

**SEATTLE PUBLIC UTILITIES
SEPA ENVIRONMENTAL CHECKLIST**

A. BACKGROUND

A1. Name of proposed project:

Capitol Hill Water Quality Improvement Project, also known as Swale on Yale.

A2. Name of applicant:

Seattle Public Utilities (SPU)

A3. Address and phone number of applicant and contact person:

Jason Sharpley, Project Manager
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PO Box 34018
Seattle, WA 98124-4018
206-615-0030

A4. Date checklist prepared:

May 25, 2011

A5. Agency requesting checklist:

Seattle Public Utilities (SPU)

A6. Proposed timing or schedule (including phasing, if applicable):

The project would be constructed in phases, as follows:

- In 2011 and 2012: installation of new drainage pipes and maintenance holes, in the 100 block to 400 block of Yale Avenue North, in the 300 and 400 blocks of Pontius Avenue North, and in Thomas St, Harrison St, and Republican St between Yale Avenue North and Pontius Avenue North; installation of a pretreatment vault and swirl concentrator in the 100 block of Yale Avenue North; relocation of a water main and replacement of a sewer in the 100 block of Yale Avenue North; relocation of a water main in Pontius Avenue North (300 and 400 blocks); and relocation of a gas main in the 400 block of Yale Avenue North.
- In 2012 and 2013: construction of the north pair of swales in the 400 block of Yale Avenue North and Pontius Avenue North.
- By the end of 2013: paving adjacent to the north pair of swales and on the 100 block and 200 block of Yale Avenue North.
- Between 2015 and 2018 (estimate): construction of the south pair of swales in the 300 block of Yale Avenue North and Pontius Avenue North.
- By the end of 2018 (estimated): paving adjacent to the south pair of swales.

- A7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

Seattle Public Utilities currently has no plans for future additions or expansions related to the proposed project.

- A8. List any environmental information you know about that has been prepared, or would be prepared, directly related to this proposal.**

SPU Materials Laboratory. January 2008. Geotechnical report, Capitol Hill Water Quality Improvement Project, Seattle, Washington. This report describes results of the environmental investigation of contaminated soil and groundwater conducted for this project. Adjacent private properties have also conducted investigations into hazardous materials contamination. Those documents include:

Thermo Retec Consulting Corporation. 2000. Environmental assessment report for the Tomlinson North Property.

Terra Associates. 1994. Environmental sampling summary, Tomlinson Block, 1265 Republican Street.

- A9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

A private developer is currently applying for government approvals for proposed redevelopment of the 400 block between Yale Avenue North and Pontius Avenue North. SPU and the private developer have worked together to prepare a coordinated design for portions of the right-of-way (swales, sidewalks, and roadway) along the 400 block of Yale Avenue North and Pontius Avenue North adjacent to this redevelopment activity.

- A10. List any government approvals or permits that would be needed for your proposal, if known.**

- City of Seattle, Department of Transportation, Street Improvement Permit (type 45, commercial or multi-use construction)
- City of Seattle, Department of Transportation, Street Use Permit (type 31, construction use)
- Washington State Department of Ecology, NDPES Construction Stormwater General Permit.

- A11. 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. (Lead agencies may modify this form to include additional specific information on project description.)**

The Capitol Hill Water Quality Project is a proposed water quality treatment project that incorporates a series of flow-through biofiltration swales in improved street rights-of-way adjacent to and coordinated with two City blocks of private redevelopment. The project would divert and treat a portion of the stormwater from an existing storm drain pipe that drains a sub-basin of more than 435 acres of Capitol Hill. Treated water would be returned

to the existing storm drain pipe further downstream, at a location where the pipe conveys non-diverted flows from the 435-acre sub-basin as well as untreated stormwater from the remainder of the 600-acre Capitol Hill drainage basin. The mixture of treated and untreated stormwater subsequently would discharge to Lake Union through the existing outfall at the north end of Minor Avenue North. Attachment A shows the project location, the location of the 600-acre Capitol Hill drainage basin, and the location of the 435-acre sub-basin (i.e., the source of the stormwater that would be treated by the proposed project).

More specifically, the project would install a new in-line diversion structure and in-line preliminary treatment (swirl concentrator) system. The diversion structure directs initial stormwater runoff flows toward the pretreatment system and then to the swales. The pretreatment swirl concentrator would remove heavier sediments and floatable debris from the stormwater before it enters the treatment swales. After passing through the swirl concentrator, flows would be conveyed to the intersection of Thomas Street and Yale Avenue North where they would be split and directed to one of four biofiltration swales. At each control point in the project, including the initial diversion structure and the flow splitters, any excess flows would be returned to the storm drain pipe.

The biofiltration swales would affect improved public street right-of-way surrounding two full City blocks bounded by the 1200 block of Republican Street to the north, the 1200 block of Thomas Street to the south, the 300 and 400 blocks of Yale Avenue North to the east, and the 300 and 400 blocks of Pontius Avenue North to the west (and including the 1200 block of Harrison Street) (Attachment B).

The swales would be located in an extra-wide planting area between the sidewalk and the roadway. Each swale would have dense vegetation to provide treatment-by-contact with the vegetation and to slow the flows to allow suspended sediments to settle out of the water. The swale design uses retaining walls (instead of gradual slopes) so the swales fit within a relatively compact cross-section of the right-of-way, reducing width of the overall system and minimizing impacts to adjacent streets. Seattle Department of Transportation (SDOT) has been consulted for the conceptual design and the design will be formally approved as part of the Street Improvement Permit process. Each swale would have slopes that allow a hydraulic residence time of no less than nine minutes, which is the minimum time required for removal of suspended solids (meeting water quality requirements in the Washington State Department of Ecology's 2005 Stormwater Management Manual for Western Washington).

Flows would be conveyed to each of the four swales through flow splitters and shallow pipe systems. At the upstream end of each swale, flows would "swell up" through a trench drain that initially spreads the water out across the width of the swale. (The "swell up" effect is caused by hydraulic head within the conveyance system.) Upon exiting the trench drain, flows would follow a laminar path through the plantings for pollutant/sediment removal. Approximately every 50 feet, flows would need to pass over a level, swale-wide concrete weir to ensure flows remain spread over the width of the swale and do not short-circuit the treatment pathway. The swales would contain up to 4-inches of flowing water during storm events and would be designed to drain within 24-hours after precipitation stops.

The bottom of the swales would be lined with an impervious clay liner to prevent water from infiltrating into the ground adjacent to the proposed developments. Underdrains placed in gravel above the liner would capture and convey water passing through the soil media. At the downstream end of each swale, treated flows would reach another trench

drain and would be conveyed back into the existing storm drain for discharge into Lake Union. Each of the swales will be densely planted with wetland-like grasses, sedges or rushes. The swale vegetation will be low growing.

In addition to the installation of these vegetated swales and the associated stormwater pipes, flow splitters, and other appurtenances described above, project elements would also include construction of new curbs and sidewalks, roadway restoration (removal of the top layer of asphalt and replacement with a new wearing surface of approximately 2-inches of asphalt, also known as grind and overlay), and relocation of water, gas and sewer utilities, as needed. New sidewalks and curbs would be constructed for those disturbed portions of the 100 block and 200 block of Yale Avenue North and for the entire disturbed frontage of the 300 block and 400 block of Yale Avenue North and Pontius Avenue North. The roadway restoration for the project, as directed by SDOT via the Street Improvement Permit, includes permanent pavement patching of utility installations and a final resurfacing via grind and overlay of the impacted roadway portions. Construction will be coordinated with the adjacent private development to minimize community impacts and increase efficiency.

- A12. 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 site is located in improved public street rights-of-way in the Cascade neighborhood in the South Lake Union area of the City of Seattle (zip code 98109). The project location includes the right-of-way for Yale Avenue North between Stewart Street and Thomas Street and all street rights-of-way bounded by Republican Street to the north, Thomas Street to the south, Yale Avenue North to the east, and Pontius Avenue North to the west (Attachment B). There is no street address for this project. The project location is in the southwest quarter of Section 29, Township 25N, Range 4E and within the Lake Washington Water Resource Inventory Area (WRIA 8).

B. ENVIRONMENTAL ELEMENTS

B1. Earth

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

Flat Rolling Hilly Steep Slopes Mountainous
 Other: (identify)

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

The project site is located on flat to slightly sloping terrain. Elevation change across the project site from Stewart Street to Republican Street is approximately 24 feet (less than 5 percent).

- 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 prime farmland.**

Review of geologic maps indicates the project location is underlain by Olympia-aged and younger glacial deposits. However, urban development in this area over the last 100 years has resulted in a predominance of disturbed native soils/sediments and placements of large areas of controlled density (engineered) fill (CDF). The entire project location and immediately surrounding area have been completely developed and disturbed in this way. Portions of the project location and adjacent area are known to contain contaminated soil and groundwater (as further described in Section B7).

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

The project location is flat to slightly sloping. There are no surface features (such as head scarps, hummocky terrain, seepage along steep slope surfaces, bulging at the bases of slopes and/or evidence of permeable strata over relatively impermeable strata) that indicate past or possible future slide activity.

- e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of fill.**

Construction of the new 12-inch and 18-inch stormwater pipes, diversion structure, and pretreatment swirl concentrator would require the excavation of approximately 5,300 cubic yards of soil and backfilling with approximately 5,200 cubic yards of fill material. Construction of the four swales would require excavation of approximately 6,500 cubic yards of soil. All exported excavated material would be disposed of at an approved upland location or used as fill material (if suitable) at sites approved (permitted for) filling and grading. The project would place up to 1,000 cubic yards of amended soil and/or mulch to provide suitable conditions for planting in the swales. The soil, soil amendments, mulch, and amended soil would be provided by a State-licensed purveyor of such products.

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

No significant erosion is anticipated during or as a result of the proposed work. A temporary erosion and sedimentation control plan would be prepared and implemented. The swales would be landscaped and the completed project maintained and monitored by SPU to prevent future erosion.

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

The proposed project would demolish approximately 71,700 square feet of currently existing impervious surface and replace it with approximately 58,200 square feet of impervious surface. No currently pervious surfaces would be replaced with new impervious surfaces. While the project would result in a net addition of approximately 14,000 square feet of green space (4 swales each approximately 280 feet long and approximately 11 or 17 feet wide) in rights-of-way, that green space will reduce peak runoff rates, but will not reduce total runoff volume due to the clay liners and underdrains.

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

A temporary erosion and sedimentation control plan would be prepared and implemented. Best Management Practices (BMPs) as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual would be used to manage stormwater runoff, construction disturbance, and erosion as needed during construction.

During construction, impacts to air quality would be reduced and controlled through implementation of standard federal, state, and local emission control criteria and City of Seattle construction practices. These may include:

- spraying the demolition area and excavation with water for dust control
- reducing exhaust emissions by minimizing vehicle and equipment idling and keeping vehicles and equipment in properly maintained conditions, and
- Requiring contractors to use best available controls and appropriate standard operating procedures (SOPs) and best management practices (BMPs) for construction as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual.

B2. 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 and when the project is completed? If any, generally describe and give approximate quantities if known.

Mobile and stationary equipment would be used to construct, operate, and maintain the proposed project, thus generating emissions due to the combustion of gasoline and diesel fuels (such as oxides of nitrogen, carbon monoxide, particulate matter and smoke, uncombusted hydrocarbons, hydrogen sulfide, carbon dioxide, and water vapor). Emissions during construction would also include normal amounts of dust from grading activities and exhaust (that is, carbon monoxide, sulfur, and particulates) from construction equipment and are expected to be minimal, localized, and temporary.

This project would also generate greenhouse gas (GHG) emissions in three ways: pipe/concrete/asphalt usage (embodied), construction activity, and operation and maintenance activity. Total GHG emissions for the project are estimated to be 5,065 metric tons of carbon dioxide emission (MTCO_{2e}). The GHG emission calculations are shown in Attachment C. One metric ton is equal to 2,205 pounds.

The project would replace demolished and damaged concrete and asphalt surfaces/structures. The total square footage replacement concrete/asphalt is estimated to be 58,200 square feet and is estimated to embody 2,910 MTCO_{2e}.

This project would generate GHG emissions during the estimated 425 total workday construction period through the operation of diesel- and gasoline-powered equipment and to transport materials, equipment, and workers to and from the site. Because

project construction methods were not completely known at the time this checklist was prepared, the estimates provided here are based on daily vehicle operation times for the estimated project duration (425 working days for all project phases); actual times may be less. Construction activities would generate an estimated 1,370 MTCO_{2e}.

The project would also generate GHG emissions through the operation, monitoring, maintenance, and renovation of the project over its estimated 50 year lifespan. For purposes of estimating GHG emissions from this project, the project is estimated to generate a total of 15 vehicle round-trips annually for operation, maintenance, and monitoring. For purposes of estimating GHG emissions from this project, the swales are estimated to be substantially renovated by excavating swale vegetation and accumulated sediments every 10 years. The estimated average annual GHG emissions generated from operation, maintenance, monitoring, and renovation is 785 MTCO_{2e}.

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

Private property located in the 400 blocks of Yale Avenue North and Pontius Avenue North has soil contaminated with hydrocarbons and dry cleaning solvents (primarily tetrachloroethylene). During the developer's excavation of the site, some odors may occur temporarily with the unearthing of some of these contaminants until they are removed from the site for treatment and disposal. However, those odors are not expected to affect this proposal.

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

The Puget Sound Clean Air Agency (PSCAA) is responsible for enforcing federal, state, and local air pollution standards and governing air pollutant emissions from new sources in King, Snohomish, Pierce, and Kitsap Counties. As required by the PSCAA regulations, emissions would be controlled by using reasonably available control technologies (PSCAA 2008) and City of Seattle SOPs and BMPs, as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual, for construction.

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

B3. 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 or water body it flows into.**

There are no surface water bodies on or near this project location. Lake Union is more than 1,600 feet north of the project location.

- (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.**

There are no surface water bodies on or near this project location. Lake Union is more than 1,600 feet north of the project location.

- (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.**

There are no surface water bodies or wetlands on or near this project location. Lake Union is more than 1,600 feet north of the project location.

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

This project would not require surface water withdrawals or diversions.

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

No portion of the project lies within the 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.**

The project would not produce or discharge waste materials to surface waters.

b. Ground:

- (1) Will ground water be withdrawn, or would water be discharged to ground water? If so, give general description, purpose, and approximate quantities if known.**

No groundwater would be withdrawn, discharged, or surcharged as a result of this project.

- (2) Describe waste material that would be discharged into the ground from septic tanks or other sources, if any (e.g., domestic sewage; industrial, containing the following chemicals...; agricultural, etc.). Describe the general size 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 material would be discharged to ground water for this project. The swales will be lined with an impervious material (such as bentonite clay) and underdrains to prevent stormwater from infiltrating into the underlying soil and associated groundwater.

Portions of the project location and adjacent area are known to contain contaminated soil and groundwater (as further described in Section B7).

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 would this water flow? Would this water flow into other waters? If so, describe.**

The proposed project would not create a need to manage additional stormwater runoff beyond previously existing conditions. Stormwater runoff may need to be managed during construction to prevent sediment from entering and leaving the construction site. Barriers such as sand bags would be used to prevent runoff from entering the construction zone. Runoff from adjacent streets would follow current pathways to the storm drain system and eventually discharge to Lake Union 1600 feet north of the project location. Any stormwater that lands on the construction site would be contained on-site and allowed to infiltrate. Once construction is complete, temporary erosion control measures would be removed and stormwater flows would follow their pre-construction pathways.

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

There would be no waste materials from this project that could enter ground or surface waters.

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

No adverse impacts to surface, ground, or runoff water are anticipated. BMPs, as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual, would be used to control erosion and sediment transport from and to the project site during construction. The primary purpose of the project is to improve water quality in Lake Union by removing sediment and contaminants from stormwater.

B4. Plants

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

<input checked="" type="checkbox"/> Deciduous trees: (street tree)	<input type="checkbox"/> Alder	<input type="checkbox"/> Maple	<input type="checkbox"/> Aspen	<input checked="" type="checkbox"/> Other: tulip-tree
<input type="checkbox"/> Evergreen trees:	<input type="checkbox"/> Fir	<input type="checkbox"/> Cedar	<input type="checkbox"/> Pine	<input type="checkbox"/> Other: (identify)
<input type="checkbox"/> Shrubs				
<input type="checkbox"/> Grass				
<input type="checkbox"/> Pasture				
<input type="checkbox"/> Crop or grain				
<input type="checkbox"/> Wet soil plants: cabbage	<input type="checkbox"/> Cattail	<input type="checkbox"/> Buttercup	<input type="checkbox"/> Bulrush	<input type="checkbox"/> Skunk
	<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:				

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

Scattered street trees have been planted in portions of the improved street right-of-way. Construction of the biofiltration swales would remove at least 1 street tree, a tulip tree (*Liriodendron tulipifera*) approximately 8 inches in diameter at breast height.

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

The project location is essentially completely paved. There is no habitat for threatened or endangered plants. No federally-listed endangered or threatened plant species or State-listed sensitive plant species are known to occur within the municipal limits of the City of Seattle. A rare plant botanist (C. Antieau, SPU, pers. comm.) surveyed the project location on March 11, 2011 and detected no evidence of threatened or endangered plants or suitable habitat for those species.

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

The project would limit plant removal and pruning to that required for project construction and would install approximately 14,000 square feet of landscaping in the bottom of the swales. This vegetation is used to provide treatment for stormwater flows and also provide green space not currently present. Mitigation for removal of street trees would be determined in cooperation with SDOT as part of that Department's issuance of a Street Improvement Permit for this project.

B5. Animals

a. Birds and 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 type="checkbox"/> Heron	<input checked="" type="checkbox"/> Eagle	<input checked="" type="checkbox"/> Songbirds
	<input checked="" type="checkbox"/> Other: crow, pigeon			
Mammals:	<input type="checkbox"/> Deer	<input type="checkbox"/> Bear	<input type="checkbox"/> Elk	<input type="checkbox"/> Beaver
	<input checked="" type="checkbox"/> Other: rat, possum			
Fish:	<input type="checkbox"/> Bass	<input type="checkbox"/> Salmon	<input type="checkbox"/> Trout	<input type="checkbox"/> Herring
	<input type="checkbox"/> Shellfish	<input type="checkbox"/> Other:		

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

The project site is approximately 1600 feet south of Lake Union. Endangered Species Act listed species for Puget Sound (PS) are Chinook salmon (*Oncorhynchus tshawytscha*, Threatened PS), steelhead (*O. mykiss*, Threatened PS), and bull trout (*Salvelinus confluentus*, Threatened, PS). Because the project is not proposing any "in water" work, and will be removing sediment and contaminants from stormwater that flows into Lake Union, the project is expected to have no adverse effect on any fish or shellfish species.

The Washington Department of Fish and Wildlife Habitat and Species map (March 2008) for the project area indicates Lake Union includes "Priority Anadromous Fish Presence" and "Priority Resident Fish Presence." These fish are described above. The site is known to be (but not mapped as being) within the habitat of bald eagle (*Haliaeetus leucocephalus*), a priority species in Washington. There are no known nests in the vicinity of the project.

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

Seattle is within the migratory route of many bird and other animal species. The project site is 1600 feet south of Lake Union, an important migration route for many animal species.

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

This project would use BMPs, SOPs, and conservation measures, as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual, to generally protect fish and wildlife. For example, equipment to be used for construction activity would be cleaned and inspected before it arrives at the project site to avoid and minimize the potential for fuel or lubricant leaks. The completed biofiltration swale project would be landscaped and provide an increase in local green space and wildlife habitat.

B6 Energy and Natural Resources

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

The completed project would not require any supplementary energy to operate because it would rely on gravity-driven stormwater flows. Monitoring equipment used to conduct performance monitoring of the completed project would use small amounts of electricity. An estimated 109,880 gallons of diesel fuel and 4,250 gallons of gasoline would be required by vehicles used to construct the project. An estimated 63,600 gallons of diesel fuel and 1,750 gallons of gasoline would be required by the vehicles used to operate and maintain the constructed project, including renovation every 10 years for the 50 year lifespan of the project.

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

The proposed project does not involve building structures or planting 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:

There are no conservation features or proposed measures to reduce or control energy impacts.

B7. 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:

Materials likely to be present during construction, operation, and maintenance would include gasoline and diesel fuels, hydraulic fluids, oils, lubricants, and other chemical products. A spill of one of these chemicals could potentially occur during construction, operation, and/or maintenance as a result of either equipment failure or worker error.

The site is located in an area where soil and groundwater contamination has been encountered, and where some remediation related to relatively new construction on adjacent private property has been conducted. There is a potential hazard to the

construction crews. Contaminants include petroleum hydrocarbons, volatile and semi-volatile organic compounds including vinyl chloride, acetone, carbon disulfide, trans-2,2 dichloroethane, cis-2,2 dichloroethane, 2-butane, and xylene (these are primarily related to historic laundry operations in the neighborhood), and metals. Subgrades in street rights-of-way have been generally left intact since initial construction. The geotechnical investigation conducted specifically for this project detected acetone as well as select primary pollutant metals at concentrations above reportable limits, including arsenic, beryllium, chromium, copper, lead nickel and zinc. Contaminated soils, sediments, and/or groundwater could be exposed during excavation. If disturbed, contaminated substances could expose construction workers and other individuals through blowing dust, stormwater runoff, and/or vapors.

The proposed project would provide water quality treatment for urban stormwater runoff. Contaminants found in runoff are expected to accumulate in the swale soils. While those contaminants or their concentrations are not expected to be significant environmental health hazards, the swale design incorporates features to discourage public access into the swales (such as retaining walls and warning signage).

The completed swales could also attract mosquitoes that can carry West Nile virus. However, the swales would be designed and constructed to minimize that hazard in several ways. During storm events, the swales would contain flowing water, which does not support mosquito breeding. After storm events, the swales would typically drain within 24 hours, substantially shorter than the 5 days required for mosquito larvae development. The swales would drain in two ways: gravity flow to the downstream end, and soil infiltration to underdrains located approximately 2 feet below the swale soil surface.

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

No special emergency services would be required as part of this proposal, either during construction or once the project is completed. Typical emergency services required for medical emergencies would be provided by the Seattle Fire Department. Typical security services would be provided by the Seattle Police Department.

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

A Spill Control Plan would be developed to control and manage spills during construction. Any soils contaminated by spills would be excavated and disposed of in a manner consistent with the level of contamination, in accordance with federal, state and local regulatory requirements, by a qualified contractor(s) and/or City staff. During construction, SPU or its Contractor would use SOPS and BMPs, as identified in the City of Seattle's Stormwater Code SMC 22.800 – 22.808, Director's Rule: 2009-004 SPU/16-2009 DPD, and Volume 2 Construction Stormwater Control Technical Requirements Manual, to reduce or control environmental health hazards. Equipment would be inspected for leaking hoses, mechanical joints, and hydraulic pistons. Temporary control measures for both erosion and hazardous material spills would be installed to minimize access pathways to Lake Union in the event of a spill or leak. Hazardous material spill response materials would be available on the construction site for the duration of the construction work.

As required by the Washington Department of Labor and Industries (WAC 296-843), a Health and Safety Plan would be prepared by SPU or SPU's contractor before work commences. The plan would address proper employee training, use of protective equipment, contingency planning, and secondary containment of hazardous material. It would identify measures to ensure construction worker safety, outline emergency medical procedures, and reporting requirements.

The proposed project would mitigate the accumulation of contaminants from urban stormwater runoff by periodically renovating the swales. Approximately every 10 to 20 years, based on monitoring of the swales, the swale vegetation and soils would be excavated and disposed of in a landfill licensed to receive such waste. The excavated soil and vegetation would then be replaced with new soil and plants. Also, the swale design incorporates features to discourage public access into the swales (such as retaining walls and warning signage).

Public health and safety measures would include not allowing public access to the construction site. Measures to reduce or eliminate mosquito breeding habitat are described in Section B7.a.

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 [Seattle Municipal Code (SMC) Chapter 25.08].

Within the allowable maximum levels, SMC 25.08 permits noise from construction equipment between the hours of 7 am and 10 pm weekdays, and 9 am and 10 pm weekends and legal holidays. While the standard quitting time for noisy construction under SMC 25.08 is 10 pm, recent changes establish an earlier quitting time (7 pm) for noisy construction work in the lowrise, midrise, highrise, and neighborhood commercial zones. For this project, construction typically would take place between 7 am to 6 pm on weekdays, except for emergencies that may occur before or after those times. There would be no additional noise after completion of the project except for periodic inspection, maintenance, and renovation activity.

- (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 (which prescribes limits to noise and construction activities) would be enforced while the project is being constructed and during operations, except for emergencies.

B8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The proposed project is located in improved public rights-of-way used for vehicle and pedestrian travel, and parking. Adjacent property uses include:

- Cascade Park, a City of Seattle public park with lawns, playground, and community garden
- Parking lots and parking garages
- Retail establishments, including Recreational Equipment, Inc. (REI); restaurants; and a market
- Apartments and condominiums
- Office buildings
- Warehouses
- Houses of worship

b. Has the site been used for agriculture? If so, describe.

The site has not been used for agricultural purposes for at least 80 years.

c. Describe any structures on the site.

The only aboveground structures in the rights-of-way at the project location include light poles, street signs, and other traffic and pedestrian-related appurtenances.

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

There are no building structures within the right-of-way where the project is located. No building structures will be demolished. All removed, demolished, or damaged street pavement (except where replaced by swales), curbs, sidewalks, light poles, signage, and related appurtenances will be replaced by the project.

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

The entire project location is currently zoned Seattle Mixed (SM 55/75, SM 75, and SM 125), a zone that provides for a wide range of uses to encourage development of mixed-use neighborhoods. The project is also located within the designated South Lake Union Urban Center.

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

The current comprehensive plan designation of the site is Urban/Commercial Mixed Use. The project is located within the designated South Lake Union Urban Center.

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

The project location does not have Shorelines of the State.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

The City of Seattle Department of Planning and Development has not identified any portion of the proposed project as environmentally critical or sensitive.

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

No people would reside or work in the completed project because the project location is improved public street rights-of-way.

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

No people would be displaced by the project.

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

There are no mitigation measures proposed because there are no adverse impacts related to displacement.

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

The proposed project is consistent with current land uses and plans.

B9. Housing

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

The proposed 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 proposed project would not remove 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.

B10. 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 building structures are proposed for this project. No more than eight new street lights (approximately 12 feet high) would be installed. Approximately five additional street light arms with 100 watt and 250 watt lights would be added to existing and new wood poles on the 300 and 400 blocks of Yale Ave N and Pontius Ave N.

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

No views would be altered or obstructed by the project. The project would be located at or below existing street grades.

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

There would be no adverse aesthetic impacts as a result of this project.

B11. Light and Glare

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

The project would install new street lighting, as required by SDOT because existing street lighting levels do not meet Seattle's current required lighting levels for urban villages. The project would add approximately two street lights on the 400 block of Pontius Avenue North and approximately three additional lights on the 400 block of Yale Avenue North. Additional lighting may be necessary for pedestrian mobility. As to be determined by SDOT, approximately four pedestrian lights per block (eight total) may be installed by this project. The light poles would be approximately 12 feet tall. The lights would operate only during hours of darkness.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**
The proposed lighting would be typical lighting for urban areas of Seattle.

- c. What existing off-site sources of light or glare may affect your proposal?**
There are no existing off-site sources of light and glare that would affect the proposal.

- d. Proposed measures to reduce or control light and glare impacts, if any:**
Because the project would provide required and typical lighting, no mitigation measures are being proposed. Lighting would be required to meet or exceed SDOT's street lighting specifications as part of SDOT's issuance of a Street Improvement Permit for this project.

B12. Recreation

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

Cascade Park is located near the project location, at 333 Pontius Avenue North, and is a public park managed by the Seattle Department of Parks and Recreation. The park has open grassy areas, playground structures, a community garden, and a building. Also, public sidewalks and streets in the project location are currently used by pedestrians, joggers, and bicyclists.

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

Construction of the project would temporarily displace pedestrians, joggers, and bicyclists. The proposed project would not permanently displace any existing recreational uses.

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

Because there are abundant route alternatives for pedestrians, joggers, and bicyclists in the neighborhood, no temporary detours would be established during construction. Because the proposed project does not have any permanent recreational impacts, no measures are being proposed to reduce or control recreational impacts. Construction of the proposed project would require temporary lane closures. Such closures would comply with relevant policies administered by SDOT, as part of the Street Use and Street Improvement permitting process.

B13. Historic and Cultural Preservation

- a. **Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.**

The King County Historic Preservation Program provided information from their archaeological and ethnographic database on March 11, 2011. In addition, the project location was checked against the following registers on March 9, 2011.

- City of Seattle Landmarks
http://www.cityofseattle.net/neighborhoods/preservation/landmarks_listing.htm
- Washington Heritage Register and National Register of Historic Places
<http://www.dahp.wa.gov/pages/HistoricSites/WashingtonHeritageRegister.htm> and the WISAARD search engine (<http://www.dahp.wa.gov/pages/wisaardIntro.htm>) to determine if National Register or Washington Heritage properties are located in or adjacent to the project area.

The following structures are designated Seattle Landmarks adjacent to or near the project location:

- Supply Laundry Building at 1265 Republican Street and New Richmond Laundry Building at 224 Pontius Avenue North excluding the 1951 garage addition and 1952/1957 addition to the south
- Saint Spiridon Russian Orthodox Cathedral at 400/402 Yale Avenue North
- “Bathhouses” (comfort stations) inside Cascade Park at 333 Pontius Avenue North
- Immanuel Lutheran Church at 1215 Thomas Street

In addition, the WISAARD database indicates the following historic properties are located in or adjacent to the project location:

- 911 Media Arts/Matt Talbot Center at 117-121 Yale Avenue North
- Saint Demetrios Church/Overall Laundry Company at 234 Yale Avenue North
- Seattle School District Warehouse Building at 1255 Harrison Street
- Apartments at 1270-1276 Harrison St, 401-405 Yale Avenue North
- Spruce Street School (New Discovery School) at 411 Yale Avenue North

No buildings or building sites will be affected by this project. Only existing street pavement, curbs, sidewalks, light posts, and other appurtenances in the existing improved street rights-of-way would be affected. None of those objects are considered to be of historic or cultural importance. The proposed project is located on previously disturbed and filled areas in an upland area of the City of Seattle.

Some of the biofiltration swales will be constructed adjacent to the Supply Laundry Block, the location of two designated Seattle landmarks. The Seattle Landmarks Preservation Board staff have determined that because the proposed biofiltration swales would be located within public rights-of-way and would not physically touch the Supply Laundry Building and its site, no Landmarks Preservation Board review is required for this project (S. Sodont, pers. comm. to J. Sharpley, March 10, 2011).

- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.**

The project location was checked using the King County Historic Preservation archaeological and ethnographic database on March 11, 2011. Aside from the structures described in Section B13.a, no landmarks or evidence of historic, archaeological, scientific, or cultural importance is known from or near the project location. Further, the project's location on artificial fill and the likelihood that excavation and other ground disturbance associated with the project would be within the extent of previous disturbance combine to make this a project have little chance of encountering undisturbed archaeological materials.

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

No buildings or known cultural resources will be affected by this project. Only existing street pavement, curbs, sidewalks, light posts, and other appurtenances in the existing improved street rights-of-way would be affected. None of those objects are considered to be of historic or cultural importance.

The proposed project is located on previously disturbed and filled upland areas of the City of Seattle. The project's location on previously disturbed and filled ground reduces the project's chance of encountering contextually significant archaeological materials. Work crews would be trained to recognize archaeological materials should they be discovered. Should evidence of cultural artifacts or human remains, either historic or prehistoric, be encountered during excavation, work in that immediate area would be suspended and the find would be examined and documented by a professional archaeologist. Decisions regarding appropriate mitigation and further action would be made at that time.

B14. Transportation

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

The project is located on improved public street rights-of-way that include Yale Avenue North, Pontius Avenue North, Thomas Street, Harrison Street, and Republican Street. The project is located two blocks south of Mercer Street and a few blocks west of Interstate 5.

- b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?**

The site is currently served by nearby Metro bus routes 26, 66, 70, 71, 72, and 73. The closest transit stops are located on Eastlake and Harrison Street and also on Fairview Avenue North and Harrison Street. These bus stops are located within 1 to 3 city blocks of the project site.

- c. How many parking spaces would be unavailable during project construction? How many spaces would the completed project have? How many would the project eliminate?**

Parking associated with street rights-of-way in the project location is currently paid, metered parking managed by SDOT. Once all phases of construction are complete,

approximately 90 on-street parking spaces would be permanently eliminated by the biofiltration swales. Specifically, the following on-street parking spaces would be permanently eliminated:

400 block, Yale Avenue North
West side: 28 angle-in spaces, paid parking, 10 hr limit
East side: 1 to 2 parallel space, paid parking, 2 hr limit

300 block, Yale Avenue North
West side: 15 parallel spaces, paid parking, 10 hr limit
East side: 1 to 2 parallel space, paid parking, 2 hr limit

400 block, Pontius Avenue North
West side: 1 to 2 parallel space, paid parking, 10 hr limit
East side: 13 parallel spaces, paid parking, 10 hr limit

300 block, Pontius Avenue North
West side: 1 to 2 parallel space, paid parking, 10 hr limit
East side: 29 angle-in spaces, paid parking, 10 hr limit

Total: 89 to 93 paid parking spaces

Due to the phased construction of the project, up to 24 additional parking spaces may be closed at any point in time, for contractor parking, mobilization, and construction. Project construction would also require temporary lane closures. Such closures would comply with relevant policies administered by SDOT.

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

The project would build new sidewalks and resurface roads adjacent to the biofiltration swales, and would provide resurfacing and minor road improvements in the other blocks where gas, water, and/or storm drain construction is planned. No new roads or streets would be constructed as part of the project.

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

The proposed project would not use or occur near water, rail, or air transportation.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

Project construction would generate more than 2,300 vehicle round-trips due to workers and materials being transported to and from the site during the total 425 day construction period (all phases). Most of those trips would occur during business hours (between 7 am and 6 pm) on weekdays (Mondays through Fridays). The completed project would generate an estimated 15 vehicle round-trips per year, related to the on-going routine maintenance and monitoring of the biofiltration swales over the project's 50 year lifespan.

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

Construction of the proposed project would comply with SDOT policies regarding temporary lane closures.

To assess the impacts of permanently removing a portion of the on-street parking, SPU undertook an informal parking survey to determine the availability and utilization of parking within a two-block radius of the project. The study showed that (a) the project would eliminate less than 4% of the parking spaces within a two-block radius of the project and (b) use of the parking spaces that would be eliminated by the project ranges from a low of 21% to a high of 77%, with an average utilization of 52%. Since the project would eliminate only a small percent of the parking available within a two-block radius and the existing parking is not fully utilized, no measures are being proposed to mitigate permanent elimination of on-street parking spaces.

B15. Public Services

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

The proposed project is not expected to create increased need for public services.

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

No mitigation is being proposed because there would be no significant adverse impacts on public services.

B16. Utilities

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

- | | | | |
|--|--|---|--|
| <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/Cable | | | |

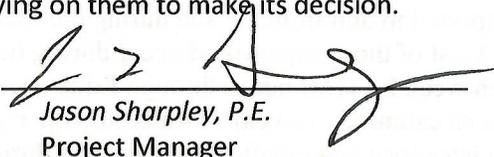
b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

None

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.

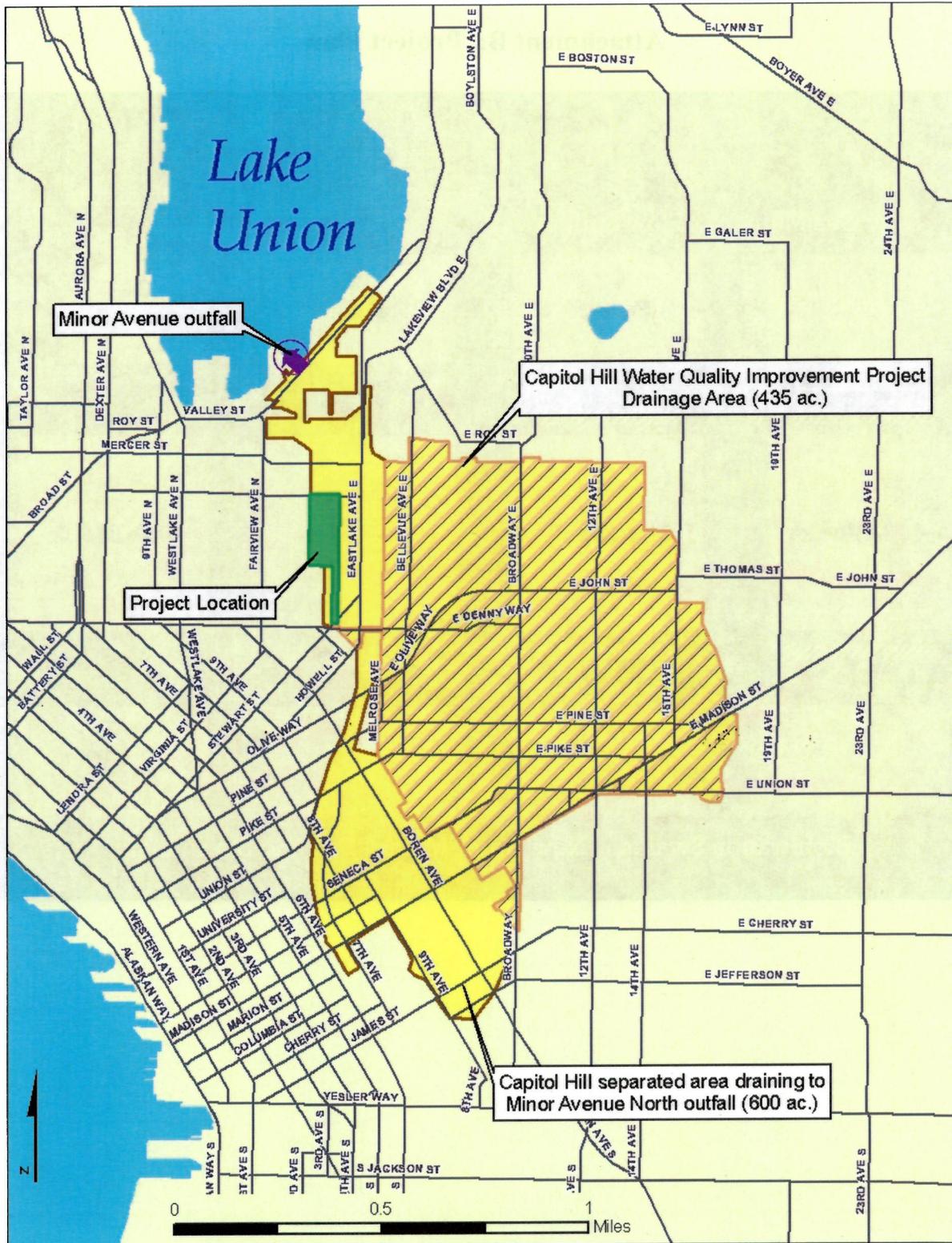
Signature:


Jason Sharpley, P.E.
Project Manager

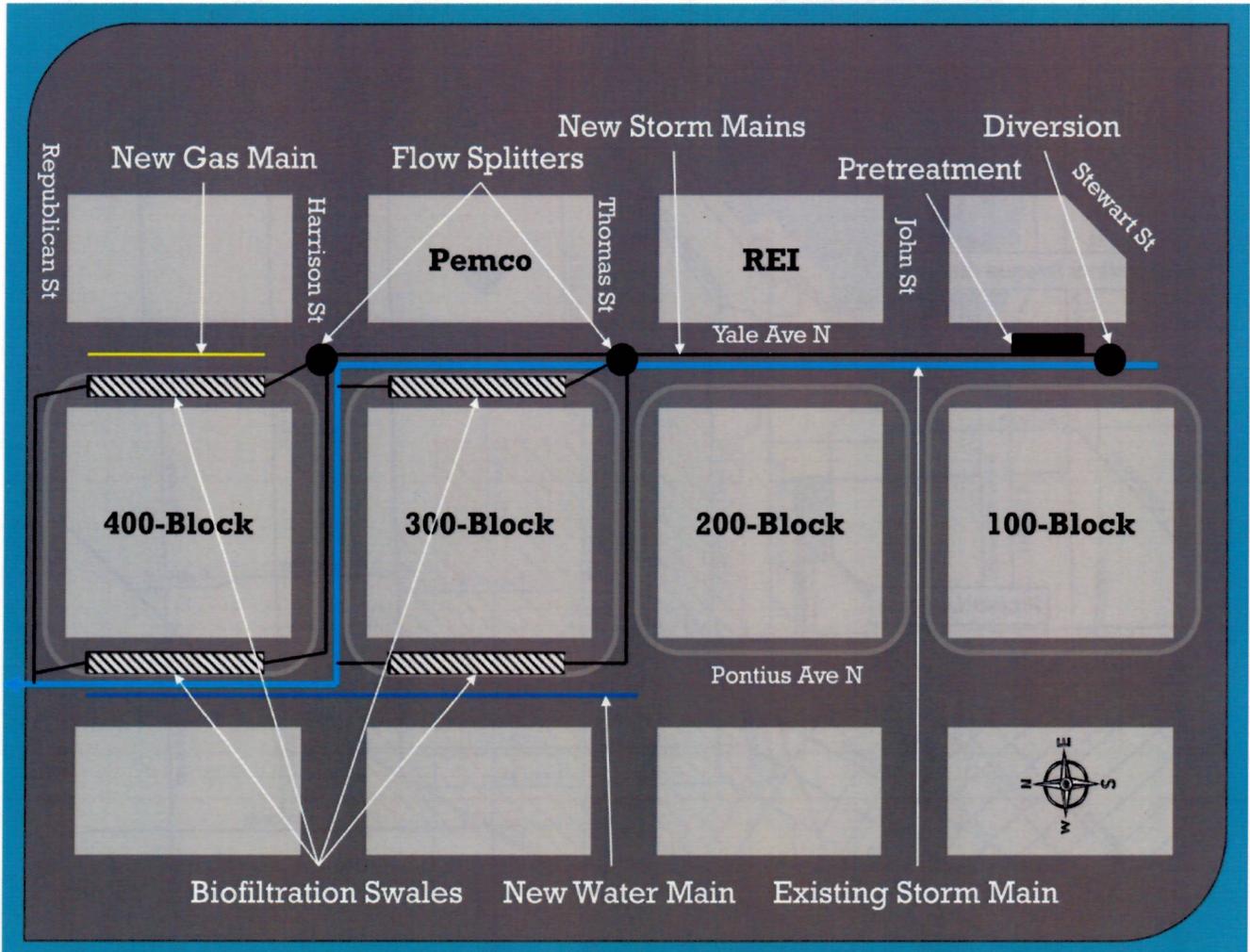
Date:

5/25/2011

Attachment A: Vicinity Map



Attachment B: Project Plan



Attachment C: Greenhouse Gas Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	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

Section II: Pavement

Concrete/Asphalt (50 MTCO ₂ e per 1000 square feet of pavement)*		58,200 square feet				2,910
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*King County SEPA GHG emissions Worksheet Bulletin 26, Version 1.7, December 26, 2007.

Section III: Construction

See below						1,370
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Section IV: Operation and Maintenance

See below.						785
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TOTAL

TOTAL.....						5,065
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III. Construction Details

Equipment	Diesel (gallons)	Assumption
Backhoe/Excavator	52,860	2,643 hours x 20 gallons/hour (345 hp engine)
Dump Truck	16,720	1,672 round trips x 50 miles round trip ÷ 5 mpg
Concrete truck	2,000	200 round trips x 50 miles round trip ÷ 5 mpg
Front-end Loader	37,800	1,890 hours x 20 gallons/hour (345 hp engine)
Crane	400	16 hours x 25 gallons/hour
Flat-bed Truck	100	10 round trips x 50 miles round-trip ÷ 5 mpg
Subtotal	109,880	

GHC Emissions: 1,323 metric tons CO₂e (at 26.55 lbs CO₂e/gallon of diesel)

Equipment	Gasoline (gallons)	Assumption
Pickup Truck	4,250	425 workdays x 4 trucks x 1 round-trip/day x 50 miles round trip ÷ 20 mpg
Subtotal	4,250	

GHC Emissions: 47 metric tons CO₂e (at 24.3 lbs CO₂e/gallon of gasoline)

Construction Summary

Activity	CO ₂ e (metric tons)
Diesel	1,323
Gasoline	47
Subtotal	1,370

IV. Operation and Maintenance (O&M) Details

Equipment	Diesel (gallons)	Assumption
Vactor Truck (O&M)	30,000	30 hours/year x 50 years x 20 gallons/hour
Excavator (renovation)	24,000	10 days/swale x 4 swales x 6 hours/day x 5 decades x 20 gallons/hour
Dump Truck (renovation)	4,800	480 round-trips/50 years x 50-mile round-trip ÷ 5 mpg
Front-end Loader (renovation)	4,800	2 days/swale x 4 swales x 6 hours/day x 5 decades x 20 gallons/hour
Subtotal	63,600	

GHC Emissions: 766 metric tons CO₂e (at 26.55 lbs CO₂e/gallon of diesel)

Equipment	Gasoline (gallons)	Assumption
Pickup Truck (O&M)	750	1 truck x 15 round-trips/year x 50 years x 20 miles round-trip ÷ 20 mpg
Pickup Truck (renovation)	800	4 trucks x 10 days/swale x 4 swales x 1 round-trip/day x 20 miles/round-trip x 5 decades ÷ 20 gallons/hour
Flat-bed Truck (renovation)	200	4 round trips x 50 miles round-trip x 5 decades ÷ 5 mpg
Subtotal	1,750	

GHC Emissions: 19 metric tons CO₂e (at 24.3 lbs CO₂e/gallon of gasoline)

Operation and Maintenance Summary

Activity	CO ₂ e (metric tons)
Diesel	766
Gasoline	19
Subtotal	785