

CIVIL

Basis of Design Narrative

Codes and Design Standards

- City of Seattle Stormwater, Grading and Drainage Control Code
- City of Seattle Standard Plans for Municipal Public Works Construction
- City of Seattle Supplement to the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction
- City of Seattle Street Improvement Manual
- University of Washington - 2003 Facility Design Information
- Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction

Site Construction

Existing

The existing site is partially developed with the east half currently being used as contractor staging and the west half developed with existing buildings and surface parking. The site is surrounded on three sides by Public right-of-way. Brooklyn Avenue to the west, Boat Street to the south and 15th Avenue to the east. On street parking is currently available on Brooklyn Avenue from Boat Street to NE Pacific Street and along NE 15th Avenue from Boat Street to Skamania Lane. Skamania Lane is a pedestrian walkway that bisects the west portion of the Health Sciences campus. There are currently crosswalks at the intersection of 15th Avenue and Boat Street and Skamania Lane that provide pedestrian access to the SE corner of the building.

The site slopes from north to south with approximately 26 feet of fall across the site from Skamania Lane to Boat Street.

Proposed

Proposed street frontage improvements include the replacement of sidewalks as needed and the realignment of existing curb lines to remove the on street parking adjacent to the building. On street parking is currently available along 15th Avenue and Brooklyn Avenue and is metered by the City of Seattle. All work within the right-of-way will meet City of Seattle Department of Transportation Guidelines.

Access to the loading dock will be off of Brooklyn Avenue with the development of a driveway curb cut and turnaround area. In addition to providing access to the loading dock, one parking stall will be provided adjacent to the turnaround area. This parking stall is provided for UW facilities parking only. The maximum delivery vehicle size for the turnaround area and loading docks is 25 feet.

The grades around the proposed building footprint slope approximately 16 feet from north to south. The basement level of the building is completely below grade with the first level day lighting at approximately the mid-point of the building. Access to the building is provided at the SE corner with pedestrian access to the sidewalk along the west side of 15th Avenue.

Utility Construction

This document is EXEMPT from public disclosure pursuant to

RCW 42.17.010(1)(b)

Water

Existing

The existing City of Seattle water system includes an existing 8-inch water main in Brooklyn Avenue, as well as 15th Avenue and Boat Street. The system is looped with water provided from the north, west and east. There is an extensive network of valves in the system allowing for the isolation of most sections of the system.

Pressure:

A test was done in 1995 for hydrants near Harrison Hydraulics at San Juan and Columbia. Results are as follows:

Flow: 1550 GPM

Static Pressure: 128 PSI

Residual Pressure: 116 PSI

Nozzel: 2.5" but with .80 C Factor

Pitot: 110 PSI

Proposed

A dedicated fire service and two domestic services are proposed to serve the building. One of the domestic services and the fire service will connect to the existing 8-inch main in Brooklyn Avenue and enter the building at the southwest corner. The second domestic service will connect to the 8-inch main in 15th Avenue and also provide service to the SW corner of the building. The domestic service off of Brooklyn will consist of a combination fire/domestic meter. This meter type provides backup capabilities for a secondary fire service. An isolation valve between the services in Brooklyn provides the ability to isolate either service for maintenance or repairs while maintaining fire protection.

There are currently (2) fire hydrants located near the site; one at the SW corner of the building site and one at the NW corner of the building site. Additional fire hydrants are proposed at the NE and SE corners of the site. The fire department connection (FDC) for the building will be located adjacent to the meters located off of Brooklyn Avenue.

All work on the water system shall meet Seattle Public Utilities and University of Washington standards.

Sanitary Sewer

Existing

There is a 15-inch sanitary sewer gravity main in Boat Street as well as a 15-inch gravity sewer main in Brooklyn Avenue. The City of Seattle lift station for the area is located on the NW corner of Boat Street and Brooklyn Avenue and serves both 15-inch mains as well as a 18-inch main serving properties west of the proposed building. The 10-in force main from the existing lift station runs up Brooklyn Avenue and connects to a 108-inch King County Metro sewer main in NE Pacific Street. The emergency overflow from lift station is directly to the south and drains

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to Portage Bay adjacent to the storm outfall. The lift station is nearing capacity with construction of the Bioengineering and Genome Science projects. Improvements that are currently being discussed are the installation of an emergency power generator and flow monitoring. Further upgrades to the lift station have not been defined.

Proposed

The sewer service proposed for the building is a gravity connection from the south end of the building to the 15-inch main in Boat Street with the option of switching flows to an alternate lift station if the existing lift station shuts down or is backed up. The secondary lift station would be located at the SW corner of the project site, across the street from the existing lift station. The lift station would have emergency power and would act as a containment tank if necessary to capture building flows. The lift station would connect to the 10-inch force main in Brooklyn Avenue.

A collection system within the loading dock would capture vehicle runoff or potential spills and direct them to the building sanitary sewer system.

It is necessary to coordinate with the City of Seattle Public Utilities to evaluate the impacts of the additional flow on the existing sewer lift station and coordinate future improvements in the area. All work on the sanitary sewers shall meet Seattle Public Utilities and University of Washington standards.

Storm Drainage

Existing

The existing site is currently a graveled construction parking lot while the remaining area is developed with existing buildings and surface parking. Storm runoff from these various areas is collected and discharges to an existing 24-inch storm drain in Boat Street. The storm runoff discharges to Portage Bay through a 48-inch storm main that extends south from the intersection of Boat Street and Brooklyn Avenue.

Proposed

The proposed stormwater collection system will collect runoff from building rooftop and loading dock access drive. Grading shall be such that all water flows away from the structure.

Roof drains are collected on either side of the building and connected to services extended from Brooklyn Avenue and Boat Street. Site drainage from the loading dock area will be collected and conveyed to a water quality treatment facility as required by the City of Seattle Drainage Code. If the water quality vault is necessary it will consist of a underground vault with treatment capabilities. The water quality feature will be for surface water runoff collected in the loading dock area only. The collection system will provide spill control devices to contain potential spills and aid clean up. The rooftop and site drainage systems will remain separate until connected to the City infrastructure. The systems will also include valves prior to entering the City system to make it possible to isolate each system.

A conventional foundation drainage system is proposed to collect underslab drainage and reduce hydrostatic pressure on the structure. The system will consist of 6-inch schedule 40

PVC pipe installed under the slab with spacing between pipes of approximately 15-20 feet. Cleanouts for the system will be located outside the building footprint. The cleanouts will be tamper proof.

It is not known at this time if the building resides in the groundwater table. Geotechnical investigation will be required to determine the ground water level in the area of the proposed building.

All storm sewer lines shall be sized for half full flow under design conditions. Manholes or catch basins shall be placed at all changes in grade, alignment or change in pipe size; with a maximum spacing of 300 feet. The minimum pipe size shall be 6-inches.

All work on the storm drainage system shall be to City of Seattle and University of Washington standards.

Natural Gas

Existing

Natural gas mains exist in Boat Street, a 4-inch main, and in Brooklyn Avenue, a 2-inch main.

Proposed

One service is proposed for the building with a connection to the 4-inch main in Boat Street. The proposed meter is located on the south face of the building. The service size is based on demand and will need to be coordinated with Puget Sound Energy.