

**SEATTLE PUBLIC UTILITIES
SEPA ENVIRONMENTAL CHECKLIST**

This Washington State Environmental Policy Act (SEPA) environmental review of Seattle Public Utilities' South Thornton Natural Drainage System Project has been conducted in accord with SEPA (Revised Code of Washington Chapter 43.21C), state SEPA regulations (Washington Administrative Code Chapter 197-11), and the City of Seattle SEPA ordinance (Seattle Municipal Code Chapter 25.05).

A. BACKGROUND

1. Name of proposed project:

South Thornton Natural Drainage System (NDS) Project (the Project)

2. Name of applicant:

Seattle Public Utilities

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

Arnel Valmonte, Project Manager
Seattle Public Utilities
700 5th Ave
P.O. Box 34018
Seattle, WA 98124
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4. Date checklist prepared:

July 25, 2022

5. Agency requesting checklist:

Seattle Public Utilities

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

Construction is scheduled to begin first quarter 2023 and conclude first quarter 2024. Construction is expected to require 280 working days. Project commissioning and plant establishment would occur between first quarter 2024 and up to second quarter 2027 (2 to 3 years for plant establishment).

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

This Project (SPU Project #C316083) is part of Seattle Public Utilities' (SPU) Natural Drainage System (NDS) Partnering Program, which has an overall goal of constructing approximately 4 miles of bioretention facilities in street rights-of-way (ROW) in the Longfellow, Thornton, and Pipers creeks watersheds. The NDS Partnering Program has other projects in design and construction in these watersheds.

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

The following documents have been prepared for the Project:

- CM Design Group. 2020 (March). *Thornton Natural Drainage Solutions: Parking Study*.
- SPU. 2022a (April). *SPU NDS Partnering for Thornton South Basin, Project Report (Technical and Project Management for 90% Design)*.
- SPU. 2022b (April). *NDS Partnering Thornton South NDS Drainage Report*.
- SPU. 2020a (October). *South Thornton Creek 30% Design Outreach Summary*.
- SPU. 2020b (November). *Geotechnical Memorandum, Thornton NDS: Northgate Underground Injection Control Feasibility Study*.
- SPU. 2020c (March). *NDS Partnering General Design Guidance (as modified for NDS Thornton South on March 20, 2020)*.
- SPU. 2019a (October). *Geotechnical Report Thornton NDS Project, Infiltrating Bioretention Feasibility Assessment*.
- SPU. 2019b (December). *Geotechnical Memorandum: Thornton NDS Site 139 Drilled Drain Infiltration Feasibility Study*.

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.

No applications are known to be pending for governmental approvals of other proposals directly affecting the property covered by this Project.

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

The following permits and approvals may be required:

- **City of Seattle Departments of Transportation (SDOT)** – Street Improvement Permit (SIP)
- **King County** – Industrial Waste Program – Authorization for Construction Dewatering Discharge to Sanitary Sewer
- **Washington State Department of Ecology (Ecology)** – National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit

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.

This Project is located along multiple blocks at five sites in a 10-acre Project area in the south portion of the Thornton Creek Watershed in northeast Seattle. The Thornton Creek Watershed starts around NE 195th St and drains south and east to Lake Washington. Thornton Creek confluences with Lake Washington at Matthews Beach Park. The Project would provide water quality and quantity treatment for stormwater runoff (collected from streets and other impervious surfaces) draining to Thornton Creek. The Project would retrofit these roadways with an NDS (also referred to as bioretention cells), while addressing localized flooding issues and providing new sidewalks at some sites.

The Project would retrofit the ROW with roadside bioretention cells either in planting strips (adjacent to travel lanes) or in parking lanes along one side of the street. Bioretention cells would provide water quality treatment for untreated stormwater runoff currently discharging to Thornton Creek. After stormwater runoff filters through the plants and soil media in bioretention cells, water would infiltrate into native soil, which has adequate infiltration capacity. In areas where native soils near the surface do not have adequate infiltration capacity, water treated from bioretention cells

would collect in underdrains and discharge to the piped stormwater conveyance system or to deep infiltration wells. In sites without existing sidewalks, asphalt walkways would be constructed on the opposite side of the street in areas where bioretention cells would be installed.

The completed Project would require regular operation, monitoring, and maintenance activities, such as vegetation management and sediment removal from storm drain structures. For this environmental review, post-construction activity would likely require three visits per year over the Project's 50-year life span. In addition, the bioretention cells may be renovated periodically to replace soil media and vegetation as required by pollutant accumulation or fines interfering with infiltration. For this environmental review, renovation is expected to occur once (at Year 25) during the Project's 50-year life span. Attachments A and B include a vicinity map and site plans of the Project sites, respectively.

The five Project sites are as follows:

- a. **23rd Avenue Site** – One continuous corridor along 23rd Ave NE, from NE Northgate Wy to NE 103rd St and NE 103rd St from 23rd Ave NE to the dead end to the east
- b. **Wedgwood Site** – Multiple intersecting blocks (rather than a continuous corridor) in the Wedgwood neighborhood near the intersection of NE 87th St and 30th Ave NE
- c. **120th Street Site** – Two blocks of N 120th St from Meridian Ave N to 1st Ave NE
- d. **41st Place Site** – One block of 41st Pl NE from NE 105th St to NE 107th St
- e. **117th Street Site** – Two blocks of N 117th St from Meridian Ave N to 1st Ave NE

The Project includes the following major work elements:

23rd Avenue Site:

- a. Fourteen unlined bioretention cells with underdrains
- b. Storm drainage pipes and catch basins to direct flow into the cells and treated flows and overflows into the existing storm drainage system downstream
- c. Curbs or thickened edge to direct runoff into the proposed cells
- d. Detention pipe to mitigate flows discharged into existing downstream system
- e. Asphalt walkway along the eastern side of the road
- f. Utility gas main relocation and water main replacement
- g. Some regrading, removal of existing pavement, pavement restoration, and adjustments to existing street elements (such as traffic signs and mailboxes) to allow construction of proposed improvements

Wedgwood Site:

- a. Fourteen unlined bioretention cells, some with underdrains and some with pit drains for infiltration into the native soil
- b. Storm drainage pipes and catch basins to direct flow into the cells and treated flows and overflows into the existing storm drainage system downstream
- c. Curb bulbs for some bioretention cells
- d. Concrete curbs or asphalt-thickened edge to direct runoff into the proposed cells
- e. Asphalt walkway on NE 87th St and replacement of existing concrete sidewalks and walkways next to bioretention cells on other blocks
- f. Installation of new American with Disabilities Act curb ramps at some intersections
- g. Utility relocation of two gas main segments and replacement of water service

- h. Some regrading, removal of existing pavement, pavement restoration, and adjustments to existing street elements (such as traffic signs and mailboxes) to allow construction of proposed improvements

120th Street Site:

- a. Four unlined bioretention cells with underdrains
- b. Three underground injection control (UIC) wells consisting of a standard maintenance hole on the surface that contains a pipe drilled 25 to 50 feet below the ground to discharge water to the outwash soils below the till layer on the surface
- c. An asphalt/concrete sidewalk on the north side of the roadway
- d. Asphalt-thickened edge and precast concrete curbs to convey road runoff
- e. Storm drainage pipes and catch basins to direct flow into the cells, treated flows into the existing storm drainage system downstream, and underdrain flow from the bioretention cells into the UIC wells
- f. Utility relocations, including water and gas mains to be replaced by Puget Sound Energy (PSE) in a separate project
- g. Some regrading, removal of existing pavement, pavement restoration, and adjustments to existing street elements (such as traffic signs and mailboxes) to allow construction of proposed improvements

41st Place Site:

- a. Five lined bioretention cells with underdrains
- b. Storm drain pipe to carry upstream basin flow to the bioretention cells and an underdrain system that would connect the bioretention cells with the existing 72-in storm drainage pipe
- c. Installation of a flow splitter to divert flow to the existing storm drainage system during large storm events
- d. Curb cuts and asphalt thickened edge to direct runoff to the proposed cells
- e. Expanding roadway width on a portion of the block and removal and restoration of existing pavement to allow construction of proposed improvements
- f. Adjustments to existing street elements (such as traffic signs and mailboxes) as required to install proposed improvements

117th Street Site:

- a. Seven bioretention cells with underdrains (six unlined and one lined)
- b. Asphalt-thickened edge, precast concrete wheel stops, catch basins, and piping to direct runoff into the proposed cells
- c. Two UIC wells like those proposed for the 120th Street Site and storm pipe system to direct treated flows from the cell underdrains into the wells
- d. Asphalt walkway on the north side of the street
- e. Adjustments to existing utilities (including gas services to residences), some regrading and removal, and restoration of existing pavement to allow construction of proposed improvements
- f. Adjustments to existing street elements (such as traffic signs and mailboxes) as required to install proposed improvements

- 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 Project is in Section 36, Township 24N, Range 3E in street ROW on various blocks in the south part of the Thornton Creek Watershed. The Project would be constructed entirely in the following street ROW in the City of Seattle, King County, Washington:

- 23rd Ave NE from NE 103rd St to NE Northgate Wy and NE 103rd St from 23rd Ave NE to the dead end to the east
- 30th Ave NE from NE 88th St and NE 86th St; NE 87th St from 32nd Ave NE to 27th Ave NE; NE 88th St from 27th Ave NE to 30th Ave NE; 29th Ave NE from 30th Ave NE to NE 87th St
- N 120th St from Meridian Ave N and 1st Ave NE
- 41st Pl NE from 41st Pl NE to NE 105th St
- N 117th St from Meridian Ave N to 1st Ave NE

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site:

- Flat
 Rolling
 Hilly
 Steep Slopes
 Mountainous
 Other:

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

The proposed NDS sites are generally on upland plateaus at elevations ranging between 210 and 400 feet above sea level. The steepest roadway has approximately a 10-percent slope. The steepest constructed cell tie-in slopes would be graded at a slope of 2.5H:1V.

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.

Information in this section is based on SPU 2019a and 2019b.

1. **23rd Avenue Site**—Site geology is mapped as Vashon glacial till. Shallow soil conditions generally consisted of dense to very dense and often cemented, silty sand with gravel, which is consistent with Vashon glacial till deposits. Fill soils were encountered overlying the till in some of the explorations completed for the Site.
2. **Wedgwood Site (NE 88th St, NE 87th St, 27th Ave NE, 30th Ave NE)**—Site geology is mapped as Vashon glacial till with mapped advance outwash nearby to the north, west, and east. Generally, advance outwash and glacial till deposits were encountered just below the ground surface. Advance outwash encountered during soil explorations typically consists of clean to silty sand. Glacial till typically consists of very dense and often cemented gray silty sand with varying amounts of gravel, the upper 1 to 3 feet being weathered.
3. **120th Street Site**—Site geology is mapped as glacial till. Shallow soil conditions generally consisted of between 1 and 4 feet of fill soils overlying native silty sand with gravel, which is interpreted to be associated with Vashon glacial till or ice-contact deposits.

- 4. **41st Place Site**—Site geology is primarily mapped as Vashon recessional outwash. The mainstem of Thornton Creek is located approximately 220 feet southwest of the intersection of 41st Place NE and NE 105th Street. Underlying soils comprise restrictive silt and clay soil layers.
- 5. **117th Street Site**—Site geology is mapped as Vashon glacial till. Shallow soil conditions generally consisted of silty sand with gravel, which is interpreted to be associated with Vashon glacial till or ice-contact deposits. Soil conditions were variable and ranged from silty sand (outwash-like in texture) to cemented till.

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

Based on mapping by Seattle Department of Construction and Inspections (SDCI), (available at <https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2&marker=1284394.4690240994%2C255610.2501965709%2C2926%2C%2C%2C&markertemplate=%7B%22title%22%3A%22%20%22%2C%22x%22%3A1284394.4690240994%2C%22y%22%3A2556>) the 41st Place Site contains a liquefaction-prone Environmentally Critical Area (ECA) at the south end of 41st Place NE (including ROW adjacent to parcels 6335000005 and 6335000064, and the intersection of NE 105th Street).

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.

This Project would disturb up to 6 acres in the 10-acre Project area as a result of excavation, grading, and filling during clearing, pavement removal, and construction of underground utilities, roadway improvements, and bioretention cells. Up to 16,500 cubic yards (CY) of material would be excavated for roadway and utility improvements. Up to 15,500 CY of mineral aggregate, landscape soil, borrow material, bioretention soil, and backfill for utilities would be imported as fill material. Fill material would be obtained from a commercial purveyor of such materials licensed by the State of Washington. Excavated materials would be reused on-site where feasible or exported off-site and disposed of in an approved upland disposal location per construction contract requirements.

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

Erosion could occur due to ground-disturbing activity, although the risk is low because areas to be disturbed are relatively flat and proposed construction would begin only after best management practices (BMPs) to limit erosion potential are installed. BMPs identified in the City of Seattle’s Stormwater Code Seattle Municipal Code (SMC) Title 22, Subtitle VIII, relevant City of Seattle Director’s Rules, and Volume 2 Construction Stormwater Control Manual would be used to control erosion and sedimentation during construction. All proposed construction would be required to comply with a SPU-approved construction erosion and sedimentation control (CESC) plan and meet NPDES construction stormwater permit requirements.

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

Pre- and post-construction surfaces are summarized in Table 1. Construction would reduce impervious surfaces in street ROW by 9,600 square feet (SF) (0.2 acre)—a reduction of 2 percent in the 10-acre Project area—by replacing currently paved areas with bioretention cells.

Table 1. Impervious Surfaces.

Surfaces	Pre-construction (SF)	Post-Construction (SF)
Impervious (roadways, driveways, including paved and compacted gravel surfaces)	267,300 (59%)	241,300 (54%)
Impervious (sidewalk/paved footpath)	15,300 (3%)	31,700 (7%)
Pervious (grass, landscape, bioretention)	167,200 (37%)	176,800 (39%)
Total Impervious (in ROW)	282,600 (63%)	273,000 (61%)

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

The Project would be required to implement a CESC plan with BMPs appropriate to the site, conditions, and activities. During construction, work would be monitored, maintained, and adjusted as necessary to meet changing conditions and to meet requirements of the NPDES construction stormwater permit. Upon completion of construction, disturbed areas would be permanently stabilized through plantings and paving.

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.

Construction equipment could include hand-held power tools, gasoline and diesel-powered compressors and generators, and gasoline and diesel-powered vehicles to remove existing roadway and utility infrastructure and construct new roadway and utility improvements. These tools would generate greenhouse gas emissions (GHG) due to the combustion of gasoline and diesel fuels, and include oxides of nitrogen, carbon monoxide, particulate matter, and smoke, uncombusted hydrocarbons, hydrogen sulfide, carbon dioxide, and water vapor. Other emissions during construction could include dust and exhaust from construction vehicles. These effects are expected to be localized, temporary, and minimized.

Total GHG emissions for the Project are summarized in Table 2; calculations are provided in Attachment C. The Project would produce GHGs in three ways: embodied in materials to be installed on the Project; through construction activity (especially as described above); and by regular operation, maintenance, and monitoring activities throughout the life of the completed Project. Emissions generated during the manufacture of materials used in this Project are not estimated or otherwise considered in this environmental review due to the difficulty and inaccuracy inherent in calculating such estimates. New bioretention cells and street trees are expected to capture carbon in the form of accumulated biomass (organic matter). However, the mass of carbon sequestered by the bioretention cells and new trees during their anticipated 50-

year lifespan is not estimated or otherwise considered in this environmental review due to the difficulty and inaccuracy inherent in calculating such estimates.

The Project would generate GHG emissions during construction through the operation of diesel- and gasoline-powered equipment, and in the transportation of materials, equipment, and workers to and from the site. The estimates provided are based on assumptions for typical numbers of vehicle operations to execute the work (Attachment C). The completed Project would generate GHG emissions through the routine and emergency operation, maintenance, and monitoring of the Project through an assumed life expectancy of 50 years.

Table 2. Greenhouse Gas Emissions by Project Activity

Activity/Emission Type	GHG Emissions (pounds CO ₂ e) ¹	GHS Emissions (Metric tons CO ₂ e) ¹
Buildings	NA	NA
Paving	13,084,675	5,935
Construction Activities (Diesel)	2,869,259	1,301
Construction Activities (Gasoline)	292,572	133
Long-term Maintenance (Diesel)	256,208	116
Long-term Maintenance (Gasoline)	74,844	34
Total GHG Emissions	16,577,558	7,519

¹ 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 odors that would affect the Project. The neighborhood and parcels adjacent to the 120th Street, 117th Street, 41st Place, 23rd Avenue, and Wedgwood sites are fully developed primarily as single and multi-family residential. The 120th Street and 117th Street sites are near Northgate Elementary School. The Wedgwood Site is near Wedgwood Elementary School.

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

During construction, impacts to air quality would be reduced and controlled through implementation of federal, state, and local emission control criteria and City of Seattle required construction practices. These would include requiring contractors to use BMPs for construction methods, proper vehicle maintenance, and minimizing vehicle and equipment idling.

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.

No surface water bodies are on or in the immediate vicinity of any of the sites, although some of the 41st Place Site is within 100 feet of a mapped riparian corridor of mainstem Thornton Creek. However, actual work would not occur within 200 feet of that watercourse.

- (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.**

The Project would not require any work over, in, or adjacent to any surface waters.

- (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. No surface waters are within 200 feet of the proposed work areas.

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

The Project would not permanently withdraw or divert surface water at the 23rd Avenue or 41st Place sites. However, at the Wedgwood, 117th Street, and 120th Street sites a portion of the surface runoff currently conveyed via a combination of sheet flow at road edges, ditches, storm drains, and culverts would be infiltrated. Currently runoff from the 117th Street and 120th Street sites flows south in a ditch/culvert system along the west side of 1st Ave NE until it enters a piped system under Interstate 5 and eventually discharges to Thornton Creek. Currently, runoff from the Wedgwood site flows north in a ditch/culvert system along the west side of 30th Ave NE which eventually discharges to Thornton Creek about 0.4 miles downstream of the site.

An overall project goal is to mimic natural pre-urbanization (that is, forested) hydrologic conditions as much as possible. This is accomplished by infiltrating clean, treated surface waters (stormwater) from the sites into groundwater tables via UIC wells at the 117th Street and 120th Street sites and via pit drains at the Wedgwood site. Therefore, this Project would not require surface water withdrawals or diversions in the traditional sense. The Project's natural drainage system would treat stormwater by removing sediment and pollutants. That treated stormwater would then be directed to UIC wells or pit drains, providing a system of recharging ground water which then re-supplies area creeks and streams. This form of deep-water recharging also allows flows to re-enter the creek system at a slower and steadier rate to the benefit of the creek's aquatic environment. Treated flows discharged to the UIC wells at 117th Street and 120th Street sites would equal up to 80% of the average annual volume (AAV) from 3.8 acres of effective impervious area in the upstream basin. Treated flows discharged via pit drains at the Wedgwood site would equal up to 80% of the AAV from 1.2 acres of effective impervious area in the upstream basin. Therefore, the actual amount of surface water discharged to Thornton Creek would be reduced by these amounts. This volume would be directed to the aquifer system of the advance outwash and is expected to provide a clean source of additional groundwater that supports base-flows in creeks downstream of the project area. Flows higher than the capacities of the UIC wells and pit drains would bypass the well or pit drain systems and be directed to the existing path along the curb and gutter or storm drainage system following the current stormwater drainage patterns and therefore would not be considered diverted.

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

The Project is not within a 100-year floodplain.

- (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.**

This Project would not discharge waste material to surface waters.

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.**

This Project would not withdraw groundwater.

- (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.**

This Project would not discharge waste material into the ground.

c. Water Runoff (including stormwater):

- (1) Describe the source of runoff (including stormwater) 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.**

Sources of stormwater runoff include upstream neighborhood streets, sidewalks, driveways, and impervious areas on residential parcels (such as rooftops from homes, driveways, pathways). The Project includes new curb and gutter and/or asphalt thickened edge to convey stormwater along the road edge to new stormwater facilities that include catch basins, flow splitters on public storm drain mains, inlets, and curb cuts into bioretention cells. Stormwater from catch basins/flow splitters and curb cuts would be directed to bioretention cells or the public storm drain system. Bioretention cells would be designed to infiltrate stormwater runoff passing through the bioretention soil media and/or discharge stormwater via an underdrain to the public storm drain piped system or infiltrated through pit drains or UIC wells at some sites. Runoff entering the public storm drain piped system from the 23rd Avenue, Wedgwood, 120th Street, and 117th Street sites would be discharged to Thornton Creek.

The 41st Place site would discharge to a conveyance pipe draining Meadowbrook Pond to the west and discharges flow to Lake Washington. SPU modeling of this outfall pipe indicates there is sufficient capacity to receive Project flows with negligible adverse impact.

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

Erosion from construction sites could enter surface waters. However, a CESC plan using appropriate BMPs would be implemented to avoid or minimize this risk. Work would be monitored, maintained, and adjusted as necessary to meet changing on-site conditions and to meet requirements of the construction stormwater NPDES permit. Runoff passing through the bioretention cells and infiltrating into the ground would have passed through bioretention soil media (18 inches deep) providing water quality treatment in accord with City of Seattle and Ecology stormwater requirements.

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

The Project is designed to collect surface-generated stormwater to provide water quality treatment and increased infiltration but would not alter overall surface drainage patterns. The Project includes retrofitting the ROW to accommodate roadside bioretention cells with an underdrain to intercept and treat the stormwater runoff for each site. Once

intercepted street runoff has filtered through the bioretention cell sections, for unlined cells, it would partially infiltrate into native soil. The remaining water would flow into the underdrain and then discharge to the existing public drainage system that outfalls into Thornton Creek—except for 41st Place Site, which would discharge to an existing public drainage system that outfalls directly to Lake Washington. For cells that are required to be lined (due to adjacent area and subsurface soil conditions), collected stormwater would filter downward through the bioretention section and collect in an underdrain conveying flows to the public drainage system. In the Wedgwood Site, cells in locations with good native infiltration rates have pit drains to infiltrate the treated runoff. In cases where the cell has an underdrain and there is no public storm drainage main, the public storm drain would be extended to connect to the underdrain. At the 120th Street and 117th Street sites, UIC wells would be installed downstream of the cells to infiltrate treated runoff from their underdrains.

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

This Project is intended to provide water quality and quantity treatment for surface-generated stormwater runoff currently flowing to Thornton Creek. Runoff from the Project area is generated within a highly urbanized basin where no flow control or water quality treatment is provided prior to the runoff entering the public storm drain system and discharging to Thornton Creek. The Project would provide flow attenuation for surface runoff via bioretention cells and UIC wells and provide water quality treatment for runoff from pollution-generating impervious surfaces.

The Project would use typical construction methods; no adverse impacts to surface or ground waters are expected. BMPs identified in the City of Seattle’s Stormwater Code SMC Title 22, Subtitle VIII, relevant City of Seattle Director’s Rules, and Volume 2 Construction Stormwater Control Manual would be used to control erosion and sedimentation during construction.

4. Plants

a. Types of vegetation found on the site:

The Project would occur in street ROW on residential streets in neighborhoods developed primarily in the mid-20th century. Currently, much of the Project square footage roadway paving or gravel shoulders is currently used by residents for parking. Where planted, vegetation primarily consists of plants associated with urban/suburban landscaping, such as lawn, hedges, ornamental plant beds, and in a couple of locations, vegetable beds. In a few locations where there is a ditch, vegetation consists primarily of grass and weeds. Most trees throughout the site are a wide variety of ornamental, non-native trees. Common native plants include Douglas-fir and western redcedar trees. The Project inventoried 209 existing trees in the project area.

<input checked="" type="checkbox"/> Deciduous trees:	<input checked="" type="checkbox"/> Alder	<input checked="" type="checkbox"/> Maple	<input type="checkbox"/> Aspen	<input type="checkbox"/> Other:
<input checked="" type="checkbox"/> Evergreen trees:	<input checked="" type="checkbox"/> Fir	<input checked="" type="checkbox"/> Cedar	<input checked="" type="checkbox"/> Pine	<input type="checkbox"/> Other:
<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:					
<input type="checkbox"/> Water plants:	<input type="checkbox"/> water lily	<input type="checkbox"/> eelgrass	<input type="checkbox"/> milfoil	<input type="checkbox"/> Other:	
<input type="checkbox"/> Other types of vegetation:					

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

Existing trees, shrubs, groundcovers, and lawn in street ROW conflicting with proposed improvements would be removed. The Project has been designed to minimize removal and impacts to significant, healthy trees, both within and outside of the ROW. Trees in conflict with the Project design have been recommended for removal by SDOT arborists because they are unhealthy, damaged (I.e., trees that have been topped), in conflict with utilities or otherwise poorly located per City of Seattle Standard Plan 030, or are causing sidewalk or roadway damage would be removed. A total of 15 trees would be removed. Most trees recommended for removal are in the ROW. The Project team has worked with homeowners to obtain their approval for removal of a few trees that either straddle the ROW or are on private property adjacent to the ROW. All tree removals are described in Table 3.

Table 3. Tree Removals.

Tree #	Species / Type	DSH	Address	In ROW?	Reason for Removal
W50	western redcedar (<i>Thuja plicata</i>) / conifer	24	3033 NE 87th St	Yes	Conflict with power pole and lines and has been topped.
W18	flowering cherry (<i>Prunus</i> spp.) / deciduous	1; 1	8703 30th Ave NE	Yes	2 young (insignificant) trees in conflict with design.
W32	Lawson false-cypress (<i>Chamaecyparis lawsoniana</i>) / conifer	5	8625 29th Ave NE	Yes	Planted too close to sidewalk, lifting sidewalk.
W33	ginkgo (<i>Ginkgo biloba</i>) / deciduous	3	8625 29th Ave NE	Yes	Small (insignificant) tree, planted too close to intersection
W34	redbud (<i>Cercis canadensis</i>) / deciduous	3	8625 29th Ave NE	Yes	Small (insignificant) tree
W44	flowering plum (<i>Prunus cerasifera</i>) / deciduous	18	3002 NE 87th St	Yes	Undesirable species for ROW, in decline, may not survive adjacent work.
W48	flowering plum (<i>Prunus cerasifera</i>) / deciduous	2	3002 NE 87th St	Yes	Undesirable species for ROW, in decline, may not survive adjacent work.
W49	flowering plum (<i>Prunus cerasifera</i>) / deciduous	17	3002 NE 87th St	Yes	Undesirable species for ROW, in decline, may not survive adjacent work.
W50	flowering plum (<i>Prunus cerasifera</i>) / deciduous	16	3002 NE 87th St	Yes	Undesirable species for ROW, in decline, may not survive adjacent work.
V41A	western redcedar (<i>Thuja plicata</i>) / conifer	9	10420 23rd Ave NE	Yes	Within canopy of larger tree (remove to improve health of

					larger tree), also in conflict with proposed sidewalk.
N20	Douglas-fir (<i>Pseudotsuga menziesii</i>) / conifer	24	2308 NE 120th St	Straddles ROW	Topped and under wires, conflicts with sidewalk design.
N23	Japanese maple (<i>Acer palmatum</i>) / deciduous	15	2332 NE 120th St	Yes	An Exceptional Tree (SMC 25.11). Conflicts with power pole and sidewalk design.
16	Lawson Cypress (<i>Chamaecyparis lawsoniana</i>) / conifer	26	11556 N 117th St	Yes	Conflicts with power pole and lines, has extensive pruning damage, and conflicts with design.
21	Douglas-fir (<i>Pseudotsuga menziesii</i>) / conifer	48	2143 N 117th St	Straddles ROW	An Exceptional Tree (SMC 25.11). Conflicts with power pole and lines, has extensive pruning damage, and conflicts with design.
22	western redcedar (<i>Thuja plicata</i>) / conifer	32	11556 N 117th St	Straddles ROW	Conflicts with power pole and lines, has extensive pruning damage, and conflicts with design.

DSH = diameter at standard height, in inches

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

According to a review of the Washington Department of Natural Resources (WDNR) Natural Heritage Program’s document called “Sections that Contain Natural Heritage Features, Current as of July 15, 2021” (accessed at https://www.dnr.wa.gov/publications/amp_nh_trs.pdf), there are no documented occurrences of sensitive, threatened, or endangered plant species at or near the Project site. No federally listed endangered or threatened plant species or State-listed sensitive plant species are known to occur within Seattle’s municipal limits. The Project sites have been intensively disturbed by development and redevelopment over the last 100 years and has been extensively excavated, filled, paved, or occupied by street, utility, and other constructed features. There is no habitat for threatened or endangered plants.

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

To preserve existing vegetation, Project has been adjusted to avoid, minimize, and mitigate impacts, particularly to significant and Exceptional trees. Measures have included relocating Project features, fence protection (during construction) of existing vegetation to remain, and requiring a tree and vegetation protection plan, which includes air-spading and potential directional drilling to expose and avoid impacts to tree roots. Flexible porous surface treatment (such as Flexipave) is used to minimize impacts to tree roots in some locations.

Per City of Seattle requirements to replace removed trees at a rate of 2:1, 30 trees are proposed in proximity to the locations of the 15 removed trees they replace. Additionally, new street trees are proposed throughout the Project in accordance with City of Seattle’s canopy goals and in accordance with the recommendations of SDOT Urban Forestry, so that the total number of new street trees proposed for the Project is 132.

While some existing vegetation is being removed, much of what new planting is replacing is existing pavement and gravel parking areas (see increase in pervious area described in Part B1, above). Proposed planting area includes bioretention cells containing low-growing grasses, shrubs, bulbs, and perennials as well as small shrubs and trees to perform bioretention and water quality treatment functions. Planting areas outside of bioretention cells would have soil amendments and generally be revegetated with seeded law, groundcovers, or arborist woodchip mulch, selected for suitability to conditions and to complement the existing context, along with new street trees. Plant selection for bioretention cells and outside of the bioretention cells would follow the City’s GSI planting list (SPU Green Stormwater Infrastructure Manual for Capital Improvement Projects, Volume III: Design; Bioretention Plant List, and Bioretention Street Tree list; available <https://700milliongallons.org/wp-content/uploads/2020/10/SPU-KCWTD-GSI-Manual-Volume-III-Design-Phase.pdf>). All plant selections would be approved by SDOT. Some bioretention cells would be constructed with a fast draining “low nutrient” soil mix. Plants in these cells were selected through a rigorous process, screening for plants doing well in fast-draining, low-nutrient environment.

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

Most sites are in unvegetated paved street ROW, including sidewalks. However, numerous weeds are present in adjacent vegetated areas. According to the ‘Noxious Weed’ data layer in King County’s iMap website, giant hogweed (*Heracleum mantegazzianum*; a Class A noxious weed in King County), garlic mustard (*Alliaria petiolata*; a Class A noxious weed in King County), policeman’s helmet (*Impatiens glandulifera*; a Class B Designate noxious weed in King County) are known to be near 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:

Birds: Hawk Heron Eagle Songbirds
 Other: crow, pigeon

Mammals: Deer Bear Elk Beaver
 Other: opossum, raccoon, squirrel, brown rat, Norway rat

Fish: Bass Salmon Trout Herring
 Shellfish Other:

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

According to WDFW’s “Priority Habitat Species on the Web” database (accessed on June 17, 2022), there are no threatened or endangered species known to be on or near any of the Project sites.

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

Seattle is in the migratory route of many birds and other animal species and is part of the Pacific Flyway, a major north-south route of travel for migratory birds in the Americas extending from Alaska to Patagonia.

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

The Project would increase the number, diversity, and character of plantings in the street ROW. Plantings of native and non-native low-growing plants, shrubs, small trees, and public street trees are anticipated to increase resting, feeding, refuge, and nesting habitat for wildlife.

The Project would also minimize ground disturbance and deploy BMPs identified in the City of Seattle's Stormwater Code (SMC 22.800 through 22.808 and Director's Rule SPU's DWW-700 /SDCI's 17-2017) and Construction Stormwater Control Technical Requirements Manual (Volume 2) to generally protect fish and wildlife and manage stormwater. For example, equipment to be used for construction activity would be cleaned and inspected before it arrives at the Project location to avoid and minimize potential for fuel or lubricant leaks.

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

European starling, house sparrow, Eastern gray squirrel, and fox squirrel are terrestrial invasive species in King County (<http://www.kingcounty.gov/services/environment/animals-and-plants/biodiversity/threats/Invasives.aspx>).

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.

The completed Project would not generate any new energy needs.

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

The Project would not construct structures or plant vegetation that would block access to the sun for 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:

Measures to reduce or control energy impacts do not apply. The proposed Project would not generate any new energy needs.

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:

Small amounts of materials likely to be present during construction include gasoline and diesel fuels, hydraulic fluids, oils, lubricants, solvents, paints, and other chemical products. A spill of one of these chemicals could potentially occur during construction due to either equipment failure or worker error. Though highly unlikely and not expected at this location, contaminated soils, sediments, or groundwater could also be exposed during excavation. If disturbed, contaminated substances could expose construction workers and potentially other individuals in the vicinity through blowing dust, stormwater runoff, or vapors.

The Project's bioretention cells would provide water quality treatment for urban stormwater runoff. Typical roadway contaminants found in runoff are expected to accumulate within bioretention soils, although SPU's review of recent scientific studies confirms that many contaminants bind (chelate) with organic matter in the amended bioretention soil media and plant material and/or undergo transformation. While presence of contaminants and their concentration are not expected to be significant health hazards, bioretention cells are designed

to discourage recreational use. Additionally, for operations and maintenance budgeting purposes, SPU assumes some bioretention soil media/plants would be removed and replaced in 20 to 50 years depending upon monitoring results.

Completed bioretention cells would not affect populations of mosquitoes, water-loving insects, or waterfowl because cells are designed to: 1) have flowing water, which does not support mosquito breeding; 2) drain within 24 hours of a storm event, substantially less than the 72 hours required for development of mosquito larvae; have mature vegetation not attractive to ducks and geese.

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

There are no known contamination issues at the Project sites based on review of available information.

(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.

There are no known hazardous chemicals/conditions. Existing ROW includes buried franchise natural gas mains providing natural gas to adjacent private properties. PSE would relocate a gas service and 190 feet of 2-inch diameter gas main along 23rd Ave NE and a gas service and 60 feet of 2-inch diameter gas main at the Wedgwood site.

(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.

Traffic-striping paint may be stored during construction prior to its use. Material would be stored and handled in accordance with City of Seattle standard specifications and requirements.

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

Fire and/or medic services could be required during Project construction, as well as possibly during maintenance of the completed Project. However, the completed Project would not demand higher levels of special emergency services than already exist at Project sites. Typical emergency services required for medical emergencies are provided by the Seattle Fire Department. Typical security services are provided by the Seattle Police Department and SPU's contractor during construction.

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

No such measures are proposed because there would be no environmental health hazards.

b. Noise

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

Noises that exist in the area would not affect the Project.

(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.

Noise levels in the vicinity of construction would temporarily increase during construction activities. Short-term noise from construction equipment would be limited to the allowable maximum levels of City of Seattle's Noise Control Ordinance (SMC Chapter

25.08). Within the allowable maximum levels, SMC 25.08 permits noise from construction equipment between the hours of 7 am and 7 pm weekdays, and 9 am and 7 pm weekends and legal holidays; however, it is expected that most construction activity would occur from 7 am to 6 pm on weekdays. After Project completion, occasional noise from equipment used for operation, maintenance, and monitoring would occur periodically, but would be limited to hours allowed by the City of Seattle's Noise Control Ordinance (SMC 25.08).

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

Construction equipment would be muffled in accordance with the applicable laws. SMC Chapter 25.08 prescribes limits to noise and construction activities and would be enforced while the Project is being constructed.

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.

The Project is in street ROW used for vehicle and/or pedestrian travel, and/or parking. Land use at the sites is primarily single family residential. The eastern portion of the 120th Street site is adjacent to Northgate Elementary School; portions of the Wedgwood Site are near Wedgwood Elementary School. All Project sites are along asphalt paved residential streets, which are generally adjacent to either an unimproved ROW shoulder used primarily for parallel parking or a formalized curb and gutter street edge with planting strip and sidewalk.

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?

Project sites have not been recently used for working farm or 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 is no surrounding farm or forest land.

c. Describe any structures on the site.

The Project area is entirely within City-owned street ROW. There are no structures in the Project area.

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

No, there are no structures in the Project area.

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

The Project is entirely in street ROW. Adjacent properties are zoned single family residential (SF 7200) for the 120th Street, 41st Place, and 23rd Avenue sites. The Wedgwood Site is zoned single family (SF 5000).

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

All 5 sites are in the Plan's Neighborhood Residential Areas.

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

The Project does not affect any areas in the City of Seattle’s Shoreline Master Program jurisdiction.

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

The south end of the 41st Place NE site (including ROW adjacent to parcels 6335000005 and 6335000064 and the intersection of NE 105th Street) is in a liquefaction-prone ECA, as mapped by SDCI (<https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=f822b2c6498c4163b0cf908e2241e9c2>).

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

No people would reside in the completed Project. City maintenance crews would work periodically in the ROW to maintain and monitor vegetation, drainage, and other City infrastructural assets.

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

No people would be displaced.

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

There would be no displacements.

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

The Project would be compatible with existing and projected land uses and plans.

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

There are no nearby agricultural and forest lands of long-term commercial significance.

9. Housing

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

The Project would not construct any housing units.

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

The Project would not eliminate any housing units.

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

No measures are proposed because there would be no housing impacts.

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?

No new buildings are proposed.

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

No views in the immediate vicinity would be altered or obstructed. Street trees planted in the ROW could partially obscure neighborhood and territorial views when they attain full height and maturity.

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

The Project is developing a context-sensitive design for each of the sites to respond to adjacent land uses and how people use and access the ROW at each location. Design is intended to limit impacts to private parcels; lay-out street and sidewalk improvements to respond to existing site conditions (e.g., trees, ECAs) and constraints (e.g., topography); and deploy a communication outreach plan that includes on-site open houses and one-on-one meetings with adjacent property owners. The outreach began during preliminary design and would continue through final design to inform residents of the purpose of the Project, present the current design at each Project milestone, and offer opportunity for feedback that could meaningfully inform design.

11. Light and Glare

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

No lighting is proposed as part of the Project.

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

No lighting is proposed as part of the Project.

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

No off-site sources of light or glare would affect the proposal.

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

No lighting is proposed as part of the Project.

12. Recreation

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

At all Project sites, the existing public roadway infrastructure provides facilities for people walking and biking along existing city streets. The 120th Street, 41st Place, and Wedgwood sites are near playgrounds at the public elementary schools described below.

120th Street Site – The playground at Northgate Elementary School is south of North 120th St between Corliss Ave NE and 1st Ave NE. The playground has a play structure, turf areas, and a basketball court.

41st Street Site – The playground at John Rogers Elementary School is west of 41st Pl NE and has a play structure, turf areas, and a basketball court. John Rogers Playfield is immediately south of John Rogers Elementary School has a track and baseball diamond. A row of houses and trees separates John Rogers Playfield from 41st Pl NE.

Wedgwood Site – The playground at Wedgwood Elementary School is immediately west of 29th Ave NE and has a play structure, sports courts, and a multi-use paved area.

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

The Project would not displace existing recreational uses. Construction would temporarily disturb or detour walking and biking along existing city streets.

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

The Project would improve recreation opportunities in the neighborhood by providing new accessible sidewalks and pathways in the ROW where none currently exist. These improvements would improve access to nearby recreation opportunities. The Project contractor would be required to submit, obtain approval for, and implement a Temporary Traffic Control Plan to maintain vehicle, pedestrian, and bicycle access through or around the Project sites.

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.

23rd Avenue, Wedgwood, and 41st Place Sites: A review of the Washington Information System for Architectural and Archaeological Records Data (WISAARD) revealed no buildings, structures, or sites in or adjacent to the Project areas are listed in national or state preservation registers. A review of the City of Seattle’s landmark register revealed no buildings, structures, or sites in or adjacent to the Project areas are designated Seattle landmarks.

120th Street Site: A review of WISAARD revealed Northgate Elementary School (WISAARD property number 668734) at 11725 1st Ave NE is adjacent to this site. It has been determined eligible for listing in the National Register of Historic Places (NRHP). It was considered for, but was not approved as, a designated landmark. A new school is currently being constructed in this location and the existing building is slated for demolition by others in Fall 2023. It would not be affected by the Project.

A review of the City of Seattle’s landmark register revealed no buildings, structures, or sites in or adjacent to the Project sites are designated Seattle landmarks.

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.

There are no known landmarks, features, or other evidence of Native American or historic use or occupation, including human burials or old cemeteries. No historic-period or pre-contact material evidence, artifacts, or areas of cultural importance were identified in or adjacent to any of the Project sites. No professional studies have been conducted at these sites.

There are no recorded archaeological sites, Traditional Cultural Properties (TCPs), or cemeteries within 0.5 miles of the Project footprint at the 23rd Avenue or Wedgwood sites.

41st Place Site – An historic debris scatter (45KI01226) is recorded in WISAARD 0.3 miles east of the 41st Place site. It was determined not eligible for listing in the NRHP. No additional recorded archaeological sites, TCPs, or cemeteries are within 0.5 mile of the Project footprint at this site.

120th Street Site – Two established cemeteries are within 1,000 feet of the 120th Street site: Evergreen-Washelli Cemetery (45KI00898) at 11111 Aurora Ave N and the Bikur Cholim Cemetery (45KI00891) at 1340 N 115th St. Human remains at these locations are well documented and would not be disturbed by the Project. No additional recorded archaeological sites, TCPs, or cemeteries are within 0.5 mile of the Project footprint at this site.

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.

To determine if National Register, State of Washington Heritage, or City of Seattle Landmark properties are in or adjacent to the Project, the 5 Project sites were checked against the following registers on April 30, 2022:

- Washington Heritage Register and NRHP: <http://www.dahp.wa.gov/historic-register>
- Washington Information System for Architectural and Archaeological Records Data (WISAARD) database: <http://wisaard.dahp.wa.gov/>
- City of Seattle Landmarks Map: <http://www.seattle.gov/neighborhoods/programs-and-services/historic-preservation/landmarks/landmarks-map>

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.

The Project would not affect buildings or known cultural resources; only City of Seattle existing roadway assets and stormwater systems would be affected and none of those objects are considered historically or culturally significant. The work would disturb upland areas that have been previously disturbed and filled by construction of roadways and utilities. The work's location on previously disturbed and filled ground reduces the chance of encountering contextually significant archaeological materials. However, the Washington State Department of Archaeological and Historic Preservation's (DAHP) Landscape Predictive Model indicates Project sites are in areas with Moderate to High Risk of inadvertent discovery of archaeological resources. As a result, construction at all Project sites would be conducted under a DAHP-approved Inadvertent Discovery Plan (IDP) for cultural and archaeological materials. Should evidence of cultural artifacts or human remains, either historic or prehistoric, be encountered during ground-disturbing activities, work in that immediate area would be suspended and the find examined and documented by a professional archaeologist as per the IDP. Decisions regarding mitigation and further action, if needed, would be made at that time.

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 Project would occur entirely in existing improved City-owned street ROW. Street types vary across the 5 sites areas as follows:

23rd Avenue Site – A curb-less paved local/neighborhood street with intermittent adjacent gravel parking areas and no sidewalk. Connections and access to the existing street system would not change.

Wedgwood Site – Local neighborhood streets with intermittent adjacent gravel parking areas. Sidewalks are present along NE 88th St, 30th Ave NE, and 29th Ave NE. There are no sidewalks along NE 87th St. Connections and access to the existing street system would not change.

120th Street and 117th Street Sites – Paved local/neighborhood streets with an existing paved street that is curb-less with intermittent adjacent gravel parking areas and no sidewalks. Connections and access to the existing street system would not change.

41st Place Site – A paved local/neighborhood street. The street contains intermittent adjacent gravel or grass parking areas. Most of the street is curb-less and without sidewalks. The ROW adjacent to Korean Peace Presbyterian Church (4040 NE 105th St) contains a curb and sidewalk. Connections and access to existing streets would not change.

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?

Project sites are served by King County Metro public transit:

- **120th Street and 117th Street Sites** – Transit runs along Meridian Ave N with a stop at N 120th St 100 feet west of the site. There are no public transit stops along NE 117th St.
- **41st Place Site** – The site has no public transit service. The nearest public transit stop is approximately 0.2 mile east of the site at Sand Point Wy NE.
- **23rd Avenue Site** – Transit runs along NE Northgate Wy with a stop 135 feet east of the site.
- **Wedgwood Site** – The site has no public transit service. The nearest public transit stop is 0.3 mile east of the site at the intersection of NE 89th St and 35th Ave NE.

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

Existing parking in the street ROW at Project sites is typically ‘off-street’ (on graveled shoulders adjacent to the paved drive lanes) as opposed to ‘on-street’ due to the absence of curb and gutter. The Project’s constructed bioretention cells in the ROW would impact the current vehicle parking situation on streets at all Project sites. For example, the Project would reduce street parking in the ROW at the 23rd Avenue and Wedgwood sites. Street parking on the bioretention cell side would only be allowed on blocks with curb and gutter and on the north side of the 120th Street site to maintain parent drop-off parking associated with Northgate Elementary School. However, street parking would be available on at least one-side of the street at all sites after Project construction. At the 41st Place site (on the south end of the east side of 41st PI NE) roadway width would be expanded to allow for street parking.

SPU conducted a parking utilization study (CM Design Group 2020) to assist in understanding potential parking impacts. Based on current project design, parking space capacity in the street ROW (that is, both on-street and off-street parking) is currently 517 collectively for the 5 sites. Parking capacity in the constructed Project would be 393, a 23% reduction (124 spaces). Most block segments have off-street parking utilization less than 50% and most adjacent residential properties have their own private parking such as driveways, carports, and garages. As a result, SPU anticipates there would be no displaced parking. SPU has incorporated these proposed parking changes into its outreach activities and materials. The Project’s parking impacts are also being reviewed and addressed by SDOT during their SIP (permitting) process.

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).

Project improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities include:

- Across the NDS sites, path extensions (constructed of either concrete or crushed rock) would be added within the ROW to connect existing primary pedestrian pathways to the sidewalk or roadway.
- At the 41st Place site, the roadway would be widened, allowing for new on-street parking.
- New sidewalk sections are proposed at the 23rd Avenue, Wedgwood, 117th Street, and 120th Street sites.

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 water, rail, or air transportation.

- 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 non-passenger vehicles). What data or transportation models were used to make these estimates?**

Project construction would require approximately 7,330 roundtrips (estimated using Attachment C) due to workers and materials being transported to and from the Project location during the anticipated 280 working-day construction period. Generally, trips would occur between 7 am and 7 pm weekdays, and 9 am and 7 pm weekends and legal holidays. Specific timing of peak volumes is not known.

The completed Project is expected to generate approximately 1,750 new round trips over its anticipated 50-year life span to support the on-going emergency and routine operation, maintenance, and monitoring. Peak traffic volumes are not expected to change because of 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.**

The proposal would not affect movement of products on roads or streets.

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

During construction, the contractor would be required to deploy a traffic control plan approved by SDOT. Construction would comply with SDOT policies regarding temporary lane and sidewalk closures. SPU and SDOT would encourage the construction contractor to use carpooling for its employees.

The Project would result in new delineation of street edges, new curb and gutter or asphalt thickened edges, road width narrowing at some sites, curb bulbs, landscaped planting strips with street trees, and planted bioretention cells. These features are expected to assist in traffic calming—especially for non-local access traffic using residential streets as cut-through routes to arterials.

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 create an increased need for public services.

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

No measures proposed to reduce or control direct impacts on public services because the Project would not create an increased need for public services.

16. Utilities

- a. Check utilities available at the site:**

- | | | | | |
|-------------------------------|--------------------------------------------------------|----------------------------------------------------|-------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> None | <input checked="" type="checkbox"/> Electricity | <input checked="" type="checkbox"/> Natural gas | <input checked="" type="checkbox"/> Water | <input checked="" type="checkbox"/> Refuse service |
| | <input checked="" type="checkbox"/> Telephone | <input checked="" type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Septic system | |
| | <input checked="" type="checkbox"/> Other: fiber optic | | | |

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.

The Project is expected to enhance the life and serviceability of critical public drainage assets and would continue to be owned, operated, and maintained by SPU. Construction would relocate/install these utilities:

- Several water services and water meter boxes along 23rd Ave NE due to conflicts with bioretention cells and other proposed drainage features
- A water service and water meter box on the west side of 30th Ave NE due to conflicts with a bioretention cell and two water meter boxes on N 120th St due to conflicts with the new sidewalk
- Approximately 330 linear feet of 8-inch diameter water main along 23rd Ave NE between NE 105th St and NE 104th St along the east edge of the roadway, primarily within the pavement width of the proposed sidewalk addition. Additionally, 4 hydrants along 23rd Ave NE would be replaced with new type 311 hydrants and two new type 311 hydrants would also be installed.
- Approximately 390 linear feet of 8-inch diameter water main and associated services along NE 103rd St east of 23rd Ave NE. Additionally, one new type 311 hydrant would be installed along NE 103rd St.
- Franchise utilities in the ROW conflict with proposed public improvements such as drainage, bioretention cells, and landscape/furnishings and would be relocated (and designed) by the franchisee.
- Approximately 190 feet of 2-inch diameter gas main and associated services along 23rd Ave NE and 100 feet of 2-inch diameter gas main and 1 associated service at the Wedgwood Site would be relocated by PSE.

During Project construction, utility services could be interrupted for brief periods to construct these relocations. SPU, PSE, and utility franchisees would notify affected residents and businesses by issuing Service Disruption Notices, usually in the form of door hangers, at least 48 hours before those outages occur.

Inadvertent damage to underground utilities could occur during construction. While such incidents do not occur frequently, they could temporarily affect services to customers served by the affected utility while emergency repairs are made. In addition, some residents may need to place their curbside garbage and recycling containers in front of an adjacent neighbor's house (or other alternative location) on garbage pick-up days. No other interruptions to regular utility services are expected during construction.

C. SIGNATURE

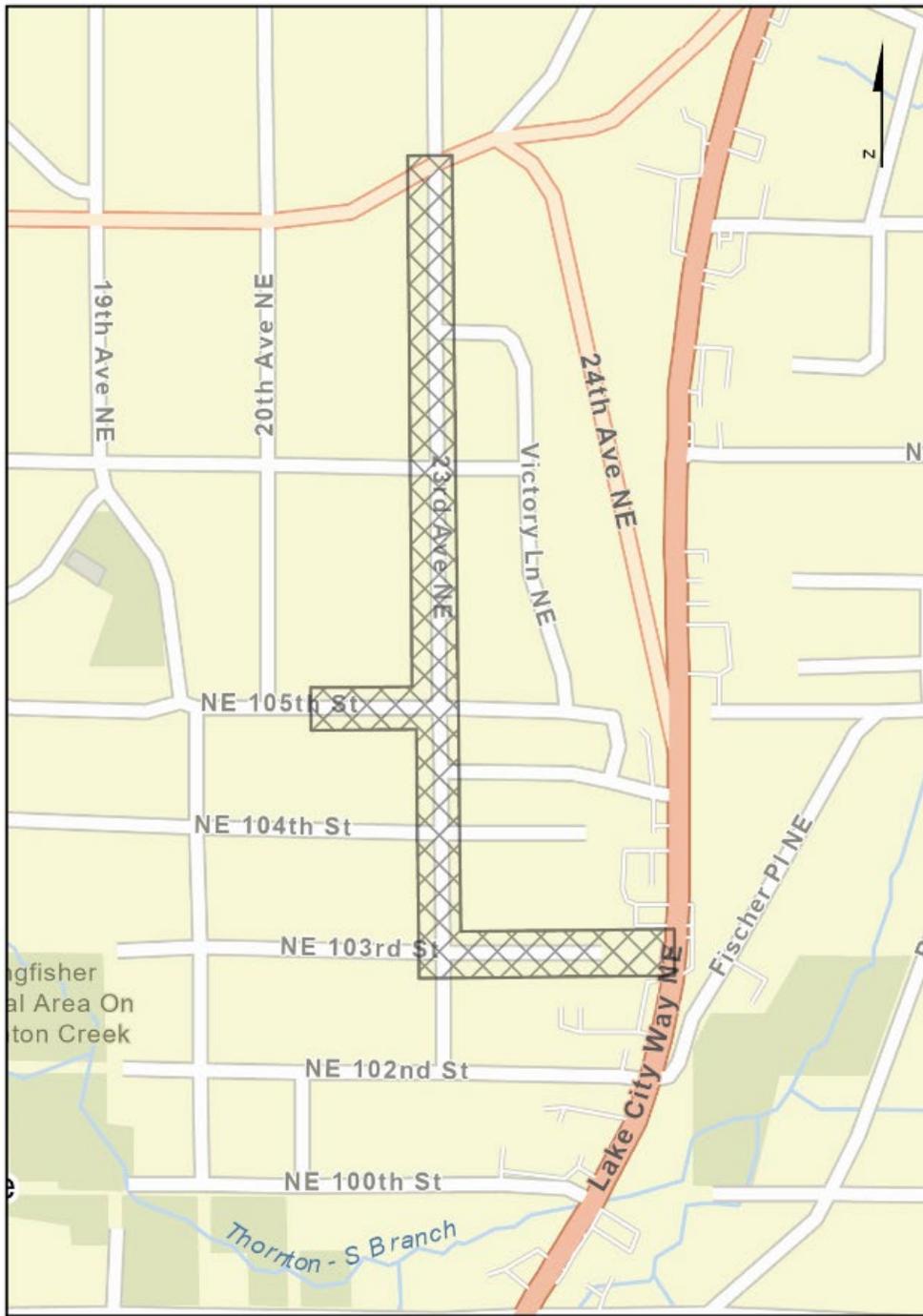
The above answers are true and complete to the best of my knowledge. I understand the lead agency is relying on them to make its decision.

Signature: _____
Arnel Valmonte, Project Manager

Attachments:

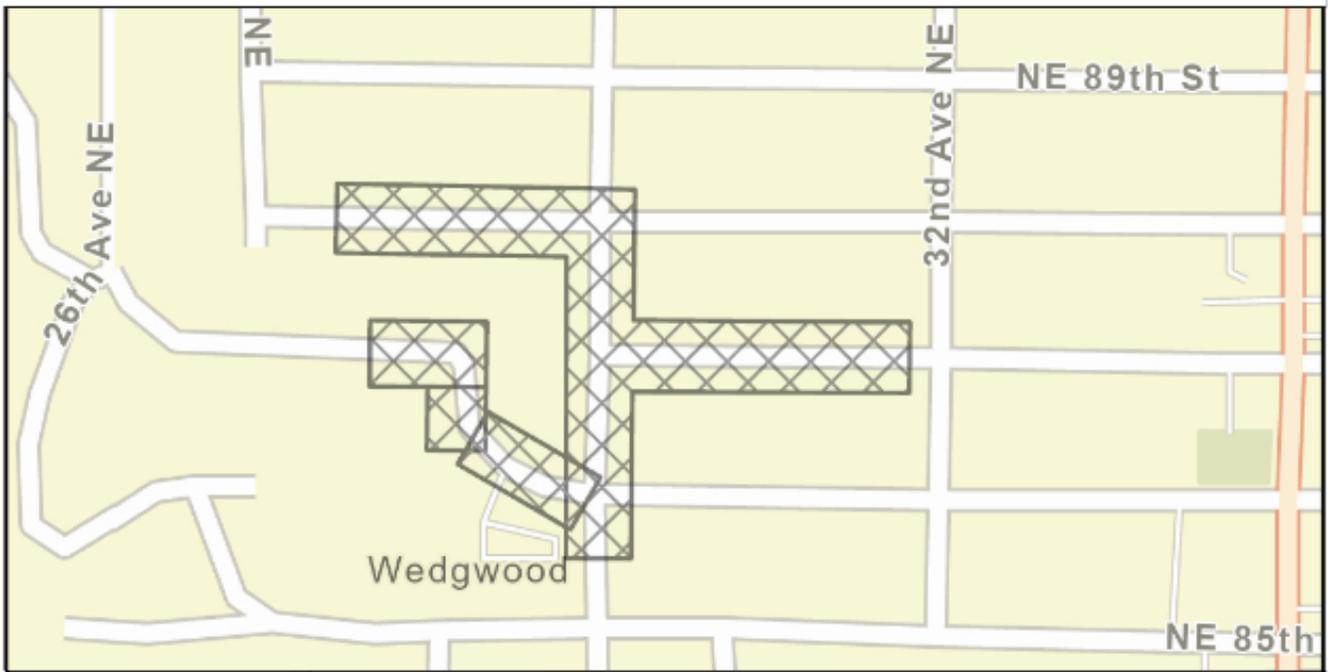
- A Vicinity Map
- B Site Maps
- C Greenhouse Gas Emissions Worksheet

Attachment B – Site Maps



 Project Extents

Thornton Natural Drainage System
23rd Ave NE
Jacobs



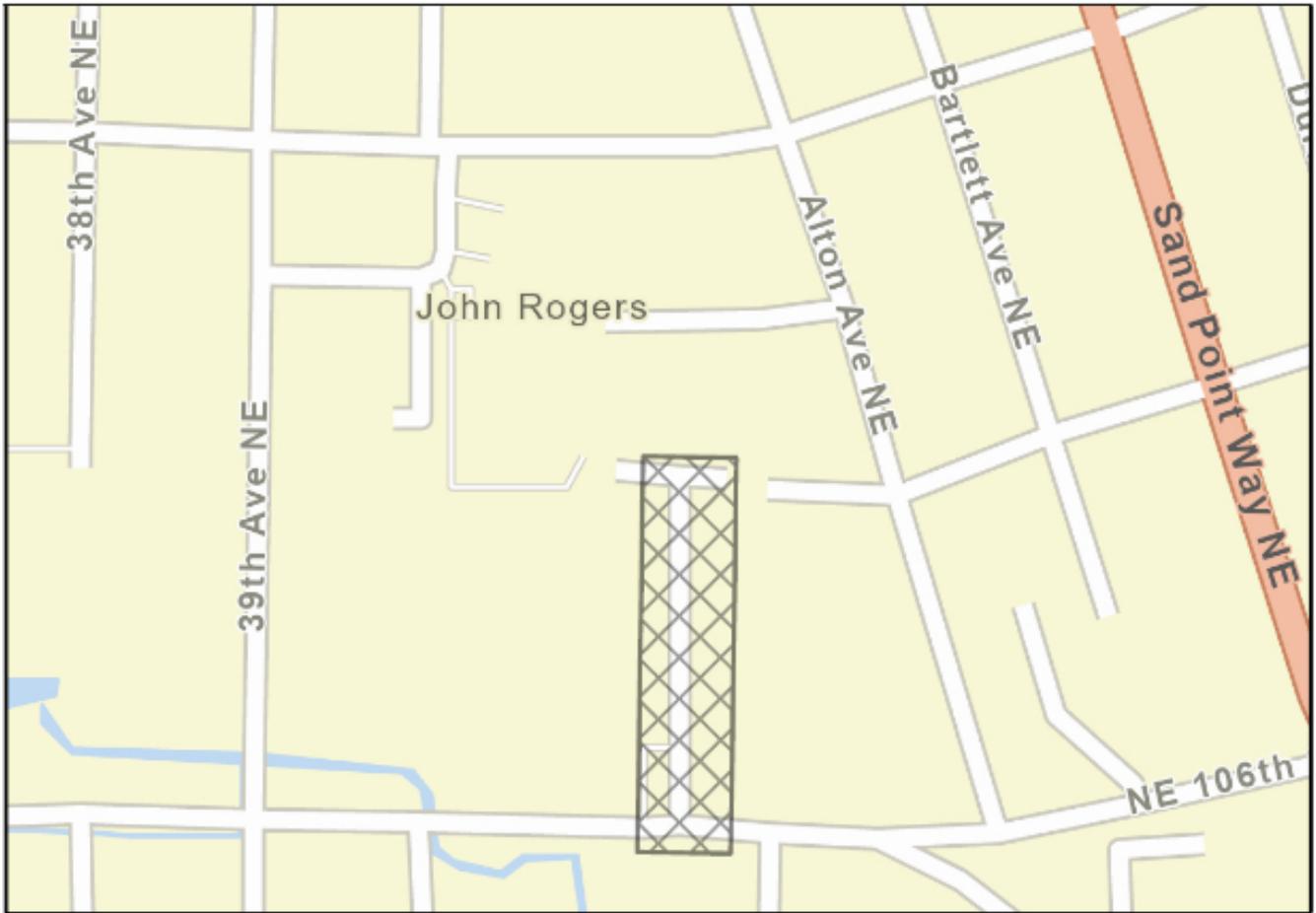
 Project Extents

Thornton Natural Drainage System
Wedgwood
Jacobs



 Project Extents

Thornton Natural Drainage System
N 120th St
Jacobs



 Project Extents

Thornton Natural Drainage System
41st PL NE
Jacobs



 Project Extents

Thornton Natural Drainage System
N 117th St
Jacobs

Attachment C – Greenhouse Gas Emissions Worksheet

Section I: Buildings						
Type (Residential) or Principal Activity (Commercial)	No. of Units	Square Feet (thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO ₂ e)			Lifespan Emissions (MTCO ₂ e)
			Embodied	Energy	Transportation	
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 (MTCO ₂ e)
Asphalt Pavement (50 MTCO ₂ /1000 sq ft)		97,100 SF				4,855
Concrete Pad (50 MTCO ₂ e/1,000 sq ft of pavement at a depth of 6 inches; cy *2.7 to convert to MTCO ₂ e)		400 cy				1,080
TOTAL Section II Pavement						5,935

Section III: Construction						
(See detailed calculations below)						Emissions (MTCO ₂ e)
TOTAL Section III Construction						1,434

Section IV: Operations and Maintenance						
(See detailed calculations below)						Emissions (MTCO ₂ e)
TOTAL Section IV Operations and Maintenance						150

TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT (MTCO₂e)						7,519
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Attachment C – Greenhouse Gas Emissions Worksheet, continued

Section III: Construction Details		
Construction: Diesel		
Equipment	Diesel (gallons)	Assumptions
Backhoe/Excavator x 2	52,000	2600 hrs x 20 gal/hr (345 hp engine)
Front-end Loader x 2	28,000	1400 hrs x 20 gal/hr (345 hp engine)
Vibratory Roller	640	800 hrs x 0.8 gal/hr (185 hp engine)
Asphalt Paver	1,620	360 hrs x 4.5 gal/hr (80 hp engine)
Asphalt Truck	2,450	350 hrs x 7 gal/hr (345 hp engine)
Flat-bed Truck	9,000	600 round trips x 75 mi/round trip ÷ 5 mpg
Dump Truck and Pup (17 cubic yard/load)	13,080	1,090 round trips x 60 mi/round trip ÷ 5 mpg
Concrete truck (10 cubic yard capacity)	320	40 round trips x 40 mi/round trip ÷ 5 mpg
Street Sweeper	960	1200 hrs x 0.8 gal/hr (185 hp engine)
Subtotal Diesel Gallons	108,070	
GHG Emissions in lbs CO₂e	2,869,259	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	1,301	1,000 lbs = 0.45359237 metric tons

Construction: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Pick-up Trucks or Crew Vans	11,200	280 workdays x 20 trucks x 1 round-trip/day x 40 miles/round-trip ÷ 20 mpg
Misc. Hand equipment	840	280 workdays x 2 hours x 5 pieces of equipment x 0.3 gal/hour
Subtotal Gasoline Gallons	12,040	
GHG Emissions in lbs CO₂e	292,572	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	133	1,000 lbs = 0.45359237 metric tons

Construction Summary		
Activity	CO₂e (pounds)	CO₂e (metric tons)
Diesel	2,869,259	1,301
Gasoline	292,572	133
Total for Construction	3,161,831	1,434

Attachment C – Greenhouse Gas Emissions Worksheet, continued

Section IV: Long-Term Operations and Maintenance Details		
Operations and Maintenance: Diesel		
Equipment	Diesel (gallons)	Assumptions
Emergency Maintenance	1,000	(1x/site/yr for 50 years) x (5 sites) x 1 round-trip/event x 20 miles/round-trip ÷ 5 mpg
Regular Maintenance and Operation	3,000	(3x per site annually for 50 years) x 5 sites x 1 round-trip/event x 20 miles/round-trip ÷ 5 mpg
Backhoe/Excavator x 2	4,000	200 hrs x 20 gal/hr (345 hp engine) to replace (biofiltration soil mix) BSM @ Year 25
Flat-bed Truck	750	50 round trips x 75 mi/round trip ÷ 5 mpg to replace BSM @ Year 25
Dump Truck and Pup (17 cubic yard/load)	900	75 round trips x 60 mi/round trip ÷ 5 mpg to replace BSM @ Year 25
Subtotal Diesel Gallons	9,650	
GHG Emissions in lbs CO₂e	256,208	26.55 lbs CO ₂ e per gallon of diesel
GHG Emissions in metric tons CO₂e	116	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance: Gasoline		
Equipment	Gasoline (gallons)	Assumptions
Pick-up Trucks or Crew Vans	3,080	(3x per site annually for 50 years + 4x per site 1x @ Year 25 to replace BSM) x 5 sites x 1 round-trip/event x 20 miles/round-trip ÷ 5 mpg
Subtotal Gasoline Gallons	3,080	
GHG Emissions in lbs CO₂e	74,844	24.3 lbs CO ₂ e per gallon of gasoline
GHG Emissions in metric tons CO₂e	34	1,000 lbs = 0.45359237 metric tons

Operations and Maintenance Summary		
Activity	CO ₂ e (pounds)	CO ₂ e (metric tons)
Diesel	256,208	116
Gasoline	74,844	34
Total for Operations and Maintenance	331,052	150