CHAPTER 6 – 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.

6.1 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.

6.2 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. Their office is located at 3901 Penn Avenue, Building No. 5, Pittsburgh, PA 15224.

6.3 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. (1½ 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.

6.4 Tap-in Drawing Basic Guidelines

Tap-in drawings must comply with the following requirements.

- Drawing size shall be 24 inches x 36 inches (Landscaped).

- Plan views shall be drawn to engineers scale only (typically 1"=20' or 1"=30'), unless otherwise directed.
- Plan view shall be set to City monumentation and City datum unless otherwise directed.
- Drawing shall be to scale with a north arrow pointing to the top or the right of the plan 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 and stationed. 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 6-1), the PWSA Title Block (Figure 6-1), and the PWSA Approval Block (Figure 6-2). Examples of the remaining items are shown below.

Table 6-1
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 6-1).

Figure 6-1
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 6-2) 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.

Figure 6-2
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.

6.5 Other Requirements

Approved curb stops shall be provided on all new domestic water service lines 12 inches towards the property from the face of curb or edge of pavement and oriented in a straight line perpendicular to the public street right of way unless otherwise directed. New taps and domestic service lines shall also be located so as not to place the curb stop within the defined limits of a driveway unless otherwise directed. All private service line materials must also comply with all required ACHD Plumbing Division directions and approvals.

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 private sub metering and/or division of the PWSA bill are solely the responsibility of the individual or organization mentioned above.**

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 recommends meter pits/vaults for all installations including 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 judgment 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 cannot 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 (H20). **Be advised PWSA and/or ACHD do not recommend vaults/pits in street cartways and/or driveways.**
- 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/shop drawing submittal(s) 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.

6.6 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.

Drawing Number: _____

Pittsburgh Water and Sewer Authority
Engineering & Construction Division
TAPS LOG FORM

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 Form

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 Water Service	Meter Size	_____	BPD Size	_____
	Meter Type	_____	BPD Model	_____
	Meter Manufacturer	_____	BPD Manufacturer	_____

Tap Size: _____

Fire Service	Meter Size	_____	BPD Size	_____
	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

6.7 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.

6.8 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.

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

6.9 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, connection, or customer facilities fees. If the applicant so requests, PWSA can provide an electronic and/or hard 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.

6.10 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.**

Only PWSA performs all drilling of taps on PWSA water mains. Also for service lines 1.5 inch or less in diameter PWSA will install the corporation stop and coupling. 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 and/or ACHD 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, set and connect all water meters and remote reading devices regardless of size to **preset and/or existing piping**. 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.**

6.11 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 previously 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 private 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 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 up to 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 or 3 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 2 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 PWSA approved gate valve, curb stop with curb box, 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 private gate valve, curb stop with curb box, 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.