

**SEATTLE PUBLIC UTILITIES
SEPA ENVIRONMENTAL CHECKLIST**

This SEPA environmental review of Seattle Public Utilities' Wastewater Pump Station 43 Emergency Force Main Replacement Project has been conducted in accord with the Washington State Environmental Policy Act (SEPA) (RCW 43.21C), State SEPA regulations [Washington Administrative Code (WAC) Chapter 197-11], and the City of Seattle SEPA ordinance [Seattle Municipal Code (SMC) Chapter 25.05].

A. BACKGROUND

1. Name of proposed project:

SPU WWPS043 Emergency Force Main Replacement Project

2. Name of applicant:

Seattle Public Utilities

3. Address and phone number of applicant and contact person:

Cody Nelson, Project Manager
Seattle Public Utilities
Project Delivery and Engineering Branch
Seattle Municipal Tower, Suite 4900
P.O. Box 34018
Seattle, WA 98124-4018
(206) 684-3066
Cody.Nelson@seattle.gov

4. Date checklist prepared:

September 12, 2018

5. Agency requesting checklist:

Seattle Public Utilities

6. Proposed timing or schedule (including phasing, if applicable):

Construction is expected to begin in December 2018 and last approximately 6 months. Construction will include drill rig setup, followed by Horizontal Directional Drilling (HDD) and installation of a new section of force main beneath the bed of Shilshole Bay Waterway (approximately 1 month), construction of connection vaults and completion of force main connections at each end of the new section of force main (approximately 2 additional months), and site restoration at the HDD entry and exit sites (approximately 1 month).

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

SPU currently has no plans for future additions or expansions related to the proposed project.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- SPU WWPS 043 Emergency Force Main Replacement Project Geotechnical Technical Memorandum Section 408 Review Request: 408-18-06, prepared by Staheli Trenchless Consultants, dated June 2018. (Staheli Trenchless Consultants, 2018)
- SPU WWPS043 Emergency Force Main Replacement Project, Cultural Resources Assessment. Short Report, Seattle, King County, WA, prepared by Environmental Science Associates, Inc., dated June 27, 2018.
- Specific Project Information Form (SPIF) Biological Evaluation. SPU Wastewater Pump Station 43 Force Main Emergency Replacement Project, Project CIP Number C600087, prepared June 29, 2018 by Environmental Science Associates, Inc.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no known pending governmental approvals for other projects affecting the properties associated with this project.

10. List any government approvals or permits that will be needed for your proposal, if known.

The following permits are anticipated for this project.

- Authorization pursuant to Section 408 of the Rivers and Harbors Act (US Army Corps of Engineers [USACE])
- Department of the Army Permit providing authorization under Section 10 of the Rivers and Harbors Act (USACE)
- Concurrence under Section 7 of the Endangered Species Act (US Fish and Wildlife Service/National Marine Fisheries Service)
- Section 106/Tribal Coordination (USACE/Washington State Department of Archaeology and Historic Preservation [DAHP]/Tribes)
- Determination of Coastal Zone Management Consistency (Washington State Department of Ecology [Ecology])
- Aquatic Use Authorization (Washington State Department of Natural Resources [DNR])
- Hydraulic Project Approval (Washington Department of Fish and Wildlife [WDFW])
- Shoreline Substantial Development Permit Exemption (Seattle Department of Construction and Inspections [SDCI])
- Utility Major Permit and associated Street Use Permit(s) (Seattle Department of Transportation [SDOT])
- Temporary Noise Variance, if needed (SDCI)

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

Wastewater Pump Station 43 (WWPS 43) is located in Ballard, north of the Shilshole Bay Waterway and west of the USACE Hiram M. Chittenden Locks (see Figure 1). WWPS 43 was designed to pump combined sewage (stormwater runoff and sewage) from the southwest portion of Ballard (Combined Sewer Basin 59) into a 12-inch diameter cast iron force main that was built to convey the combined sewage under Shilshole Bay to a King County trunk sewer in Magnolia.

In September 2017, Seattle Public Utilities (SPU) discovered that this force main was leaking. Subsequent dye testing located a break near the north shore of Shilshole Bay. Further inspection identified additional holes and cracks in the below water portion of the force main, precluding its repair. SPU declared an emergency, implemented a temporary above-ground system to bypass dry weather flows from WWPS 43 to two other locations in Ballard, and began developing the WWPS 43 Emergency Force Main Replacement Project. Until the project is complete, wet weather flows that exceed the temporary bypass system capacity are discharged without treatment at Combined Sewer Overflow (CSO) Outfall 59 into the Shilshole Bay Waterway.

The proposed project would replace the portion of the force main that has failed. The new section of force main would extend from a location below the Burke Gilman Trail north of 5500 Seaview Ave NW on the north side of Shilshole Bay Waterway, to an unopened street end adjacent to 3500 W Commodore Way at Gilman Ave W on the south side of Shilshole Bay Waterway (see Figure 2). The new section would connect to existing pipe at each end of the alignment. Appurtenance vaults required to meet current standards and maintain the functionality of the system (air release valves and bypass capability) would be installed on the north side of the project area and would include two vaults near the pump station and one vault near the new pipe/existing pipe connection. The portion of the force main that has failed would be decommissioned in place, by disconnecting and plugging each end with cement and leaving the pipe in its current location. Once the new section is in operation, the temporary bypass system would be taken out of service and removed.

To reduce impacts on Shilshole Bay, waterway navigational operations, and Locks facility operations, SPU proposes to install the new section of force main using Horizontal Directional Drilling (HDD). HDD is commonly used for installing new pipelines beneath waterways similar to the application under consideration for the proposed project. The proposed HDD bore would be a minimum of 45 feet below the USACE-authorized dredge depth of the waterway at approximate elevation -75 (NAVD88), as shown in Figure 3. A new 12-inch flow diameter High-Density Polyethylene (HDPE) pipe would be pulled into the HDD bore, and its horizontal length below Shilshole Bay would be approximately 750 feet. The HDD construction is not expected to alter the existing mudline condition, and the proposed pipeline installation is not expected to infringe upon the authorized dredge depth.

Construction of the proposed project would require two designated work areas on the north side of the project site and a work area on the south side of the project site, as shown in Figure 2. For descriptive purposes, the term “north side of the project site” is used in this Checklist to refer collectively to the north work area where the HDD drilling would take place and a vault would be installed, the staging area where construction materials would be stored, and the additional work area where vaults would be installed near WWPS 43. The north staging area would be approximately 600 square feet in size and is proposed to be located in a gravel access road south of Seaview Ave NW. The north HDD work would require an approximately 5,500-square foot work area including space for pipe laydown. An additional work area, approximately 3,250 square feet in size, would be required adjacent to WWPS 43 for installation of necessary appurtenances. The south HDD work would require an approximately 6,000-square foot work area including space for pipe laydown and material storage.

Construction Sequence

Horizontal Directional Drilling would occur from north to south with the HDD entry pit located on the north side of the Shilshole Bay waterway and the exit pit on the south side. The bore entry, located approximately 110 feet from the Ordinary High Water Mark (OHWM), would be prepared for drilling operations, including setup of the drilling rig, construction of drill fluid containment measures, and placement and survey of tracking wires and equipment. Following delivery of the HDPE pipe to the construction site, pipe sections would be fused together into a continuous string. Pipe fusing would likely continue as the HDD borehole is completed. HDPE fusing is a process where the ends of two pipes are cut, matched, and melted together by a fusing machine. The process takes about 20 minutes to an hour per fuse and does not produce heat, flames, fumes or noise. The fused 12-inch diameter HDPE pipe would be pulled into the prepared borehole in the opposite direction of drilling, from south to north under the Shilshole Bay Waterway.

The connections and required vault structures would then be installed. The connection on the north end would terminate at the existing 12-inch diameter force main, located under the Burke Gilman Trail. Additional work required to connect the new pipe to the old pipe and bring the system to current standards involves installing two new air release valves in vaults and a new bypass vault (approximate work areas shown on Figure 2). There will be up to three vaults on the north side of the project site, one (air release vault) where the new pipe is connecting to the old pipe and up to two vaults (one air release and one bypass or a combination of the two) near WWPS 43. The vaults may be located directly over the force main pipes or may be offset. The necessary vault depths will be dictated by the depth of the existing pipe at each location (approximately 4 to 10 feet deep).

The connection on the south end will terminate at an existing King County trunk sewer located in W Commodore Way. Additional work is required at this location to connect the new pipe to the old pipe and to bring the system to current standards, including installing an intermediate access maintenance hole for inspections and cleaning. In the vicinity of W Commodore Way, the vault depths will be dictated by the depth of the existing pipe (approximately 13 to 18 feet deep).

- 12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The proposed project is located in four general areas from south to north (Figure 2): (1) at the south end, in the Gilman Avenue West Shoreline Street End, adjacent to 3500 W Commodore Way and Commodore Park; (2) extending under Shilshole Bay Waterway; (3) at the north end, in the Seaview Ave NW and Seaview frontage road rights-of-way (ROW), directly to the north of 5500 Seaview Avenue NW; and (4) adjacent to WWPS 43 at approximately 5635 Seaview Avenue NW. The proposed project is in the northeast and southeast half of Section 10, Township 25 N, Range 03E and within the Cedar Sammamish Water Resource Inventory Area (WRIA) 8. The project does not extend into any private properties.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site: *[Check the applicable boxes]*

- Flat
 Rolling
 Hilly
 Steep Slopes
 Mountainous
 Other: (identify)

The work area on the south end is generally flat, located in W Commodore Way. There is a slight slope to the north toward Shilshole Bay Waterway. The north work areas are located in generally flat areas at the top of the slope to the waterway, adjacent and including the Burke-Gilman Trail.

b. What is the steepest slope on the site (approximate percent slope)?

Both the south and north shorelines of Shilshole Bay Waterway have slopes greater than 40 percent and are mapped by the Seattle Department of Construction and Inspections (SDCI) as Environmentally Critical Areas (Seattle Municipal Code [SMC] 25.09). However, above grade construction activities will not occur in these areas. The boring will be directed under these slopes by HDD and would not impact the stability of the slopes.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The general geologic condition of the Puget Sound region is a result of glacial and non-glacial activity that occurred over the course of millions of years. Project site geologic conditions on either side of the Shilshole Bay Waterway is mapped as Vashon subglacial till and Lawton Clay. Glacial till is a mix of poorly sorted silt, sand, and sub-rounded to well-rounded gravels and cobbles that are transported by glacier and deposited under ice resulting in a very dense to over-consolidated deposit. Lawton Clay consists of laminated to massive silt, clayey silt, and silty clay. However, urban development and buried utility construction at and near the upland portions of the project site over the last 100 years has resulted in a predominance of disturbed native soils/sediments, cut slopes, and large placements of fill material.

Based upon the boring logs and geologic mapping reviewed as part of project feasibility and design (Staheli Trenchless Consultants, 2018), an HDD advanced from the south bank to the north bank of the Shilshole Bay Waterway is anticipated to encounter the following subsurface material (see Figure 3). The bore will likely enter through 10-feet of relatively loose soil before transitioning to Olympia Interglacial deposits and then Lawton Clay upon crossing under the Shilshole Bay Waterway. At the deepest point, the bore may extend into Olympia Interglacial Deposits, with material consisting of hard to very hard silts interbedded with sand layers. The bore may pass through the Lawton Clay formation, encountering hard silt and clay material before exiting. Upon bore ascent and exit to the surface on the north bank of the Shilshole Bay Waterway, a 10-foot layer of the Vashon Glacial Till formation, a layer of outwash, and up to 20 feet of loose to medium dense fill will likely be encountered.

There are no agricultural soils or agricultural land of long-term commercial significance located within the project area and the proposal does not result in removal of agricultural soil types.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe:

A known slide area is mapped by SDCl on neighboring residential properties at 3514 and 3600 W Commodore Way, approximately 135 feet west of the project. Additionally, SDCl has mapped the portion of the project area located between the south shoreline of Shilshole Bay Way and W Commodore Way as a Potential Slide Area. There are no other areas of unstable soils in the immediate project vicinity (Staheli Trenchless Consultants, 2018).

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate the source of fill.

There will be no excavation within the waterway or below the mean higher high-water mark of the Shilshole Bay Waterway for this project. The following describes on-land excavation within the project area along Gilman Ave W, W Commodore Way, and Seaview Ave NW.

Excavation within the south HDD work area includes trenching for the HDD pit (approximately 8 feet long by 3 feet wide), a vault (approximately 20 feet long by 12 feet wide), and pipe connections. In addition, there will be limited grading within a larger surrounding work area, measuring approximately 40 feet long by 20 feet wide to establish an even grade.

Excavation within the north HDD work area includes trenching for the HDD pit (approximately 8 feet long by 4 feet wide), a vault (approximately 20 feet long by 12 feet wide), and pipe connections. Limited grading will be necessary for a level work area.

The overall excavation volume is anticipated to be roughly 100 cubic yards for the boring and 200 cubic yards for the connections, totaling approximately 300 cubic yards. It is anticipated that there will be a balance of cut and fill volumes at both the south and north HDD work areas and that imported fill will not be necessary.

Following construction, the areas will be returned to pre-construction grades. All areas will be regraded, restored, and backfilled with excavated material, if suitable for reuse. The suitability of the soil for reuse will be determined by SPU's construction engineer at the time of excavation. If necessary, imported material would be obtained from purveyors of such materials licensed to conduct business in Washington. Any unsuitable excavated material would be legally disposed at an approved location.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe:

As with all construction projects, erosion could occur as a result of construction activities, particularly earthwork. The potential for erosion would be minimized with adherence to best management practices (BMPs) (refer to question B.1.h. below).

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 50 percent of the south work areas is currently covered with impervious surfaces. This includes paved areas of W Commodore Way and a gravel driveway. There would be no permanent change in impervious surfaces as a result of the project. After project construction, approximately 50 percent of the area would remain impervious.

Approximately 100 percent of the north side work areas are currently covered with impervious surfaces, which includes a gravel access road and the paved Burke-Gilman Trail. The amount of impervious surface will not change as a result of this project. After project construction, nearly 100 percent of the north side work areas would remain impervious.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Best management practices (BMPs) are physical, structural, and/or managerial practices that can prevent or reduce the erosion and pollution of water caused by construction activities. The following mitigation measures and BMPs would be incorporated during construction to minimize the potential for erosion:

- Temporary erosion and sedimentation control best management practices (BMPs) would be installed around the project work areas to manage stormwater runoff, construction disturbance, and erosion as needed during construction in accordance with the City of Seattle’s Stormwater Code found at SMC Title 22, Subtitle VIII, City of Seattle Director’s Rule SDCI 17-2017/SPU DWW-200, and Volume 2 Construction Stormwater Control Manual. This may include but is not limited to such measures as silt fencing around ground-disturbing activities, inlet protection, marking construction limits, and other erosion control materials such as straw wattles.
- All debris and spoil material would be transported off-site to an approved disposal facility. Suitable materials would be used as backfill following construction. It is anticipated that there would be a balance of cut and fill for the project.
- Drill fluid containment measures would be installed to collect and contain drill fluids and would be located as far as possible (more than 75-feet from the OHWM) from Shilshole Bay Waterway.
- All work would be required to be performed consistent with an approved construction stormwater and erosion control plan (CSECP).

2. Air

- a. What types of emissions to the air would result from the proposal [e.g., dust, automobile, odors, industrial wood smoke, greenhouse gases (GHG)] during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.**

During construction activities, there would be a small increase in exhaust emissions from construction vehicles and equipment, and a temporary increase in fugitive dust due to construction activities. This increase in dust would be localized and temporary.

Emissions from construction equipment, as well as emissions from construction workers' vehicles, would contribute greenhouse gases to the atmosphere during this period. This would occur for an approximate 4-month construction duration.

Air quality would meet the standards as set forth by the Washington Department of Ecology and the State Implementation Plan; construction of the project would not permanently affect regional air quality.

Provided below is a summary of greenhouse gas emissions. A worksheet of the calculations is included as attachment D.

Summary of Greenhouse Gas (GHG) Emissions

Activity/Emission Type	GHG Emissions (pounds of CO ₂ e) ¹	GHG Emissions (metric tons of CO ₂ e) ¹
Buildings	0	0
Paving	496,040	225
Construction Activities (Diesel)	110,873	50.29
Construction Activities (Gasoline)	21,943	9.95
Long-term Maintenance (Diesel)	266	0.12
Long-term Maintenance (Gasoline)	0	0
Total GHG Emissions	629,122	285.4

¹Note: 1 metric ton = 2,204.6 pounds of CO₂e. 1,000 pounds = 0.45 metric tons of CO₂e

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

There are no off-site sources of emissions or odor that would affect the project.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:**

Measures that would be incorporated during construction to minimize impacts to air quality include:

- Spray exposed soil areas with water during dry periods to minimize fugitive dust.
- Remove particulate matter deposited on paved, right of ways to reduce mud and dust; sweep and wash right of ways frequently to reduce potential for dust generation.

3. Water

a. Surface:

- (1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If so, describe type and provide names. If appropriate, state what stream or river it flows into.**

Yes, the project site includes Shilshole Bay Waterway. In this area, the waterway is approximately 500 feet wide. The pipeline will be installed by HDD under Shilshole Bay Waterway (Figure 2).

- (2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If so, please describe, and attach available plans.**

Yes, all work areas are within 200 feet of the described waters. Work would take place adjacent to and under Shilshole Bay Waterway. The south side work area would be located approximately 75 feet south of the Shilshole Bay Waterway, and the north side work areas and staging area would be located approximately 150 feet north of the Shilshole Bay Waterway shoreline (Figure 2). The new force main would cross under Shilshole Bay Waterway and be located approximately 45 feet below the USACE authorized dredge depth of the waterway at approximate elevation -75 (NAVD88) (Figure 3). To reduce impacts on Shilshole Bay, waterway navigational operations, and Locks facility operations, SPU proposes to install the new section of force main using Horizontal Direction Drilling (HDD).

The project does not involve any in-water construction work. All work will be beneath the bed of the Shilshole Bay Waterway.

- (3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands, and indicate the area of the site that would be affected. Indicate the source of fill material.**

No fill or dredge material would be placed in or removed from surface waters or wetlands.

- (4) **Will the proposal require surface water withdrawals or diversions? If so, give general description, purpose, and approximate quantities if known.**

The project does not involve surface water withdrawals or diversions.

- (5) **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

Both the north and south shorelines of the waterway are mapped by SDCI as Flood Prone Areas (an Environmentally Critical Area designation established by SMC 25.09).

The project does not involve construction within areas currently designated as regulatory floodplain. The effective Federal Energy Management Flood Insurance Rate Map (FIRM) #53033C0320F shows no 100-year floodplain in the project area. FEMA is currently in the process of updating FIRMs for King County and issued a preliminary revised FIRM for the project area (#53033C0320G) on February 1, 2013.

The preliminary revised FIRM depicts the waterway and associated shorelines within the project area as a Special Flood Hazard Area (SFHA), Zone VE (Coastal flood zone with velocity [wave action]), having a base flood elevation (BFE) of 14 feet (NAVD 88 vertical datum). SDCI's Floodplain Development Code webpage, located at <http://www.seattle.gov/dpd/codesrules/codes/floodplaindevelopment/default.htm>, indicates that FEMA expects to adopt the preliminary revised FIRMs in 2018.

(6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

SPU does not propose or anticipate any discharge of waste materials to surface waters as a result of the project. Drilling fluid, consisting of a mixture of water and bentonite and/or polymers is used during the drilling process. Bentonite is a non-toxic naturally occurring clay mineral that is formed by the chemical alteration of volcanic ash and swells to several times its original volume when mixed with water. The work area would be set back as far from Shilshole Bay Waterway as possible to reduce the possibility of drilling fluid entering Shilshole Bay Waterway. In addition, a containment pit would be created to hold the drilling fluid and would be monitored throughout the drilling process. Mud containment barriers would be constructed between the HDD rig and the Shilshole Bay Waterway prior to the commencement of drilling as a precautionary measure to prevent any drilling fluid from entering the waterway. At the completion of the drilling operations, all drilling fluid would be contained in tanks and transported offsite. No drilling fluid is anticipated to be discharged into the Shilshole Bay Waterway.

Currently, during wet weather events the capacity of the temporary WWPS 43 bypass system is exceeded and combined sewage discharges into the waterway without treatment at CSO Outfall 59. These discharges are referred to as combined sewer overflows (CSOs). The proposed project seeks to meet federal and state CSO performance standards that require SPU to limit CSOs to a long-term average of no more than one untreated discharge per year per outfall, on a 20-year moving average. When the project is completed the temporary bypass will no longer be required, combined sewage from Basin 59 will be conveyed to the King County Wastewater Treatment Plant at West Point, and the number of CSOs will be in compliance with SPU's National Pollutant Discharge Elimination System (NPDES) Permit No. WA0031682 and the City's wastewater Consent Decree with the United States Environmental Protection Agency (EPA), the United States Department of Justice, and the Washington State Department of Ecology (Ecology).

b. Ground:

(1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No water would be withdrawn from a drinking water well. The project does not require discharge of water to groundwater, and no groundwater withdrawals are planned. If dewatering of excavation areas is necessary during construction,

collected water would be managed according to a Temporary Dewatering Plan approved by SPU. Quantities of water potentially collected by dewatering are unknown.

- (2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals...; agricultural, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste materials would be discharged into the ground as a result of this project.

c. Water Runoff (including storm water):

- (1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff would be stormwater, as is currently the case at the project sites. Currently, stormwater infiltrates into the ground or flows into existing roadway catch basins in the existing City of Seattle stormwater system.

During construction, vegetation clearing and ground disturbance activities could result in short-term, temporary changes to drainage patterns and an increased potential for sedimentation and erosion at the project site. Best Management Practices consistent with the City of Seattle Stormwater Code and City of Seattle Stormwater Manual would be used to protect the existing stormwater drainage system, manage construction disturbance and stormwater runoff, and minimize erosion and sedimentation.

- (2) Could waste materials enter ground or surface waters? If so, generally describe.

Runoff from the construction site has the potential to contain sediment and small amounts of equipment-related petroleum products (motor oil, diesel fuel, hydraulic fluid).

BMPs such as installing temporary mud mitigation measures, temporary mud containment pit, and drill fluid containment measures would be implemented to minimize equipment-related materials and sediment from leaving the site and potentially entering surface and ground waters. The mud mitigation measures would include barriers constructed between the HDD rig and the Shilshole Bay Waterway, composed of materials such as sand bags, straw wattles, and hay bales along with plastic sheeting. The HDD alignment has been designed to maintain a sufficient confining pressure to prevent drill fluid escape. Further, a downhole pressure monitor would be specified to allow real time monitoring of the drilling fluid pressure as a precautionary measure to minimize the risk of drill fluid escape during drilling.

(3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

Vegetation clearing and ground disturbance activities during construction could result in short-term, temporary changes to drainage patterns and an increased potential for sedimentation and erosion at the project sites.

The completed project is not expected to have significant effect on local drainage patterns at the project sites. Most areas of ground disturbance would be replaced in kind, and upon the completion of project construction, site grades would be restored to match pre-project conditions.

d. Proposed measures to reduce or control surface, ground, runoff water, and drainage impacts, if any:

The project would be constructed in accordance with applicable state and City of Seattle permits, which will specify a range of BMPs and temporary erosion and sedimentation control (TESC) measures designed to reduce or control potential surface, ground, or runoff water impacts.

Prior to project construction activities, the following project stormwater pollution prevention plans would be prepared for the project and approved by the City of Seattle:

- Construction Stormwater and Erosion Control Plan
- Tree, Vegetation, and Soil Protection Plan
- Spill Plan

BMPs will include installation of catch basin filters and/or other appropriate cover measures. BMPs and TESC measures specific to the site and project would be specified by SPU in the construction contract documents, and the construction contractor would be required to implement them.

4. Plants

a. Types of vegetation found on the site: [check the applicable boxes]

<input checked="" type="checkbox"/> Deciduous trees:	<input checked="" type="checkbox"/> Alder	<input checked="" type="checkbox"/> Maple	<input type="checkbox"/> Aspen	<input checked="" type="checkbox"/> Other: cherry, birch
<input checked="" type="checkbox"/> Evergreen trees:	<input checked="" type="checkbox"/> Fir	<input type="checkbox"/> Cedar	<input type="checkbox"/> Pine	<input type="checkbox"/> Other: (identify)
<input checked="" type="checkbox"/> Shrubs				
<input checked="" type="checkbox"/> Grass				
<input type="checkbox"/> Pasture				
<input type="checkbox"/> Crop or grain				
<input type="checkbox"/> Orchards, vineyards, or other permanent crops				
<input type="checkbox"/> Wet soil plants:	<input type="checkbox"/> Cattail	<input type="checkbox"/> Buttercup	<input type="checkbox"/> Bulrush	<input type="checkbox"/> Skunk cabbage
<input type="checkbox"/> Other: (identify)				
<input type="checkbox"/> Water plants:	<input type="checkbox"/> water lily	<input type="checkbox"/> eelgrass	<input type="checkbox"/> milfoil	<input type="checkbox"/> Other: (identify)
<input type="checkbox"/> Other types of vegetation: (identify)				

The south project site and staging area includes a gravel driveway, shrubs, and maintained lawn. The north end work areas include the Burke-Gilman Trail, lined with maple trees and a gravel access road, with limited weedy vegetation.

b. What kind and amount of vegetation will be removed or altered?

An estimated 6 trees and some maintained lawn area and landscape shrubs are anticipated for removal during HDD and connection construction activities. At the south project site, vegetation removal would consist of 2 small (approximately 5-inch diameter at breast height (dbh)) non-native cherry trees, and landscape shrubs within the construction area. At the north project site, up to four maple street trees (6- to 8-inch dbh) would be removed. No tree removal will be necessary at the additional work area near WWPS 43 or within the staging areas.

c. List threatened or endangered species known to be on or near the site.

There are no threatened or endangered plant species known to occur in the project vicinity.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The majority of construction activities would occur in developed areas (paved roadway, gravel parking and roads) and these areas would be restored to pre-construction conditions. Landscaped vegetation would be removed to access the south work area. Trees would be replanted in accordance with Seattle's Urban Forestry and SDOT requirements.

e. List all noxious weeds and invasive species known to be on or near the site.

Himalayan blackberry and horsetail are present in the vicinity of both the south and north project sites.

5. Animals

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site: [check the applicable boxes]

Birds:	<input checked="" type="checkbox"/> Hawk	<input checked="" type="checkbox"/> Heron	<input checked="" type="checkbox"/> Eagle	<input checked="" type="checkbox"/> Songbirds
	<input checked="" type="checkbox"/> Other: gulls, ducks, pigeons, crows, American robin			
Mammals:	<input type="checkbox"/> Deer	<input type="checkbox"/> Bear	<input type="checkbox"/> Elk	<input type="checkbox"/> Beaver
	<input checked="" type="checkbox"/> Other: Norway rat, raccoons, opossums, squirrels			
Fish:	<input checked="" type="checkbox"/> Bass	<input checked="" type="checkbox"/> Salmon	<input checked="" type="checkbox"/> Trout	<input type="checkbox"/> Herring
	<input checked="" type="checkbox"/> Shellfish	<input checked="" type="checkbox"/> Other: see list below		

b. List any threatened or endangered species known to be on or near the site:

Federally endangered wildlife species possibly present in the project vicinity include the North American Wolverine, Marbled Murrelet, Streaked Horned Lark, and Yellow-billed Cuckoo.

Marine species possibly present in the project vicinity include Puget Sound Chinook salmon, Puget Sound steelhead, Bocaccio, Yelloweye rockfish, Coastal-Puget Sound bull trout, and Southern resident killer whale.

The project is expected to have no adverse effect on federally-listed species or their designated critical habitat because the proposed work would occur in upland locations and below the bed of the Shilshole Bay Waterway. There would be no in-water work or work otherwise disruptive to fish life. The project would not involve dredging or in-water excavation. BMPs would be implemented to prevent pollutants from contaminating the water. The project would not impact the physical, chemical, and biological properties of the water in the Shilshole Bay Waterway and would not impact the sediment or substrate underlying those waters or their associated biological communities.

The south HDD work area is located near the Kiwanis Ravine, which has been designated a Great blue heron management area by the City of Seattle. The closest active nest is located an estimated 630 feet east of the south drill pit area. In accordance with WDFW recommendations, SPU will monitor the construction area prior to the start of any construction activity to determine the presence of any heron nesting activity. Should nesting herons be observed, SPU will notify WDFW of the activity and coordinate with WDFW regarding the appropriate mitigation measures.

c. Is the site part of a migration route? If so, explain.

The project site, along with the entire Puget Sound region, is located within the Pacific Flyway, which is a flight corridor for migrating waterfowl and other birds. The Pacific Flyway extends south from Alaska to Mexico and South America. No portions of the proposed project would interfere with or alter the Pacific Flyway. Shilshole Bay Waterway is used for migration by salmon and other anadromous fish.

d. Proposed measures to preserve or enhance wildlife, if any:

SPU will develop and implement a Great Blue Heron management plan that meets City of Seattle Critical Area requirements (SMC 25.09) for all project work located within a great blue heron management area or pre-nesting area. As noted above, SPU will monitor for heron nesting activity prior to initiation of construction activities. Should heron activity be noted in Kiwanis Ravine prior to construction, SPU will coordinate with WDFW regarding the appropriate mitigation measures. Impacts to fish and wildlife are not anticipated as a result of the project; therefore, no additional measures to preserve or enhance wildlife have been proposed.

e. List any invasive animal species known to be on or near the site.

Invasive wildlife species common to urban areas, such as rodents, are likely to be present in the project area.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electrical energy is used for the operation of Pump Station 43, but the force main does not require any energy. The proposed project does not change the energy needs from when the force main is operating as normally expected.

- b. **Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

The project does not affect the potential use of solar energy use by adjacent properties.

- c. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

No added conservation features, from those already existing, are proposed in the project or in relation to the operation of the force main.

7. Environmental Health

- a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe:**

With any construction project, there is the risk of potential construction-related spills or leaks. This project would face similar risks, but all risks would be well within the range of typical construction projects. No toxic chemicals would be used or stored at the construction sites, other than potentially fuels and other construction-related fluids.

- (1) Describe any known or possible contamination at the site from present or past uses.**

There is no known contamination at the project sites where excavation will occur. The Washington State Department of Ecology site database identifies contaminated sediments in Shilshole Bay Waterway along portions of the force main alignment; however, excavation work is not planned for these areas. Contaminated sediments are known to occur in the vicinity of the existing force main, however, force main decommissioning activities are not anticipated to disturb the sediments known to be contaminated.

- (2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

The project includes decommissioning existing piping and adding a new pipeline to connect to an existing wastewater pump station. During construction, there is the possibility for workers to come in contact with untreated wastewater. At the north end of the project area, a 2-inch diameter natural gas line has been located and will be avoided/protected during construction activities in the vicinity.

- (3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

During project construction, chemical storage and use would be limited to gasoline and other petroleum-based products required for maintenance and operation of construction equipment and vehicles. During normal operation of the project improvements, no toxic or hazardous chemicals would be stored at any time at the project sites, however, SPU workers may use small quantities of the above items as part of routine operation and maintenance activities.

(4) Describe special emergency services that might be required.

Construction and operation of the force main will comply with all applicable fire codes and Occupational Safety and Health Administration (OSHA) regulations. The need for special emergency services is not anticipated.

(5) Proposed measures to reduce or control environmental health hazards, if any:

The project purpose is to repair a failed sewer force main that currently discharges untreated wastewater into the waterway during wet weather events when the capacity of the temporary WWPS 43 bypass system is exceeded. Implementation of the project will reduce environmental health hazards associated with these overflows.

During construction, the contractor would use standard operating procedures and Best Management Practices identified in the City of Seattle's Stormwater Code found at SMC Title 22, Subtitle VIII, City of Seattle Director's Rule SDCI 17-2017/SPU DWW-200, and Volume 2 Construction Stormwater Control Manual to reduce or control possible environmental health hazards. SPU work crews and/or contractors would be required to develop and implement a Spill Plan to control and manage spills during construction. In addition, a spill response kit will be maintained at each site during construction work at that site, and all project site workers will be trained in spill prevention and containment consistent with the City of Seattle's Standard Specifications for Road, Bridge, and Municipal Construction.

Any soil discovered to be contaminated from previous land uses or affected by spills during construction would be excavated and disposed of in a manner consistent with the level and type of contamination, in accordance with federal, state and local regulations, by qualified contractor(s) and/or City of Seattle staff.

Measures will be developed to reduce the potential for contact with untreated wastewater and ensure worker safety during the connection of the new force main to the existing wastewater system. These will be outlined in the Health and Safety Plan developed by the contractor for the project, and in accordance with the requirements in the City of Seattle's Standard Specifications for Road, Bridge, and Municipal Construction.

b. Noise

(1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Vehicular, railroad, overhead airplanes, and marine traffic, in addition to nearby recreational sites are the major noise sources in the project areas. There are no existing sources of noise in the area that would adversely affect the proposal.

(2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Temporary construction-related noise would typically consist of intermittent engine and mechanical equipment noises associated with the use of heavy equipment, which may include excavators, haul trucks, reverse gear warning systems, cranes,

drill rigs, generators, and air compressors. These types of equipment typically generate noise in the range of 70 to 90 dBA at a distance of 50 feet from the source.

The soil separation facility used as part of HDD pipe installation will generate noise levels similar to the construction activities described above, but noise from this source will be relatively constant during drilling activities rather than intermittent.

Most construction-related noises will be limited to construction hours allowable by the City of Seattle's noise code. However, pullback of the HDD pipe, which will include the operation of the drill rig, crane, excavator, and soil separation facility, may occur outside of these hours for a period of several hours. In addition, sections of water mains in the south work area along W Commodore Way may need to be replaced as a result of construction impacts to the mains. If the water main replacement is determined to be necessary, connection to a temporary bypass system would be needed, and the work is anticipated to be conducted at night to minimize the impact of a water shut-off to the approximately 200 residents served by this water system. Should this happen, nighttime work would occur on two occasions: once to connect to a temporary bypass system, and a second time to reconnect to the replaced section of water main. If work outside of daytime working hours is required, a Temporary Noise Variance will be obtained from the Seattle Department of Construction and Inspections (SDCI).

There is no long-term, operational noise associated with the project.

(3) Proposed measures to reduce or control noise impacts, if any:

Measures to reduce or control noise impacts would be implemented during construction. These would include a combination of the following:

- All construction activities would comply with the City of Seattle's Noise Control Ordinance.
- Shutting off equipment when not in use.
- Using effective vehicle mufflers.
- Creating a 24-hour construction hotline to promptly respond to questions and complaints.
- Notifying residences in advance of project construction activities.
- Using quieted generators or site-provided power for non-mobile equipment in lieu of diesel-powered generators/engines.

There would be no change in long-term noise from operation and maintenance activities related to the force main. The operation of the completed facilities would comply with Seattle Municipal Code 25.08.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

All project areas are located in the public right of way and/or on City of Seattle-owned property operated as right-of-way.

The south work area is located adjacent to a BNSF-owned parcel with a railroad trestle, and farther to the east is Commodore Park. Due to the proximity to the park, the general area is used recreationally. To the west are residential properties. Homeowners to the west and at the project site will experience a detour route to access their residences intermittently during construction with durations of one day to one month of continued closure. During construction there will be a temporary loss of some parking along W Commodore Way due to construction. To the north lies Shilshole Bay Waterway. Kiwanis Ravine is located to the south, across W Commodore Way.

The north end project areas are proximate to Burke-Gilman Trail, used for recreational purposes for walkers, runners, cyclists, skaters and commuters, and is adjacent to residential properties to the north and south. Disruptions during construction will require portions of the trail to be closed temporarily to users. Detour routes around the construction site will be provided. Homeowners who access their property from Seaview Ave NW may also experience detours to access their residences intermittently during construction. During construction there will be a temporary loss of some parking along Seaview Ave NW frontage road due to construction and staging areas. Permanent parking loss along Seaview Ave NW frontage road will be two spaces. Shilshole Bay Waterway is located to the south.

Following construction, the project will not affect the current uses of nearby or adjacent properties.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

The project site has not been used for agriculture or working forest lands.

- (1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

There are no working farm or forest land businesses in the project vicinity.

- c. Describe any structures on the site.**

There are no buildings within the south and north end project areas. Ballard Terminal Railroad tracks are present in and along the north work areas. Any impacts to the tracks that occur as a result of construction activities would be fully restored.

- d. Will any structures be demolished? If so, what?**

No aboveground structures will be demolished. The existing underground force main will be decommissioned in place as explained above. Other underground utilities may be affected due to their proximity to the construction; necessary changes to or relocations of these utilities will be completed prior to or during construction with no anticipated significant loss of service.

e. What is the current zoning classification of the site?

The proposed project area is currently zoned Single Family (SF5000) south of the Shilshole Bay Waterway and Commercial 1 (C1-30) north of the Waterway (City of Seattle, 2018a).

f. What is the current comprehensive plan designation of the site?

The City of Seattle Comprehensive Plan Future Land Use Map depicts the project area as Single Family Residential Area and City-owned Open Space south of the Shilshole Bay Waterway and Commercial/Mixed-Use Area north of the Waterway (City of Seattle, 2018c and https://www.seattle.gov/Documents/Departments/OPCD/OngoingInitiatives/Seattle%27sComprehensivePlan/seattle2035_FLUM.pdf).

g. If applicable, what is the current shoreline master program designation of the site?

All project areas are within the City of Seattle’s shoreline environment and regulated under the Shoreline Master Program (SMC 23.60A). On the south side of the Shilshole Bay Waterway, the project is located within the Conservancy Recreation shoreline environment for portions of the project located below (waterward of) the line of Mean Higher High Water (MHHW), and in the Urban Residential shoreline environment for portions of the project located above (landward of) the MHHW line. On the north side of the waterway, the project site is located in the Urban Commercial shoreline environment.

h. Has any part of the site been classified as an “environmentally critical” area? If so, specify.

The south work area is located in a wildlife habitat area (Blue heron management area), is mapped as a potential slide area, and is proximate to steep slopes (toward Shilshole Bay Waterway) and flood prone areas (Shilshole Bay Waterway).

The north work areas are proximate to steep slopes (toward Shilshole Bay Waterway) and flood prone areas (Shilshole Bay Waterway).

i. Approximately how many people would reside or work in the completed project?

No people would reside or work in the completed project. Workers would visit the site occasionally to perform regular operations and maintenance of utilities.

j. Approximately how many people would the completed project displace?

The completed project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Displacement would not occur as a result of this project; therefore, no mitigation measures are proposed.

i. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed project would replace the failed section of an existing force main that provided wastewater conveyance for the existing and planned future land uses in and around the project area. No change in force main size (flow diameter remains the same at 12-inches) or capacity is proposed - construction and operation of the new (replacement) force main would restore the operational capacity of the wastewater system to the 'pre-failure level' that more fully meets the demands of the combined sewer basin than does the temporary bypass system that is currently in place. Additionally, the new replacement force main would be located in the immediate vicinity of the existing force main. Both the physical existence and function/capacity of the new force main would be comparable to the prior existence and operation of the existing force main and would therefore be compatible with the land uses/projected land uses that it would be located near and would serve.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

There are no agricultural or forest lands in the project vicinity.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

The proposed project does not provide any housing units.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units are located within the project area and the project does not propose eliminating any housing units.

c. Proposed measures to reduce or control housing impacts, if any:

No housing impacts would occur; therefore, no mitigation is proposed.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas? What is the principal exterior building material(s) proposed?

The project does not propose the installation of any above ground structures.

b. What views in the immediate vicinity would be altered or obstructed?

The proposed project would not permanently alter or obstruct views in the immediate vicinity. Equipment necessary to complete the project would be located temporarily in designated project areas only for the duration of construction.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No permanent impacts to views would occur, therefore, no mitigation measures are proposed.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Since construction is proposed to occur in the winter months, a portable light tower may be used at both the south and north ends of the project area, as needed to perform work during the morning and evening hours. The completed project will be located entirely below grade and will not produce any glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No light or glare would result from the finished project.

c. What existing off-site sources of light or glare may affect your proposal?

There are no existing sources of light or glare that would impact the project.

d. Proposed measures to reduce or control light and glare impacts, if any:

Since no light or glare will be generated by the completed project, no mitigation measures are proposed.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The south end of the project area is adjacent to Commodore Park, which offers views of the Ship Canal, seating areas, and a promenade and access to the Locks and a fish ladder. The north end of the project is adjacent to the Burke-Gilman trail and offers recreational opportunities for walkers, runners, cyclists, skaters, and commuters. In addition, the north and south project sites are located within or accessed directly via paved streets and/or sidewalk areas that provide informal opportunities for walking, running, and bicycling. The Shilshole Bay Waterway is situated between the south and north ends of the project work areas and is a popular recreational and commercial marine waterway between Lake Union and Puget Sound.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project would not permanently displace any existing recreational uses. Construction activities may temporarily disrupt access to the western portion of Commodore Park and to a small segment of the Burke-Gilman Trail. Project construction activities would result in short-term temporary lane closure and detour impacts to the use of the affected streets, and potentially the adjacent sidewalks, by walkers, runners, and bicyclists. Construction is anticipated to occur during the winter months, when public use of these facilities is reduced.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No measures to control impacts on recreation have been proposed because no permanent impacts are anticipated. During construction, the Burke-Gilman Trail will be maintained via a short detour around the active construction area.

Temporary impacts on recreation would be reduced or managed through plans approved to meet requirements by the City of Seattle Department of Transportation for vehicular and pedestrian mobility in and around construction work zones.

13. Historic and Cultural Preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.**

The south and north project areas are located in vacant parcels and rights-of-way (ROWs) and there are no buildings or structures at or near the sites that are over 45 years old or eligible for listing on national, state, or local preservation registers. However, there are two adjacent parcels that have residences over 45 years old. Neither of these residences have been evaluated for listing in the National Register of Historic Places (NRHP) (ESA, 2018).

Two properties within 0.5-mile of the project area are listed on historic registers. The Chittenden (Hiram M.) Locks and Related Features of the Lake Washington Ship Canal is an historic district related to the man-made channel and navigable waterway connecting Puget Sound to Lake Washington. The historic district was listed on the NRHP and Washington Heritage Register (WHR) on December 14, 1978. The district is approximately 560 feet east of the southern HDD pit. The Salmon Bay Great Northern Railroad Bridge is approximately 130 feet east of the project area, closest to the southern HDD pit. No structures would be demolished or altered, and no impacts are anticipated to any historic structures.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

The mouth of Lake Washington Ship Canal, including Shilshole Bay and Salmon Bay, contains recorded Native American shell midden and occupation sites, as well as burials. Additionally, five Native American ethnographic place names have been recorded in the project vicinity. Four of the place names are located on the north side of the waterway, and one to the south. The place names on the north side of Salmon Bay refer to a large Shilshole village site and nearby area with low water level, a knoll near Salmon Bay, and a sandspit near the current Shilshole Bay Marina. On the south side of Salmon Bay was a creek which was known for a large heron rookery and was a year-round source of fresh water.

The Fort Lawton Post Cemetery, also known as the Fort Lawton Military Cemetery, is approximately 0.38-mile south-southwest of the southern HDD pit, and is located within Discovery Park. The Fort Lawton Post Cemetery was established by the US Army in 1898 and has been used to inter military personnel and their family, civilian employees, and two prisoners of war from World War II.

- c. **Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the Department of Archaeology and Historic Preservation, archaeological surveys, historic maps, GIS data, etc.**

A review of background information contained within the Department of Archaeology and Historic Preservation's (DAHP's) Washington Information System for Architectural and Archaeological Records Data (WISAARD) database was conducted. A research radius with a 0.5-mile buffer of the project area was used to search for previously recorded archaeological sites, cultural resource surveys, cemeteries, and properties listed on the NRHP and WHR, which also includes the Heritage Barn Register. Staff also used ESA's in-house library and online information to obtain data on the environmental, ethnographic, and historical context of the general project vicinity. Online resources included parcel data from the King County Assessor website, historic Sanborn Fire Insurance maps available via the Seattle Public Library website, US Surveyor General (USSG) maps from the Bureau of Land Management website, and nineteenth and twentieth-century county atlases and maps from HistoricMapworks.com.

- d. **Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

No previously recorded cultural resources are known to be located within the project sites. However, due to the project's location on marine shorelines which are associated with an increased potential of historic and prehistoric human use/occupation, and due to the previously documented existence of cultural resources in the project vicinity, archaeological monitoring of ground disturbing work would be conducted within excavations occurring at each work area.

Procedures and protocols directing monitoring will be outlined in a Project Archaeological Resources Monitoring Plan and Inadvertent Discovery Plan (ARMP/IDP) to be prepared prior to project construction. The proposed project requires federal review and approval. Cultural resources review, planning, and protection in compliance with the requirements of Section 106 of the National Historic Preservation Act will be conducted in consultation with the Army Corps of Engineers, Washington State Department of Archaeology and Historic Preservation, and Native American Tribes prior to the start of project construction.

14. Transportation

- a. **Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any.**

The south work area is located within W Commodore Way between 40th Avenue W and 33rd Avenue W. The north work areas are proximate to and accessible from Seaview Avenue NW and the Burke-Gilman Trail, between 37th Place NW and 34th Avenue NW.

W Commodore Way would need to be closed to traffic for a total of approximately 1.5 months while pipeline connections are made and to restore the roadway. Intermittent closures will be kept to the minimum necessary during the work period, with detours in place through Discovery Park. Detour routes would be available around the area on 36th

Avenue W, W Lawton Way, and 40th Avenue W. Notices will be sent to the communities affected in advance of known closure dates and posted onsite.

The Burke Gilman trail would need to be closed for a portion of the construction duration while HDD drilling is occurring, and pipeline connections are made and to restore the trail. The longest continuous closure is anticipated to be 1 month, followed by intermittent closures for the remainder of the work period. Closures will be kept to the minimum necessary during the work period, with detours in place along the Seaview Ave NW right of way. Notices will be sent to communities affected in advance of known closure dates, as well as posted to social media and onsite.

The southbound lane of Seaview Ave NW would be closed to traffic for a total of approximately 1 month while HDD drilling is occurring. Following drilling, the construction would move out of the travel lanes of Seaview Ave NW. Detour routes would be available around the area on 34th Avenue NW, NW 57th St, and 37th PI NW. Notices will be sent to the communities affected in advance of known closure dates and posted onsite.

Following construction, the existing transportation infrastructure would be fully restored to existing conditions. Existing roadways and trails would not be permanently altered as a result of this project.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The closest transit stop to Commodore Park or the south project area is located approximately 0.3 mile away at W Government Way and 31st Avenue W (Stop #31530). This bus stop is serviced by Metro Transit Route 33 running east and west. The closest bus stop to the north project area is located approximately 0.3 mile away at 32nd Avenue NW and NW Market Street. Metro Transit Route 44 runs east-west on NW Market Street.

c. How many additional parking spaces would the completed project or nonproject proposal have? How many would the project or proposal eliminate?

The proposed project would result in the removal of up to three parking spaces at the north end of the project site. Approximately one parking space near the north work area would be designated No Parking to accommodate a below grade vault. Up to two parking spaces at the additional work area near WWPS 43 would be designated 'No Parking' to accommodate below grade vaults. Approximately 8 to 10 on-street parking spaces located within City rights of way would be temporarily unavailable during project construction.

On the south end of the project site there is on-street parking on the north side of W Commodore Way. During project construction activities, approximately 8 on-street parking spots would temporarily be unavailable.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No overall improvements to existing roads or streets are planned as part of this project. Access to the new below-ground vaults would be via at-grade hatches or maintenance holes, which would be located within areas that are already paved or gravel. Access hatches located in gravel areas would be constructed with an approximately 5-foot wide asphalt buffer around the hatch for hatch protection. Maintenance hole covers located in gravel or landscaped areas generally do not require surrounding paving. Any pavement removed during construction would be restored to pre-existing conditions.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project would not use, nor interfere with, water or air transportation.

The project is located approximately 130 feet west of, but will not affect, the Salmon Bay Great Northern Railroad Bridge that spans the Salmon Bay Waterway. The proposed project will impact the Ballard Terminal Railroad rail lines on the north end of the project area in the Seaview Ave NW frontage road right-of-way (ROW), which is south of the Seaview Ave NW traffic lanes and runs roughly parallel to the shoreline adjacent and through the north work area. The Ballard Terminal Railroad operates a Class III (short line terminal) rail line that is about 3 miles in length between the Shilshole area (east of Seaview Avenue NW at about Ray's Boathouse restaurant) and NW 40th Street west of Leary Way.

Ballard Terminal Railroad operations in the project vicinity include approximately one to three trains per week in support of Salmon Bay Sand & Gravel. The quantity and length of trains varies from one 4-rail car train to two or three 1- to 3-rail car trains per week. Operations of the line are predominantly at the western end of the rail line to Salmon Bay Sand & Gravel, its sole customer, located on Shilshole Ave NW, east of the force main replacement project area. Other portions of the line are seldom used; occasionally being used for rail car repositioning and storage.

In the north work area, new pipe associated with the force main replacement would cross a minimum of 8 feet under the Ballard Terminal rail lines. Coordination would occur with Ballard Terminal Railroad to ensure there will be no disruptions to the rail operations. For any instance where pipe is expected to cross under the rail lines, the excavation would be supported with conductor casing shoring for additional support and protection. Installing the conductor casing will not impact rail operations. Excavations for vaults would be located a minimum of 10 feet away from the rail lines and would be shored and will not impact rail operations. Shallow excavations for mud mitigation measures would be shored where required. New pipe associated with the air vacuum release vault would cross under the rail lines. Installing this line would be completed by pipe jacking a casing under the railroad tracks before inserting the pipe. This operation may result in a temporary impact to the railroad operation, anticipated to be one week or less in duration in order to reduce vibrations during pipe jacking pit excavation and shoring. There will be no impact during the casing installation once the jacking pits are completed.

In the additional work area near WWPS 43, excavations for vaults would be located a minimum of 10 feet away from the rail lines and would be shored; this activity will not impact rail operations. Construction work for this project would occur between December 2018 and June 2019.

The City of Seattle (SPU and SDOT) will be undertaking two additional projects to the east of the WWPS 43 Emergency Force Main replacement that may result in impacts to other segments of the Ballard Terminal rail lines that would occur in the general time frame as the force main construction.

The Ship Canal Water Quality Project is a multi-year construction project that will be constructed between 2019 and 2024. Periodic impacts to railroad operations are expected along the BTRR mainline between 24th Ave NW and Shilshole Ave NW due to construction work to create a new roadway in this area. These impacts have already been included in the Environmental Impact Statement for the Burke-Gilman Trail Missing Link project (City of Seattle, May 2017, online at: https://www.seattle.gov/Documents/Departments/SDOT/BikeProgram/BGT/Vol%201_BGT_FEIS_web_lowrez.pdf). Another phase of this project will periodically impact the rail line near 11th Avenue NW over an estimated 14-month time frame. This work will result in periodic service impacts for up to 12 days at a time but is anticipated to result in minimal impact to the rail operations. With communication and coordination between the City and Ballard Terminal Railroad, construction activities can be scheduled to allow track use when necessary. Construction of this portion of the Ship Canal Water Quality Project work is anticipated to begin in the first half of 2020 after completion of the WWPS043 Emergency Force Main Replacement Project. Construction associated with the Ship Canal Water Quality Project is not expected to overlap with construction of the WWPS043 Emergency Force Main Project.

The Burke-Gilman Trail Missing Link Project would relocate a section of rail line along Shilshole Ave NW, possibly as soon as early 2019, or during Phase 2 of the project which is currently scheduled for mid-2019. During the relocation, a parallel track would first be built and then connections would be made to the existing track. It is anticipated that the tracks would be out of service for 6 days or less during this time frame while the connections are made. Impacts to the rail operations are anticipated to be minimal due to the low frequency of train operations. Construction associated with the Burke-Gilman Trail Missing Link may overlap with construction of the WWPS043 Emergency Force Main Project in 2019; however, the overall impact is anticipated to be one week or less in duration (pipe jacking in the north work area).

Given the brief periods of rail line disruptions, the low frequency of train operations, and the proposed coordination with Ballard Terminal Railroad to minimize disruptions to their operations from these projects, only minor cumulative construction impacts to Ballard Terminal Railroad operations are anticipated.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

No new traffic would result from the completed project.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

There are no agricultural or forest practice areas in the vicinity. The project would not affect the movement of products through the project area.

h. Proposed measures to reduce or control transportation impacts, if any:

Transportation impact mitigation would include the following during construction:

- Develop a traffic control plan describing detour routes, lane closures, sidewalk closures, signage, flagging, haul routes, for approval by City of Seattle prior to construction.
- Prior to any road closures SPU would notify area residents of the upcoming closures and provide detour options.
- Detour routes would be clearly signed for route finding.
- Streets would be reopened as soon as practicable following construction activities.
- Coordination with Ballard Terminal Railroad to minimize disruptions to rail line service for this project and other City of Seattle projects occurring in the vicinity.

Sections of streets in which pavement is removed for construction would be repaved and restored in accordance with City of Seattle requirements.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project would not result in an increased need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Impacts to public services are not anticipated; therefore, mitigation measures are not proposed.

16. Utilities

a. Check utilities available at the site, if any: [check the applicable boxes]

- None
 Electricity Natural gas Water Refuse service
 Telephone Sanitary sewer Septic system
 Other (identify)

There are multiple below ground utilities present in the vicinity of the north and south project areas. Within the south work area there are two existing cast iron water mains, one 12-inches in diameter and one 8-inches in diameter. Appropriate surface precautions would be implemented to isolate the construction equipment and activities from surrounding features to reduce the impact to these water mains. However, if these measures are determined to be insufficient to protect the water main sections, those sections in the immediate vicinity may need to be replaced due to vibration from the drilling operation. Should this need arise, a temporary water bypass system would be placed to serve the approximately 200 homes

connected to this system. The temporary bypass would be placed at night which would necessitate shutting off the water for up to 8 hours while the connection is made. Up to 165 linear feet of the 12-inch diameter water main and 25 linear feet of the 8-inch diameter water main may be replaced. Once construction of these water pipeline segments and associated valves is complete, another nighttime shutdown (up to approximately 8 hours) would occur to reconnect the water mains. Following construction, the temporary bypass system would be removed, and the pavement in W Commodore Way would be restored.

In the vicinity of the north work area, there is a 4-inch diameter gas line, a 2-inch diameter water line, an 8-inch diameter water line, an 8-inch diameter sewer, and multiple water and sewer service lines. Appropriate surface precautions would be implemented to isolate the construction equipment and activities from surrounding features to reduce the impact to these utilities. However, if these measures are determined to be insufficient to protect the utilities, those sections in the immediate vicinity may need to be excavated and supported due to vibration from the drilling operation. Replacement of these utilities is not expected to be necessary.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None

Upon completion of construction, the proposed force main, vaults, appurtenances, and associated system connections would be part of the City of Seattle's wastewater infrastructure and would be owned, operated, and maintained by SPU.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:

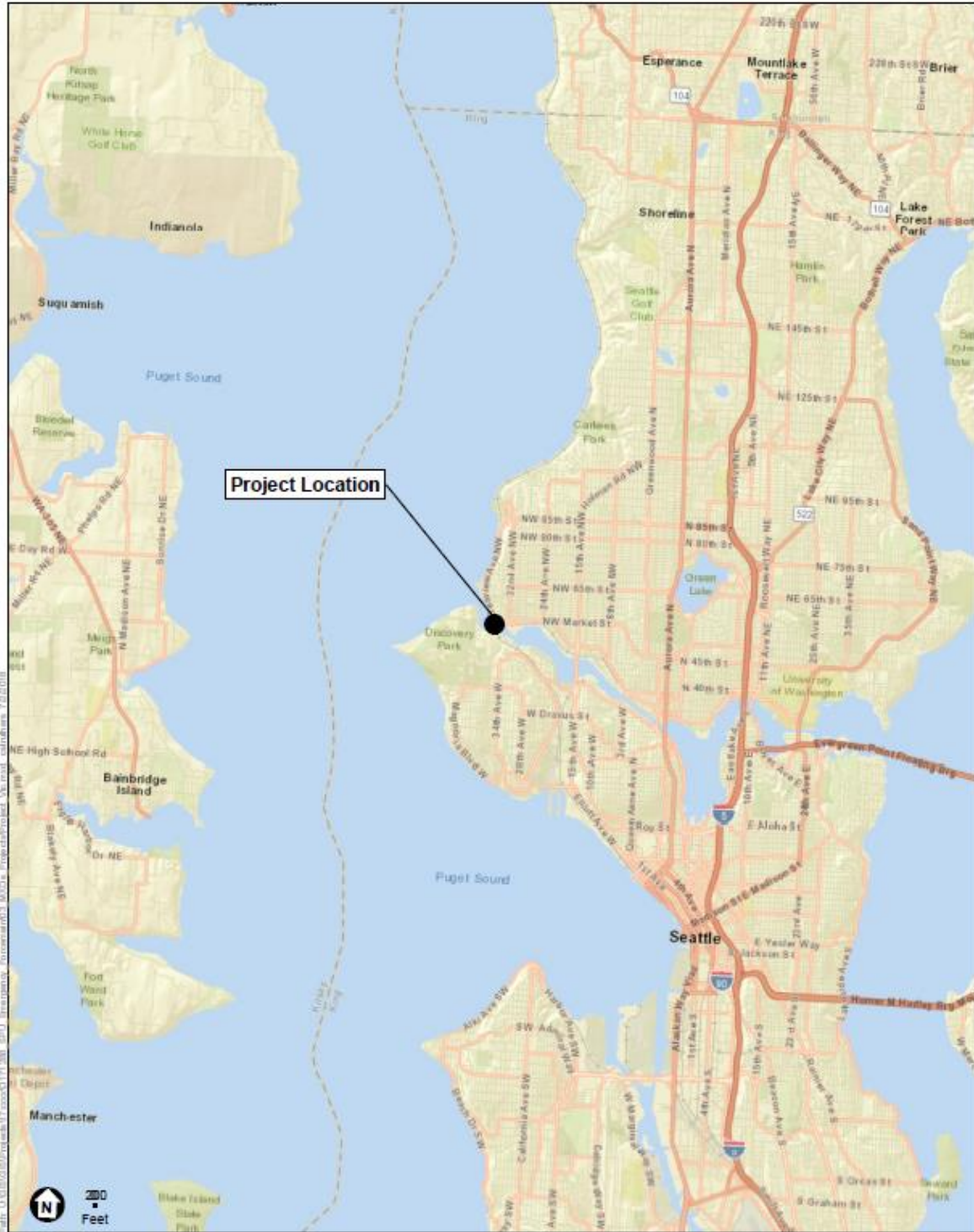

Cody Nelson
Project Manager

Date:

9/12/18

- Attachment A – Figure 1 Vicinity Map
- Attachment B – Figure 2 Site Map
- Attachment C – Figure 3 Force Main Cross Section
- Attachment D – Greenhouse Gas Emissions Worksheet

WWPS 43 Emergency Force Main Replacement Project
 SEPA Environmental Checklist
 Attachment A – Vicinity Map



SOURCE: DigitalGlobe, 2016

SPU WWPS043 Emergency Force Main Replacement Project

Figure 1
 Project Vicinity



Attachment B – Site Map



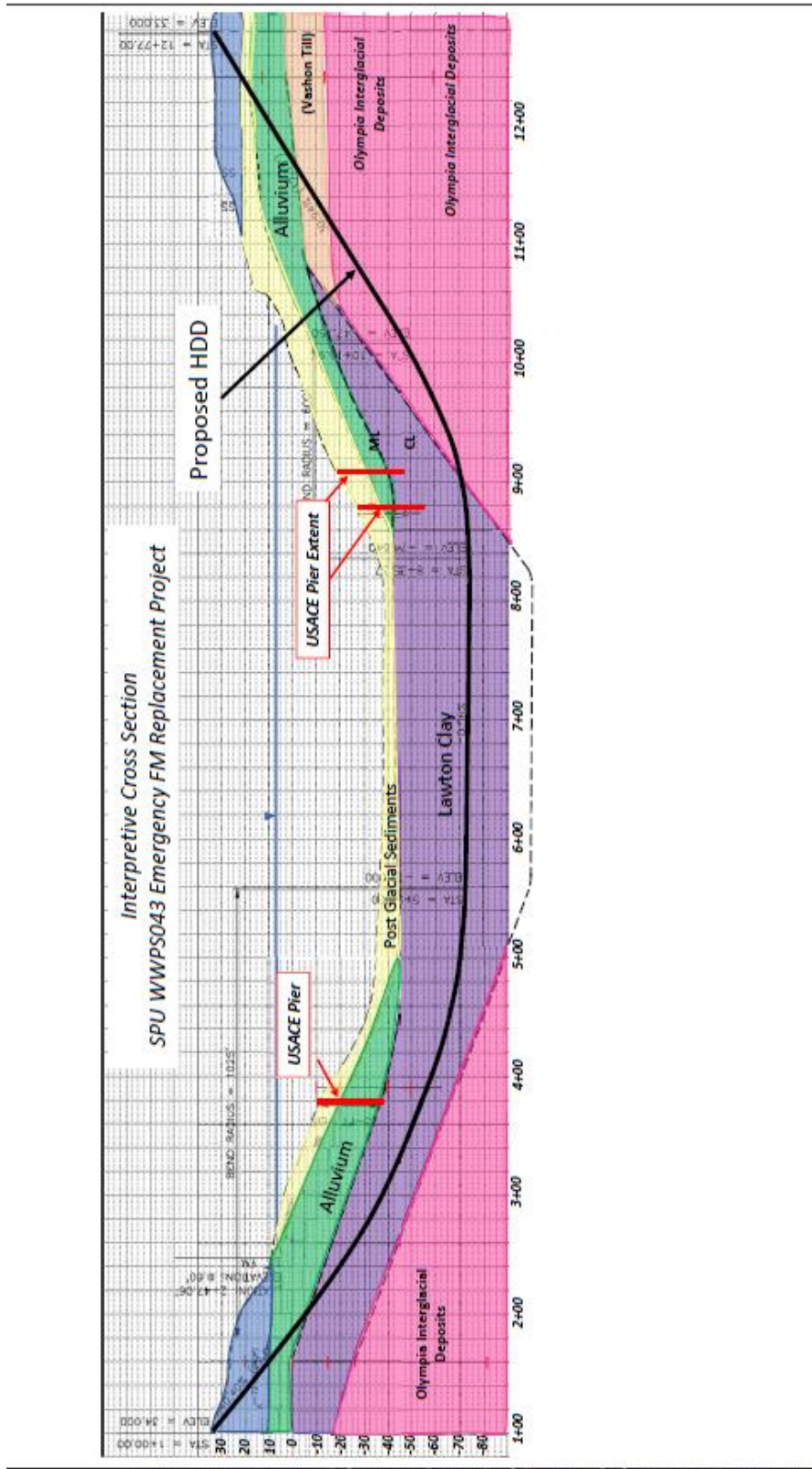
SOURCE: DigitalGlobe, 2016;

SPU WWPS043 Emergency Force Main Replacement Project

Figure 2
Project Alignment and Work Areas



Attachment C – Force Main Cross Section



SPU WWPS043 Emergency Force Main Replacement Project

Figure 3
Force Main Cross Section

SOURCE: Staheli Trenchless Consultants, 2018.



**WWPS 43 Emergency Force Main Replacement Project
SEPA Environmental Checklist**

Attachment D – Greenhouse Gas Emissions Worksheet

Section I: Buildings						
			Emissions Per Unit or Per Thousand Square Feet (MTCO₂e)			
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy	Transportation	Lifespan Emissions (MTCO ₂ e)
Single-Family Home	0		98	672	792	0
Multi-Family Unit in Large Building	0		33	357	766	0
Multi-Family Unit in Small Building	0		54	681	766	0
Mobile Home	0		41	475	709	0
Education		0.0	39	646	361	0
Food Sales		0.0	39	1,541	282	0
Food Service		0.0	39	1,994	561	0
Health Care Inpatient		0.0	39	1,938	582	0
Health Care Outpatient		0.0	39	737	571	0
Lodging		0.0	39	777	117	0
Retail (Other than Mall)		0.0	39	577	247	0
Office		0.0	39	723	588	0
Public Assembly		0.0	39	733	150	0
Public Order and Safety		0.0	39	899	374	0
Religious Worship		0.0	39	339	129	0
Service		0.0	39	599	266	0
Warehouse and Storage		0.0	39	352	181	0
Other		0.0	39	1,278	257	0
Vacant		0.0	39	162	47	0
TOTAL Section I Buildings						0

Section II: Pavement						
						Emissions (MTCO₂e)
Pavement (sidewalk, asphalt patch)		4	50			200
Concrete Pad (50 MTCO ₂ e/1,000 sq. ft. of pavement at a depth of 6 inches)		0.5	50			25
TOTAL Section II Pavement						225

Section III: Construction						
						Emissions (MTCO₂e)
(See detailed calculations below)						
TOTAL Section III Construction						60.24

Section IV: Operations and Maintenance						
						Emissions (MTCO₂e)
(See detailed calculations below)						
TOTAL Section IV Operations and Maintenance						0.12

TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT (MTCO₂e)						285.4
---	--	--	--	--	--	--------------

**WWPS 43 Emergency Force Main Replacement Project
SEPA Environmental Checklist**

Attachment D – Greenhouse Gas Emissions Worksheet, continued

Section III Construction Details

Construction: Diesel		
Equipment	Diesel (gallons)	Assumptions
Excavator	1680	1 Excavator x 8 hours/day x 15 workdays x 14 gal/hour
3 Dump Trucks (10 cu yard)	1080	3 Trucks X 2 round trips/day x 15 workdays x 60 roundtrip miles ÷ 5 mpg
Backhoe	720	1 Backhoe x 8 hours/day x 15 workdays x 6 gal/hour
Concrete Truck	48	4 round trips x 60 roundtrip miles ÷ 5 mpg
Flatbed Material Delivery Truck	24	2 round trips x 60 roundtrip miles ÷ 5 mpg
HDD Drill rig	624	1 Rig x 8 hours/day x 13 working days x 6 gal/hour
Subtotal Diesel Gallons	4176	
GHG Emissions in lbs CO₂e	110,873	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	50.29	1,000 lbs = 0.45359237 metric tons

Construction: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Crew Chief and Worker Vehicles	225	5 pickup trucks/vans x 15 workdays x 60 miles/day ÷ 20 mpg
Misc. Hand Equipment	72	2 Pcs. of equipment x 8 hours/day x 15 work days x 0.3 gal/hour
Soil Separation Plant Generator	416	1 Generator x 8 hours/day x 13 working days x 4 gal/hr
Backhoe	120	1 backhoe x 2 hours/day x 10 workdays x 6 gal/hr
Flatbed Material Delivery Truck	25	3 round trips x 50 roundtrip miles/6 mpg
3 worker vehicles	45	3 pickup trucks x 15 working days x 20 miles/day/20 mpg
Subtotal Gasoline Gallons	903	
GHG Emissions in lbs CO₂e	21,943	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	9.95	1,000 lbs = 0.45359237 metric tons

Construction Summary		
Activity	CO₂e in pounds	CO₂e in metric tons
Diesel	110,873	50.29
Gasoline	21,943	9.95
Total for Construction	132,816	60.24

Section IV Long-Term Operations and Maintenance Details

Operations and Maintenance: Diesel		
Equipment	Diesel (gallons)	Assumptions
Fueling truck/repair truck	10	1 truck x 2 round trips/year x 100 miles ÷ 20 mpg
Subtotal Diesel Gallons	10	
GHG Emissions in lbs CO₂e	266	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	0.12	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Subtotal Gasoline Gallons	0	
GHG Emissions in lbs CO₂e	0	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	0	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance Summary		
Activity	CO₂e in pounds	CO₂e in metric tons
Diesel	266	0.12
Gasoline	0	0
Total Operations and Maintenance	266	0.12