

Chapter 18 Development Services

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Chapter 18 DEVELOPMENT SERVICES

This chapter of the Design Standards and Guidelines (DSG) describes the plan review function at the Seattle Public Utilities (SPU) Development Services Office (DSO). Plan review at the DSO primarily focuses on the review of plans for private development improvements in the right-of-way. The primary audience for this chapter is plan reviewers within DSO and engineers from other areas in SPU. DSG standards are shown as underlined text.

18.1 KEY TERMS

Abbreviations and definitions given here follow either common American usage or regulatory guidance.

18.1.1 Abbreviations

Abbreviation	Term
BMP	best management practice
CAM	client assistance memo
CCTV	closed-circuit television
CIP	Capital Improvement Program
CMD	Construction Management Division
CP	Corrosion Protection
DG	design guidance
DR	Director's Rule
DSO	Development Services Office
DSS	development services system
DWW	Drainage and Wastewater
ETSD	Engineering and Technical Services Division
FOMS	Field Operations Mapping System
ft	feet
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
IT	Information Technology
KCIW	King County Industrial Waste

Abbreviation	Term
LOB	line of business
MH	maintenance hole
MIP	Major Interagency Project
MOA	memorandum of agreement
MUP	master use permit
OSM	on-site stormwater management
PAR	Preliminary Assessment Report
PAT	Preliminary Assessment Tool
PDEB	Project Delivery and Engineering Branch
PMCD	Project Management and Controls Division
PRD	Plan Review Database
ROW	right-of-way
RPS	Real Property Services
RSSC	Registered Side Sewer Contractor
SCL	Seattle City Light
SDCI	Seattle Department of Construction and Inspections
SDOT	Seattle Department of Transportation
SIP	Street Improvement Permit
SMC	Seattle Municipal Code
SMT	Seattle Municipal Tower
SPU	Seattle Public Utilities
SSPTD	side sewer permits for temporary discharge
WPPM	Water Planning and Program Management
WAC	Water Availability Certificate
WOSM	Water Operations and System Maintenance

18.2 GENERAL INFORMATION

This section describes the authority for, and general organization of, the plan review function within DSO and other areas in SPU.

18.2.1 Authority

For the review of project plans, SPU relies on authority granted by the Seattle Municipal Code (SMC) and various Directors' Rules (DR). SPU has a memorandum of agreement (MOA) with the

Seattle Department of Construction and Inspections (SDCI) and the Seattle Department of Transportation (SDOT) granting those departments authority to review projects on behalf of SPU, through development permits and public works contracts. SPU documents roles, responsibilities, and financial agreements with SDOT and SDCI through MOAs.

The sections of the SMC that authorize DSO's role in plan review are described in client assistance memos (CAMs). These CAMs are detailed in DSG Section 18.11.3 and listed in Table 18-8.

The DSO plan review staff review plans to ensure that SMC requirements for the Drainage and Wastewater (DWW) and Water lines of business (LOBs) are satisfied during project design. DSO reviews plans to ensure:

- Protection of SPU's infrastructure from adverse construction impacts
- Preservation of ability to make future system improvements
- Projects by private developers, other City of Seattle (City) departments, and other agencies comply with the stormwater code requirements and design standards

18.2.2 Organization

Other SPU divisions/sections are involved in plan review and coordinate with DSO to protect SPU property, infrastructure, and related interests. Table 18-1 presents the plan review responsibilities of these divisions/sections.

Table 18-1
SPU Sections Involved with Plan Review

Section	Plans Reviewed
DSO Plan Review	<ul style="list-style-type: none"> • SDOT SIP projects (Water and DWW mainline extensions) • Out-of-City water main extensions and other contractor-installed improvements • Large water service installations • Sewer build-overs • SDOT over-the-counter permits (ditch filling, parklets, and streateries)
ETSD Plan Review	<ul style="list-style-type: none"> • Small other agency projects • Other agency projects – stormwater code review • Utility major permits for franchise utilities • Street vacation requests
CIP Design	<ul style="list-style-type: none"> • SPU-led CIP projects • Large interagency projects
Engineering & Systems Support	<ul style="list-style-type: none"> • Projects outside of the City with the potential to affect SPU water transmission pipelines • Corrosion protection plans (for internal, other agency, and developer projects)
SPU Survey	<ul style="list-style-type: none"> • SPU-led CIP projects • Other City department CIP projects

Section	Plans Reviewed
	<ul style="list-style-type: none"> • Review of SIPs for compliance of survey with City standards
SPU CMD	<ul style="list-style-type: none"> • SPU-led CIP projects • Other agency projects with utility work • Developer Water and DWW extensions and other improvements
Field Crews Planning and Scheduling	<ul style="list-style-type: none"> • SPU-led CIP projects • Other agency projects with utility work • Developer Water and DWW extensions and other improvements
Water System Operations	<ul style="list-style-type: none"> • SPU-led CIP projects • Other agency projects with utility work • Developer Water and DWW extensions and other contractor-installed improvements
Water Transmission and Distribution	<ul style="list-style-type: none"> • Wholesale (purveyor) water services • Other agency projects with potential impacts to Water infrastructure or opportunities to replace Water infrastructure at a reduced cost • Developer water main extension projects and other improvements
DWW LOB	<ul style="list-style-type: none"> • Other agency projects with potential impacts/opportunities
Solid Waste Planning and Program Management	<ul style="list-style-type: none"> • Development plans (for placement of garbage, recycling, and food waste containers)
Utility Service Inspections	<ul style="list-style-type: none"> • Water service plans for large buildings and irrigation (for backflow prevention)

Acronyms and Abbreviations

- CIP: Capital Improvement Program
- CMD: Construction Management Division
- DSO: Development Services Office
- DWW: Drainage and Wastewater
- ETSD: Engineering and Technical Services Division
- LOB: line of business
- SDOT: Seattle Department of Transportation
- SIP: Street Improvement Permit

18.3 TYPES OF PLAN REVIEW

DSO performs plan review for development projects. Most of these projects are for private development but some are parcel-based projects constructed by public agencies.

18.3.1 Private Development Permitting in Seattle

Private development refers to projects constructed by private parties that modify, build, or affect public water, stormwater, wastewater, or solid waste systems. The SMC regulates permits

for most private development. City development permitting is organized into two primary categories:

- **Private property.** SDCI manages permitting for all work within a parcel through master use permits (MUPs) and construction permits. Private development plans are reviewed, approved, and inspected through the SDCI permit process. SDCI, Seattle City Light (SCL), SDOT, and SPU DSO staff provide preliminary information about requirements for private development on private property and any associated improvements in the ROW, through the SDCI-managed Preliminary Assessment Report (PAR) process. Sections 18.4.1 and 18.4.2 detail this process further.

The extent of DSO staff’s review is generally limited to infrastructure in the ROW. Exceptions include sewer build-over reviews and reviews of SPU infrastructure that will be located in easements on private property, such as water meter vaults and water, sewer, or drainage main extensions.

- **Right-of-way (ROW).** SDOT manages ROW permits such as Street Improvement Permits (SIPs), utility major permits, minor utility permits, construction permits, and over-the-counter permits. DSO staff primarily review utility construction plans (main extensions, water services, and side sewers) installed under SIPs, while plans for other types of permits are installed by the Engineering and Technical Services Division (ETSD). DSO also reviews plans to ensure protection of SPU infrastructure and maintenance of existing site drainage for over-the-counter street use permits, such as ditch filling, parklets, and “streateries.”

18.3.2 Private Development Permitting Outside of Seattle

The SPU water distribution area serves areas outside of the City, including portions of the cities of Shoreline, Burien, and Lake Forest Park and areas of unincorporated King County. DSO reviews plans for water main extensions and new water services in these areas.

18.4 PLAN REVIEWS FOR SDCI PERMITS

18.4.1 Preliminary Assessment

SDCI administers the preliminary assessment process, which provides the development community, City departments, public agencies, and local governments with a general set of requirements for projects prior to permit application. The PAR is used to inform the development community of requirements that could affect a project. SDCI, SCL, SDOT, and SPU all enter requirements into an electronic tool called the Preliminary Assessment Tool (PAT).

18.4.2 Preliminary Assessment Review

DSO plan reviewers follow these steps to review preliminary assessments:

1. Access PAT through [Accela](#) (log in required).
2. Once the SPU review is completed, select “Complete” button in PAT to route the project to SDCI permit staff. SDCI staff will post the completed PAR online and email a copy to the applicant.
3. Use the “Route Back” button as necessary when information in a previous queue must be revised. Occasionally, it may be best to contact the reviewer outside of the PAT via email or telephone. If an initial SDCI build-over or main extension requirement is overturned by SPU, the SPU reviewer must enter a comment in the internal comment field and route the project back to the SDCI drainage review queue.
4. For the Notes & Other Requirements sections, enter “Notes” in the type field for internal comments, which are not to be shared with the public. Enter “Requirement” in the type field for comments directed externally for the applicant.

Table 18-2 presents the information that should be included in the PAT.

Table 18-2
Information Included in the PAT

Utility	Information to be provided in the PAT
Drainage and wastewater	<p>Verify the following information input by SDCI Drainage:</p> <ul style="list-style-type: none"> • Locations of existing public infrastructure (sanitary sewer, storm drain, or combined sewer) and pipe sizes. • Waive or concur if a main extension is required. • Review whether SDCI has stipulated build-over and confirm if the requirement is valid. • Other additional areas of investigation: <ul style="list-style-type: none"> ○ If more than one possible connection point, the reviewer may suggest preferred pipe and location of connection. ○ Potential capacity issues.

Acronyms and Abbreviations

PAT: Preliminary Assessment Tool

SDCI: Seattle Department of Construction and Inspections

18.4.2.1 Preliminary Assessment Performance Measures

The SPU service level agreement is to complete the preliminary assessment review within 48 hours of receipt from SDOT. If route backs are required, an additional 48-hour window may be allowed once the project enters SPU’s queue a second time.

18.4.3 Side Sewer Connections to Drainage and Wastewater Main Infrastructure

Side sewer permits include the connections made to SPU-owned main infrastructure. SPU crews typically perform the core tap to the main. The side sewer from the SPU-owned tee or wye at

the main is installed by a Registered Side Sewer Contractor (RSSC) and inspected by SDCI site inspectors. SDCI drainage reviewers approve standard core tap connections but coordinates with SPU for any non-standard connections. For more information, refer to [Core Tap Procedures for Storm and Sewer Mains](#).

In addition, DSO will receive requests from SPU's core tap crew when they encounter unexpected conditions or a non-standard core tap.

18.4.4 Side Sewer Permit for Temporary Discharge

SDCI also issues side sewer permits for temporary discharge (SSPTD) for temporary construction dewatering. The review for this permit occurs during building permit review, as part of review for stormwater code compliance. The review of the SSPTD includes:

- Confirmation that the temporary dewatering is discharged to the approved point of discharge (pipe storm drain [PSD], pipe sewer sanitary [PSS], or pipe sewer combined [PS])
- Review of the temporary dewatering plan
- Review that proposed discharge rate is within SPU's guidelines
- Coordination with King County Industrial Waste (KCIW) for their discharge authorization if discharge is connected to the sanitary or combined sewer systems

SDCI consults with DSO for private property projects when the established criteria cannot be met. The DSO plan reviewer should balance SPU's infrastructure needs with the project needs. For guidance, see [Appendix 18B - Temporary Discharges](#). If the proposed discharge rates are higher than the standard maximum rate allowed, the DSO plan reviewer determines whether risks to the infrastructure are within an acceptable range.

When these sorts of temporary discharges to the sanitary or combined sewer system are proposed, the project requires approval from KCIW. In these cases, the SPU plan reviewer communicates the allowed discharge flow rate and any other SPU conditions to the project contact and the KCIW staff, to ensure SPU conditions are documented in the KCIW permit.

Metering of temporary discharges is only required when there is significant discharge to the combined system. In these cases, SDCI will notify DSO, who will alert the sewer submeter program manager in the SPU Utility Accounts Division of the need for metering.

Once SPU and KCIW are satisfied, the SPU plan reviewer informs the project contact and the SDCI drainage reviewer that the SSPTD can be issued.

For discharge permits related to major interagency projects (MIPs), SDOT, and Sound Transit, plan reviewers should forward inquiries to the SPU project manager in the Major Interagency Projects Section of the Project Management and Controls Division.

18.4.5 Sewer Build-Overs and Reroutes

Build-over review and reroute projects are initiated through SDCI's building permit review process. SPU may allow a developer to construct a permanent structure over or adjacent to an existing combined, sanitary, or storm main located on private property or to reroute the main. If any or all of the requirements are not met, SPU reserves the right to reject the proposed build-

over. An applicant is not entitled to a build-over or reroute, whether or not the criteria allowing approval of a build-over or reroute are met.

Real Property Services (RPS) works with the DSO plan reviewer to ensure that the City's rights and facilities are adequately protected. The developer must agree to pay the administrative costs plus excess future costs incurred during the project's construction. For detailed information on build-over review or the reroute process, refer to [Tip 507](#) for the drainage and wastewater public main build-over and reroute process.

Note: Build-overs are considered only for drainage or wastewater mains. Build-overs are not allowed for water mains.

18.4.5.1 Build-Over Process

Refer to [Tip 507](#) and the RPS/DSO flow chart for the drainage and wastewater public main build-over and/or reroute process.

18.4.5.2 Build-Over Review

SPU build-over review may involve a variety of steps and requirements, as follows:

1. Rerouting the sewer around the proposed building in lieu of a build-over is preferred. This option only works if there is enough grade to maintain flows and if there will be additional access granted for change in direction vertically and horizontally. This will require any existing easement to be relinquished and a new easement (requiring action from City Council) to be recorded prior to permit issuance. If there is no existing easement, a new easement must be provided.
2. Replacing the pipe within an existing easement may be proposed. Relinquishing an existing easement and obtaining a new and wider standard easement is easier to get City Council approval than obtaining an entirely new easement.
3. A public utility easement is issued for the utility main on private property. The City Council approves any easement legislation.
4. If required, a casing pipe is installed around the sewer/storm main (carrier pipe) and the inside diameter of the casing pipe must be larger than the outside diameter of the bell of the carrier pipe. Refer to [DSG Chapter 4, General Design Considerations](#).
5. The minimum thickness of the steel casing pipe should be ¼ inch. External loading may require thicker and stronger casing, such as with larger buildings or railroad crossings, which should be reviewed by a structural engineer. For simple spread footings, casing should extend at least 5 feet (ft) beyond the edge of the building foundation 1:1 influence line. For pile foundations, casings may extend to less than 5 ft. Steel casing pipe is preferred, although ductile iron pipe may be considered on a case-by-case basis.
6. The carrier pipe must be ductile iron pipe class 52 minimum restrained joint within the casing pipe. The carrier pipe must match or exceed existing capacity of the original design. For sewers, the velocity flowing within the pipe should be at least 3 ft/second. In instances where planning determines that upsizing a pipe is needed for either increased sewer loads or drainage basin conveyance, it is best to accomplish this during the build-over.

7. Private side sewer connections are not allowed within the casing pipe. Reroute existing connections, preferably downstream of the casing.
8. The proposed pipe must be sized to convey the design flows for the entire basin under full build-out for the corresponding zoning.
9. Casing spacers must be used to maintain the line and grade of the pipe and to prevent floatation. Use stainless-steel spacers for longevity. Place at bell ends with 9 ft of maximum spacing.
10. An unobstructed 10 x 20 ft minimum access area located on both sides of the building is preferred.
11. A removable end cap or a 1 ft deep concrete plug must be included to seal the space between the casing pipe and the carrier pipe.
12. Additional maintenance holes (MHs) may be required, as necessary, to improve access. This decision should be made in consultation with the DWW System Maintenance staff.
13. Final as-built plans are filed in the SPU Records Vault.

18.5 PLAN REVIEWS FOR SDOT RIGHT-OF-WAY PERMITS

SDOT issues street use permits, which regulate the use of the public ROW, including construction of projects. Types of street use permits or activities that may affect SPU infrastructure include SIPs, utility permits, shoring and excavation review, and street tree permits.

18.5.1 Street Improvement Permit

[SIPs](#) are submitted to SDOT for installation of major improvements, such as street paving, curbs, and sidewalks. This permit is common to parcel based development. SPU infrastructure is generally located within the ROW, and SIP projects are more likely to affect the infrastructure and to trigger the stormwater code thresholds. SDOT issues SIPs for work as required by the Seattle [Land Use Code](#) or [Streets Illustrated](#). Sometimes, the work permitted by a SIP is related to a City department Capital Improvement Program (CIP), other agency, or voluntary project. DSO reviews a SIP when water or drainage and wastewater infrastructure that SPU will own are constructed, when existing infrastructure is impacted, or if the project must meet any performance standards of the stormwater code.

The SIP process starts at the design guidance (DG) phase (typically 60% design) and moves to the formal review phase at 90% design and through project construction. The DG phase usually consists of meetings with the project proponent. During the DG meeting, staff from the relevant City departments respond to questions from the design team or provide other information. During the formal review process, paper or electronic plans are submitted to SDOT and SDOT distributes the plans to other City departments, including SPU.

The SIP plans are reviewed for:

- Conformance with water system improvements (water main extensions, new valves, and or new hydrants) identified in the Water Availability Certificate (WAC) for the parcel, if applicable.
- Compliance with the stormwater code requirements.
- Protection of SPU infrastructure. Review is done to identify immediate and long-term risks from construction and operation of the proposed projects. The risks could be due to proximity of proposed construction to SPU infrastructure, parallel deep excavations and excavations over or under water mains or drainage and wastewater pipes, construction methods, concrete pavement removal over or adjacent to cast iron water mains, soil nails, sheet piles, and tiebacks intersecting drainage and wastewater or water pipes and vibration and settlement of pipes due to construction activities.
- Compliance with City standards for SPU utility construction or approval of non-standard construction.
- Drainage collection and conveyance and conformance with [CAM 1180](#).

The listed impacts could require mitigation by the project owner in the form of utility protection plans, monitoring of construction by SPU staff, and vibration and settlement monitoring. The review engineer should refer to the resources listed below to review the plans uniformly and efficiently and to establish the level of protection:

- Plan review checklist ([Appendix 18A - Plan Reviewers Checklist](#))
- Settlement monitoring requirements for cast iron water mains ([Appendix 5A](#))
- Settlement monitoring requirements for ductile iron water mains ([Appendix 5B](#))
- Vibration monitoring ([DSG Chapter 5, Water Infrastructure](#), section 5.11.1.2)
- Requirements for earthquake-resistant water pipe ([DSG Chapter 5, Water Infrastructure](#))
- [CAM 1180 - Design Guidelines for Public Storm Drain Facilities](#)
- [Drainage CB and inlet notes](#)
- [Mainline conveyance and detention notes](#)
- [Proprietary stormwater treatment notes](#)
- [Rain garden notes](#)
- [Infiltrating bioretention notes](#)
- [Water service notes for street improvement plans](#)
- [Water main notes for street improvement plans](#)

18.5.2 Utility Major Permits

SDOT issues utility major permits (UMPs) for the installation of underground utility mains, overhead wires, and services in the public ROW. They include public utilities such as electric power, water, sewer, and drainage mains; franchise utilities such as communications, gas, and steam; and privately owned facilities such as oil pipelines. UMPs are reviewed to protect SPU infrastructure. Review is done to identify short- and long-term risks from construction of proposed projects, as described above. The risks could be due to proximity of proposed

construction to SPU water and drainage and wastewater infrastructure, deep excavations, construction methods, concrete pavement removal over or adjacent to cast iron water mains, soil nails and tiebacks intersecting drainage and wastewater or water pipes, and vibration and settlement of SPU pipes due to the impacts listed above. For details, refer to the resources listed under 18.5.1.

This permit is one that SPU both reviews as an approver and requests from SDOT as an applicant. Many SPU projects need to obtain this permit. See [DSG Chapter 2, Design for Permitting and Environmental Review](#).

SDOT distributes UMP applications to SPU and other stakeholders. The DSO engineer reviews the plan to check for impacts on SPU infrastructure. Comments are transmitted to SDOT via Bluebeam. Simple projects usually require one review, while complex projects may require several reviews. Refer to [DSG Chapter 2, Design for Permitting and Environmental Review](#).

18.5.3 Shoring and Excavation Review

Shoring is a means of supporting the earth in a trench or vertical cut for construction or other activity. There are many types of shoring techniques for earth reinforcement or support.

The shoring review is one of the review functions for SDCI. To become more customer friendly, SDCI and SDOT combined the shoring review as part of the building permit review process, to allow for a one-stop permit. The shoring review begins at SDCI. At the point of intake, the intake reviewer assigns all necessary review locations for a particular project. Street use shoring review is initiated for any proposed excavation that would be greater than 3 ft deep immediately adjacent to any given public ROW.

DSO may review the shoring plans if the construction is likely to impact SPU utilities, but, typically, SDOT represents SPU in this review function. Projects that have deep excavations, soil nails, tiebacks, and sheet piles may trigger settlement monitoring for water mains and also pre- and post-closed-circuit television (CCTV) for sewer and drainage pipes.

SPU has an established protocol for protecting drainage and wastewater pipes and accessing them for the purpose of CCTV and maintenance. The protocol is described in notes attached as [Appendix 18D – Drainage and Wastewater \(DWW\) Utility Protection Notes](#). The notes should be included in the drawings for projects that have soil nails or tieback systems passing over or under drainage and wastewater pipes. Applicants must complete and submit a DWW Protection Plan and submit a completed Request to Enter a Maintenance Hole form before conducting any drilling, grouting, or concrete construction that may affect SPU pipes.

18.5.4 Stormwater Code Compliance

Property owners are responsible for properly conveying all stormwater, groundwater, and wastewater to an approved discharge location. Detention, treatment, or on-site stormwater management (OSM) requirements may be imposed.

In the City, all proposed development is reviewed for its impact on the existing drainage and wastewater infrastructure. An MUP, building permit, or street use permit will not be issued until all concerns regarding drainage and wastewater have been addressed. Infrastructure

improvements may be required as a condition of the permit when existing infrastructure is unavailable or inappropriate.

DSO engineers use the stormwater code to review for stormwater code compliance for public and private development or redevelopment projects. There are 19 minimum requirements for all projects (SMC 22.805.020). Of these 19 requirements, a reviewer most often encounters requirements to maintain natural drainage patterns, amend soils, implement Green Stormwater Infrastructure (GSI), protect wetlands, ensure capacity, and comply with the side sewer code. Two additional minimum requirements (flow control and water quality) vary depending on project type and where the site ultimately drains. For assistance in interpreting the stormwater code, refer to [Appendix 18C - 2016 ROW Flow Chart](#).

Drainage and wastewater thresholds for improvements and extensions within the City are triggered by code (often a lack of available main in abutting ROW). If there is no existing infrastructure to extend, or if the existing infrastructure has known capacity issues, the DSO plan reviewer may need to coordinate with the DWW LOB to determine the following:

- Possible downstream hydraulic constraints
- Point of discharge
- Evaluation of service alternatives
- Determination of benefit of new or upgraded main to SPU

The code and other extensive explanatory materials are in the [2016 Stormwater Manual](#), Volumes 1–4 and associated appendices.

18.5.4.1 On-Site Stormwater Management

OSM best management practices (BMPs) are required under the 2016 Stormwater Code. BMPs limit the negative impacts of stormwater runoff by requiring the implementation of plants, trees, and soils to clean runoff and manage stormwater flows. GSI BMPs such as bioretention, permeable pavement, and landscaping allow soil to absorb water, slowing flows and filtering out many contaminants. OSM can be achieved by either using the (1) on-site performance standard or (2) on-site lists. OSM is required for the following thresholds and project types:

1. All roadway projects (SMC 22.805.060) or trail and sidewalk projects (SMC 22.805.040):
 - a. $\geq 2,000$ square feet (sq ft) new and replaced impervious surface, or
 - b. $\geq 7,000$ sq ft total land disturbing activity
2. All parcels-based projects (SMC 22.805.050) or single-family residential projects (SMC 22.805.030):
 - a. $\geq 1,500$ sq ft new and replaced impervious surface or $\geq 7,000$ sq ft total land disturbing activity
 - b. For a project on a lot most recently created, adjusted, altered, or otherwise amended by a plat recorded with the King County Recorder on or after January 1, 2016, either ≥ 750 sq ft new plus replaced hard surface or $\geq 7,000$ sq ft land disturbing activity

For more information, refer to the [Appendix 18C - 2016 ROW Flowchart](#) for projects in the ROW.

18.6 OTHER REVIEWS AND PERMITS

Other reviews include MIPs, utility system improvement disputes, and latecomer agreements.

18.6.1 Major Interagency Projects

DSO reviews plans for large water services for MIPs from internal and external agencies. Water and sewer extension plans for these projects are reviewed by ETSD.

18.6.2 Utility System Improvement Disputes

Projects requiring a utility system improvement for water, drainage, and or wastewater may dispute the requirement and request a [Determination Review](#).

18.6.3 Latecomer Agreements

Projects with utility system improvements required as a condition of new utility service or property development are eligible to apply for a [Latecomer Agreement](#). These utility system improvements are typically water, sewer, or drainage main extensions, valve installations on water mains and associated appurtenances.

18.6.4 Water Utility System Improvement Contracts

During WAC review, DSO staff may determine that a parcel is not adequately served by the existing drinking water infrastructure. DSO may issue a WAC listing certain water system improvements required to provide water service to the parcel. Improvements may consist of constructing a standard water main, upgrading a sub-standard main, adding valving, hydrants and other water system appurtenances. The parcel owner is required to submit an executed water system improvement contract to SPU and pay all fees specified in the contract. The contract is prepared by SPU's Contracts & Procurement group. The cost of designing and constructing the main is borne by the parcel owner. The parcel owner hires a contractor to design, construct, and commission the water main in accordance with SPU's design specifications and guidelines. After the water system improvements are installed and approved by SPU's Construction Management Division (CMD), the parcel owner donates the new asset to SPU. For the complete process, refer to [Installing Water Mains](#).

18.6.5 Plan Review and Approval of Water Main Extension Projects

The process of constructing a water main extension project follows the steps below:

1. The parcel owner enters into a water main extension contract with SPU and pays all associated fees. The parcel owner then receives an approved-with-contract WAC.
2. The parcel owner hires a registered professional civil engineer to design the water main extension and associated appurtenances.

3. The parcel owner submits the plans to SDOT as a SIP application. If the project does not have a SIP component, the plans are submitted as a UMP application.
4. SDOT submits the plans to DSO and other City departments for review. The DSO engineer combines review of the street improvement construction, which impacts SPU infrastructure with the review of the water main.
5. The water main is reviewed to ensure compliance with SPU design standards. The plans may require several reviews before final approval.
6. After approval, the final plan is signed, SDOT issues a permit, and the parcel owner hires a contractor to construct the project.
7. Water infrastructure construction is inspected by CMD.

To review a water main design, the engineer should check the listed items:

- **WAC.** To match the designed project with the WAC requirements for location, water main size, material, and length.
- **Standard notes.** The notes may be revised to suit project-specific requirements. Refer to 18.5.1. Ensure the water main and water service notes and SDOT links are included. For SPU projects, see [DSG Chapter 3, Design for Construction](#).
- **Pipe material and valves.** As specified in [DSG Chapter 5, Water Infrastructure](#).
- **Water services.** Existing water services are shown on the plans with comments stating whether they will be reconnected to the new main or retired. The size and location of new water services is shown on the plans.
- **Easements.** When required for new mains, hydrants, or water services, easements should be shown on the plans and described.
- **Cathodic protection.** The DSO reviewer consults the Corrosion & Asset Engineering, under ETSD, Engineering System support. The group recommends the appropriate corrosion protection for the pipe.
- **City Standard Plans.** To confirm that the submitted engineering exhibits include the standard location for the main, a plan and profile, details for standard cover, connection, and blocking details.

Complete guidelines for designing Water mains are described in [DSG Chapter 5, Water Infrastructure](#).

18.6.6 Water Service Installation Plans

After obtaining an approved WAC, an applicant is required to complete and submit a water service application and agreement form, pay for the cost of the water services and submit plans. For small water services (2 inches or smaller), an applicant submits a sketch showing the desired location of the water service. Refer to [Small Water Service](#) for more information.

For 4-inch and larger water services, an applicant submits a scaled drawing as described in [CAM 1202](#). For complete details, refer to [Large Water Service](#) and [DSG Chapter 17, Water Services](#).

The DSO engineer reviews the plans to confirm that the site has adequate space for the trench and a meter vault and there are no utility conflicts. If the plan meets standards, it is approved

and transmitted to Water Operations and System Maintenance (WOSM) for construction. If the submitted information is inadequate, the application is returned to the applicant for revisions.

18.7 FIRE FLOW AVAILABILITY

DSO provides tested and modeled fire flow data to customers seeking building permits and/or information to help design on-site fire suppression systems. DSO provides three types of flow availability reports:

- Field hydrant flow test report
- Hydraulic modeling simulation report (when a field test is not feasible)
- Site-specific hydraulic modeling analysis of a developer-installed extension of the SPU water system

Standard charges for each type of report are listed on the online hydrant flow test report [form](#). SPU provides hydrant flow test data free of charge if the test was performed in the previous five years and the test hydrant is located within 500 ft of the subject parcel and in the same water pressure zone.

Field tests are only performed by SPU crews. SPU does not allow private contractors to perform hydrant flow tests. Once payment is received, the hydrant flow test will be schedule and a test report will be delivered once completed.

Hydraulic modeling is performed by engineers in the SPU Water Planning and Program Management (WPPM) Division, Transmission and Distribution Section. Modeling is performed under maximum day demand conditions with a residual pressure of 20 pounds per square inch (psi) at the test hydrant and a minimum 5 psi pressure throughout the rest of the system.

18.8 SURVEY REQUIREMENTS AND MONUMENTS

The City survey and monument requirements are described in [Survey Requirements](#) and [Survey Monument Protection](#).

SDOT Street Use has an agreement with ETSD, which allows ETSD to review the SIP for survey compliance on behalf of Street Use. The plans are submitted directly to the Land Survey Technical Resources group, under ETSD. Through this review, street alignments, ROWs, and horizontal and vertical survey control data for projects are reviewed and verified. Usually, the review checks and verifies the listed survey data:

- Vertical datum
- Horizontal datum
- Review the control for ROW alignments
- ROW width along project frontage

The survey plan reviewer uses City survey records, City quarter section (engineering) maps, City ordinance records, county records, superior court case documents, state and county survey

control databases, and occasionally field verification to confirm that the submitted plan or base map is a reasonable representation and interpretation of survey control.

The survey reviewer may also be asked to review new plats, short plats, and lot boundary adjustments submitted to SDOT. For new plats, geometry, ROW, and control of realigned streets are checked and ties to control outside of the plat are reviewed.

18.9 SOLID WASTE

SPU review of solid waste storage and service plans is required for:

- All multifamily, mixed-use, congregate and townhouse developments greater than 10 units
- Buildings planning the use of compactors
- Buildings seeking a storage or access variance from land use code

For more information, refer to [CAM 1301 - Solid Waste Information for Developers](#).

Submit a completed [SPU Solid Waste Storage and Access Checklist for Designers](#) to SPU_SolidWastePlanReview@seattle.gov.

18.10 PLAN REVIEW ROLES AND RESPONSIBILITIES

Plan review at SPU is performed by a team, as shown in Table 18-3, which provides a detailed matrix of overall plan review responsibilities at SPU.

Other City departments and groups within SPU share responsibilities for plan review. Table 18-3 shows an overview of the role of City departments and SPU sections in plan review.

Table 18-3
Plan Review Roles and Responsibilities

Organization	Group	Role	Responsibilities
SDCI	Multiple	Issue permits	<ul style="list-style-type: none"> • Issues MUP, building, grading, and side sewer permits. • Review to ensure compliance with stormwater and side sewer codes. • Review to protect SPU interests when issuing permits. • Involve SPU as needed or agreed in the permitting process.
SCL	Plan Review Team	Review	<ul style="list-style-type: none"> • Similar to SPU. • Review plans as needed to assure SCL infrastructure is protected.
SDOT	Street Use Operations	Issue permits; review	<ul style="list-style-type: none"> • Administers the Street Use process. • Protect SPU interests when issuing permits.

Organization	Group	Role	Responsibilities
			<ul style="list-style-type: none"> Protect SDOT interests when reviewing plans. Involve SPU as needed or agreed in permitting process.
SPU	DSO	Review WACs, review SIPs and UMP	<ul style="list-style-type: none"> Plan review to verify compliance with codes and standards and protection of SPU infrastructure. Accept plans from developers for water service review.
SPU	DWW or Water LOB	Conditional review	<ul style="list-style-type: none"> Review for projects with complex policy issues.
SPU	Solid Waste	Conditional review	<ul style="list-style-type: none"> Review building permit plans to assure safe access to dumpsters for residents and garbage trucks.
SPU	Survey	Conditional review	<ul style="list-style-type: none"> Assure plans reviewed meet City survey standards. Assure planned projects meet City ROW monumentation and future grade requirements.
SPU	Materials Lab	Conditional review	<ul style="list-style-type: none"> Assure appropriate products and materials are used in construction projects involving SPU infrastructure.
SPU	Real Property Services	Conditional review	<ul style="list-style-type: none"> Assure SPU and City property are protected Assure easements and other legal documents protect City property and interests.
SPU	WOSM	Conditional review	<ul style="list-style-type: none"> Assure proposed projects do not negatively impact Operations' ability to operate or maintain SPU infrastructure. Verifies that proposed projects are constructible.
King County	Dept. of Natural Resources (Wastewater Treatment Division)	Review	<ul style="list-style-type: none"> Protect King County wastewater interests Review plans for wastewater concerns as requested by SPU; Industrial Waste, Construction, and Real Property are sections where coordination takes place.

Acronyms and Abbreviations

DSO: Development Services Office

DWW: Drainage and Wastewater

LOB: line of business

MUP: master use permit

SCL: Seattle City Light

SDCI: Seattle Department of Construction and Inspections

SDOT: Seattle Department of Transportation

WAC: Water Availability Certificate

WOSM: Water Operations and System Maintenance

18.10.1 Coordination

Coordination with other branches, divisions, and departments is critical to successful projects. Table 18-4 lists examples of when coordination is needed with other SPU groups and SDCI. The list is not exhaustive.

**Table 18-4
Plan Review Coordination and Conditional Reviewers**

Department/Branch	Issues for Coordination
DWW and Water Operations	<ul style="list-style-type: none"> • Provide support for accessing SPU infrastructure • Safety platforms for deep MHs • Inside drop vs. outside drop for MHs • Access to public facilities in difficult to reach locations • Confirm access locations in drive aisles, roads, and private property with SPU facilities • Bend required in-lines • Backwater valves • Pipe slopes less than or greater than allowable standards • Project with limited overhead or horizontal clearance due to trees, overhead utilities, underground utilities, walls, etc. • Utility infrastructure to be decommissioned • Other unique issue creating non-standard installation • Non-standard location or complex/non-standard work by crews • Connections and maintenance of water quality facilities, such as storm filters or wet vaults • Utility conflicts • Proposed trees over/near mainline • Opportunistic replacement of plastic or galvanized water services
Real Property Services	<ul style="list-style-type: none"> • RPS initiates review for projects requiring an easement or build-over agreement • SPU coordinates with RPS easement issues with a build-over • RPS coordinates with outside jurisdictions and SPU facility's needs
Materials Lab	<ul style="list-style-type: none"> • Point load on pipes due to proposed adjacent improvements • Use of epoxy for water proofing utilidor • Casing pipe inspections • Pipe bedding/support • Trenchless installations • Mix designs for porous pavements and structural inspections • Review of non-standard products or materials • Soil compaction tests
ETSD Corrosion Protection Unit	<ul style="list-style-type: none"> • Testing for soil corrosivity • Requirements for corrosion protection for new water mains
DWW LOB Planning and Program Management	<ul style="list-style-type: none"> • Areas with no downstream drainage and wastewater infrastructure • Areas with known downstream capacity issues
Water LOB Planning and Program Management	<ul style="list-style-type: none"> • Valve configuration • Hydrant placement

Department/Branch	Issues for Coordination
Construction Management	<ul style="list-style-type: none"> • Casting surveys • Constructability review • Inspection services
SDCI	<ul style="list-style-type: none"> • DSO and SDCI have a joint Service Level Agreement (No. 19-003-A) outlining areas of coordination; this Service Level Agreement includes a triggers list that shows SDCI site reviewers what types of project issues require coordination with DSO plan reviews. Coordination includes: <ul style="list-style-type: none"> ○ Interpretation of the stormwater code for private property drainage review ○ Side sewer permitting ○ Drainage and wastewater main extension requirements ○ Temporary construction discharge ○ Build-over or relocation inspections permitted by SDCI ○ Projects that may have significant impacts on SPU system capacity
Utility Account Services	<ul style="list-style-type: none"> • Managing customer billing services • Resource conservation • Managing and resolving customer service issues • Cross connection control • Sewer sub-meters
Solid Waste	<ul style="list-style-type: none"> • Review for truck access to large waste containers
Survey	<ul style="list-style-type: none"> • Professional survey issues that are elevated by the developer

Acronyms and Abbreviations

DSO: Development Services Office

DWW: Drainage and Wastewater

ETSD: Engineering and Technical Services Division

LOB: line of business

MH: maintenance hole

RPS: Real Property Services

SDCI: Seattle Department of Construction and Inspections

18.11 RESOURCES

This section contains information available to SPU plan reviewers.

18.11.1 Codes and Authority

Table 18-5 describes relevant codes and authority that DSO staff relies on to perform plan review.

Table 18-5
Relevant Codes and Authority for Plan Review Staff

Code	Authority
Side Sewer Code (2010) SMC Chapter 21.16	Regulates construction/use of service drains and side sewers in Seattle.
Stormwater Code (2016) SMC Chapter 22.800	Regulates stormwater, flow control, water quality, temporarily during construction, and permanently after construction.
Water Code SMC Chapter 21.04	Regulates current and future water demands, ensures high quality drinking water, and establishes rates for purveyors and customers.
King County Code KCC Title 28	Regulates the disposal of industrial waste into the sewerage system and establishment of fees and rules.

Acronyms and Abbreviations

SMC: Seattle Municipal Code

18.11.2 Director's Rules

Table 18-6 describes relevant Director's Rules (DR) for plan review staff. DRs are administratively approved and signed by City department directors. They are legally binding rules that clarify how SMC will be implemented and enforced. Most DRs related to plan review are joint SDCI and SPU DRs and can be located in Table 18-6 or on SDCI's website.

Table 18-6
Relevant Director's Rules for Plan Review Staff

DR Number	Description
2011-004	Requirements for Design and Construction of Side Sewers (Drainage and Wastewater Discharges)
2011-005	Side Sewer Code Enforcement
2016 City of Seattle Stormwater Manual	
Vol. 1	Project Minimum Requirements
Vol. 2	Construction Stormwater Control
Vol. 3	Project Stormwater Control

DR Number	Description
Vol. 4	Source Control
Vol. 5	Enforcement
Appendix A	Definitions
DWW-160	Restrictions on Use of Easements in Lieu of Drainage and Wastewater Main Extensions
DWW-420.1	Yesler Terrace Allowable Stormwater, Groundwater, and Sewer Release Rates to the Combined Sewer System and Infiltration Zones
DWW-430.1	Flow Control Requirements for Projects in Identified Public Combined Sewer Basins
WTR-440	Requirements for Water Service

18.11.2.1 Memoranda of Agreement and Understanding

MOAs and memoranda of understanding (MOUs) are binding documents between a minimum of two parties. Often two or more departments or branches/divisions within a department will have an MOA or MOU. See the [Agreements Library](#) for more information.

18.11.3 Client Assistance Memos

Table 18-7 describes relevant *client assistance memos* (CAM) for plan review staff. CAMs are general in nature and aid the public in applying regulations.

Table 18-7
Relevant Client Assistance Memos for Plan Review Staff

Client Assistance Memo	Description
SDCI Tips	
TIP 502	Grading Regulations in Seattle
TIP 503	Side Sewer Permits in Seattle
TIP 504	Side Sewer As-Built Plan Requirements
TIP 507	Build-over and/or Re-route Review and Approval Process
Tip 520	Rainwater Harvesting for Beneficial Use - Green Building CAM
SPU CAMS	
CAM 1102	Sewer Sub-meter Program
CAM 1180	Design Guidelines for Public Storm Drain Facilities
CAM 1201	Water Availability Certificate
CAM 1202	Water Service
CAM 1301	Solid Waste Storage and Access for New or Remodeled Buildings
CAM 1302	Construction and Demolition Waste Management
CAM 1401	Survey Requirements

Client Assistance Memo	Description
CAM 1402	Survey Monument Protection
SDOT CAMS	
CAM 2200	SDOT SIP Process
CAM 2201	90% Complete Street Improvement Plan Requirements
CAM 2213	60% Street Improvement Plan (SIP) Approval Process
CAM 2214	90% Street Improvement Plan (SIP) Intake Appointment and 90% Complete SIP Acceptance Processes

Acronyms and Abbreviations

CAM:

TIP:

SDCI: Seattle Department of Construction and Inspections

SDOT: Seattle Department of Transportation

SIP: Street Improvement Permit

18.11.3.1 DSO Billing Codes

18.11.3.2 Technology

The City uses a variety of software to manage and track plan review. To access these systems, the SPU plan reviewer should contact the appropriate Information Technology (IT) department (Table 18-8).

**Table 18-8
Technology Tools for Plan Review Staff**

Software Name	Description	Owner
ArcMap	Viewing, SPU and City utilities and infrastructure, creating maps, organizing data during plan review, project design, and processing of WACs.	Seattle IT
UtiliView	Viewing, SPU and City utilities and infrastructure, creating maps during plan review, project design, and processing of WACs.	Seattle IT
Accela	Accela is an online software platform that allows customers to apply for land use, street use, and utility permits and City employees to enter and track requirements, plan reviews, and inspection results.	Seattle IT
PAT	PAT is an application within HWT that supports determination of code requirements. It is used by SDCI Land Use, SDCI Site Team, SCL, SDOT and SPU. Access needs to be requested from SDCI. PAT is used in the preliminary application process by Review Staff to provide early guidance and code requirements for all new private parcel development projects.	SDCI
PRD – Archived on 3/28/2020	PRD is a Microsoft Access database used to track plans, archive comments & decisions for projects reviewed by SPU PDEB. It is used for SDOT Street Use Permit plan review, for other departments. CIP plan review, and for other reviews that occurs in the Plan Review Section. Write access is requested from the Plan Review Supervisor, who then contacts the SPU IT service desk.	SPU

Software Name	Description	Owner
FOMS	FOMS is a tool to graphically see Maximo work orders, O&M truck locations, and work order status and expeditiously gain O&M information. O&M truck locations are real time locations using GPS to locate them.	SPU
Virtual Vault	Virtual Vault is a desktop tool to access to SPU infrastructure as-built information.	SPU
Maximo	Maximo is a desktop tool that enables access to O&M crew scheduling, work activities, and costs.	SPU
WAC Tracker - Archived on 3/28/2020	Web application for creating and managing water application certificates.	SPU
DSS	DSS is used to track DSO projects and sales of new development services.	SPU

Acronyms and Abbreviations

CIP: Capital Improvement Program
 DSO: Development Services Office
 DSS: development services system
 FOMS: Field Operations Mapping System
 HWT: Hansen Web Tools
 IT: Information Technology
 O&M: operations and maintenance
 PAT: Preliminary Assessment Tool
 PDEB: Project Delivery and Engineering Branch
 PRD: Plan Review Database
 SCL: Seattle City Light
 SDCl: Seattle Department of Construction and Inspections
 SDOT: Seattle Department of Transportation
 WAC: Water Availability Certificate

18.11.3.3 DSO Library and File Storage

The SPU Library is located on the 45th floor of the Seattle Municipal Tower (SMT). The library contains copies of industry standards to which SPU adheres. It also contains engineering textbooks, City standards, and other technical engineering publications.

DSO has transitioned to entirely electronic plan reviews. Reviewed plans are stored in Accela and in the WS437 public J drive.

18.11.4 Mapping

Table 18-9 lists resources SPU plan reviewers and developers use to obtain property information.

Table 18-9
Resources for Plan Review Staff

Resource Name	Description (if applicable)	Link/Location (if applicable)
General		
SDCl Tip 233	Sources for property information	Tip 233
City GIS (Public)	Public information	City GIS

Chapter 18 Development Services

Resource Name	Description (if applicable)	Link/Location (if applicable)
DSO Research Map	External map to research existing City water, drainage, and sewer infrastructure for new property purchases or development	DSO Research Map
City GIS (Internal Use)	Internal access information	ArcView & UtiliView
SDCI's Microfilm Library	Public information	SDCI Public Resource Center, SMT 20th Floor
City of Seattle Vault	<ul style="list-style-type: none"> • 400 scale water maps and limited record water system drawings (as-built) • Limited wastewater and stormwater record drawings (as-built) • Sewer cards (also available online) • Reviewers have access to more accurate detailed information from the internal SPU online system 	700 Fifth Avenue SMT 47th Floor Seattle, WA 98104 (206) 684-5132 Hours: 9:00 AM to 9:30 PM, M-F
Virtual Vault	<ul style="list-style-type: none"> • Scanned copies of as-designed and as-built project plans • Scanned Water engineering records • Scanned historical GI (tap) cards • Basemap records • Cadastral records 	Virtual Vault
Tip 107 SDCI Public Records	This tip includes brief descriptions of records maintained by SDCI and locations and hours of operations, copy fees, and documents exempt from public disclosure	Tip107
Plat Maps	Official document that portrays subdivision boundaries, easements, restrictions, and legal descriptions	King County Dept. of Records & Elections
Water		
Water System Map Book	Public information	Seattle Map Counter Public Resource Center, SMT 20th Floor
SPU DSO	Public information, Water and DWW information	SPU_PlanReview@Seattle.gov
Drainage and Wastewater		
Sewer Cards	Historical mapping information (updated until 2001)	Find Side Sewer Card and Maps City of Seattle Vault, SMT 47 th Floor Sewer and Drainage counter at SDCI
SPU Engineer's Maps		See base maps
Sewer & Drainage Infrastructure Map Sheets		Seattle Map Counter Public Resource Center, SMT 22 nd floor

Acronyms and Abbreviations

DSO: Development Services Office

DWW: Drainage and Wastewater

GI: General Index

GIS: Geographic Information System

SDCI: Seattle Department of Construction and Inspections

SMT: Seattle Municipal Tower

If plan reviewer notes a discrepancy on Geographic Information System (GIS) maps or sewer cards, verify using the mapping resources listed above. Once confirmed that a correction is needed, complete a GIS Change Request form to correct discrepancies. [The map correction forms for water and drainage and wastewater data](#) are located online.

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