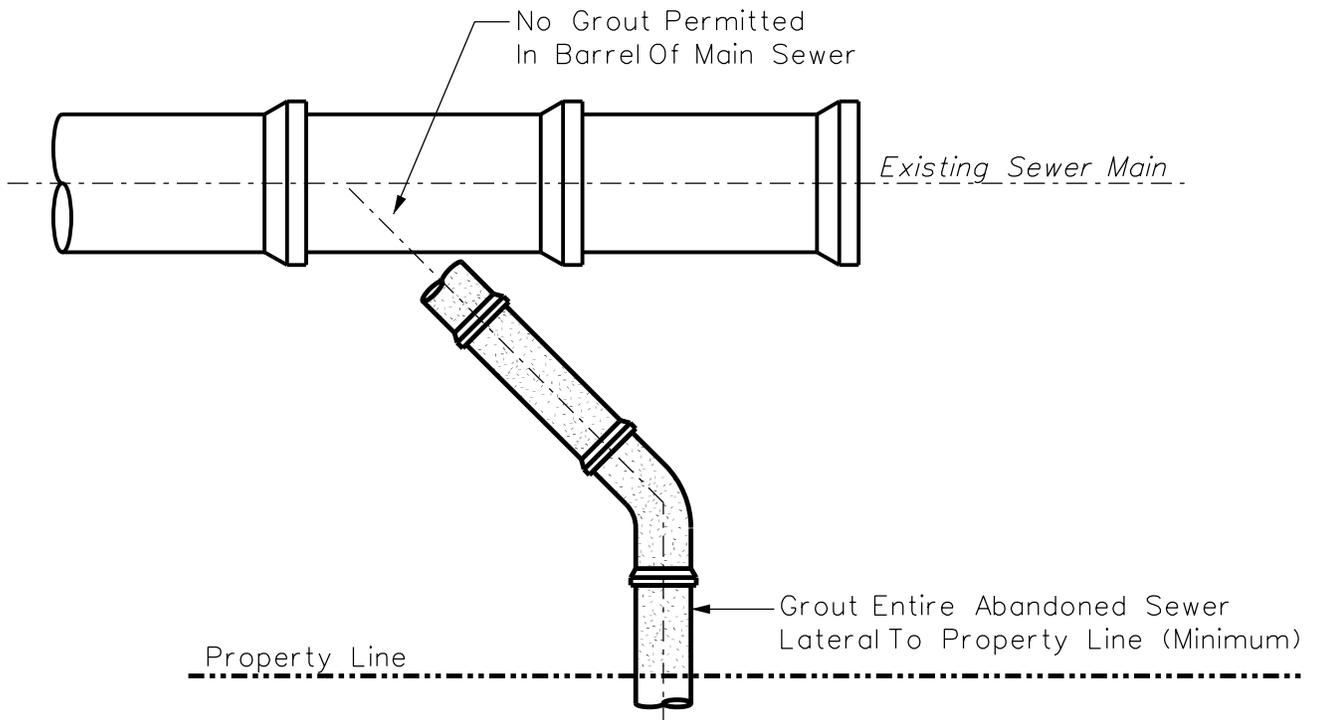
Scale: N.T.S. Supplemental Detail Drawing: **SC-CP**

M:\pwsa\gis\det\standards\stdsccp.det

Approved by:



PLAN VIEW ALT. 1



PLAN VIEW ALT. 2

2/24/2014

R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	

Approved by:

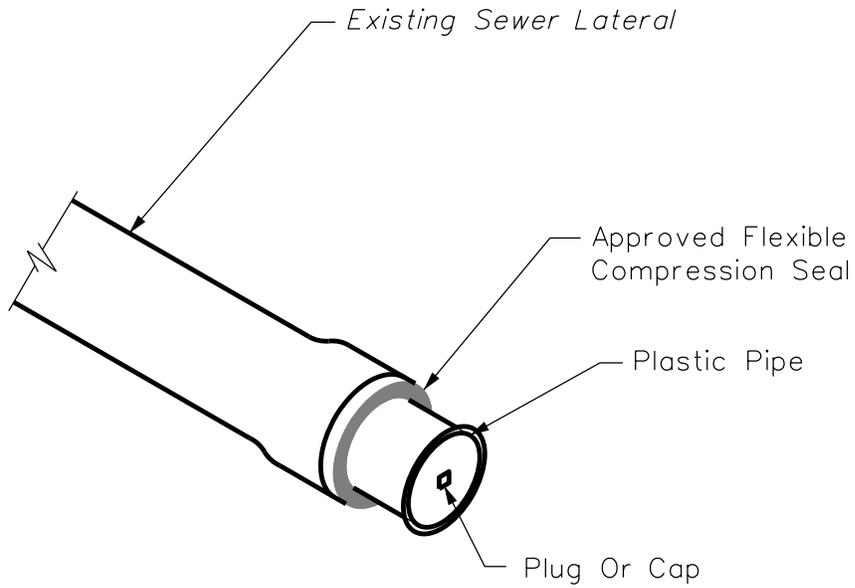
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Termination Sewer Lateral

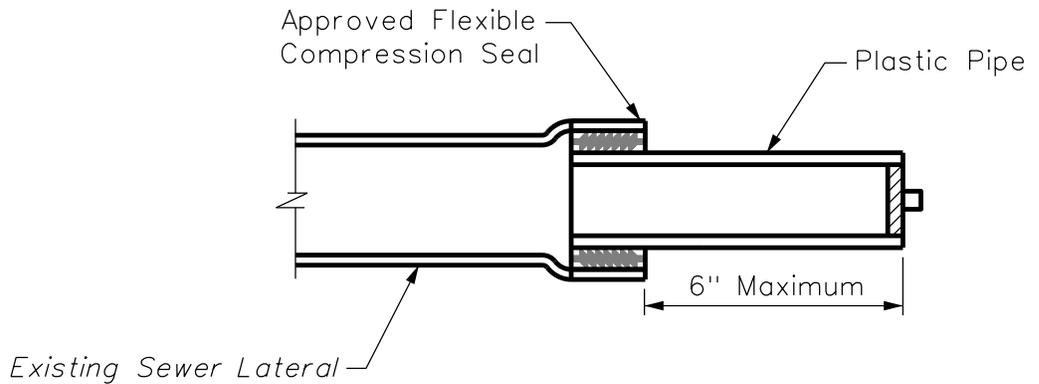
Scale: N.T.S.
 M:\pwsa\gis\det\standards\stdsltl.det

Supplemental
 Detail Drawing:

SLT1



PIPE SEWER END DETAIL w/COMPRESSION JOINT SEALER



PIPE SEWER END SECTION

2/24/2014

R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	

Approved by:

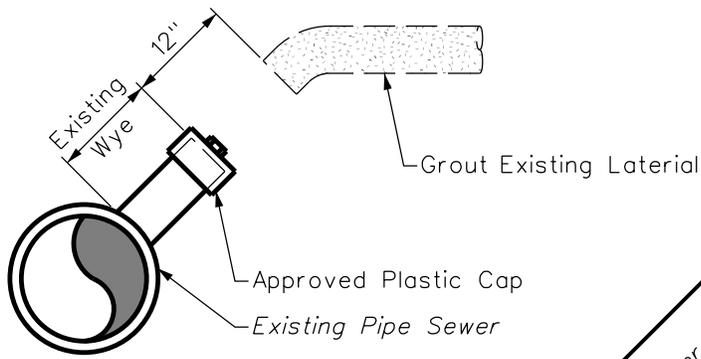
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Plastic Pipe Sewer End Cap
 Compression Joint Sealer**

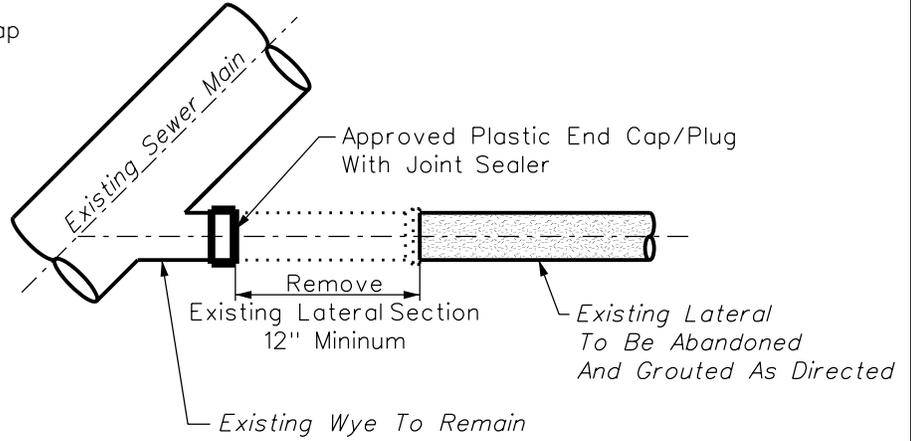
Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdslt2.det

Supplemental
 Detail Drawing:

SLT2

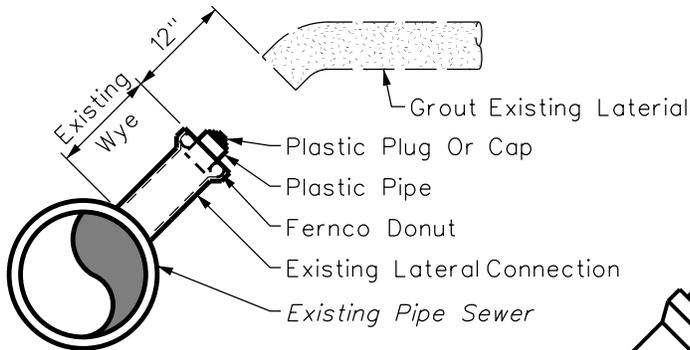


SECTION

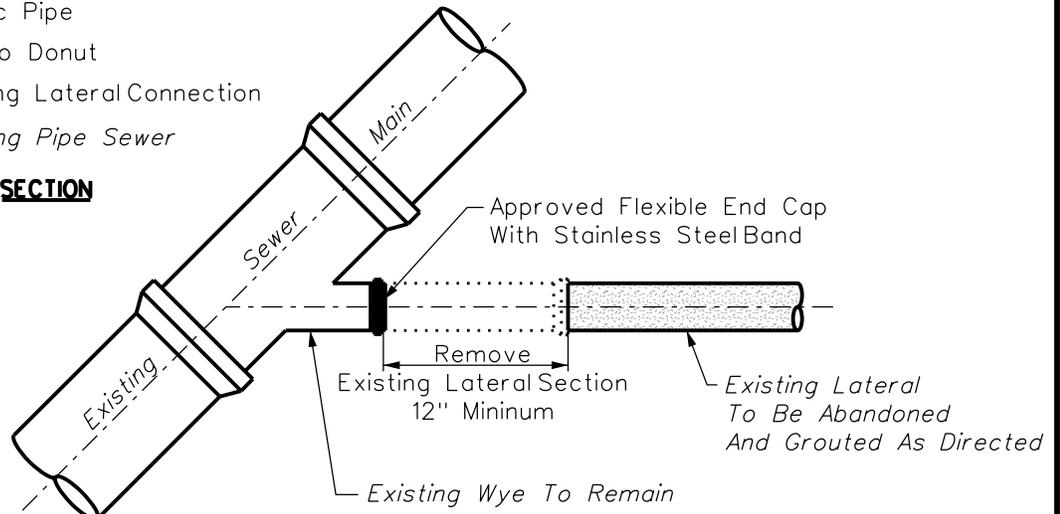


PLAN

APPROVED PLASTIC CAP/PLUG DETAIL



SECTION



PLAN

APPROVED FLEXIBLE COMPRESSION CAP DETAIL

2/24/2014

R E V I S I O N S	
1. MAC 3-13-03	
2. LRC 1-31-14	
Approved by:	

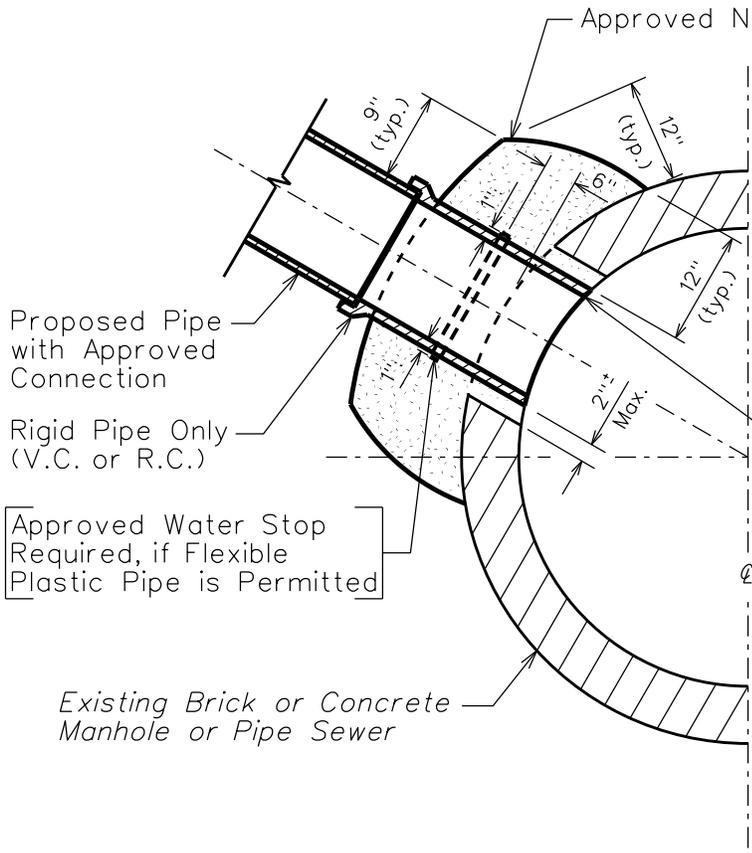
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Termination House Lateral
 Wye Connection To Main**

Scale: N.T.S.

Supplemental Detail Drawing: **SLT3**

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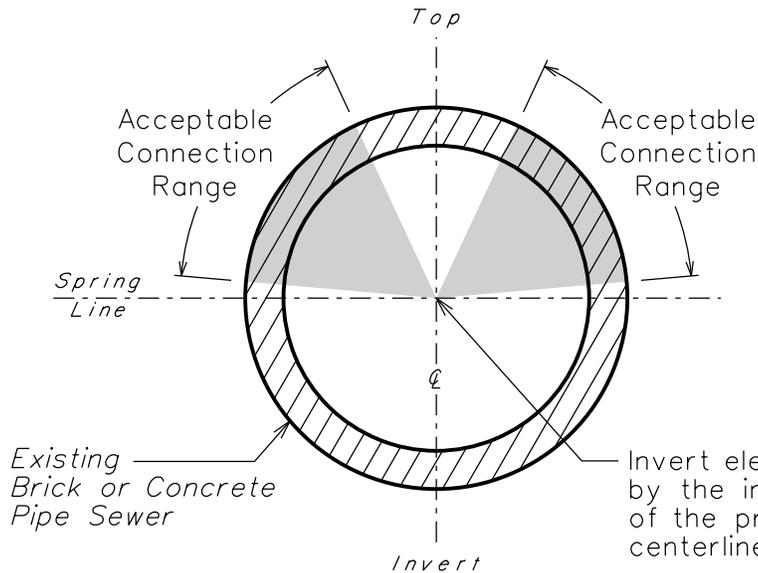


Note:

Core drill neat hole into existing manhole/pipe sewer no greater than 30% of the manhole/pipe sewer diameter. No part of the proposed work shall extend past the inside face of the existing manhole/pipe sewer. (Direct connection of a sewer lateral to a PWSA manhole is not permitted)

NOTE:

When tapping existing manholes, caution should be taken not to impact manhole steps.



2/24/2014

R E V I S I O N S	
1.	MSR 4-18-01
2.	DWP 9-15-05
3.	MAC 11-3-08
4.	LRC 1-31-14

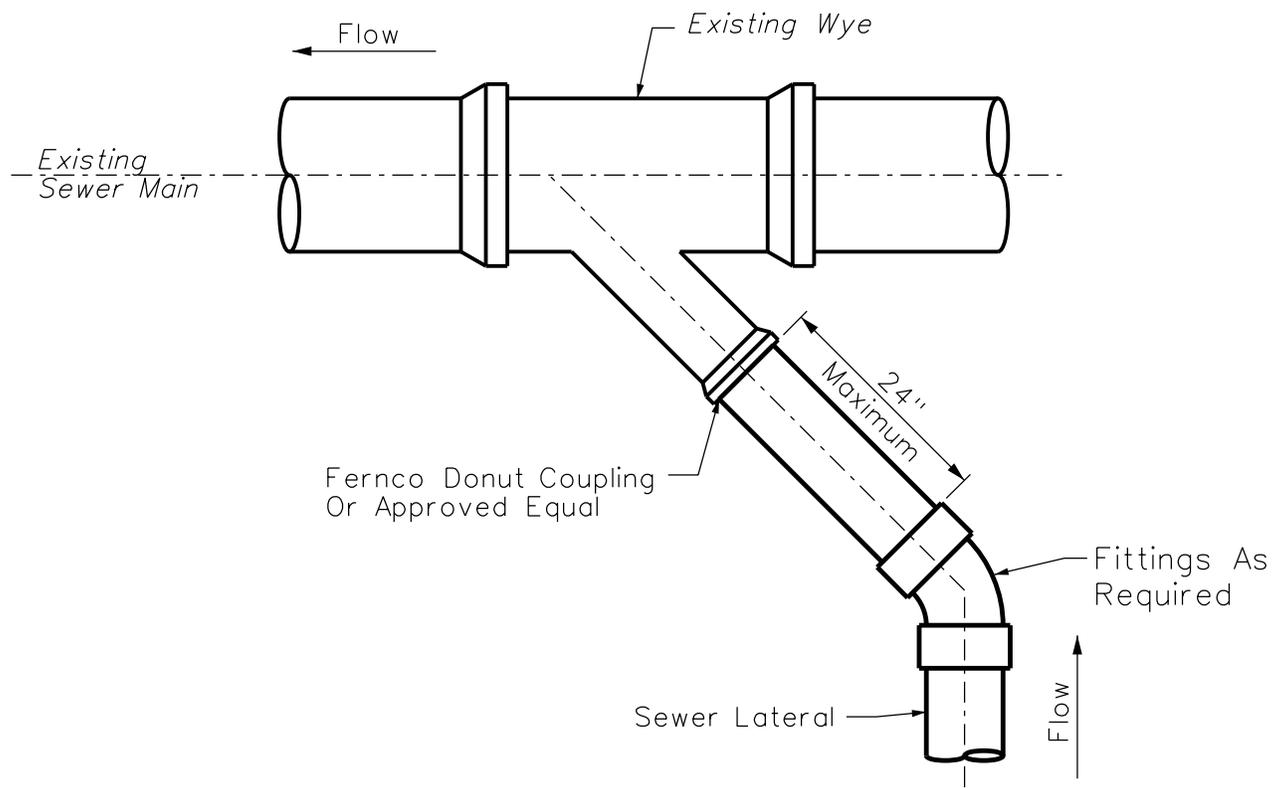
Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Manhole / Pipe Sewer Cored
Wye Connection

Scale: N.T.S. Supplemental Detail Drawing: **SSC-1**

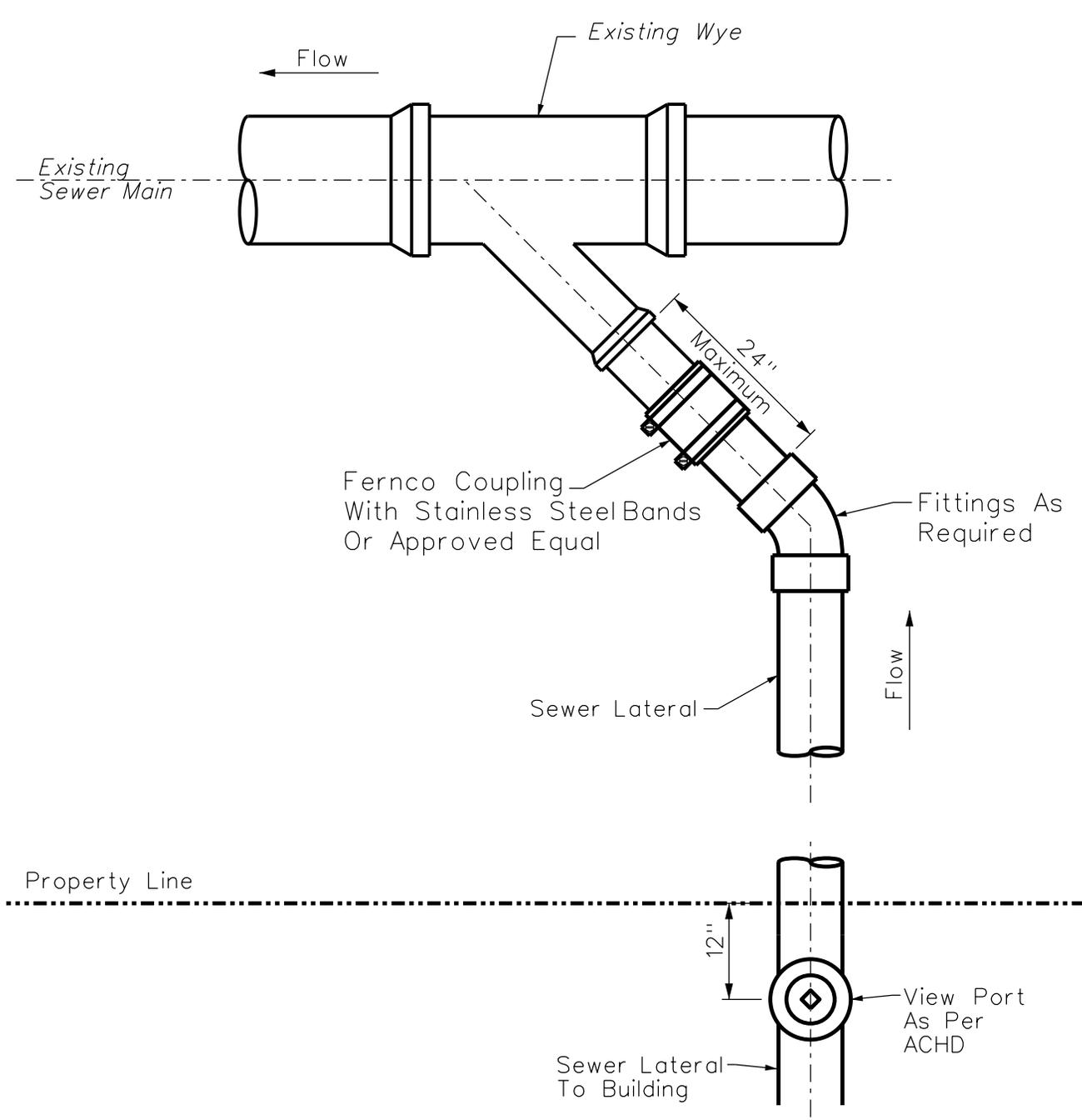
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PLAN VIEW

2/24/2014

<p style="text-align: center;">R E V I S I O N S</p> <table border="1"> <tr> <td>1. MSR 4-18-01</td> <td></td> </tr> <tr> <td>2. LRC 1-31-14</td> <td></td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </table>		1. MSR 4-18-01		2. LRC 1-31-14							<p>Pittsburgh Water and Sewer Authority</p> <p>Sewer Tap To Existing Sewer Wye</p>	
1. MSR 4-18-01												
2. LRC 1-31-14												
<p>Approved by: _____</p>		<p>Scale: N.T.S.</p>	<p>Supplemental Detail Drawing: ST-1</p>									
<p>Engineering & Construction Division</p>		<p>M:\pwsa\gis\det\standards\stdstl.det</p>										



PLAN VIEW

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	

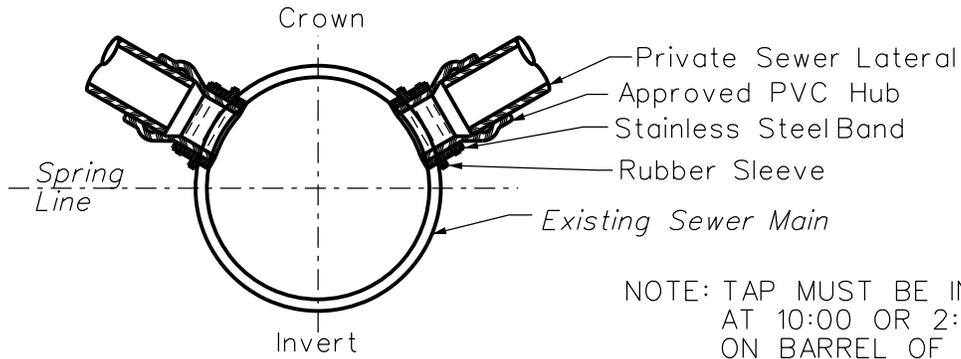
Approved by: _____

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Sewer Tap To Existing Sewer Wye
 Scale: N.T.S.
 Supplemental Detail Drawing: **ST-2**

2/24/2014

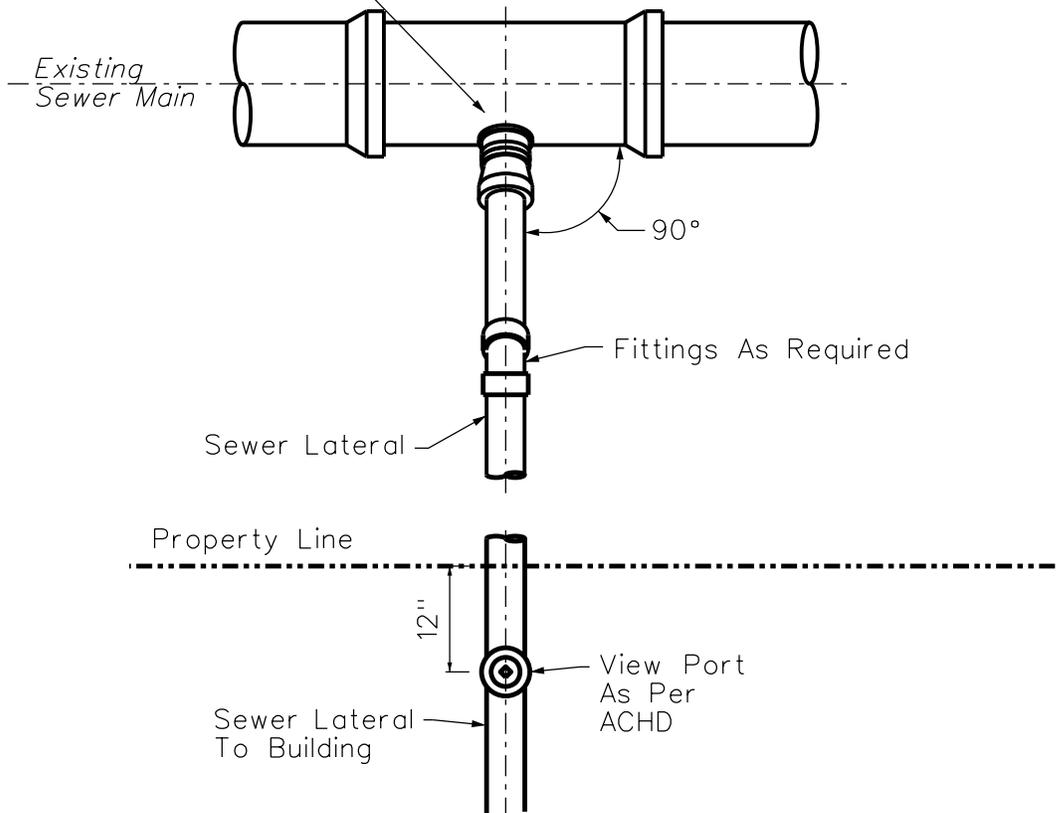
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NOTE: TAP MUST BE INSTALLED AT 10:00 OR 2:00 O'CLOCK ON BARREL OF SEWER MAIN.

INSERTA TEE CONNECTION DETAIL
OR APPROVED EQUAL

APPROVED INSERTA TEE CONNECTIONS WITH PVC HUB, RUBBER GASKET, AND STAINLESS STEEL BAND OR APPROVED EQUAL. CORE DRILL NEAT HOLE INTO EXISTING PIPE SEWER; NO GREATER THAN 25% OF EXISTING PIPE SEWER DIAMETER PERMITTED.



PLAN VIEW

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	

Approved by: _____

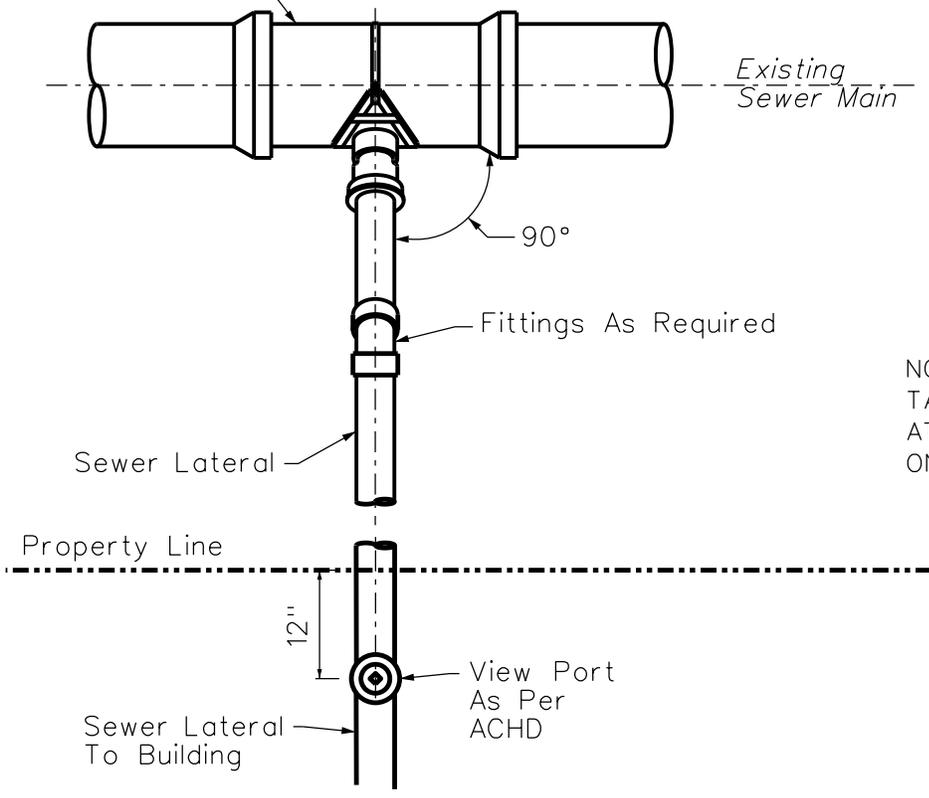
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Sewer Tap Tee Connection
To Existing Sewer Main

Scale: N.T.S. Supplemental Detail Drawing: **ST-3**

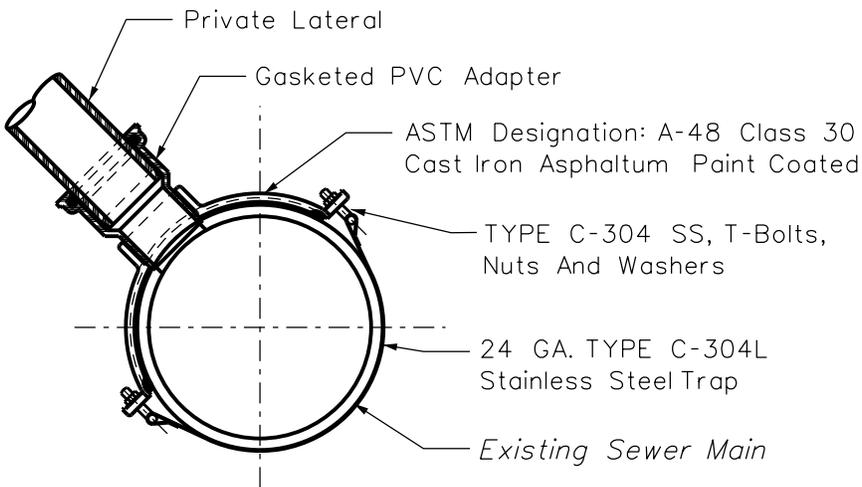
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APPROVED SADDLE CONNECTIONS GENECO SEALTITE CAST IRON SADDLE WITH O-RING AND STAINLESS STEEL STRAP, OR FERNCO EZ TAP SEWER SADDLE. CORE DRILL NEAT HOLE INTO EXISTING PIPE SEWER; NO GREATER THAN 25% OF EXISTING PIPE SEWER DIAMETER PERMITTED.



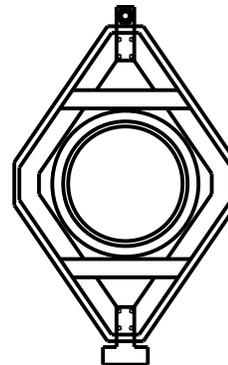
PLAN VIEW

NOTE:
TAP MUST BE INSTALLED AT 10:00 OR 2:00 O'CLOCK ON BARREL OF SEWER MAIN.



SEALTITE SEWER PIPE SADDLE
OR APPROVED EQUAL
ALT. #1

SECTION VIEW



FERNCO EZ TAP SEWER PIPE SADDLE
OR APPROVED EQUAL
ALT. #2

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	
2. MAC 3-2-05	
3. LRC 1-31-14	

Approved by:



Engineering & Construction Division

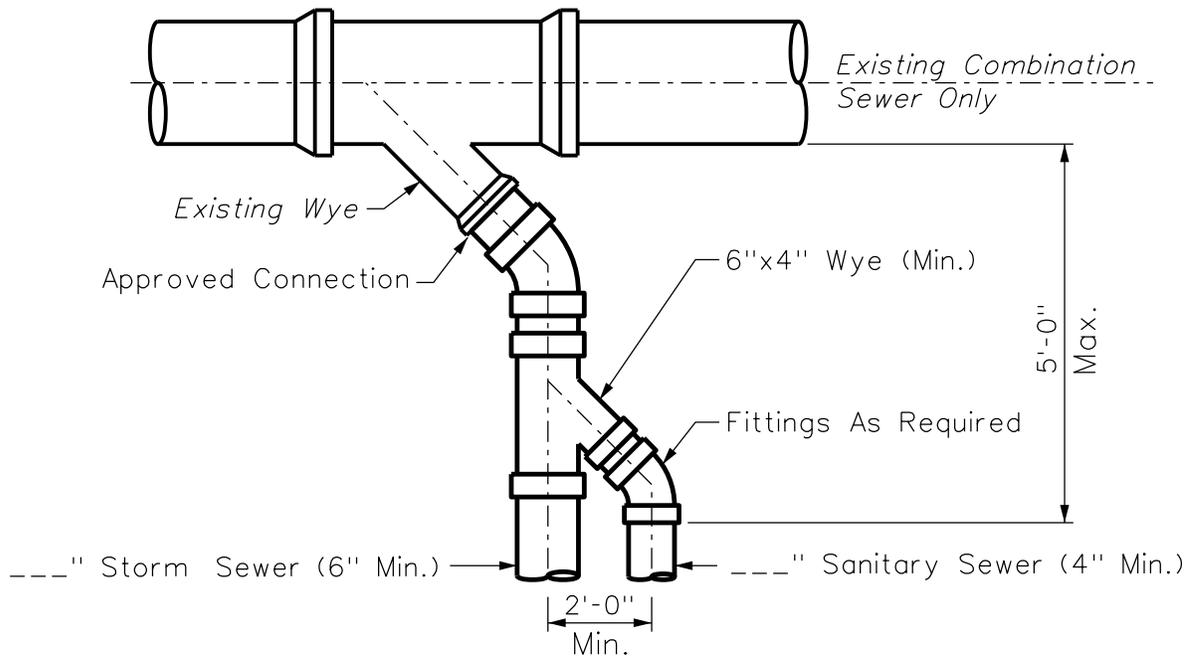
Pittsburgh Water and Sewer Authority
Sewer Tap Saddle Connection
To Existing Sewer Main

Scale: N.T.S.

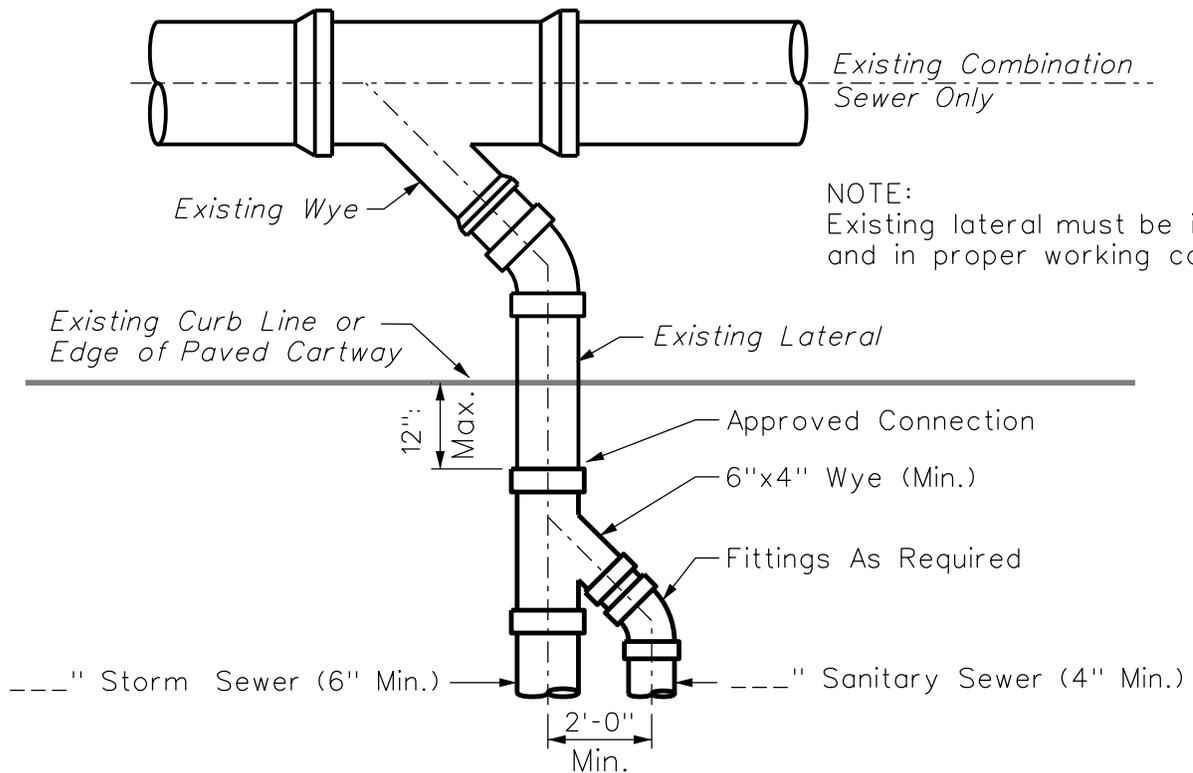
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Supplemental
Detail Drawing:

ST-4



NEW CONSTRUCTION
PLAN VIEW DETAIL



NOTE:
Existing lateral must be inspected
and in proper working condition.

MODIFICATION TO EXISTING STRUCTURE OR FACILITY
PLAN VIEW DETAIL

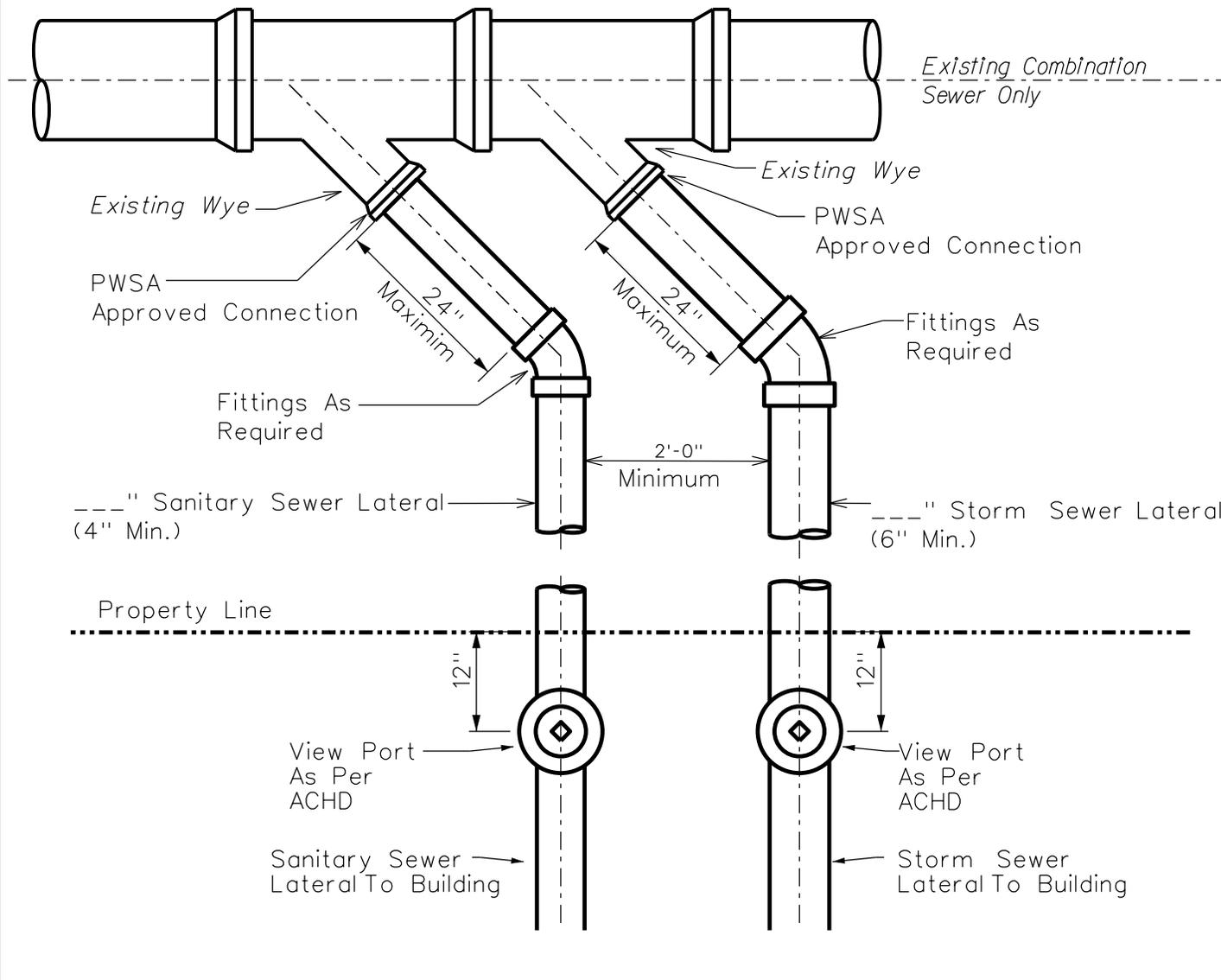
2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	
2. DWP 12-16-04	
3. LRC 1-31-14	

Approved by: _____


PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

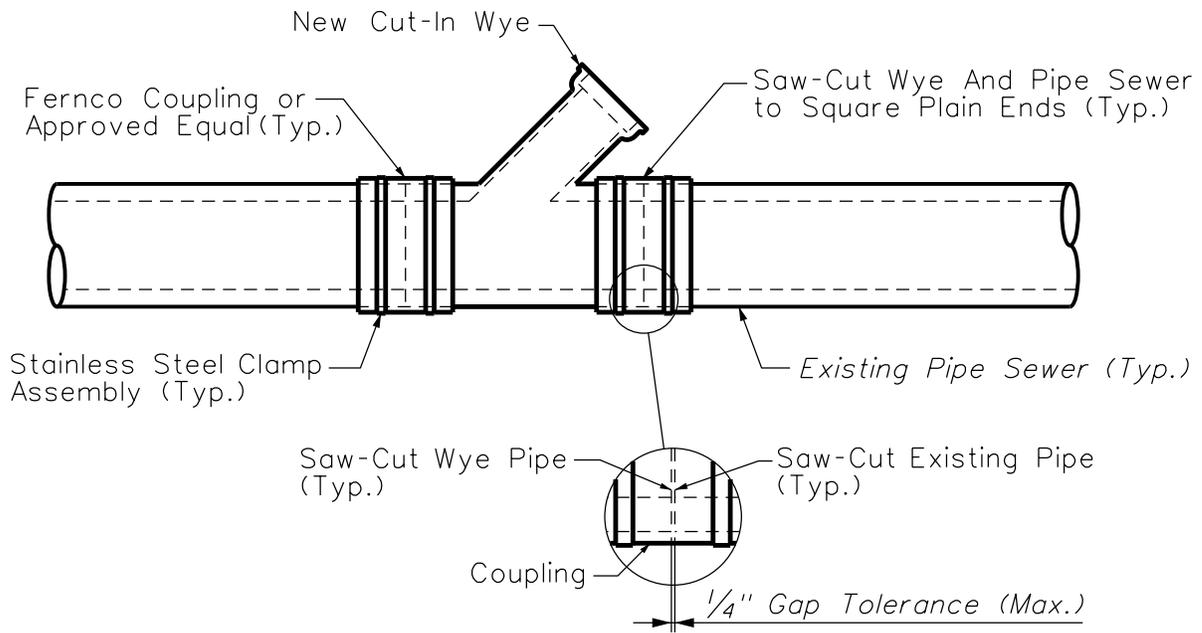
Pittsburgh Water and Sewer Authority Separated House Lateral One Connection To Main	
Scale: N.T.S. <small>M:\pwsa\gis\det\Standards\stdst5.det</small>	Supplemental Detail Drawing: ST-5



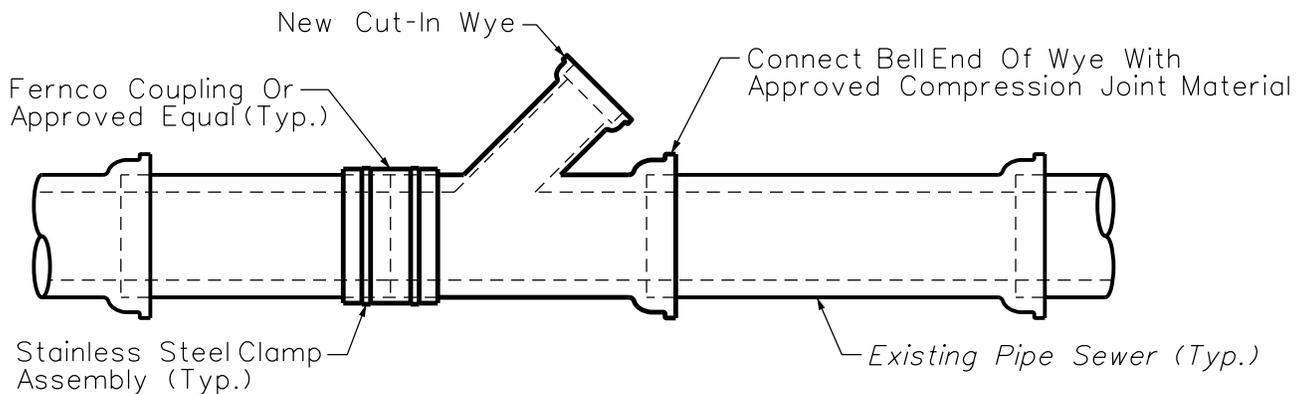
PLAN VIEW

2/24/2014

R E V I S I O N S 1. MSR 4-18-01 2. LRC 1-31-14			Pittsburgh Water and Sewer Authority Separated House Lateral Wye Connections To Main	
Approved by:			Scale: N.T.S. <small>M:\pwsa\gis\det\standards\stdst6.det</small>	Supplemental Detail Drawing: ST-6
Engineering & Construction Division				



ALT. No.1



ALT. No.2

NOTES:

1. SAW-CUT EXISTING PIPE SEWER, NO BREAK-IN OR HAMMER CONNECTIONS PERMITTED. JOINTS MUST BE INSPECTED BY PWSA BEFORE AND AFTER FLEXIBLE COUPLINGS ARE INSTALLED.
2. WYE MATERIAL WILL MATCH SEWER MAIN MATERIAL.
3. PIPE MAIN I.D. OF NEW WYE SECTION WILL MATCH I.D. OF EXISTING PIPE SEWER MAIN.
4. WYE LOCATION WILL BE LOCATED AT 2 O'CLOCK OR 10 O'CLOCK ON BARREL OF PIPE SEWER.

2/24/2014

R E V I S I O N S	
1. JLK	8-14-02
2. MAC	1-5-04
3. LRC	1-31-14

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Cut-In Wye Pipe Transition

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdst7.det

Supplemental
 Detail Drawing:

ST-7

APPENDIX F

TECHNICAL CHECKLIST FOR SEWER TAP-IN DRAWINGS

Project No.

(PWSA USE ONLY)

THE PITTSBURGH WATER AND SEWER AUTHORITY ENGINEERING AND CONSTRUCTION DIVISION

Technical Checklist for Sewer Tap-in Drawings

The following is a list of items that are to be included on the sewer tap-in drawings. Place a checkmark in the column provided for all items completed and/or attached. Failure to provide all of the requested information will delay the processing of the application or could result in the rejection of the submittal package. The checklist **must** be enclosed with the drawing submission.

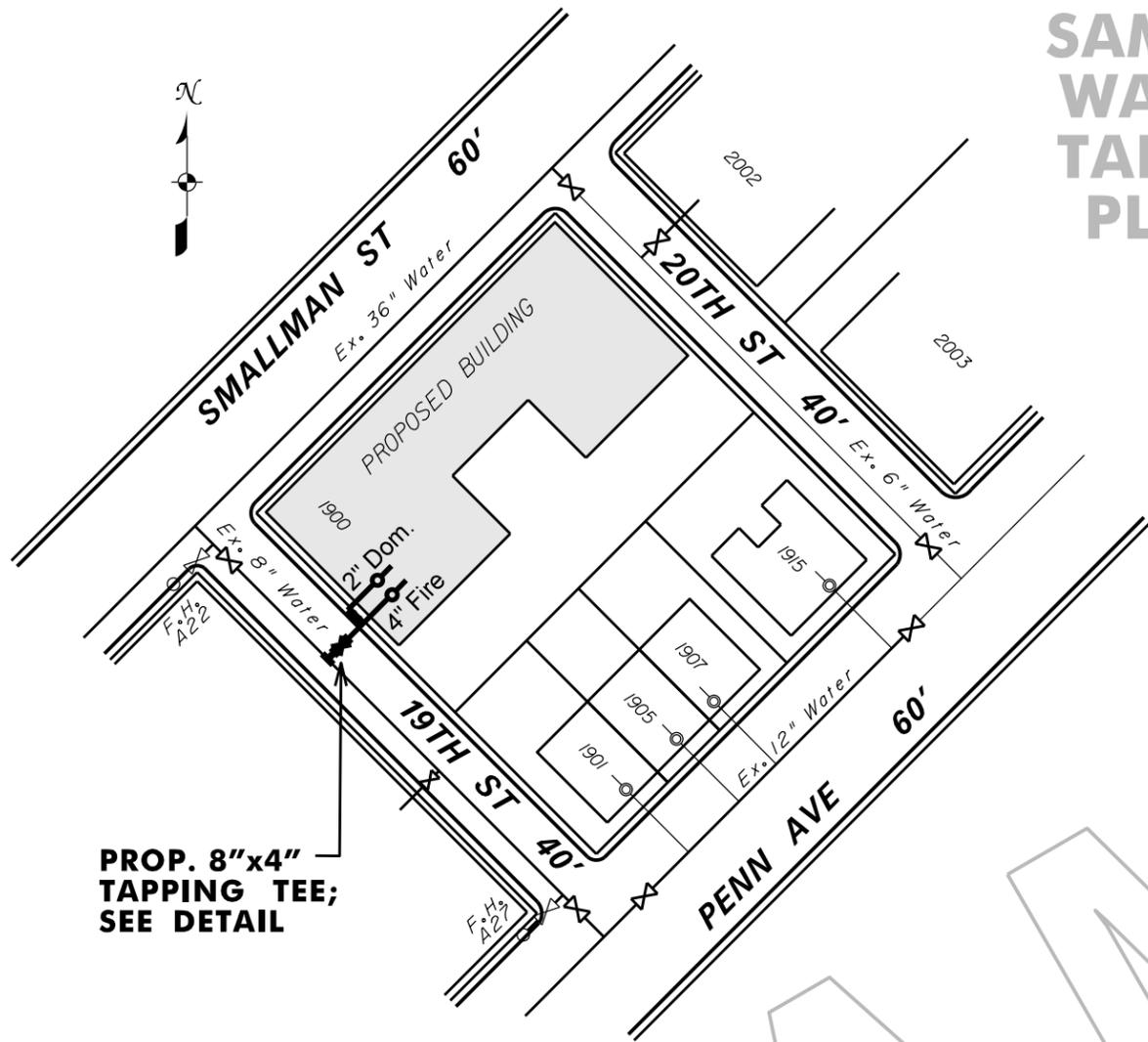
Applicant Name:			
Name of Land Development and Address:			
Applicant Phone Number:			
Sewer Tap-In Drawing	Check if Included	PWSA Use Only	
1.	Drawing size is 24" x 36".	<input type="checkbox"/>	
2.	Drawn to scale with a North arrow.	<input type="checkbox"/>	
3.	Drawing includes a plan view of the site.	<input type="checkbox"/>	
4.	Existing building footprint is displayed in plan view.	<input type="checkbox"/>	
5.	Existing manholes and wyes are shown by stationing.	<input type="checkbox"/>	
6.	Existing sewer mains that will be tapped are shown.	<input type="checkbox"/>	
7.	Proposed service lines are shown in bold line weight and text.	<input type="checkbox"/>	
8.	Location and size of proposed service lines are displayed.	<input type="checkbox"/>	
9.	Standard details for tapping are shown.	<input type="checkbox"/>	
10.	Termination detail is shown (if applicable).	<input type="checkbox"/>	
11.	All other appropriate schematic details are shown.	<input type="checkbox"/>	
12.	Water and Sewer Flow Data Block is completed and shown on each drawing.	<input type="checkbox"/>	
13.	Lot lines and lot sizes are displayed.	<input type="checkbox"/>	
14.	Existing and proposed rights-of-way are shown.	<input type="checkbox"/>	
15.	Existing and proposed streets and roadways are shown.	<input type="checkbox"/>	
16.	Sizes of existing PWSA facilities are displayed.	<input type="checkbox"/>	
17.	Existing PWSA facilities are labeled by type (i.e., storm sewer, sanitary sewer, combination sewer, water main)	<input type="checkbox"/>	
18.	Title Block is complete and displayed on each drawing.	<input type="checkbox"/>	
19.	PWSA Approval Block is located on each drawing.	<input type="checkbox"/>	

Applicant Signature

Date

APPENDIX G
PWSA STANDARD DETAILS FOR
WATER TAP-INS & AN EXAMPLE OF
A WATER TAP-IN DRAWING

SAMPLE WATER TAP-IN PLAN



PROP. 8"x4" TAPPING TEE; SEE DETAIL

LOCATION MAP

(MUST BE TO ENGINEERING SCALE)

'City of Pittsburgh Only'

Please be advised of the following requirements for installing fire service (Underground) mains and their appurtenances in the City of Pittsburgh.

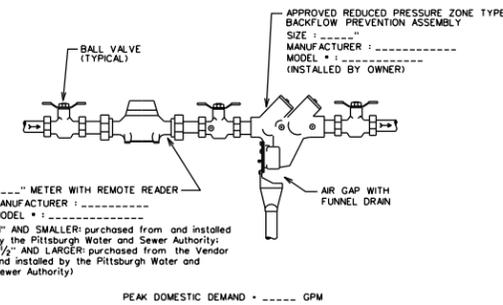
A permit must be obtained from the Bureau of Building Inspection (BBI), prior to installing the underground fire service main. Application for this permit must be made by a contractor, that is registered with the City, and must include 3 sets of the *Water Tap-In*Plan* bearing the approval stamp of PWSA. Once the drawings have been reviewed, approved, and the permit issued; all required thrust blocking must be inspected, for compliance with NFPA 13, by a City Building Inspector before it is backfilled. A *Contractor's Material and Test Certificate for Underground Piping* must then be completed, and given to the City approved Fire Inspector that is hired to witness the flush and hydrostatic tests. They will then forward the test results to BBI.

FAILURE TO COMPLY MAY RESULT IN FINES AND/OR A STOP WORK ORDER.

NOTE:
Permits for the interior sprinkler/standpipe system will not be issued until all underground installations have been inspected, and approved.

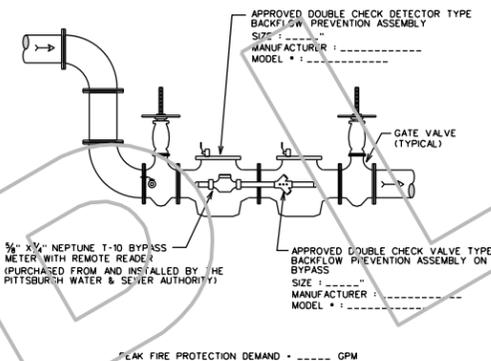
To contact BBI, call (412) 255-2181.

NOTE: DRAWING TO BE 24"x36"



TYPICAL PLUMBING SCHEMATIC DOMESTIC

NOT TO SCALE



TYPICAL PLUMBING SCHEMATIC FIRE PROTECTION

NOT TO SCALE

WATER AND SEWER FLOW DATA

Water Consumption		GPD
Sanitary Flow		GPD
Storm Flow		CFS
PWSA Application Number (Assigned by PWSA)		
DEF Approval Date (Assigned by PWSA)		

HYDRANT FLOW TEST DATA (REQUIRED FOR 1" OR LARGER TAPS)

Date of Test: ___/___/___ Hydrant Permit Number: _____

Test Performed By: _____

	FLOW HYDRANT	PRESSURE HYDRANT
Hydrant Number		
Location		
Static Pressure (PSI)	XXXXXXXXXXXXXXX	
Residual Pressure (PSI)	XXXXXXXXXXXXXXX	
Flow Observed (GPM)		XXXXXXXXXXXXXXX

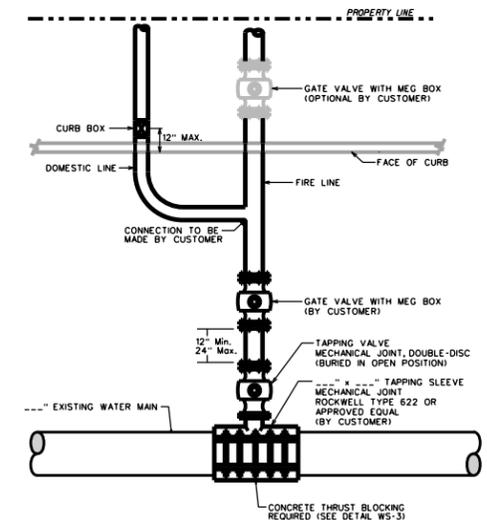
Fire Protection Demands:

Sprinkler System Peak Demand _____GPM _____PSI

Inside House Demand _____ GPM

Outside House Demand _____GPM

Domestic System Peak Demand _____ GPM



NOTE:
CUSTOMER IS RESPONSIBLE FOR MAINTAINING AND OWNS FROM THE TAPPING TEE ASSEMBLY TO THE BUILDING.
PWSA PERFORMS ACTUAL TAP TO MAIN ONLY.
CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).

TAPPING TEE DETAIL

NOT TO SCALE

PITTSBURGH WATER & SEWER AUTHORITY

- APPROVAL FOR:
- ____ NEW WATER TAP, BACKFLOW PREVENTER AND METER INSTALLATION
 - ____ NEW SANITARY AND/OR STORM SEWER TAP
 - ____ INCREASE IN FLOW AT EXISTING SEWER AND/OR WATER CONNECTION
 - ____ SEWER TAP TERMINATION
 - ____ WATER TAP TERMINATION
- P.W.S.A. Drawing Number: C-_____

* DISCLAIMER:
Signatures / Approvals by PWSA are for the physical connections to the water and/or sewer system only.

Responsibility for the design and work depicted by the drawings, including the flow design for the facilities, is by the Professional Engineer shown by the seal and signature affixed to the drawing. The PWSA does not represent or warrant that the water supply to the facilities is sufficient to support the design.

Project Coordinator/Project Management Engineer/Reviewer
DATE

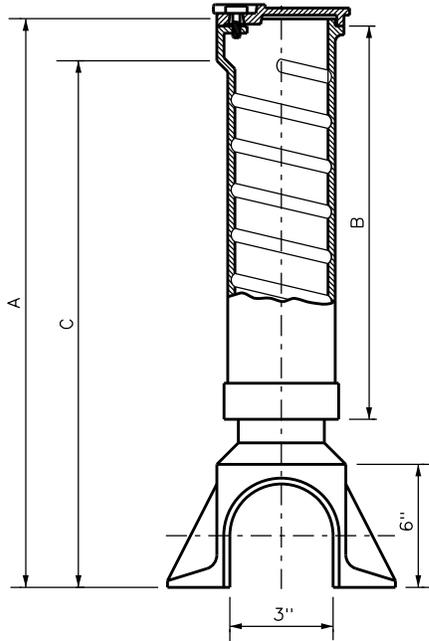
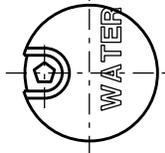
APPROVAL DATE

Director of Water Operations/Sewer Operations

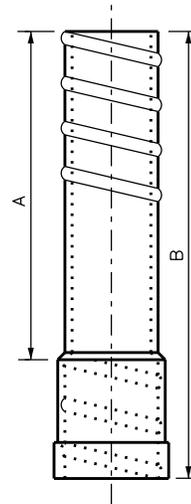
Deputy Director of Engineering and Construction

Director of Engineering and Construction

APPLICANT NAME
BUILDING NAME /DEVELOPMENT NAME SERVICE ADDRESS
DATE ACC. NO.



TOP SECTION, BOTTOM SECTION AND COVER



SERVICE BOX EXTENSION

SIZE NO.	INCREASES LENGTH-A	OVERALL LENGTH-B	WEIGHT
155	20	22.75	13.1
156	24	26.75	17.7

SIZE NO.	EXTENSION RANGE - A	TOP SECTION & COVER			BOTTOM SECTION			TOTAL WEIGHT
		NO.	WEIGHT	DIM. B	NO.	WEIGHT	DIM. C	
2	24" - 39"	9	19.6	18	2	14.1	23.0	32.7

NOTES:

1. SERVICE BOX SHALL BE BINGHAM & TAYLOR BUFFALO STYLE (3" OLD STYLE), No. 4930 OR APPROVED EQUAL.
2. DIMENSIONS IN INCHES; WEIGHT IN POUNDS.
3. LABELED "WATER" ON THE COVER.

2/24/2014

R E V I S I O N S	
1. MAC	3-12-04
2. MAC	8-15-07
3. MAC	12-28-07
4. LRC	1-31-14

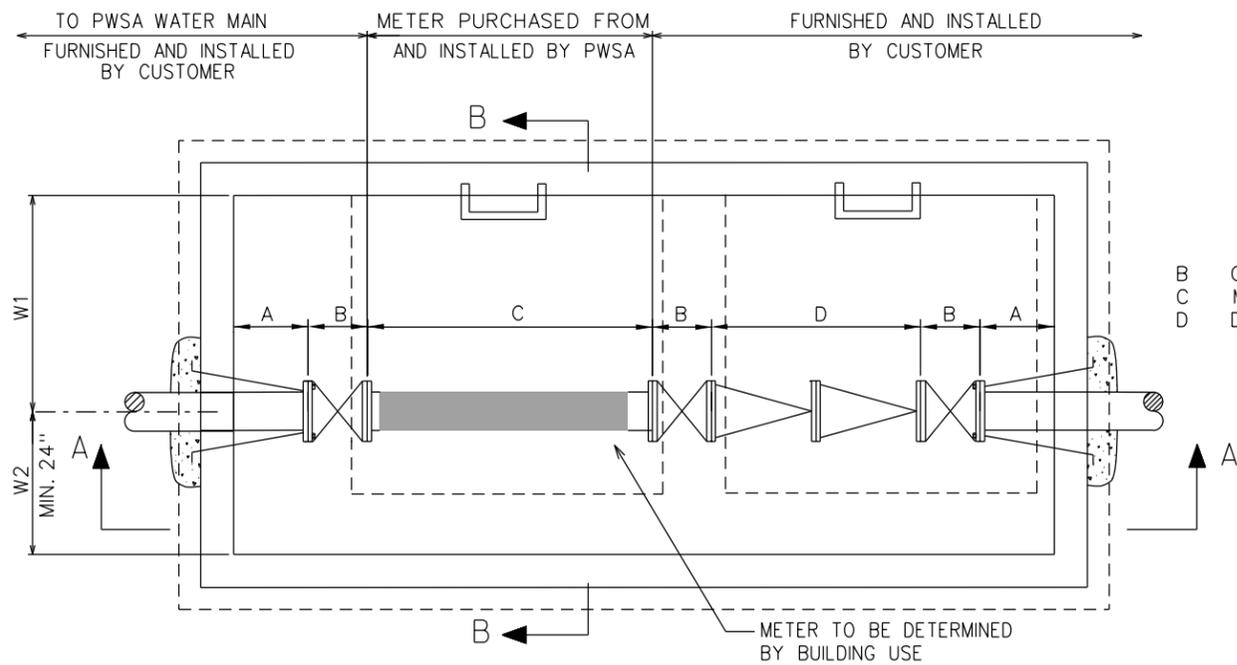
Approved by:

Engineering & Construction Division

Pittsburgh Water and Sewer Authority

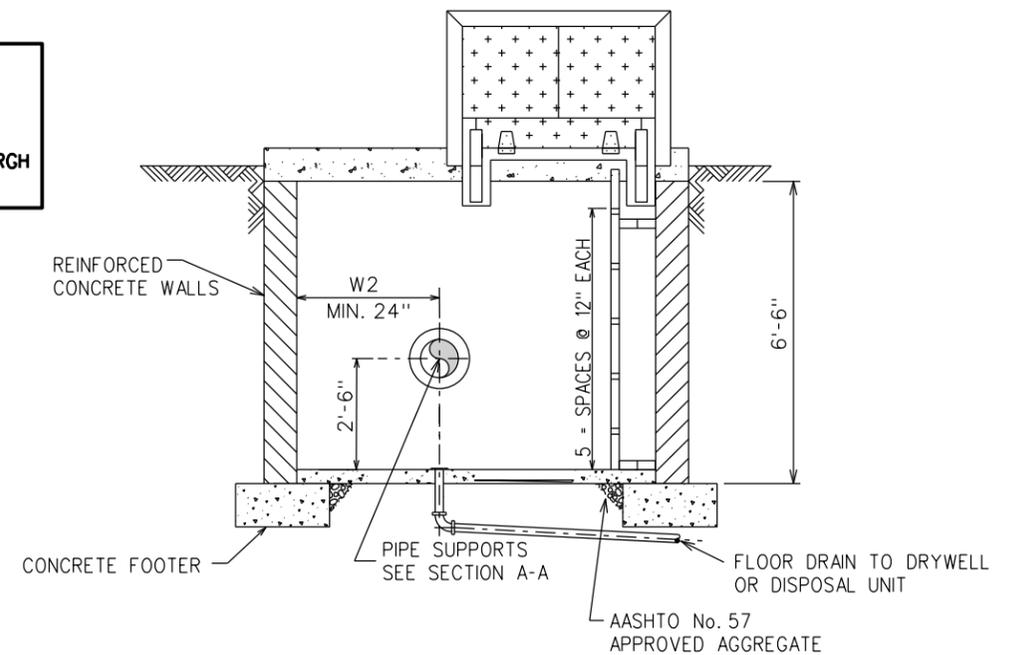
3" Curb Service Box

Scale: N.T.S.	Supplemental Detail Drawing: WCB-1
M:\pwsa\gis\det\Standards\stdwcb1.det	



NOTE: METERS ARE THE PROPERTY OF THE PITTSBURGH WATER AND SEWER AUTHORITY AND CANNOT BE REPLACED, REMOVED, RELOCATED, OR REPAIRED BY ANY PARTY OTHER THAN THE PITTSBURGH WATER AND SEWER AUTHORITY.

B Gate Valve
 C Meter
 D Double Check Backflow Prevention Assembly

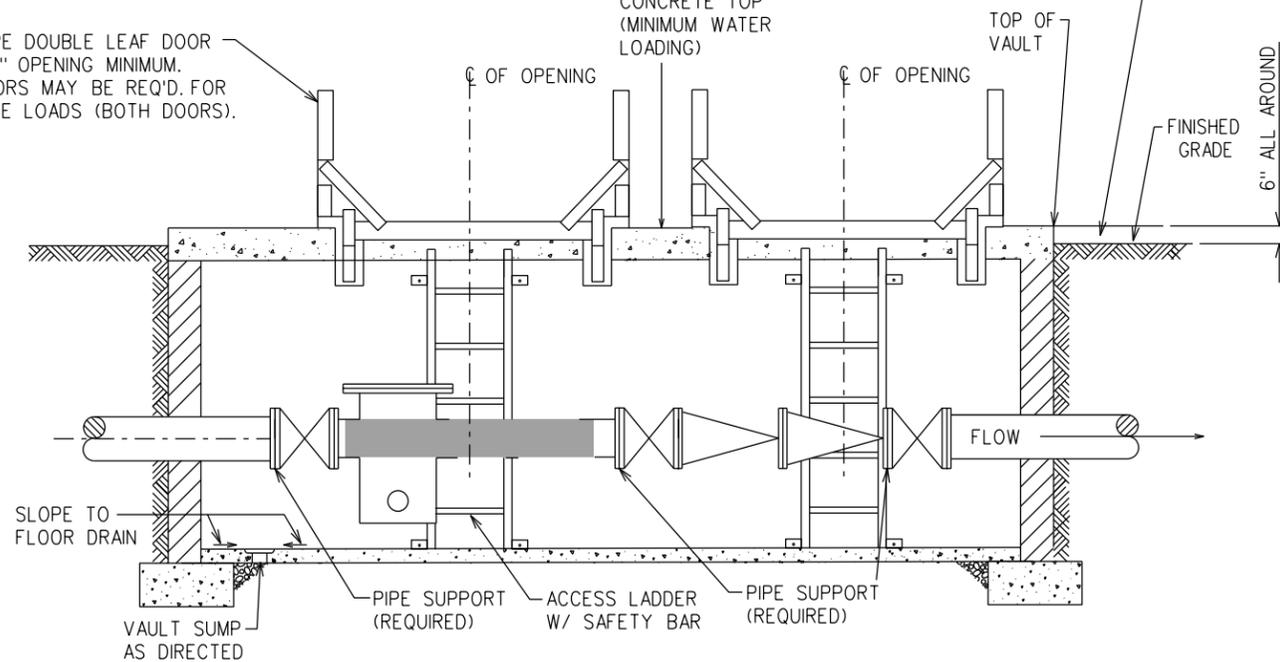


SECTION B-B

PLAN

WHEN VAULT IS BUILT ON PRIVATE PROPERTY, IT SHOULD BE RAISED 6" MINIMUM. IF VAULT IS IN A ROAD OR SIDEWALK, IT SHOULD BE FLUSH TO FINISHED GRADE OF THE CARTWAY OR SIDEWALK.

BILCO TYPE DOUBLE LEAF DOOR 4'-0"X4'-0" OPENING MINIMUM. STEEL DOORS MAY BE REQ'D. FOR WATER LIVE LOADS (BOTH DOORS).



SECTION A-A

NOTES:

- CUSTOMER TO CONSTRUCT METERING VAULT AS SHOWN TO MINIMUM DIMENSIONS AND GENERAL CONFIGURATION.
- PIPE SUPPORTS, TIE RODS, ANCHORS AND TRUST BRACING AT FITTINGS AND VALVES SHALL BE PROVIDED SUFFICIENT TO ALLOW PIPING TO STAND WITH REMOVAL OF METERS. FRICTION CLAMPS ARE NOT PERMITTED FOR RESTRAINT OF PIPING SYSTEMS.
- DOUBLE CHECK BACKFLOW PREVENTION DEVICE IS REQUIRED AS SHOWN AND/OR ADDITIONAL BACKFLOW PREVENTION DEVICE OF REDUCED PRESSURE (RPZ TYPE). THE RPZ TYPE DEVICE MUST BE INSTALLED ON THE SERVICE LINE INSIDE AT THE POINT WHERE IT ENTERS THE BUILDING. PRINCIPLE DESIGN MAY BE REQUIRED. (TYPE AND MANUFACTURER OF BACKFLOW DEVICE MAY AFFECT DIMENSIONS.) ASSEMBLY PER ASSE STANDARD No. 1015. MANDATORY TEST REQUIRED PRIOR TO INSTALLATION PER IPC 312.9.2.
- 2" VALVES AND UNDER ARE I.P.S.; 4" VALVES AND OVER ARE FLANGED - 125 P.S.I. CLASS FLANGE WITH 125 P.S.I. DRILLING.
- IT WILL BE NECESSARY FOR THE CUSTOMER TO INSTALL PROPER DRAINAGE OR PROVIDE OTHER MECHANICAL MEANS TO KEEP THE VAULT DEWATERED.
- WATER SERVICE WILL NOT BE PROVIDED UNTIL THE VAULT IS COMPLETED AS DETAILED. THE PITTSBURGH WATER AND SEWER AUTHORITY TO REVIEW FINAL LOCATION AND CONDITION OF VAULT BY CUSTOMER FOR DIMENSIONS AND OVERALL CONFIGURATION.
- GATE VALVES MUST BE SAME SIZE AS METERS.
- ALL VALVES AND BACKFLOW PREVENTION DEVICES ARE TO BE MAINTAINED BY CUSTOMERS.
- BILCO TYPE DOOR TO BE CENTERED OVER METER ASSEMBLY AND APPROVED ACCESS LADDER.
- METER ASSEMBLY WILL NOT BE INSTALLED UNTIL ALL PIPING IS COMPLETED IN THE VAULT. IT IS RECOMMENDED THAT A FILLER PIECE BE INSTALLED TO ASSURE PROPER ALIGNMENT OF FLANGES. METER AND MIU ASSEMBLY TO BE PURCHASED FROM AND INSTALLED BY THE PITTSBURGH WATER AND SEWER AUTHORITY.
- TIE RODS TO BE EMBEDDED IN CONCRETE OR BOLTED TO STEEL PLATES ON EXTERIOR WALLS. THE PITTSBURGH WATER AND SEWER AUTHORITY IS TO INSPECT BEFORE BACKFILLING OF SAID VAULT.

- VAULT DESIGN TO BE APPROVED BY P.A. REGISTERED PROFESSIONAL ENGINEER; MINIMUM LOAD DESIGN AASHTO H20 LOADING, OR EXPECTED LOADING, WHICHEVER IS MORE SEVERE. DESIGN MUST PROVIDE FOR ALL EXPECTED FIELD CONDITIONS, INCLUDING A SAFE WORKING ENVIRONMENT FOR MAINTENANCE PERSONNEL PER OSHA STANDARDS.
- PRECAST VAULTS INCLUDING HARDWARE ARE AVAILABLE AND CUSTOMERS SHOULD VERIFY DESIGN BY THEIR ENGINEER. ACTUAL VAULT LENGTH WILL VARY BY METER SIZE REQUIRED.
- VAULT AND METER INSTALLATION IS THE PITTSBURGH WATER AND SEWER AUTHORITY STANDARD FOR OPTIMUM PERFORMANCE AND DESIGNED FOR INSTALLATION AND SERVICING. ALTERNATE DESIGNS MAY BE REQUIRED TO SUIT PREVAILING CONDITIONS.
- THE PITTSBURGH WATER AND SEWER AUTHORITY MAY REQUIRE TELEPHONE AND/OR POWER (120 VAC, 15 AMP) IN THE VAULT FOR 'AMR' INSTALLATION OR SUMP PUMP FOR DRAINAGE.
- IF BOX IS PROVIDED WITH ELECTRICAL SUPPLY, PLEASE SUPPLY OUTSIDE DISCONNECT AND MAKE PROVISIONS FOR SUMP PUMP (FUTURE).

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 1-13-06
3.	LRC 1-31-14

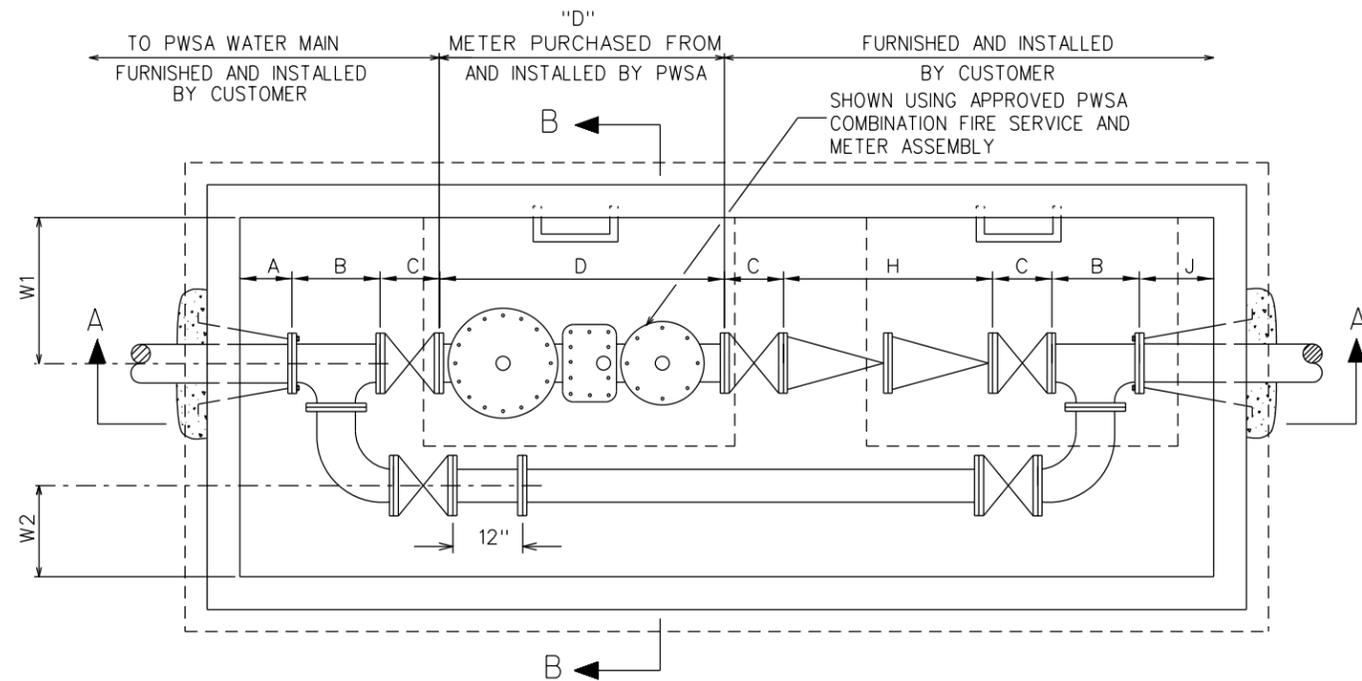


Pittsburgh Water and Sewer Authority
Standard Vault For Meter Set
2" Compound And Larger

Approved by: _____
 Engineering & Construction Division

Scale: N.T.S.
 Supplemental Detail Drawing: **WMV**

SAMPLE ONLY

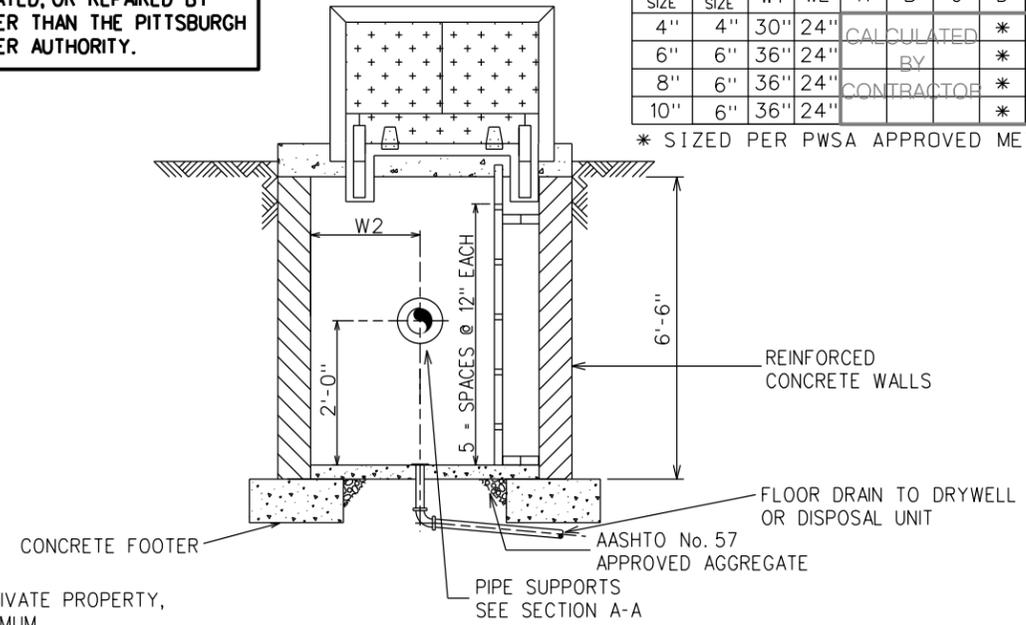


PLAN
SCALE = N.T.S

NOTE: METERS ARE THE PROPERTY OF THE PITTSBURGH WATER AND SEWER AUTHORITY AND CANNOT BE REPLACED, REMOVED, RELOCATED, OR REPAIRED BY ANY PARTY OTHER THAN THE PITTSBURGH WATER AND SEWER AUTHORITY.

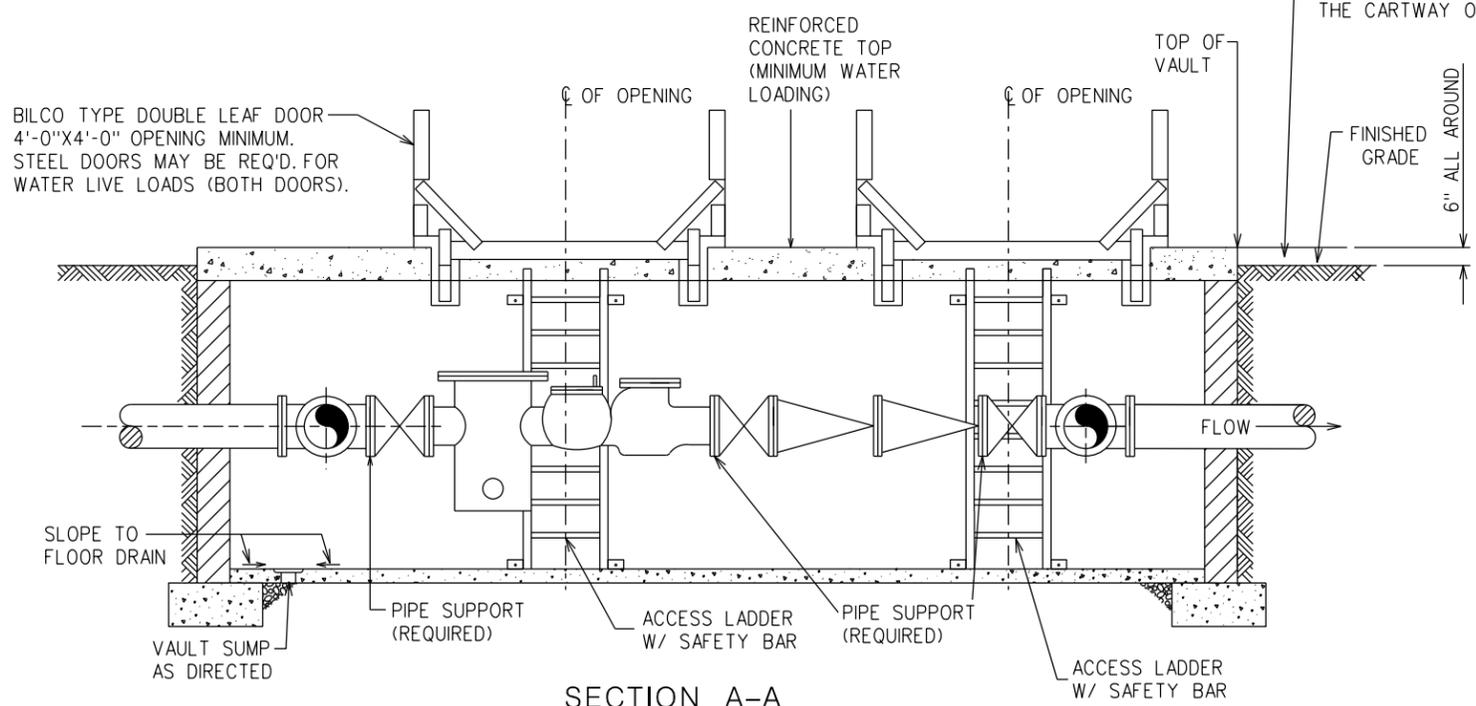
APPROVED METER LAYING LENGTHS										
METER SIZE	BYPASS SIZE	W1	W2	A	B	C	D	H	J	TOTAL
4"	4"	30"	24"	CALCULATED	*		CALCULATED			CALCULATED
6"	6"	36"	24"	BY			*			BY
8"	6"	36"	24"	CONTRACTOR			*			CONTRACTOR
10"	6"	36"	24"				*			

* SIZED PER PWSA APPROVED METER VENDOR



SECTION B-B

WHEN VAULT IS BUILT ON PRIVATE PROPERTY, IT SHOULD BE RAISED 6" MINIMUM. IF VAULT IS IN A ROAD OR SIDEWALK, IT SHOULD BE FLUSH TO FINISHED GRADE OF THE CARTWAY OR SIDEWALK.



SECTION A-A

NOTES:

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- IT WILL BE NECESSARY FOR THE CUSTOMER TO INSTALL PROPER DRAINAGE OR PROVIDE OTHER MECHANICAL MEANS TO KEEP THE VAULT DEWATERED.
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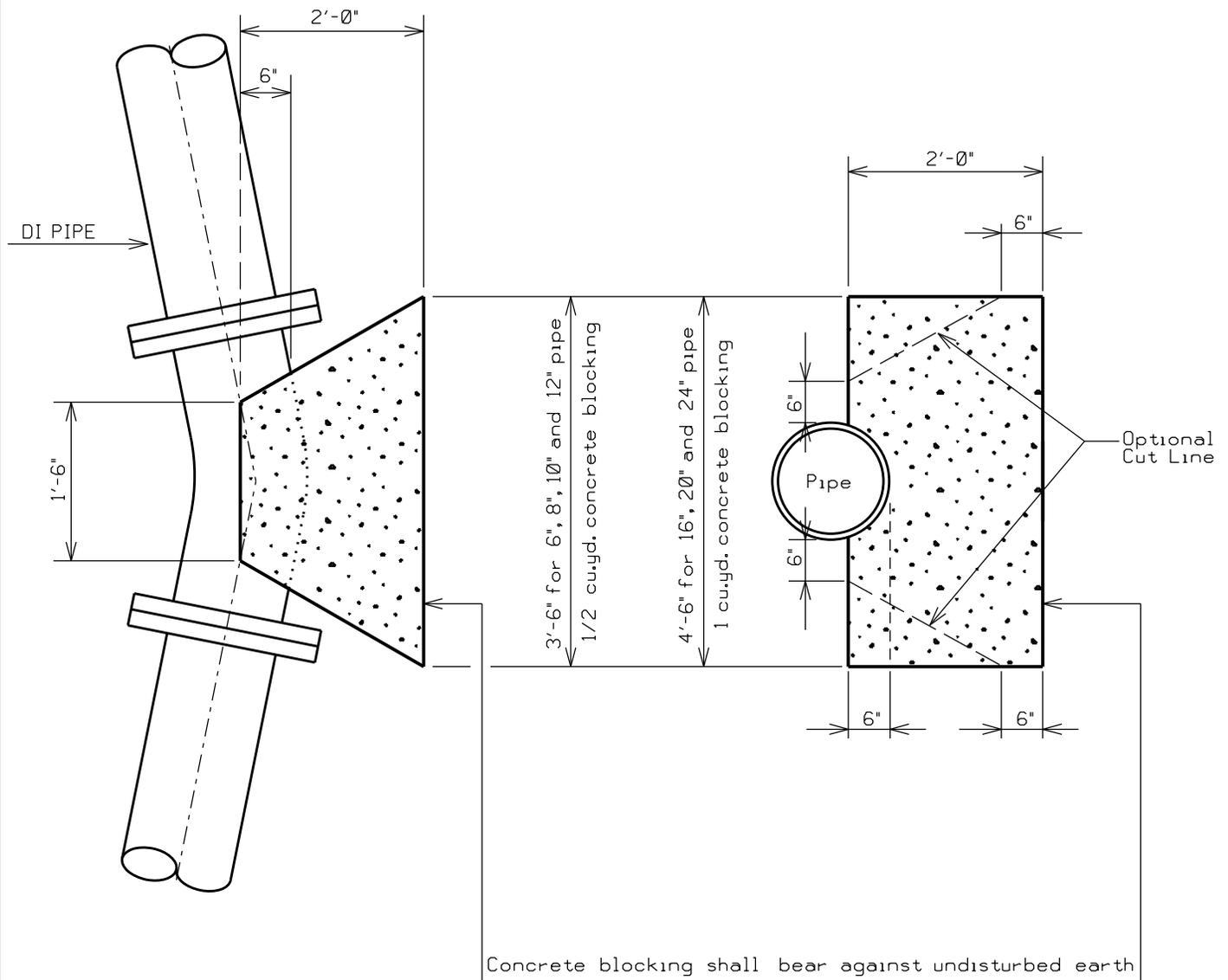
- VAULT DESIGN TO BE APPROVED BY P.A. REGISTERED PROFESSIONAL ENGINEER; MINIMUM LOAD DESIGN AASHTO H20 LOADING, OR EXPECTED LOADING, WHICHEVER IS MORE SEVERE. DESIGN MUST PROVIDE FOR ALL EXPECTED FIELD CONDITIONS, INCLUDING A SAFE WORKING ENVIRONMENT FOR MAINTENANCE PERSONNEL PER OSHA STANDARDS.
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- IF BOX IS PROVIDED WITH ELECTRICAL SUPPLY, PLEASE SUPPLY OUTSIDE DISCONNECT AND MAKE PROVISIONS FOR SUMP PUMP (FUTURE).

R E V I S I O N S	
1.	MSR 4-23-01
2.	DWP 9-15-05
3.	LRC 1-31-14

PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service

Pittsburgh Water and Sewer Authority
Meter Vault With Bypass
Scale: N.T.S.
Supplemental Detail Drawing: **WMVB**

2/24/2014



NOTES:

1. Concrete thrust blocking shall be provided at all tees, bends, caps, and plugs.
In addition, all pipe bends shall be harnessed with mechanical joint retainer glands, using either set screw or lug type retaining system, as directed.
2. Concrete thrust blocks shall be minimum 4000 PSI cement concrete.
3. See detail WS-VB and WS-VBL for vertical bends requirements.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

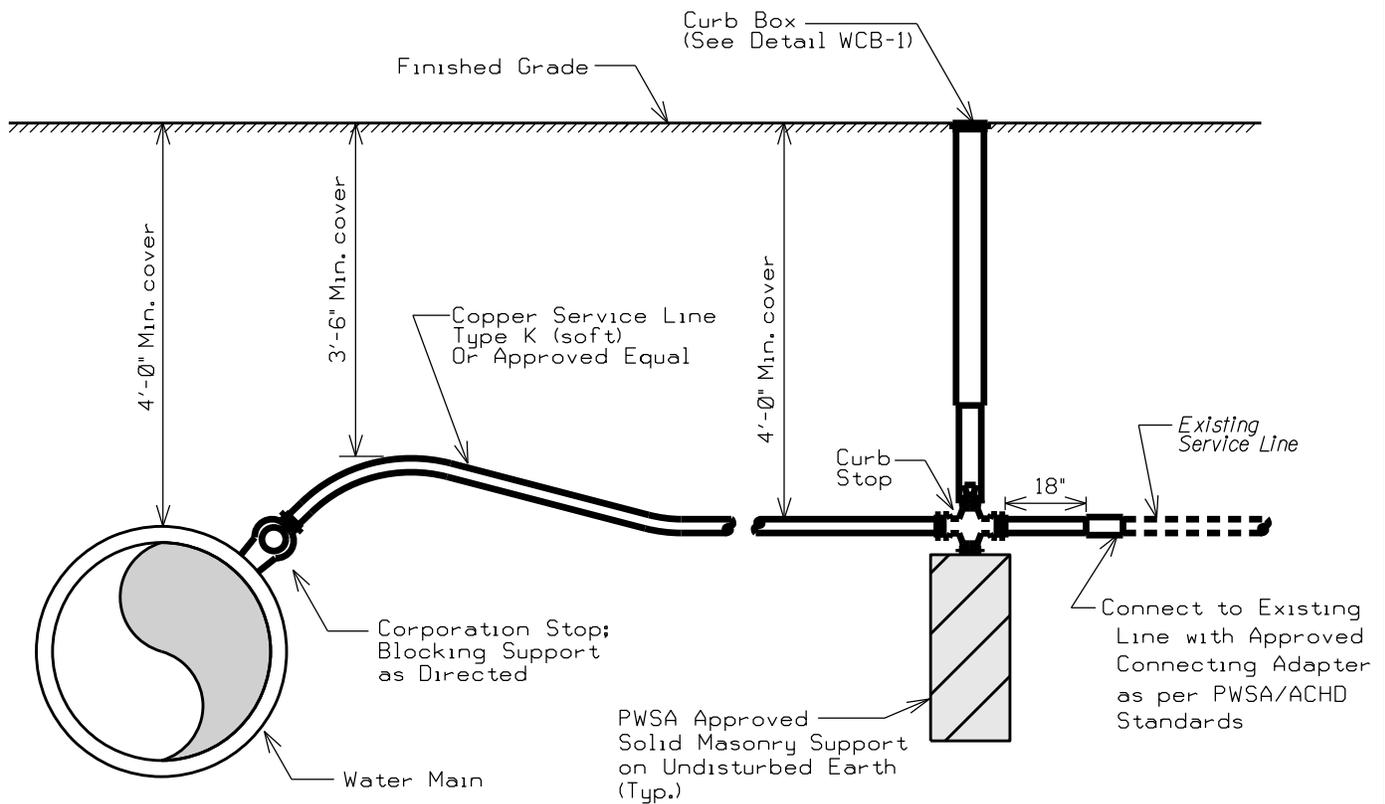
Pittsburgh Water and Sewer Authority
Concrete Blocking For Pressure Pipe

Scale: N.T.S.

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Supplemental
 Detail Drawing:

WS-3



Note:

For PEX Pipe Installation, Corporation And Curb Stops Shall Be Compression Type Fitting And Shall Have Tracer Wire Installed Per Manufacturer's Specifications.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 9-1-05	
3. MAC 8-13-07	
4. MAC 1-2-08	

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

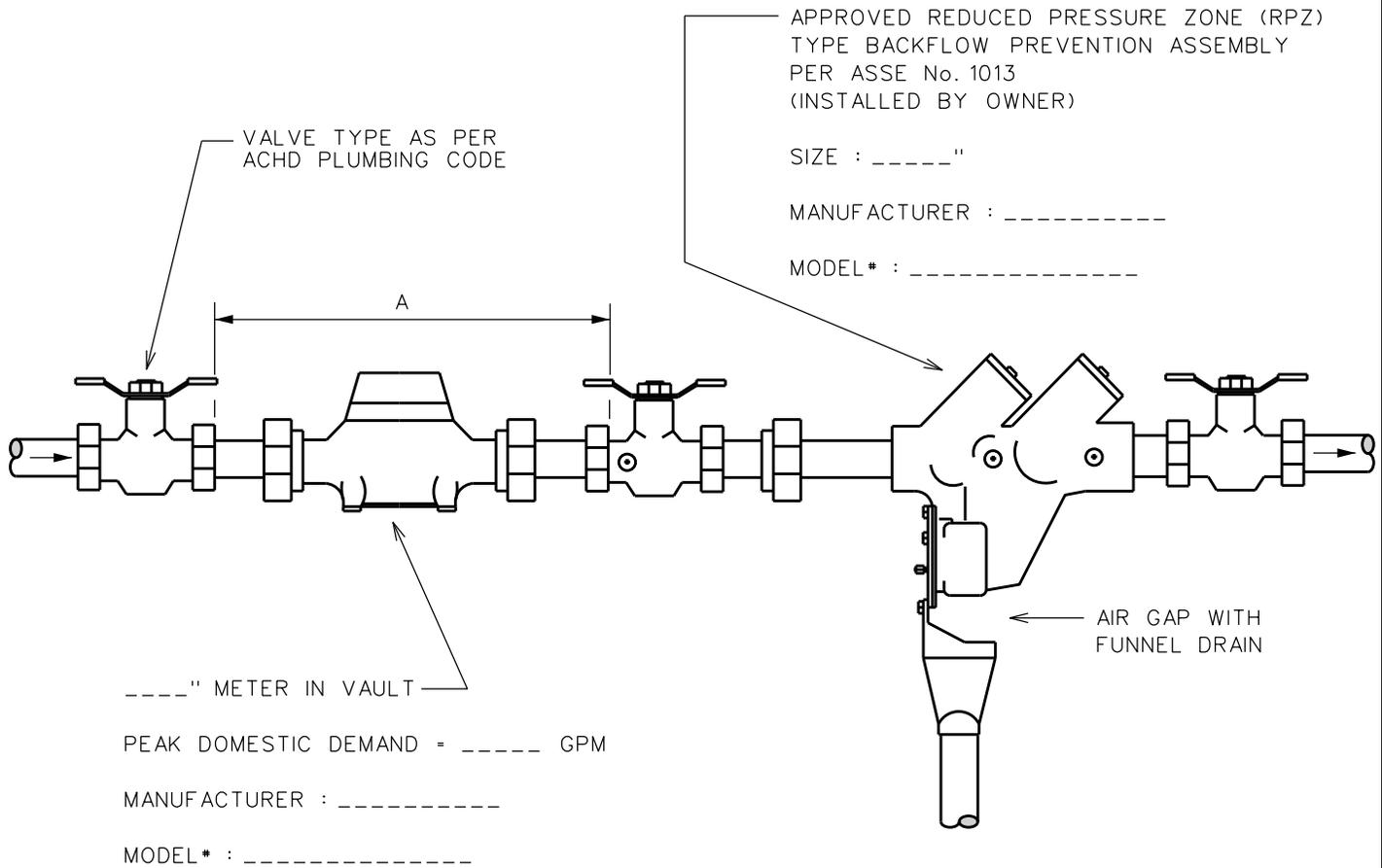
Pittsburgh Water and Sewer Authority
**Water Service Line
 Reconnection To Existing Service**

Scale: N.T.S.

M:\pwsa\gis\det\Standards\stdws5.det

Supplemental
 Detail Drawing:

WS-5



NOTES

1. METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.

2. SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.

3. PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.

4. METER SETTING VALUES:

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

5. THE METER AND MIU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.

6. METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.

7. CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.

8. METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.

9. CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

R E V I S I O N S

1. MSR	4-23-01	5. LRC	1-31-14
2. DWP	9-15-05		
3. MAC	8-13-07		
4. MAC	4-14-09		



Engineering & Construction Division

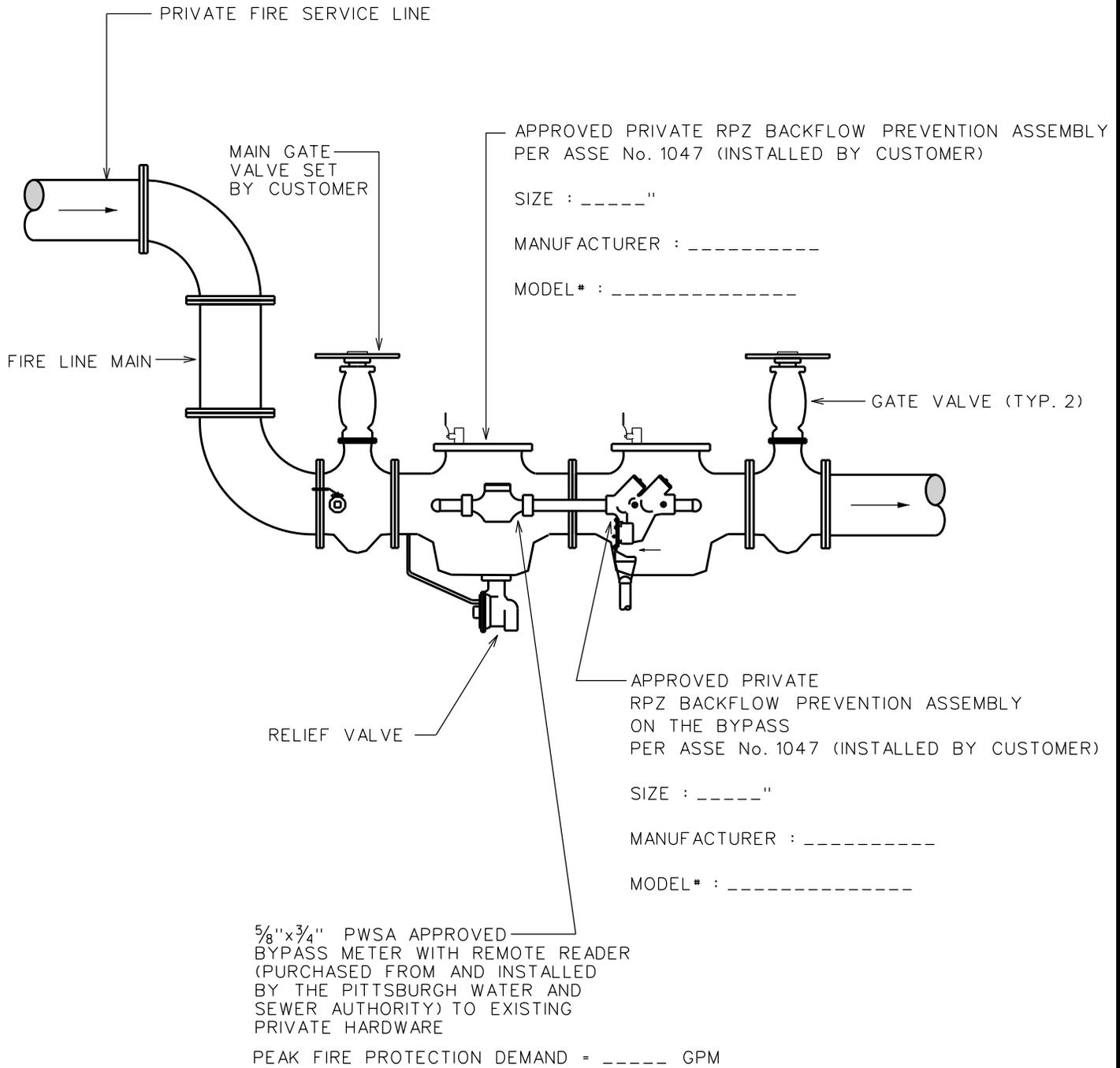
Pittsburgh Water and Sewer Authority
Domestic Service Internal Meter Setting
Commercial And Multi-Family

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdws5cdi.det

Supplemental Detail Drawing: **WS-5CDI**

2/24/2014

Approved by:



NOTES:

1. ALL ITEMS SHOWN EXCEPT THE BYPASS METER AND MIU SHALL BE FURNISHED AND INSTALLED BY THE CUSTOMER.
2. CUSTOMER TO PROVIDE DATA FOR CORRECT SIZE, MODEL, MANUFACTURER, AND PEAK FIRE DEMAND.
3. INSTALLATION OF ASSEMBLY IS PERMITTED IN VAULT, AS DIRECTED.
4. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2. FIELD TESTING REQUIREMENTS AND REPORTING SHALL BE PER ASSE No. 5013 2.0 AND 3.0.

5/8" x 3/4" PWSA APPROVED BYPASS METER WITH REMOTE READER (PURCHASED FROM AND INSTALLED BY THE PITTSBURGH WATER AND SEWER AUTHORITY) TO EXISTING PRIVATE HARDWARE
 PEAK FIRE PROTECTION DEMAND = _____ GPM

2/25/2014

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. DWP 9-15-05	
3. MAC 8-13-07	
4. BDB 1-9-12	

Approved by:

Engineering & Construction Division

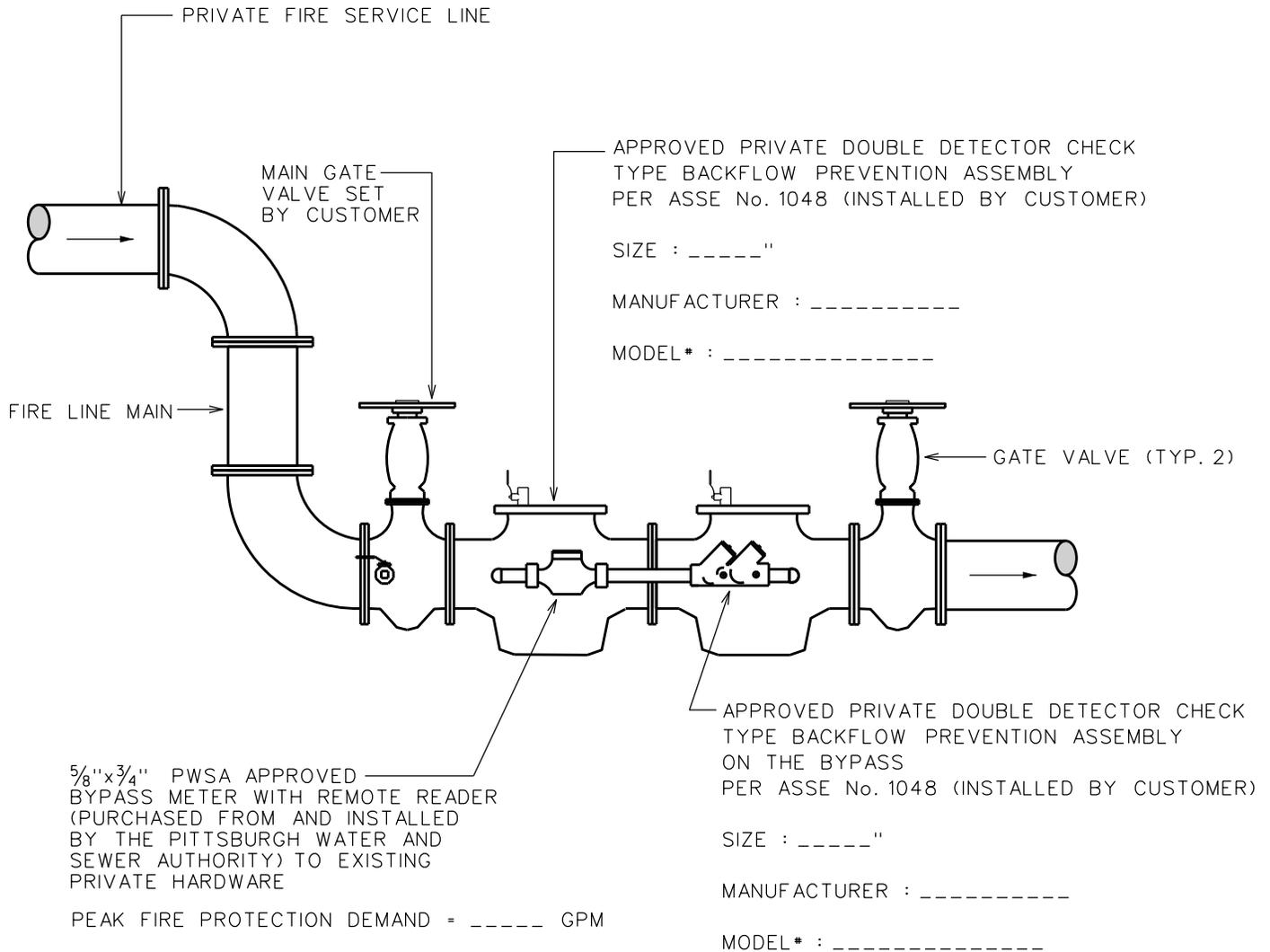
Pittsburgh Water and Sewer Authority

Typical Plumbing Schematic
High Hazard Fire Protection Service

Scale: N.T.S.

Supplemental Detail Drawing: **WS-5FPHH**

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NOTES:

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2. CUSTOMER TO PROVIDE DATA FOR CORRECT SIZE, MODEL, MANUFACTURER, AND PEAK FIRE DEMAND.
3. INSTALLATION OF ASSEMBLY IS PERMITTED IN VAULT, AS DIRECTED.
4. MANDATORY TEST REQUIRED AT TIME OF INSTALLATION PER IPC 312.9.2. FIELD TESTING REQUIREMENTS AND REPORTING SHALL BE PER ASSE No. 5013 2.0 AND 3.0.

R E V I S I O N S	
1.	MSR 4-23-01
2.	DWP 9-15-05
3.	MAC 8-13-07
4.	LRC 1-31-14

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water & Sewer Authority
 Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority

Typical Plumbing Schematic

Low Hazard Fire Protection Service

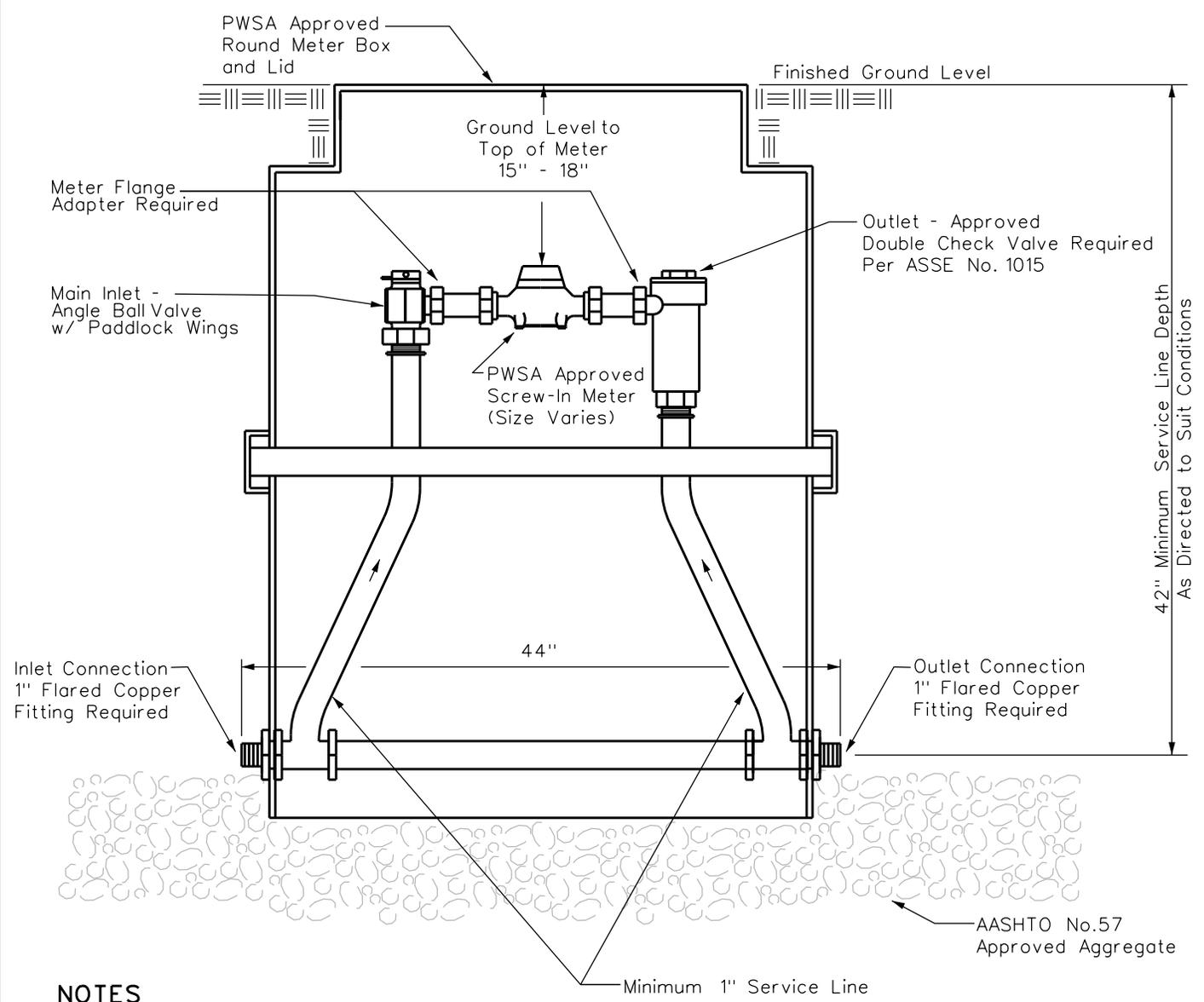
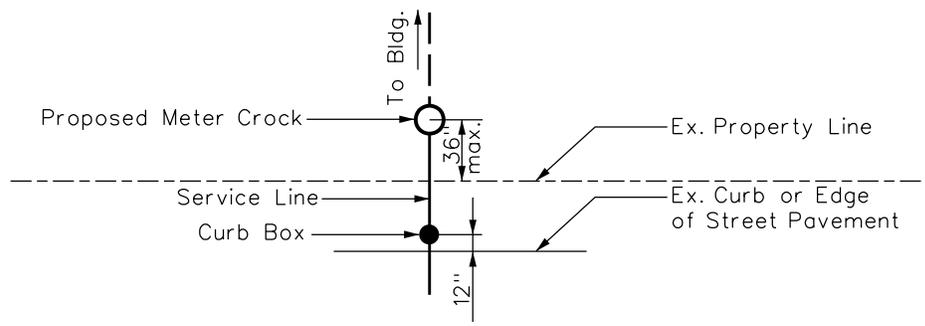
Scale: N.T.S.

Supplemental Detail Drawing: **WS-5FPLH**

M:\pwsa\gis\det\Standards\stdws5fplh.det

2/25/2014

Approved by:



NOTES

1. METER SETTING ASSEMBLY MUST BE FORD, OR EQUAL, COPPERSETTER WITH DOUBLE CHECK VALVE OR APPROVED EQUAL PER ASSE No. 1015, COMPLETE WITH MIU.
2. METER BOX SETTING AND PIPE ASSEMBLY TO BE CONSTRUCTED BY THE PROPERTY OWNER. THE PWSA IS ONLY RESPONSIBLE FOR THE METER AND MIU READING DEVICE. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OTHER ITEMS, INCLUDING PROTECTING THE PWSA METER AND MIU FROM ABUSE AND/OR FREEZING.
3. METER CROCK BASE TO REMAIN OPEN TO BASE MATERIAL, DO NOT SEAL.

2/25/2014

R E V I S I O N S	
1. MSR 4-23-01	
2. DWP 9-15-05	
3. MAC 8-16-07	
4. LRC 1-31-14	
Approved by:	

PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service

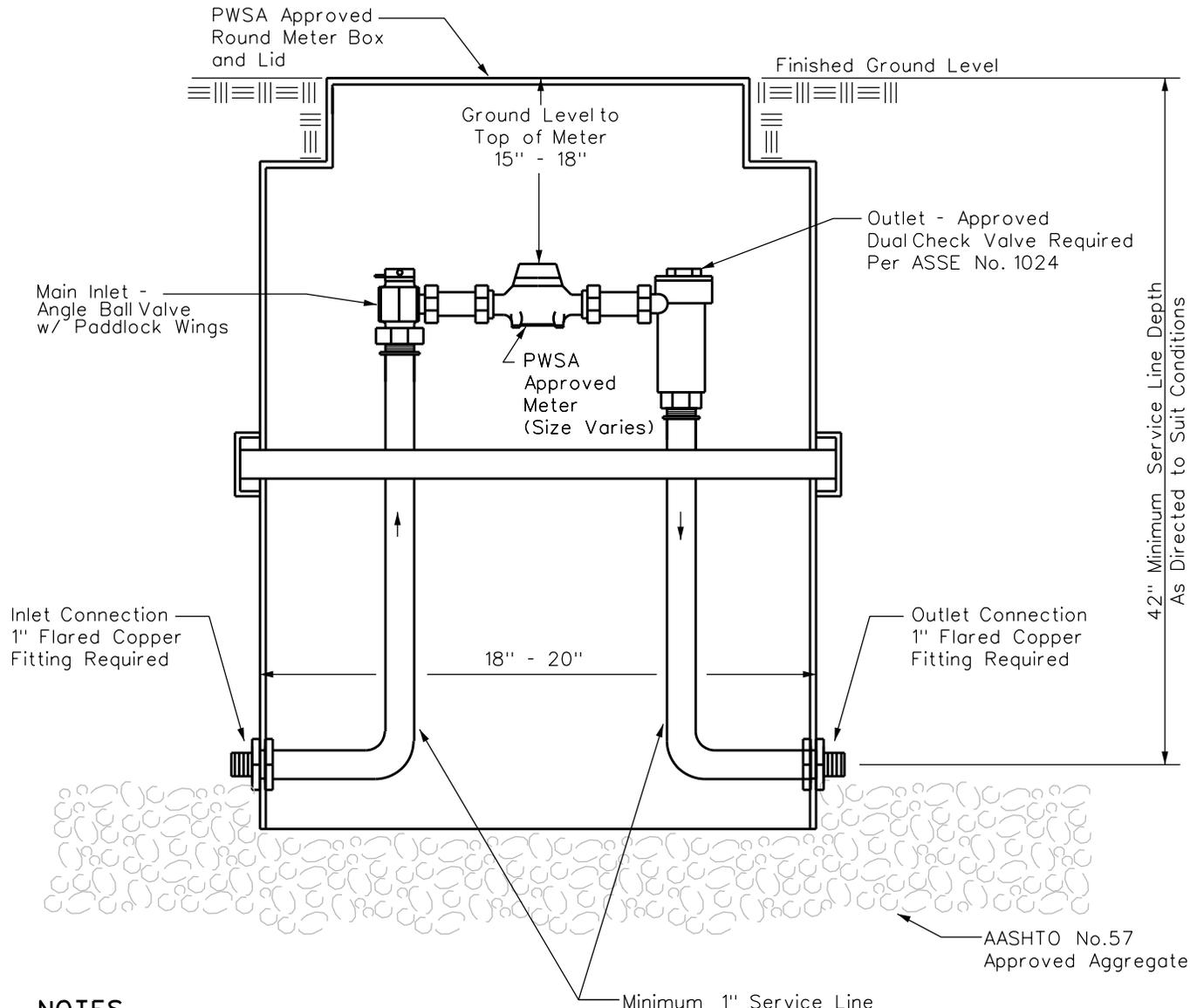
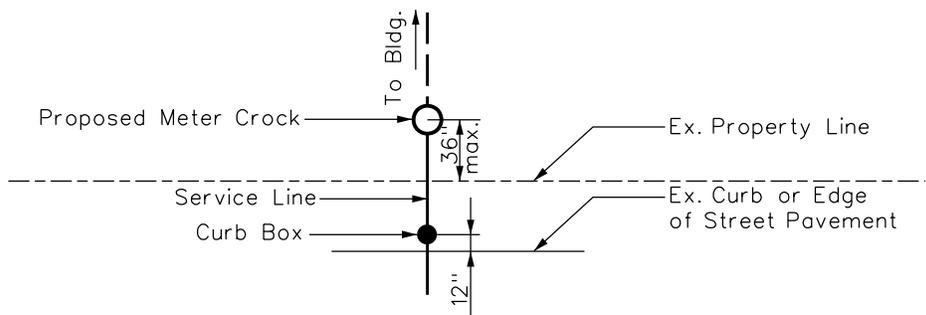
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Commercial Service
External Setting 1-1/2" - 2" Meter

Scale: N.T.S.

Supplemental Detail Drawing: **WS-5MPC**

M:\pwsa\gis\det\Standards\stdws5mpc.det

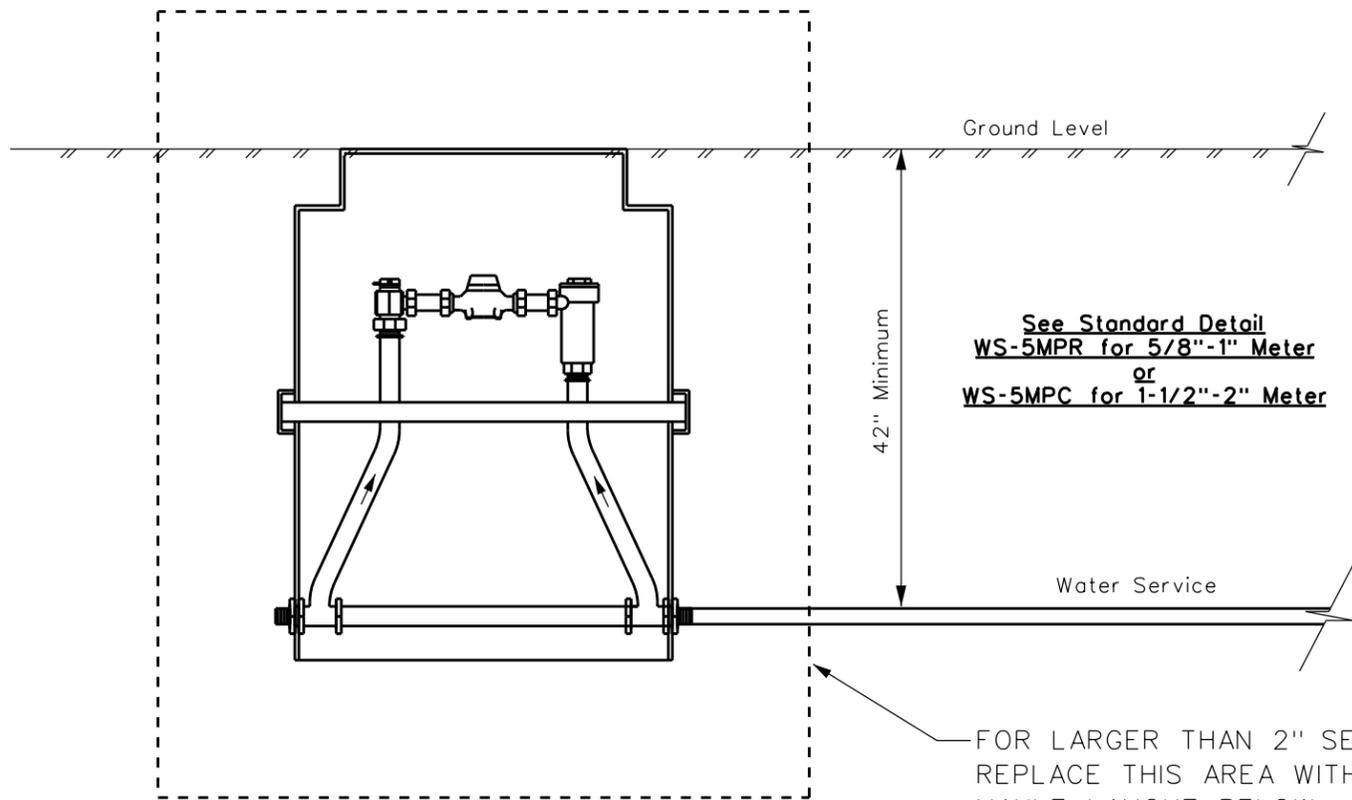


NOTES

1. METER SETTING ASSEMBLY MUST BE FORD, OR EQUAL, COPPERSETTER WITH DUAL CHECK VALVE OR APPROVED EQUAL PER ASSE No. 1024, COMPLETE WITH MIU.
2. METER BOX SETTING AND PIPE ASSEMBLY TO BE CONSTRUCTED BY THE PROPERTY OWNER. THE PWSA IS ONLY RESPONSIBLE FOR THE METER AND MIU READING DEVICE. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OTHER ITEMS, INCLUDING PROTECTING THE PWSA METER AND MIU FROM ABUSE AND/OR FREEZING.
3. METER CROCK BASE TO REMAIN OPEN TO BASE MATERIAL, DO NOT SEAL.

2/25/2014

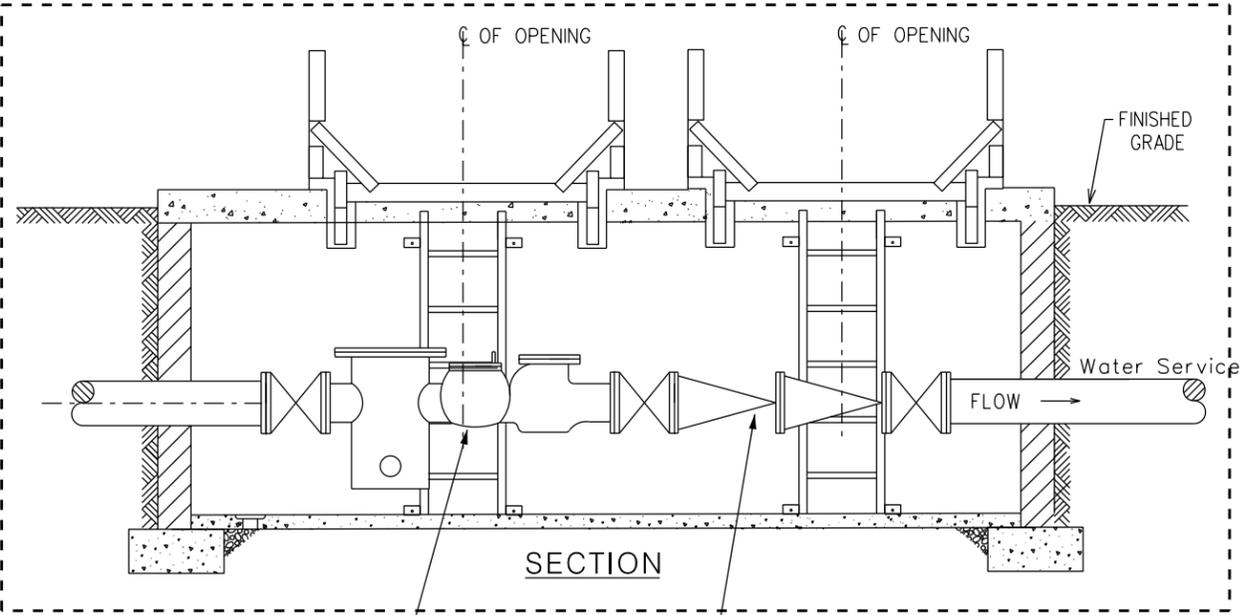
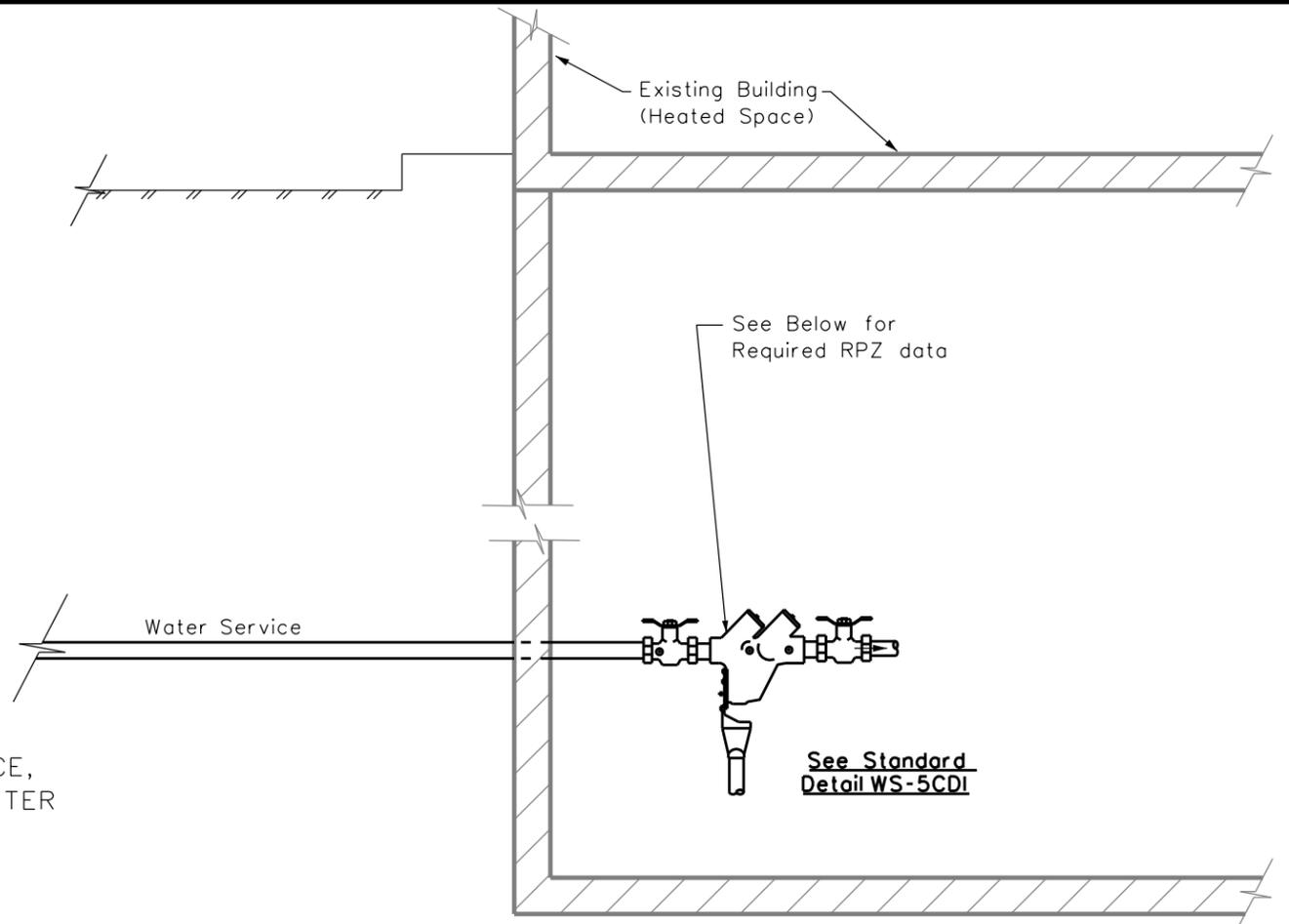
R E V I S I O N S			Pittsburgh Water and Sewer Authority	
1. MSR 4-23-01			Residential Domestic Service External Setting 5/8" - 1" Meter	
2. DWP 9-15-05			Scale: N.T.S.	
3. MAC 8-16-07			Supplemental Detail Drawing: WS-5MPR	
4. LRC 1-31-14			M:\pwsa\gis\det\Standards\stdws5mpr.det	
Approved by:		Engineering & Construction Division		



METER BOX LAYOUT

See Standard Detail
WS-5MPR for 5/8"-1" Meter
 or
WS-5MPC for 1-1/2"-2" Meter

FOR LARGER THAN 2" SERVICE,
 REPLACE THIS AREA WITH METER
 VAULT LAYOUT BELOW



SECTION

See Standard
 Detail WMV

RPZ DATA

APPROVED REDUCED PRESSURE ZONE (RPZ)
 TYPE BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1013
 (INSTALLED BY OWNER)

SIZE : _____"

MANUFACTURER : _____

MODEL# : _____

NOTES:

1. Meter Box Setting for use on water service meters 2" and under.
2. Meter Vault required on meters larger than 2".
3. Mandatory test required at time of installation per IPC 312.9.2.

METER SET DATA

PEAK DOMESTIC DEMAND = _____ GPM

METER SIZE : _____"

DOUBLE DETECTOR CHECK DATA

APPROVED DOUBLE DETECTOR CHECK
 TYPE BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1048 (INSTALLED BY OWNER)

SIZE : _____"

MANUFACTURER : _____

MODEL# : _____

METER VAULT LAYOUT

R E V I S I O N S		
1.	RDH	8-8-07
2.	MJM	3-30-10
3.	LRC	1-31-14

Approved by: _____

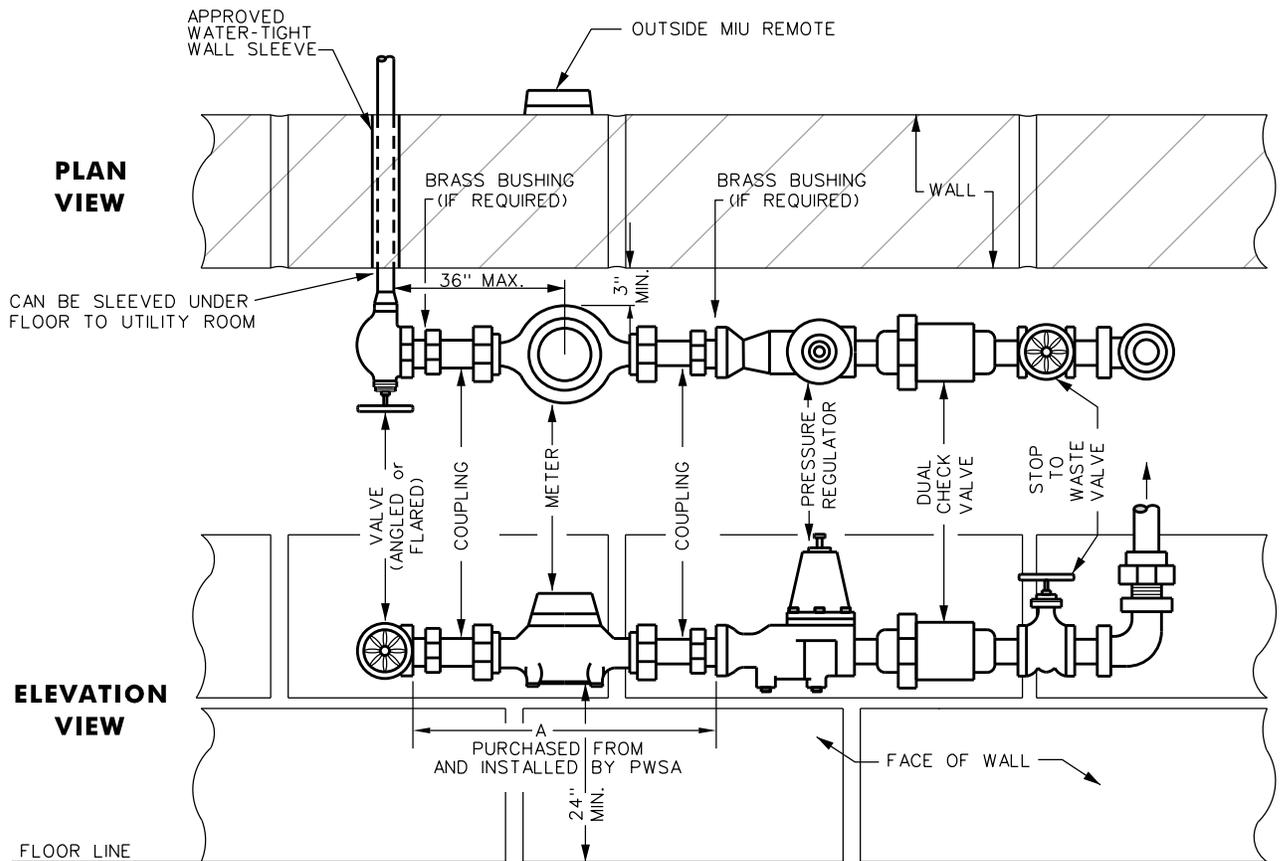


Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Domestic Service External Meter Setting
 Commercial And Multi-Family**

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stds5mprpz.det

Supplemental Detail Drawing: **WS-5MPRPZ**



PEAK DOMESTIC DEMAND = ----- GPM

NOTES

1. METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.

2. SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.

3. PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.

4. METER SETTING VALUES:

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

5. THE METER AND MIU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.

6. METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.

7. CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.

8. METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.

9. CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

10. APPROVED BACKFLOW PREVENTER REQUIRED, PER ASSE No. 1024.

REVISIONS

1.	MSR 4-23-01	
2.	DWP 9-15-05	
3.	MAC 8-13-07	
4.	LRC 1-31-14	

Approved by:



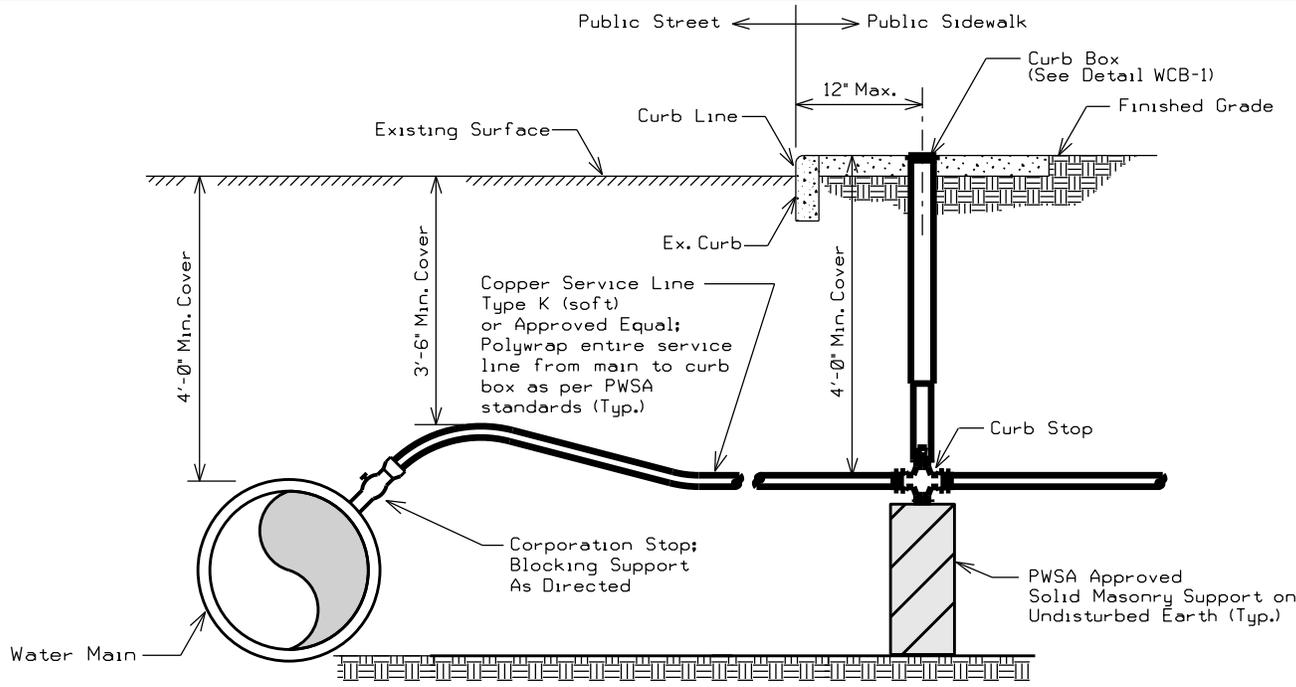
Pittsburgh Water and Sewer Authority Domestic Meter Setting Specifications Indoor Residential 5/8" - 1" Meter

Scale: N.T.S.

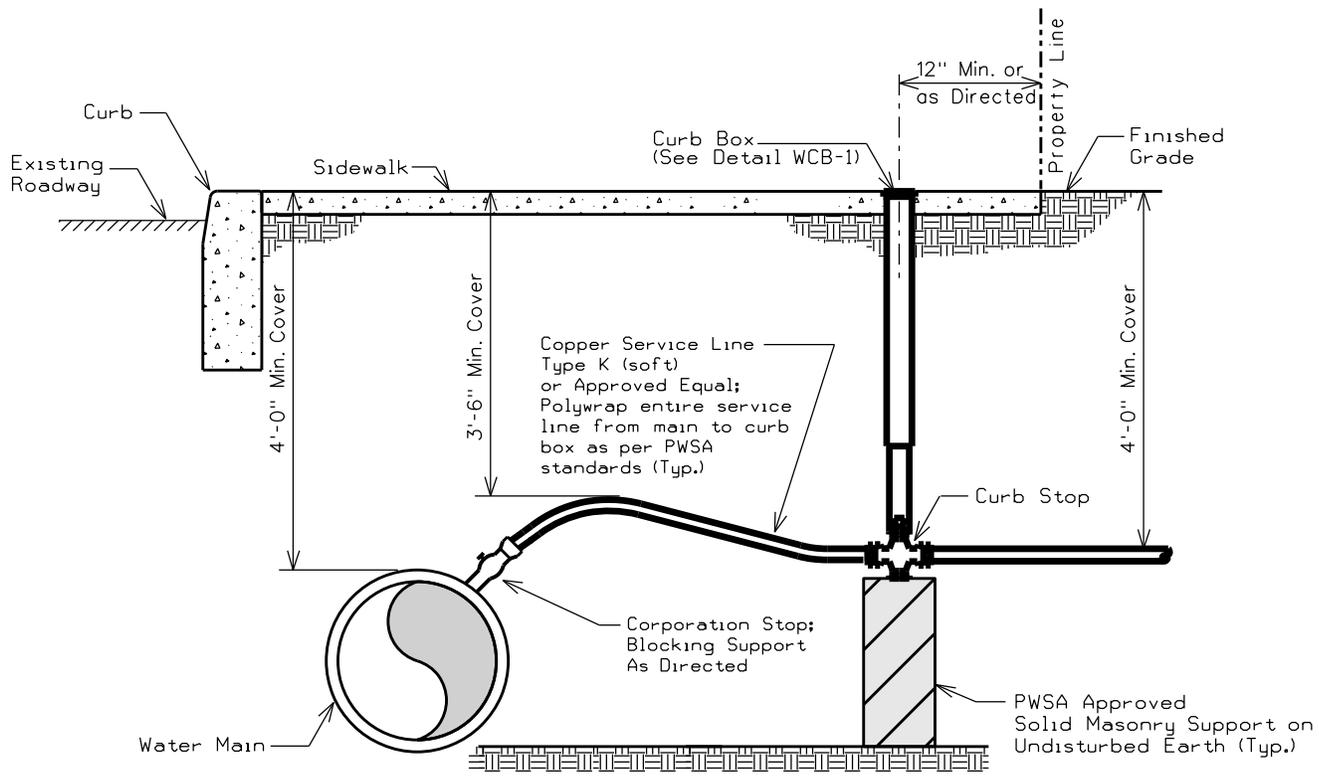
M:\pwsa\gis\det\standards\stdws5ms.det

Supplemental Detail Drawing: **WS-5MS**

2/24/2014



SECTION - 1" AND 1-1/2" INSTALLATION STREET MAIN

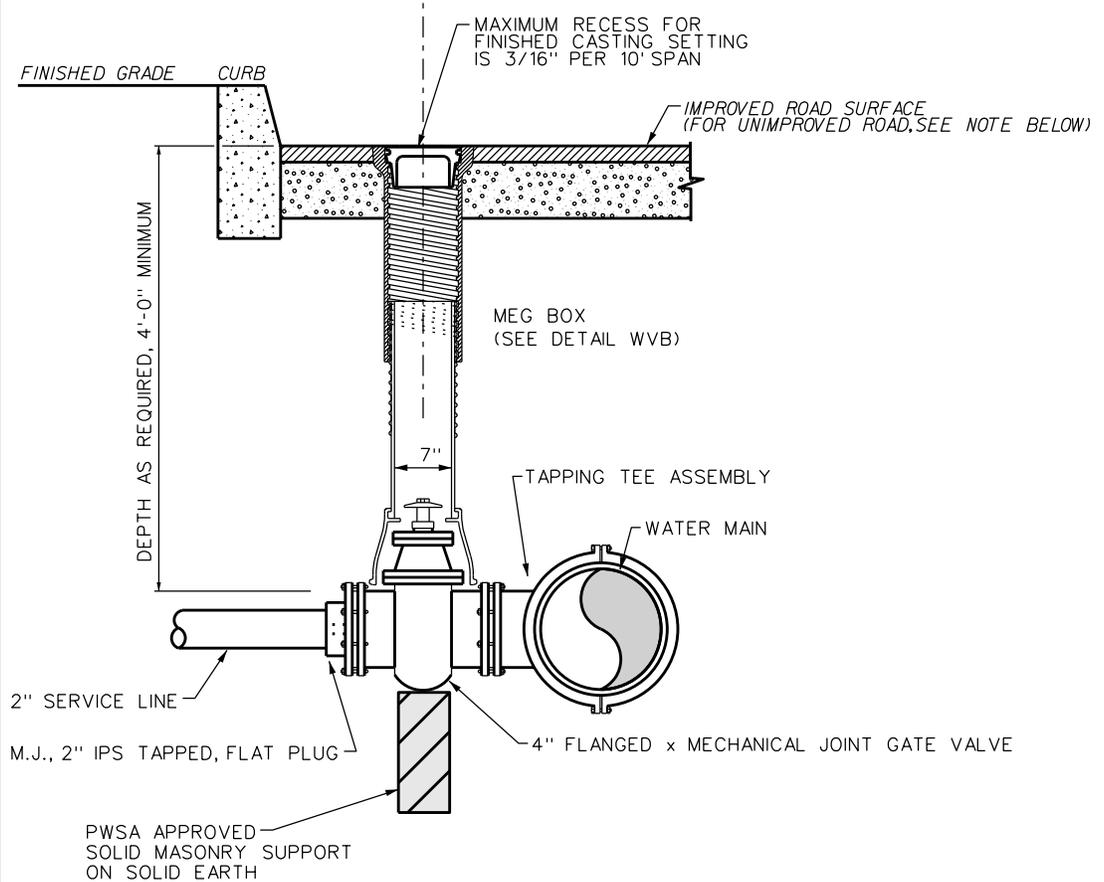


SECTION - 1" AND 1-1/2" INSTALLATION SIDEWALK MAIN

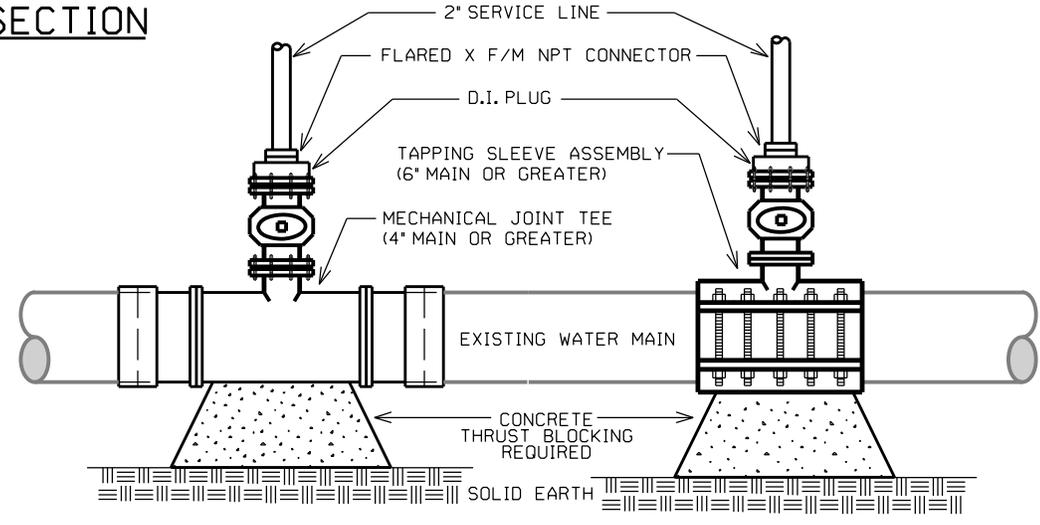
- NOTES:**
1. Only one PWSA meter will be installed per each service tap.
 2. Domestic Service is 1" min. from PWSA Main to Meter.

2/24/2014

R E V I S I O N S			Pittsburgh Water and Sewer Authority Water Service Line 1" And 1-1/2" Domestic / Fire New Installation	
1. MSR	4-23-01		5. LRC	1-31-14
2. MAC	9-1-05			
3. MAC	8-10-07			
4. MAC	1-2-08			
Approved by:		Scale: N.T.S.	Supplemental Detail Drawing: WS-5NT	
Engineering & Construction Division		M:\pwsa\gis\det\Standards\stdws5nt.det		



SECTION



Cut-In Tee OR Tapping Tee

PLAN

NOTES:

1. ALL FITTINGS SHALL HAVE THRUST BLOCKS (SEE DETAIL WS-3).
2. STANDARD GATE BOX LID: TWO NOTCH OPENINGS REQUIRED. DIAMETER TO MATCH BOX.
3. GATE BOX EXTENSION: GATE BOX EXTENSION RINGS ARE NOT TO BE USED IN NEW WORK.
4. MEG BOX MATERIAL SHALL BE CAST IRON.
5. IF MEG BOX IS LOCATED IN AN UNIMPROVED AREA, THEN A 30"X30"X 8"D CONCRETE PAD APRON CENTERED AROUND THE MEG BOX IS REQUIRED.
6. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
7. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.
8. ONLY ONE PWSA METER WILL BE INSTALLED PER EACH SERVICE TAP.
9. MAIN LINE SHUT REQUIRED AND MUST BE COORDINATED AT THE PWSA PERMITS COUNTER.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 9-1-05	
3. MAC 8-10-07	
4. MAC 1-2-08	

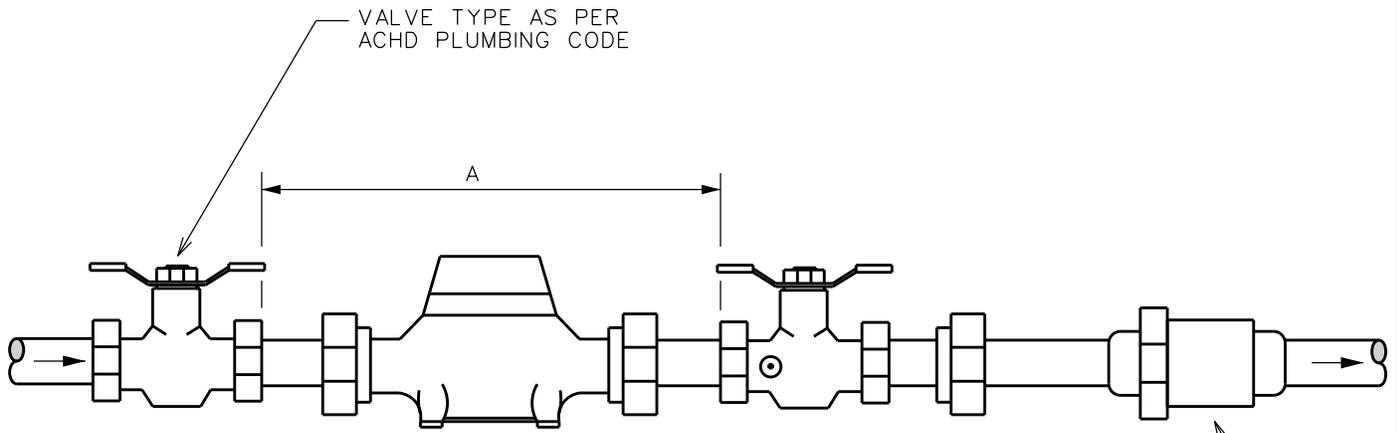
Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Water Service Line
 2" Domestic / Fire
 New Installation**

Scale: N.T.S.
 M:\pwsa\gms\det\Standards\stdws5nt2.det

Supplemental Detail Drawing: **WS-5NT2**



-----" METER IN VAULT

PEAK DOMESTIC DEMAND = ----- GPM

MANUFACTURER : -----

MODEL * : -----

APPROVED DUAL CHECK VALVE
 BACKFLOW PREVENTION ASSEMBLY
 PER ASSE No. 1024
 (INSTALLED BY OWNER)

SIZE : -----"

MANUFACTURER : -----

MODEL * : -----

NOTES

- METER TO BE INSTALLED IN A WARM, NON-FREEZING, ACCESSIBLE AREA WITHIN DWELLING, A MINIMUM OF 2' FROM FLOOR AND A MAXIMUM OF 3' FROM POINT OF ENTRY AND/OR FROM INSIDE WALL.
- SEE ACHD PLUMBING CODE FOR ADDITIONAL PIPING AND PRESSURE REGULATOR REQUIREMENTS.
- PROPER METER ACCESS REQUIRED. METER SETTING CAN NOT BE IN A RESTRICTED AREA (e.g. UNDER STEPS, BEHIND FURNACE OR HOT WATER TANK), OR IN OTHER OBSTRUCTED AREAS IN ANY WAY.
- METER SETTING VALUES:

- THE METER AND MIU SHALL BE PURCHASED FROM AND INSTALLED BY PWSA.
- METER ASSEMBLY SETTINGS MUST BE INSTALLED BY THE CUSTOMER BEFORE THE METER WILL BE SET, INCLUDING METER SIGNAL WIRING.
- CUSTOMER SHALL PROVIDE PROPER DRAIN AT METER SETTING LOCATION.
- METER MUST BE INSTALLED IN A HORIZONTAL POSITION ONLY.
- CUSTOMER TO PROVIDE DATA FOR PROPER PWSA SIZING AND PEAK DOMESTIC DEMAND.

SIZE	COUPLING SPACE A	METER TAIL-PIECE	FLOW (GPM)
5/8"	12.5"	1/2"	20
5/8x3/4"	12.5"	3/4"	20
3/4"	14.25"	3/4"	30
1"	16.5"	1"	50

2/24/2014

R E V I S I O N S			
1.	MSR	4-23-01	5. LRC 1-31-14
2.	DWP	9-15-05	
3.	MAC	8-13-07	
4.	MAC	4-14-09	

Approved by: _____

Engineering & Construction Division

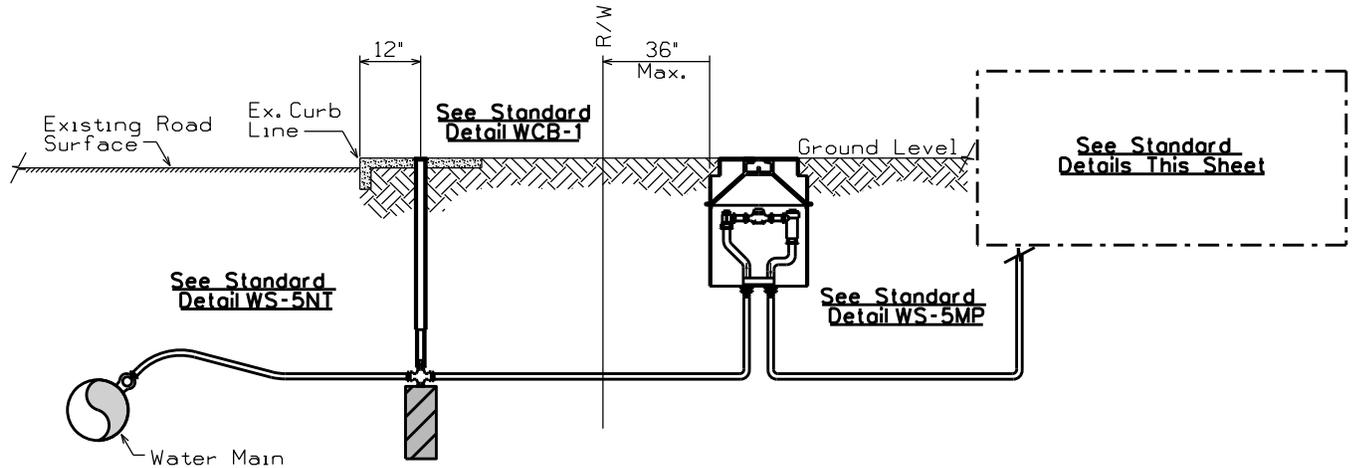
Pittsburgh Water and Sewer Authority

Domestic Service Internal Meter Setting Residential And Low Hazard

Scale: N.T.S.

Supplemental Detail Drawing: **WS-5RDI**

M:\pwsa\gis\det\Standards\stdws5rd1.det

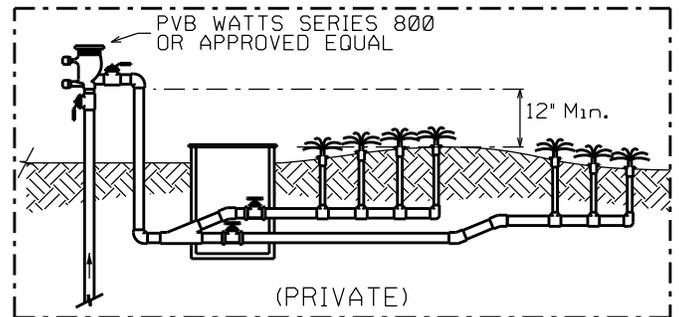
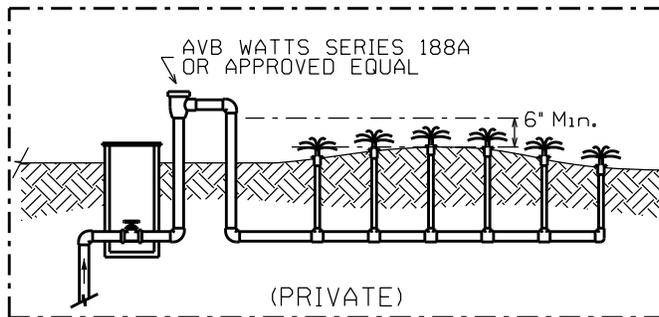


ATMOSPHERIC VACUUM BREAKER (AVB):

1. **ONE AVB REQUIRED FOR EACH IRRIGATION ZONE; NO (ON/OFF VALVES) ALLOWED DOWNSTREAM OF THE AVB.**
2. EACH AVB MUST BE INSTALLED A MINIMUM OF SIX INCHES (6") ABOVE THE HIGHEST POINT OF WATER IN THE ZONE IT PROTECTS.
3. NO CHEMICAL OR FERTILIZER CAN BE INTRODUCED INTO AN IRRIGATION SYSTEM PROTECTED WITH AVB'S.
4. NO PUMPS OR SOURCES FOR BACK PRESSURE ON DOWNSTREAM SIDE OF AN AVB.
5. ANTI-SIPHON, SINGLE ZONE.
6. **CAN ONLY BE PRESSURIZED A MAXIMUM OF A 12 HOUR PERIOD OUT OF 24 HOURS.**

PRESSURE VACUUM BREAKER (PVB):

1. **ONLY ONE PVB REQUIRED TO PROTECT THE WHOLE SYSTEM; (ON/OFF VALVES) CAN BE LOCATED DOWNSTREAM OF THE PVB.**
2. PVB'S MUST BE INSTALLED A MINIMUM OF (12") ABOVE THE HIGHEST POINT OF WATER IN THE SPRINKLER SYSTEM.
3. PVB'S MUST BE TESTED BY A STATE-CERTIFIED BACKFLOW ASSEMBLY TESTER WHEN INSTALLED, ANNUALLY, OR WHEN MOVED/REPAIRED.
4. NO CHEMICAL OR FERTILIZER CAN BE INTRODUCED INTO AN IRRIGATION SYSTEM PROTECTED WITH PVB'S.
5. NO PUMPS OR SOURCES OF BACK PRESSURE ON DOWNSTREAM SIDE OF (AFTER) A PVB.
6. **CAN BE PRESSURIZED A FULL 24 HOURS.**

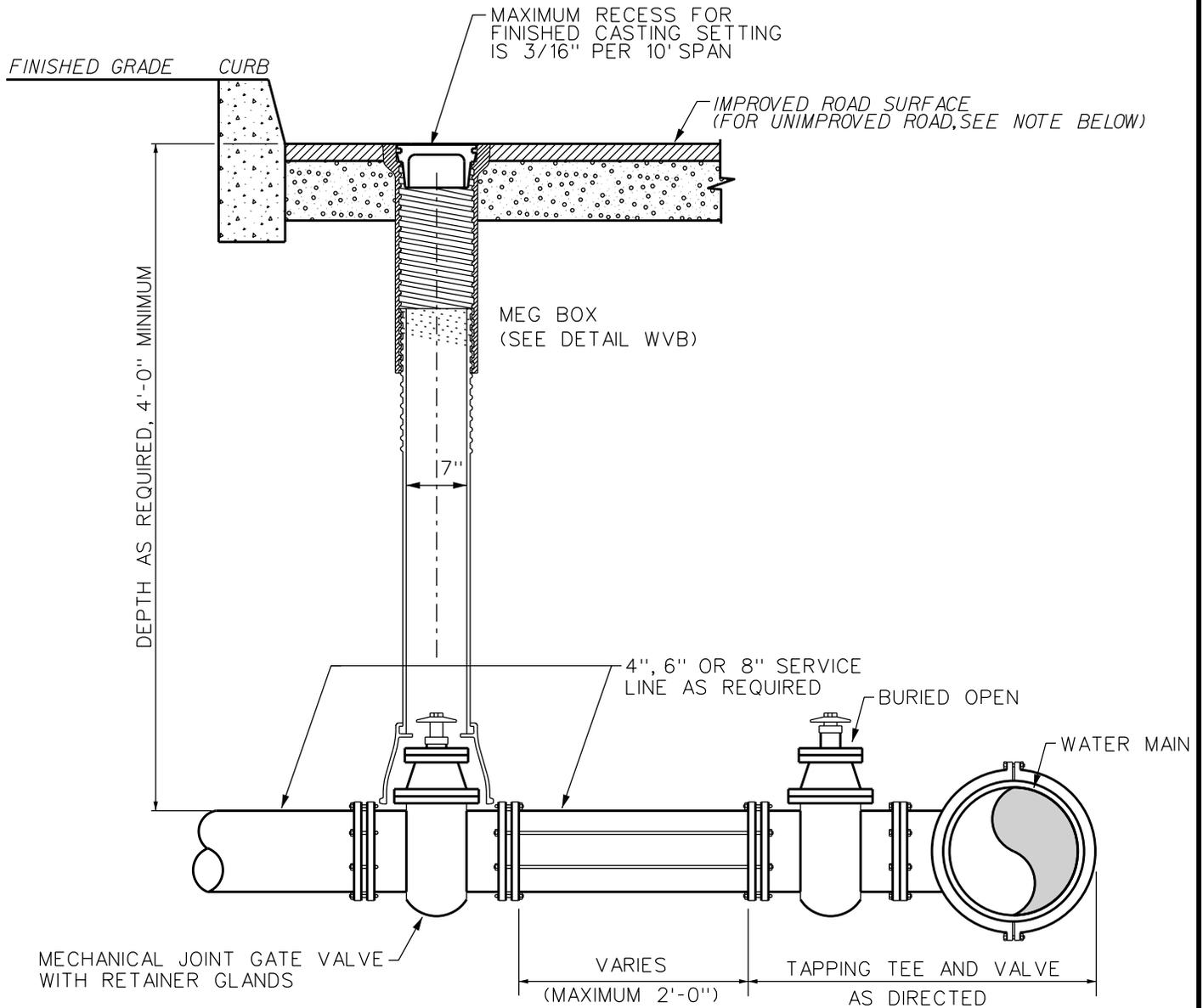


2/24/2014

R E V I S I O N S	
1.	RJM 8-5-10
2.	LRC 1-31-14
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
SPRINKLER BACKFLOW PREVENTION
 Scale: N.T.S.
 Supplemental Detail Drawing: **WS-5SVB**
 M:\pwsa\gis\det\Standards\stdws5svb.det



NOTES:

1. ALL PIPING TO BE RESTRAINED WITH RODDING AND/OR RETAINER GLANDS.
2. ALL FITTINGS SHALL HAVE THRUST BLOCKS (SEE DETAIL WS-3).
3. STANDARD GATE BOX LID: TWO NOTCH OPENINGS REQUIRED. DIAMETER TO MATCH BOX.
4. GATE BOX EXTENSION: GATE BOX EXTENSION RINGS ARE NOT TO BE USED IN NEW WORK.
5. A MAXIMUM OF 3 EXTENSION RINGS CAN BE USED PER EXISTING GATE BOX.
6. MEG BOX MATERIAL SHALL BE CAST IRON.
7. IF MEG BOX IS LOCATED IN AN UNIMPROVED AREA, THEN A 30"x30"x 8"D CONCRETE PAD APRON CENTERED AROUND THE MEG BOX IS REQUIRED.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

2/24/2014

R E V I S I O N S	
1.	MSR 4-23-01
2.	MAC 11-2-07
3.	LRC 1-31-14
Approved by:	

PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service

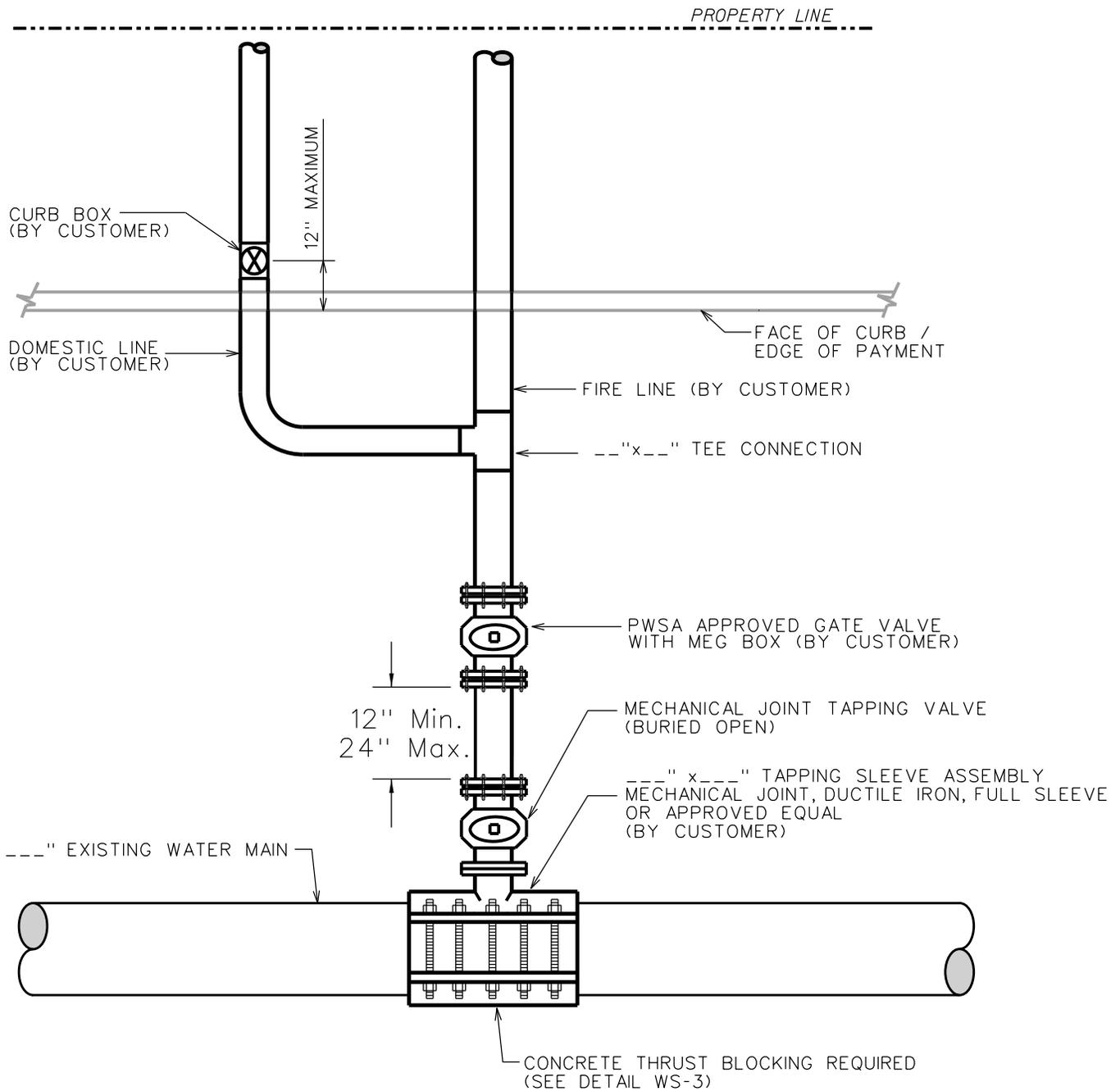
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Service Connection 4" Through 8"

Scale: N.T.S.

Supplemental Detail Drawing: **WS-A**

M:\pwsa\gis\det\Standards\stdwsa.det



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR, MAINTAINS, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ADDITIONAL BACKFLOW PREVENTION (RPZ TYPE) REQUIRED INTERNALLY ON COMMERCIAL OR HIGH HAZARD PROPERTIES.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

R E V I S I O N S	
1. MSR 4-23-01	5. MAC 11-1-07
2. MAC 9-9-05	6. LRC 1-31-14
3. DWP 9-15-05	
4. MAC 12-13-05	

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

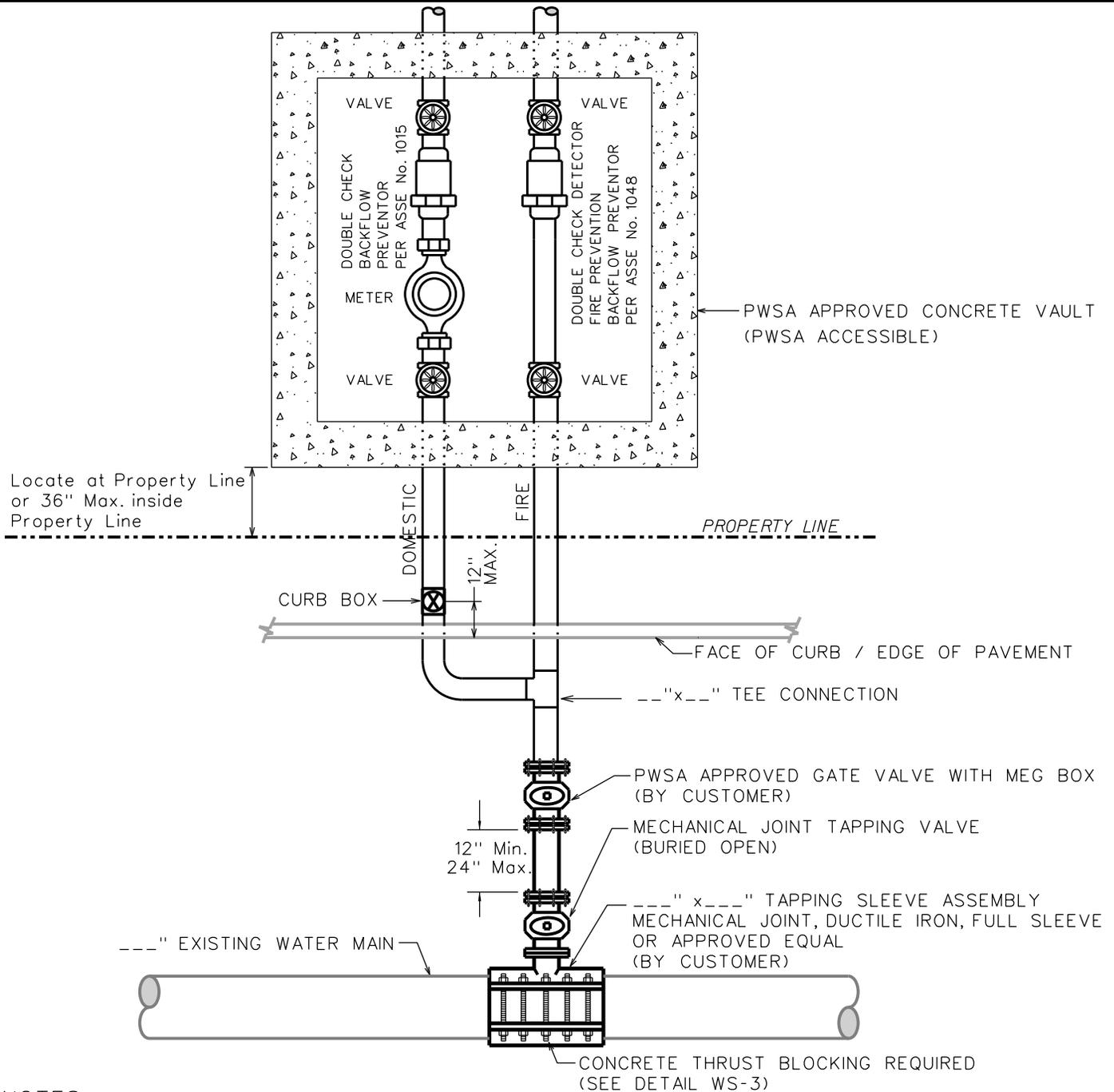
Pittsburgh Water and Sewer Authority
Single Service Connection
(4" And larger)

Scale: N.T.S.

Supplemental Detail Drawing: **WS-C1**

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2/24/2014



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR VAULT AND CONDUIT MAINTENANCE, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ADDITIONAL BACKFLOW PREVENTION (RPZ TYPE) REQUIRED INTERNALLY ON COMMERCIAL OR HIGH HAZARD PROPERTIES.
8. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
9. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. DWP 9-15-05	
3. RDH 10-19-05	
4. MAC 11-1-07	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

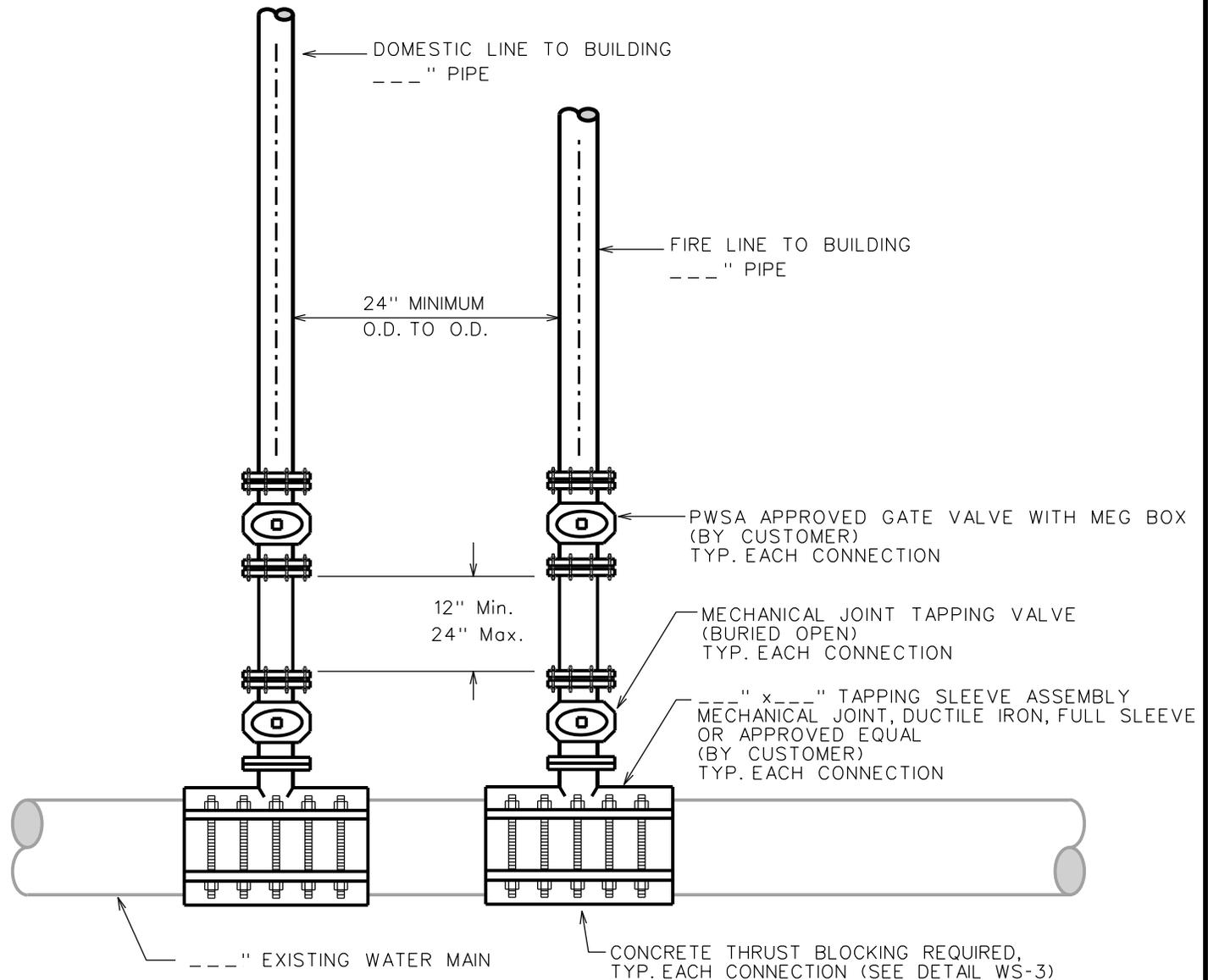
**Pittsburgh Water and Sewer Authority
 Commercial And Multi-Family
 Water Service Connection For
 Fire And Domestic Tap-In Vault**

Approved by:

Scale: N.T.S.
 M:\pwsa\qis\det\Standards\stdwsc1v.det

Supplemental Detail Drawing: **WS-C1V**

2/25/2014



NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUSTOMER IS REQUIRED TO ENTER VALUES FOR ALL DIMENSION FIELDS ABOVE.
4. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
5. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
6. CUSTOMER IS RESPONSIBLE FOR, MAINTAINS, AND OWNS, INCLUDING THE TAPPING TEE ASSEMBLY, FROM THE MAIN TO THE BUILDING.
7. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
8. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 7-26-04	
3. MAC 9-9-05	
4. DWP 9-15-05	

Approved by:

PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service

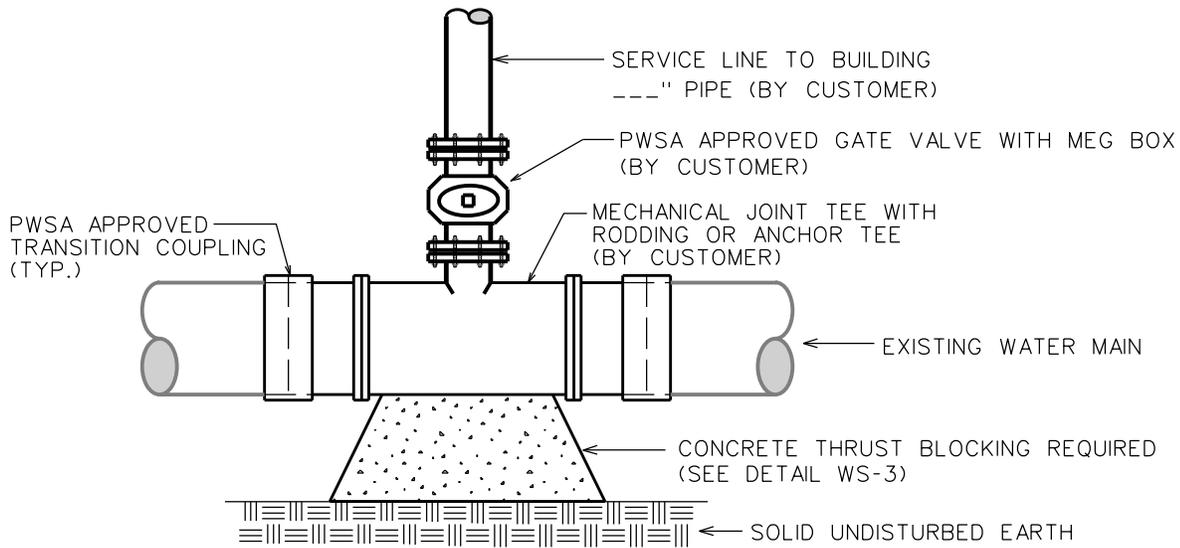
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Separate Domestic And Fire Service Connection (4" And Larger)

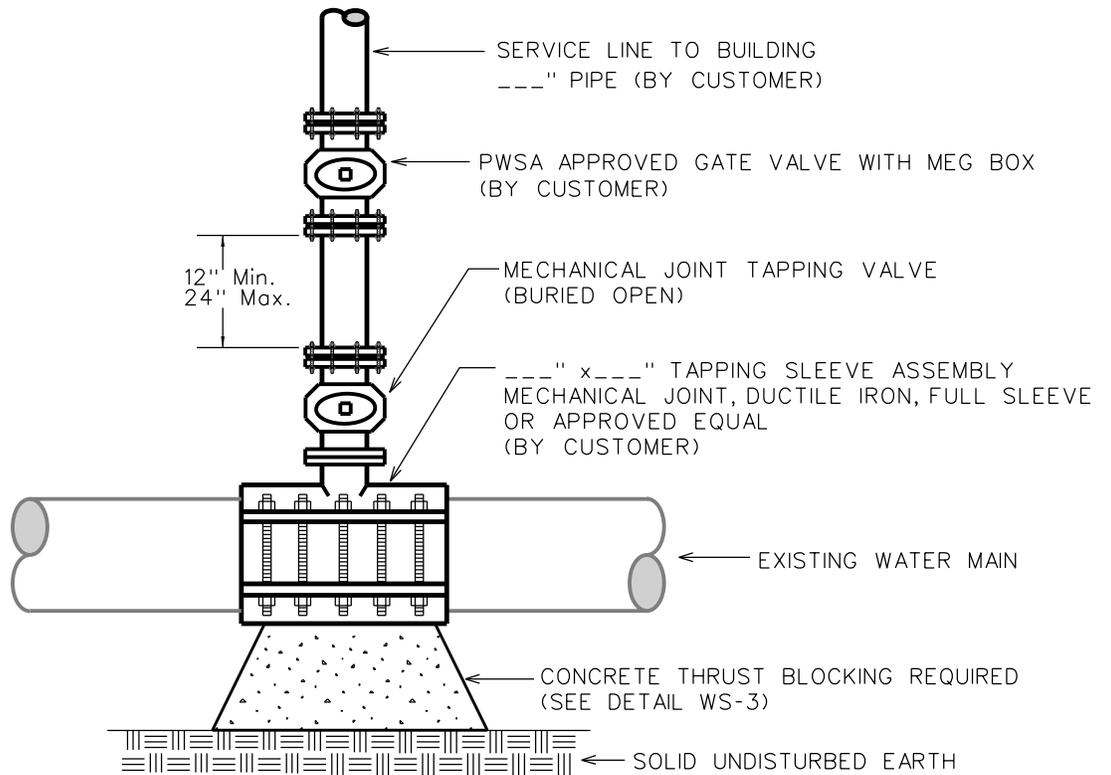
Scale: N.T.S.

Supplemental Detail Drawing: **WS-C2**

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Cut-In Tee



Tapping Tee

NOTES:

1. PWSA PERFORMS ACTUAL TAP TO MAIN ONLY AND MAINTAINS METER; ALL OTHER WORK BY CUSTOMER.
2. TAPPING TEE SHALL BE FULL SLEEVE; SADDLE STYLE NOT PERMITTED.
3. CUT-IN TEE CONNECTION ALSO ACCEPTABLE AND IS REQUIRED FOR SIZE ON SIZE (e.g. 8" TAP ON 8" MAIN).
4. CENTERING OF TAPPING TEE CONNECTION SHALL BE 18" MINIMUM FROM EXISTING WATER MAIN BELL/HUB OR OTHER EXISTING SERVICE CONNECTIONS.
5. ALL VALVES MUST BE "RIGHT TURN TO OPEN".
6. PRIVATE SERVICE LINE MATERIAL AND EQUIPMENT SHALL CONFORM TO ALLEGHENY COUNTY PLUMBING CODE, ARTICLE XV.
7. MJxMJ tapping sleeve may be submitted to PWSA for an approved option.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	5. LRC 1-31-14
2. MAC 7-26-04	
3. DWP 9-15-05	
4. MAC 11-1-07	

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Cut-In Tee And Tapping Tee

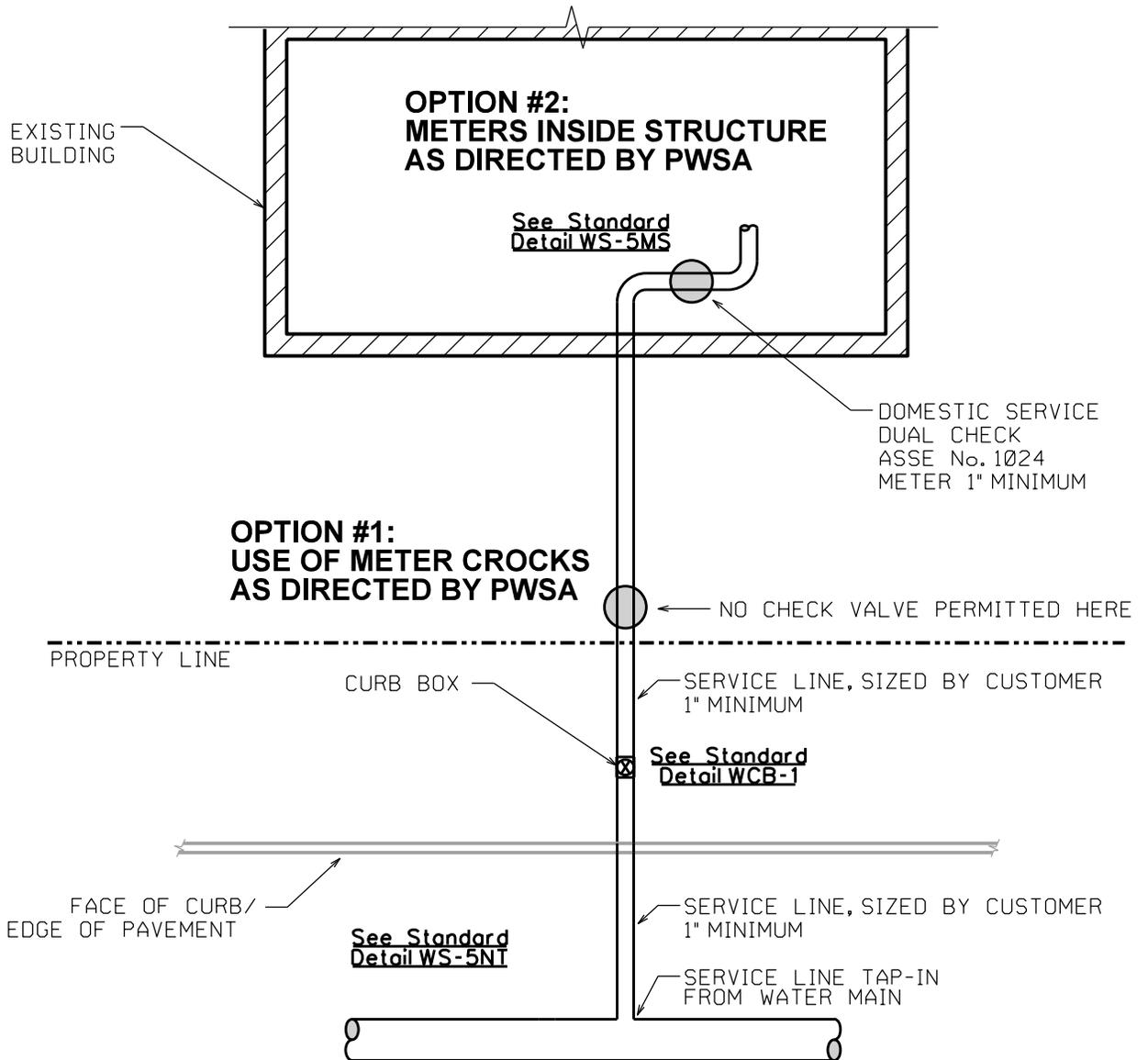
Scale: N.T.S.

Supplemental Detail Drawing: **WS-CTT**

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DOMESTIC METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI



EFFECTIVE 4/1/2010
PER IBC CODES 2010

R E V I S I O N S	
1. LRC 1-31-14	

Approved by: _____

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
RESIDENTIAL DOMESTIC AND FIRE SERVICE CONNECTION MULTI-PURPOSE SYSTEM
 Scale: N.T.S.
 Supplemental Detail Drawing: **WS-RDF1**
 M:\pwsa\gis\det\Standards\stdwsrdf1.det

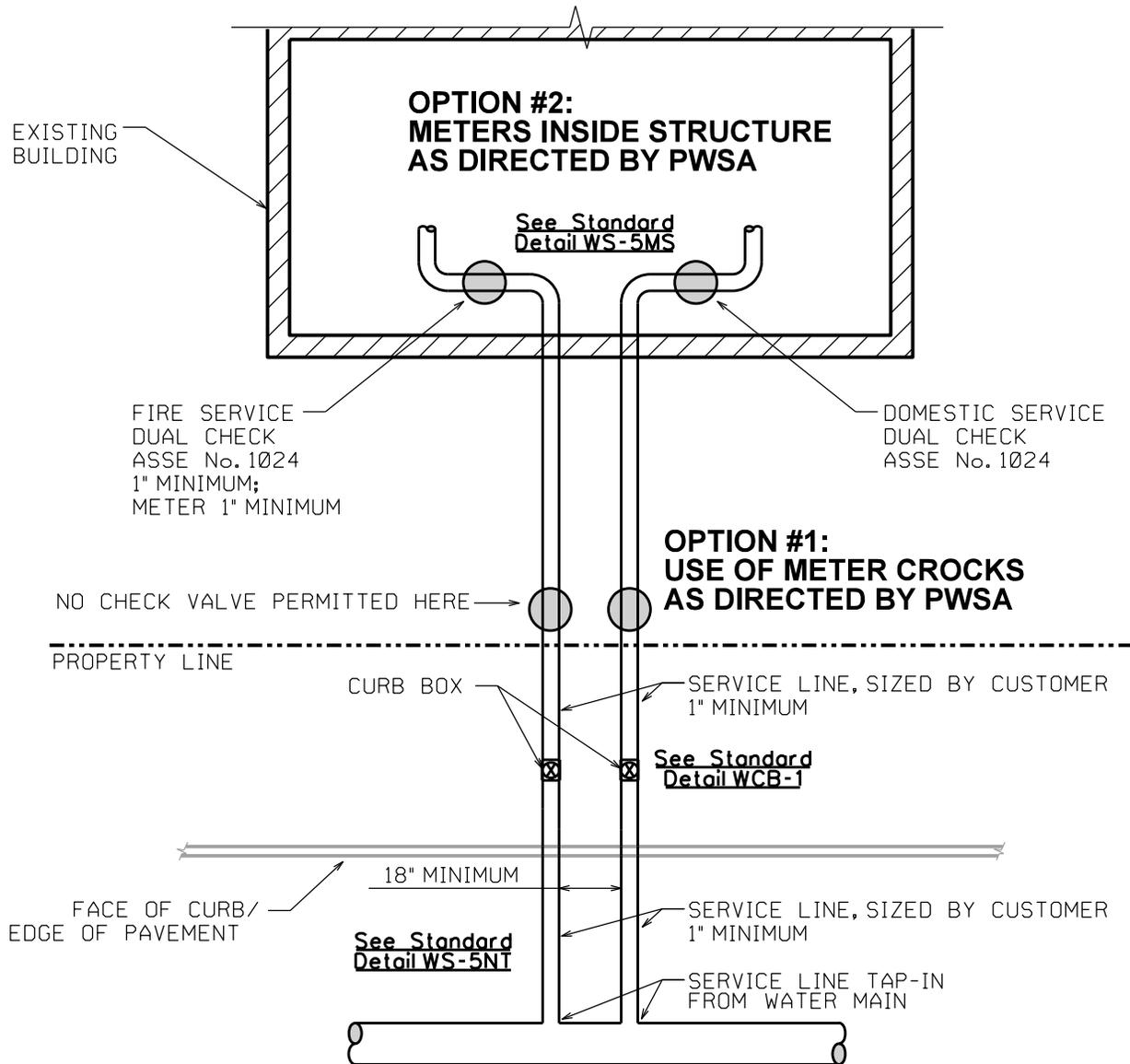
2/24/2014

FIRELINE METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI

DOMESTIC METER:

- SIZE
- MODEL
- MAKE
- GPM
- PSI



EFFECTIVE 4/1/2010
PER IBC CODES 2010

2/24/2014

R E V I S I O N S	
1.	LRC 1-31-14

Approved by: _____

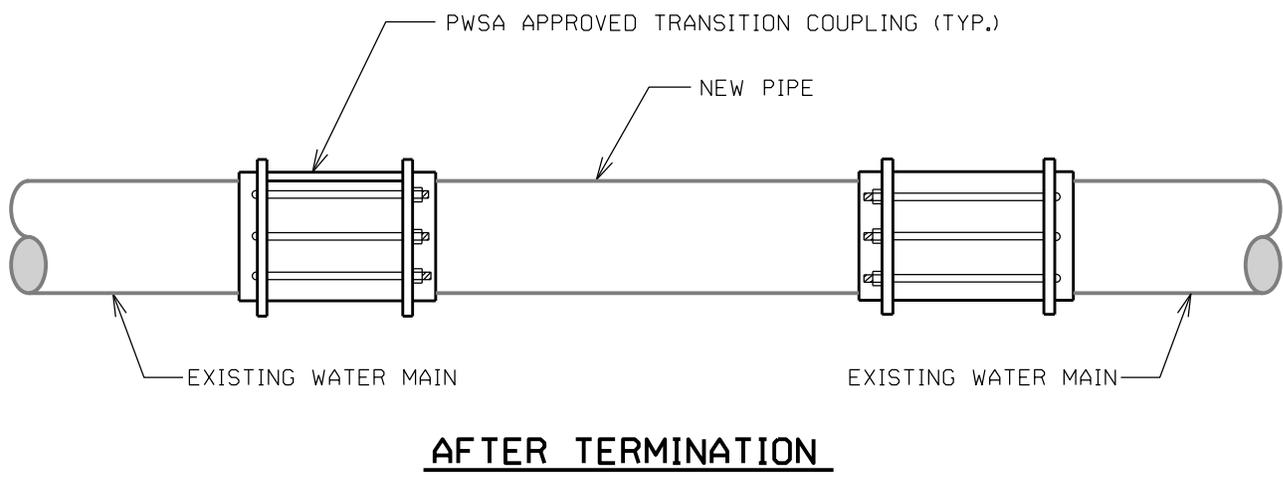
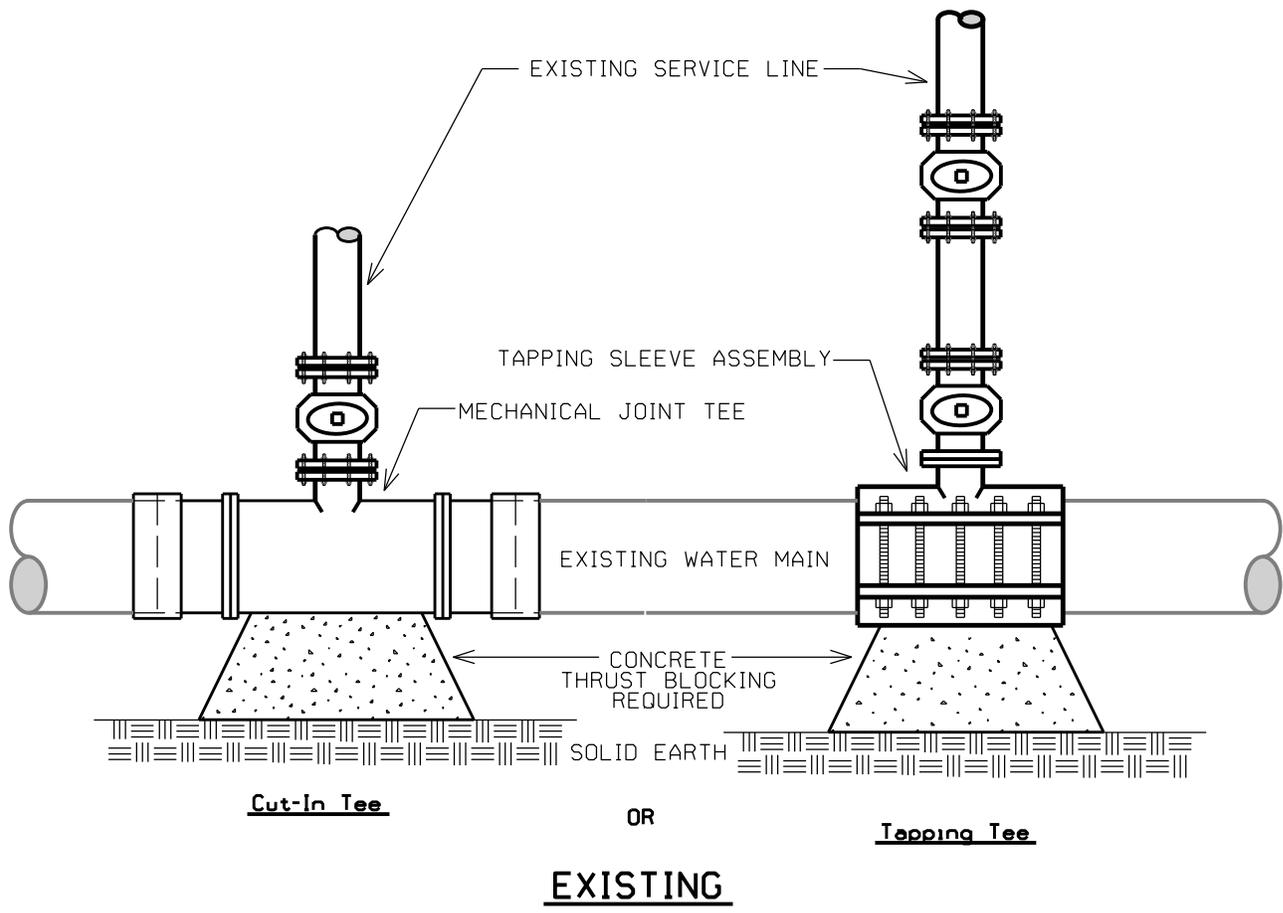
PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**RESIDENTIAL DOMESTIC
AND FIRE SERVICE CONNECTION
STAND-ALONE SYSTEM**

Scale: N.T.S.

Supplemental
Detail Drawing: **WS-RDF2**

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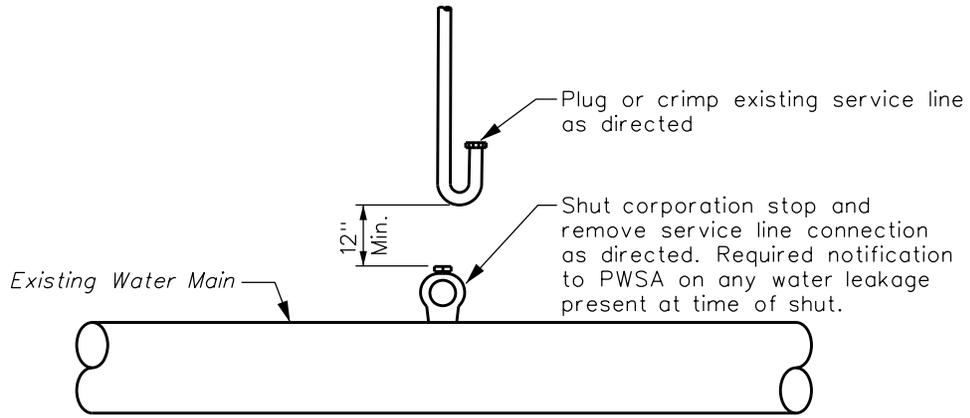


NOTES:

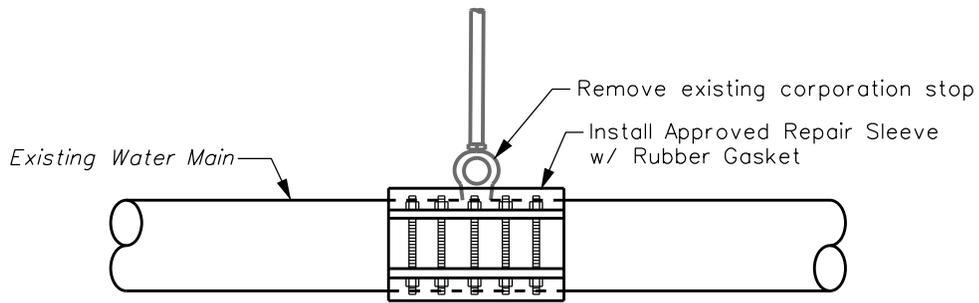
1. CUT AND REMOVE EXISTING TEE; INSTALL SIZE ON SIZE SPOOL PIECE CONNECTING TO EXISTING MAIN AT EACH END WITH TRANSITION SLEEVES, AS DIRECTED.
2. MAIN LINE SHUT REQUIRED AND MUST BE COORDINATED AT THE PWSA PERMITS COUNTER.

2/24/2014

R E V I S I O N S			Pittsburgh Water and Sewer Authority Typical Water Tap Service Termination For 4" And Larger Connection	
1. MSR 4-23-01			Scale: N.T.S. Supplemental Detail Drawing: WS-STL	
2. MAC 8-10-07				
3. LRC 1-31-14				
Approved by: _____		Engineering & Construction Division <small>M:\pwsa\gis\det\standards\stdwsstl.det</small>		



OPTION 1



OPTION 2

(IF REQUIRED BY PWSA)

NOTES:

1. OPTION 2 REQUIRES MAIN LINE SHUT; THIS WOULD BE ADDITIONAL PWSA CHARGE.
2. TERMINATION OPTION FROM ABOVE AS DIRECTED BY THE PWSA.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. RDH 3-13-03	
3. DWP 9-15-05	
4. MAC 8-10-07	

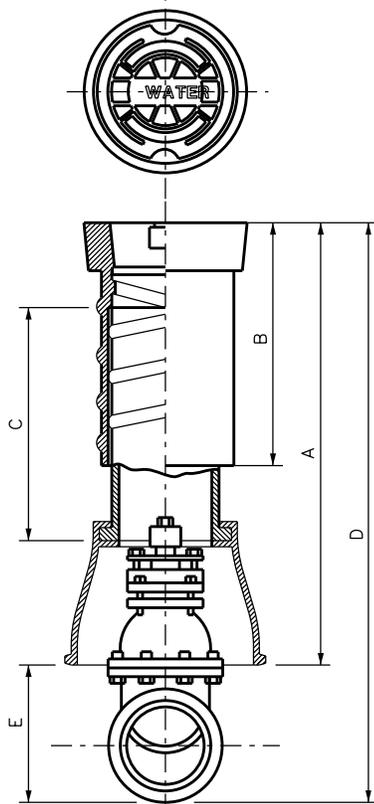
Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

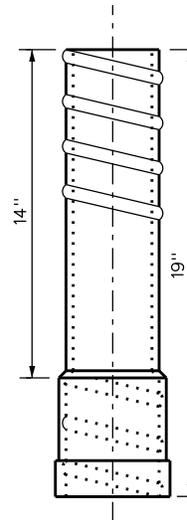
Pittsburgh Water and Sewer Authority
**Typical Water Tap Service Termination
 For 2" And Smaller Connection**

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdwssts.det

Supplemental
 Detail Drawing: **WS-ST5**



TOP SECTION, BOTTOM SECTION AND COVER



VALVE BOX EXTENSION

SIZE NO.	EXTENSION RANGE - A	TOP SECTION & COVER			BOTTOM SECTION			No. 6 BASE WT	TOTAL WEIGHT
		NO.	DIM. B	WEIGHT	NO.	DIM. C	WEIGHT		
II	21" - 27"	74	9.00	58.5	80	8.00	14.0	45.0	117.50
I	27" - 39"	75	15.25	81.5	81	14.00	24.5	45.0	151.00
J	33" - 45"	75	15.25	81.5	82	20.00	30.0	45.0	156.50
K	39" - 51"	75	15.25	81.5	83	26.25	41.0	45.0	167.50
L	39" - 60"	76	26.00	111.0	83	26.25	41.0	45.0	197.00

TABLE FOR DETERMINING LENGTH OF BOX NEEDED

SIZE OF VALVE	BOTTOM BASE TO BOTTOM TRENCH (DIM. E)	No. BASE USED	DEPTH OF TRENCH (DIM. D)									
			36"	42"	48"	54"	60"	66"	72"	78"	84"	
3	8"	4	II	I	J	K	L	L	L*	L*	O*	
4	13-1/2"	4	II	I	J	J	K	L	L	L*	L*	
6	15"	6	II	II	J	J	J	K	L	L*	L*	
8	19"	6		II	I	J	J	K	L	L	L*	
10	24"	6			II	I	I	K	K	L	L	
12	31"	160				II	I	J	K	K	L	
14	36-1/2"	160					II	I	J	J	K	
16	41-1/4"	160						II	I	I	J	

* LONGER BOXES MADE BY ADDING EXTENSIONS TO SIZE L. FOR VALVE CLOSER TO SURFACE, USE NO. 140 ROUND BASE AND REDUCE LENGTH SHOWN ABOVE BY 6 INCHES.

NOTES:

1. MEDIUM EXTENSION GATE VALVE BOX SHALL BE BINGHAM & TAYLOR No. 5001, OR APPROVED EQUAL.
2. MADE OF CAST IRON, SCREW TYPE, 3-PIECE BOX w/ LID AND #6 BASE, 7" DIAMETER SHAFT.
3. LABELED "WATER" ON THE COVER.

R E V I S I O N S	
1.	LRC 1-31-14

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Valve Box
 (Medium Extension Gate Box)

Approved by:

Scale: N.T.S.

Supplemental Detail Drawing:

WVB

2/24/2014

M:\pwsa\gis\det\Standards\stdwvb.det

APPENDIX H

TECHNICAL CHECKLIST FOR WATER TAP-IN DRAWINGS

Project No. _____

(PWSA USE ONLY)

THE PITTSBURGH WATER AND SEWER AUTHORITY ENGINEERING AND CONSTRUCTION DIVISION

Technical Checklist for Water Tap-in Drawings

The following is a list of items that are to be included on the water tap-in drawings. Place a checkmark in the column provided for all items completed and/or attached. Failure to provide all of the requested information will delay the processing of the application or could result in the rejection of the submittal package. The checklist **must** be enclosed with the drawing submission.

Applicant Name:			
Name of Land Development and Address:			
Applicant Phone Number:			
Water Tap-In Drawing		Check if Included	PWSA Use Only
1.	Drawing size is 24" x 36".	<input type="checkbox"/>	
2.	Drawn to scale with a North arrow.	<input type="checkbox"/>	
3.	Drawing includes a plan view of the site.	<input type="checkbox"/>	
4.	Existing building footprint is displayed in plan view.	<input type="checkbox"/>	
5.	Existing water mains that will be tapped are shown.	<input type="checkbox"/>	
6.	Proposed service lines are shown in bold line weight and text.	<input type="checkbox"/>	
7.	Location and size of proposed service lines are displayed.	<input type="checkbox"/>	
8.	Standard details for tapping are shown.	<input type="checkbox"/>	
9.	Termination detail is shown (if applicable).	<input type="checkbox"/>	
10.	All other appropriate schematic details are shown.	<input type="checkbox"/>	
11.	Water and Sewer Flow Data Block is completed and shown on each drawing.	<input type="checkbox"/>	
12.	Lot lines and lot sizes are displayed.	<input type="checkbox"/>	
13.	Existing and proposed rights-of-way are shown.	<input type="checkbox"/>	
14.	Existing and proposed streets and roadways are shown.	<input type="checkbox"/>	
15.	Sizes of existing PWSA facilities are displayed.	<input type="checkbox"/>	
16.	Existing PWSA facilities are labeled by type (i.e., storm sewer, sanitary sewer, combination sewer, water main)	<input type="checkbox"/>	
17.	Title block is complete and displayed on each drawing.	<input type="checkbox"/>	
18.	PWSA Approval Block is located on each drawing.	<input type="checkbox"/>	
19.	Hydrant Flow Test Data table is complete and shown on each drawing.	<input type="checkbox"/>	
20.	Notes section for Fire Service Mains is shown on each drawing.	<input type="checkbox"/>	
21.	Drawing includes a schematic detail for each water meter.	<input type="checkbox"/>	
22.	Calculations for the peak domestic water demand (in gpm) are provided.	<input type="checkbox"/>	
23.	The City of Pittsburgh was contacted in order to determine if the proposed development requires a fire protection system?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Applicant Signature _____

Date _____

APPENDIX I SYMBOL LEGEND FOR PRIVATE WATER AND SEWER CONSTRUCTION PLANS

APPENDIX J
PWSA NOTES SECTION FOR
PRIVATE WATER AND SEWER
CONSTRUCTION PLANS

PITTSBURGH WATER AND SEWER AUTHORITY

Notes for Private Construction Plans

General Notes

1. All work done and materials furnished under this contract shall be in accordance with the Pittsburgh Water and Sewer Authority (PWSA), and the City of Pittsburgh current general contract conditions standard specifications for the materials and construction dated November 1938, with supplements thereto and revisions thereof, using current updated PWSA specifications and standards for construction unless otherwise noted.
2. The developer/owner must furnish the PWSA with a performance bond (or approved equal) and a labor and material payment bond, each in an amount equal to 100 percent of the total project construction cost as determined by PWSA. The developer/owner shall also furnish the PWSA with a maintenance bond for the warranty of all construction for a period of 18 months from the date of the PWSA's acceptance of the completed work and board approval. The maintenance bond shall be in an amount equal to 15 percent of the cost of the work. The PWSA alone shall be named as an obligee on all bonds.
3. The developer/owner or his contractor shall obtain all building permits, plumbing permits, construction and/or street opening permits required by the City of Pittsburgh, county of Allegheny and the commonwealth of Pennsylvania.
4. All construction materials must be approved by the PWSA department of engineering and construction prior to the start of construction. Submittal information shall include a list of materials and their source of supply as well as manufacturer's descriptive catalog data, drawings, charts, tablets, etc. Necessary to substantiate compliance with the PWSA specification requirements.

List of materials and source thereof, together with work schedule, must be submitted and approved by the PWSA department of engineering and construction before construction is started.

Prior to the start of construction, the developer/owner or his contractor shall submit a schedule of the work to be performed for review by the PWSA's department of engineering and construction.

5. Contractor shall submit detailed shop drawings in accordance with the PWSA on uniform size sheets no smaller than 24 inches by 36 inches for review and approval. Also submit drawings in DGN or DWG format on electronic media acceptable to the PWSA.

6. The developer/owner or his contractor shall notify the PWSA department of engineering and construction no less than 72 hours in advance of the start of construction. The preconstruction meeting shall be set by PWSA afterwards.
7. The developer/owner's contractor shall not perform any work during the night, on weekends, or on PWSA holidays, unless ordered to do so by the PWSA's director, or at the request of the contractor with the approval of the director. When the contractor is given permission to work during these periods, he shall reimburse the PWSA for all labor and expenses associated with inspection of the work.
8. Unless otherwise directed use precise City benchmark: B.M. No. _____ - and elevation_____ (also note City description and location).
9. Saw cut existing concrete sidewalks and street pavement (as directed).
10. The contractor shall apply a City approved scaling deterrent to finish concrete pavement surfaces and sidewalks in accordance with separate City specifications and furnished with the contract plans (if directed).
11. The contractor shall be responsible for cleaning all water boxes, catch basins, storm inlets, and manholes after construction and/or paving is completed including casting surfaces.
12. Material required to replace unsuitable material for stabilization for sub- grade shall be City/PWSA approved backfill material. The composition and method of compaction shall conform to current City of Pittsburgh specifications for sub-base treatment.
13. All old material removed under this contract and not to be reused shall become the property of the contractor and must be promptly removed from the site.
14. A complete and accurate photographic archival hard copy four mill thick double matted mylar drawing (24 x 36) marked in red ink including completed as built record(s) as to location, elevation, and stationing with offsets of sewer and/or water lines, catch basins, wye branch connections, gate valves, fittings, hydrants, stations, grades, etc. Shall be furnished to the PWSA at the completion of the contract. The contractor shall submit one set of as built/record drawings showing the PWSA systems as installed, including all deviations from both the project contract drawings and the approved shop drawings. The drawings shall be prepared on uniform size sheets not less than 24 inches by 36 inches and submitted within two weeks after final PWSA inspection and final testing of the system, plus include an approved electronic media copy compatible to the PWSA electronic filing systems. (said information should be certified by an engineer or if directed surveyor registered in Pennsylvania)

Until the above described as built/record drawings are received and approved by the PWSA board, PWSA will not accept the newly built facilities. The private

developer/contractor will remain responsible for the privately constructed facilities, including all maintenance and/or repairs until PWSA acceptance of said facilities. Any required repairs and/or maintenance PWSA does to the new facilities in the interest of the general public prior to acceptance will be charged to the private developer/contractor and/or reimbursement pursued via their bond. If as built information acceptable to PWSA is not received within sixty days time after completion of the new project, PWSA reserves the right to create the required as built/record drawing information and invoice the private developer/contractor and/or reimbursement pursued via their bond.

Sewer Line Notes

1. Buried main line pipe (s) identification markers shall be electronically locatable brightly colored plastic tape displaying the printed notation "sewer". Tape shall be laid between backfilling lifts over the pipe, not less than two feet above the pipe or less than two feet below finished grade surface. In no event shall the tape be more than four feet below finished surface.
2. All manholes to be PWSA approved precast concrete as per ASTM C478 with poured-in-place cement concrete bases and/or PWSA approved precast bases. (as directed)
3. Sanitary and/or combination manholes shall be exterior coated with PWSA approved emulsified bituminous coating as per ASTM designation D1227 or approved equal.
4. All standard house wyes to be minimum 4" (for sanitary sewers) or minimum 6" (for storm or combination sewers) unless otherwise noted.
5. Install the PWSA cast iron manhole castings as follows: frame No. 26, cover No. 25v (unless otherwise noted).
6. PWSA pipe sewer 15" diameter and smaller (unless otherwise directed) shall be polyvinyl chloride (PVC), ASTM 3034, SDR-26 or for type PS46 ASTM D1784 (or PWSA approved equal). The pipe and fittings shall have integral wall bell and spigot joints with rubber ring joints. The pipe stiffness shall be in accordance with ASTM designation D2412; flexible elastomeric seals: ASTM D3212; seal material: ASTM F477. Standard installation of said sewer pipe shall be in compliance with ASTM designation D2321 and/or the PWSA current specifications.
7. All vitrified clay pipe sewer(s), (typically used for conveying sanitary or combination flows) including wye connections, shall be extra strength V.C. pipe (ASTM C700) compression joints for vitrified clay, bell and spigot shall conform to ASTM designation C245.
8. The reinforced concrete pipe sewer shall conform to ASTM designation C76 with the following requirements:

- A. All PWSA pipe shall be minimum Class IV, wall “B”.
 - B. The pipe shall have a maximum absorption of 5.5% density and shall be less than 155 pounds per cubic foot using limestone aggregate and type II cement.
 - C. Pipe shall be furnished in minimum 8-foot lengths and marked with manufactured date and pipe class.
 - D. For sanitary and combined sewers, the contractor (if directed) will substitute type II cement with limestone aggregate in place of coal tar epoxy coating of interior surface of pipe.
 - E. Joint assemblies shall be so formed and accurately manufactured that when the pipes are drawn together the pipe shall form a continuous watertight conduit with a smooth and uniform interior surface. The rubber gasket shall be the sole element of the joint depended upon to provide a watertight seal conforming to ASTM designation C443.
 - F. Pipe will be subject to rejection because of failure to conform to any of the above specification requirements.
9. Ductile iron pipe sewer and mechanical joint ductile iron fittings: shall be push-on joint ductile iron pipe with mechanical joint ductile iron fittings. Pipe and fittings to be used under this contract shall be in accordance with following specifications.
- A. Centrifugally cast – ductile iron pipe: AWWA/ANSI – C151/A21.51.
 - B. Cement mortar lining for ductile iron and gray iron pipe and fittings for water: AWWA/ANSI – C104/A21.4.
 - C. Mechanical joint ductile iron fittings: AWWA/ANSI – C110/A21.10.
 - D. Rubber gasket joints for ductile iron and gray iron pressure pipe and fittings: AWWA/ANSI – C111/A21.11. Thickness design for ductile iron pipe AWWA/ANSI – C150/A21.50.
 - E. All ductile iron pipe shall be minimum class 52.
 - F. Ductile iron transition couplings and repair couplings.
 - 1) Material description – couplings furnished under this contract shall be at least equal to or exceed the following and shall conform with the requirements hereinafter given
 - a. Center ring: ductile cast iron meeting or exceeding the latest revision of ASTM A-536.

- b. Gaskets: natural or synthetic rubber compounded for potable water service.
 - c. End rings: ductile cast iron meeting or exceeding the latest revision of ASTM A-536.
 - d. Bolts and nuts: high strength steel track head, natural course roll thread with heavy hex nuts electro- galvanized with di-chromate seal.
10. Infiltration and/or exfiltration test shall be conducted by the contractor under inspection of the PWSA, in accordance with the recommendations of the national clay pipe institute. Any sewer failing to meet these requirements shall be properly corrected and reconstructed. Infiltration and exfiltration amounts shall be limited to 200 gallons per inch diameter of pipe per mile per day. (0.001 gallon/inch/diameter/hour/foot).
11. All newly constructed public sewers on the project will be televised by the contractor and a video copy complete with date sheets compatible with PWSA systems approved by PWSA before final acceptance. Seventy two (72) hours advance notice shall be given to the PWSA and the area must be accessible for TV equipment including vehicles. In order for inspection to occur, all existing and proposed manholes shall be constructed and backfill brought up to the top of finished grade.
12. Contractor will be directed to conduct PWSA approved air vacuum testing on all sewers and manholes as per current PWSA specifications (ASTM C828).
13. Contractor will be directed to perform deflection testing on all plastic pipe sewers or as deemed necessary by PWSA for other materials. The mandrel testing shall be performed in the presence of a PWSA inspector using a deflectometer, calibrated television, or properly sized “go, no-go” mandrels. Maximum deflection accepted by PWSA shall be 5 percent.

Water Line Notes

- 1. Buried mainline pipe identification markers shall be electronically locatable brightly colored plastic tape displaying the printed notation “water”. Tape shall be laid between backfilling lifts over the pipe, not less than two feet above the pipe or less than two feet below finished ground surface. In no event shall the tape be more than four feet below finished surface.
- 2. Gate valve – affidavit of compliance: the contractor shall obtain from the manufacturer of the valves an affidavit stating that the valves and all the materials used in its construction conform to the applicable requirements of the PWSA and AWWA current

standard and supplementary specifications and that all test specified therein have been performed and met.

3. All new PWSA water mains shall be wrapped with polyethylene wrap. Polyethylene wrap shall be virgin polyethylene material conforming to the requirements of the ANSI/ASTM D1248. The minimum nominal thickness shall be 8 mils.
4. Curb boxes – curb boxes shall be PWSA approved of the M.E.G. type constructed of cast iron. Standard gate box lid shall have two notch openings with the word “water” stamped or cast into it. Lid diameter to match box. Gate box extensions are not to be used for new construction. A maximum of three extension rings can be used per gate box.
5. All existing water line materials and appurtenances (i.e. valves, fire hydrants, meters, etc.) Removed during the course of construction by the contractor shall be removed, undamaged, and delivered to the PWSA brilliant yard. All other damaged and/or unusable water line materials and appurtenances shall be disposed of by the contractor at the discretion of and to the satisfaction of the PWSA.
6. All pipe valves and fittings shall be mechanical joint and shall be constructed so that the deflection per joint does not exceed 85% of maximum permissible.
7. All fittings shall have concrete thrust blocking placed in accordance with the PWSA specifications/standards. Provide ductile iron retaining glands on ay bends greater that 10 degrees including the required thrust blocking.
8. Thrust block concrete shall be City of Pittsburgh class “P” 4000# cement concrete as per the City of Pittsburgh specifications. A minimum of one foot of backfill shall be placed above all thrust blocking prior to activating the water lines.
9. Ductile iron pipe and mechanical joint ductile iron fittings: all water lines shall be push-on joint ductile iron pipe with mechanical joint ductile iron fittings. Pipe and fittings to be used under this contract shall be in accordance with following specifications.
 - A. Centrifugally cast – ductile iron pipe: AWWA/ANSI – C151/A21.51.
 - B. Interior lining PWSA approved ceramic epoxy coating consisting of an amine-cured novalac epoxy containing a minimum of 20% ceramic quartz pigment by volume or cement mortar lining for ductile iron and gray iron pipe and fittings for water: AWWA/ANSI – C104/A21.4.
 - C. Mechanical joint ductile iron fittings: AWWA/ANSI – C110/A21.10.
 - D. Rubber gasket joints for ductile iron and gray iron pressure pipe and fittings: AWWA/ANSI – C111/a21.11. Thickness design for ductile iron pipe AWWA/ANSI – C150/a21.50.

E. All ductile iron pipe shall be thickness class 52.

F. Ductile iron transition couplings and repair couplings

1) Material description – couplings furnished under this contract shall be at least equal to or exceed the following and shall conform with the requirements hereinafter given

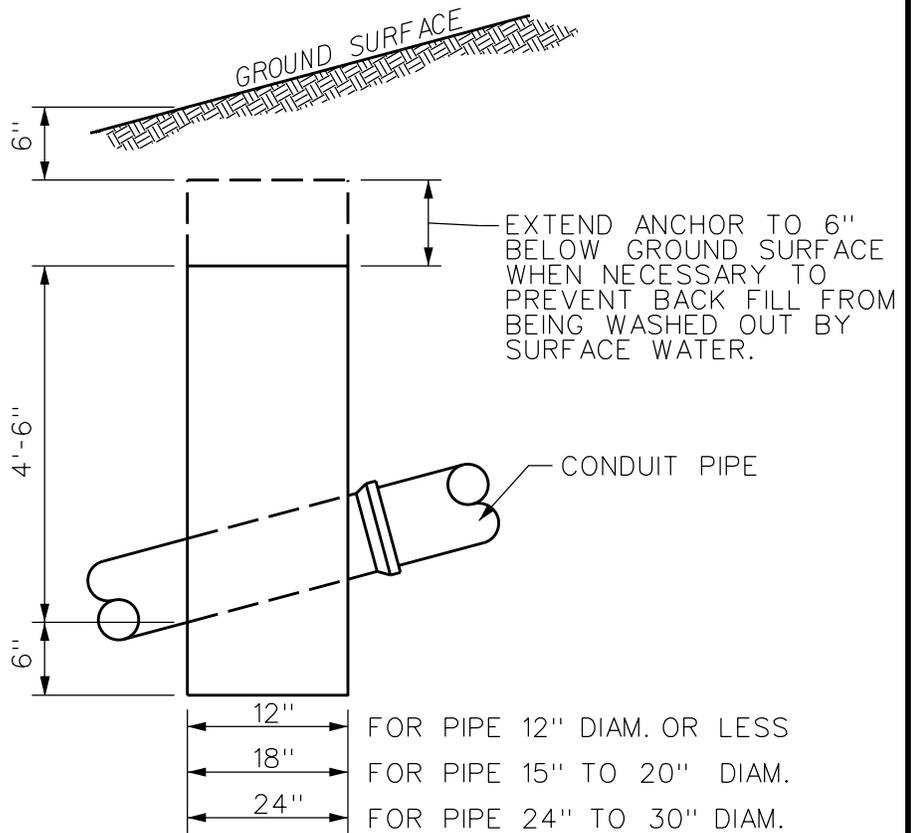
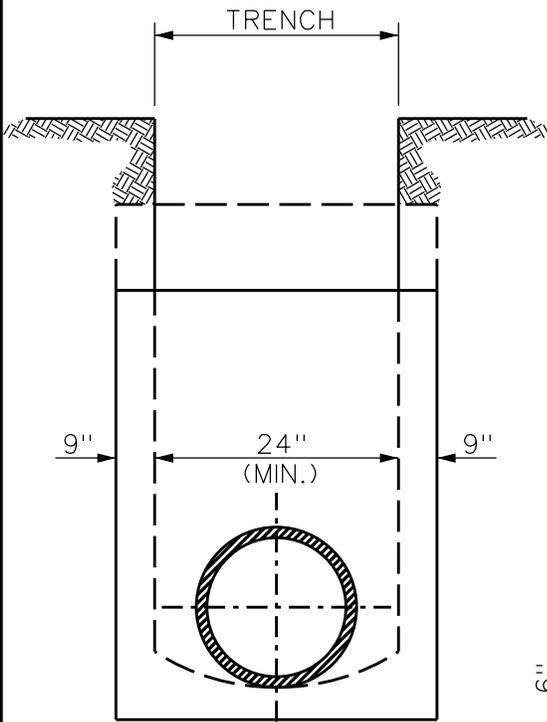
- a. Center ring: ductile cast iron meeting or exceeding the latest revision of ASTM A-536.
- b. Gaskets: natural or synthetic rubber compounded for potable water service.
- c. End rings: ductile cast iron meeting or exceeding the latest revision of ASTM A-536.
- d. Bolts and nuts: high strength steel track head, natural course roll thread with heavy hex nuts electro- galvanized with di-chromate seal.

G. Glands for assembling mechanical joint fittings shall be restraining glands, consisting of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of AWWA/ANSI c-110/a21.10. The devices shall have a working pressure rating of 350 psi for 3-16 inch and 250 psi for 18-48 inch. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM a536. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN. Mechanical joint restraint for ductile iron pie shall be Megalug series 1100 as manufactured by EBAA Iron, Inc. or approved equal.

10. The PWSA must be notified a minimum of 72 hours in advance of the time when the contractor proposes to connect the proposed waterlines to the existing water mains so that the operations division may arrange for the operation of the necessary valves. Only the PWSA personnel may operate valves.
11. All new water and fire service mains shall be tested hydraulically at not less than 200 PSI pressure for not less than two hours, or 50 psi in excess of the maximum static pressure when the maximum static pressure is in excess of 150 PSI.
12. All proposed connections to exiting water mains shall be conducted during the time of least demand for water.

13. Sterilization: following the testing of any potable water mains, the main shall be thoroughly flushed.
14. Sterilization shall be in accordance with AWWA C-651-86 (revision of AWWA C-601-81), AWWA standard for disinfecting water mains.
15. The contractor is responsible to ensure against leakage of the sterilizing solution into the existing public system and for properly disposing of the sterilizing solution.

**APPENDIX K
PWSA WATER AND SEWER
STANDARD DETAILS
FOR PRIVATE CONSTRUCTION**



CONCRETE ANCHORS FOR RIGID PIPE ON STEEP GRADES

NOTES:

1. PROVIDE NO ANCHORS ON GRADES LESS THAN 24%.
 2. PROVIDE ANCHORS 36' c/c ON GRADES BETWEEN 24% AND 34%.
 3. PROVIDE ANCHORS 24' c/c ON GRADES BETWEEN 34% AND 50%.
 4. PROVIDE ANCHORS 16' c/c ON GRADES BETWEEN 50% AND 70%.
- FOR CONDITIONS OTHER THAN SHOWN HEREON, ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR AS ORDERED IN THE FIELD BY THE DIRECTOR.

2/24/2014

R E V I S I O N S	
1.	JLK 10-04-04
2.	LRC 1-31-14

Approved by:

Engineering & Construction Division

Pittsburgh Water and Sewer Authority

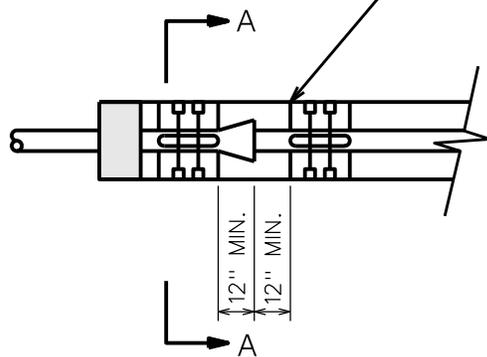
Concrete Anchor

Scale: N.T.S.

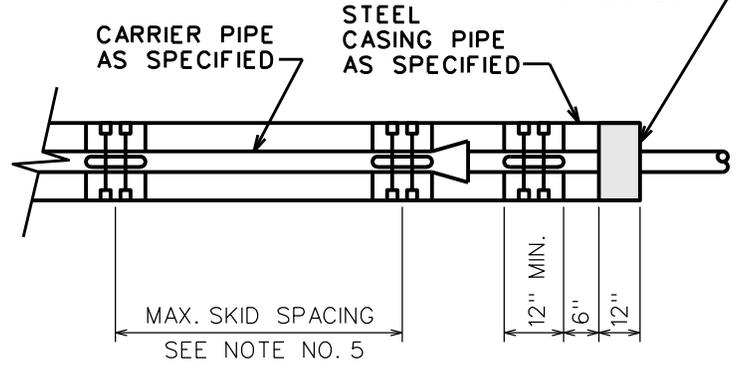
M:\pwsa\gis\det\Standards\stdanchor.det

Supplemental Detail Drawing: **ANCHOR**

FILLET "FORWARD" EDGES OF SKIDS THAT SLIDE AGAINST WALL OF THE CASING PIPE

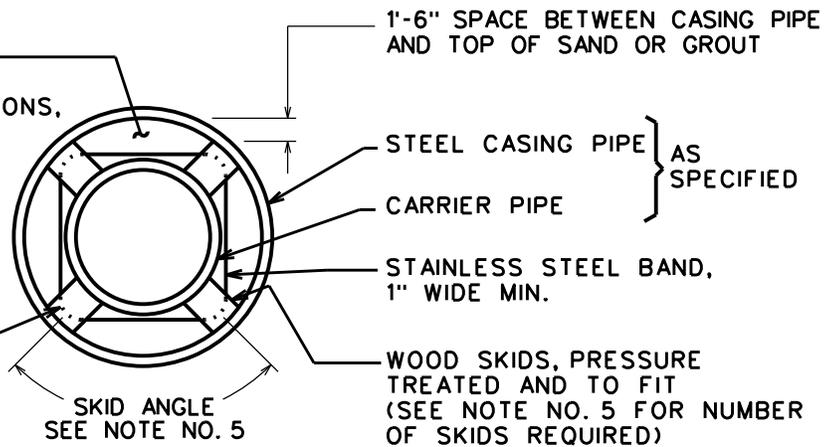


BULKHEAD AT EACH END AS DIRECTED



PLAN

FILL VOIDS BETWEEN CASING PIPE AND CARRIER PIPE WITH SAND OR GROUT PER SPECIFICATIONS, FOR MAXIMUM GROUTING PRESSURE, SEE NOTE NO. 5. IT MAY BE NECESSARY TO PROVIDE TEMPORARY VENT IN BULKHEAD.



PROVIDE SLOTS FOR STAINLESS STEEL BANDS

SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE TYPICAL/MINIMUM UNLESS OTHERWISE SPECIFIED.
2. SKIDS MAY BE CONTINUOUS.
3. INSTALL PIPE WITHIN CASING PIPE BY PUSHING OR PULLING. PROTECT ENDS OF PIPE AS PER MANUFACTURER'S RECOMMENDATION.
4. LUBRICATE BETWEEN WOOD SKIDS AND CASING PIPE USING FLAX SOAP OR DRILLING MUD. DO NOT USE PETROLEUM LUBRICANTS.
5. METHOD OF INSTALLATION, CASING PIPE SIZE, NUMBER AND SIZE OF SKIDS, SKID ANGLE, SKID SPACING AND GROUTING PRESSURE SHALL BE DETERMINED IN THE FIELD AS PER THE RECOMMENDATIONS OF THE MANUFACTURER SUPPLYING THE CARRIER PIPE, UNLESS OTHERWISE SPECIFIED.
6. STAINLESS STEEL CASING SPACERS MAY BE UTILIZED IN LIEU OF WOOD SKIDS. (SEE NOTE 5 IF APPLICABLE)

2/24/2014

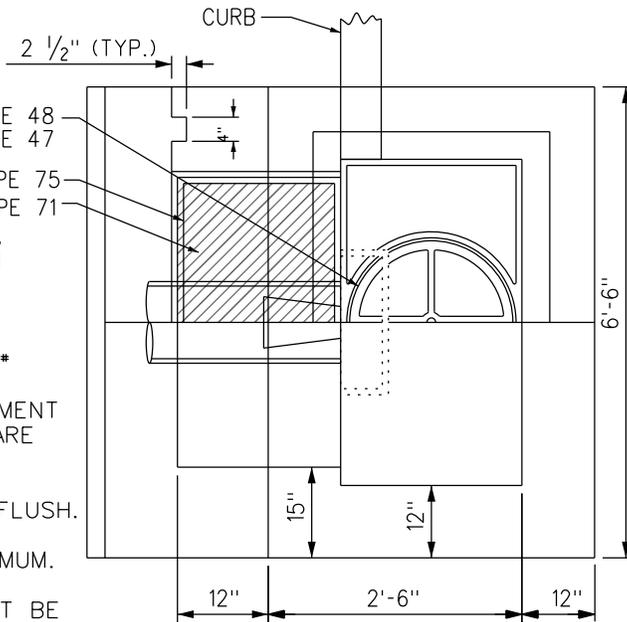
R E V I S I O N S	
1. RDH 10-20-00	
2. LRC 1-31-14	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Carrier/Casing Pipe
 Scale: N.T.S.
 Supplemental Detail Drawing: **CP-1**

NOTES:

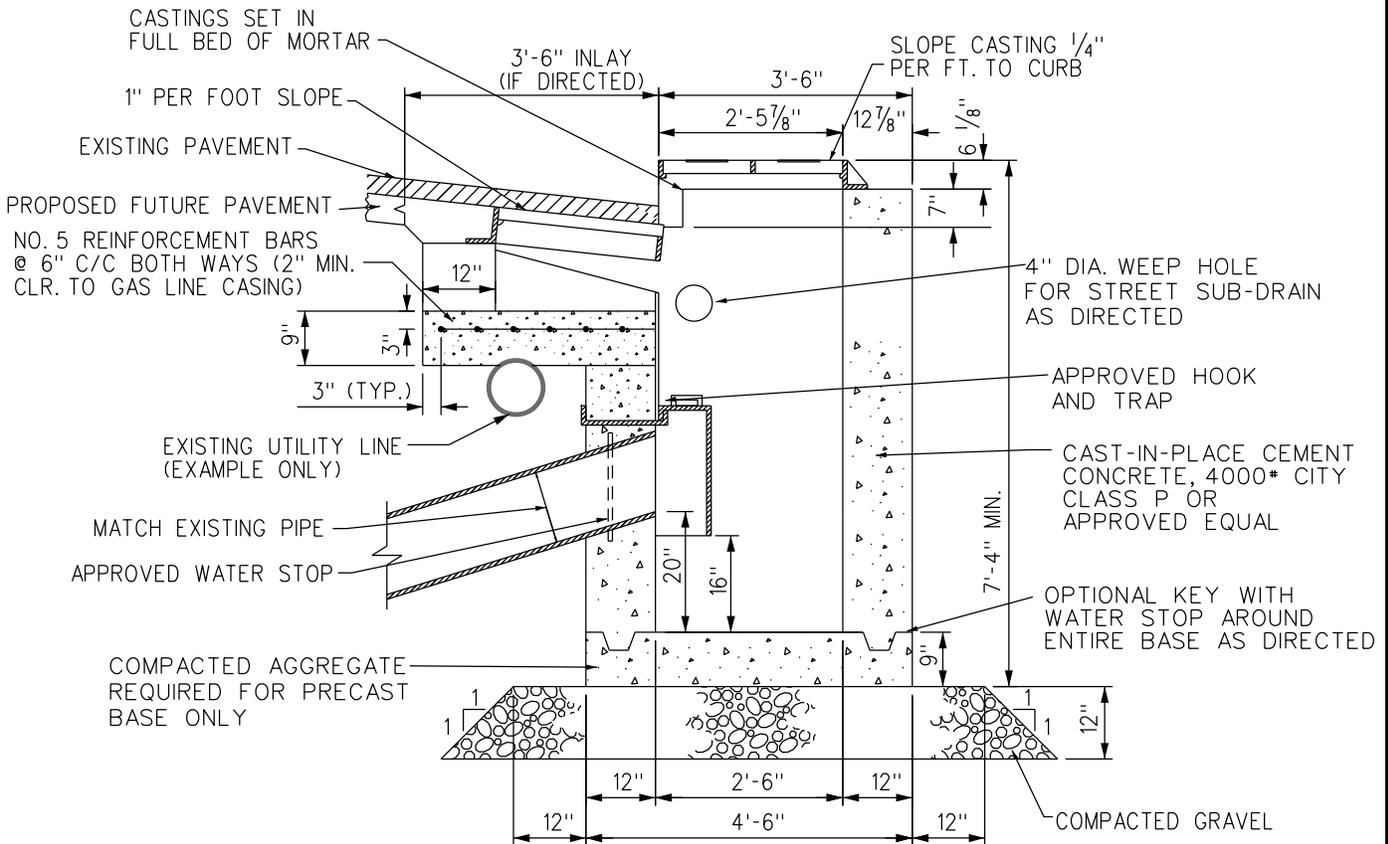
- SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
- CONCRETE FOR BASE SHALL BE 4000* CITY CLASS P. 12" THICK FOR PLAIN CEMENT, OR 8" THICK REINFORCED CEMENT FOR BASE AND WALLS. ALL REBARS ARE #6 VERTICAL BARS AT 12" C.C.
- ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
- CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
- PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
- CASTING NUMBERS ARE CITY OF PITTSBURGH/PWSA STANDARDS. HOOK PATTERN NO. 404; TRAP PATTERN NO.402-15 OR APPROVED EQUAL.
- HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL WITH APPROVED SEALER.



FRAME GRATE & CASTING SCHEDULE

HOOK #404
 TRAP #402.15
 FRAME - TYPE 75
 GRATE - TYPE 71
 CASTING - TYPE 48
 CASTING - TYPE 47

SECTIONAL PLAN - STRAIGHT CURB



SECTIONAL ELEVATION

2/24/2014

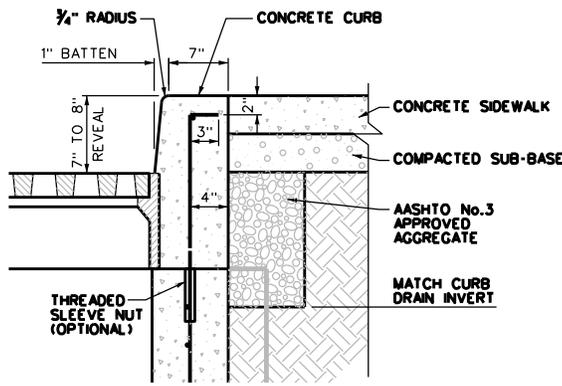
R E V I S I O N S	
1. MSR 5-13-02	
2. MAC 6-04	
3. MAC 3-18-09	
4. LRC 1-31-14	
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

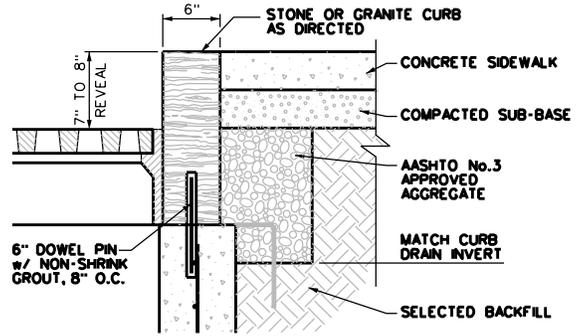
Pittsburgh Water and Sewer Authority
CATCH BASIN TYPE 1 MODIFIED
(Over Existing Utility)

Scale: N.T.S.
 Supplemental Detail Drawing: **CB1M**

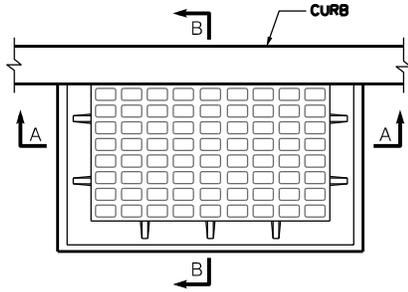
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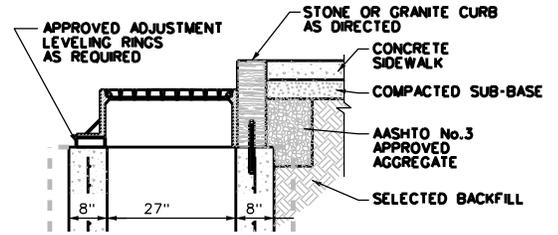
CONCRETE CURB DETAIL



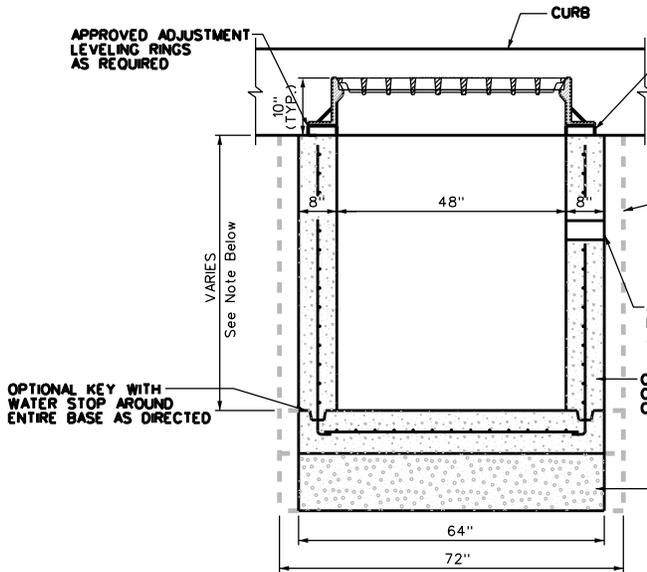
STONE CURB DETAIL



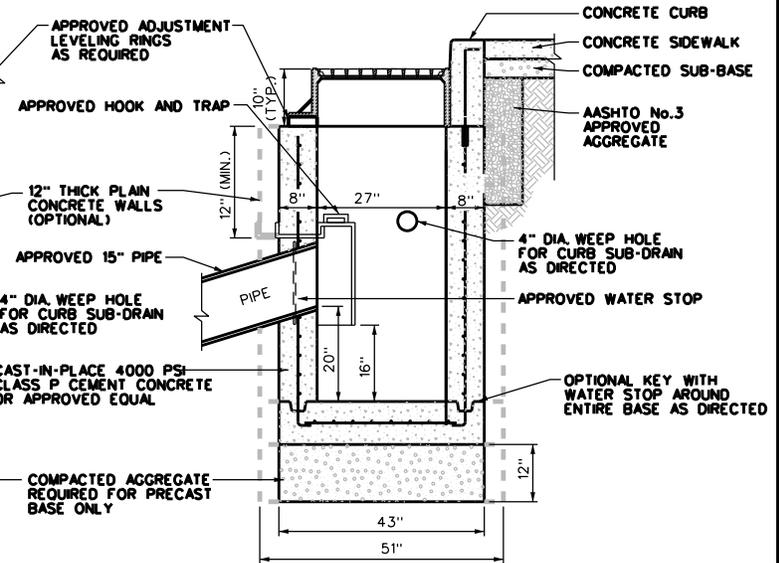
PLAN



SECTION B-B w/STONE CURB



SECTION A-A



SECTION B-B w/CONC. CURB

NOTES:

- SEE SPECIFICATIONS FOR EXCAVATION, CONSTRUCTION, AND BACKFILLING WITH APPROVED AGGREGATE AND CEMENT MIXTURES.
- CEMENT CONCRETE FOR CATCH BASIN WALL SHALL BE 4000 PSI CLASS P, 12" THICK PLAIN CONCRETE, OR 8" THICK REINFORCED CONCRETE FOR BASE AND WALLS. VERTICAL BARS FOR WALL No. 6 REBAR AT 6" O.C.; HORIZONTAL BARS FOR WALL AND/OR BASE SLAB No. 4 REBAR AT 12" O.C.
- ALL OUTSIDE JOINTS TO BE STRUCK FLUSH.
- CHAMFER ALL EXPOSED EDGES 1" MINIMUM.
- PRECAST INLETS PERMITTED, BUT MUST BE SUBMITTED FOR PWSA APPROVAL BEFORE CONSTRUCTION.
- CASTING NUMBERS ARE CITY OF PITTSBURGH/PWSA STANDARDS. HOOK PATTERN NO. 404; TRAP PATTERN NO. 402-15 OR APPROVED EQUAL.
- TYPICAL STORM INLET DEPTH IS 4' FROM BOX FLOOR TO TOP OF BOX WALL; TYPICAL CATCH BASIN DEPTH IS 6' FROM BOX FLOOR TO TOP OF BOX WALL.
- HOOD AND TRAP MUST BE SEALED TO CATCH BASIN WALL AS DIRECTED.

2/24/2014

R E V I S I O N S	
1.	DWP 4-7-05
2.	MAC 3-18-09
3.	MAC 5-19-09
4.	LRC 1-31-14

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**3-FLANGE FRAME,
 TYPE 11 CATCH BASIN**

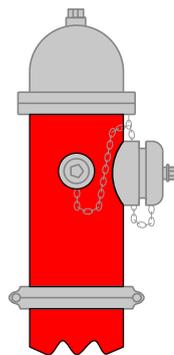
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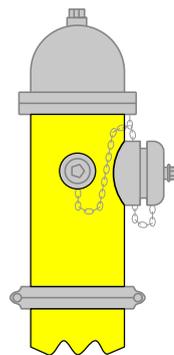
Supplemental
 Detail Drawing:

CB2005

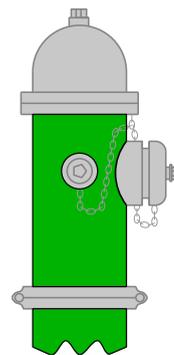
BODY COLOR CODE BY MAIN SIZE



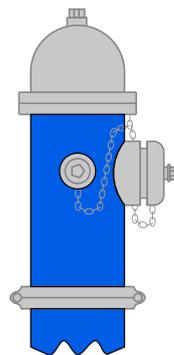
RED
MAINS 8" & SMALLER



YELLOW
MAINS 10" THRU 20"

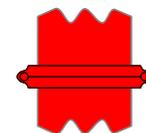


GREEN
MAINS 24" & LARGER

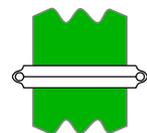
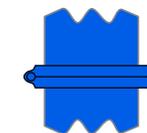
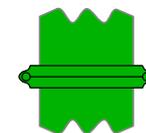
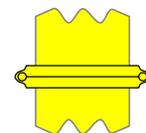


DARK BLUE
WATERWORKS HYDRANT
NOT FOR FIRE USE

BREAKAWAY RING COLOR CODE
BY No. OF MAINS CONNECTED TO THE HYDRANT

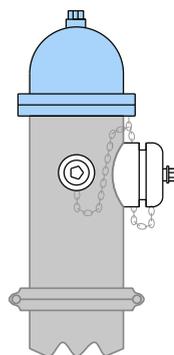


SAME AS BODY COLOR
1 MAIN

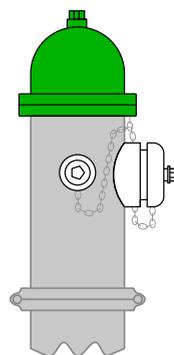


COLOR WHITE
2 OR MORE MAINS

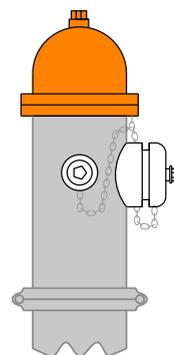
NEW BONNET COLORS WITH NFPA CODING - POTABLE WATER



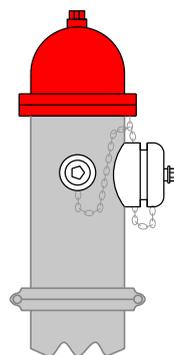
LIGHT BLUE
CLASS AA
1500 GPM OR MORE



GREEN
CLASS A
1000-1499 GPM



ORANGE
CLASS B
500-999 GPM



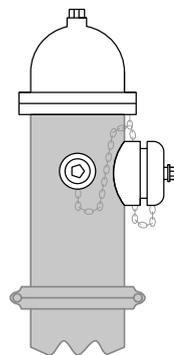
RED
CLASS C
499 GPM OR LESS

ORIGINAL BONNET & CAP COLORS PRIOR TO CONVERSION TO NFPA CODING
POTABLE vs. NON-POTABLE WATER

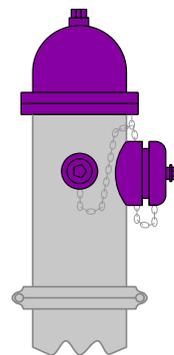


BLACK

POTABLE

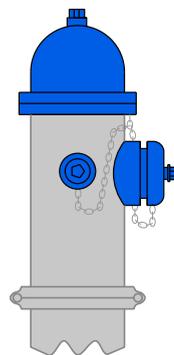


WHITE



PURPLE

NON-POTABLE



DARK BLUE



NOTE:
HYDRANT COLOR SCHEME IS CURRENTLY
BEING CONVERTED TO THE NFPA CODING
STANDARD. UPON COMPLETION, THE BLACK
AND WHITE BONNETS WILL BE OBSOLETE.

R E V I S I O N S	
1. DWP	4-05-01
2. LRC	6-05-08
3. LRC	7-24-08
3. LRC	4-12-10

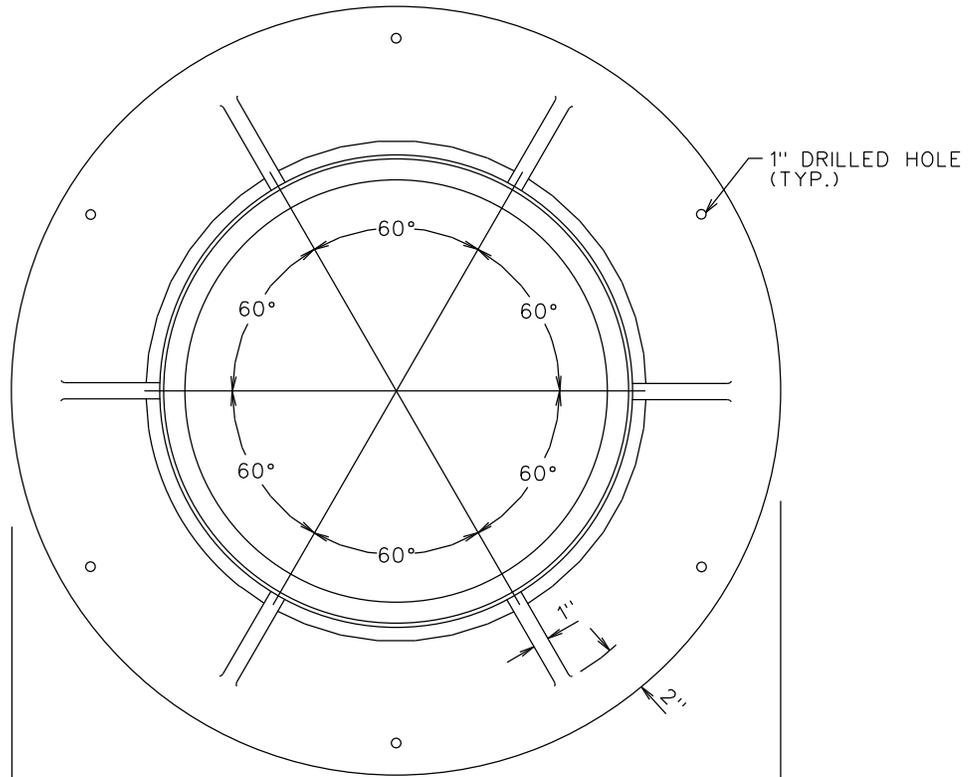


Approved by:

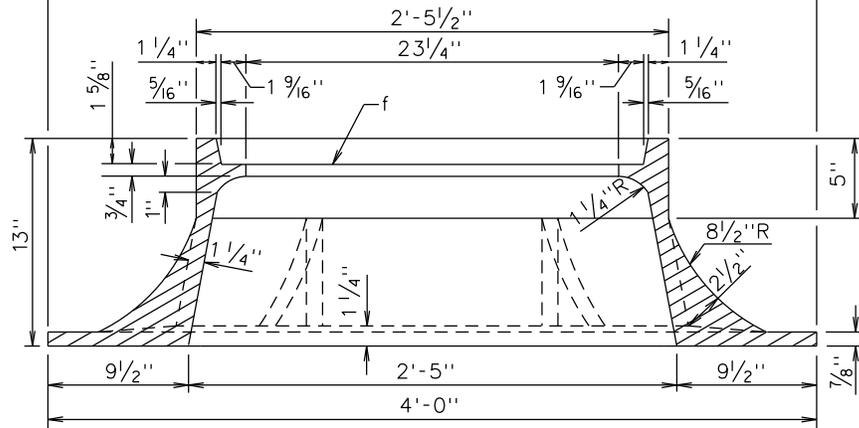
Engineering & Construction Division Scale: N.T.S.

Pittsburgh Water and Sewer Authority
Standard Hydrant Color Codes

WS-HYD



PLAN



SECTION

(FOR BRICK/BLOCKSTONE STREETS)
STANDARD WEIGHT 722 LB.

NOTES:

1. FRAMES AND COVERS MUST BE MACHINED TO INSURE GOOD BEARING AND PROPER FIT IN ANY POSITION.
2. CAST IRON SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, ASTM DESIGNATION: A48 MIN. CLASS NO. 30 GRADE MINIMUM STRENGTH.

2/24/2014

R E V I S I O N S	
1. MAC 3-3-04	
2. MAC 3-2-05	
3. DWP 10-15-05	
4. LRC 1-31-14	
Approved by:	

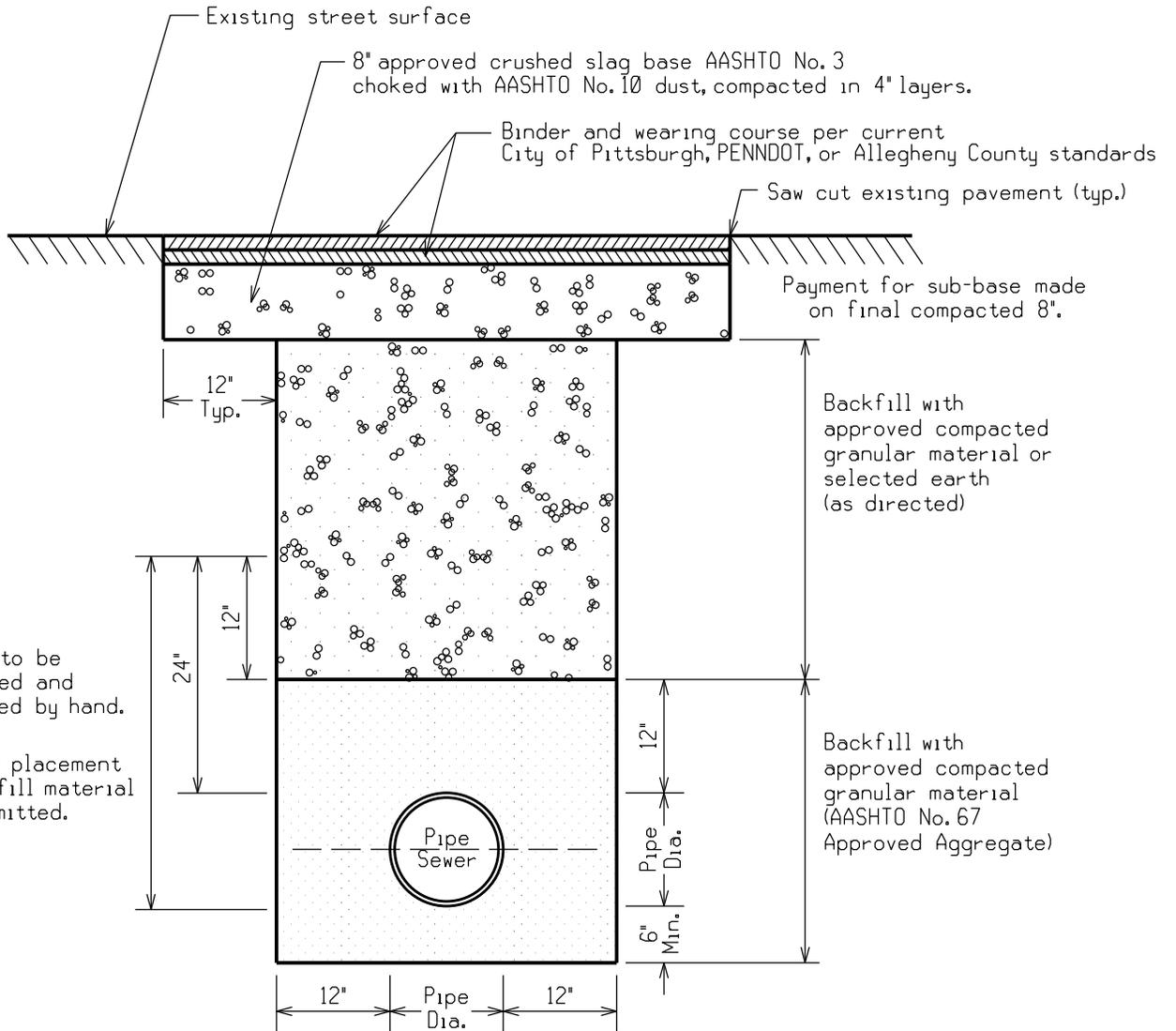
PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
MANHOLE FRAME CASTING
(CITY OF PGH / PWSA No. 23)

Scale: N.T.S.

Supplemental Detail Drawing: **MFC23**

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NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	
2. LRC 1-31-14	

Approved by:

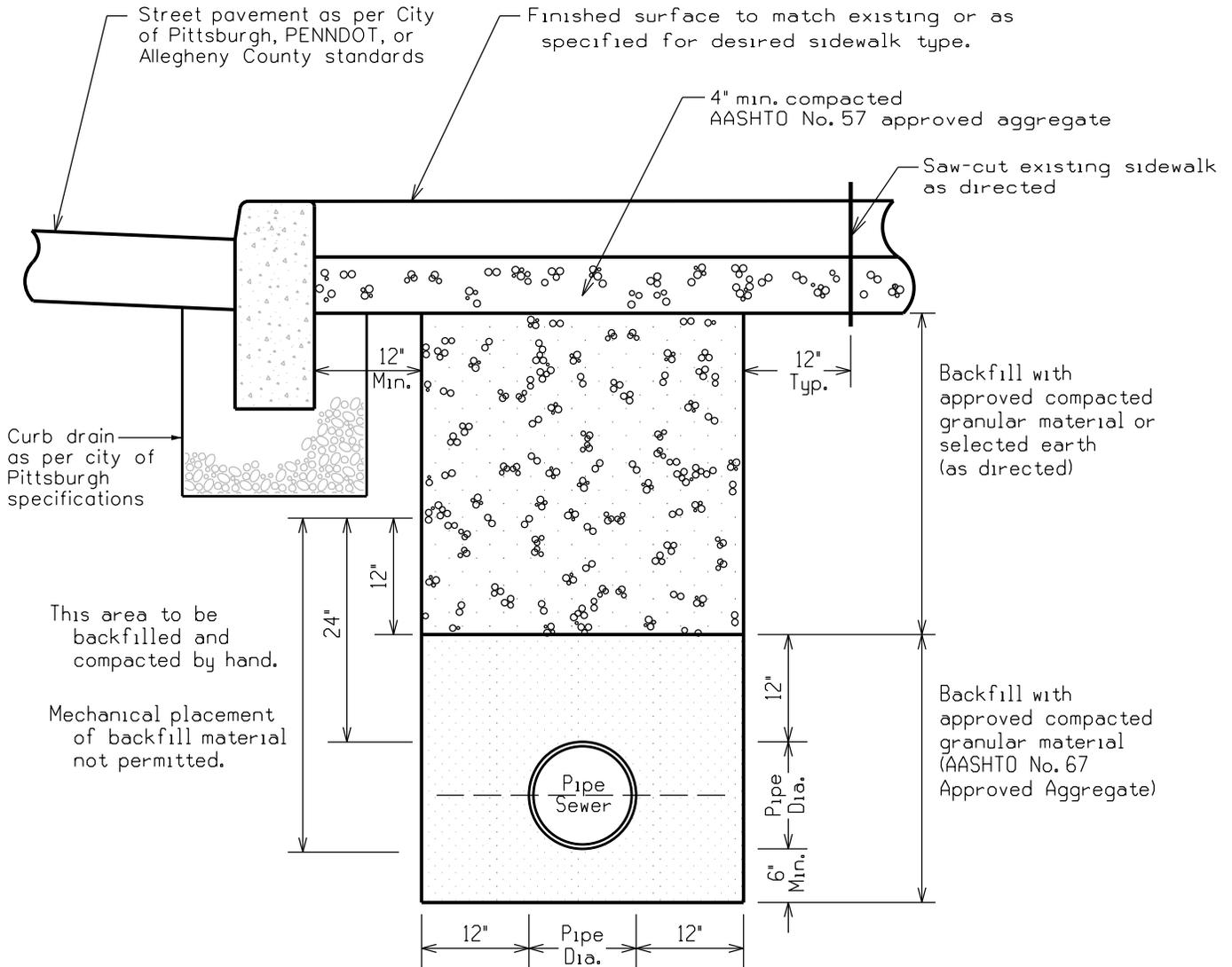
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Sewer Line Trench And Repaving
Unimproved Streets And Driveways

Scale: N.T.S.

Supplemental Detail Drawing: **SA-1A**

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NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

2/24/2014

R E V I S I O N S	
1. LRC 1-31-14	

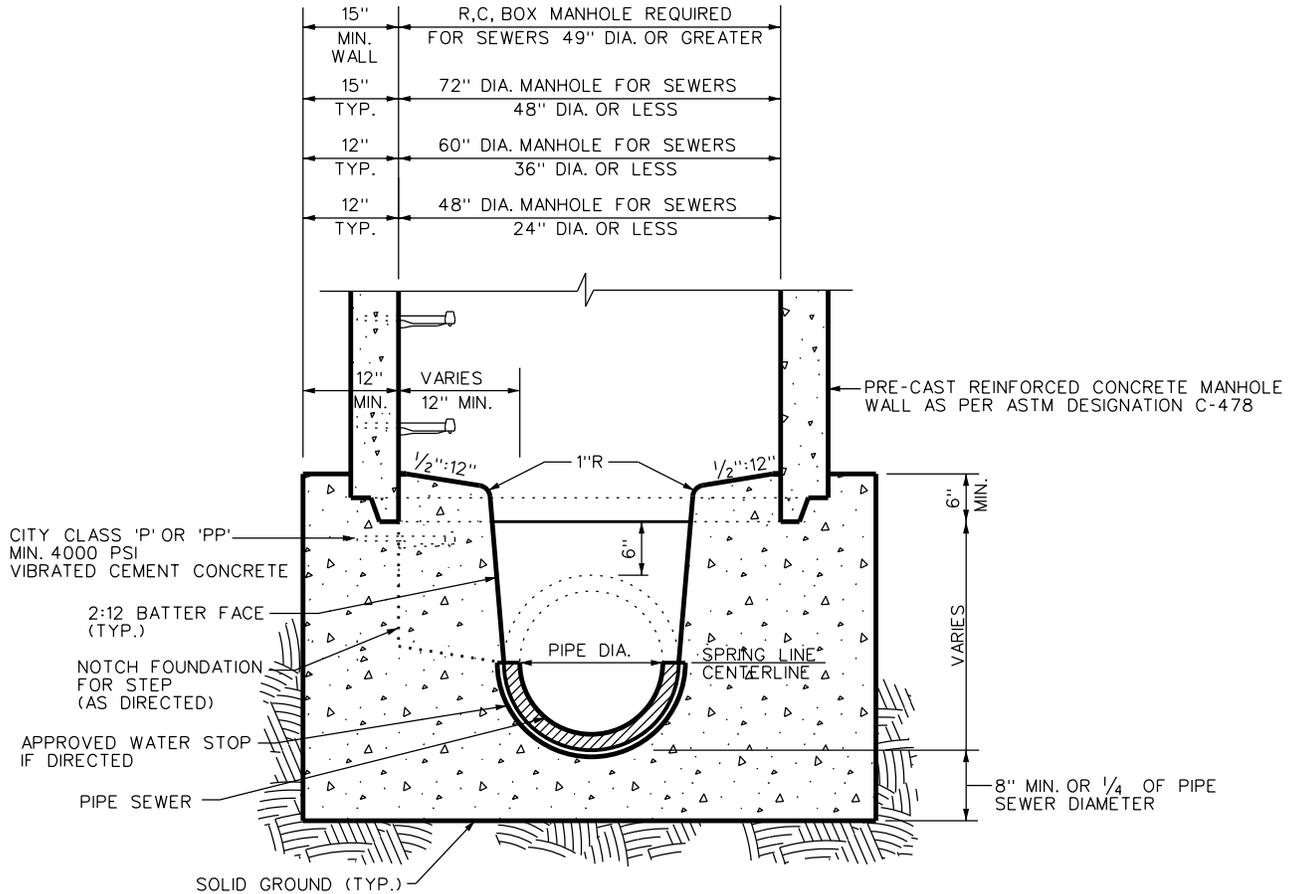
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Sewer Line Trench In Sidewalk Area

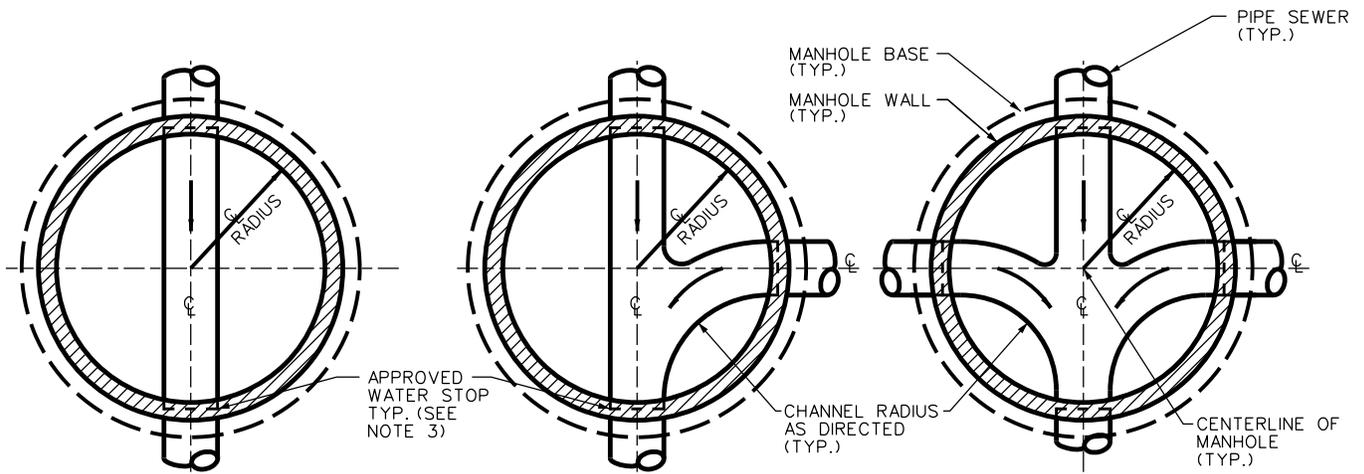
Scale: N.T.S. Supplemental Detail Drawing: **SA-1C**

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Approved by:



SECTION OF MANHOLE INVERT



PLAN VIEW OF MANHOLE INVERT - SINGLE, TWO-WAY, THREE-WAY

NOTES:

1. ADDITIONAL AND/OR ALTERNATE PIPE SEWER LAYOUT CONNECTIONS WILL BE APPROVED AS DIRECTED.
2. REINFORCED CEMENT CONCRETE BOX MANHOLE MAY BE ORDERED FOR MULTIPLE CONNECTIONS OR SPECIAL CONDITIONS (AS DIRECTED).
3. ALL PLASTIC PIPE SEWERS OR CONNECTIONS MUST HAVE APPROVED WATER STOPS OR FLEXIBLE BOOT TYPE CONNECTIONS (AS DIRECTED).
4. APPROVED MANHOLE STEPS REQUIRED IN BASE, MUST BE PER ASTM DESIGNATION A615, C478, D4101 AND AASHTO-M-199. INSTALL MANHOLE STEPS AT 12" o.c. AND NOTCH FOUNDATION AS DIRECTED. PROPOSED STEPS SHALL NOT BE PLACED IN BARREL OF FLOW LINE.
5. CLASS A MANHOLES ARE 1WAY WITH INVERT FORMED WITH SPLIT PIPE EMBEDDED IN CONCRETE. CLASS B MANHOLES ARE 2 OR 3 WAY WITH INVERT MOULDED IN CONCRETE BASE.

R E V I S I O N S	
1. MSR 4-18-01	5. DWP 10-14-05
2. JLK 9-17-03	6. MAC 4-17-06
3. MAC 6-04	7. MAC 1-12-09
4. MAC 3-2-05	8. LRC 1-31-14

Approved by:

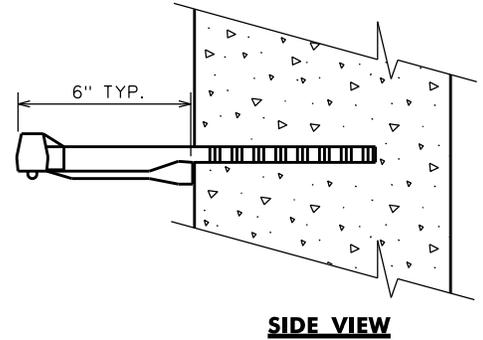
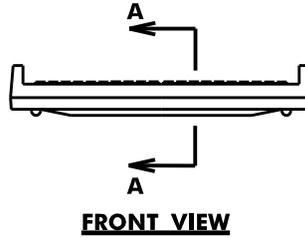
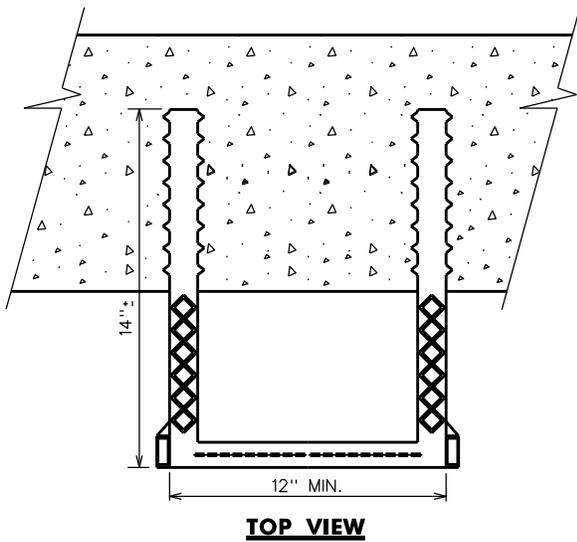
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Cast-In-Place Manhole Invert

Scale: N.T.S.
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Supplemental Detail Drawing: **SA-2A**

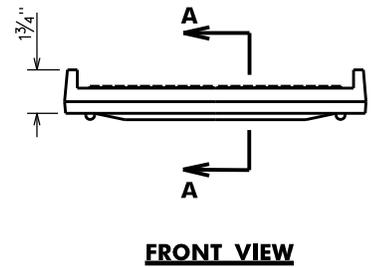
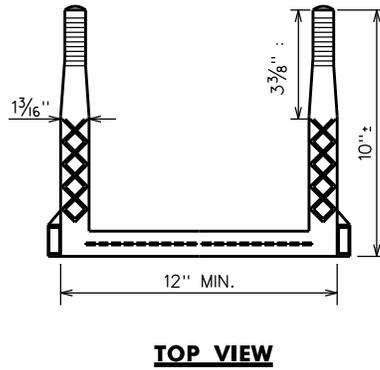
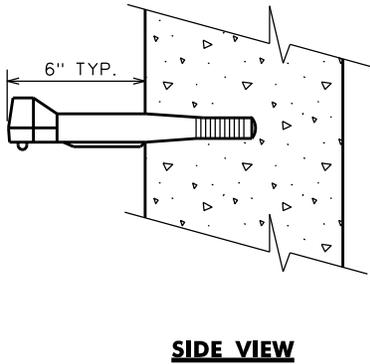
2/24/2014



TYPE 1 CAST-IN-PLACE

COLPOLYMER POLYPROPYLENE
 PLASTIC STEP WITH 1/2" (13mm)
 GRADE 60 STEEL REINFORCEMENT

SECTION A-A



TYPE 2 PRE-DRILLED HOLE

NOTES:

1. TYPICAL STEPS, SPACING AND MATERIAL AS PER ASTM DESIGNATION C-478, AASHTO M-199.
2. PLASTIC SHALL BE A CO-POLYMER POLYPROPYLENE MEETING THE REQUIREMENTS OUTLINED IN ASTM DESIGNATION D-4101 UNDER TYPE II, GRADE 49108.
3. STEEL REINFORCING BAR SHALL BE A 1/2" (13mm) DEFORMED BAR, GRADE 60 AND CONFORMING TO THE REQUIREMENTS OF ASTM DESIGNATION A-615.
4. USE TYPE 1 FOR CAST-IN-PLACE VAULTS. USE TYPE 2 FOR NEW PRECAST MANHOLES OR WHEN ADDING STEPS TO EXISTING STRUCTURES.
5. ALL STEPS SHALL BE SET VERTICALLY AT 12" CENTER TO CENTER.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. MAC 4-21-06
2. MAC 6-04	6. LRC 1-31-14
3. MAC 3-2-05	
4. DWP 10-14-05	

Approved by:

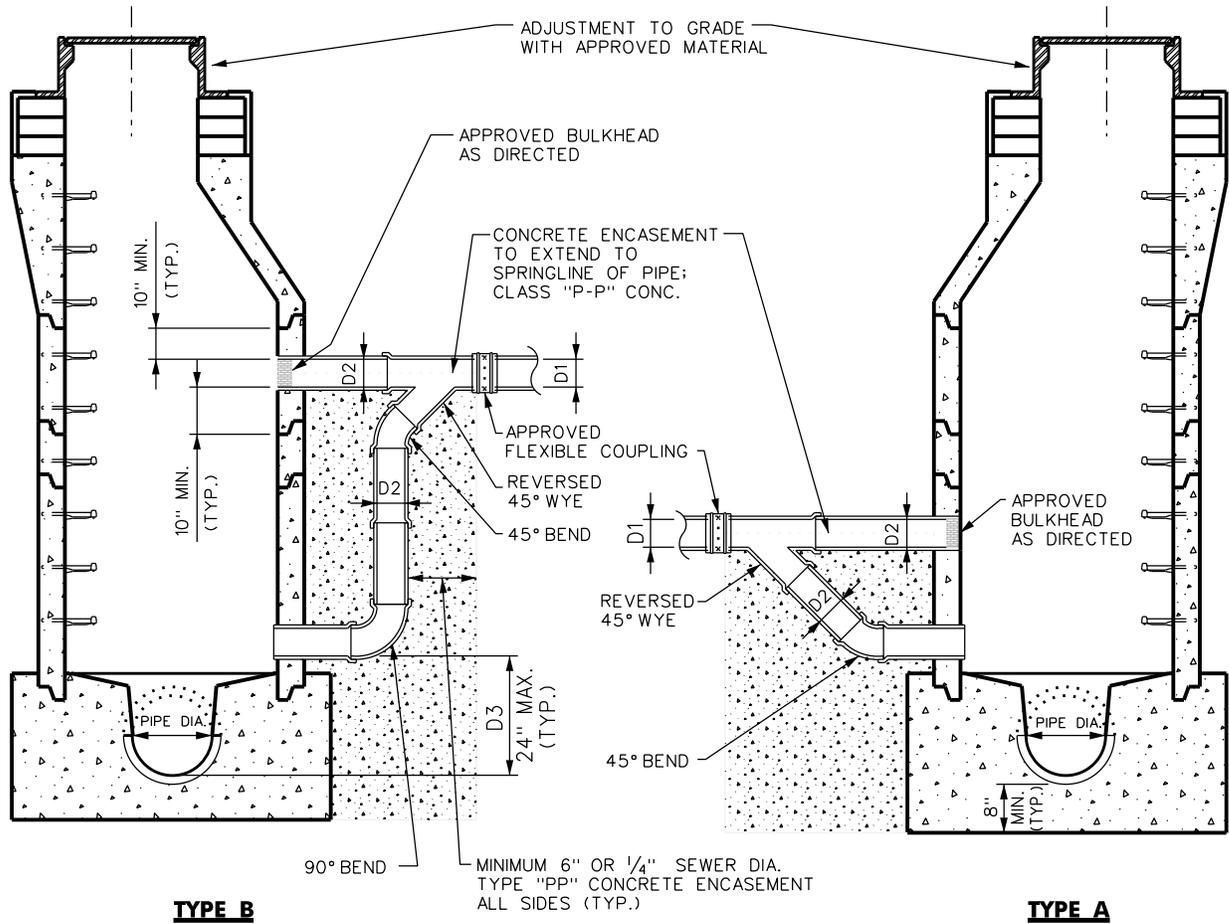
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Plastic Manhole Steps

Scale: N.T.S.

Supplemental Detail Drawing: **SA-2B**

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INLET SIZE (D1)	8"	10"	12"	14"	15"	16"	18"	24"
DROP SIZE (D2)	10"	12"	15"	15"	15"	16"	18"	24"

NOTES:

1. ALL PROVISIONS OF THE STANDARD MANHOLE DETAIL (SA-2, SA-2A, SA-10, OR SA-10A, AS APPROPRIATE) INCLUDING, BUT NOT LIMITED TO, APPLICABLE ASTM DESIGNATION STANDARDS, DIMENSIONS, AND MATERIALS, APPLY TO DROP MANHOLES.
2. ALL CEMENT ENCASED PIPE MUST BE RIGID PIPE ONLY (R.C., V.C., D.I., ETC.)
3. USE TYPE "P" CEMENT CONCRETE WHEN THE VERTICAL DROP BETWEEN THE INVERT OF THE PIPE AND MANHOLE IS GREATER THAN 3'-9".
4. SEE DETAIL SA-2A FOR ADDITIONAL MANHOLE INVERT CONSTRUCTION DETAILS.
5. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM DESIGNATION C-478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. MAC 5-15-06
2. MAC 6-04	6. LRC 1-31-14
3. MAC 3-2-05	
4. DWP 10-14-05	
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

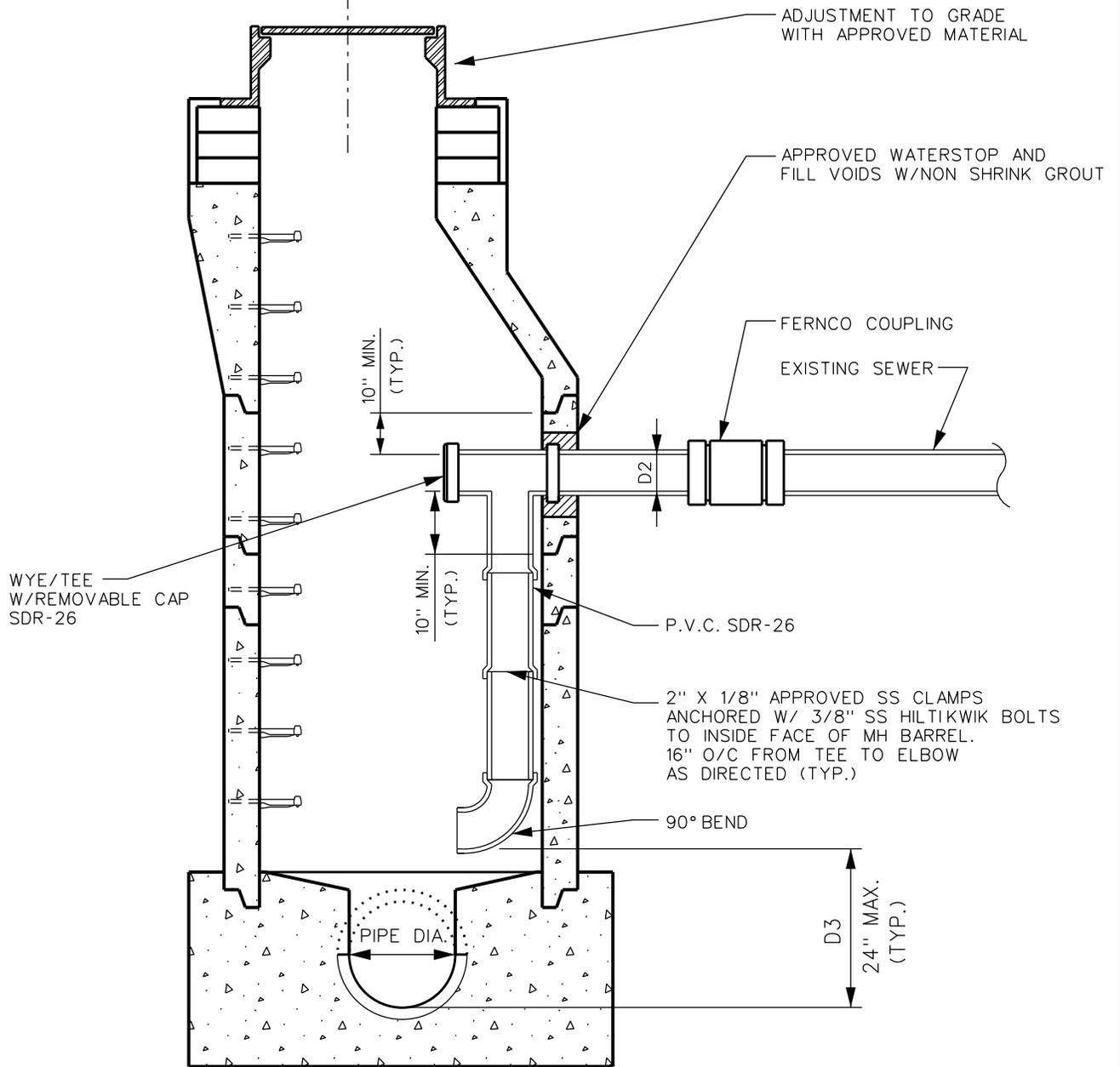
Pittsburgh Water and Sewer Authority

Outside Drop Manhole

Scale: N.T.S.

Supplemental Detail Drawing: SA-2C

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NOTES:

1. ALL PROVISIONS OF THE STANDARD MANHOLE DETAIL (SA-2, SA-2A, SA-10, OR SA-10A, AS APPROPRIATE) INCLUDING, BUT NOT LIMITED TO, APPLICABLE ASTM DESIGNATION STANDARDS, DIMENSIONS, AND MATERIALS, APPLY TO DROP MANHOLES.
2. ALL CEMENT ENCASED PIPE MUST BE RIGID PIPE ONLY (R.C., V.C., D.I., ETC.)
3. USE TYPE "P" CEMENT CONCRETE WHEN THE VERTICAL DROP BETWEEN THE INVERT OF THE PIPE AND MANHOLE IS GREATER THAN 3'-9".
4. SEE DETAIL SA-2A FOR ADDITIONAL MANHOLE INVERT CONSTRUCTION DETAILS.
5. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM DESIGNATION C-478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.

2/24/2014

R E V I S I O N S	
1.	LRC 1-31-14

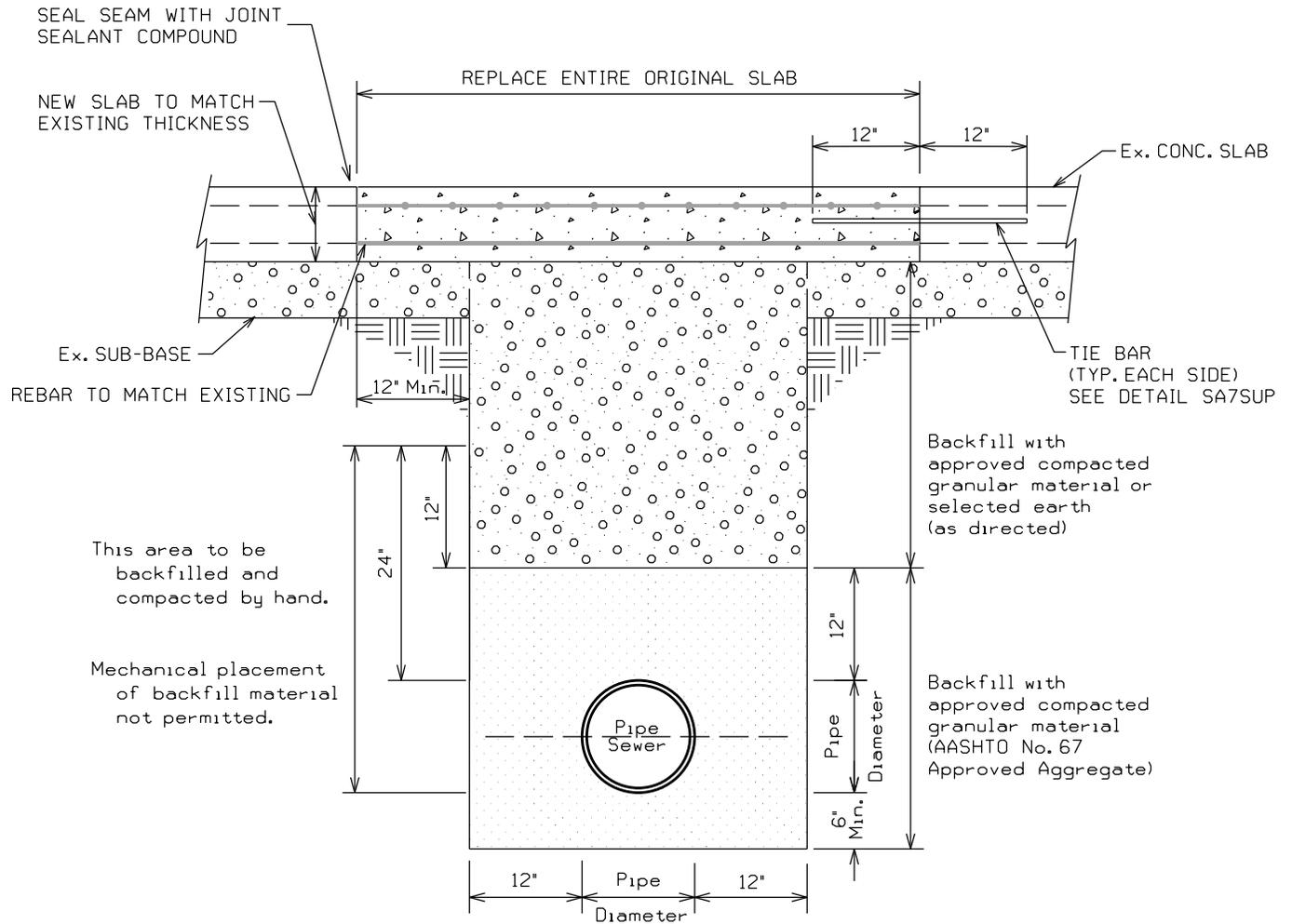
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Inside Drop Manhole

Scale: N.T.S. Supplemental Detail Drawing: **SA-2D**

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Approved by:



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

2/24/2014

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 6-14-06
3.	LRC 1-31-14

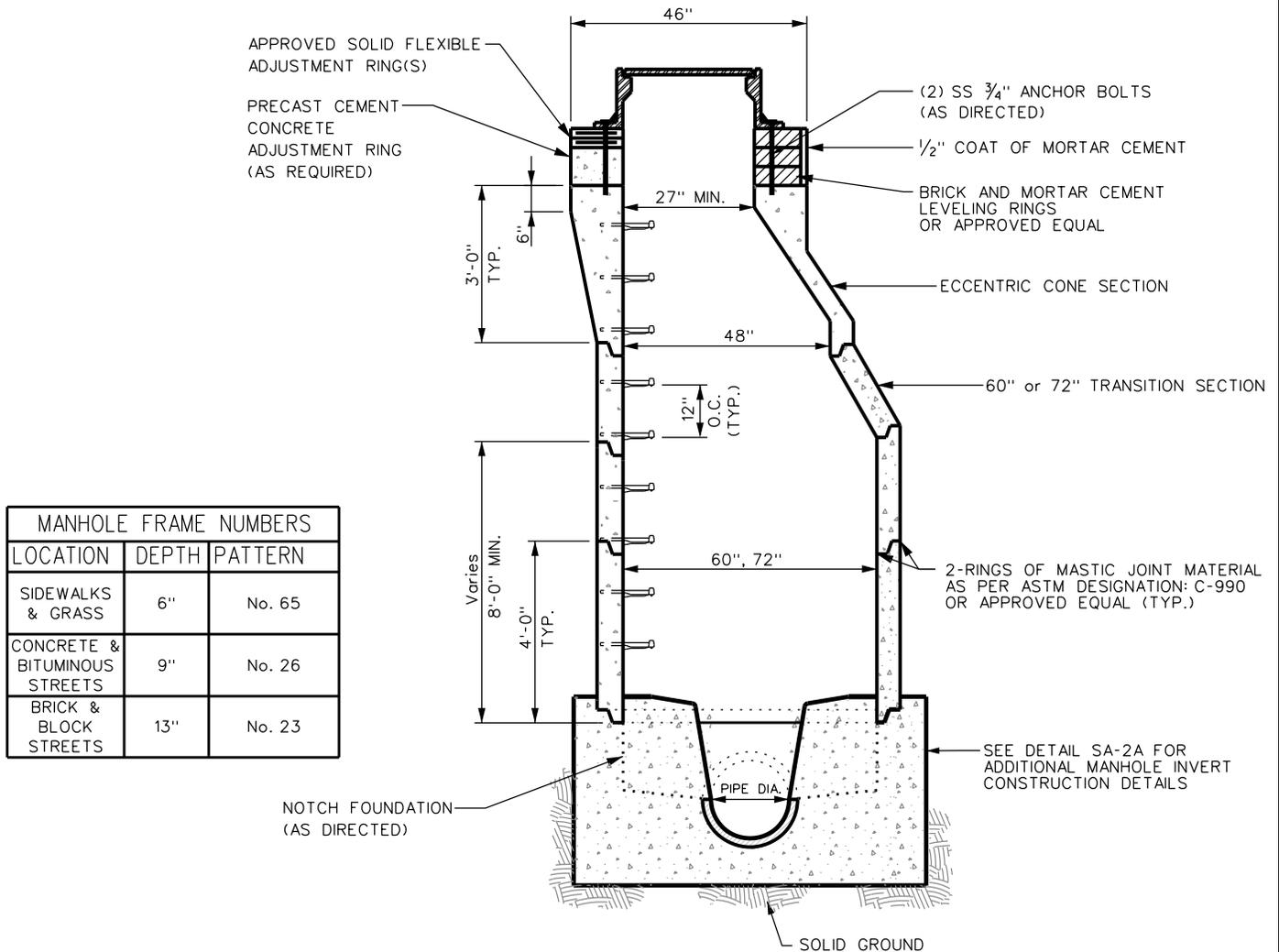
Approved by: _____

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
CONCRETE STREET TRENCH REPAVING FOR PIPE SEWER

Scale: N.T.S. Supplemental Detail Drawing: **SA-7**

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MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN
SIDEWALKS & GRASS	6"	No. 65
CONCRETE & BITUMINOUS STREETS	9"	No. 26
BRICK & BLOCK STREETS	13"	No. 23

NOTES:

1. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM DESIGNATION C-478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: 1/2" (13mm) DIA., GRADE 60, DEFORMED STEEL BAR (ASTM DESIGNATION A-615); COATED WITH POLYPROPYLENE PLASTIC (ASTM DESIGNATION D-2146, TYPE II CR. 49108). SEE DETAIL SA-2B FOR ADDITIONAL INFORMATION
3. UNLESS OTHERWISE SPECIFIED, ALL MANHOLE FRAMES SHALL BE PWSA PATTERN NUMBER AND SIZE SHOWN IN THE MANHOLE FRAMES CHART ABOVE. MANHOLE COVERS SHALL BE CITY OF PITTSBURGH/PWSA PATTERN No. 25 OR 25V AS DIRECTED. COVERS SHALL BE LETTERED "PWSA SEWER" FOR COMBINATION AND/OR SANITARY SEWERS AND "PWSA STORM" FOR STORM ONLY SEWERS IN 2" HIGH LETTERING. MANHOLE FRAME SHALL BE ANCHORED IN PLACE AT THE TOP OF THE PRECAST MANHOLE WITH TWO (2) 3/4" SS ANCHOR BOLTS. LEVELING OF CASTING SHALL BE SET TO FINISHED GRADE; MAX. 3/16" TOLERANCE PERMITTED FROM FINISHED SURFACE.
4. SANITARY SEWER MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM DESIGNATION D-1227.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. DWP 10-15-05
2. RDH 4-29-02	6. MAC 4-17-06
3. RDH 6-04	7. LRC 1-31-14
4. MAC 3-2-05	

Approved by:

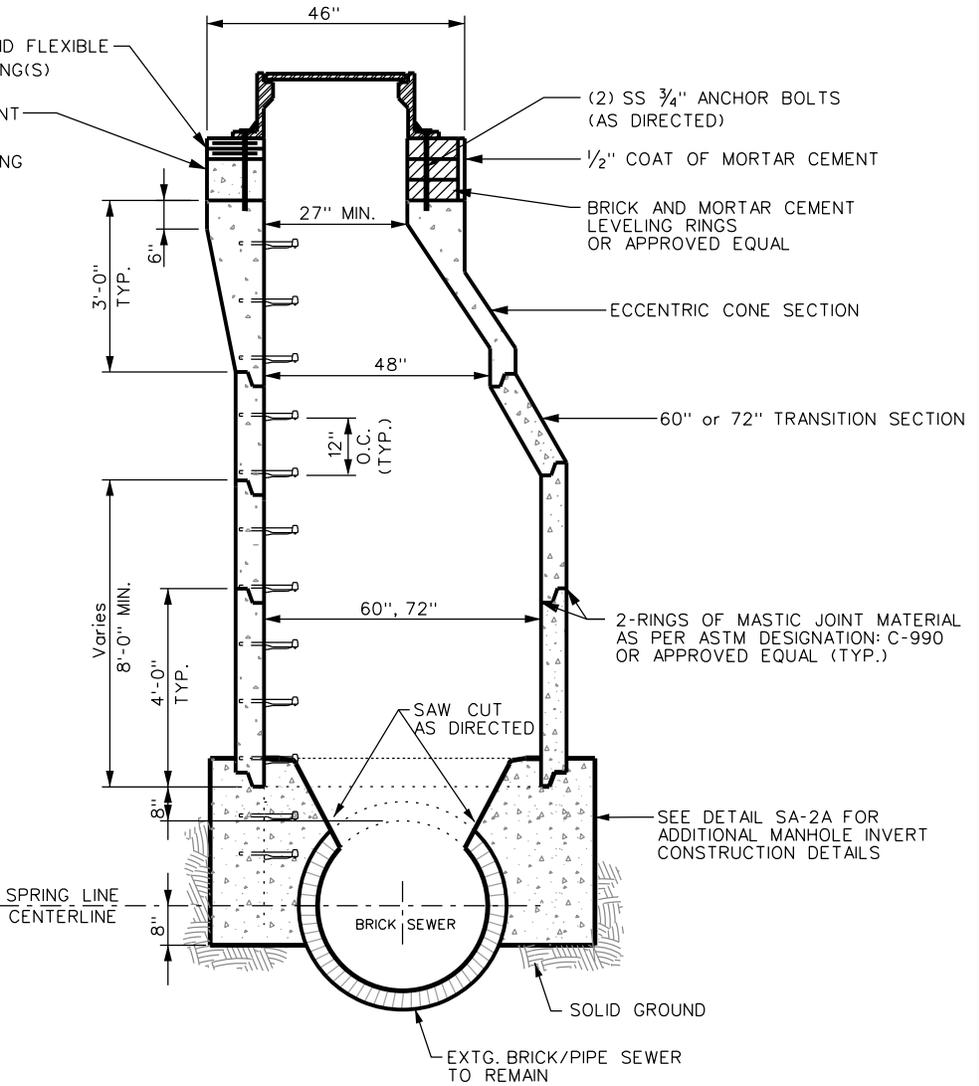
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
60", 72" Diameter
Precast Concrete Manhole

Scale: N.T.S. Supplemental Detail Drawing: **SA-10**

M:\pwsa\gis\det\Standards\stdsal0.det

MANHOLE FRAME NUMBERS		
LOCATION	DEPTH	PATTERN
SIDEWALKS & GRASS	6"	No. 65
CONCRETE & BITUMINOUS STREETS	9"	No. 26
BRICK & BLOCK STREETS	13"	No. 23

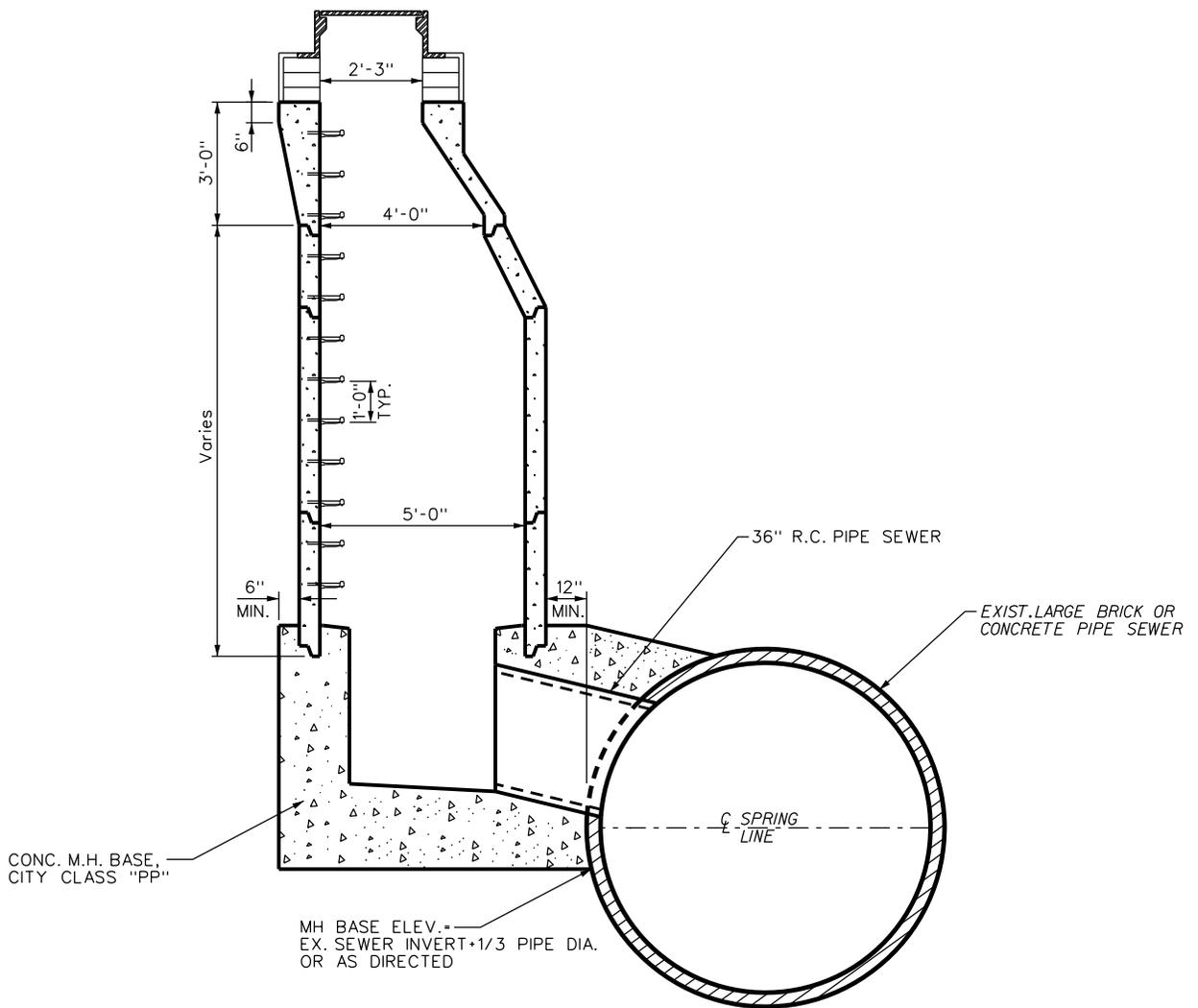


NOTES:

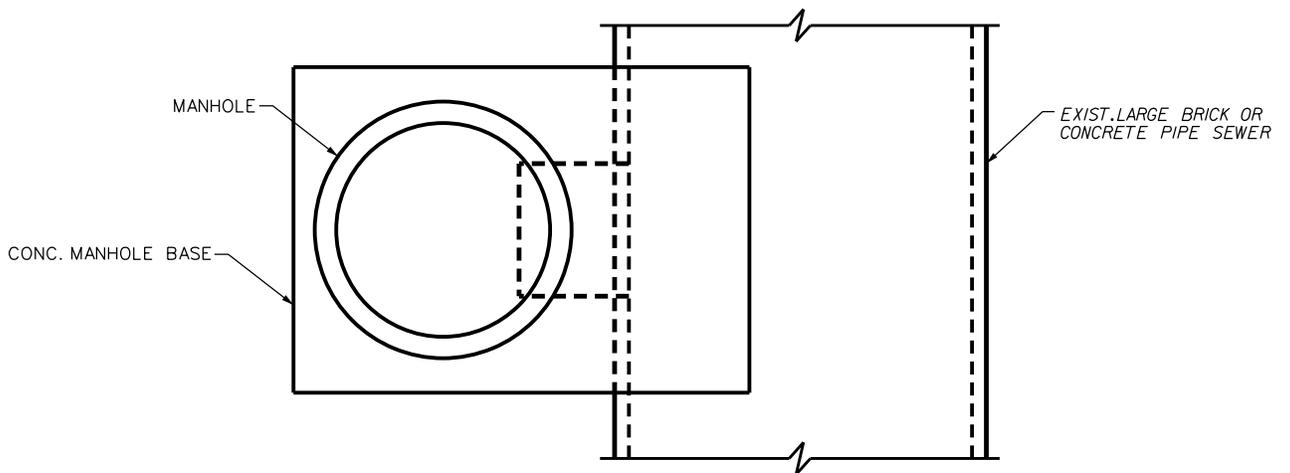
1. PRECAST MANHOLE SECTIONS SHALL COMPLY WITH ASTM DESIGNATION C-478. LENGTHS MAY BE VARIED TO OBTAIN DESIRED DEPTH.
2. MANHOLE STEPS: 1/2" (13mm) DIA., GRADE 60, DEFORMED STEEL BAR (ASTM DESIGNATION A-615); COATED WITH POLYPROPYLENE PLASTIC (ASTM DESIGNATION D-2146, TYPE II CR. 49108). SEE DETAIL SA-2B FOR ADDITIONAL INFORMATION.
3. UNLESS OTHERWISE SPECIFIED, ALL MANHOLE FRAMES SHALL BE PWSA PATTERN NUMBER AND SIZE SHOWN IN THE MANHOLE FRAMES CHART ABOVE. MANHOLE COVERS SHALL BE CITY OF PITTSBURGH/PWSA PATTERN No. 25 OR 25V AS DIRECTED. COVERS SHALL BE LETTERED "PWSA SEWER" FOR COMBINATION AND/OR SANITARY SEWERS AND "PWSA STORM" FOR STORM ONLY SEWERS IN 2" HIGH LETTERING. MANHOLE FRAME SHALL BE ANCHORED IN PLACE AT THE TOP OF THE PRECAST MANHOLE WITH TWO (2) 3/4" SS ANCHOR BOLTS. LEVELING OF CASTING SHALL BE SET TO FINISHED GRADE; MAX. 3/16" TOLERANCE PERMITTED FROM FINISHED SURFACE.
4. SANITARY SEWER MANHOLES MUST BE WATERPROOFED ON THE EXTERIOR WITH AN APPROVED ASPHALT EMULSION FOUNDATION COATING. MATERIALS AND APPLICATION SHALL BE IN ACCORDANCE WITH ASTM DESIGNATION D-1227.

2/24/2014

R E V I S I O N S			Pittsburgh Water and Sewer Authority 60", 72" Diameter Precast Concrete Manhole Over Existing Brick Pipe Sewer	
1.	LRC 1-31-14			
Approved by:		Scale: N.T.S.	Supplemental Detail Drawing: SA-10A	
Engineering & Construction Division		M:\pwsa\gms\det\Standards\stdsal0a.det		



SECTION



PLAN

R E V I S I O N S	
1. MAC 3-1-04	
2. LRC 1-31-14	

Approved by:

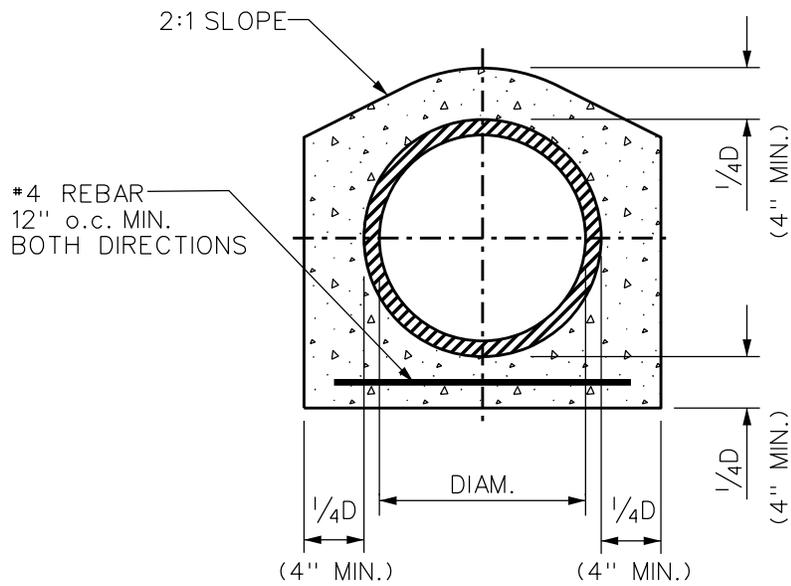
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Manhole On Large Diameter Sewer
 Offset / Side Connection**

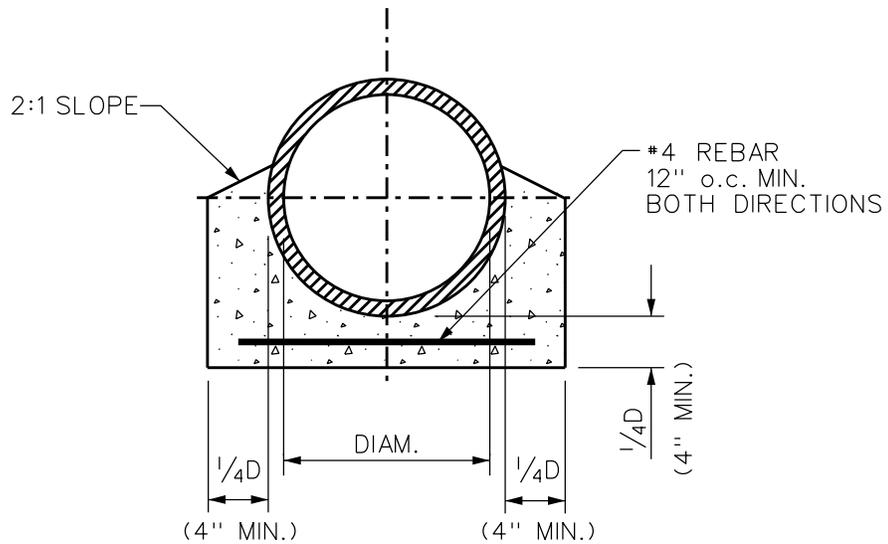
Scale: N.T.S.
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Supplemental Detail Drawing: **SA-10C**

2/24/2014



TYPE A CONCRETE ENCASEMENT REINFORCEMENT



TYPE B CONCRETE CRADLE REINFORCEMENT

NOTES:

1. CEMENT CONCRETE REINFORCEMENT SHALL BE MINIMUM 28 DAY, VIBRATED, 4000* AIR-ENTRAINED.
2. DETAILS SHOWN ARE FOR MINIMUM GENERAL CONDITIONS. SPECIFIC CERTAIN SOIL CONDITIONS MAY REQUIRE ADDITIONAL ENGINEERING REINFORCEMENT DESIGN.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. JEK 2-20-03	
3. MAC 3-2-04	
4. JLK 10-28-04	
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

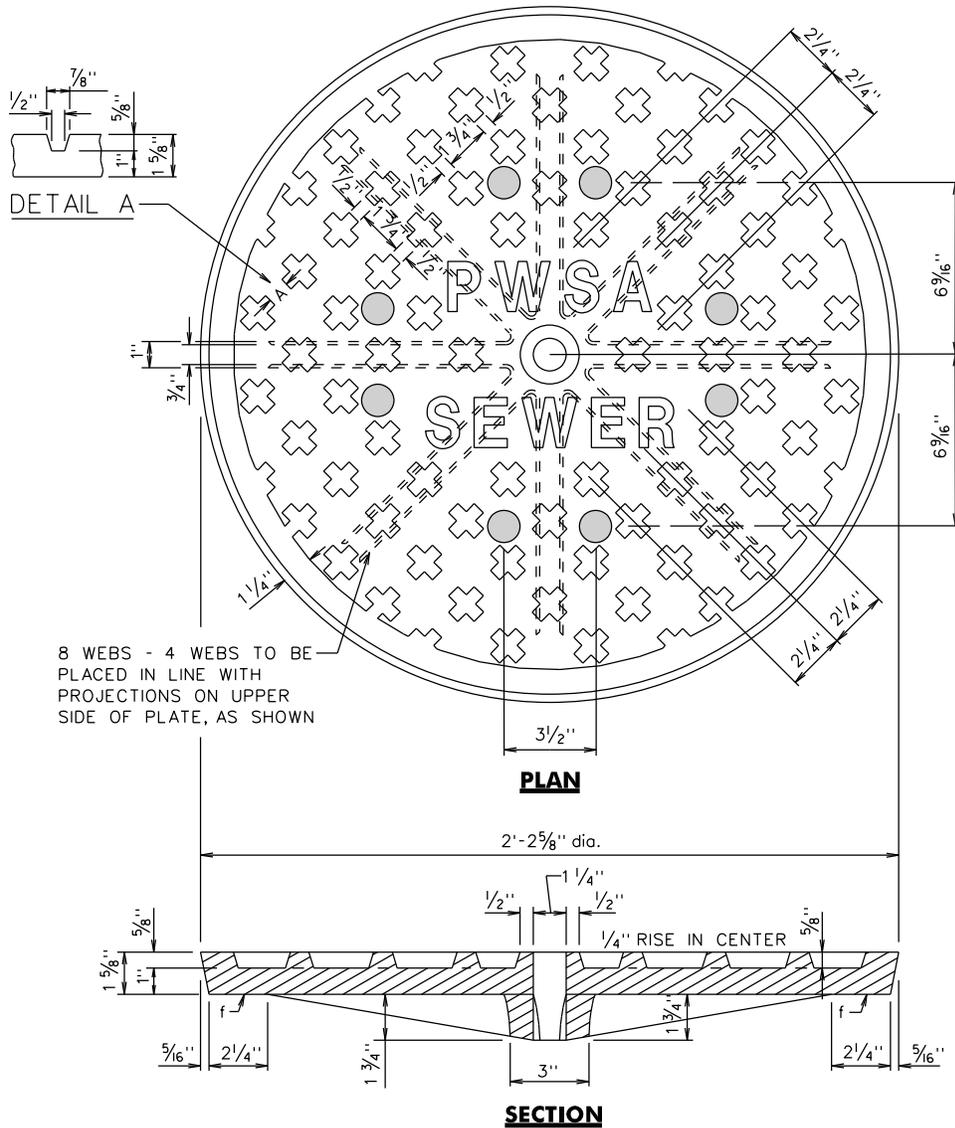
Pittsburgh Water and Sewer Authority

Concrete Reinforcement For Rigid Pipe

Scale: N.T.S.

Supplemental Detail Drawing: **SA-CE**

M:\pwsa\gis\det\Standards\stdsace.det



NOTES:

1. 2" HIGH LETTERING SHALL NOTE "PWSA" AND "SEWER" FOR ALL COMBINATION AND SANITARY SEWERS. FOR STORM ONLY SEWERS, CHANGE THE LABEL 'SEWER' TO 'STORM'.
2. FRAMES AND COVERS MUST BE MACHINED TO INSURE GOOD BEARING AND PROPER FIT IN ANY POSITION.
3. VENT HOLES IN LID REQUIRED FOR COMBINATION AND SANITARY SEWERS (AS DIRECTED). VENT HOLES IN LID FOR STORM SEWERS ARE OPTIONAL.
4. CAST IRON SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, ASTM DESIGNATION: A48 CLASS No. 30 MINIMUM STRENGTH.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. MAC 3-2-05	
3. DWP 10-20-05	
4. MAC 8-13-07	
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Sewer Manhole Cover Casting

Scale: N.T.S.

Supplemental Detail Drawing: **SMHCOV**

M:\pwsa\qis\det\Standards\stdsmhcov.det

MH STEPS

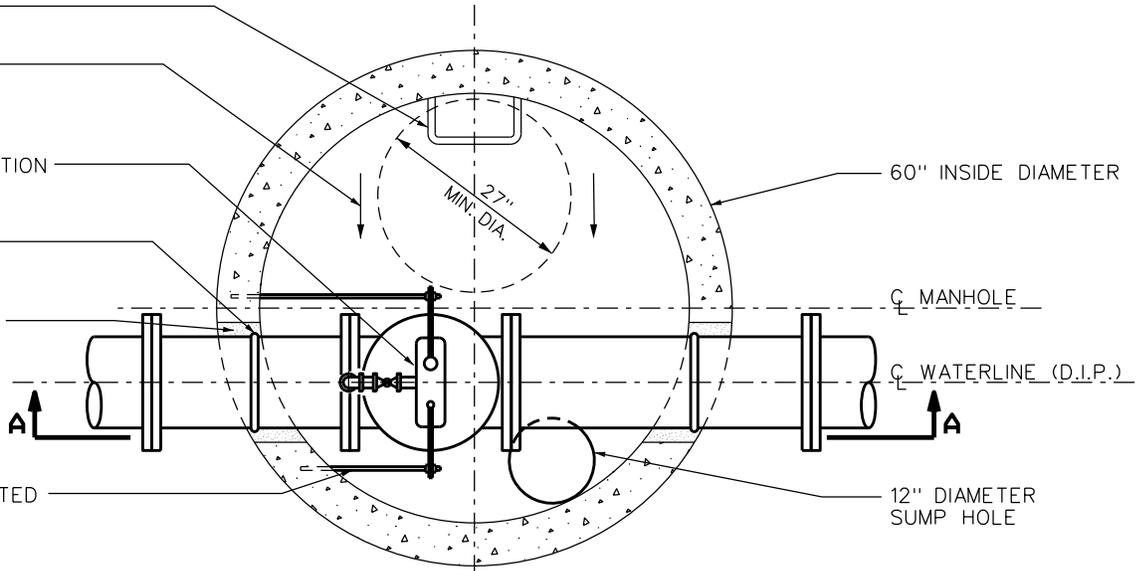
GROUT FILL SLOPE
1/4" PER FT. AWAY
FROM M.H. STEPS

APPROVED COMBINATION
AIR/VACUUM VALVE

NEOPRENE M.H.
WATER STOP

NON-SHRINK GROUT

RISER CLAMP W/
ALL THREAD ROD
CINCH ANCHORED
TO WALL AS DIRECTED



PLAN

MATCH EXISTING STREET
PAVEMENT OR SURFACE

3/4" DIA. 316SS ANCHOR BOLTS
(2 REQUIRED)

CASTING TO SET
ON "CONSEAL" BED
OR APPROVED EQUAL

PRECAST CONCRETE
TOP SLAB, DESIGN FOR
AASHTO H-20 LOADING

APPROVED COMBINATION
AIR/VACUUM VALVE

RISER CLAMP W/
ALL THREAD ROD
CINCH ANCHORED
TO WALL AS DIRECTED

MASTIC JOINT MATERIAL
"CONSEAL" OR APPROVED
EQUAL; TWO CONTINUOUS BEADS

ELBOW & DISCHARGE PIPE

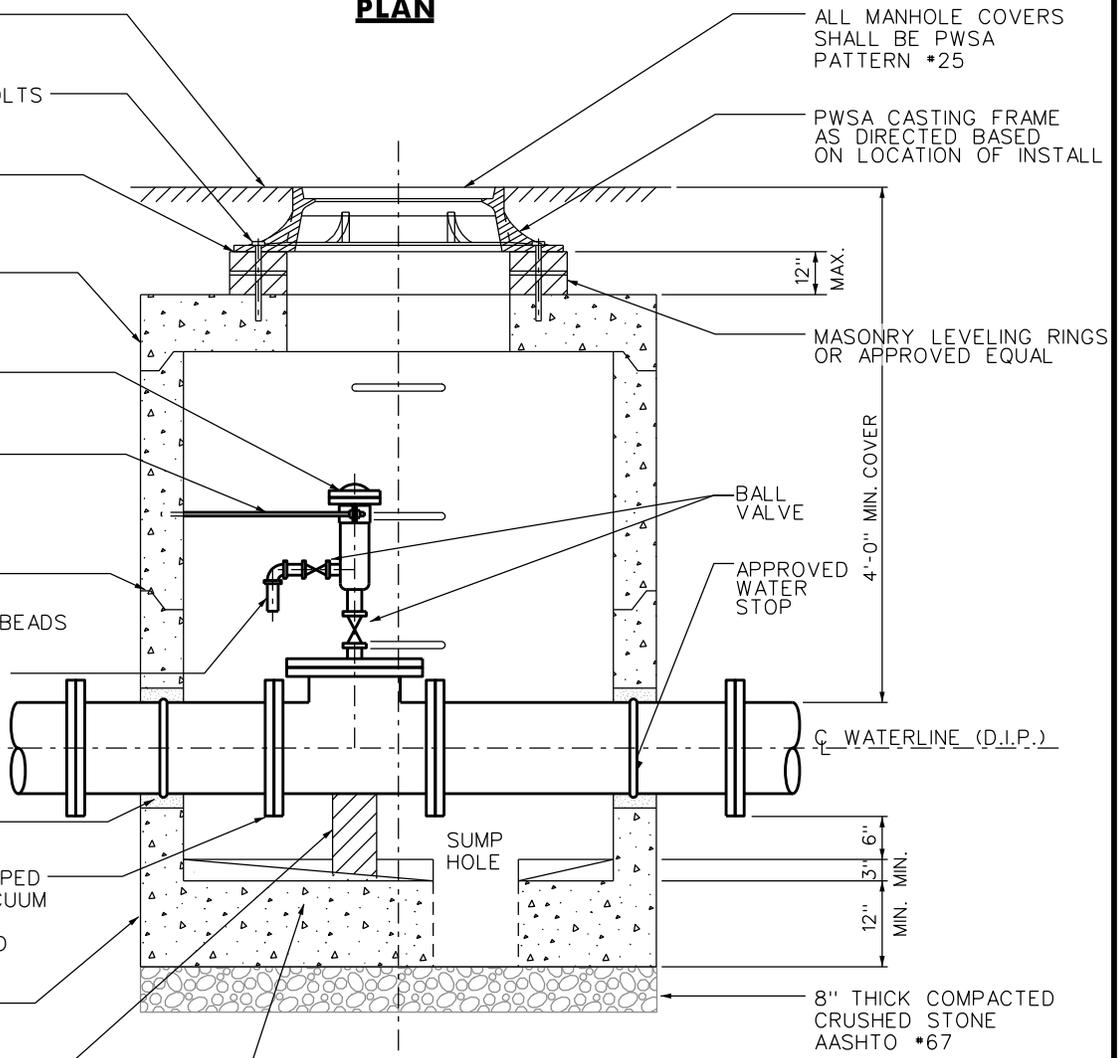
NON-SHRINK GROUT

TEE W/BLIND FLANGE TAPPED
FOR COMBINATION AIR/VACUUM
VALVE; ALTERNATE TAP
CONNECTION AS APPROVED

CAST-IN-PLACE BASE
OR APPROVED ALTERNATE

MASONRY SUPPORT

SLOPE AWAY FROM
M.H. STEPS TO FORM
SUMP AREA DRAIN



SECTION A-A

NOTE: INSULATE AROUND CORPORATION STOP
TO AIR/VACUUM VALVE AS REQUIRED.

R E V I S I O N S	
1.	MSR 4-18-01
2.	LRC 1-31-14

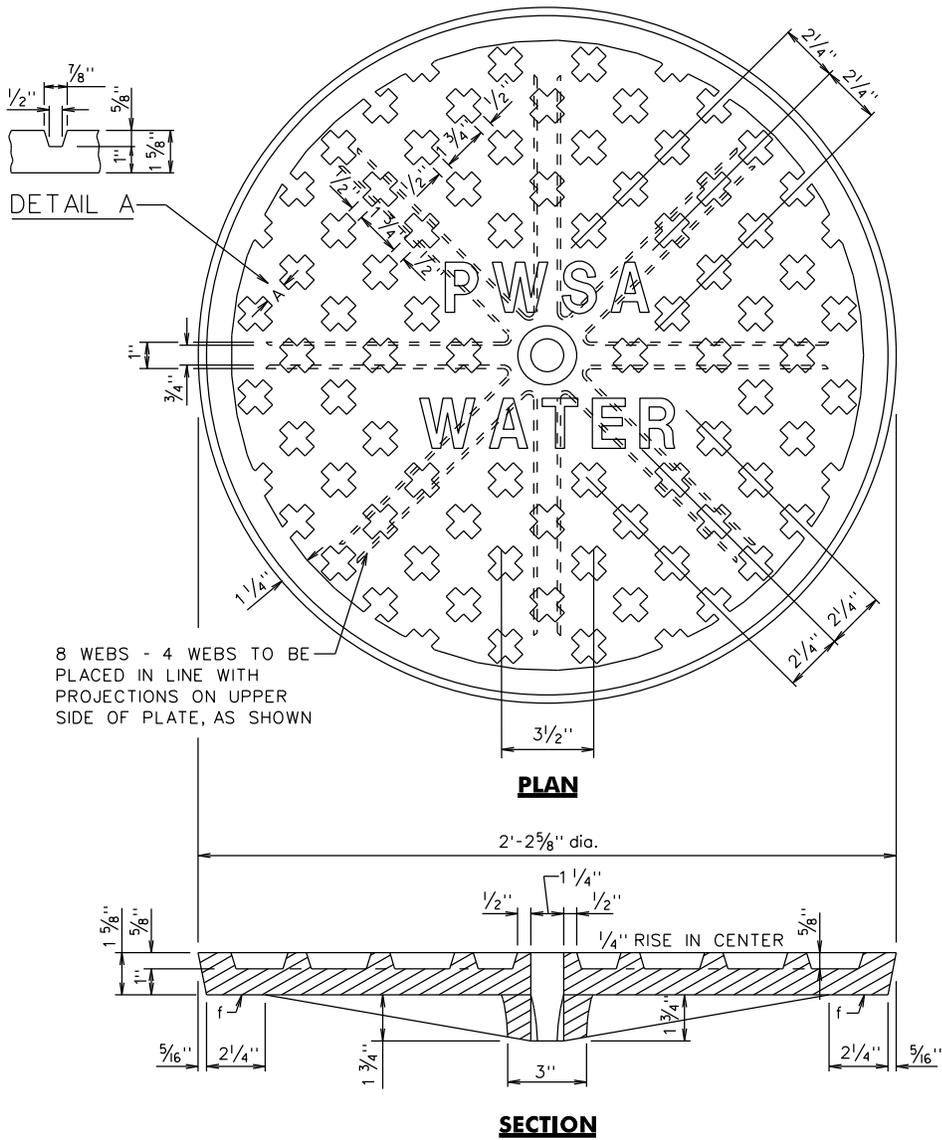
PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Waterline Combination Air / Vacuum Valve
And Manhole**
Scale: N.T.S.
Supplemental Detail Drawing: **WAV-1**

Approved by:

M:\pwsa\gis\det\Standards\stdwav1.det

2/24/2014



8 WEBS - 4 WEBS TO BE PLACED IN LINE WITH PROJECTIONS ON UPPER SIDE OF PLATE, AS SHOWN

NOTES:

1. 2" LETTERING SHALL NOTE "PWSA" AND "WATER" (TYP.)
2. FRAMES AND COVERS MUST BE MACHINED TO INSURE GOOD BEARING AND PROPER FIT IN ANY POSITION.
3. CAST IRON SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS, ASTM DESIGNATION: A48 CLASS No. 30 MINIMUM STRENGTH.

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	5. LRC 1-31-14
2. MAC 3-2-05	
3. DWP 10-20-05	
4. MAC 8-14-07	

Approved by:

Engineering & Construction Division

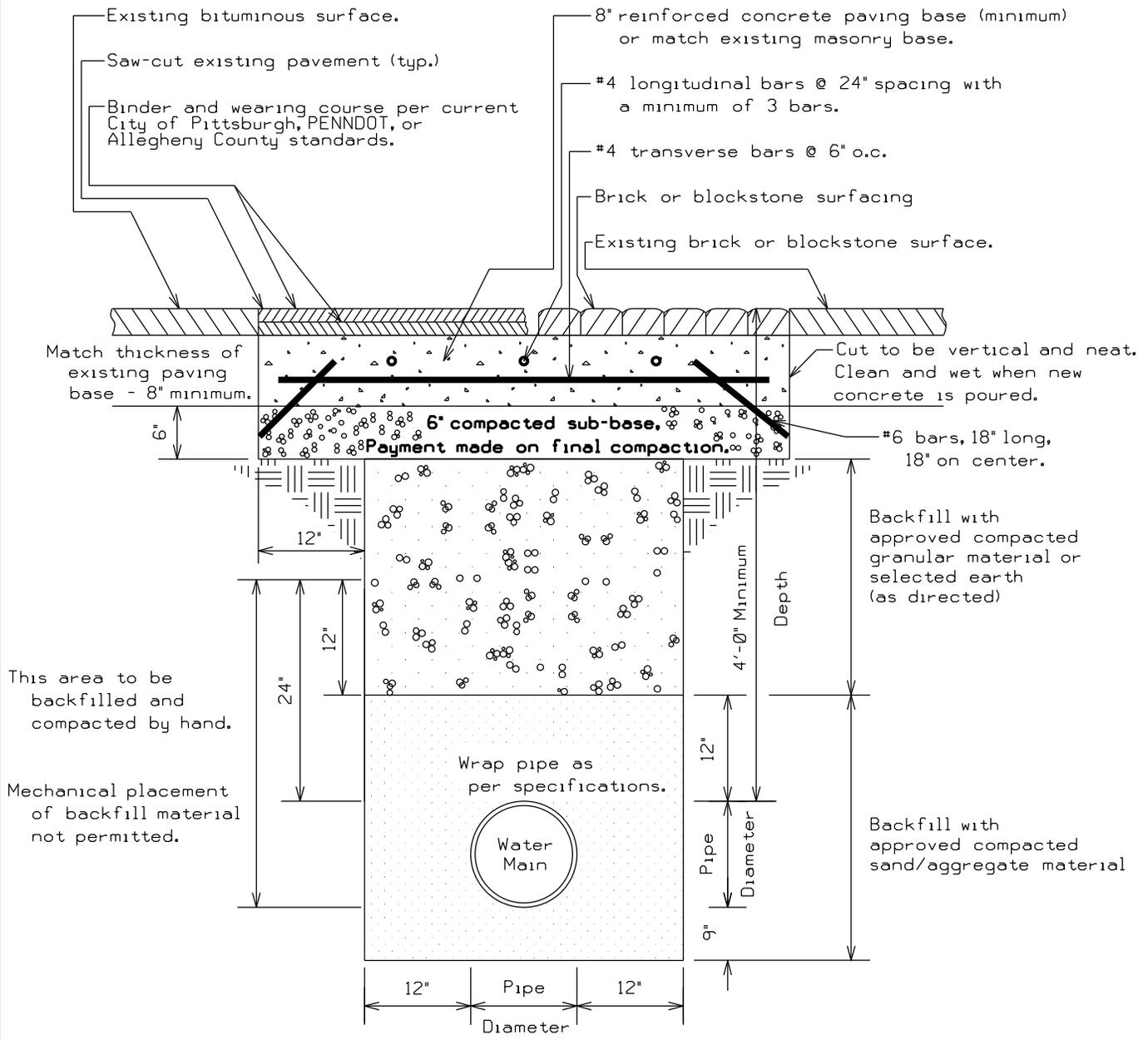
Pittsburgh Water and Sewer Authority

Water Manhole Cover Casting

Scale: N.T.S.

Supplemental Detail Drawing: **WMHCOV**

M:\pwsa\gis\det\Standards\std\wmhcov.det



This area to be backfilled and compacted by hand.

Mechanical placement of backfill material not permitted.

Backfill with approved compacted granular material or selected earth (as directed)

Backfill with approved compacted sand/aggregate material

NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

2/24/2014

R E V I S I O N S	
1. MSR 4-18-01	
2. MAC 8-13-07	
3. LRC 1-31-14	
Approved by:	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

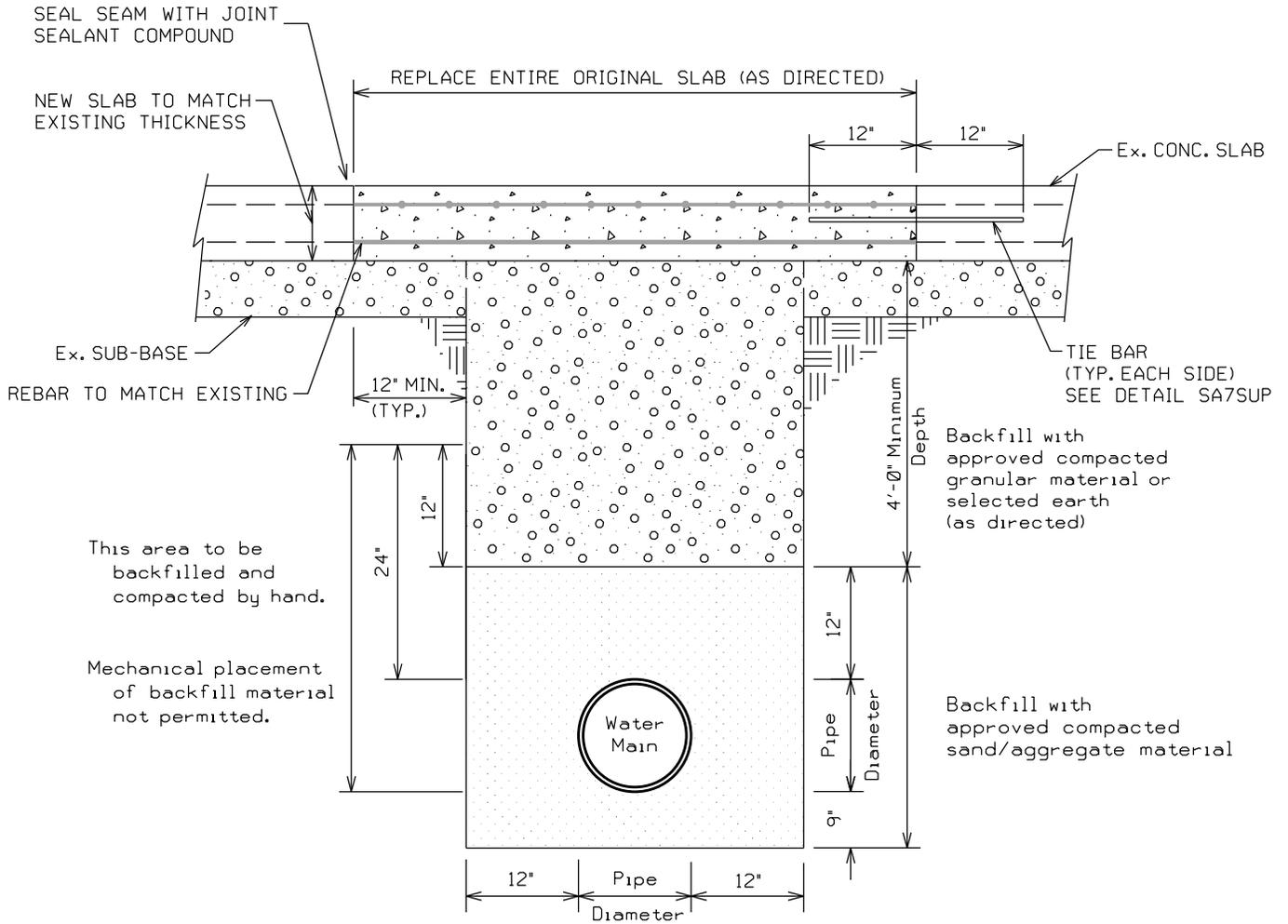
Pittsburgh Water and Sewer Authority

Water Line Trench And Repaving

Scale: N.T.S.

Supplemental Detail Drawing: **WS-1**

M:\pwsa\gis\det\standards\stdwsl.det



NOTES:

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.
4. Reinforcement shall be considered incidental to concrete paving base.
5. Paving material to match existing street surface and shall conform with requirements of owner.

ALTERNATIVE REINFORCEMENT METHOD: Wire Fabric reinforcement may be used. Smooth wire (W), deformed wire (D), or a combination of both may be used. The transverse wires may be above or below the longitudinal wires. Wire size shall be as per chart: →

Pav't. Depth	Min. Long. Wire Size	Pav't. Depth	Min. Long. Wire Size
8"	W5.5 or D5	11"	W7.5 or D7
9"	W6 or D5.5	12"	W8 or D7.5
10"	W7 or D6.5	13"	W9 or D8

2/24/2014

R E V I S I O N S	
1.	MSR 4-23-01
2.	RDH 6-14-06
3.	LRC 1-31-14

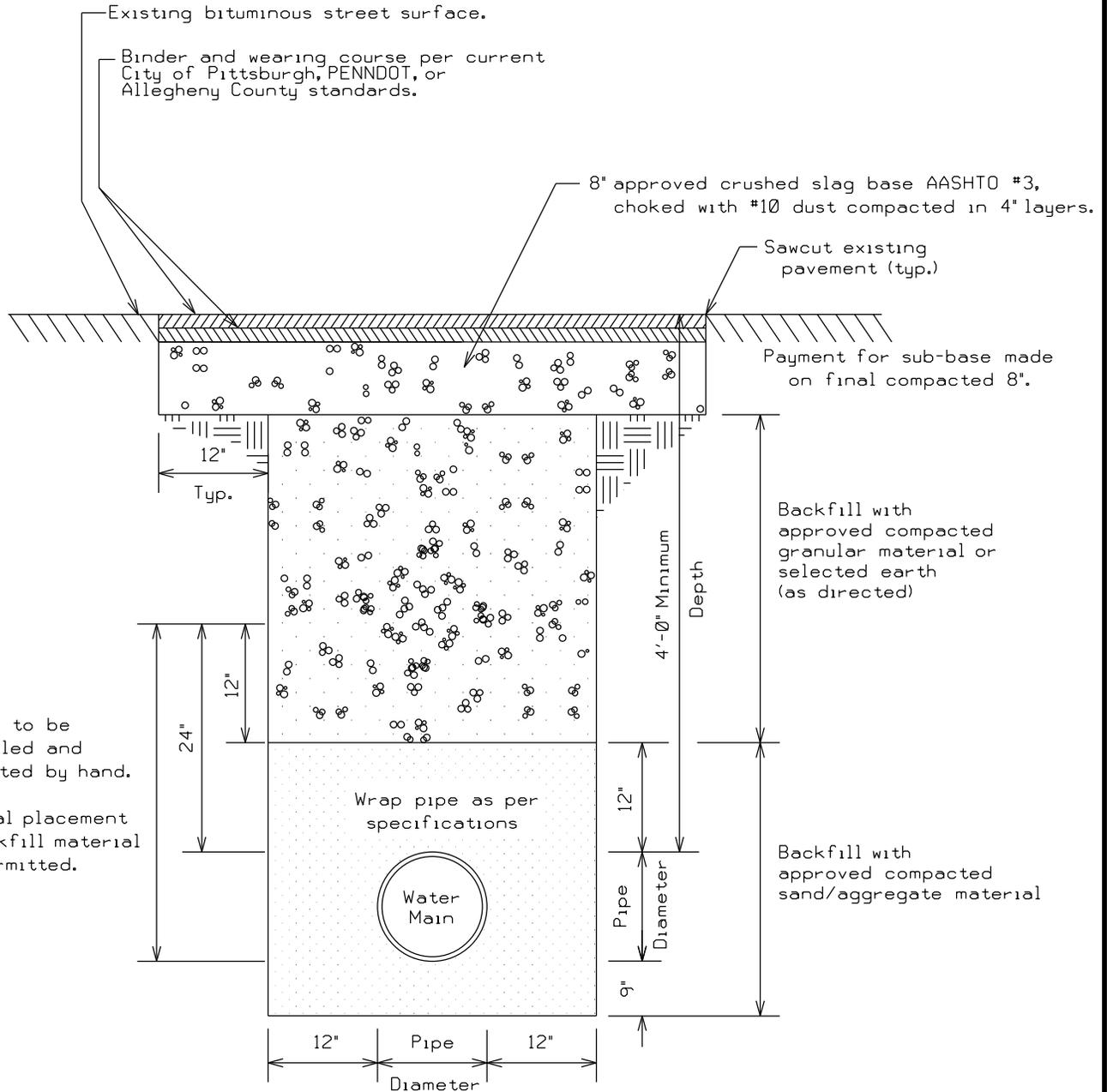
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
CONCRETE STREET TRENCH REPAVING FOR WATER MAIN

Scale: N.T.S. Supplemental Detail Drawing: **WS-1A**

M:\pwsa\gis\det\Standards\std\wsla.det

Approved by:



This area to be backfilled and compacted by hand.
Mechanical placement of backfill material not permitted.

NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

Approved by: _____

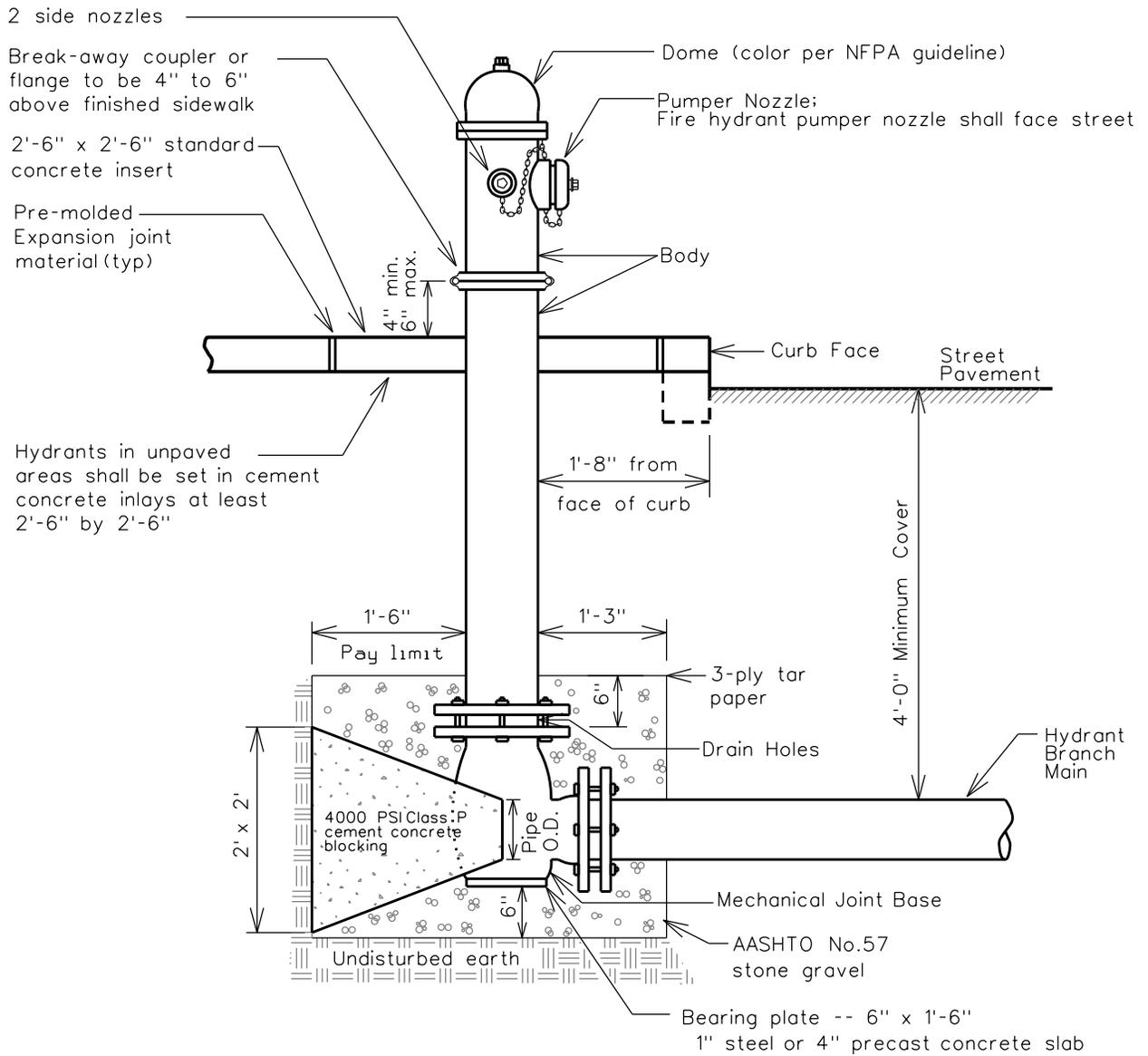
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water & Sewer Authority
 Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Water Line Trench And Bituminous Repaving

Scale: N.T.S.

Supplemental Detail Drawing: **WS-2**

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NOTE:

FOR HYDRANT PAINTING REQUIREMENTS, REFER TO STANDARD DETAIL WS-HYD.

2/24/2014

R E V I S I O N S	
1.	MSR 4-23-01
2.	MAC 8-13-07
3.	LRC 6-05-08
4.	LRC 1-31-14

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

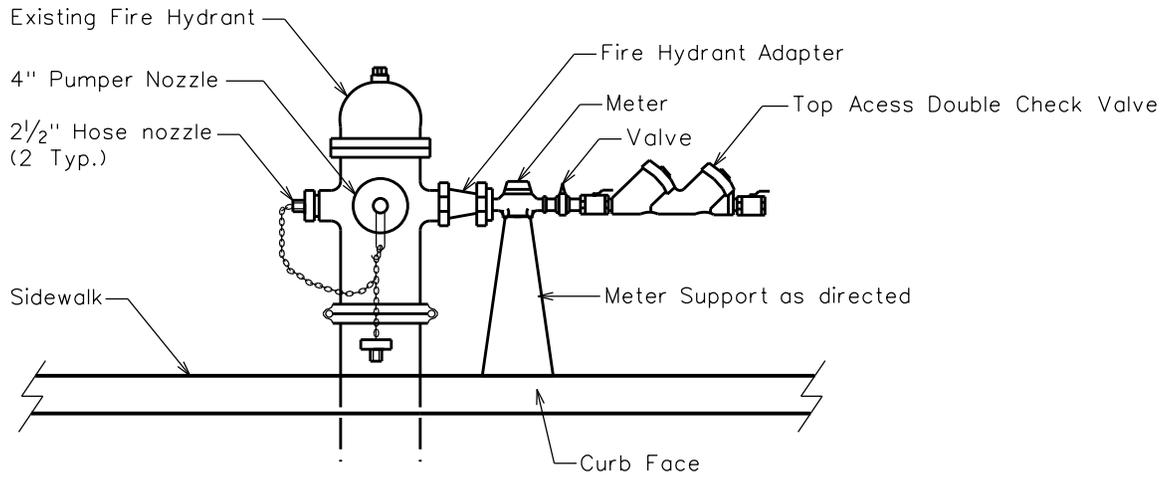
Pittsburgh Water and Sewer Authority

Fire Hydrant Installation

Scale: N.T.S.

Supplemental Detail Drawing: **WS-4**

M:\pwsa\gis\det\Standards\stdws4.det



NOTES:

1. ANY DAMAGE CAUSED TO THE FIRE HYDRANT AND/OR METER IS THE RESPONSIBILITY OF THE CUSTOMER.
2. THE P.W.S.A. WILL SUPPLY THE FIRE HYDRANT ADAPTOR AND METER.
3. THE P.W.S.A. WILL INSTALL THE METER AND OPERATING VALVE.
4. THE CUSTOMER IS RESPONSIBLE FOR PROTECTING THE FIRE HYDRANT AND METER FROM VANDALISM AND COLD WEATHER.
5. THE METER MUST BE SUPPORTED AS APPROVED BY THE P.W.S.A.
6. THE CUSTOMER IS RESPONSIBLE FOR PURCHASING AND INSTALLING THE DOUBLE CHECK BACKFLOW PREVENTER.
7. ONLY P.W.S.A. IS PERMITTED TO OPERATE THE FIRE HYDRANT; WATER FLOW IS TO BE CONTROLLED BY THE INSTALLED VALVE.
9. THE CUSTOMER IS RESPONSIBLE FOR MAINTAINING A SAFE PEDESTRIAN ENVIRONMENT.
10. WHEN WORK IS COMPLETED, THE CUSTOMER MUST CONTACT P.W.S.A. AT 412-255-2429 TO SCHEDULE THE DISCONNECT AND REMOVAL OF APPURTENANCES. AT THIS TIME, A FINAL READING OF THE METER WILL BE MADE AND THE CUSTOMER WILL BE INVOICED FOR THE WATER USAGE.

I HAVE READ THE NOTES ABOVE AND UNDERSTAND MY RESPONSIBILITIES.

SIGN HERE _____ DATE _____

PRINT HERE _____

2/24/2014

R E V I S I O N S	
1. LRC 1-31-14	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

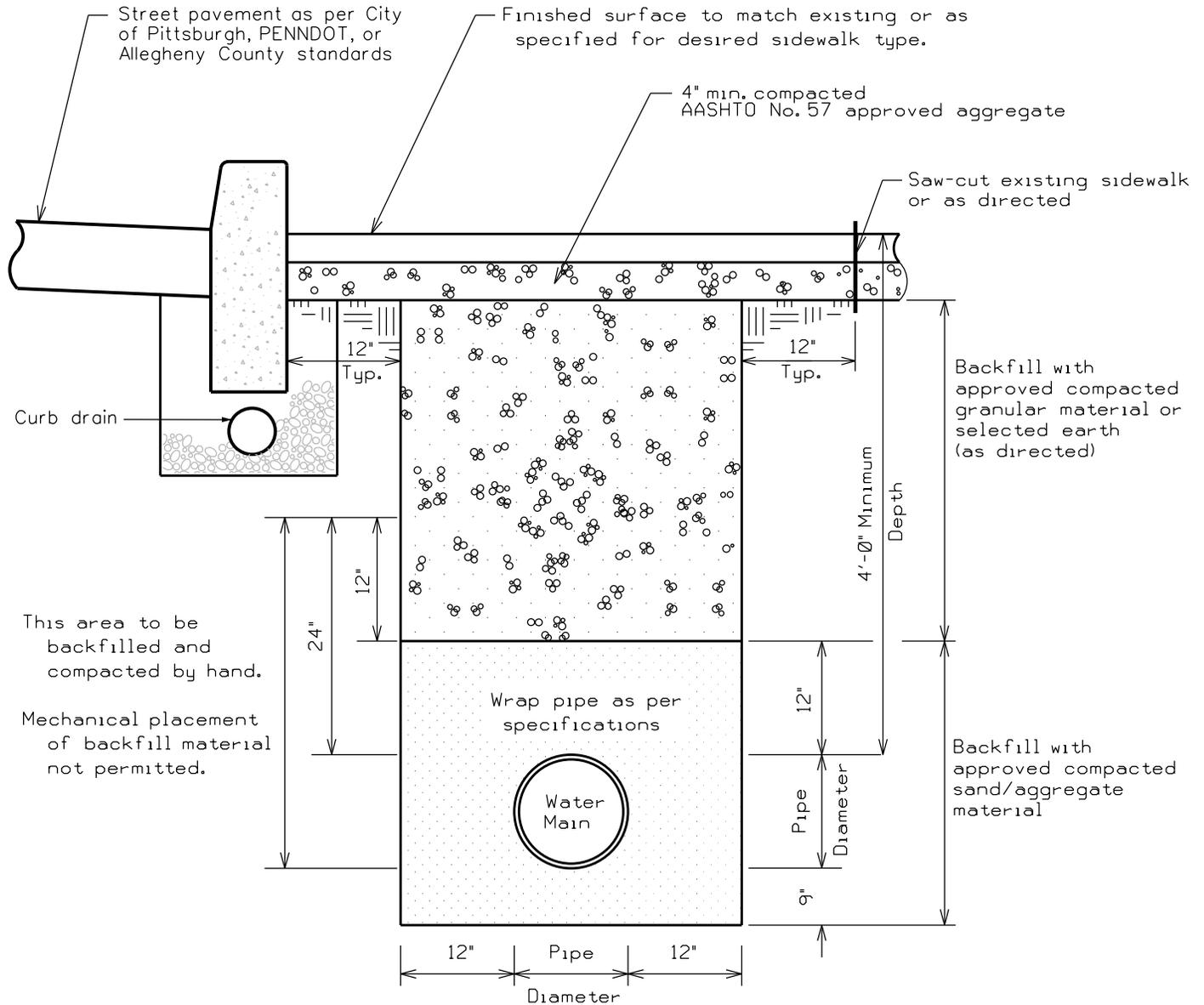
Pittsburgh Water and Sewer Authority

Fire Hydrant With Metered Installation

Scale: N.T.S. Supplemental Detail Drawing: **WS-4M**

M:\pwsa\gis\det\Standards\stdws4m.det

Approved by: _____



This area to be backfilled and compacted by hand.
Mechanical placement of backfill material not permitted.

Backfill with approved compacted granular material or selected earth (as directed)
Backfill with approved compacted sand/aggregate material

NOTES

1. All trench backfill material to be placed and mechanically compacted in 6" compacted layers.
2. Trench bedding may need to be modified in poor compaction areas.
3. Certain pipe materials and/or related trench materials may need to be substituted if contaminated soils are encountered.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	
2. LRC 1-31-14	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority

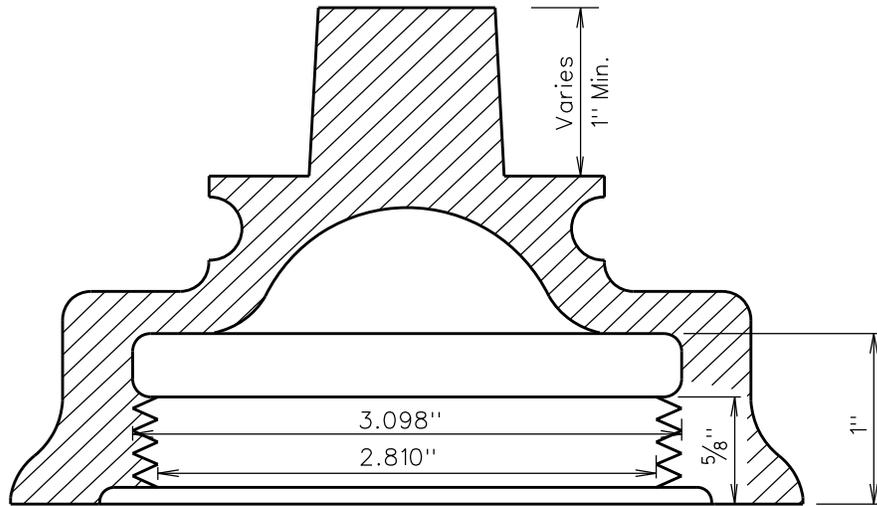
Water Line Trench In Sidewalk Area

Scale: N.T.S.

Supplemental Detail Drawing: **WS-7**

M:\pwsa\gis\det\Standards\stdws7.det

Approved by:



No. of Threads: 6
 Style: 60 degree V

2/24/2014

R E V I S I O N S	
1. JEK 11-21-96	
2. LRC 1-31-14	

Approved by:

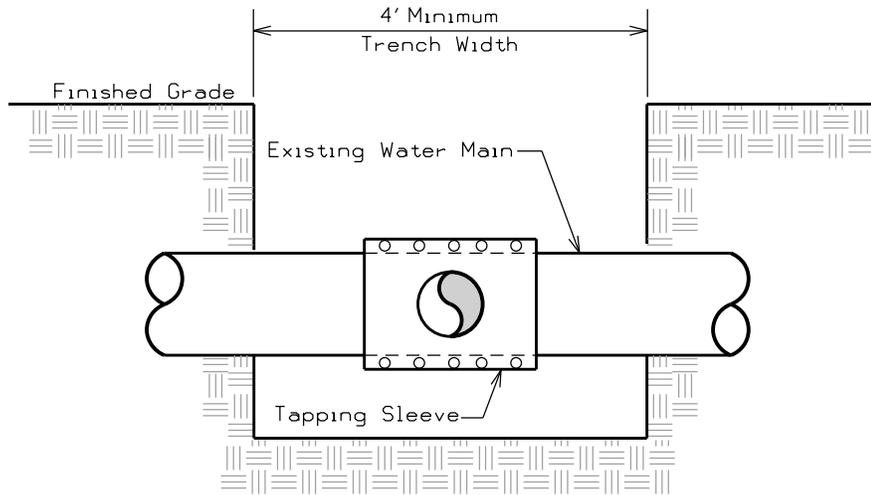
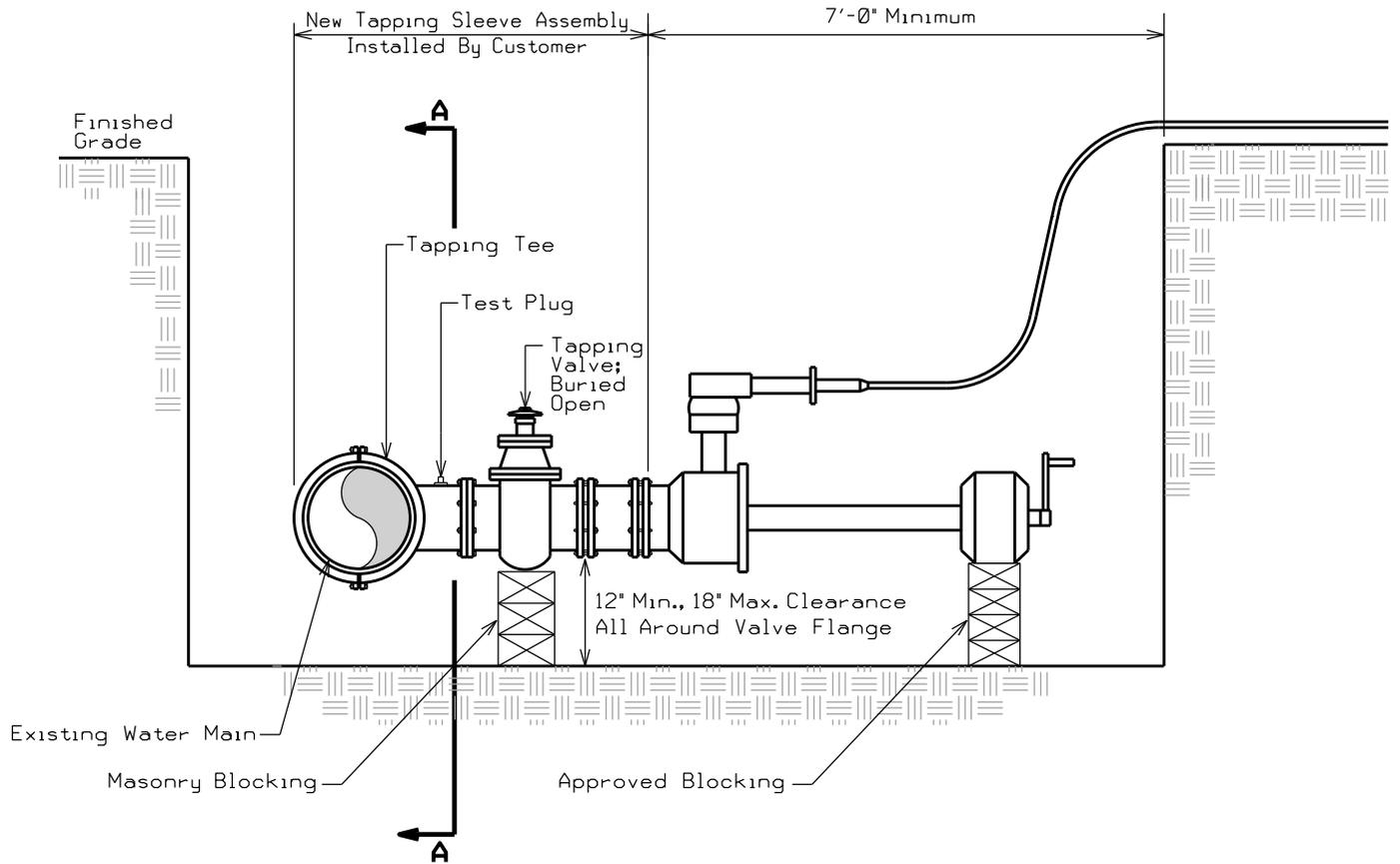
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Thread Design For Hydrant Hose Nozzle

Scale: N.T.S.
 M:\pwsa\gis\det\Standards\stdws8.det

Supplemental
 Detail Drawing:

WS-8



SECTION A-A

NOTES:

1. Tapping sleeve and tapping gate to be installed on water main by the contractor. PWSA will make the actual tap.
2. Tapping machine to be mounted and operated by PWSA.
3. Excavation and shoring required as per current OSHA standards.
4. Contractor must supply equipment to lower tapping machine in to trench.
5. All valves must be "right turn to open".

2/24/2014

R E V I S I O N S	
1. MSR	4-23-01
2. MAC	8-15-01
3. MAC	8-13-07
4. LRC	1-31-14

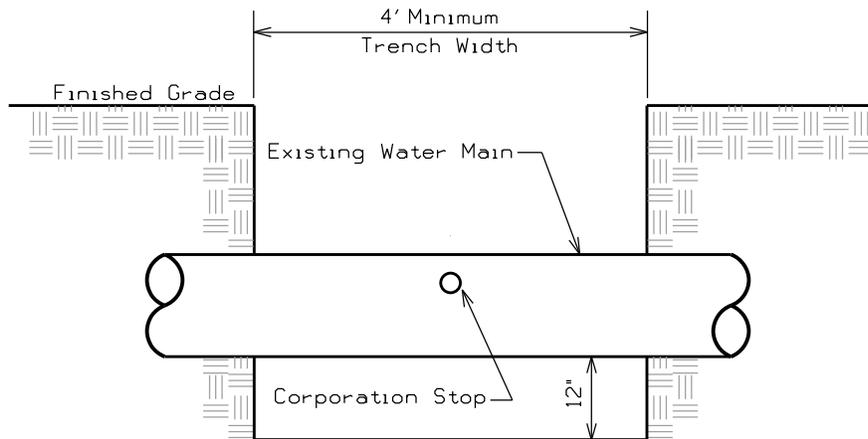
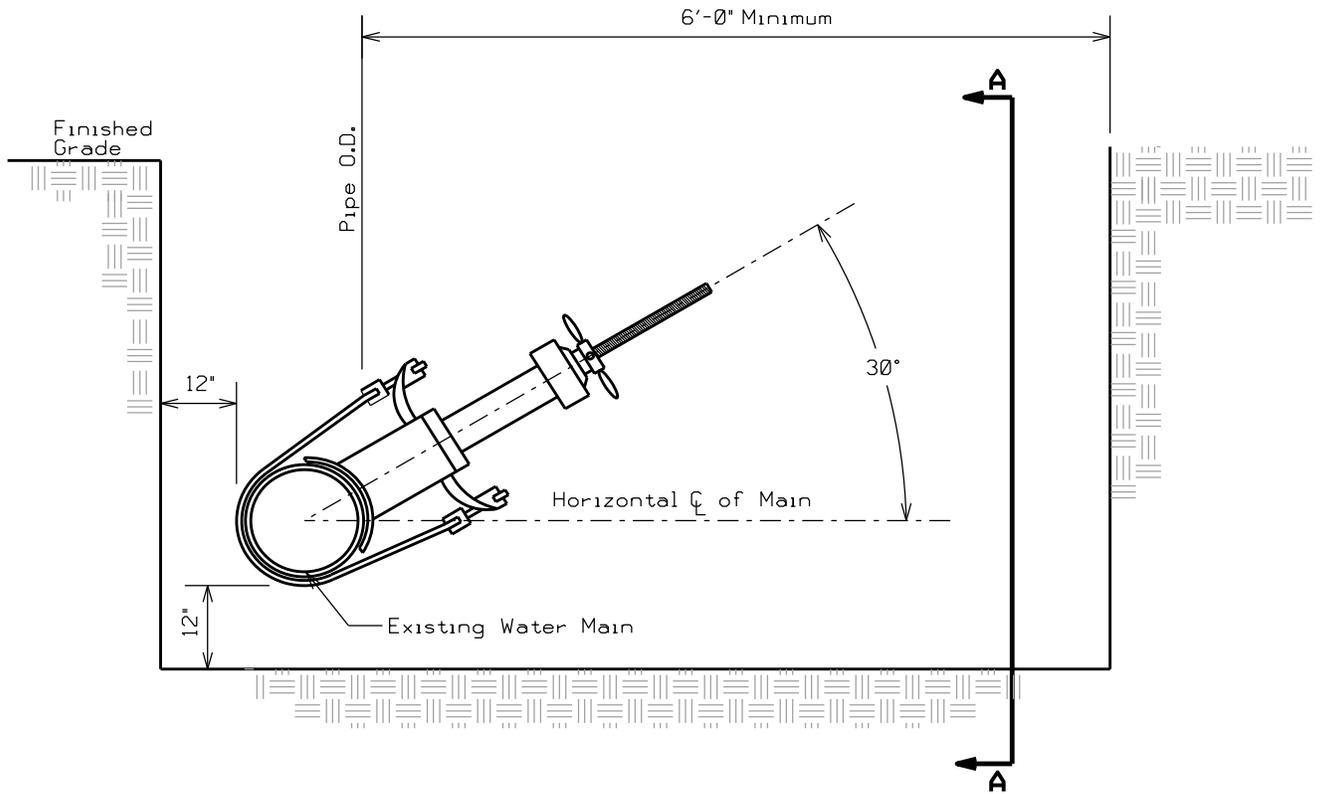
Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
Trench Requirements For
4" Through 12" Live Water Tap

Scale: N.T.S. Supplemental Detail Drawing: **WS-B**

M:\pwsa\gis\det\Standards\stdwsb.det



SECTION A-A

NOTE:

1. PWSA will make the actual tap.
2. Excavation and shoring required as per current OSHA standards.

2/24/2014

R E V I S I O N S	
1. MSR 4-23-01	
2. MAC 8-13-07	
3. LRC 1-31-14	

Approved by:

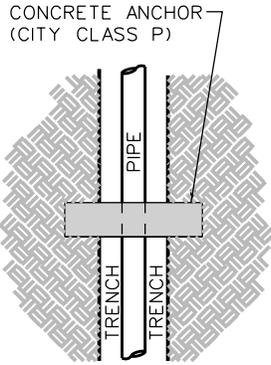
PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority
**Trench Requirements For
 1", 1-1/2" And 2" Water Service Tap**

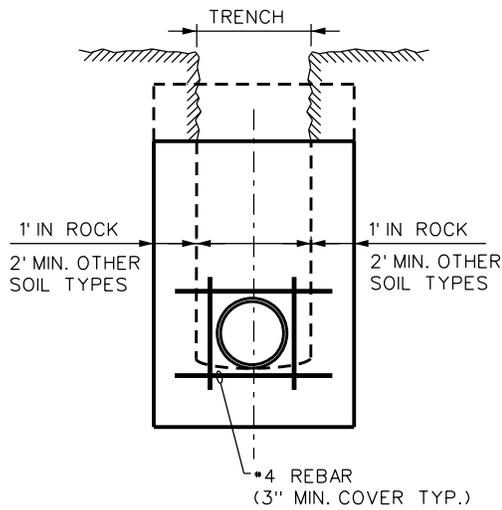
Scale: N.T.S.

Supplemental Detail Drawing: **WS-C**

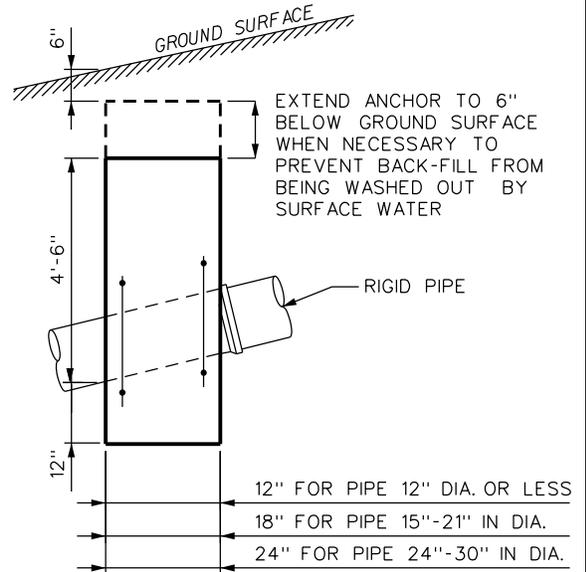
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Plan

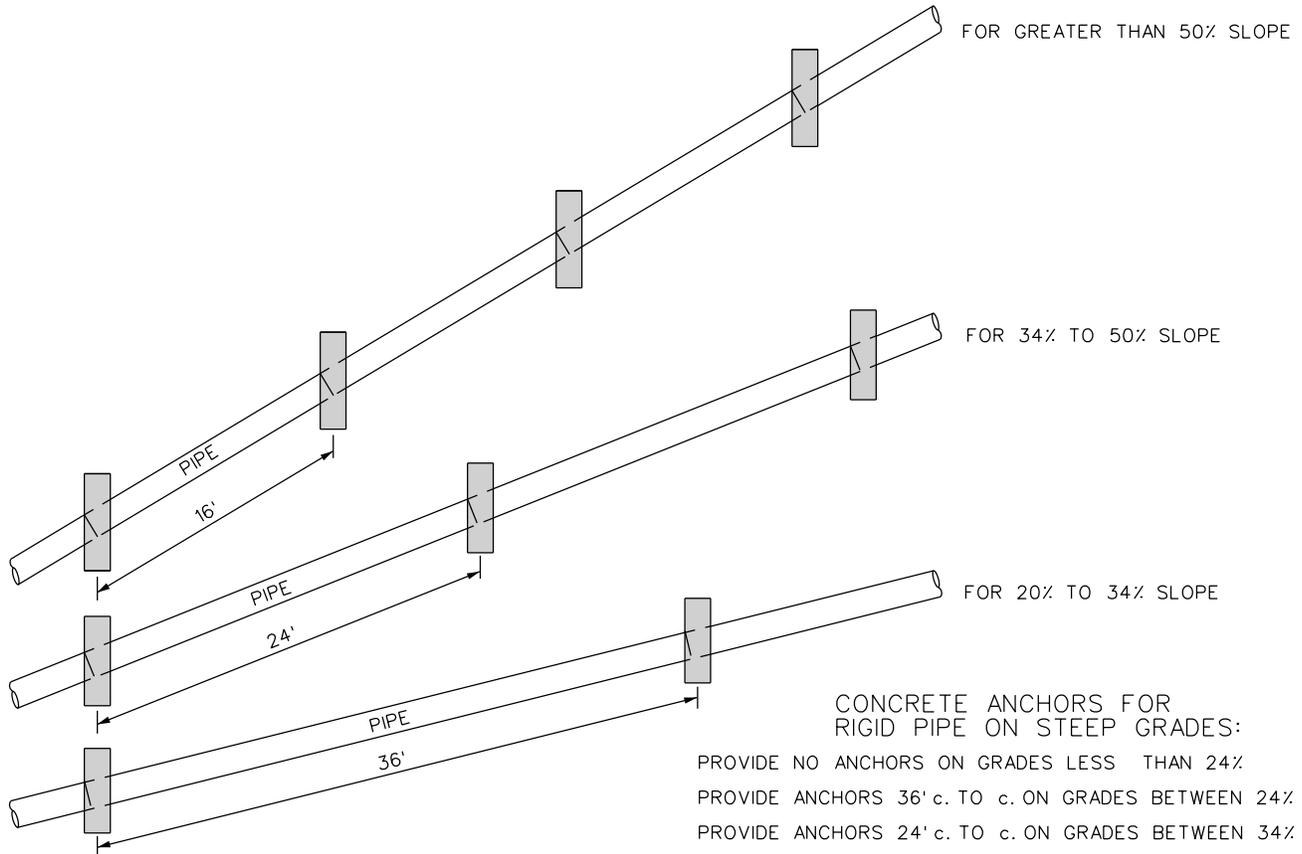


Section



Profile

CONCRETE ANCHORS



CONCRETE ANCHORS FOR RIGID PIPE ON STEEP GRADES:

PROVIDE NO ANCHORS ON GRADES LESS THAN 24%
 PROVIDE ANCHORS 36' c. TO c. ON GRADES BETWEEN 24% AND 34%
 PROVIDE ANCHORS 24' c. TO c. ON GRADES BETWEEN 34% AND 50%
 PROVIDE ANCHORS 16' c. TO c. ON GRADES BETWEEN 50% AND 70%
 FOR CONDITIONS OTHER THAN SHOWN HERE; ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR AS ORDERED IN THE FIELD BY THE DIRECTOR.

R E V I S I O N S	
1. JEK	2-6-03
2. MAC	3-2-04
3. LRC	1-31-14

Approved by:

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

Pittsburgh Water and Sewer Authority

Concrete Anchor

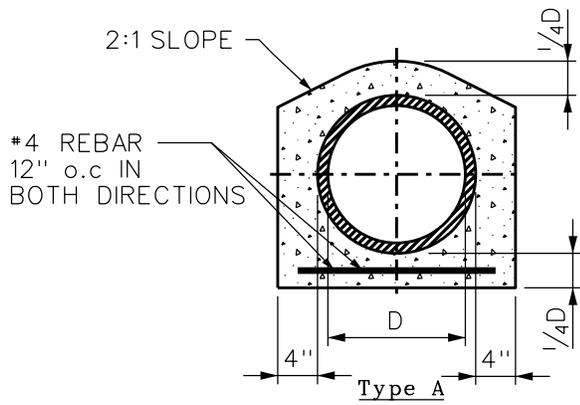
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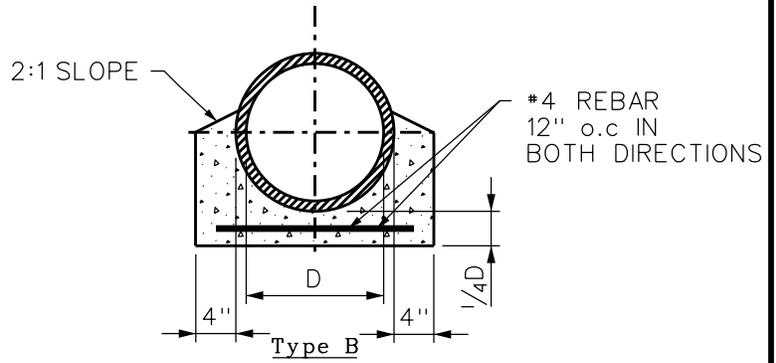
Supplemental Detail Drawing:

WS-CA

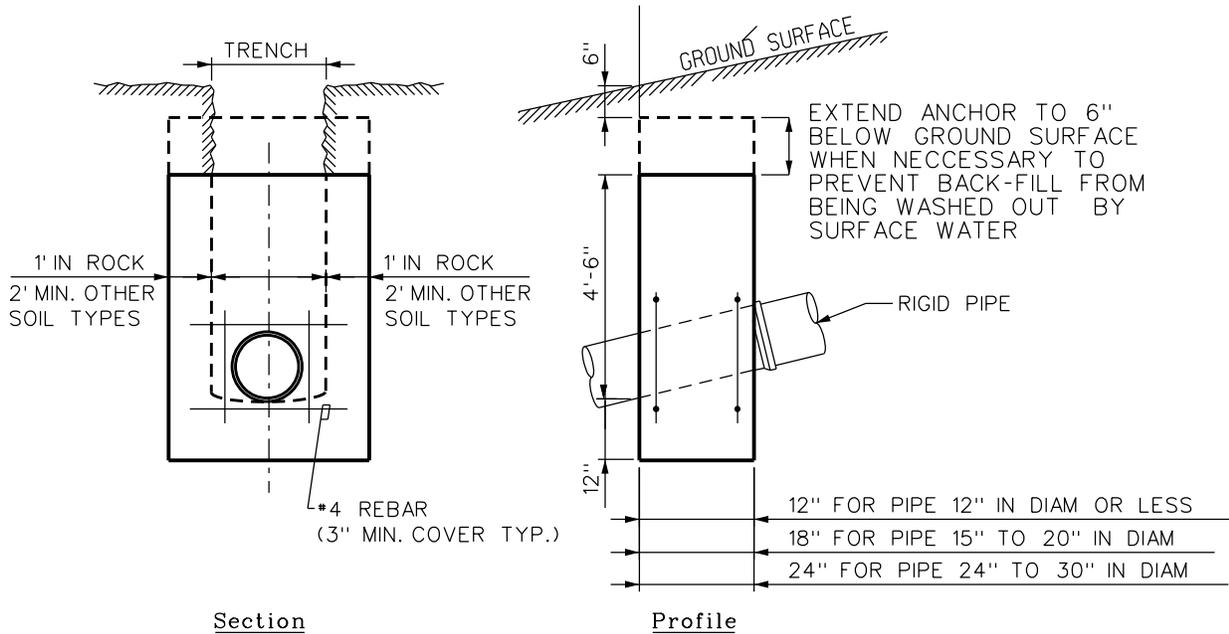
2/24/2014



CONCRETE ENCASEMENT REINFORCEMENT



CONCRETE CRADLE REINFORCEMENT



CONCRETE ANCHORS

CONCRETE ANCHORS FOR RIGID PIPE ON STEEP GRADES:

PROVIDE NO ANCHORS ON GRADES LESS THAN 24%.

PROVIDE ANCHORS 36' c. TO c. ON GRADES BETWEEN 24% AND 34%.

PROVIDE ANCHORS 24' c. TO c. ON GRADES BETWEEN 34% AND 50%.

PROVIDE ANCHORS 16' c. TO c. ON GRADES BETWEEN 50% AND 70%.

FOR CONDITIONS OTHER THAN SHOWN HERE; ANCHORS SHALL BE PROVIDED AS REQUIRED BY THE CONTRACT PLANS OR AS ORDERED IN THE FIELD BY THE DIRECTOR.

2/24/2014

R E V I S I O N S	
1.	MSR 4-18-01
2.	JEK 2-20-03
3.	LRC 1-31-14

Approved by:

Engineering & Construction Division

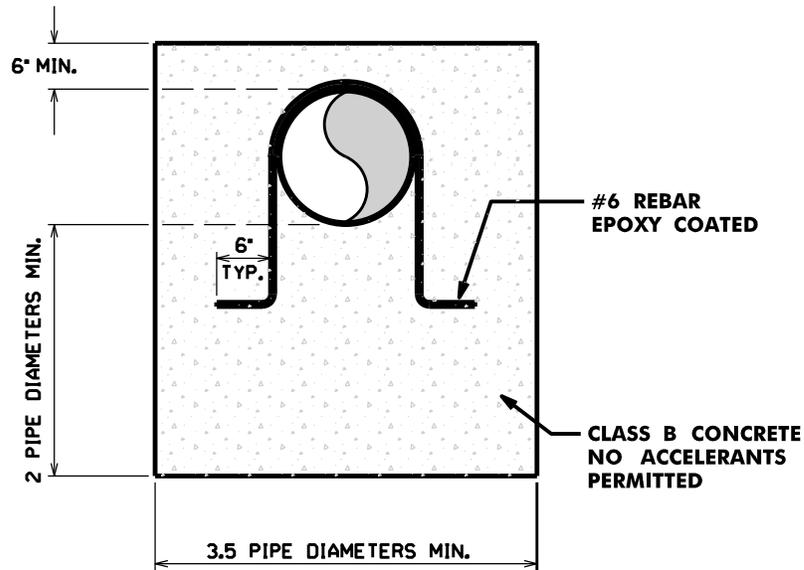
Pittsburgh Water and Sewer Authority

Concrete Reinforcement For Rigid Pipe

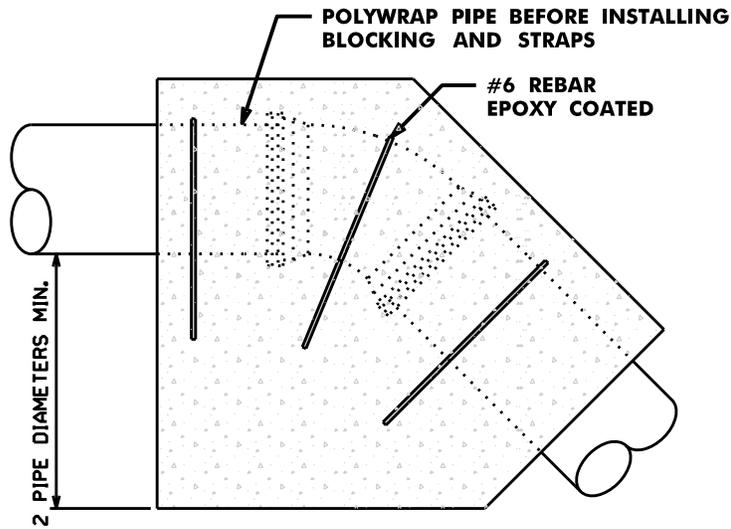
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Supplemental Detail Drawing: **WS-CE**

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SECTION



LONGITUDINAL SECTION

NOTE:

1. THE DETAIL REPRESENTS THE APPROXIMATE BLOCKING CONFIGURATION AND ASSUMES SOLID SOIL AND PROPER BURIAL.
2. EXACT SHAPE AND SIZE TO BE DETERMINED IN THE FIELD.
3. POOR SOIL CONDITIONS WILL GREATLY INCREASE THE SIZE OF THE CONCRETE BLOCK.

2/24/2014

R E V I S I O N S	
1. JEK 2-20-03	
2. LRC 1-31-14	

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

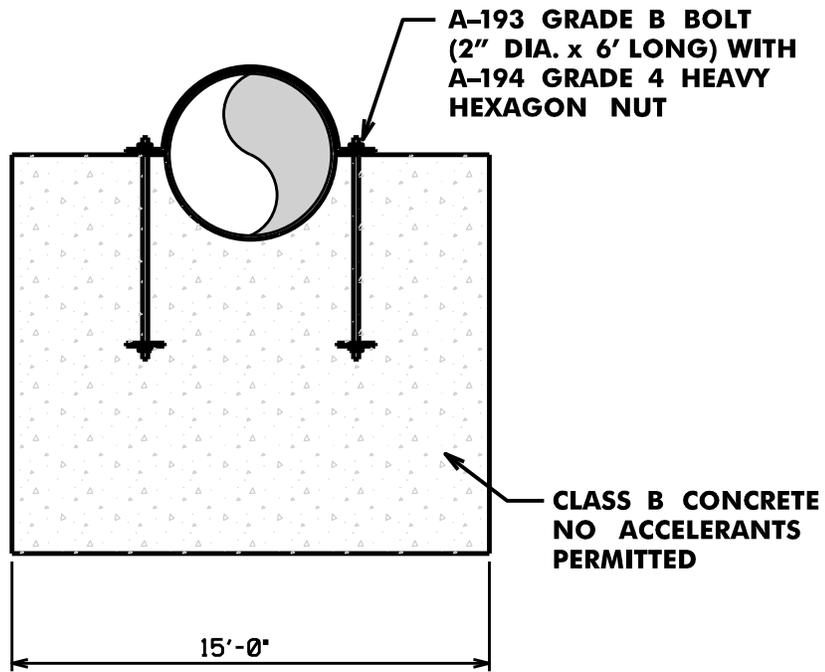
Pittsburgh Water and Sewer Authority
**Vertical Thrust Block
 For Small Pipe**

Scale: N.T.S.

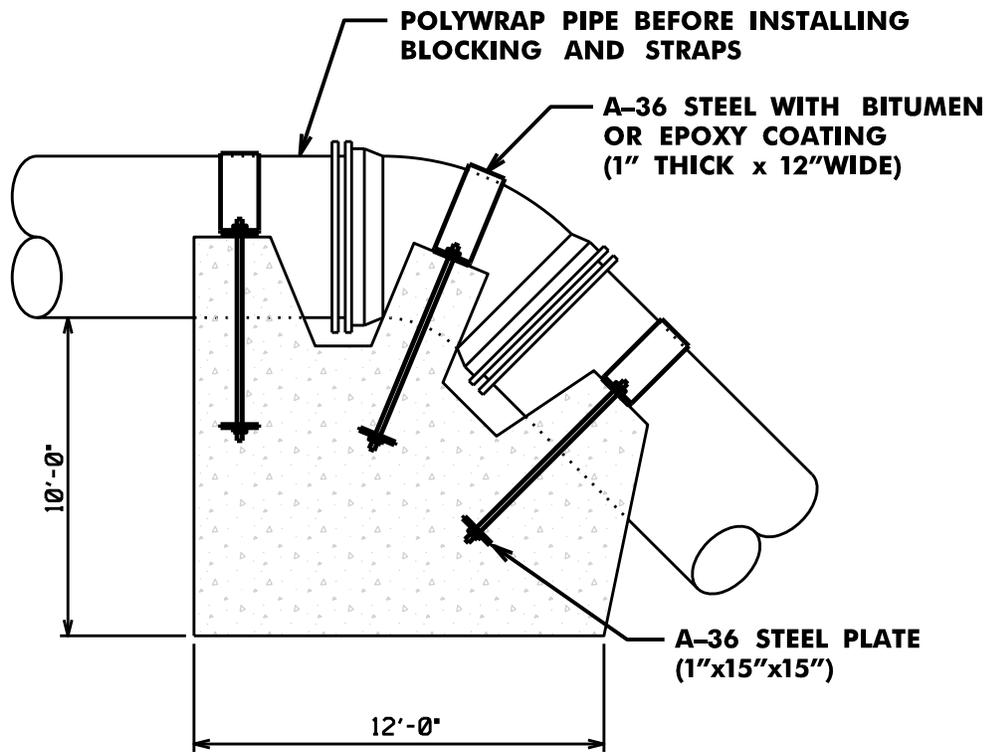
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Approved by:



SECTION



LONGITUDINAL SECTION

NOTE:

1. THE DETAIL REPRESENTS THE APPROXIMATE BLOCKING CONFIGURATION AND ASSUMES SOLID SOIL AND PROPER BURIAL.
2. EXACT SHAPE AND SIZE TO BE DETERMINED IN THE FIELD.
3. POOR SOIL CONDITIONS WILL GREATLY INCREASE THE SIZE OF THE CONCRETE BLOCK.

R E V I S I O N S	
1.	JEK 2-20-03
2.	LRC 1-31-14

Approved by: _____

PWSA
 THE PITTSBURGH WATER & SEWER AUTHORITY
 Quality Water Quality Service
 Engineering & Construction Division

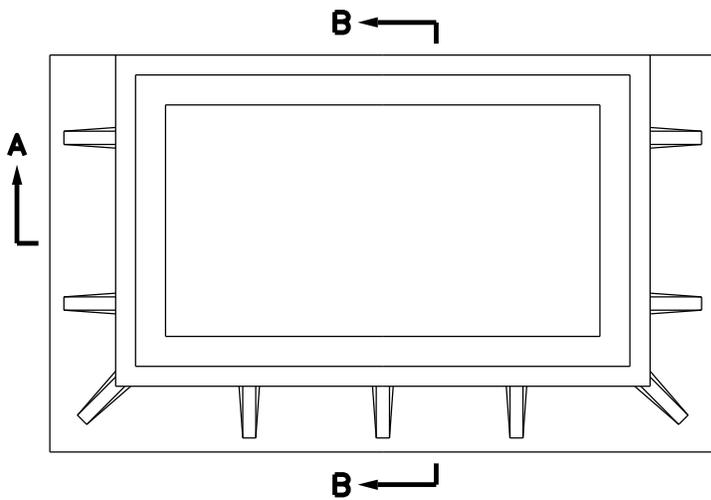
Pittsburgh Water and Sewer Authority
**Vertical Thrust Block
 For Large Pipe**

Scale: N.T.S.

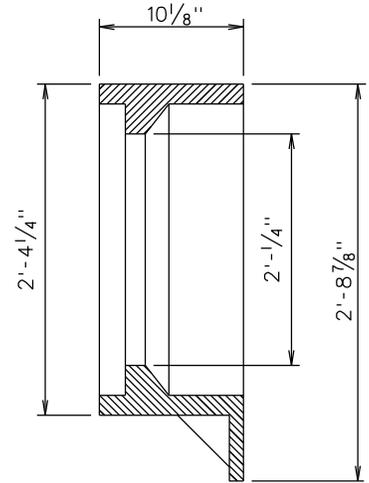
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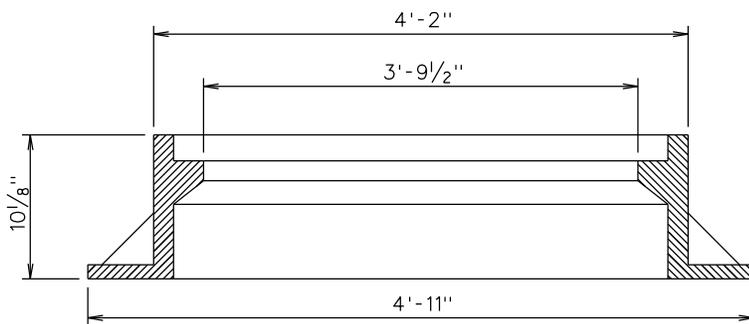
2/24/2014



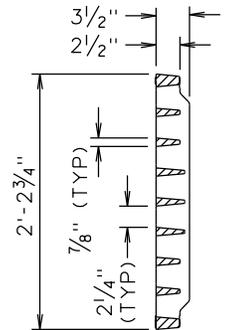
PLAN-FRAME



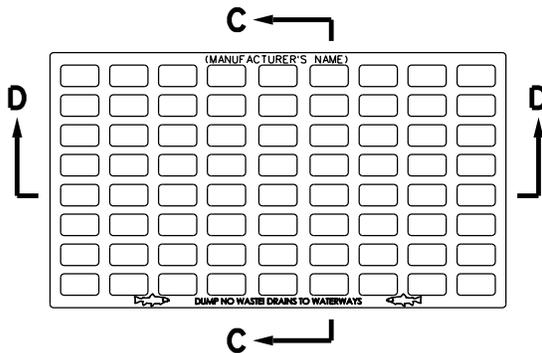
SECTION B-B



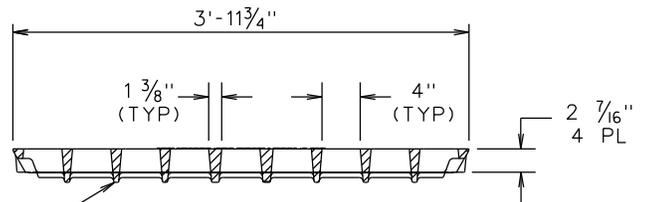
SECTION A-A



SECTION C-C



PLAN-GRATE



SECTION D-D

5355M8
ASTM A48 CL35B
MO/DAY/YR
00535571

R E V I S I O N S	
1. JLK	9-16-03
2. MAC	5-16-06
3. RJM	6-18-10
Approved by:	

PWSA
THE PITTSBURGH WATER & SEWER AUTHORITY
Quality Water Quality Service
Engineering & Construction Division

Pittsburgh Water and Sewer Authority
INLET
3-FLANGE CAST IRON
FRAME AND GRATE

Scale: N.T.S. Supplemental Detail Drawing: **IFG**

2/24/2014

APPENDIX L

SAMPLE DEVELOPER AGREEMENT FOR PRIVATE CONSTRUCTION

DEVELOPMENT AGREEMENT

THIS DEVELOPMENT AGREEMENT (the "Agreement") is made on this _____ day of _____, 2011, by and between the Pittsburgh Water and Sewer Authority, a body corporate and politic situated in the Commonwealth of Pennsylvania, having its principal offices located at 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222 (hereinafter, the "Authority")

AND

_____,
a _____,
(specify whether individual, partnership, corporation or other legal entity and, where appropriate, the state's law under which formed) having a place of business at _____,
(hereinafter, the "Developer").

WITNESSETH:

WHEREAS, the Authority operates and maintains (sewage collection and conveyance facilities that carry wastewater from the City of Pittsburgh and surrounding municipalities to the Allegheny County Sanitary Authority interceptor sewer system) (a public water distribution system and is engaged in the business of supplying water for ordinary uses within the City of Pittsburgh and nearby areas);

WHEREAS, the Developer owns a certain tract of land within _____ (municipality), Allegheny County, Pennsylvania, described in and conveyed to the Developer by a Deed recorded in the Office of the Recorder of Deeds of Allegheny County at Deed Book Volume ____, Page ____ (hereinafter, the "Property");

WHEREAS, a plan for the development of the Property has been approved and is recorded in the Office of the Recorder of Deeds of Allegheny County at Plan Book Volume _____, Page _____, and the aforesaid plan is to be known as _____ (hereinafter the "Plan");

WHEREAS, in order to complete the development of the Plan, the Developer is required to construct main (sanitary sewers) (storm sewers) (water lines) throughout the Plan providing connecting points for the subdivided properties within the Plan to the Authority's existing systems (hereinafter "Extended Facilities");

WHEREAS, the Developer intends to secure any necessary rights-of-way and permits, to fulfill any other legal requirements and to enter into a construction contract or contracts for the construction of the Extended Facilities to serve the subdivided properties within the Plan; and

WHEREAS, the Authority is willing to assume responsibility for maintenance and repair of the Extended Facilities to serve the aforementioned Plan and the homes to be constructed therein (with pressure water) (with storm water collection and conveyance) (with sewage collection and conveyance) on the terms and conditions stated in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and the covenants and conditions hereinafter set forth, the parties hereto, intending to be legally bound hereby, agree as follows:

1. Incorporation of Recitals. The foregoing recitals are incorporated herein by reference and made a part hereof.

2. Design and Specifications.

a. The Developer, at its own cost and expense, shall retain qualified engineers registered in the Commonwealth of Pennsylvania to prepare the necessary plans and specifications for the construction and installation of the Extended Facilities and for the connection of those Extended Facilities with the Authority's (collector sewer) (trunk line) (distribution main). The Developer shall coordinate the design of the Extended Facilities with the Authority and shall obtain the Authority's written approval of the design and the specifications in accordance with the requirements of Exhibit "A" attached hereto and incorporated herein.

b. All (sanitary sewers) (storm sewers) (water lines) to be constructed by the Developer shall be designed in accordance with all applicable federal, state and municipal laws, ordinances, and regulations and the Authority's minimum standards for design and construction of (sanitary sewers) (storm sewers) (water lines).

3. Easements and Rights-of-Way.

a. To the extent practicable, the Developer shall locate the Extended Facilities within Plan property to be dedicated for use as streets or other public rights-of way. The Developer shall convey to the Authority, prior to and as a condition to the Authority's acceptance of the Extended Facilities, an easement and right-of-way giving the Authority the right to construct, operate, maintain, repair, remove, rebuild and abandon in place the (sanitary sewer) (storm sewer) (water) lines. The form of easement agreement shall be substantially in the form of Exhibit "B" attached hereto.

b. When location of the Extended Facilities within the public right-of-way is not practicable, the Developer, at its own cost and expense, shall obtain easements and rights-of-way from the owners of the properties containing the Extended Facilities. The easements and rights-of-way shall give the Developer and/or the Authority the right to construct, operate, maintain, repair, remove, rebuild and abandon in place the (sanitary sewer) (storm sewer) (water) lines. The Developer shall contract for the easements and rights-of-way using agreements substantially in the form of Exhibit "B" attached hereto and incorporated herein and otherwise acceptable to and approved by the Authority.

4. Pre-Construction Notice. Notice of the date on which construction of the Extended Facilities will start shall be given to the Authority not less than three (3) days before the actual start of construction. The Developer shall not begin construction prior to receipt of final construction approval from the Authority.

5. Construction Of Extended Facilities.

a. All Extended Facilities shall be constructed in strict conformance with the Plans (as defined in Exhibit "A" hereto) and schedule approved by the Authority and all federal, state and local laws, regulations and ordinances and shall meet or exceed the Authority's minimum standards. Developer shall construct and install the Extended Facilities entirely at its own cost.

b. The Developer will provide, in construction contracts pertaining to the Extended Facilities that (1) the Authority is a third-party beneficiary of such work, that the contractor understands and agrees that it is providing the Authority with the same guarantees it provides to the Developer, and that the Authority shall have the right to enforce the contract(s); and (2) that the construction contract is assigned by the Developer to the Authority effective with the Authority's termination of this Agreement upon an Event of Default (as defined below) and the Authority's notice to the contractor of its intent to accept the assignment, such assignment being subject to the rights of the surety or other guarantor of the Developer's performance.

6. Developer's Bond or Performance Bond.

a. Prior to and as a condition precedent to the Authority's approval to proceed with construction, the Developer shall deliver to the Authority a developer's bond, performance bond, irrevocable letter of credit or other security acceptable to the Authority, from a source or sources acceptable to the Authority, guaranteeing to the Authority the completion of the Extended Facilities in accordance with the approved Plans. The amount of the developer's bond or other security shall be equal to one hundred (100%) per cent of the cost of the Extended Facilities as established by submission to the Authority of a bona fide bid or bids from the contractor or contractors chosen by the Developer or, in the absence of such bona fide bids, by estimate prepared by the Developer and approved by the Authority's engineer.

b. The amount of the developer's bond or other security shall be increased under the following circumstances:

(1) if the construction is not complete and the Authority has not accepted the Extended Facilities within one (1) year of the date of issuance of the performance bond or other security, the Developer shall have the amount of the bond or other security increased by ten (10%) percent, to one hundred ten (110%) per cent of the amount of the initial bond or other security and, if required, by an additional ten (10%) percent for each subsequent year prior to completion and acceptance;

(2) if the estimated construction cost of the Extended Facilities, established in accordance with subsection a. above, increases by more than ten (10%) percent, then the developer's bond or other security shall be increased in like amount.

c. Upon written certification from the Authority's inspector that portions of the Extended Facilities have been satisfactorily completed, the Authority may authorize the release of the cost of each such satisfactorily completed portion from the original security posted by the Developer; however, prior to final completion, the financial security shall not be reduced to less than ten (10%) percent of the estimated cost of the New Facilities.

d. Upon the Authority's acceptance of the Extended Facilities, as provided in Section 12 below, the Authority shall discharge the developer's bond or other security.

7. Standard of Care.

a. Developer shall perform or have performed the work and services contemplated by this Agreement with that degree of care and diligence practiced by recognized firms providing services of a similar nature; shall cooperate with the Authority to further the installation of the Extended Facilities in accordance with this Agreement; and shall furnish sufficient business administration and adequate supervision in order to accomplish the foregoing.

b. The Developer shall be completely and solely responsible for any and all property damage, financial losses, and/or interruptions of service arising from construction activities related to the Extended Facilities or the Plan and affecting water lines, gas lines, electric lines, telephone lines, cable TV lines, drain lines, sanitary and storm sewer lines and all appurtenances and service facilities connected thereto, or any other property of any kind, whether resulting from the activities of the Developer, its employees, agents or contractors (including subcontractors and suppliers of any tier). Upon the occurrence of any such property damage or interruption of service, the Developer shall immediately take action to repair and restore any and all such damaged or disturbed facilities with a material and by a method approved by the authority having jurisdiction over the disturbed facility.

8. Inspection and Testing.

a. The Developer or its representative shall provide the Authority with twenty (20) days' notice of pre-final and final inspections of the Extended Facilities or any portion thereof.

b. The Developer will require its contractor constructing the Extended Facilities to test and, with respect to water lines, to perform sterilization, in accordance with the requirements of the approved Plans. The Developer will provide the Authority twenty (20) days' notice of such tests and sterilization, with the opportunity to observe such testing or sterilization, and with copies of any written reports on such tests and sterilizations.

c. Provided that the required notice is provided to the Authority, the Authority shall cause an authorized representative to inspect the work and observe the tests in a timely manner so as not to delay the construction. After any such inspection or observation and, when necessary and appropriate, receipt of any written report on such tests, the Authority shall promptly and in writing either accept such work as completed or reject such work, indicating the reason or reasons therefor.

d. If, contrary to the requirements of subsections a. through c. above, the Extended Facilities or any portion thereof are covered or concealed prior the Authority's inspection, the Developer shall have the work uncovered, at the Developer's cost, so as to allow the inspection.

9. Indemnification. To the fullest extent permitted by law, the Developer agrees to indemnify, defend, and hold harmless the Authority and its employees, agents, and consultants ("Indemnitees") from and against any and all claims, demands, causes of action, judgments, damages and costs, including attorneys' fees and costs of defense (hereinafter "Claims and Damages") arising out of or relating to the design and construction of the Extended Facilities, including but not limited to any repair costs and any incidental or consequential damages incurred by the Indemnitees due to any failure of the Developer to have the Extended Facilities or their connection to the Authority (trunk line) (water distribution main) installed and constructed in accordance with that degree of care and skill customary to the field or in accordance with the Plans approved by the Authority. The defense and indemnification obligations accepted by the Developer under this paragraph exist regardless of whether such Claims and Damages are caused or allegedly caused in part by the Indemnitee(s), it being the intent of the parties that the Developer shall indemnify the Indemnitees against the Indemnitees' own negligence. Provided, however, that the Developer shall have no obligation to defend or indemnify the Indemnitees against their sole negligence or willful misconduct.

10. Insurance. Prior to the beginning of any construction of the Extended Facilities or their connection to the Authority's existing systems, the Developer shall deliver to the Authority certificates of insurance policies issued by insurance companies acceptable to the Authority, evidencing the following coverages:

Commercial General Liability \$1 million per occurrence and in the aggregate

Automobile Liability \$1 million per occurrence and in the aggregate

The Developer's policies shall identify the Authority as an additional insured and shall be specifically endorsed as primary/non-contributory to any coverage carried by the Authority. The Developer's policies shall also require thirty (30) days' prior written notice to the Authority of any cancellation, amendment, or non-renewal of the policies.

Either the Developer or its contractor(s) shall secure and, prior to commencing construction of the Extended Facilities, provide the Authority with a certificate evidencing builder's risk / all risk insurance in the amount of \$1 million covering all risk of physical loss or damage to the Authority (trunk line) (water distribution main) and related facilities. The Developer will require its contractor(s) for the (sanitary sewer) (storm sewer) (water) lines to provide reasonable and customary amounts of commercial general liability and automobile liability insurance coverage, and its professional consultants to provide reasonable and customary amounts of commercial general liability, automobile liability, and professional liability insurance coverage. Prior to the beginning of any construction contemplated by this Agreement, the Developer shall provide the Authority with copies of the insurance certificates provided to the Developer by the Developer's contractors and consultants in connection with the design or the construction of the Extended Facilities.

11. Maintenance of the Extended Facilities.

a. Developer hereby covenants that for a period of eighteen (18) months following the Authority's acceptance of the Extended Facilities, Developer will maintain and will make or cause to be made any and all required repairs and replacements promptly and no later than ten (10) days after written notice from the Authority that maintenance, repair or replacement of the Extended Facilities may be required. If any required action has not been taken within ten (10) days of such notice or, for repairs or replacements that cannot reasonably be accomplished within ten (10) days, commenced within that period and continued and completed with reasonable diligence thereafter, the Authority may proceed to repair, replace and maintain the same, or contract to have the same done, and collect the cost of such repairs from the Developer and/or its security provider.

b. Upon completion of construction of the Extended Facilities, the Developer shall obtain and provide to the Authority: (1) a maintenance bond with a surety licensed to do business in Pennsylvania and approved by the Authority; (2) cash; (3) an irrevocable letter of credit from a source acceptable to the Authority; or (4) other security acceptable to the Authority guaranteeing to the Authority the maintenance of the Extended Facilities for a period of eighteen (18) months following the Authority's acceptance of the Extended Facilities (hereinafter, "Maintenance Security"). The amount of the Maintenance Security shall be fifteen (15%) percent of the actual cost of construction of the Extended Facilities.

12. Acceptance of the Extended Facilities. Upon the completion of the following conditions, the Authority shall provide the Developer with written acceptance of the dedication of the Extended Facilities to public use. Thereafter, except as provided in Section 11 above, the Developer will not own or have any responsibility for maintenance of the Extended Facilities:

a. The Authority shall have inspected and provided the Developer with written acceptance of the Extended Facilities as finally constructed.

b. Developer shall have paid all Authority fees and costs as determined in accordance with Exhibit "A" hereto.

c. The Developer, at its own cost and expense, shall have paid for each connection the tap-in fee established by the Authority at the time of making the tap for each building to be serviced.

d. The Developer shall have delivered to the Authority two (2) sets of as-built drawings of the Extended Facilities: one (1) set of archival drawings and one (1) set on electronic media, the form and content of both sets of as-built drawings to be satisfactory to the Authority.

e. The Developer shall have delivered to the Authority the Maintenance Security required by Section 11.b. above.

13. Events of Default. Each of the following events shall constitute an “Event of Default” by the Developer under this Agreement:

a. The Developer fails to perform the work covered by this Agreement in full accordance with the approved Plans and fails, within ten (10) days of receipt of notice of defect or deficiency from the Authority, to commence correction of the defect or deficiency and thereafter to diligently pursue the correction to completion.

b. The Developer fails to provide the required developer’s, performance bond or other security, certificates of insurance or Maintenance Security.

c. The Developer becomes insolvent, institutes or has instituted against it a voluntary or involuntary case in bankruptcy, makes a general assignment for the benefit of creditors, or a receiver is appointed on account of the Developer’s insolvency.

d. The Developer fails to maintain and repair the Extended Facilities as required by Section 11 above.

14. Remedies in an Event of Default.

a. Upon an Event of Default by the Developer, the Authority may in its sole and absolute discretion terminate this Agreement and, subject to the rights of the surety or other security provider, may: (1) take possession of the construction site for the Extended Facilities; (2) accept assignment of the construction contracts pursuant to Section 5.b above; (3) finish the construction of the Extended Facilities using whatever means and methods the Authority deems appropriate; and/or (4) maintain and repair the Extended Facilities using whatever means and methods the Authority deems appropriate.

b. When the Authority terminates this Agreement as provided in Section 14.a., the Developer shall pay to the Authority any and all costs and expenses incurred by the Authority in completing the construction of the Extended Facilities including, without limitation, all costs of construction, testing and sterilization, and any and all costs incurred by the Authority in maintaining and repairing the Extended Facilities for a period of eighteen (18) months following the completion of the Extended Facilities.

15. The Developer to Sustain All Losses. The Developer will sustain all losses or damages arising out of the construction of the Extended Facilities and their connection with the Authority (trunk lines) (water distribution mains), including any unforeseen obstructions or difficulties that may be encountered in the performance of the construction or from the action of the elements or for any other cause whatsoever.

16. Governing Law/Venue. This Agreement shall be governed by the laws of the Commonwealth of Pennsylvania, without reference to its conflicts-of-laws principles. All claims that are made by any party hereto against another that are related to this Agreement may be commenced and prosecuted only in the Court of Common Pleas of Allegheny County, Pennsylvania.

17. Waiver And Amendment. Neither this Agreement nor any term hereof may be changed, waived, discharged or terminated orally, but only by an instrument in writing signed by the parties hereto.

18. Binding Effect/Assignment. This Agreement shall be binding upon the parties hereto and their respective successors and permitted assigns. The Developer may not assign or transfer its rights hereunder without the prior written consent of the Authority.

19. No recording. No party hereto shall file or attempt to file this Agreement of record.

20. Severability. The partial or complete invalidity of any one or more provisions of this Agreement shall not affect the validity or continuing force and effect of any other provision.

21. Representations. The parties hereto represent that: (a) they have read the Agreement; (b) they have the requisite power and authority to enter into this Agreement; (c) any and all authorizations for the execution and delivery of this Agreement have been duly obtained and issued; and (d) this Agreement constitutes a legal, valid and binding obligation on each of the parties hereto.

22. Authorizing Resolution. This Agreement is entered into by the Authority pursuant to Resolution No. ____ of 2011, adopted at a regular meeting of its Board of Directors on _____, 2011.

23. Termination. The Authority shall have the right to terminate this Agreement if the Developer has not made the submissions required by Exhibit "A" within one (1) year of the date of this Agreement.

24. Miscellaneous.

a. This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof and shall supersede all prior understandings and agreements between the parties with respect to the subject matter.

b. The captions in this Agreement are for purposes of reference only and shall not limit or otherwise affect any of the terms hereof.

c. This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[signatures follow on next page]

WITNESS the due execution hereof as of the date first-above written.

ATTEST:

PITTSBURGH WATER AND SEWER AUTHORITY

By: _____

Title: _____

Approved as to form:

Solicitor

WITNESS:

[DEVELOPER]

By: _____

Title: _____

EXHIBIT "A"

Application For Permission To Construct An Extension Of The Authority's (Sanitary Sewer) (Storm Sewer) (Water Distribution) System.

To apply for the Authority's approval to proceed with construction of an extension of the (sanitary sewer) (storm sewer) (water distribution) system, the Developer shall make the following submittals to the Authority.

- (a) Upon preparation of plans and specifications for sanitary sewers, storm sewer, and/or water distribution facilities ("Extended Facilities") intended for connection to the Authority 's collector sewer, trunk line, or distribution line, and prior to the commencement of construction of such Extended Facilities, the Developer shall submit to the Authority:
 - (1) Payment to the Authority of an amount equal to ten percent (10%) of the amount of the developer's or performance bond, which shall represent estimated costs to the Authority of its engineering review and inspection. When professional consultants are used by the Authority, or inspections of the development work are performed by the Authority engineer, such costs shall be paid by the Developer. The costs shall be reasonable and in accordance with the ordinary and customary charges by the engineer or other consultant for similar services in the area, and shall not exceed the rate or cost charged by the engineer or other consultant to the Authority when fees are not imposed on the Developer. If at any time the Authority determines that its costs in connection with engineering review, inspection, document review and as-built plans will exceed the amount previously paid by Developer, the Authority will so notify Developer, and Developer shall immediately pay to the Authority such additional amount as is reasonably estimated by the Authority to cover its costs.
 - (2) Four (4) copies of plans, which shall include, but not be limited to, shop drawings, laying schedules, manufacturer's specifications, certifications and drawings for proposed sewer extensions, when customary on 24" x 36" sheets showing plan views to a scale of 1 inch = 50 feet horizontally, a north point, the Authority title block, the Authority approval block, date and the name of the engineer or surveyor and imprint of his/her registration seal ("Plans").
- (b) Provided that the fees and Plans are timely and appropriately submitted, the Authority shall conduct an engineering review of the Plans and shall either approve the Plans or provide written comments to the Developer within thirty (30) days of the Authority's receipt of the Plans.
- (c) If the Authority's written comments on the Plans indicate required changes, the Developer may have the required changes made and submit the Plans to the Authority for further review and approval. The Authority shall conduct a further engineering review and shall either approve the Plans or provide written comments to the Developer within thirty (30) days of receipt of the revised Plans.
- (d) Upon the Authority's approval of the Plans for the proposed Extended Facilities, permission for construction of the Extended Facilities will be granted by the Authority only after the Developer has complied with all of the following requirements.
 - (1) Developer shall deliver to the Authority one set of mylars of the proposed Extended Facilities with all required revisions.

- (2) Developer shall deliver to the Authority one copy of Developer's contract(s) with the contractor or contractors installing the Extended Facilities.
 - (3) Developer shall deliver to the Authority a schedule for construction of the Extended Facilities acceptable to the Authority.
 - (4) Developer shall deliver to the Authority a performance bond or other security as required by Section 6 of the Development Agreement.
 - (5) Developer shall obtain all required state, county and municipal permits required to commence and conduct the proposed construction work. Copies of all applicable permits shall be submitted to the Authority at least 72 hours prior to commencement of construction.
 - (6) If an easement and right-of-way across land owned or occupied by a third party is necessary to the construction and maintenance of the proposed Extended Facilities, Developer shall negotiate and enter into an easement and right-of-way agreement as required by Section 3.b of the Development Agreement.
- (e) The Authority shall provide the Developer with final approval to construct the Extended Facilities within seven (7) days of the Authority's receipt of the submissions required by part (d) above.

Exhibit "B"

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT ("Agreement") is made and entered into this ____ day of _____, 20__, by and between:

_____ (the "Grantor"), a _____, organized and existing pursuant to the laws of the _____, with offices at _____;

AND

PITTSBURGH WATER AND SEWER AUTHORITY, a body politic and corporate existing and operating under the laws of the Commonwealth of Pennsylvania, with its principal offices at 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222, County of Allegheny, Commonwealth of Pennsylvania (the "Authority").

WITNESSETH:

WHEREAS, the Grantor is the owner in fee simple of certain real property (the "Property") located in the _____ Ward of the City of Pittsburgh, Allegheny County, Commonwealth of Pennsylvania known as [street address]; and

WHEREAS, title to the Property vested in the Grantor by deed dated _____, from _____ [name of seller] (the "Deed"); and

WHEREAS, the Deed is recorded in the Recorder of Deeds Office of Allegheny County at Deed Book Volume _____, page ____; and

WHEREAS, the Property is known as Block and Lot No. _____ in the Allegheny County Deed Registry; and

WHEREAS, the Grantor desires to develop the Property by subdividing it into ____ or more individual parcels and offering such parcels for sale to individuals for development as single-family residences; and

WHEREAS, the Authority operates a water and sewer system in the City of Pittsburgh; and

WHEREAS, _____ and the Authority have entered into a Development Agreement dated _____, pursuant to which, _____ has agreed to convey a __' wide portion of the Property to the City for use as a public street (the "Right-of-Way Property"); and

WHEREAS, the Authority desires a right-of-way and easement over, upon, across, along, through and under the Right-of-Way Property for the purpose of the construction, inspection, maintenance, repair, removal and rebuilding of water, sewer, and storm water lines and facilities on and under the Right-of-Way Property; and

WHEREAS, the Grantor is willing to grant the easement desired by the Authority.

NOW, THEREFORE, in consideration for their mutual promises and for other valuable consideration, and intending to be legally bound by the terms of this Agreement, the Grantor and the Authority agree as follows:

1. Incorporation of Recitals.

The above recitals are incorporated herein by reference and made a part hereof.

2. Grant of Easement to the Authority.

The Grantor does hereby irrevocably grant, bargain, sell and convey to the Authority a perpetual, non-exclusive easement and right-of-way over, upon, across, along, through, and under the Right-of-Way Property (the "Authority Easement") for the purposes set forth in paragraph 5 below. The Right-of-Way Property and the Authority Easement are more particularly depicted on Exhibit 1 hereto, which is incorporated herein by reference.

The Authority Easement includes the Authority's right of ingress, egress and regress on and over the Property if required to gain access to the Right-of-Way Property.

3. Covenants to Run with Land.

The Authority Easement granted pursuant to this Agreement shall be perpetual and shall be appurtenant to and shall run with the Right-of-Way Property and the Property.

4. Grantor Covenants.

The Grantor covenants that (a) it will not convey any other easement which conflicts with the Authority Easement granted or created hereby, and (b) it will not take or permit any action which interferes in any manner with the rights granted to the Authority pursuant to this Agreement.

5. The Authority's Rights.

By this Agreement, the Authority acquires a right-of-way and easement over, upon, across, along, through, and under the Right-of-Way Property for the purposes of (a) the free and uninterrupted use, construction, repair, maintenance, reconstruction, improvement, alteration, removal, inspection, and abandonment of water, sewer, and storm water lines, facilities and appurtenances, and (b) any and all other purposes related in any manner to the operation by the Authority of its water, sewer and storm water systems, and any replacements or improvements thereof.

6. Successors and Assigns.

The Authority Easement granted pursuant to this Agreement shall be binding upon and inure to the benefit of the Grantor and the Authority and to their respective successors and assigns.

7. Warranty.

The Grantor WARRANTS GENERALLY to the Authority that the Grantor owns the Right-of-Way Property and the Authority Easement area in fee simple, free and clear of any liens, claims or encumbrances.

8. Modifications.

This Agreement may not be modified or discharged except by written instrument duly executed by both parties

9. Counterparts.

This Agreement may be executed in counterparts, and each such counterpart when executed shall constitute one final agreement, as if both parties had signed one document. Each counterpart, upon execution and delivery, shall be deemed to be a complete original, but this Agreement is without effect until each of the parties has executed and delivered a counterpart.

10. Governing Law.

This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania, without reference to its conflicts-of-laws principles.

11. Resolution.

This Agreement is entered into pursuant to Authority Resolution No. __ of 20__, which was adopted at a regular meeting of the Board of Directors held on _____.

[signatures follow on next page]

IN WITNESS WHEREOF, the parties hereto have set their hands and seals as of the day and year first above written.

WITNESS:

Secretary

By: _____
President

ATTEST:

Secretary or
Assistant Secretary

**PITTSBURGH WATER AND SEWER
AUTHORITY**

By: _____
Chairman

Approved as to form:

Solicitor

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this _____ day of _____, A.D., 20xx, before me a Notary Public, the undersigned officer, personally appeared _____, known to me (or satisfactorily proven) to be the person whose name is subscribed to the foregoing instrument and acknowledged that he executed the foregoing instrument for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My Commission Expires:

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this _____ day of _____, A.D., 20xx, before me a Notary Public, the undersigned officer, personally appeared _____, who acknowledged himself to be the _____ of the Pittsburgh Water and Sewer Authority and that he, being authorized to do so, executed the foregoing instrument for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Notary Public

My Commission Expires:

EXHIBIT 1

**METES AND BOUNDS DESCRIPTION
OF RIGHT-OF-WAY PROPERTY AND AUTHORITY EASEMENT**

APPENDIX M
DEP LETTER SENT TO PWSA FOR
SEWAGE FACILITIES PLANNING
MODULES



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHWEST REGIONAL OFFICE

March 2, 2011

Mrs. Michelle Carney
Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I
1200 Penn Avenue, Second Floor
Pittsburgh, PA 15222-4745

Re: Sewage Facilities Planning Modules
Exemption Applications in the ALCOSAN Service Area
City of Pittsburgh
Allegheny County

Dear Mrs. Carney:

The Department is writing to inform you that as of March 24, 2011, planning exemption applications should no longer be submitted for any project proposed for new land development in the ALCOSAN service area. The regulations at 25 Pa. Code 71.51(2) in part requires that the collection, conveyance and treatment facilities be in compliance with the Clean Streams Law and the rules and regulations to qualify to be exempt from the plan revision requirements. Your municipality and ALCOSAN have been under orders with the Department or Allegheny County Health Department to bring your and ALCOSAN's facilities into compliance with the Clean Streams Law, therefore the Department can no longer authorize planning exemptions for new land development in the ALCOSAN service area. Please note that this determination is consistent with processing requirements in place throughout the Commonwealth.

Please inform developers that planning module submissions will be required for any new land development proposals. Again, we will no longer be accepting sewage planning exemption applications in the ALCOSAN service area until your municipality and ALCOSAN's orders are satisfied.

Please note the Department has a fee schedule for Planning Module Component reviews. This fee applies to any project that requires planning; therefore, the developer will be assessed a fee on approval or disapproval of the Planning Module by the Department.

If you should have any questions, please contact me at 412.442.4047.

Sincerely,

Thomas E. Flanagan
Sewage Facilities Planning Specialist
Water Management

cc: Allegheny County Health Department
ALCOSAN



400 Waterfront Drive, Pittsburgh, PA 15222-4745

412.442.4000 FAX 412.442.5885

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