Seattle Public Utilities
SEPA ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of proposed project, if applicable:

   Genesee Area Combined Sewer Overflow (CSO) Reduction Projects:
   Basin 40/41 b – Storage in 49th Avenue South Parking Lot Project and
   Basin 43 c – Storage in 53rd Avenue South Parking Lot Project

2. Name of applicant:

   Seattle Public Utilities (SPU)

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

   Kathleen Robertson, PE, Project Manager
   700 Fifth Avenue, Suite 4900
   P.O. Box 34018
   Seattle, WA 98124-4018
   Email: kathy.robertson@seattle.gov
   Phone: 206-733-9396

4. Date checklist prepared:

   May 17, 2011

5. Agency requesting checklist:

   Seattle Public Utilities

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

   For the purposes of this SEPA Environmental Checklist, the 49th Avenue South Parking Lot Project and the 53rd Avenue South Parking Lot Project are assumed to be constructed concurrently.

   49th Avenue South Parking Lot Project

   It is anticipated that construction would occur between 2013 – 2015 and last for approximately 16 months.

53rd Avenue South Parking Lot Project

It is anticipated that construction would occur between 2013 – 2015 and last for approximately 22 months.

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

   There are no plans for future additions, expansion, or further activity related to these proposals.

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

   49th Avenue South Parking Lot Project

   For this project, the following reports/studies have been or will be prepared:

   Geotechnical Report (SPU, 2010b)
   Environmental Review (HDR, 2010a)
   Phase I Environmental Site Assessment (HDR, 2010b)
   Noise Assessment (HDR, 2011c)
   Cultural Resources Inventory (HRA, 2010)
   Construction Closure Traffic Impacts Technical Memorandum (HDR, 2011d)
   Temporary Erosion and Sedimentation Control Plan (to be prepared)
   Spill Prevention Control and Countermeasure Plan (to be prepared)

   53rd Avenue South Parking Lot Project

   For this project, the following reports/studies have been or will be prepared:

   Geotechnical Report (SPU, 2011b)
   Environmental Review (HDR, 2011a)
   Phase I Environmental Site Assessment (HDR, 2011b)
   Noise Assessment (HDR, 2011c)
   Cultural Resources Inventory (HRA, 2011)
   Construction Closure Traffic Impacts Technical Memorandum (HDR, 2011d)
   Temporary Erosion and Sedimentation Control Plan (to be prepared)
   Spill Prevention Control and Countermeasure Plan (to be prepared)

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.

   None are known.

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

The following reviews, approvals, and permits are anticipated for each project:

49th Avenue South Parking Lot Project

Washington Department of Ecology
- Engineering Report Approval
- NPDES Construction Stormwater General Permit
- Approve changes to Seattle's Shoreline Master Program

Seattle City Council
- Initiative 42 Approval (Park Lands Conversion)
- Partial Transfer of Jurisdiction

Seattle Department of Planning and Development
- Final Approval of Shoreline Master Program Update to allow CSO facilities within Conservancy Recreation shoreline environment
- Master Use Permit II – SEPA
- Master Use Permit – Shoreline Substantial Development Permit
- Clear and Grade Permit
- Building Permit – Storage Tank, Facilities Vault, and Shoring
- Electrical Permit
- Plumbing Permit
- Mechanical Permit

Seattle Design Commission
- Project Review

Seattle Department of Transportation
- Street Use Permit
- Street Improvement Permit

Public Health – Seattle & King County
- Health Permit (Air Gap)

King County
- Industrial Waste Discharge Permit

Puget Sound Clean Air Agency
- Air Quality Permit

53rd Avenue South Parking Lot Project/UPARR Grant Conversion Area/Seattle Parks Mitigation Area

National Park Service
- Land-Use Approval (Grant Conversion)
- National Environmental Policy Act (NEPA) Compliance

U.S. Army Corps of Engineers
- Section 10/404 Permit

U.S. Fish and Wildlife Service/NOAA Fisheries
- Endangered Species Act Compliance

Washington State Recreation & Conservation Office
- Land-Use Approval

Washington Department of Ecology
- Engineering Report Approval
- NPDES Construction Stormwater General Permit
- 401 Water Quality Certification
- Coastal Zone Management Certification

Washington Department of Fish and Wildlife
- Hydraulic Project Approval

Washington Department of Archaeology and Historic Preservation
- Section 106 Consultation

Seattle City Council
- Initiative 42 Approval (Park Lands Conversion)
- UPARR Grant Amendment
- Type V Land Use Decision
- Partial Transfer of Jurisdiction

Seattle Department of Planning and Development
- Master Use Permit II – SEPA
- Master Use Permit – Shoreline Substantial Development Permit
- Clear and Grade Permit
- Building Permit – Storage Tank, Facilities Vault, and Shoring
- Electrical Permit
- Plumbing Permit
- Mechanical Permit

Seattle Design Commission
- Project Review

Seattle Department of Transportation
- Street Use Permit
- Street Improvement Permit

Public Health – Seattle & King County
- Health Permit (Air Gap)

King County
- Industrial Waste Discharge Permit

Puget Sound Clean Air Agency
- Air Quality Permit

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project. 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 goals of the Genesee Combined Sewer Overflow (CSO) Reduction Project (the Project) are to improve water quality in Lake Washington, protect the public health, improve the environment by reducing CSOs from the Genesee Area, and meet State laws and regulations (RCW 90.48.480 and WAC 173-245-020(22)) that limit CSOs to a long-term average of no more than one untreated discharge per year per outfall (SPU, 2010a).

The excess combined sewage that causes CSOs comes from stormwater that enters the combined sewer system. The sewers in the Genesee Basin were designed as combined sewers which convey both sanitary sewage and stormwater. In order to reduce CSOs, some of the sewers were converted to partially separated, meaning that stormwater runoff from roofs and foundation drains enter the sanitary sewer system while stormwater from roadways enters a separated stormwater system. Some portions of the Genesee Area have fully separated sewer systems, meaning that sanitary sewage (sewage) and stormwater are collected and conveyed in two separate pipe systems.

For combined systems and partially separated systems, under wet weather conditions, flows are a combination of sewage and stormwater. As long as the flow volumes are within the capacity of the sewer system, all of the flows are sent to the wastewater treatment plant. However, if the flow volumes exceed the capacity of the sewer system, the excess volume of sewage and stormwater is discharged into receiving water bodies through outfalls. This is called a combined sewer overflow (CSO). To reduce untreated discharges, facilities are required to treat the combined sewage and stormwater, or temporarily store until the combined sewer system can again handle the flow volumes.

The Genesee Area is located in southeast Seattle near Genesee Park and Seward Park on Lake Washington. It is approximately 700 acres in size and encompasses seven basins: Basins 37, 38, 40, 41, 42, 43 and 165.

- Untreated discharges from Basins 37, 38, 42 and 165 meet the long-term average of no more than one per year per outfall.
- Basin 40 currently averages 4.2 untreated overflows per year and is the focus (together with basin 41 and 43) of this SEPA Environmental Checklist.
- Basin 41 currently averages 9.2 untreated overflows per year and is the focus (together with basin 40 and 43) of this SEPA Environmental Checklist.

- Basin 43 currently averages 4.8 untreated overflows per year and is the focus (together with basin 40 and 41) of this SEPA Environmental Checklist.

SPU evaluated over 60 CSO reduction alternatives for the Genesee Area. The process used to develop and evaluate the alternatives is summarized in the following steps:

1) Identify CSO Control Options – A CSO Control Option is a method that can be implemented to reduce CSOs. The CSO Control Options evaluated for the Genesee Area included: Retrofits, Offline Storage, Inline Storage, Transfers to King County, Transfers to other SPU Basins, Increased Conveyance, Wet-Weather Treatment, Source Control, and Infiltration Reduction.
2) Develop Alternatives from the CSO Control Options – From the CSO Control Options, alternatives were developed. An alternative is a CSO Control Option with a specific location, sized to meet the project goals. A siting analysis was performed to locate alternatives; the locations evaluated included park areas, public rights-of-way, and private properties. Alternatives then underwent hydraulic modeling, conceptual engineering, and cost estimating.
3) Screen Alternatives Based on Specific Criteria – Alternatives were then screened using the following criteria: volume to be controlled (qualitative analysis), system hydraulics and modeling, construction cost, geotechnical evaluation, permitting, environmental, and property issues. These criteria provided a basis for eliminating alternatives from further consideration.
4) Evaluate Alternatives using a Triple Bottom Line Process – The remaining alternatives were passed through a triple bottom line analysis to evaluate the benefits, cost and risks with respect to three areas: 1) financial, 2) social, and 3) environmental. The results of this process aided in the determination of the preferred alternatives for Basins 40/41 and Basin 43. The preferred alternatives are the projects that are the subject of this SEPA Environmental Checklist.

Other alternatives considered for Basin 40/41 and Basin 43 are presented in Attachment A.

The Basin 40/41 b 49th Avenue South Parking Lot Project and Basin 43 c 53rd Avenue South Parking Lot Project are separate efforts located approximately three quarters of a mile apart (see Attachment B, Figure 1 – Vicinity Map).

49th Avenue South Parking Lot Project

The 49th Avenue South Parking Lot Project would consist of the following components (see Attachment B, Figure 1 – Vicinity Map, Figure 2 –Site Layout, and Figure 3 – Contractor Parking and Staging):

Parking Lot Facilities

Seattle Public Utilities is proposing to construct a 0.48 million gallon underground storage tank in a parking lot located near Lake Washington Boulevard South between 48th Avenue South and 49th Avenue South. The storage tank exterior dimensions would be approximately 45 feet wide, 90 feet long, and approximately 27 feet deep based on site topography (see Attachment B, Figure 2), and the tank would store excess combined sewage from Basins 40 and 41.

The storage tank would have associated equipment, such as odor control, electrical, and other mechanical equipment, that would be housed in a separate, adjacent below-grade facilities vault. The outside dimensions of the facilities vault would be approximately 25 feet wide, 45 feet long and 12 feet deep. This facilities vault would contain pumps, mechanical equipment, and other items associated with the flushing water system; HVAC equipment for the storage facility; electrical gear including motor starters, control panels, and other instrumentation; and odor control equipment including the carbon scrubber vessel, odor control fan, and mist eliminator. An above-ground treated air discharge stack required for the odor control system may extend up to approximately 20 feet above the existing grade, and would be approximately 24 inches in diameter. It would be located on the west part of the site near the existing trees, within the setbacks from private property and public right-of-way lines as defined by City codes and the Seattle Department of Planning and Development (DPD).

The exact layout of facilities is still under development; however, the storage tank and facilities vault would be on the southern portion of the parking lot property next to Lake Washington Boulevard South.

The total footprint of the storage tank and facilities vault is approximately 5,200 square feet (based on the exterior surface dimensions including a 6-inch footing around the perimeter of both structures).

CSO Facility 11 Modifications

To convey flows to the storage tank, SPU would need to modify the existing CSO Facility 11. CSO Facility 11 is located along South Dakota Street from 50th Avenue South to 49th Avenue South (see Attachment B, Figure 2) and consists of 220 feet of 84-inch-diameter storage pipe and a flow control device called a HydroBrake.

A new 6-foot-diameter, 15-foot deep diversion structure would be installed near the intersection of 49th Avenue South and South Dakota Street. The diversion structure would convey excess flows from CSO Facility 11 to the proposed storage facility at the 49th Avenue South Parking Lot.

Diversion Sewer from CSO Facility 11

A 12-inch-diameter, 400-foot long diversion sewer would be constructed from the new diversion structure (at the intersection of 49th Avenue South and South Dakota Street) north along 49th Avenue South to a second diversion structure at the intersection of Lake Washington Boulevard South and 49th Avenue South. The diversion sewer would be located in the western side of the southbound lanes of 49th Avenue South, likely in the parking lane or northern driving lane.

Diversion Structure at Lake Washington Boulevard and 49th Avenue South

A second diversion structure would be constructed to transfer flow from the existing Lake Line into the proposed storage facility. It would be located near the intersection of Lake Washington Boulevard South and 49th Avenue South. The diversion structure would be a cast-in-place structure approximately 15 feet wide by 20 feet long and approximately 7 feet deep. The piping from the diversion structure would consist of the following:

- Approximately 100 feet of 24-inch-diameter piping from the diversion structure to the proposed storage tank;
- Approximately 20 feet of 15-inch-diameter piping from the diversion structure to an existing 24-inch-diameter pipe, which flows to CSO Outfall 40; and
- Approximately 20 feet of 15-inch-diameter piping from the diversion structure to an existing 15-inch-diameter pipe, which flows to CSO Outfall 41.

In order for the diversion structure to serve its intended purpose, the existing sewer used to convey flow from 49th Avenue South to the Lake Line would need to be removed, rerouted through the diversion structure, and reconnected to the Lake Line. During construction, the sewer would be temporarily bypassed using a submersible pump in an upstream maintenance hole.

The existing stormwater system located at the intersection of Lake Washington Boulevard South and 49th Avenue South would need to be reconfigured around the new diversion structure.

Discharge Force Main

An 8-inch-diameter pipe (discharge force main) would be constructed within the parking lot to convey flows from the proposed storage tank back into the combined sewer (at the diversion structure located at Lake Washington Boulevard South and 49th Avenue South) to empty the tank. The discharge force main would be approximately 75 feet long.

Right-of-Way Improvements

Concrete pavement in 49th Avenue South would be disturbed by the installation of the diversion sewer from CSO Facility 11. The pavement on 49th Avenue South would be replaced in accordance with Seattle Department of Transportation (SDOT) street restoration requirements.

The concrete pavement and asphalt overlay at the intersection of Lake Washington Boulevard and 49th Avenue South would be disturbed by the installation of the diversion sewer from CSO Control Structure 41. The pavement and asphalt overlay at the intersection would be replaced in accordance with SDOT street restoration requirements.

Although no trees would be removed during construction along 49th Avenue South, approximately 30 street trees (from the approved list of small trees) would be planted along 49th Avenue South as part of right-of-way improvements associated with street restoration. Trees would be spaced approximately 25 feet on center along the planting strip.

Stormwater Improvements

Green Stormwater Infrastructure (GSI) would be incorporated for 49th Avenue South near the intersection of 49th Avenue South and Lake Washington Boulevard South to the extent feasible. The stormwater treatment system would involve reconfiguring the parking lot so that the existing bollard exit on the southeastern portion of the site is removed and replaced with a set of bioretention cells. The bioretention cells would serve to treat stormwater flows and provide adequate detention for 49th Avenue South.

Following the construction of the storage facility, the parking lot would be repaved to match the existing surface. To treat stormwater from the parking lot, a bioretention swale would be added to the existing grass area on the eastern portion of the site contiguous to Lake Washington Boulevard South. The bioretention swale would also provide adequate detention for stormwater flows from the parking lot.

Alternatively, filter vaults may be constructed within the parking areas for stormwater treatment should GSI be infeasible based on space constraints and hydraulic characteristics.

Construction Staging/Contractor Offsite Parking

On-site construction staging for the project would be located on the parking lot site to the north of the tank location for the duration of project construction (approximately 16 months).

Options under consideration for temporary offsite contractor parking and staging include (see Attachment B, Figure 3):

Option A: Along 48th Avenue South and 49th Avenue South, adjacent to the parking lot

Option B: At an existing, paved parking area at South Adams Street and Lake Washington Boulevard South (approximately 1,700 feet south of the parking lot)

Option C: At an existing, paved parking area at Stan Sayres Memorial Park (approximately 1,800 feet north of the parking lot)

If Option B or C is selected, a shuttle may be necessary to move workers from the parking lots to the project site. The shuttle would likely make two trips per day to and from the parking lots.

Following further discussion with Seattle Parks and Recreation (Parks) and SDOT, one or more options would be selected. Each location would provide parking space for up to 20 vehicles. See Figure 3 for the location of these options in relation to the project site. Coordination with Parks would also be necessary to avoid peak use times for these parking areas.

53rd Avenue South Parking Lot Project

The 53rd Avenue South Parking Lot Project would consist of the following components (see Attachment B, Figure 1 – Vicinity Map, Figure 4 –Site Layout, Figure 5 – Contractor Parking and Staging Areas, Figure 6 – Tree Removal Plan, Figure 7 – Lake Washington Boulevard Temporary Trail Reroute, Figure 8 – Stormwater Improvements, Figure 9 – Grant Conversion Area, and Figure 10 – Parks Mitigation Area:

<u>Parking Lot Facilities</u>

Seattle Public Utilities is proposing to construct a 0.12 million gallon underground storage facility in a parking lot near the intersection of 53rd Avenue South and Lake Washington Boulevard South. The storage facility would be a cast-in-place storage tank, with exterior dimensions of approximately 129 feet long, approximately 24 feet wide, and a variable depth of approximately 16 to 21 feet. (see Attachment B, Figure 4). The tank would store excess combined sewage from Basin 43.

The storage tank would have associated equipment, such as odor control, electrical, and other mechanical equipment, that would be housed in a separate, adjacent, below-grade facilities vault. The outside dimensions of the facilities vault would be approximately 26 feet wide, 42.5 feet long, and 13 feet deep. The

associated below-grade facilities vault would consist of: pumps, mechanical equipment, and other items associated with the flushing water system; HVAC equipment for the storage facility; electrical gear including motor starters, control panels, and other instrumentation; and odor control equipment including the carbon scrubber vessel, odor control fan, and mist eliminator. An above-ground treated air discharge stack required for the odor control system would likely extend up to approximately 20 feet above the existing grade, and would be approximately 18 inches in diameter. The stack would be located on northwest part of the site within Seattle Parks property; the parking lot site is not near any private property and public right-of-way lines as defined by City codes and DPD.

The exact layout of facilities on the site is still under development; however, the storage tank and facilities vault would be underneath the parking lot immediately contiguous to Lake Washington Boulevard South. To construct the facilities some trees on the site would be removed. These trees are shown on Figure 6.

Discharge Force Main

A 6-inch-diameter discharge force main would be constructed within the 53rd Avenue South Parking Lot to convey flows from the proposed storage tank back into the combined sewer (at a new maintenance hole located near the intersection of 53rd Avenue South and Lake Washington Boulevard South) to empty the tank. The discharge force main would be approximately 100 feet long.

CSO Facility 9 Modifications

To convey flows to the 53rd Avenue South Parking Lot, SPU would need to modify the existing CSO Facility 9. CSO Facility 9 is located adjacent to South Alaska Street near the intersection of South Alaska Street and 54th Avenue South (see Attachment B, Figure 4) and consists of 60 feet of 144-inch-diameter storage pipe and a flow control device called a HydroBrake.

The HydroBrake would be replaced with a motor-operated gate to control flows into the downstream system. The motor-operated gate would be installed in an existing maintenance hole located on the north side of the grass area. To control the motor-operated gate, an above grade electrical panel would be installed in the vicinity of the gate. The electrical panel box would be approximately 4 feet wide by 5 feet long and 4 feet high, and would be located in the grass area adjacent to South Alaska Street or in the grass strip between the sidewalk and the roadway on South Alaska Street.

The electrical panel box would house an uninterruptible power supply to provide power to the motor-operated gate in the event of a failure in the normal power supply. The electrical panel would be configured to fully close or partially close the motor-operated gate to prevent exceeding system capacity downstream.

The existing overflow structure for Basin 43 is located at the intersection of South Alaska Street and 54th Avenue South. The existing maintenance hole would be removed and replaced with a precast vault (diversion structure) approximately 16 feet long by 10 feet wide. The purpose of the precast vault is to allow flow to be diverted to the storage tank located at the 53rd Avenue Parking Lot. While the vault is installed, access east on South Alaska Street would be limited and sewer bypass facilities would be required to maintain service.

Diversion Sewer from CSO Facility 9

An 18-inch-diameter, 800-foot-long diversion sewer would be constructed from the new diversion structure (at the intersection of South Alaska Street and 54th Avenue South) west along South Alaska Street and north along 53rd Avenue South to the proposed storage facility at the 53rd Avenue South Parking Lot. The diversion sewer would be located near the center of the right-of-way of South Alaska Street and 53rd Avenue South because of existing utilities and depth of excavation. While the diversion sewer is installed, access on South Alaska Street and 53rd Avenue South would be limited. To construct the diversion sewer, some trees along the alignment would be removed. These trees are shown on Figure 6. Following construction, additional street trees would be planted along South Alaska Street and 53rd Avenue South.

Electrical and Communication Conduits

Electrical and communications conduits would be installed from the motor-operated gate located at CSO Facility 9 to the proposed storage facility at the 53rd Avenue South Parking Lot. The electrical and communications conduits would be extended through the grass area to South Alaska Street from the maintenance hole containing the motor-operated gate. The conduits would be installed using a trenchless construction method to reduce the extent of the excavation. From the intersection of South Alaska Street and 54th Avenue South, the conduits would follow an alignment similar to that of the diversion sewer (west on South Alaska Street, then north on 53rd Avenue South). Along the roadways, the conduits would be installed within the same trench as the diversion sewer or beneath the sidewalk using a trenchless method.

The purpose of the conduits is to connect the controls of the motor-operated gate (located in the grass area adjacent to South Alaska Street) and level sensor (located in a maintenance hole near the intersection of 53rd Avenue South and Lake Washington Boulevard South) to the proposed storage facility (at the 53rd Avenue South Parking Lot).

Lake Washington Boulevard South Trail Reroute

During construction of the storage facility, the Lake Washington Boulevard South Trail located adjacent to the 53rd Avenue South Parking Lot would be closed and temporarily rerouted to the southern side of Lake Washington Boulevard South. Figure 7 (Attachment B) shows the proposed reroute of the trail. Following construction, the area disturbed by the rerouted trail would be restored to its existing condition.

To reroute the trail to the southern side of Lake Washington Boulevard South, crosswalks would be placed at both ends of the parking lot. The speed limit along Lake Washington Boulevard South would be reduced from 25 miles per hour (mph) to 15 mph to provide adequate sight distance for pedestrians crossing the street. Flashing caution lights would be implemented to warn vehicle drivers of the crosswalks.

Right-of-Way Improvements

The roadway along South Alaska Street between 54th Avenue South and 53rd Avenue South would be disturbed to install the diversion pipe, electrical and communication conduits, and diversion structure. Following construction, the entire width of the roadway surface would be replaced. It is not anticipated the sidewalks would be disturbed during construction. Right-of-way improvements outside of the roadway surface have not been determined and would require coordination with SDOT.

The roadway along 53rd Avenue South between South Alaska Street and Lake Washington Boulevard South would be disturbed to install the diversion pipe and electrical and communication conduits. Following construction, the entire width of the roadway surface would be replaced. The sidewalk on the western side of 53rd Avenue South would be disturbed during construction by the installation of the electrical and communication conduits and discharge force main. Following construction, the sidewalk would be restored to its existing condition. Right-of-way improvements outside of the roadway surface have not been determined and would require coordination with SDOT.

The diversion pipe, electrical and communication conduits, and discharge force main would cross Lake Washington Boulevard South near the intersection of Lake Washington Boulevard South and 53rd Avenue South. During these crossings, Lake Washington Boulevard South would be disturbed. Following construction, the roadway surface would be restored to match existing conditions.

As part of the right-of-way improvements associated with street restoration, approximately 50 street trees (from the approved list of small trees) would be planted along 53rd Avenue South and South Alaska Street. Trees would be spaced approximately 25 feet on center along the planting strip.

Stormwater Improvements

Stormwater improvements are shown on Figure 8 (Attachment B). The affected area within the South Alaska Street and 53rd Avenue South right-of-way is approximately 17,600 square feet (sf) of disturbed (i.e. replaced) pollution generating impervious surface (pgis). This assumes two lanes of disturbance along both streets. The affected area in the existing parking lot is approximately 13,800 sf of pgis. Therefore, runoff from the roadway portion of the project and from the parking lot portion of the project would require implementation of Green Stormwater Infrastructure (GSI) to the maximum extent feasible. The design approaches described below are proposed based on a preliminary analysis of the drainage system.

South Alaska Street

The existing street has curb/gutter/sidewalk/planter strip, and profile slopes from 5.5% near 54th Avenue South to 12% between 54th Avenue South and Lake Washington Boulevard South. There are landscaped residential parcels and some retaining walls along the street. Opportunities for stormwater treatment improvements within the right-of-way are more favorable along South Alaska Street near existing CSO Facility 9 where the profile slope is less and right-of-way width is available. A bioretention swale is proposed between the relocated sidewalk and street. The sidewalk would be transitioned to the right-of-way edge providing additional width for the swale. The swale would receive flows from the upstream segment of South Alaska Street. The swale would have a 2-foot bottom width, 2% slope, weirs, and amended soils. An underdrain may be needed due to existing silty soil. Gutter flow from the street would enter the swale through periodic curb cuts with treated stormwater flowing back to the street drainage system. Four or five stair-stepped swale segments are estimated with amended soils and vegetation that would complement existing neighborhood landscaping.

Considerations to expand the available area for bioretention include narrowing the pavement width and restricting parking in front of the tank site by providing a curb bulb (this option would require approval from SDOT traffic operations).

53rd Avenue South

The existing street has curb/gutter/sidewalk/planter strip, and a relatively steep profile slope of 16% between South Alaska Street and Lake Washington Boulevard South. There are landscaped residential parcels along the street, and opportunities for conventional stormwater treatment facilities within the right-of-way are limited due to the terrain. Therefore, a “pre-engineered” biofiltration unit

consisting of a precast vault, soil, underdrain and a planted tree is proposed. Catch basins with treatment cartridge(s) would be additional options, but are not considered GSI options. “Offsite” options to the two street sites discussed above are also identified. These locations are adjacent to the project, and receive offsite but equivalent amounts of runoff. One option is located adjacent to the north driveway of the parking lot receiving flows from Lake Washington Boulevard South. Another option is located along the west side of Lake Washington Boulevard South, southerly of the north driveway to the parking lot.

53rd Avenue South Parking Lot

Opportunities for GSI improvements on the parking lot site would also be implemented to the maximum extent feasible. Current runoff patterns in the parking lot consist of flows directed to an existing inlet or catch basin in the lot. GSI strategies that may be implemented include:

- Constructing the vault below existing impervious surface surfacing to minimize new impervious surfaces;
- Reducing existing impervious surface coverage in the parking lot by providing defined angled parking and a driving aisle;
- Providing treatment of runoff from replaced parking lot pavement with bioretention planters, located between the lot and paved trail. Discharge would be directed to an existing outlet pipe from the inlet/catch basin in the lot. The reconstructed parking lot pavement may be raised to provide suitable drop through the planters above the lake’s water surface elevation. Proposed grading strategies would need confirmation from a survey of the site.

Alternatively, a filter vault may be constructed within the parking lot area should GSI be infeasible based on space constraints and hydraulic characteristics.

<u>Construction Staging/Contractor Parking</u>

Construction staging for the project would be located in the parking lot at the project site. The parking lot would be closed for the duration of the construction (approximately 22 months).

Temporary contractor parking would be located throughout the neighborhood on nearby streets and may include the following locations: South Alaska Street, 53rd Avenue South, 54th Avenue South, and in the parking lot adjacent to the project site to the northwest. Possible locations for contractor parking are shown on Figure 5.

Specific limitations on the number of vehicles per block and exact locations for contractor parking would be determined in coordination with SDOT and included within the contract documents.

It is anticipated there would be no impacts to recreational use of Lake Washington Boulevard Park as a result of contractor parking.

Urban Park and Recreation Recovery (UPARR) Conversion

Development in the majority of the parking lot and vegetated median associated with the 53rd Avenue Parking Lot Project is constrained by the National Park Service (NPS) UPARR grant program (see Appendix B, Figure 9). The proposed project will result in permanent above-ground features within an approximately 6,200 square-foot area of the existing median that is within the UPARR area. Consequently, a grant conversion is required, which is a transfer of grant restrictions from the affected part of the median to an area not already encumbered by grant restrictions.

The Parks Department identified an unencumbered area immediately south of the parking lot site that would be acceptable for the conversion area. SPU has submitted a formal request to NPS seeking acceptance of this area for conversion plus landscaping enhancements to mitigate for using a portion of the vegetated median strip for permanent structures. This effort would involve removing invasive species and planting native shrubs and trees in discreet cells along the waterfront while still allowing access and view opportunities to Lake Washington. Landscape enhancements would conform to the Lake Washington Boulevard Vegetation Management Plan (Seattle, 2010c) in consultation with the Seattle Parks Department, and meet standards set forth in the City of Seattle Critical Areas Ordinance. No in-water plantings would occur as part of the UPARR conversion area.

Parks Mitigation

Discussions have been held with the Seattle Parks Department to determine what improvements may be required to mitigate for project impacts. The project concept currently being discussed would consist of the following components (see Appendix B, Figure 10):

- Removing in-water rubble in the nearshore area. Existing shore protection consists of pieces of rock and concrete rubble. Specific pieces of rock or concrete that have dislodged and do not provide structural shore protection would be removed. This removal would take place using a bucket from an excavator operating from the upland shore or from a barge.
- Adding a wedge-shaped gravel blanket along the shoreline for beach nourishment and erosion prevention. The gravel blanket would taper away from shore at a 6 horizontal to 1 vertical slope for a distance of approximately 18 feet. The existing riprap shoreline armoring would be retained, but gaps that now permit predatory fish to lurk and attack small salmon would be filled with pea gravel, an incidental benefit to habitat.

The entire riprap area would be buried with washed river rock as part of the beach nourishment.

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.

49th Avenue South Parking Lot Project

The project would be located in Sections 14 and 15, Township 24 North, Range 4 East, W.M.

The storage tank, facilities vault, overflow diversion line, and discharge force main would be located on Seattle Parks and Recreation property (Parcel Number 5249802800). See Attachment B, Figure 1 – Vicinity Map and Figure 2 – Site Layout. The legal description from the King County Assessor's information is:

> MAYNARDS LAKE WASHINGTON ADD & ALL BLK 79 TGW LOTS 1 THRU 8 BLK 98 SD ADD

The new diversion structure, diversion sewer from CSO Facility 11, diversion sewer from CSO Control Structure 41, and potential contractor parking and staging areas Option A would all be within public street rights-of-way of Lake Washington Boulevard South, 49th Avenue South, 48th Avenue South, and South Dakota Street (see Attachment B, Figures 2 and 3). There are no legal descriptions associated with street rights-of-way (King County, 2010).

Potential contractor parking and staging areas Option B (see Attachment B, Figure 3) would be located on Seattle Parks and Recreation property (Parcel Number 5249804270). The legal description from King County Assessor's information is:

> MAYNARDS LAKE WASHINGTON ADD CITY OF SEATTLE PARK IN SD PLAT WITHIN SW 1/4 OF 14-24-04 INCLUDING ALL BLKS 113 & 117

Potential contractor parking area and staging area Option C (see Attachment B, Figure 3) would be located on Seattle Parks and Recreation property (Parcel Number 5249800001). The legal description from King County Assessor's information is:

MAYNARDS LAKE WASHINGTON ADD ALL BLK 1 TGW POR BLK 2 ELY OF LK WASHINGTON PARKWAY & ALL BLKS 25 THRU 28 & ALL BLK 51 & 54 & 77 SD ADD TGW POR ADJ LOT 1 VAC BY ORD 54995

53rd Avenue South Parking Lot

The project would be located in the southwest quarter of Section 14, Township 24 North, Range 4 East, W.M.

The majority of the project features, including the contractor's active project staging area, UPARR conversion area, and Parks mitigation area, would be located on Seattle Parks and Recreation property just north and east of the intersection of Lake Washington Boulevard South and 53th Avenue South. The 2-inch-diameter conduit connecting the gravity sewer to the existing CSO Control Facility 9 would also be located on the same parcel just north and east of the intersection of South Alaska Street and 54th Avenue South. See Attachment B, Figure 1 – Vicinity Map. The Parcel Number is 5249804270 and the legal description from the King County Assessor's information is:

MAYNARDS LAKE WASHINGTON ADD CITY OF SEATTLE PARK IN SD PLAT WITHIN SW 1/4 OF 14-24-04 INCLUDING ALL BLKS 113 & 117

The majority of the 18-inch-diameter gravity sewer would be located within 53rd Avenue South and South Alaska Street; there are no parcel numbers or legal descriptions associated with street rights-of way.

Potential temporary contractor parking may be located throughout the neighborhood (see Attachment B, Figure 5) on nearby streets and may include the following locations: South Alaska Street (west of 54th Avenue South), 54th Avenue South (south of South Alaska Street), 53rd Avenue South, and South Angeline Street; there are no parcel numbers or legal descriptions associated with street rights-of-way and the Parcel Number for the parking lot is 5249804270 (King County, 2011).

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one):
Flat, rolling, hilly, steep slopes, mountainous,
other:_____

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

49th Avenue South Parking Lot Project

The portion of the 49th Avenue South Parking Lot that would be used for construction and staging is relatively flat with slopes up to 4% at the southern part of the site and up to 3% at the northern part of the site. Steep slopes (up to 47%) exist at the far western edge of the project site. This area would not be disturbed as part of the project.

The diversion pipe alignment along 49th Avenue South gradually slopes north toward Lake Washington Boulevard South at a grade of 5%.

53rd Avenue South Parking Lot

The portion of the 53rd Avenue South Parking Lot that would be used for construction and staging is relatively flat with slopes up to 2% at the northern part of the site.

The diversion pipe alignment along 53rd Avenue South slopes north toward Lake Washington Boulevard South at a grade of 14%.

The UPARR conversion area is relatively flat.

The Parks conversion area within Lake Washington slopes away from the shore.

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.

49th Avenue South Parking Lot Project

The surface geology of the site is Vashon till and Pre-Fraser deposits. Borings in the vicinity of the site suggest four distinct geologic units across the site: (1) medium dense silty sand, and gravel, identified as fill, (2) silty fine to medium sand, likely lake deposits underlying the fill, (3) silty fine to medium sand with gravel, identified as mass wastage deposits, and (4) very dense

silty sand with gravel, identified as Pre-Fraser deposits. Borings were completed to 61.5 feet below the surface (SPU, 2010b).

The City of Seattle Department of Planning and Development (Seattle DPD) has mapped Contractor Parking and Staging Area C within a liquefaction zone and peat settlement prone areas (Seattle, 2010a).

There is no agricultural or prime farmland in the vicinity of the project.

53rd Avenue South Parking Lot Project

The surface geology of the site is mapped as lake deposits. One boring at the site was completed in 1969 and generally encountered silt and clay soils to about 13 feet in depth. The silt and clay is underlain by sand with silt that extends to 15 feet below ground surface. The boring was completed to 15 feet below the ground surface. (SPU, 2011b)

Seattle DPD has mapped the project site, the UPARR conversion area, and Parks mitigation area as Shoreline Habitat (Seattle, 2011a).

There is no agricultural or prime farmland in the vicinity of the project.

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

49th Avenue South Parking Lot Project

Seattle DPD has mapped steep slope critical areas approximately 50 feet from the northeast boundary of the parking lot (Seattle, 2010a). There are no surface indications of unstable soils in the immediate vicinity of the project.

53rd Avenue South Parking Lot Project

Seattle DPD has mapped steep slope critical areas approximately 50 feet from the northeast boundary of the parking lot (Seattle 2011a). There are no surface indications of unstable soils in the immediate vicinity of the project site, the UPARR conversion area, or the Parks mitigation area.

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

49th Avenue South Parking Lot Project

Approximately 8,350 cubic yards (cy) of material would be excavated for the underground storage tank, facilities vault, and diversion sewers. Excavated soils would be disposed of by the contractor at permitted sites. Sources of

materials for fill required for this project are typically commercial quarries located within 20 to 30 miles of the project site.

Assuming that an average dump truck would be at capacity by weight at 85% of its total carrying capacity by volume, a dump truck with a 15 cy capacity would carry approximately 13 cy of material per trip. This calculates to approximately 645 truck trips for hauling excavated materials from the site. During 27 days of excavation activity throughout the project, an average of 24 truckloads per day could be excavated and hauled from the site.

Approximately 3,300 cy of fill would be used for the underground tank shoring, facilities vault, and diversion sewers. Approximately 50 percent of the fill could be reused native materials excavated onsite if those materials are deemed structurally suitable. However, at this stage of the project all fill is assumed to be imported, and all excavated materials would be disposed of offsite. Assuming a similar hauling capacity for the same dump trucks that were used to haul excavated materials, approximately 260 truck trips would be required for importing backfill materials to the site. During 11 days of backfilling activity throughout the project, an average of 24 truckloads per day could bring imported materials to the site.

53rd Avenue South Parking Lot

Approximately 9,325 cy of material would be excavated for the underground storage tank, facilities vault, and diversion sewers. Excavated soils would be disposed of by the contractor at permitted sites. Sources of materials for the fill required for this project are typically commercial quarries located within 20 to 30 miles of the project site.

Assuming that an average dump truck would be at capacity by weight at 85% of its total carrying capacity by volume, a dump truck with a 15 cy capacity would carry approximately 13 cy of material per trip. This calculates to approximately 720 truck trips for hauling excavated materials from the site. During 30 days of excavation activity throughout the project, an average of 24 truckloads per day could be excavated and hauled from the site.

Approximately 5,260 cy of fill would be used for the underground tank shoring, facilities vault, and diversion sewers. Approximately 50 percent of the fill could be reused native materials excavated onsite if those materials are deemed structurally suitable. However, at this stage of the project all fill is assumed to be imported, and all excavated materials would be disposed of offsite. Assuming a similar hauling capacity for the same dump trucks that were used to haul excavated materials, approximately 408 truck trips would be required for importing backfill materials to the site. During 17 days of backfilling activity throughout the project, an average of 24 truckloads per day could bring imported materials to the site.

Approximately 180 cubic yards of washed gravel would be placed below the OHWM of Lake Washington in the Parks mitigation area for beach nourishment.

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

Yes. Erosion could occur at both project sites during grading activities, installing and removing erosion and sediment control structures, excavating the tank, facilities vault, and trenches, and stockpiling soil.

Erosion could occur at the UPARR conversion area and Parks mitigation area during grading activities (lawn removal) and planting of shrubs and trees.

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

49th Avenue South Parking Lot Project

The area of existing impervious surface in the parking lot is approximately 16,600 square feet (sf). The project would reduce approximately 1,400 sf of impervious surface from the parking lot with the construction of a rain garden or bioswale on the southeast edge.

The existing impervious area along 49th Avenue South is approximately 6,000 sf. The project would not change the impervious area of the street right-of-way.

The percentage of the site (the site is considered to be along 49th Avenue South, and the 49th Avenue South Parking Lot) covered by impervious area following the project will be approximately 32%. This area represents a decrease of approximately 3% to the existing impervious area.

53rd Avenue South Parking Lot

The area of the existing impervious surface in the 53rd Avenue South Parking Lot is approximately 16,400 sf. The project would not change the impervious area of the parking lot.

The existing impervious area along 53rd Avenue South and South Alaska Street is approximately 26,500 sf. The project would not change the impervious area of the street right-of-way.

The percentage of the site (the site is considered to be along South Alaska Street, 53rd Avenue South, and the 53rd Avenue South Parking Lot) covered

by impervious area following the project will be approximately 42%. There is no change in the impervious surface area.

The reroute of the Lake Washington Boulevard South Trail would temporarily increase the impervious surface area adjacent to Lake Washington Boulevard South. The rerouted trail would have an impervious surface of approximately 4,600 sf; following construction, the area temporarily impacted by the rerouted trail area would be restored to its pervious surface.

The UPARR conversion area and Parks mitigation area would not increase impervious surfaces.

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

Prior to any ground-disturbing construction activities at either project location, the UPARR conversion area, or Parks mitigation area, Temporary Erosion and Sedimentation Control (TESC) plans would be prepared and implemented by the contractor. Best Management Practices (BMPs) appropriate for the activity and season would be identified in the TESC plans, and implemented and monitored (and adjusted as needed) to maintain their effectiveness throughout the construction period for each project.

Specific measures to prevent, reduce, or control erosion are identified in the Director's Rule 16-2009 (DPD)/2009-004 (SPU) titled "Volume 2 Construction Stormwater Control Technical Requirements Manual" (2009) and may include but not be limited to:

- Limiting land disturbing activities to the minimum area needed to construct the project.
- Employing temporary (e.g., straw mulch, plastic sheeting) and permanent (hydroseeding, pavement restoration) cover measures to protect disturbed areas.
- Inspecting TESC facilities daily and maintaining them for continued proper functioning.
- Keeping written records of weekly reviews of the TESC facilities during the wet season (October 1 to April 30) and of monthly reviews during the dry season (May 1 to September 30).
- Stabilizing any areas of exposed soils that would not be disturbed for two days during the wet season or seven days during the dry season with approved TESC methods (e.g., seeding, mulching, plastic covering, etc.).
- Constructing ditches and/or dikes to intercept and divert surface water runoff away from exposed soils in the construction areas to a sediment trap or pond.
- Stabilizing unsurfaced construction site entrances, roads, and parking areas used by construction traffic with rock pads to minimize erosion and tracking of sediment offsite.

- Taking preventive measures, such as watering and covering exposed soils, during summer months to minimize the wind transport of soils.

TESC inspection requirements are mandated by the approved construction stormwater control plans and would be modified as necessary depending on site conditions.

Once permanent erosion control is in place (i.e., revegetating or repaving), no other erosion control measures would be required for the completed projects.

2. Air

a. What type of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke, greenhouse gases) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Air quality issues associated with construction of both projects at all construction locations could occur from fugitive dust emissions caused by clearing, excavation, uncovered stockpiles, and other construction activities. Localized increases in exhaust emissions from equipment and vehicle operation could occur during construction.

Each project would include odor control equipment such as a carbon scrubber vessel, odor control fan, and mist eliminator. The proposed treated air discharge stack would facilitate dispersion of the treated, clean air during the life of the completed projects. The odor control facilities would be designed to minimize potential odor impacts to the surrounding areas, including nearby residential and commercial neighbors and any future development adjacent to or on each project site. The 49th Avenue South Parking Lot site is bounded by a residential neighborhood to the west and Lake Washington Boulevard South to the east. The 53rd Avenue South Parking Lot site is bounded by Lake Washington Boulevard South and a residential neighborhood to the west/southwest and by Lake Washington to the north/northeast.

The odor control system would require periodic maintenance of equipment and carbon media replacement. During these maintenance activities, the odor control facilities may be temporarily inoperable. Odors that would be expected during these intermittent maintenance activities over the life of the project could include typical sewer gas odors (hydrogen sulfide and organic vapors) in low concentrations. Reception would likely be limited to those locations within the immediate vicinity of the access hatches to the storage facilities. These maintenance activities would occur once every three to five years for about three to four hours at a time.

Greenhouse Gas Emissions

On December 3, 2007, the Seattle City Council adopted Ordinance 122574 that requires City departments to evaluate greenhouse gas (GHG) emissions as part of environmental review under SEPA. The City of Seattle has adopted a worksheet developed by King County, Washington, to estimate lifecycle GHG emissions for a range of standard development projects. However, the tool is not well-suited to projects like these with emissions due almost entirely to short-term construction equipment operation. Therefore, construction and operations and maintenance-related GHG emissions are calculated in addition to the lifecycle GHG emissions (see Attachment C – Greenhouse Gas Emissions Worksheets for each project).

CO2e is the term used to express the global warming potential of all greenhouse gases, as their equivalent in CO2 emissions.

Greenhouse Gas Emissions – Lifetime Emissions Calculation

Because of the nature of these projects, emissions associated with the projects are due almost entirely to short-term construction equipment operation. The lifetime emissions of the completed projects are primarily associated with the embodied, energy, and transportation emissions, as well as pavement construction associated with the projects. The three specific emission categories are summarized separately below.

Based on the Seattle adopted guidance for calculating lifespan emissions for facility type and size, the facility vaults and storage tanks are considered structures and fall into the classification of “Other” as noted in the GHG worksheet. The area for the storage facilities, facility vaults and pavement are factors contributing to the total lifespan embodiment. The calculated value for the total lifespan embodiment was derived using Greenhouse Gas Emissions Worksheets in Attachment C.

Summary – Greenhouse Gas Emissions

The following tables provide summaries of the GHG emissions in metric tons CO2e by type. See Attachment C for the specific calculations for each project.

Storage in 49th Avenue South Parking Lot Project

Emission Type	Metric Tons CO2e
Section I: Buildings	8,180
Section II: Pavement	1,130
Section III: Construction	830
Section VI: Operations and Maintenance	5
Total	10,145
Notes: 1. The Project duration is assumed to be 320 days	

53rd Avenue South Parking Lot Project

Emission Type	Metric Tons CO2e
Section I: Buildings	6,550
Section II: Pavement	2,540
Section III: Construction	1,000
Section VI: Operations and Maintenance	5
Total	10,095
Notes: 1. The Project duration is assumed to be 480 days	

Other Emissions – Treated Air

The odor control facilities would be moving clean "make up" air through the storage tank and there would not be any GHG associated with the operation of this project.

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

There are no known offsite sources of emissions or odors that would affect either project.

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

Construction

The Puget Sound Clean Air Agency (PSCAA) governs activities affecting air quality in King, Snohomish, Pierce, and Kitsap Counties; and thus has jurisdiction over the project area. As required by the PSCAA regulations,

emissions would be controlled by using reasonably available control technologies (PSCAA, 2008) and City of Seattle construction practices.

Fugitive dust impacts associated with construction of the proposed projects are not anticipated to be significant. Construction contractors would comply with regulatory requirements and implement appropriate dust control measures, as necessary. Measures to minimize fugitive dust emissions from construction for each project would include:

- Spraying exposed soil and storage areas with water during dry periods.
- Covering exposed earthen stockpiles and loads of excavated material being transported from the site.

Vehicular emissions associated with construction of the projects are anticipated to be short-term in nature. Measures to minimize vehicular emissions would include:

- Requiring contractors to use best available control technologies.
- Proper vehicle maintenance.
- Minimizing vehicle and equipment idling.

Operation

Air containing sewer gas compounds that cause nuisance odors would be extracted from the storage tank and any immediately adjacent connected conveyance piping with a large air handling fan. This foul air is treated by passing the air through the carbon media in the scrubber vessel. The carbon strips these sewer gas compounds from the air prior to discharge, resulting in clean air being exhausted out of the above-ground exhaust stack. Additional treatment measures would not be required. During normal operations, all of the untreated air extracted from the tank and sewers would be treated by the odor control facilities. Maintenance would occur twice annually for the odor control facilities for three to four hours at a time (i.e., replacing carbon media, fixing a fan belt). During these maintenance activities, untreated air may be bypassed around the carbon media using the fan, or the fan may be turned off and the foul air allowed to remain in the storage tank or sewer pipes. During this period, some odors may be present immediately around the odor control facility.

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 yes, describe type and provide names. If appropriate, state what stream or river it flows into.

49th Avenue South Parking Lot Project

The project site is paved and no water bodies would be affected; however, Lake Washington lies approximately 100 feet northeast of the project site.

In addition to Lake Washington, there is a lake-fringe wetland mapped by the City of Seattle on the edge of the lake shore just north of the site (Seattle, 2010a). It is an emergent wetland that is dominated by reed canary grass and supported by the water level of Lake Washington. The surface level of Lake Washington is regulated at the outlet by the U.S. Army Corps of Engineers. Levels are high during the summer and lowered in the winter to manage storm flows. This water level fluctuation, the heavy human use of the area, and regular park maintenance limit the functional capacity of this wetland.

53rd Avenue South Parking Lot Project

The project site is paved and a paved walking trail separates the construction area from the Lake Washington shoreline. The shoreline in this area consists of gravel and riparian shrubs. The shoreline area is mapped as wetlands by the City of Seattle (2011a) and is managed by the Seattle Parks Department as natural habitat.

The UPARR conversion area would include approximately 300 linear feet of shoreline along Lake Washington (see Appendix B, Figure 9). The area is sparsely vegetated. It supports a few large trees (White Poplars, maples, and young cherry trees) and regularly maintained lawn. The shoreline is supported by a short concrete wall and lakeside vegetation is composed mostly of non-native grasses and invasive species.

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

49th Avenue South Parking Lot Project

As shown on Attachment B, Figure 2, the following project features are within the 200-foot shoreline jurisdiction of Lake Washington: storage

tank, facilities vault, the 24-inch-diameter diversion sewer from CSO Control Structure 40, the 18-inch-diameter Diversion Sewer from CSO Control Structure 41B, approximately 100 feet of the 12-inch-diameter diversion sewer from CSO Facility 11, the diversion structure at Lake Washington Boulevard South and 49th Avenue South, and removal of the existing sanitary sewer.

No other surface water bodies are in the vicinity. No work would be completed below the ordinary high water mark of Lake Washington or within lake fringing wetlands that are present along the lake shore.

53rd Avenue South Parking Lot Project

As shown on Attachment B, Figure 4 and Figure 7, the following project features are within the 200-foot shoreline jurisdiction of Lake Washington: storage tank, facilities vault, discharge force main, diversion sewer, electrical and communications conduits, and rerouted trail. No work would be completed below the ordinary high water mark of Lake Washington or within lake fringing wetlands that are present along the lake shore for the Parking Lot Project.

For the UPARR conversion area, work would occur within the 200-foot shoreline jurisdiction of Lake Washington, but work would not occur below the ordinary high water mark. Invasive vegetation would be removed and replanted in accordance with the Lake Washington Boulevard Vegetation Management Plan between the trail and shore on the north side of the parking lot (see Appendix B, Figure 9). This effort would involve planting native shrubs and trees in discreet cells along the waterfront while still allowing access and view opportunities to Lake Washington. No in-water plantings would occur.

For the Parks mitigation area, in-water work would occur and consist of the following (see Appendix B, Figure 10):

- Removing in-water rubble in the nearshore area. Existing shore protection consists of pieces of rock and concrete rubble. Specific pieces of rock or concrete that have dislodged and do not provide structural shore protection would be removed. This removal would take place using a bucket from an excavator operating from the upland shore or from a barge.
- Adding a wedge-shaped gravel blanket along the shoreline for beach nourishment and erosion prevention. The gravel blanket would taper away from the shore at a 6 horizontal to 1 vertical slope for a distance of approximately 18 feet. The existing riprap shoreline armoring would be retained, but gaps that now permit predatory fish to lurk and attack small salmon would be filled with pea gravel, an incidental benefit to

habitat. The entire riprap area would be buried with washed river rock as part of the beach nourishment

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.

49th Avenue South Parking Lot Project

No fill or dredge material would be placed in or removed from Lake Washington or wetlands in the project area.

53rd Avenue South Parking Lot Project

No fill or dredge material would be placed in or removed from Lake Washington or wetlands immediately adjacent to the Parking Lot Project site.

In the Parks mitigation area, rubble in the nearshore that does not now provide structural shore protection would be removed. Gravel/sands for beach nourishment would also be placed near the existing shoreline and riprap shoreline protection. Approximately 180 cubic yards of washed gravel would be placed below the OHWM of Lake Washington as mitigation. Final design would be done in consultation with Seattle Parks Department, Seattle Department of Planning and Development, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, NOAA Fisheries, and the Washington Department of Fish and Wildlife.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No surface water withdrawals or diversions are required for either project, the UPARR conversion area, or the Parks mitigation area.

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

The CSO projects, the UPARR conversion area, and Parks mitigation area are 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.

49th Avenue South Parking Lot Project

Dewatering water from the construction of the storage tank and deeper pipelines would be collected and treated on site using temporary storage tanks, such as Baker tanks, to meet surface water discharge standards prior to discharging to the existing storm drainage system located in the 49th Avenue South right-of-way and storm drainage system that passes through the parking lot. The storm drainage system would convey flows to Lake Washington. Discharge limits would be regulated by the State of Washington Department of Ecology's NPDES Permit for construction dewatering.

53rd Avenue South Parking Lot Project

Dewatering water from the construction of the storage tank and deeper pipelines would be collected and treated on site using temporary storage tanks, such as Baker tanks, to meet surface water discharge standards prior to discharging to the existing storm drainage system. For the storage tank and facilities vault, there is a storm drain inlet located within the 53rd Avenue South Parking Lot, which can be used to discharge treated dewatering water. For the installation of the diversion pipe, the storm drain located along South Alaska Street could be used to discharge treated dewatering water. The storm drainage system would convey flows to Lake Washington. Discharge limits would be regulated by the State of Washington Department of Ecology's NPDES Permit for construction dewatering.

The UPARR conversion or Parks mitigation would not require discharge of waste materials to surface waters.

b. Ground:

1) Will groundwater be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Based on existing subsurface information, groundwater is believed to be found at shallow depths at both project sites. Because of the anticipated presence of groundwater within the depth of excavation, temporary dewatering would most likely be required. Current assumptions for each project are:

- Temporary dewatering may occur during excavation and construction of the underground tank (for approximately 1 year of the 320 day

schedule for the 49th Avenue South Parking Lot Project and approximately 1 year of the 480 day schedule for the 53rd Avenue South Parking Lot Project).

- Storage would be provided onsite by the contractor to meet any permit requirements for water quantity and quantity discharge limits.

The dewatering would cause short-term drawdown of the water table to enable construction of the deeper sections of the buried facilities. Once those sections are constructed, dewatering requirements may be reduced but could continue for the duration of the construction phase of the project; however, there would be no major impact over the long term. Due to the proposed dimensions of the underground tanks, there may be a potential for groundwater mounding. Mitigation measures include groundwater perimeter drains at critical elevations with respect to the groundwater table around the tank that divert groundwater to controlled points and convey it across the site, and groundwater cutoff walls to divert mounded groundwater away from critical structures adjacent to the project. These and other mitigation measures would be evaluated during design and, if necessary, improvements would be provided to prevent groundwater from impacting nearby structures.

The UPARR conversion or Parks mitigation would not require withdrawal or discharge of water to 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.

Waste material would not be discharged into the ground during construction or operation of either project, the UPARR conversion or Parks mitigation.

c. Water Runoff (including storm water):

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

The source of runoff during construction of each project, the UPARR conversion area, and Parks upland mitigation area would be precipitation. Grading, the temporary loss of pavement or vegetative cover, and compaction of surface soils may temporarily increase the quantity of surface water runoff and affect its direction of flow. During construction,

runoff would likely be collected by use of temporary collection trenches, sumps, and existing culverts and inlets, and pumped or conveyed by gravity to a central location for storage and treatment prior to discharge.

Water used for dust control would not be significant enough in volume across the project areas to generate runoff and is, therefore, not considered a source of flow that would require control and treatment.

On-site treatment would typically involve temporary storage to allow suspended solids and any other constituents to settle out so the water would meet the Washington Department of Ecology's NPDES Construction Permit and comply with the City of Seattle's Director's Rule 16-2009 (Construction Stormwater Control Technical Requirements Manual). Treated water would be pumped or drained by gravity to a permitted discharge location. For these sites, that location would typically be a maintenance hole or inlet connected to a nearby stormwater conveyance pipe located in the right-of-way that would ultimately discharge to Lake Washington. Erosion control measures would be applied during construction as noted in Section B.1.h.

49th Avenue South Parking Lot Project

After the 49th Avenue South Parking Lot Project is completed, the runoff would flow to new bioretention cells at the parking lot. The new runoff collection system would be designed to meet the City's water quality and quantity requirements per City of Seattle's Director's Rule 17-2009 (Stormwater Flow Control and Water). The collected flows would be treated and discharged to the existing storm drain system located within the parking lot and the existing storm drain system located along 49th Avenue South that ultimately discharges to Lake Washington.

53rd Avenue South Parking Lot Project

After the 53rd Avenue South Parking Lot Project is completed, the runoff would flow to new bioretention cells at the parking lot. The new runoff collection system would be designed to meet the City's water quality and quantity requirements per City of Seattle's Director's Rule 17-2009 (Stormwater Flow Control and Water). The collected flows would be treated and discharged to the existing storm drain system located within the parking lot and the existing storm drain system.

After construction of the UPARR conversion area, runoff would infiltrate in the planted and lawn areas and ultimately flow to Lake Washington.

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

No waste materials are anticipated to enter the ground or surface waters during construction or operation of the proposed projects, the UPARR conversion area, or Parks mitigation area.

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

During construction, the contractor would adhere to the requirements of the TESC plans and permit conditions, and would also follow a Spill Prevention, Containment and Control (SPCC) Plans to limit the risk of uncontrolled discharges at either project site, the UPARR conversion area, or Parks mitigation area.

For both construction and ongoing operations, equipment would be operated and maintained in such a manner as to minimize the risk of an uncontrolled discharge of pollutants.

For operation of the completed facilities, spill kits would be available on-site and in vehicles that visit the sites. Operations personnel would be trained, at job-appropriate levels, to conduct their activities in a manner that minimizes the risk of spills. City of Seattle field employees receive refresher training, on an annual basis, to ensure proper spill reporting, and/or use of spill response equipment to contain, stabilize, and/or clean up spills.

4. Plants

a. Check or circle types of vegetation found on the site:

_x_ deciduous tree: alder, maple, aspen, other: Black locust European mountain ash flowering cherry, White Poplars
_x_ evergreen tree: fir, cedar, pine, other: Deodar cedar, Black cottonwood
_x_ shrubs
_x_ grass: Mowed grass as part of Lake Washington Boulevard Park
___ pasture
___ crop or grain
_x_ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other willow
___ water plants: water lily, eelgrass, milfoil, other
_x_ other types of vegetation Himalayan blackberry, English ivy

49th Avenue South Parking Lot Project

Existing vegetation at the parking lot consists of mowed grass and a large Deodar cedar tree. Along the perimeter of the site other trees are present including Black locust, European mountain ash, and flowering cherry. The

majority of the site is paved. All of the existing vegetation is regularly maintained as part of the park.

The parking strip areas along 49th Avenue South construction area are vegetated with mowed grass.

There is mowed grass between the street and the sidewalks on both sides of 49th Avenue South.

53rd Avenue South Parking Lot Project

The planting strip that separates the parking lot from Lake Washington Boulevard is managed by the City of Seattle Parks Department. It is included in the Shoreline Habitat Buffer (Seattle, 2011a) and is managed by planting and maintaining a mix of 50% native plants and 50% landscape plants according to the Parks Department Vegetation Management Plan (Seattle, 2010c) for the area. There are a series of mature Norway maples along the street frontage and low native shrubs intermixed, including Oregon grape and sword fern. There are also three false cypress trees in this area.

The land that would be used for the temporary trail on the west side of Lake Washington Boulevard South during construction is mostly vegetated with mowed grass, but some trees are present. There is a large western red cedar tree located just south of 53rd Avenue South and a flowering cherry on the north side of this intersection. Some big leaf maples are also present near the north end of the temporary trail route. This land is mowed and trees maintained by the adjacent property owners.

The parking strip areas along the 53rd Avenue South construction area contain mostly mowed grass and small shrubs. The connection area near the existing facility along Alaska Street is vegetated with mowed grass.

Vegetation along the shoreline at the parking lot project site consists of willows, ninebark, red osier dogwood, and reed canarygrass.

The UPARR conversion area is sparsely vegetated. It supports a few large trees (two very large Black cottonwoods, White Poplars, and young cherry trees) and regularly maintained lawn. Lakeside vegetation is composed mostly of non-native grasses and invasive species such as Himalayan blackberry, English ivy, and reed canarygrass.

The in-water Parks mitigation area is not currently vegetated.

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

49th Avenue South Parking Lot Project

The majority of the disturbed area would be within the paved areas of the parking lot. A portion of the grass area that separates the parking lot from Lake Washington Boulevard South would be disturbed and reseeded. A portion of this grass area would be replaced with a stormwater bioretention swale containing plants in accordance with the City of Seattle Green Stormwater Infrastructure Best Management Practices. No trees would be affected by the project. The large Deodar cedar would be protected and preserved during construction.

53rd Avenue South Parking Lot Project

Some of the vegetation within the median would be removed to accommodate portions of the new facility. The site plan had been developed to retain the more substantial, mature Norway maple trees. Affected areas would be restored upon completion. The non-native trees and small shrubs that would be affected within the vegetated median include three false cypress, two small Norway maples that have been damaged, a patch of mugo pine, and some Oregon grape.

The temporary trail is likely to require the removal of a western red cedar tree on the south side of 53rd Avenue South at Lake Washington Boulevard South. This tree is a large tree that has been topped. Some flowering cherry trees along the road are expected to be retained throughout construction.

Native vegetation along the shoreline of Lake Washington at the parking lot project site would be retained and some areas now infested with growth of non-native, invasive species would be enhanced. The enhancement would include removal of the non-native, invasive species and planting with desirable native plants. The shoreline area would not be affected by the construction of the new CSO control facility.

It is anticipated that some lawn area would be removed at the UPARR conversion area site and native trees and shrubs would be planted in discreet cells along the lake shore.

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 Natural Heritage Program, “Sections that Contain Natural Heritage Features, Current as of July 21, 2009” list (WDNR, 2010; WDNR, 2011), there are no documented threatened or endangered plant species on or near either

project. Additionally, there are no rare plants or rare plant communities on or near the project sites.

According to the U.S. Fish and Wildlife Service (USFWS, 2010) website, Western Washington Fish and Wildlife Office, Golden Paintbrush (*Castelleja levisecta*), listed as Threatened, was historically present in King County. This species is found in prairie habitats and dry, rocky areas with thin soils. Golden Paintbrush was not observed and is not likely to occur at either project area since the areas do not provide the appropriate habitat and because the areas are regularly mowed and maintained.

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

Vegetated areas disturbed by construction would be returned to their original configurations and replanted with grass and drought tolerant and/or native plantings. The majority of land impacted by both projects is part of the Lake Washington Boulevard Park and traditional uses within the park would be maintained. Vegetation buffers around the sites would include a mixture of trees, shrubs, and groundcover. In consultation with Seattle Parks and Recreation, vegetated areas disturbed by construction would be replanted primarily with drought tolerant native shrubs and groundcover and temporary irrigation systems would be employed during the plant establishment period (typically 1 to 2 years) to reduce plant mortality.

49th Avenue South Parking Lot Project

Additional planting on the 49th Avenue South Parking Lot site would be associated with the bioretention swale and bioretention cells. These plantings would be in accordance with the City of Seattle Green Stormwater Infrastructure Best Management Practices to the maximum extent feasible.

As part of right-of-way improvements associated with street restoration, approximately 30 street trees (from the approved list of small trees) would be planted along 49th Avenue South. Trees would be spaced approximately 25 feet on center along the planting strips in locations to be determined.

53rd Avenue South Parking Lot Project

Replanting at the 53rd Avenue South Parking Lot site would include a mixture of native and non-native plants that are consistent with the Seattle Parks and Recreation Lake Washington Boulevard Vegetation Management Plan (Seattle, 2010c) objectives stated for this area.

5. Animals

a. Circle any birds and 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: Osprey, ducks, Canada geese, crows
mammals: deer, bear, elk, beaver, other: Nutria small mammals
fish: bass, salmon, trout, herring, shellfish, other:_____

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

Listed species and designated critical habitat that may occur within the project area were identified from species lists on the NOAA Fisheries website (NOAA Fisheries, 2010) and the USFWS website (USFWS, 2010) accessed on June 22, 2010. The Seattle Biological Evaluation (Seattle, 2007) was reviewed to further define known listed species occurrence and distribution within or near the project area.

There are no known occurrences of listed threatened or endangered species in the project area. However, as Lake Washington is nearby and the project is in the hydrologic drainage boundary, the following threatened and endangered species information for Lake Washington is provided.

Chinook salmon (*Oncorhynchus tshawytscha)*, steelhead (*Oncorhynchus mykiss*), and bull trout (*Salvelinus confluentus)* are documented in Lake Washington; the project would have a positive effect on these species. Adult Chinook salmon and steelhead migrate through Lake Washington to spawning tributaries. Adult bull trout use Lake Washington for foraging. Juvenile Chinook salmon and steelhead utilize the nearshore as they migrate out of Lake Washington to Puget Sound. Lake Washington is also designated critical habitat for Chinook salmon and bull trout.

Lake Washington provides essential fish habitat for feeding and growth for Chinook and coho salmon. Juveniles of both species utilize the nearshore habitat for sheltering and feeding as they migrate out to Puget Sound. Adult Chinook and coho salmon use habitat within Lake Washington during their migration to spawning tributaries.

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

Lake Washington regularly attracts various species of waterfowl during migration. Large flocks of American widgeon, Common coot, and Canada geese congregate along sheltered bays throughout the lake shore to feed and use open water areas to rest and sleep during the night. The riparian habitats adjacent to the lake attract migratory songbirds in the spring and fall. Trees

located at the site may also be used by migratory songbirds, such as warblers during the spring and fall.

The entire Puget Sound basin lies within the Pacific Flyway, a major travel route for waterfowl and songbirds as they access breeding habitats in Canada and Alaska in the summer and wintering areas further south during the winter.

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

Existing mature vegetation that may currently provide some level of wildlife habitat along the perimeter of the site would be preserved. The project components would be constructed as far from the active shoreline as is feasible, and all areas would be restored once the facility has been installed.

The vegetation to be retained at the 53rd Avenue South Parking Lot site was selected because it would help support wildlife habitat functions. The trees and large shrubs to be removed are not native and provide a limited amount of habitat support. Replanting the disturbed median area with a mixture of native trees, shrubs, and ground covers would better support the shoreline habitat buffer objectives stated within the City of Seattle Critical Areas Ordinance (Seattle, 2011b).

The completed facilities are expected to improve water quality within Lake Washington which would benefit resident and migrating wildlife.

Removing in-water rubble, planting native trees and shrubs, and adding gravel/sands for beach nourishment in the Parks mitigation area would be consistent with the Lake Washington Boulevard Vegetation Management Plan and Seattle Municipal Code, Chapter 15.09 – Regulations for Environmentally Critical Areas. Eliminating the rubble along the nearshore will also help to eliminate hiding and shelter habitat for lurking predator species, such as bass and bullhead, which prey on juvenile salmon. This action would have an incidental benefit to habitat.

In-water work (rubble removal and beach nourishment) would occur during approved in-water work windows.

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.

Each project would require electricity for the facilities vault for lighting and to operate mechanical equipment such as pumps, odor control fans, heating and air condition units, and instrumentation.

Annual consumption for each project is estimated at 75,000 to 125,000 kilowatt hours per year under anticipated normal operating conditions. Energy usage is associated with the operation of heating, ventilation and air conditioning equipment, lighting, raw sewage pumps, small water system pumps, small electrical and communications equipment, and instrumentation. Variability in usage may occur depending on the number of CSO storage events that the completed facility must store and pump during a calendar year.

The UPARR conversion area and Parks mitigation area would not require energy and natural resources.

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

The projects would not affect the use of solar energy by adjacent properties.

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

The facility vaults for each project would be designed to meet the current energy code as required by the City of Seattle.

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.

Soil and Groundwater Contamination

49th Avenue South Parking Lot Project

HDR conducted a Phase I Environmental Site Assessment for the Basin 40/41 Project (HDR, 2010b). According to a review of historical sources, including historical aerial photographs, city telephone directories, and Sandborn insurance maps, the project vicinity has developed over the past 50 years as single- and multi-family residential and light commercial land uses.

There were no Recognized Environmental Conditions (RECs) identified that would adversely affect construction of the project. The risk of contamination from six identified sites near the project area is low to medium due to the possibility of combustible gas migration to the project site through existing utilities. It is recommended that the selected construction contractor be

notified and prepared to detect, document, and comply with applicable environmental laws and regulations if combustible gas is encountered.

53rd Avenue South Parking Lot Project

HDR conducted a Phase I Environmental Site Assessment for the Basin 43 Project (HDR, 2011b). According to a review of historical sources, including historical aerial photographs, city telephone directories, and Sandborn insurance maps, the project vicinity has developed over the past 50 years as single- and multi-family residential and light commercial land uses.

There were no RECs identified that would adversely affect construction of the project. The risk of contamination from five identified sites near the project area is low. Therefore, there is low probability that combustible gas may migrate to the project site through existing utilities.

Construction

Materials likely to be present during construction of both projects 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 as a result of either equipment failure or worker error.

Operation and Maintenance

Chemicals used at the completed facilities at each project would be typical household cleaning supplies for washing work surfaces and industrial solvents used to clean electrical and mechanical machinery. Lubricants would be used on mechanical equipment and carbon filter media (activated carbon) in the odor control scrubber would be used and replaced annually.

Additionally, through its Green Purchasing Program (GPP), Seattle and its contractors are encouraged to promote environmental stewardship through buying goods, materials, services, and capital improvements that are safer and more environmentally friendly.

1) Describe special emergency services that might be required.

   Possible fire or medic services could be required during construction of either project, as well as possibly during maintenance of the completed projects.

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

Health and Safety Plans would be submitted by the contractor before the work commences on either project.

Contaminated soils and groundwater, if encountered during construction, would be removed and disposed of according to the appropriate regulatory requirements.

To protect against hazardous substance spills from routine equipment operation and maintenance during construction, the contractor would be required to provide an emergency response plan and know proper hazardous materials storage, handling, and emergency procedures, including proper spill notification and response requirements (SPCC Plan).

b. Noise

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

Existing noise in the area (primarily traffic on Lake Washington Boulevard South and other local streets) would not affect either project during construction or when they are completed.

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 site.

Construction Activity

Noise levels in the vicinity of each project site, the UPARR conversion area, and Parks mitigation area would temporarily increase during construction activities due to the operation of heavy construction equipment. The nearest recreational facility is the trail paralleling Lake Washington Boulevard South, approximately 30 feet east of the 49th Avenue South Parking Lot site and immediately adjacent to the 53rd Avenue South Parking Lot site.

The Washington State Department of Ecology (WAC 173-60-040) and the City of Seattle (SMC 25.08) regulate outdoor noise levels that vary according to the land use of the property where the noise source is located and the property receiving the noise. The project site and nearby noise-receiving properties are designated single family residential. Seattle Municipal Code exterior sound level limits would be 55 in A-weighted decibels (dBA) for daytime construction. A 55 dBA noise level is typical of

urban environments where there are no large sources of noise such as traffic on busy streets or other industrial sources. Noise sources for levels of 50 dBA to 60 dBA are typical of normal speech and light vehicle traffic at about 50 feet from the source. Such noise levels are generally not perceived as obtrusive by people.

Noise from construction operations at either project may occur between the hours of 7 a.m. and 7 p.m. on weekdays and between 9 a.m. and 7 p.m. on weekends and legal holidays. Nighttime work is not currently anticipated.

Exceedances of the noise limits shown above during normal daytime construction hours are allowed for construction noise depending on the type of equipment being used and the duration of the exceedance. Exceedances of the construction equipment noise limits during daytime hours are determined by measuring noise from the property line to the equipment or at a distance of 50 feet from the construction equipment making the sound, whichever is greater.

During daytime hours of construction, noise levels may exceed the limits shown above by no more than:

- 25 dBA for equipment on construction sites, including but not limited to crawlers, tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, graders, off-highway trucks, ditchers, trenchers, compactors, compressors, and pneumatic-powered equipment;

- 25 dBA for portable equipment used in temporary locations in support of construction activities including chainsaws, log chippers, lawn and garden maintenance equipment, and powered hand tools; or

- 15 dBA for power equipment used in temporary or periodic maintenance activities, including but not limited to lawnmowers, power hand tools, snow-removal equipment, and composters.

In addition, the sounds created by impulsive impact equipment, such as pavement breakers, pile drivers, jackhammers, or sandblasting tools, may exceed the sound level limits in any one hour by no more than the following:

- Leq 90 dBA continuously;
- Leq 93 dBA for 30 minutes;
- Leq 96 dBA for 15 minutes; or
- Leq 99 dBA for 7 1/2 minutes;

49th Avenue South Parking Lot Project

Baseline noise monitoring was conducted on July 27, 2010, at three locations surrounding the 49th Avenue South Parking Lot site to characterize existing noise levels, and the results are summarized in a report entitled *Genesee Combined Sewer Overflow (CSO) Reduction Project Noise Assessment* (HDR, 2011c). Baseline noise levels were low because of very low traffic volumes on Lake Washington Boulevard South, nearby streets, and the absence of other industrial noise sources. The levels ranged from 41 dBA to 53 dBA. The higher noise level (53 dBA) was due to the noise meter being located closer to Lake Washington Boulevard South.

53rd Avenue South Parking Lot Project

Baseline noise monitoring was conducted on October 4, 2010, at three locations near the 53rd Avenue South Parking Lot Project area to characterize existing noise levels, and the results are summarized in a report entitled *Genesee Combined Sewer Overflow (CSO) Reduction Project Noise Assessment* (HDR, 2011c). Baseline noise levels were low because of very low traffic volumes on Lake Washington Boulevard South, nearby streets, and the absence of other industrial noise sources. The noise levels ranged from 42 dBA to 44 dBA.

<u>On-Going Operations</u>

Noise impacts from the completed projects would be minimal. Equipment would be housed in structures buried below grade in thick concrete vaults providing natural sound attenuation. Air vent intake and exhaust ports associated with supply and exhaust air for buried structure ventilation would be located in above grade intakes and exhausts. These air ducts would be fitted with duct silencers and vibration dampeners to reduce noise and provide additional noise attenuation. The odor control system exhaust stack would be fitted with a silencer and the duct sized to limit noise generation from treated air exhaust.

Noise from operations and maintenance activities would be infrequent and likely occur only during daytime hours. Operations and maintenance activities are not expected to impact existing adjacent areas or future on-site housing.

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 fully enforced while the project is under construction. Because construction noise levels would be variable, contractors would implement the following measures to minimize disruption and inconvenience caused by construction activities:

- Ensure the adequacy of sound-control devices that are at least as effective as those on the original equipment. No equipment would have unmuffled exhaust.
- Minimize idling time of equipment and vehicle operation.
- Operate equipment only during approved hours.
- Conduct noise monitoring to ensure compliance with the SMC if noise complaints are received during construction.

As necessary, the following additional measures could be implemented:

- Change the location of stationary construction equipment;
- Shut off idling equipment; and/or
- Install acoustic barriers around stationary sources of construction noise.

Measures would not be required for the completed project, the UPARR conversion area, or the Parks mitigation area.

8. Land and Shoreline Use

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

49th Avenue South Parking Lot Project

<u>Parking Lot Facilities</u>

The parking lot site is part of the Lake Washington Boulevard Park and contains a parking lot and planted island separating the parking lot from Lake Washington Boulevard South. To the north and east are Lake Washington Boulevard South, a paved trail that follows the shoreline of Lake Washington, and Lake Washington; to the west and south are single-family residences.

<u>CSO Facility 11 Modifications</u>

The new diversion structure, located within public right-of-way at the intersection of South Dakota Street and 49th Avenue South, would be surrounded on all sides by single-family homes.

The new 12-inch-diameter diversion sewer would be located within public right-of-way on 49th Avenue South, from the intersection of the new diversion structure to Lake Washington Boulevard South. There are single-family residences to the west, south, and east, and Lake Washington Boulevard South and Lake Washington to the north.

Diversion Structure

The new diversion structure would be located within public right-of-way at the intersection of Lake Washington Boulevard South and 49th Avenue South. Adjacent land uses are the parking lot to the west, single-family residences to the south, Lake Washington to the north and Lake Washington Boulevard South to the east.

Contractor Parking

Contractor parking Option A would be located within public rights-of-way along 48th Avenue South and 49th Avenue South; there are single-family residences along these streets. Contractor parking Option B would be located within a paved parking lot near the Lakewood Boat Moorage facility; Lake Washington is located to the east and north, single-family residences to the west, and boat moorage facilities to the south. Contractor parking Option C would be located at Stan Sayres Memorial Park within an existing paved parking area; Lake Washington is located to the west, north and east, and Genesee Park and single-family residences are located to the south.

53rd Avenue South Parking Lot Project

Parking Lot Facilities

The parking lot site is part of the Lake Washington Boulevard Park and contains a parking lot and planted island separating the parking lot from Lake Washington Boulevard South. To the west is Lake Washington Boulevard South; a paved trail that follows the shoreline of Lake Washington, and Lake Washington are to the east; to the west and south are single-family residences.

CSO Facility 9 Modifications

The new diversion structure, located within public right-of-way at the intersection of South Alaska Street and 54th Avenue South, would be surrounded on all sides by single-family homes.

The new 18-inch-diameter diversion sewer would be located within public right-of-way on South Alaska Street, from 54th Avenue South to 53rd Avenue

South, and on 53rd Avenue South, from South Alaska Street to Lake Washington Boulevard South. There are single-family residences surrounding the pipe alignment.

UPARR Conversion Area

The UPARR conversion area is part of the Lake Washington Boulevard Park and used as passive recreation. To the south is a paved trail and Lake Washington Boulevard. To the west is the 53rd Avenue South Parking Lot site. Lake Washington Boulevard Park continues to the east and Lake Washington is immediately to the north. The upland vegetation area is immediately east of the parking lot project area.

Parks Mitigation Area

The Parks mitigation area consists of in-water work within Lake Washington immediately north of the UPARR conversion area.

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

The sites occupied by project facilities at either location, the UPARR conversion area, or the Parks mitigation area have not been used for agriculture in recent history.

c. Describe any structures on the site.

Storage in 49th Avenue South Parking Lot Project

The proposed site of Contractor Parking Option C at the Stan Sayres Memorial Park is adjacent to buildings associated with the Mount Baker Rowing and Sailing Center.

Storage in 53rd Avenue South Parking Lot Project

There are no structures on the 53rd Avenue South Parking Lot site; there are homes adjacent to 53rd Avenue South and South Alaska Street.

There are no structures at the UPARR conversion area or the Parks mitigation area.

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

No structures would be demolished for either project, the UPARR conversion area, or the Parks mitigation area.

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

Storage in 49th Avenue South Parking Lot Project

The current zoning classification of the project features is Single Family (SF) 7200 (King County, 2010).

Storage in 53rd Avenue South Parking Lot Project

The current zoning classification of the project features, the UPARR conversion area, and Parks mitigation area is SF 7200 (King County, 2011).

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

Storage in 49th Avenue South Parking Lot Project

The current comprehensive plan future land use designations of project features are City-Owned Open Space and Single Family Residential (Seattle, 2010b).

Storage in 53rd Avenue South Parking Lot Project

The current comprehensive plan future land use designations at the location of project features, the UPARR conversion area, and Parks mitigation area are City-Owned Open Space and Single Family Residential (Seattle, 2010b; Seattle 2011a).

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

Storage in 49th Avenue South Parking Lot Project

The Shoreline Master Program (SMP) shoreline environment designations are:

- Storage tank, facilities vault, overflow diversion line, discharge force main, diversion sewer from CSO Control Structure 41, and the northern portion of the diversion sewer from CSO Facility 11 – Conservancy Recreation
- Contractor Parking Area A – Conservancy Management
- Contractor Parking and Staging Area B – Conservancy Recreation
- Contractor Parking and Staging Area C – Conservancy Management

Because of their very nature, CSO facilities are typically sited within or near shoreline areas. Per an interpretation by the Seattle Department of Planning and Development (DPD), CSO facilities are not allowed within a Conservancy Recreation shoreline environment.

DPD is in the process of comprehensively updating its SMP for the first time since 1987. SPU is working closely with DPD to pursue changes that would allow CSO facilities within Conservancy Recreation shoreline environments.

Storage in 53rd Avenue South Parking Lot Project

The Shoreline Master Program shoreline environment designation for the parking lot project site is Conservancy Management. All of the project features within the parking lot, the 6-inch-diameter force main, and approximately 200 feet of the 18-inch-diameter gravity sewer are all within the shoreline jurisdiction. These facilities are allowed within a Conservancy Management shoreline environment.

The Shoreline Master Program shoreline environment designation for the UPARR conversion area and Parks mitigation area is Conservancy Management.

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

Storage in 49th Avenue South Parking Lot Project

Based on visual observations and a review of information on the Seattle Parcel Data website, the following environmentally critical areas have been classified as on or near the project features (Seattle, 2010a):

- Storage tank, facilities vault, overflow diversion line, discharge force main, diversion sewer from CSO Control Structure 41, and the northern portion of the diversion sewer from CSO Facility 11 – Within 1,000-foot methane buffer, just outside of the 200-foot archaeological buffer, approximately 100 feet from the wetland along Lake Washington, and within 100-foot shoreline buffer.
- Contractor Parking and Staging Area B – Within 200-foot archaeological buffer, 100-foot shoreline habitat buffer, and near fringe wetlands along Lake Washington.
- Contractor Parking and Staging Area C – Within 1,000-foot methane buffer, peat settlement prone category II, liquefaction zone, 1,000-foot archaeological buffer, 100-foot shoreline habitat buffer.

Storage in 53rd Avenue South Parking Lot Project

Based on visual observations and a review of information on the Seattle Parcel Data website, the following environmentally critical areas have been classified as on or near the project features, including the UPARR conversion area and Parks mitigation area (Seattle, 2011a):

- Storage tank, facilities vault, staging area, and gravity sewer – within 200-foot archaeological buffer, 100-foot shoreline habitat buffer, and adjacent to fringe wetlands along Lake Washington.
- Recreational path – A steep slope is mapped immediately south of Lake Washington Boulevard South and east of 53rd Avenue South, near where the recreational path would be detoured during construction.
- UPARR conversion area – within 200-foot archaeological buffer, 100-foot shoreline habitat buffer, and adjacent to fringe wetlands along Lake Washington.
- Parks mitigation area – within 200-foot archaeological buffer, and 100-foot shoreline habitat buffer.

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

Neither facility would be permanently occupied as part of normal operations. Temporary occupancy of one or two hours by two or three-person crews would be required on a monthly basis. Extended occupancy of up to eight hours at a time would be required during repairs of equipment or infrequent tank cleaning (approximately once per year).

During construction, up to 20 construction-related personnel could be expected at either project site during peak periods of construction activity. The average number of workers is expected to be 10 with a periodic peak of 20 workers. It is assumed that some workers would carpool or use public transportation. These workers would temporarily occupy the project site and the project work limits during work hours only for the duration of the project.

Seattle Parks Department employees would continue to maintain the UPARR conversion area and Parks mitigation area as part of the Lake Washington Boulevard Park.

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

No people would be displaced by either completed CSO project, the UPARR conversion area, or Parks mitigation area.

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

No measures to avoid or reduce displacement would be required.

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

The proposed projects would consist of buried structures/pipelines and above-ground treated air discharge stacks, air vents, and electrical

connections. The projects would have no long-term impacts on existing or projected land uses.

The completed above-grade features, including the treated air discharge stacks, would be designed and constructed to blend into the surroundings to the extent possible while still maintaining the intended operational function. The stacks could be finished to emulate other vertical features such as light standards, light poles, or a tree to reduce visual impacts.

Initiative 42 (adopted by Ordinance 118477) requires that City of Seattle lands held for park and recreation purposes shall be preserved and that the use cannot be changed to another use unless a public hearing is held. The major facilities for both projects are located within the Lake Washington Boulevard Park and, although the uses would remain as recreation, approval by the City Council would be required.

DPD is in the process of comprehensively updating its SMP. SPU is working closely with DPD to pursue changes that would allow CSO facilities within Conservancy Recreation shoreline environments.

The UPARR conversion area and Parks mitigation area would consist of enhancements to the Lake Washington Boulevard Park and would not change the usage of the existing or projected land uses.

9. Housing

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

The projects would not involve construction of housing units.

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

Housing units would not be eliminated as a result of these projects.

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

No measures would be required.

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?

Storage in 49th Avenue South Parking Lot Project

Most of the proposed structures would be below grade. The tallest above-grade structure would be the treated air discharge stack which would extend up to approximately 20 feet above the existing grade to facilitate dispersion of the treated, clean air. It would be located on the western part of the site near the existing tall trees within the prescribed setbacks from private property and public right-of-way lines. The treated air discharge stack could be camouflaged to blend with its surroundings.

Other above-grade features would include air vents for the tank and the facilities vault, miscellaneous electrical connections and switches housed in an electrical cabinet, and the new retaining structure along the southern boundary of the site. The vents would be located around the site, outside of the parking and driving areas.

Storage in 53rd Avenue South Parking Lot Project

Most of the proposed structures would be below grade. The tallest above-grade structure would be the treated air discharge stack which would extend up to approximately 20 feet above the existing grade to facilitate dispersion of the treated, clean air. It would be located on the western part of the site near the existing tall trees. The treated air discharge stack could be camouflaged to blend with its surroundings.

Other above-grade features would include air vents for the tank and the facilities vault, and miscellaneous electrical connections and switches housed in an electrical cabinet. The vents would be located around the site, outside of the parking and driving areas between the parking lot and Lake Washington Boulevard South.

Planting of native trees and shrubs at the UPARR conversion area would still allow view opportunities to Lake Washington.

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

Views at either project site, the UPARR conversion area, and the Parks mitigation area would be temporarily impacted during construction activities. No views would be altered or obstructed by the completed projects. The treated air discharge stacks for either project would be located near existing trees to minimize any visual or view corridor impacts.

Rubble removed from the near-shore of Lake Washington and planting native shrubs and trees in discreet cells at the UPARR conversion area would improve aesthetics of the Lake Washington Boulevard Park.

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

The treated air discharge stacks would be located near existing trees. They would be colored, given an architectural finish, or covered with natural camouflage to help blend into the existing surroundings and reduce apparent visibility.

No other measures would be required.

11. Light and Glare

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

Construction of both projects is planned during daylight hours and would not require lighting. However, the rerouted trail would include pedestrian crossing caution lighting at the edges of the parking lot. The lighting would be most visible during the twilight and night hours to warn drivers about the potential for pedestrians crossing Lake Washington Boulevard South. The lights would be positioned to minimize the visual impact to adjacent homes.

The completed projects would not produce any visible light or glare. Lighting would be required within the equipment structure for maintenance crews to be able to perform their duties. Because the structure would be below-grade, no security lighting is proposed. However, if security lighting was added at a later date, it would be shielded and directed down and would not generate glare to the adjacent properties.

No visible light or glare would be associated with the UPARR conversion area or the Parks mitigation area.

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

No light or glare from the finished projects would be a safety hazard or interfere with views.

c. What existing offsite sources of light or glare may affect your proposal?

No offsite sources of light or glare would affect either the construction or operation of the projects, use of the UPARR conversion area, or use of the Parks mitigation area.

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

All lighting would be shielded and directed away from potentially impacted properties.

12. Recreation

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

Storage in 49th Avenue South Parking Lot Project

The underground storage and facilities vault would be located within a paved parking lot that serves Lake Washington Boulevard Park, part of the Olmsted Park and Boulevard system. Genesee Park and Stan Sayres Memorial Park are located to the north of the project area and Seward Park is located to the south. There is a paved recreational trail between and parallel to Lake Washington Boulevard South and Lake Washington.

Lake Washington Boulevard South is a main arterial for access to local residences, businesses, and park properties. Due to construction of the project facilities within Lake Washington Boulevard South, there would be temporary impacts to the motoring public and recreationists. Two-lane, two-way traffic with infrequent flagging would be maintained during most of the construction duration. However, Lake Washington Boulevard South from approximately 51st Avenue South northward is fenced for Seafair activities. A temporary suspension of construction activities in the right-of-way to accommodate more-than-usual numbers of users of the Park facilities is anticipated during these activities and other special events.

Two of the potential contractor parking and staging areas are located within paved parking lots of park properties.

Storage in 53rd Avenue South Parking Lot Project

The underground storage and facilities vault would be located within a paved parking lot that serves Lake Washington Boulevard Park, part of the Olmsted Park and Boulevard system. Genesee Park and Stan Sayres Memorial Park are located to the north of the project area and Seward Park is located to the

south. There is a paved recreational trail between the parking lot and Lake Washington.

Similar to the 49th Avenue South Parking Lot Project, there would be temporary impacts to the motoring public and recreationists using Lake Washington Boulevard South. Two-lane, two-way traffic with infrequent flagging would be maintained during most of the construction duration. A temporary suspension of construction activities in the right-of-way to accommodate more-than-usual numbers of users of the Park facilities is anticipated during special events.

Development in the majority of the parking lot and vegetated median is constrained by the NPS UPARR grant program (see Appendix B, Figure 9). The proposed project would result in permanent above-ground features within an approximately 6,200 square foot area of the existing median between the parking lot and Lake Washington Boulevard. Consequently, a grant conversion is required, which is a transfer of grant restrictions from the affected part of the median to an area not already encumbered by grant restrictions.

The Parks Department identified an unencumbered area immediately south of the parking lot site that would be acceptable for the conversion area. SPU has submitted a formal request to NPS seeking acceptance of this area for conversion plus landscaping enhancements to mitigate for using a portion of the vegetated median strip for permanent structures. This effort would involve removing invasive species and planting native shrubs and trees in discreet cells along the waterfront while still allowing access and view opportunities to Lake Washington. Landscape enhancements would conform to the Lake Washington Boulevard Vegetation Management Plan (Seattle, 2010c) and the City of Seattle Critical Areas Ordinance (Seattle, 2011b). No in-water plantings would occur.

Discussions have been held with the Seattle Parks Department to determine what improvements may be required to mitigate for project impacts. The proposed conversion area is also the site Seattle Parks selected for mitigation improvements. The project concept currently being discussed consists of the following components (see Appendix B, Figure 10):

- Removing in-water rubble in the nearshore area. Existing shore protection consists of pieces of rock and concrete rubble. Specific pieces of rock or concrete that have dislodged and do not provide structural shore protection would be removed. This removal would take place using a bucket from an excavator operating from the upland shore or from a barge.
- Adding a wedge-shaped gravel blanket along the shoreline for beach nourishment and erosion prevention. The gravel blanket would taper

away from the shore at a 6 horizontal to 1 vertical slope for a distance of approximately 18 feet.

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

Yes. Both projects would be located within parking lots associated with the Lake Washington Boulevard Park and construction would occur during an overlapping time period. Below are detailed descriptions of the temporary and permanent impacts associated with these proposals.

Storage in 49th Avenue South Parking Lot Project

Construction of the storage tank and facilities vault at the 49th Avenue South Parking Lot site would temporarily reduce available parking spaces by approximately 48 spaces. Potential contractor parking and staging areas that are located within paved parking lots of Park properties would temporarily reduce available parking spaces by approximately 20 spaces. Coordination would occur with Seattle Parks to determine which contractor parking and staging areas within Parks parking lots could be used and if any restrictions would be placed on them during high usage times.

The completed project would eliminate four parking spaces to create access to the facilities vault and designated parking spaces for SPU Operations and Maintenance staff. Permanent above-ground vent stack and air intake and exhaust plenums would be located in a landscaped area and would not interfere with the long-term use of the parking lot. The storage tank and facilities vault and associated piping would be underground and would not interfere with the long-term use of the parking lot.

Additional discussion of traffic and transportation impacts during construction can be found in Section B.14.g.

Storage in 53rd Avenue South Parking Lot Project

Construction of the storage tank and facilities vault at the 53rd Avenue South Parking Lot site would temporarily reduce available parking spaces by 33 spaces. Additionally, the Lake Washington Boulevard South trail located adjacent to the 53rd Avenue South Parking Lot would be temporarily rerouted to the southern side of Lake Washington Boulevard South. The completed project would eliminate two parking spaces for access to the facilities vault and designated parking spaces for SPU Operation and Maintenance staff.

The UPARR conversion area and Parks mitigation area would be temporarily unavailable to park users during construction of the planned improvements.

Permanent above-ground vent stack and air intake and exhaust plenums would be located in a landscaped median area and would not interfere with the long-term use of the parking lot or access to the shoreline. The storage tank and facilities vault and associated piping would be underground and would not interfere with the long-term use of the parking lot.

Additional discussion of traffic and transportation impacts during construction can be found in Section B.14.g.

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

Because of their close geographic locations, construction of both Genesee projects would create a temporary cumulative impact to recreation uses within the area as a result of the temporary reduction of available parking spaces, infrequent closures of one lane of Lake Washington Boulevard, temporary trail closure along the 53rd Avenue South Parking Lot and limited beach access at the 53rd Avenue South Parking Lot. Those impacts would be mitigated by the measures described in the following sections.

The Genesee projects would produce permanent cumulative impacts to recreation though the elimination of 6 parking spaces that would create access for SPU Operations and Maintenance staff. Discreet above-ground structures, such as electrical panels, treated air discharge stacks, and other small equipment structures (e.g. intake structures), would also be installed. These structures would be sited to have no impact on recreational uses of either area. The Genesee projects would not affect the long-term use of the sites as parking lots.

Additionally, SPU is proposing similar projects, the Henderson Basin 44 and 45 CSO Reduction Projects that would have the potential to impact Seattle Park properties. The Henderson Basin 44 CSO Reduction Project is expected to be sited at one of two alternative locations within Seward Park. The Henderson Basin 45 CSO Reduction Project is expected to be sited either near or in Martha Washington Park. Regardless of the alternative selected for the Henderson Basin 44 CSO Reduction Project, construction would involve the temporary reduction in available parking, temporary loss of tennis courts (if sited at this location), and temporary loss of access to the adjacent shoreline. However, the Basin 44 project would not overlap with construction of the Genesee Projects and, thus, the Basin 44 project would not produce a temporary cumulative impact to recreational facilities. As with the Genesee projects, parking (except for a few spaces needed by SPU Operations and Maintenance staff) and shoreline access would be restored following construction of the Basin 44 project. One of the Basin 44 alternatives being considered would also involve construction where the tennis courts are currently located. Presently, SPU plans to restore the tennis

courts following construction of the CSO facilities. As with the Genesee Projects, the only permanent structures in Seward Park associated with the Henderson Basin 44 project would be discreet above-ground facilities such as electrical panels and treated air discharge stacks. These would be sited to have little to no impact on recreational uses.

It is uncertain whether the Henderson Basin 45 CSO Reduction Project would be constructed in Martha Washington Park. If so, it would temporarily close part of the park to recreational use during construction. However, construction of this project would not overlap with construction of the Genesee projects, so there would be no short-term cumulative impacts on recreational use of the Parks from the Genesee projects along with the Basin 45 project. If the Basin 45 project were located in Martha Washington Park, the impacts would be similar to the Genesee projects. Long-term use as open-space would be restored following construction. Like those associated with the Genesee projects, the discreet above-ground facilities would be sited to have little to no impact on recreational uses. Therefore, there would be little to no impacts of the Genesee projects on recreational use, considered cumulatively with expected impacts from the Basin 44 and 45 projects.

Proposed measures to reduce impacts on recreation for each Genesee project could include the following:

- Siting the projects within paved parking areas.
- Protecting existing trees to the greatest extent possible.
- Locating treated air discharge stacks in the least visible locations.
- Maintaining two-lane, two-way traffic on Lake Washington Boulevard South, through use of flaggers and police, if necessary.
- Temporarily suspending construction activities in the right-of-way and limiting usage of contractor parking and staging areas, if needed, to accommodate heavier-than-usual numbers of users of the Park facilities during seasonal peak usage periods (e.g., Seafair events).
- Limiting lane closures or construction on weekends or evenings, which tend to be peak times for recreational use.
- Providing advance public notice and signage to help ensure adequate public access to shoreline areas and parking lots.
- Returning the rerouted trail to its original location following construction.

SPU is in discussion with Seattle Parks and the following mitigation measures would be implemented for the UPARR conversion area:

- Removing invasive species and planting native shrubs and trees in discreet cells along the waterfront adjacent to the conversion area and between the trail and the shore on the north side of the parking lot while still allowing access and view opportunities to Lake Washington.

Discussions have been held with Seattle Parks to determine what improvements may be required to mitigate for project impacts. The concept currently being discussed with Seattle Parks consists of the following components:

- Removing in-water rubble in the nearshore area. Existing shore protection consists of pieces of rock and concrete rubble. Specific pieces of rock or concrete that have dislodged and do not provide structural shore protection would be removed. This removal would take place using a bucket from an excavator operating from the upland shore or from a barge.
- Adding a wedge-shaped gravel blanket along the shoreline for beach nourishment and erosion protection. The gravel blanket would taper away from the shore at a 6 horizontal to 1 vertical slope for a distance of approximately 18 feet.

Construction of the UPARR conversion area and Parks mitigation area improvements could be timed to avoid construction of the CSO facilities, as well as seasonal peak usage periods such as Seafair.

13. 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.

Storage in 49th Avenue South Parking Lot Project

A review of information on the Seattle Parcel Data website shows Contractor Parking and Staging Areas B and C are within a 200-foot archaeological buffer. The storage tank, facilities vault, overflow diversion line, discharge force main, diversion sewer from CSO Control Structure 41, and the northern portion of the diversion sewer from CSO Facility 11 are just outside of the 200-foot archaeological buffer. (Seattle, 2010a)

Historical Research Associates (HRA) conducted a site-specific cultural resources inventory for the 49th Avenue South Parking Lot Project area. Their findings were reported in a study entitled *Cultural Resources Inventory for the Basin 40/41 b – Storage in 49th Avenue South Parking Lot Project, City of Seattle, King County, Washington* (HRA, 2010).

The project location was checked against the following documentary sources:

- City of Seattle Neighborhoods Historic Sites Database
- City of Seattle Landmark Register
- King County and Local Landmarks List

HRA also reviewed records on file at the Washington Department of Archaeology and Historic Preservation (DAHP):

- DAHP On-Line Data Base (WISSARD)
- Ethnographic Data and Historic Maps including General Land Office Plats and Sanborn Fire Insurance Maps
- National Register of Historic Places
- Washington Heritage Register

Archaeologists surveyed using a combination of pedestrian (walking) transects and one shovel probe in unpaved and unlandscaped portions of the project area.

No archaeological materials were identified within the project area as a result of archival research and field investigations.

The facilities would be underground and no buildings, structures, or objects over 25 years of age would be impacted. As a result, an architectural inventory was not conducted.

Storage in 53rd Avenue South Parking Lot Project

A review of information on the Seattle Parcel Data website shows the storage tank, facilities vault, gravity sewer, force main, and contractor staging area within a 200-foot archaeological buffer. (Seattle, 2011a)

HRA conducted a site-specific cultural resources inventory for the 53rd Avenue South project area. Their findings were reported in a study entitled *Cultural Resources Inventory for the Basin 43 c – Storage in 53rd Avenue South Parking Lot Project, City of Seattle, King County, Washington* (HRA, 2011).

The project location was checked against the following documentary sources:

- City of Seattle Neighborhoods Historic Sites Database
- City of Seattle Landmark Register
- King County and Local Landmarks List

HRA also reviewed records on file at the Washington Department of Archaeology and Historic Preservation (DAHP):

- DAHP On-Line Data Base (WISSARD)
- Ethnographic Data and Historic Maps including General Land Office Plats and Sanborn Fire Insurance Maps
- National Register of Historic Places
- Washington Heritage Register

Archaeologists surveyed using a combination of pedestrian (walking) transects and 25 shovel probes in unpaved portions of the project area.

No archaeological materials were identified within the project area as a result of archival research and field investigations.

With the exception of a temporary pedestrian trail, the facilities would be primarily underground. No buildings, structures, or objects over 25 years of age would be impacted. As a result, an architectural inventory was not conducted.

For the UPARR conversion area and Parks mitigation area, an archaeological survey would be conducted in compliance with the National Historic Preservation Act because of the federal nexus (National Park Service and U.S. Army Corps of Engineers). The results of the survey would be distributed to the affected Tribes and DAHP for review. Mitigation and/or avoidance measures would be designed based up on the results of the survey.

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

Storage in Lake Washington Boulevard Parking Lot Project

There were two previously recorded archaeological sites within a one-mile radius of the project area; however these resources are outside of the project boundaries and would not be affected by the project. No historically significant cultural resources were identified on or next to the project area.

Storage in 53rd Avenue South Parking Lot Project

There were no previously recorded archaeological sites within a two-mile radius of the project area, including the UPARR conversion area and the Parks mitigation area. Three historic properties are located within one block of the project area, including two single-family residences and one commercial district; however these resources are outside of the project boundaries, are not within view of it, and would not be affected by the project.

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

Pedestrian surveys and shovel probes revealed no cultural materials within the Area of Potential Effect (APE) at either project area. Therefore, construction activities related to these alternatives would affect no known archaeological sites. Most of the subsurface disturbance would occur underneath the current parking lots at each site where subsurface tests could not be performed due to the asphalt parking pads. Since these locations

have a high probability for prehistoric or ethnohistoric hunting or harvesting activities, monitoring is recommended for construction underneath the parking lot sites.

Archaeological monitoring would be conducted according to the following guidelines:

- An archaeological monitoring plan would be developed for the Project by an archaeologist that meets the Secretary of the Interior Standards and Guidelines.
- The monitoring plan would be approved by DAHP.
- An archaeologist would be present to monitor during ground-disturbing activities in paved areas during construction.
- Language requiring cultural resource training for construction personnel, the presence of a qualified archaeological monitor, and adherence to the monitoring plan would be placed on all project plans, specifications, and would be in all contract documents.
- The monitoring plan would contain procedures to follow in the event that archaeological materials or human remains are encountered, including a clear communication plan.

In the event that cultural remains, either prehistoric or historic, were encountered during excavation or after excavation has ceased, work in the immediate areas 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 in accordance with the monitoring plan, including coordination with appropriate tribal, local, and state authorities.

If human remains were discovered during construction, maintenance, or operation of either project, the procedures outlined in RCW 68.670, *Abandoned and Historic Cemeteries and Historic Graves*, and RCW 27.44, *Indian Graves and Records*, would be followed to ensure compliance. The procedures would be outlined in the monitoring plan.

An Inadvertent Discovery Plan (IDP) that outlines the procedures to be followed and the chain of communication that is to take place would be developed for the project. In the event that cultural resources or human remains were identified during project activities this plan would be followed. Requirements to follow this plan would be outlined on all project plans, specifications, and in all contracts. Construction project personnel would be instructed about the identification of archaeological materials and the IDP.

As would be outlined in the IDP, should evidence of cultural remains, either historic or prehistoric, be encountered during excavation, work in the immediate areas would be suspended, and the find would be examined and documented by a professional archaeologist that meets the Secretary of the

Interior's Standards and Guidelines. Decisions regarding appropriate mitigation and further action would be made at that time, including coordination with appropriate tribal, local, and state authorities.

In the event that human remains were discovered during construction, maintenance, or operation of the project, the procedures outlined in RCW 68.670, Abandoned and Historic Cemeteries and Historic Graves, and RCW 27.44, Indian Graves and Records, were to be followed to ensure compliance. The procedures to be followed would be outlined in the IDP.

For the UPARR conversion area and Parks mitigation area, mitigation and/or avoidance measures would be designed based upon the results of the survey, in consultation with the affected Tribe(s) and DAHP.

14. Transportation

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

Storage in 49th Avenue South Parking Lot Project

Attachment B, Figure 2 shows the site layout and access roads to the project site. The parking lot site is currently accessed via Lake Washington Boulevard South between 48th Avenue South and 49th Avenue South.

The new diversion structure site is located near the intersection of 49th Avenue South and South Dakota Street.

The new diversion sewer is located along 49th Avenue South and can be accessed via Lake Washington Boulevard South.

CSO Facility 11 is located along South Dakota Street and can be accessed via 49th Avenue South.

Contractor parking and staging Option A is located along 49th Avenue South and 48th Avenue South. Both streets can be accessed via Lake Washington Boulevard South.

Contractor parking and staging Options B and C are located at existing parking lots along Lake Washington Boulevard South.

Storage in 53rd Avenue South Parking Lot Project

Attachment B, Figure 4 shows the site layout and access roads to the project site. The parking lot site is currently accessed via Lake Washington Boulevard South between 53rd Avenue South and South Genesee Way.

The new diversion structure site is located near the intersection of 54th Avenue South and South Alaska Street.

The new diversion sewer is located along 53rd Avenue South and South Alaska Street, which can be accessed via Lake Washington Boulevard South.

CSO Facility 9 is located adjacent to South Alaska Street and can be accessed via Lake Washington Boulevard South.

Contractor parking would be distributed throughout the neighborhood along South Alaska Street, 54th Avenue South, and 53rd Avenue South.

The UPARR conversion area is accessed from Lake Washington Boulevard South between 53rd Avenue South and South Alaska Street.

The Parks mitigation area accessed from Lake Washington Boulevard South between 53rd Avenue South and South Alaska Street.

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

Storage in 49th Avenue South Parking Lot Project

There are currently no public transportation routes along Lake Washington Boulevard in the vicinity of the 49th Avenue South Parking Lot site. The nearest public transit stop is located at South Genesee Street and 50th Avenue South which is served by Metro Route 39. This stop is located approximately one-quarter mile from the Parking Lot site.

Storage in 53rd Avenue South Parking Lot Project

There are currently no public transportation routes along Lake Washington Boulevard in the vicinity of the 53rd Avenue South Parking Lot site, the UPARR conversion area, or Parks mitigation area. The nearest public transit stop is located at South Alaska Street and 50th Avenue South which is served by Metro Routes 39 and 34. This stop is located approximately one-quarter mile from the parking lot site.

c. How many parking spaces would the completed project have? How many would the project eliminate?

With the 49th Avenue South Parking Lot and 53rd Avenue South Parking Lot temporarily closed during construction and including parking spaces for contractor parking, there would be a reduction in total parking between Stan Sayres Park and South Angeline Street of approximately 120 spaces during peak work efforts. Between the two project sites, there are a total of approximately 160 parking spaces in other parking lots and approximately 125 street spaces within one block of Lake Washington Boulevard South that usually are not full. Therefore, closure of the parking lots would not create a shortage of parking spaces in the area.

Storage in 49th Avenue South Parking Lot Project

Currently, the parking lot site is not striped, so there is an undefined number of existing parking spaces. If the Parking Lot were striped based on a standard vehicle spacing of 9 feet by 18 feet, the lot would have a total of approximately 48 spaces.

During construction, project activities would temporarily eliminate the following parking spaces:

- Parking Lot – 48 spaces
- Contractor Parking and Staging Options A, B, or C – 20 spaces

The completed project would eliminate four parking spaces in the parking lot site for access to the facilities vault and designated parking spaces for SPU O&M staff.

Storage in 53rd Avenue South Parking Lot Project

Currently, the 53rd Avenue South Parking Lot site is not striped, so there is an undefined number of existing parking spaces. If the parking lot were striped based on a standard vehicle spacing of 9 feet by 18 feet, the lot would have a total of approximately 33 spaces.

During construction, project activities would temporarily eliminate the following parking spaces:

- 53rd Avenue South Parking Lot – 33 spaces
- Contractor Parking throughout neighborhood – 20 spaces

The completed project would eliminate two parking spaces in the parking lot site for access to the facilities vault and designated parking spaces for SPU O&M staff.

The UPARR conversion area or the Parks mitigation area would not have any parking spaces associated with them.

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).

Storage in 49th Avenue South Parking Lot Project

Concrete pavement in 49th Avenue South would be replaced to match the existing pavement section in accordance with SDOT street restoration requirements following the construction of the diversion pipeline. Two curb bulbs at the intersection of Lake Washington Boulevard and 49th Avenue South would be added to provide stormwater treatment in accordance with the state and city requirements.

Asphalt pavement overlay and concrete pavement in Lake Washington Boulevard South would be replaced to match the existing pavement section in accordance with SDOT street restoration requirements following the construction of the overflow pipelines and basin drain line.

Storage in 53rd Avenue South Parking Lot Project

Concrete pavement in 53rd Avenue South and South Alaska Street would be replaced to match the existing pavement section in accordance with SDOT street restoration requirements following the construction of the diversion pipeline. Stormwater facilities would be added to provide stormwater treatment in accordance with the state and city requirements. The location of the stormwater facilities has not been determined.

Asphalt pavement overlay and concrete pavement in Lake Washington Boulevard South would be replaced to match the existing pavement section in accordance with SDOT street restoration requirements following the construction of the diversion pipe and force main.

The UPARR conversion area and the Parks mitigation area would not require any new roads or any improvements to existing roads.

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

Neither project would occur within the immediate vicinity of water, rail, or air transportation corridors.

The Parks mitigation area components would include in-water work, but would not be located within any water transportation corridors because of their location near the shoreline of Lake Washington.

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

Storage in 49th Avenue South Parking Lot Project

Construction Traffic

Construction traffic would not significantly impact the volumes on any nearby interstate highways (e.g. Interstate 5 and Interstate 90), but would likely impact local streets between the interstates and the project site. Preliminary truck trip calculations during construction are (in round trips):

Semi Truck (Standard and Flatbed)
- 200 days x 6 trips/day = 1,200 trips
- 100 days x 2 trips/day = 200 trips

Excavation/Backfill Hauling (Dump Trucks, Mixed Single and Trailer)
- 38 days x 24 trips/day = 912 trips

Concrete and Asphalt Trucks
- 60 days x 20 trips/day = 1,200 trips

Concrete Pumper Truck
- 24 weeks x 1 trip/week = 24 trips

Service/Support/Trade Vehicles
- 320 days x 6 trips/day = 1,920 trips

Drill Rig Mobilization/Support
- 5 days x 1 trip/day = 5 trips
- 10 days x 1 trip/day = 10 trips

Miscellaneous Trips (Cranes/Heavy Equipment)[1]
- 65 trips

Contractor Employee Vehicles
- 320 days x 20 trips/day = 6,400 trips

[1] Includes delivery of equipment such as excavators, front end loaders, and cranes with lattice booms that operate onsite during construction.

The total number of construction trips is approximately 11,900. Recognizing that not all of the activities described above would occur every day, the peak number of daily trips by construction traffic would occur during excavation and backfilling of the storage tank, concrete delivery, and asphalt paving and is estimated at approximately 24 trips per day. Construction worker traffic would be consistent throughout the project and would consist of 20 trips per day as workers park their vehicles at temporary parking areas near the project site. It is assumed that some workers would carpool or use public transportation. The total peak volume anticipated for the project is approximately 50 trips per day. Each trip is assumed to be approximately 50 miles per round trip. The duration over which the identified construction trips could occur, as well as the parking impacts described herein, would be 320 days. This is the anticipated duration of the construction contract.

Operations and Maintenance

Vehicular trips for the completed project would be approximately once per month during the drier months (April through October) and up to once per week during wetter months (November through March). The trips would be related to routine operation and maintenance activities and would occur during normal business hours.

Storage in 53rd Avenue South Parking Lot Project

Construction Traffic

Construction traffic would not significantly impact the volumes on any nearby interstate highways (e.g. Interstate 5 and Interstate 90), but would likely impact local streets between the interstates and the project site. Preliminary truck trip calculations during construction are (in round trips):

Semi Truck (Standard and Flatbed)
- 180 days x 6 trips/day = 1,080 trips
- 90 days x 2 trips/day = 180 trips

Excavation/Backfill Hauling (Dump Trucks, Mixed Single and Trailer)
- 47 days x 24 trips/day = 1,128 trips

Concrete and Asphalt Trucks
- 60 days x 20 trips/day = 1,200 trips

Concrete Pump, Trailer Mounted
- 22 weeks x 1 trip/week = 22 trips

Service/Support/Trade Vehicles
- 480 days x 6 trips/day = 2,880 trips

Drill Rig Mobilization/Support

- 5 days x 1 trip/day = 5 trips
- 10 days x 1 trip/day = 10 trips

Miscellaneous Trips (Cranes/Heavy Equipment) [2]

- 75 trips

Contractor Employee Vehicles

- 480 days x 20 trips/day = 9,600 trips

The total number of construction trips is approximately 16,200. Recognizing that not all of the activities described above would occur every day, the peak number of daily trips by construction traffic would occur during excavation and backfilling of the storage tank, concrete delivery, and asphalt paving and is estimated at approximately 30 trips per day. Construction worker traffic would be consistent throughout the project and would consist of 20 trips per day as workers park their vehicles at temporary parking areas near the project site. It is assumed that some workers would carpool or use public transportation. The total peak volume anticipated for the project is approximately 50 trips per day. Each trip is assumed to be approximately 50 miles per round trip. The duration over which the identified construction trips could occur, as well as the parking impacts described herein, would be 480 working days. This is the anticipated duration of the construction contract.

Approximately 13 truck trips would be required to bring the gravels to the Parks mitigation area.

Operations and Maintenance

Vehicular trips for the completed CSO project would be approximately once per month during the drier months (April through October) and up to once per week during wetter months (November through March). The trips would be related to routine operation and maintenance activities and would occur during normal business hours.

Vehicular trips for the UPARR conversion area and Parks mitigation area would not change from Seattle Parks normal operation and maintenance.

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

The general construction traffic consists of construction trucks and contractor employee vehicles. The construction trucks are assumed to use a defined route from Rainier Avenue South through South Genesee Street and 49th

[2] Includes delivery of equipment such as excavators, front end loaders, and cranes with lattice booms that operate onsite during construction.

Avenue South to access the sites. The peak construction traffic would occur during the excavation and backfilling of the sites and is estimated to be 30 truck trips per day, which is equivalent to 3 to 4 trucks per hour. Contractor employee trips are estimated to be 20 trips per day, which is equivalent to 10 trips in the morning and 10 trips in the afternoon.

These employee trips would result in 14 additional trips of construction traffic during the peak hour. Based on the data collected in August 2010, the PM peak hour traffic volume on 49th Avenue South was 28 vehicles bidirectional, which is well below the capacity of the street (HDR, 2011d). The Synchro analysis indicates 7 seconds delay for traffic on 49th Avenue South due to the yield control. The additional 14 trips would not have an impact on intersection delay. Workers and the construction trucks would not likely use the same ingress and egress and construction worker working hours are usually offset from the regular peak hours. Based on this analysis, the general construction traffic from both projects would have no impact on the LOS in the area.

The two projects are approximately half a mile apart; therefore; it is unlikely there would be any combined traffic impacts to the residential streets adjacent to the sites. There would be compounded traffic impact on South Genesee Street with the additional 6 to 8 construction trucks during the peak hour. Because the streets in this neighborhood have volumes far below the capacity, the combined traffic would have no impact on the LOS.

Storage in 49th Avenue South Parking Lot Project

Measures to reduce or control transportation impacts by the completed project would not be required. During construction there would be impacts to traffic and access as a result of construction of the new conveyance piping within 49th Avenue South, installation of diversion structures, and general construction truck traffic. A preliminary traffic study was conducted to estimate the potential traffic impacts to 49th Avenue South and Lake Washington Boulevard during construction (HDR, 2011d).

Construction activities in the right-of-way would create potential delays and detours. The traffic impacts would be limited to workday hours. There would be no lane closures or construction in the right-of-way on weekends or evenings, which tend to be peak times for recreational use.

<u>49th Avenue South</u>

There are three construction activities that would impact traffic on 49th Avenue South. Figure 2 (Attachment B) shows the route for the diversion sewer and diversion structures which can be used to identify these construction activities. The activities are:

1. Installation of the diversion sewer between 49th Avenue South and Lake Washington Boulevard South;
2. Installation of the diversion maintenance hole near the intersection of 49th Avenue South and South Dakota Street; and
3. Construction of the diversion structure and associated conveyance piping near the intersection of 49th Avenue South and Lake Washington Boulevard South.

During the installation of the diversion maintenance hole near the intersection of 49th Avenue South and South Dakota Street, temporary lane closures would occur on 49th Avenue South within the construction area. Access would likely be limited to residences located on 49th Avenue South between South Dakota Street and Lake Washington Boulevard South.

Construction of the conveyance piping on 49th Avenue South would take approximately two months. Ideally, the conveyance piping would be located within the southbound lane and the parking lane, which may allow one traffic lane to remain open in the northbound direction during this phase of construction. An alternative traffic control approach would be to maintain two-way traffic with one lane open using flaggers. However, existing utilities, location of concrete panels in traffic lanes, and feasibility of construction would dictate the number of closed lanes. The worst case scenario is that both lanes may be closed in 49th Avenue South for the construction of the conveyance piping.

During the installation of the diversion structure near the intersection of 49th Avenue South and Lake Washington Boulevard South, the intersection would likely be closed. Temporary lane closures would occur on 49th Avenue South within the construction area to facilitate the installation of piping to connect to the outfalls. Construction of the diversion structure and conveyance piping on 49th Avenue South would take approximately two months. Access would likely be limited to residences located on 49th Avenue South between South Dakota Street and Lake Washington Boulevard South. With this intersection closed, residences can be accessed from the west via South Dakota Street and 49th Avenue South.

A preliminary traffic study was conducted along Lake Washington Boulevard South at 49th Avenue South (HDR 2011d). The purpose of the study was to determine possible impacts due to closure of 49th Avenue South from South Dakota Street to Lake Washington Boulevard South. The study showed that intersections within the area of the closures would operate at acceptable Levels of Service (LOS) under the road closure conditions. All area movements would operate at LOS C or better under the road closure conditions. Local access would be maintained during all phases of construction.

General Construction Activities

In addition to road closures and detours during construction of the conveyance piping, there would be increased construction traffic to and from the 49th Avenue South Parking Lot on Lake Washington Boulevard South.

Approximately 11,900 construction trips would occur during the approximate 16-month duration of construction. The peak number of daily trips by construction traffic would occur during excavation and backfilling of the storage tank, concrete delivery, and asphalt paving and are estimated at approximately 50 trips per day. Based on the preliminary traffic study (HDR, 2011d), it is likely that the general construction traffic would have little impact on the LOS in the area.

During construction, the contractor would be required to submit a traffic control plan detailing the haul route for construction traffic, and additional traffic control measures, such as warning signs and flaggers for bus, pedestrian, and bicycle traffic.

Other measures to reduce or control transportation impacts could include:

- Avoiding work in the public rights-of-way or blocking traffic during identified peak traffic events impacting the park (e.g., Seafair, etc.).
- Limiting construction on weekends or evenings, which tend to be peak times for recreational use.
- Maintaining pedestrian corridors on both sides of Lake Washington Boulevard South at the intersection of 49th Avenue South to avoid the need to construct temporary mid-intersection crosswalks.
- Maintaining the pedestrian corridor on the north side of Lake Washington Boulevard South along the waterfront.
- Notifying emergency service responders (police, fire).

Storage in 53rd Avenue South Parking Lot Project

Measures to reduce or control transportation impacts by the completed project would not be required.

During construction there would be impacts to traffic and access as a result of construction of the new conveyance piping within 53rd Avenue South and South Alaska Street, installation of diversion structures, and general construction truck traffic. A preliminary traffic study was conducted to estimate the potential traffic impacts to 53rd Avenue South, South Alaska Street and Lake Washington Boulevard during construction (HDR, 2011d).

Construction activities in the right-of-way would create potential delays and detours. The traffic impacts would be limited to workday hours. There would

be no lane closures or construction in the right-of-way on weekends or evenings, which tend to be peak times for recreational use.

53rd Avenue South and South Alaska Street

There are two construction activities that would impact traffic on 53rd Avenue South and South Alaska Street. Figure 4 (Attachment B) shows the route for the diversion sewer and diversion structures which can be used to identify these construction activities. The activities are:

1. Installation of the diversion sewer from South Alaska Street, along 53rd Avenue South across Lake Washington Boulevard South; and
2. Installation of the diversion structure near the intersection of 54th Avenue South and South Alaska Street.

During the installation of the diversion structure near the intersection of 54th Avenue South and South Alaska Street, temporary lane closures would occur on South Alaska Street within the construction area. Access would likely be limited to residences located on South Alaska Street between 54th Avenue South and 53rd Avenue South.

Installation of the conveyance piping on 53rd Avenue South and South Alaska Street would take approximately two to four months to construct. For South Alaska Street, the conveyance piping could be located within the eastbound lane and the parking lane, which may allow one traffic lane to remain open in the westbound direction during this phase of construction. An alternative traffic control approach would be to maintain two-way traffic with one lane open using flaggers. However, existing utilities, location of concrete panels in traffic lanes, and feasibility of construction would dictate the number of closed lanes. For 53rd Avenue South, the conveyance piping could be located within the northbound lane, which may allow one traffic lane to remain open in the southbound direction during this phase of construction. An alternative traffic control approach would be to maintain two-way traffic with one lane open using flaggers. However, existing utilities, location of concrete panels in traffic lanes, and feasibility of construction would dictate the number of closed lanes. The worst case scenario is that both lanes may be closed in South Alaska Street and 53rd Avenue South for the construction of the conveyance piping. There are a number of alternative routes for access into the neighborhood; therefore, it is not anticipated closures would prevent residents from access to their homes.

A preliminary traffic study was conducted along Lake Washington Boulevard South at 53rd Avenue South (HDR, 2011d). The purpose of the study was to determine possible impacts due to closure of 53rd Avenue South from South Alaska Street to Lake Washington Boulevard South and South Alaska Street from 54th Avenue South to 53rd Avenue South. Under the road closure condition, traffic would operate at acceptable levels. Delay would increase at

several study area intersections; however the study showed that intersections within the area of the closures would operate at acceptable LOS under the road closure conditions. All area movements would operate at LOS B or better under the road closure conditions. No delay is expected at intersections that would be closed during construction. It should be noted that construction would be phased to the extent feasible to ensure all roadways maintain local access throughout construction.

General Construction Activities

In addition to road closures and detours during construction of the conveyance piping, there would be increased construction traffic to and from the parking lot on Lake Washington Boulevard South.

Approximately 16,200 construction trips would occur during the approximate 22-month duration of construction. The peak number of daily trips by construction traffic would occur during excavation and backfilling of the storage tank, concrete delivery, and asphalt paving and are estimated at approximately 50 trips per day. Based on the preliminary traffic study (HDR, 2011d), it is likely that the general construction traffic would have little impact on the LOS in the area.

During construction, the contractor would be required to submit a traffic control plan detailing the haul route for construction traffic, and additional traffic control measures, such as warning signs and flaggers for bus, pedestrian, and bicycle traffic.

Other measures to reduce or control transportation impacts could include:

- Avoiding work in the public right-of-way or blocking traffic during identified peak traffic events impacting the park (e.g., Seafair, etc.).
- Limiting construction on weekends or evenings, which tend to be peak times for recreational use.
- Maintaining pedestrian corridors on both sides of Lake Washington Boulevard South at the intersection of 53rd Avenue South to avoid the need to construct temporary mid-intersection crosswalks.
- Notifying emergency service responders (police, fire).

Lake Washington Boulevard Trail

Construction activities at the 53rd Avenue South Parking Lot site would impact the Lake Washington Boulevard Trail. Construction would require the trail to be closed and temporarily relocated to the southern side of Lake Washington Boulevard South (Attachment B, Figure 7). Trail users would cross Lake Washington Boulevard South at marked crosswalk locations at the north and south ends of the construction area. The temporary rerouted trail

should be placed to minimize impacts to the existing environment while maintaining proper trail width and grading.

The speed limit would be reduced through the construction area to 15 mph. Solar-powered flashing pedestrian warning signs would be placed at both ends of the construction zone with a speed bump at each side of each pedestrian crosswalk. Bicycle sharrows (a marking used within travel lanes shared by bicyclists and other vehicles) would be used to warn motorists of bicyclists sharing the roadway through the construction area. Based on the traffic analysis, the trail crossings are not anticipated to cause traffic queuing along Lake Washington Boulevard South.

15. 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.

Storage in 49th Avenue South Parking Lot Project

Due to construction on 49th Avenue South and trucks entering and exiting the parking lot site from Lake Washington Boulevard South, emergency response times may be longer to areas surrounding the project site.

The completed project would have no impact on the need for public services.

Storage in 53rd Avenue South Parking Lot Project

Due to construction on 53rd Avenue South and South Alaska Street and trucks entering and exiting the parking lot site from Lake Washington Boulevard South, emergency response times may be longer to areas surrounding the project site.

The completed project would have no impact on the need for public services.

The UPARR conversion area and the Parks mitigation area would have no impact on the need for public services during construction or when construction is complete.

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

Coordination would occur with emergency response agencies such as the Seattle Police Department and Seattle Fire Department during construction.

No measures would be required for the completed projects.

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other. storm drainage

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 immediate vicinity which might be needed.

49th Avenue South Parking Lot Project

The completed project would require the following utilities:

- Electricity – Seattle City Light
- Water, Combined Sewer, and Storm Drainage – Seattle Public Utilities
- Communications – Qwest

Electricity, water, storm drainage, natural gas, and communications exist in the vicinity of the project.

Electricity and communications exist in the vicinity of the parking lot and would only require connections to the project features. The connection to the parking lot facilities could be either below grade or above grade on a power pole. Power (480 volt / 3-phase) is available at the intersection of 49th Avenue South and South Adams Street.

Construction of approximately 300 feet of combined sewer would be required as part of this project, to bring combined sewer from 49th Avenue South to the parking lot site. Combined sewer would be constructed in the right-of-way of 49th Avenue South. Construction activities would be typical of pipe installation.

SPU would coordinate with local utilities regarding their facilities that may be impacted by construction of the proposed project.

Storage in 53rd Avenue South Parking Lot Project

The completed project would require the following utilities:

- Electricity – Seattle City Light
- Water, Combined Sewer, and Storm Drainage – Seattle Public Utilities
- Communications – Qwest

Electricity, water, storm drainage, natural gas, and communications exist in the vicinity of the project.

Electricity and communications exist in the vicinity of the parking lot site and would only require connections to the project features. The connection to the

parking lot would be below grade. Power (480 volt / 3-phase) is available at the intersection of 54th Avenue South and South Alaska Street.

Construction of approximately 750 feet of combined sewer would be required as part of this project, to bring combined sewer from 54th Avenue South to the parking lot site. Combined sewer would be constructed in the right-of-way of 53rd Avenue South and South Alaska Street. Construction activities would be typical of pipe installation.

SPU would coordinate with local utilities regarding their facilities that may be impacted by construction of the proposed project.

The UPARR conversion area and Parks mitigation area would require water during the first year of plant establishment.

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: _____
Kathleen Robertson, PE, Project Manager, Seattle Public Utilities

Date Submitted: May 17, 2011

This Section is Not Applicable

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(Do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

   Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally critical areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

   Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

   Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

   Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

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Attachment A – Alternatives Considered

Genesee Basins 40/41 Alternatives
Genesee Basin 43 Alternatives

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Attachment A

Seattle Public Utilities CSO Reduction Project

Genesee Basin 40/41 Alternatives

Regulatory Requirements

- Achieve a long-term average of one CSO per year per outfall.
- Complete construction by October 31, 2015

Genesee Alternatives Process

- Evaluated over 60 alternatives for the Genesee Basins.
- For Basins 40/41, cost-effective solutions are storage close to the existing CSO outfall.
- Property close to the CSO outfalls is limited to park land or private property; topography & location eliminates ROW only alternatives.
- Three alternatives for Basins 40/41 are: (A) Park parking lot, (B) Park Boulevard and Genesee Park, and (C) private property.

Summary

Alternative	Site	Total Project Cost Range[1]	Key issues and Comments[2]
A	**Park Boulevard and Open Space** (has ex underground storage tank)	$9 – 20 million	▪ Closure of one or both lanes of boulevard and along 49th during construction. ▪ Tree trimming/removal required along boulevard. ▪ May trigger environmental clean-up regulations because of old landfill. ▪ Better utilizes existing storage at Genesee Park. ▪ Uses conveyance pipe as additional storage. ▪ I-42 and State Resource and Conservation Office (RCO) grant may require conversion or replacement property.
B	**Park parking lot** (on land side of Lake Washington Boulevard)	$8 - $17.5 million	▪ Loss of 4 parking spaces, but does not change use as parking lot. ▪ Parking lot closed during construction. ▪ Periodic closure of boulevard for construction. ▪ Stakeholders (e.g., Seattle Parks & Recreation, Friends of Seattle Olmsted Parks) have expressed concern regarding the ventilation stack and change in overall use and character of the parking lot. ▪ I-42 and RCO grant may require conversion or replacement property.
C	**Private Property** (on land side of Lake Washington Boulevard)	$9 – $19 million	▪ Requires acquisition of two private waterfront parcels and demolition of homes; condemnation may be required if property owners are unwilling to sell. ▪ Periodic closure of Lake Washington Blvd for construction. ▪ SPU would control property access and use for utility purposes.

[1] Class 5 Order of Magnitude Estimate

[2] Visual, maintenance and noise impacts of facility, vent, hatches and air intake/exhaust stacks common to all; park sites zoned CR and require change to SMP (underway); diversion pipe required for all alternatives.

Alternative A	Alternative B	Alternative C
		
		
Description: 235,000 gallon underground storage pipe located in Lake Washington Boulevard and optimize existing storage	**Description:** 480,000 gallon underground storage tank located in a parking lot	**Description:** 480,000 gallon underground storage pipe located on two private waterfront parcels along Lake Washington Boulevard
Total Project Cost: $9 – 20 million	**Total Project Cost:** $8 - $17.5 million	**Total Project Cost:** $9 – $19 million
Impacts: Construction may extend outside of the paved portions of Lake Washington Boulevard South causing removal of trees along the roadway. Excavation in Genesee Park likely to encounter old landfill debris, incur additional costs for special disposal and may trigger clean-up regulations because Genesee Park is a former landfill. Sections of Lake Washington Boulevard would be closed during construction, restricting or prohibiting use by park users. Long-term visual impact of odor control vent and air/exhaust stacks.	**Impacts:** Loss of four parking spaces for hatches and O&M access to facilities vault. Diversion pipe construction along 49th Avenue South would impact adjacent residences (10+). Vehicle access from the southern side of the parking lot proposed to be eliminated and used for stormwater treatment (currently blocked by bollards). Long-term visual impact of odor control vent and air/exhaust stacks.	**Impacts:** A minimum of two houses would have to be removed for construction of the tank. Diversion pipe construction along 49th Avenue South would impact adjacent residences (10+). Long-term visual impact of odor control vent and air/exhaust stack.
Property Park - Lake Washington Boulevard and open space at Genesee Park (old landfill site and existing storage tank)	**Property:** Park parking lot and 49th Ave S ROW; preferred by Parks Department and community over Alternative B	**Property:** Private Lots with houses along Lake Washington Blvd. At least two lots would have to be purchased and houses removed for construction. May require condemnation if existing property owners are unwilling to sell. SPU would own and control property for utility use. Depending on facility design, area could become open space after construction is completed.
Permitting Within Parks property project requires City Council approval; Shoreline Master Program (SMP) Conservancy Recreation zone does not currently allow for these types of facilities, would require change to SMP (underway). Within 100-foot Shoreline Habitat buffer.	**Permitting** Within Parks property project requires City Council approval; Shoreline Master Program (SMP) Conservancy Recreation zone does not currently allow for these types of facilities, would require change to SMP (underway).	**Permitting:** Within the Shoreline Zone (Conservancy Recreation Environment), which does not allow for these types of facilities. Requires Shoreline Master Plan (SMP) revision. Within 100-foot Shoreline Habitat buffer.
Stakeholder Response: Seattle Parks & Recreation agrees that the disturbance to both Lake Washington Blvd and Genesee Park would be greater than Alternative B.	**Stakeholder Response:** Friends of Seattle Olmsted Parks (FSOP) and Seattle Parks & Recreation have expressed concern over the visual impact of the air/exhaust stack and the overall impact to the character of the parking lot from the addition of the hatches and maintenance activities. However, FSOP does not object outright to the alternative, since the facility would be located underneath an existing parking lot.	**Stakeholder Response:** Not discussed with stakeholders; shown as an alternative to Parks property.

Attachment A

Seattle Public Utilities CSO Reduction Project

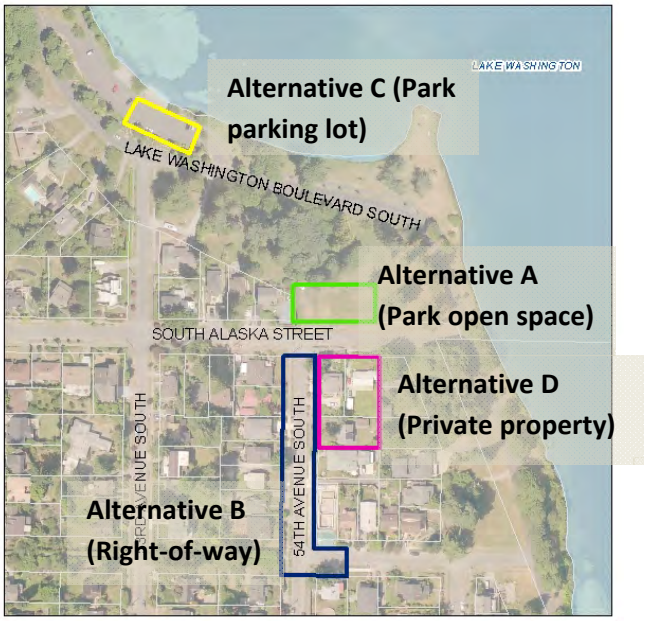
Genesee Basin 43 Alternatives

Regulatory Requirements

- Achieve a long-term average of one CSO per year per outfall.
- Submit Final Engineering Report by May 31, 2011.
- Complete construction by October 31, 2015

Genesee Alternatives Process

- Evaluated over 60 alternatives for the Genesee Basins.
- For Basin 43, cost-effective solutions are storage close to existing CSO outfalls.
- Property close to outfalls is parkland or private; topography/location limit right-of-way alternatives.
- Best four alternatives for Basin 43 are two on Parks property, one in right-of-way, and one on private property.

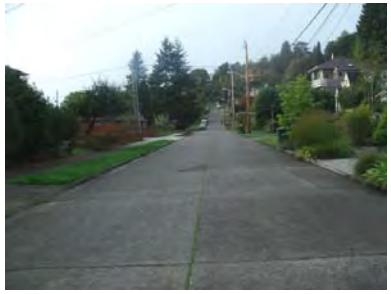


Summary

Alternative	Site	Total Project Cost Range[1]	Key Issues and Comments[2]
A	**Park open field** (used primarily by residents/has ex underground storage tank)	$5 - 11 million	▪ Alters open space character – adds hatches, vent stacks on park land (largest hatches in ROW). ▪ I-42 discourages use of parks for other purposes, including utilities. ▪ State Resource and Conservation Office (RCO) grant may require conversion property. ▪ Opposed by Friends of Seattle Olmsted Parks, adjacent residents, and Seattle Parks & Recreation Dept
B	**Right-of-way** (impacts 10 to 15 homes)	$6.5 to 14 million	▪ Street closed during construction for up to 9 months or more, restricting vehicular access to homes. ▪ Opposed by adjacent residents.
C	**Park parking lot** (on lakeside of Lake Washington Boulevard)	$7.5 to 15.5 million	▪ State RCO grant may require conversion property. ▪ 1913 State deed may restrict use for facilities (being reviewed by Law). ▪ Between the two Parks sites, the parking lot alternative is preferable because it minimizes impacts to green, open spaces. ▪ Less opposition from Alaska & 54th community
D	**Private property** (likely four lots)	$6.5 to 14 million	▪ May require condemnation of private property if existing owners are unwilling to sell.

[1] Class 5 Order of Magnitude Estimate

[2] Visual, maintenance and noise impacts of facility, vent, hatches and air intake/exhaust stacks are common to all alternatives.

Alternative A	Alternative B	Alternative C	Alternative D
			
			
Description: 270,000 gallon underground storage	**Description:** 220,000 gallon underground storage	**Description:** 120,000 gallon underground storage	**Description:** 220,000 gallon underground storage
Total Project Cost: $5 - 11 million	**Total Project Cost:** $6.5 to 14 million	**Total Project Cost:** $7.5 to 15.5 million	**Total Project Cost:** $6.5 to 14 million
Impacts: Loss of use during construction; alters character and use of open space where hatches, intakes and exhausts are located (note: largest hatches in ROW); relocate ex. storm drain; new underground facilities expand area that limits changes to future park use; closure of one lane of S. Alaska during construction.	**Impacts:** Utility relocations; temporary side sewers and power pole relocations; street closed during construction for 9 months or more - affects 10-15 homes and home businesses; long-term visual impact with vents and stacks next to houses.	**Impacts:** Parking lot closed during construction; likely will need diversion sewer line along South Alaska Street and 53rd Avenue South. Long-term visual impact with vents and stacks adjacent or near parking lot.	**Impacts:** 54th Avenue South and South Alaska Street reduced to one lane during construction; site could be fenced and have above-grade building; long-term visual impact with vents and stacks near houses; removes three dwelling units from housing supply.
Property: Park open space, requires Council approval per I-42; affected by State RCO grant and may require property conversion.	**Property:** Right of way.	**Property:** Park parking lot, needs Council approval per I-42; affected by State RCO grant - may require replacement property; 1913 State deed applies - requires coordination with State Dept of Natural Resources.	**Property:** Four private property parcels would be purchased and may require condemnation if existing property owners are unwilling to sell.
Permitting: Potentially within the Shoreline Zone (Conservancy Recreation Environment), which does not allow for these types of facilities. Requires Shoreline Master Plan (SMP) revision.	**Permitting:** Outside of 200 ft SMP jurisdiction. Street use permit required.	**Permitting:** Within Parks property & requires City Council approval; within 200-foot Shoreline Habitat buffer & would require a shoreline permit; zoned Conservancy Management.	**Permitting:** Within SMP Urban Residential environment (two parcels), would require a shoreline permit.
Stakeholder Response: Significantly opposed by Friends of Seattle Olmsted; opposed by adjacent residents (although less than Alt. B); opposed by Seattle Parks & Recreation.	**Stakeholder Response:** Significantly opposed by adjacent residents.	**Stakeholder Response:** Alternative was proposed by the residents along 54th Ave S. and S. Alaska St; no public comment received on this alternative; of the two Parks alternatives, this alternative is preferable because it minimizes impacts to green, open space.	**Stakeholder Response:** Not discussed with stakeholders, other than with Seattle Parks & Recreation. Two of the properties may be unoccupied.

Attachment B – Figures

Figure 1 – Vicinity Map
Figure 2 – Basin 40/41 b Site Layout
Figure 3 – Basin 40/41 b Contractor Parking and Staging
Figure 4 – Basin 43 c Site Layout
Figure 5 – Basin 43 c Contractor Parking and Staging Areas
Figure 6 – Basin 43 c Tree Removal Plan
Figure 7 – Basin 43 c Lake Washington Boulevard Temporary Trail Reroute
Figure 8 – Basin 43 c Stormwater Improvements
Figure 9 – Basin 43 c Grant Conversion Area
Figure 10 – Basin 43 c Parks Mitigation Area

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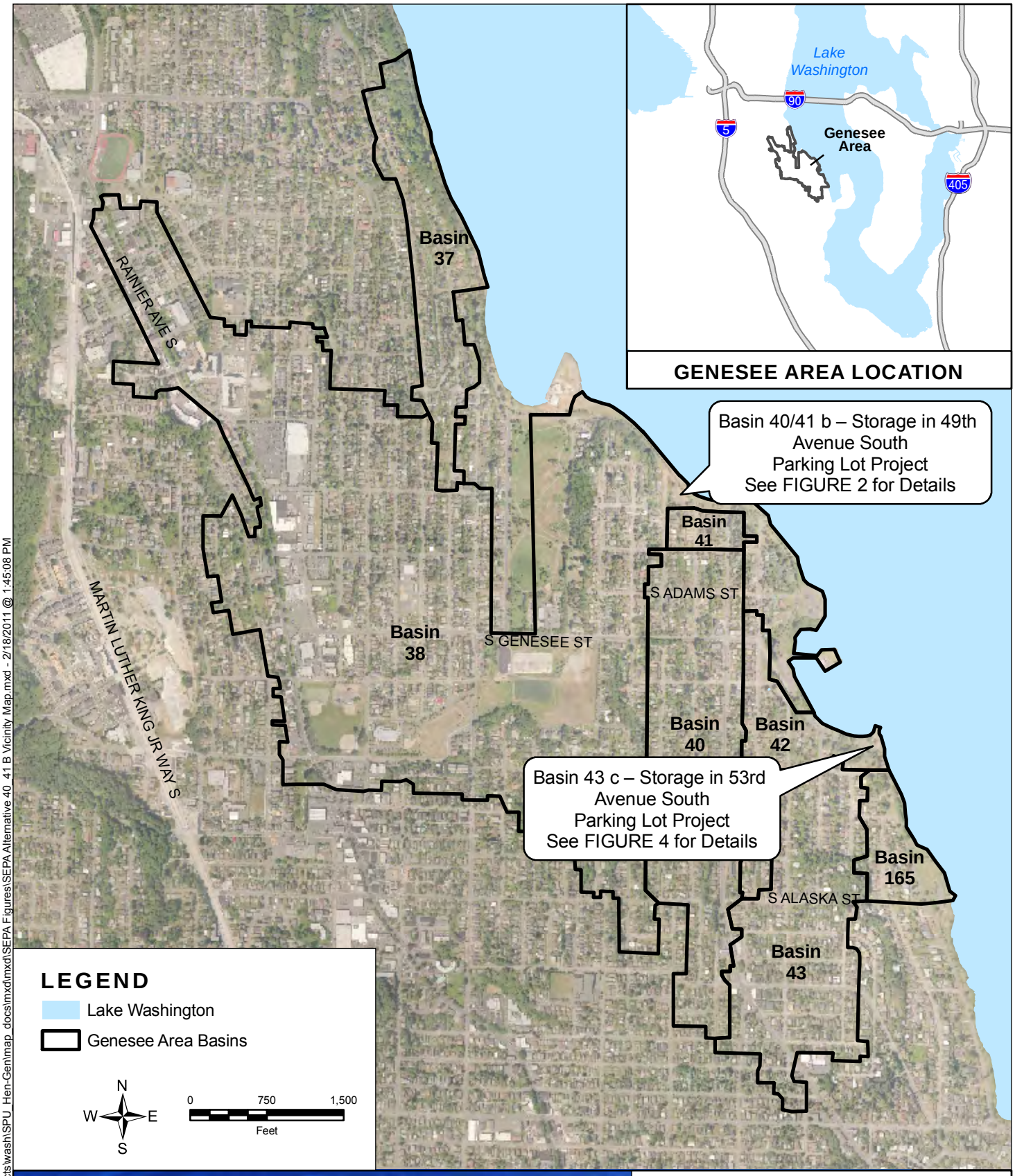

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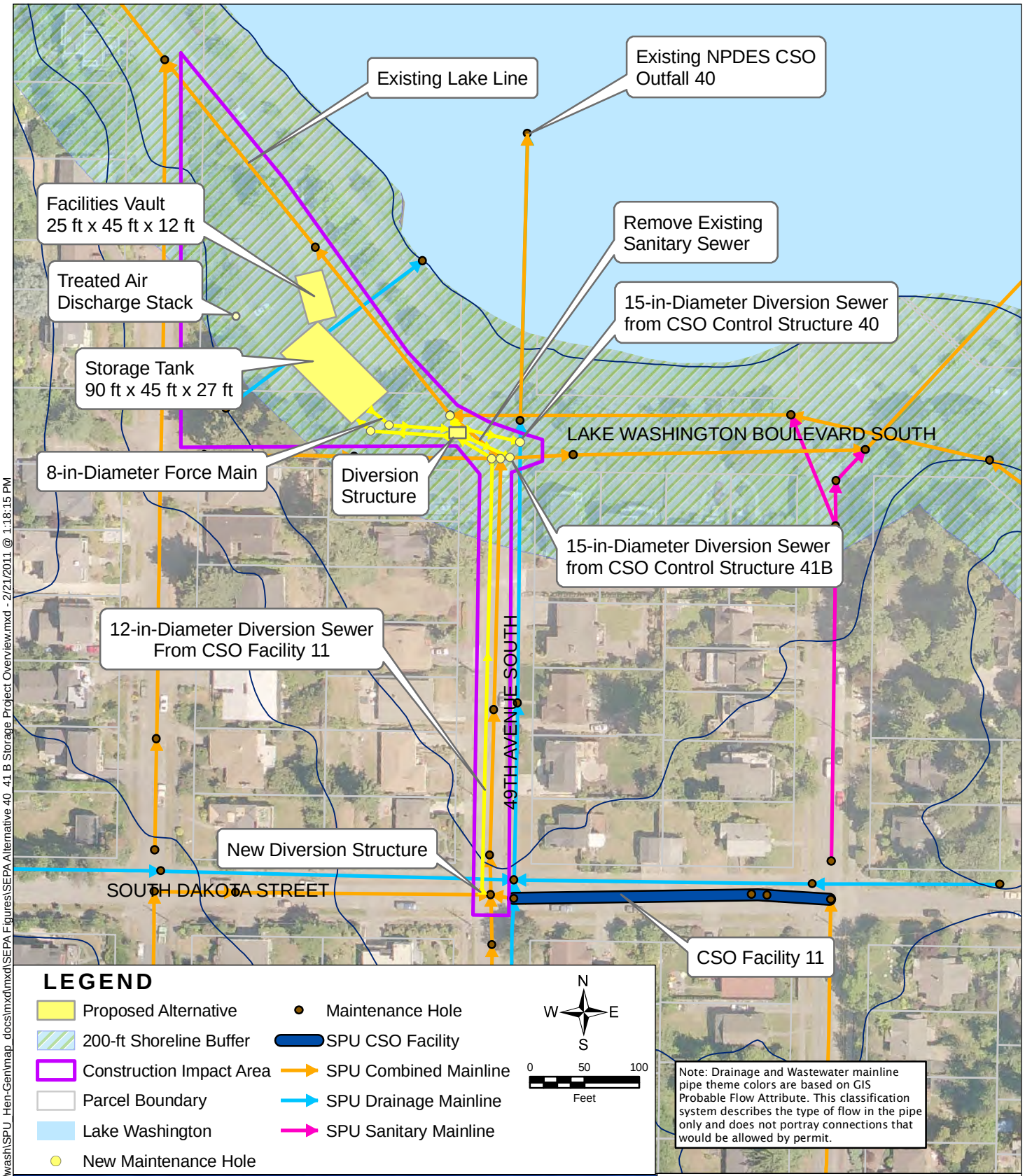
Seattle Public Utilities

SEPA Environmental Checklist

VICINITY MAP

MAY 2011

FIGURE 1



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Seattle Public Utilities

SEPA Environmental Checklist

Basin 40/41 b
SITE LAYOUT

MAY 2011

FIGURE 2

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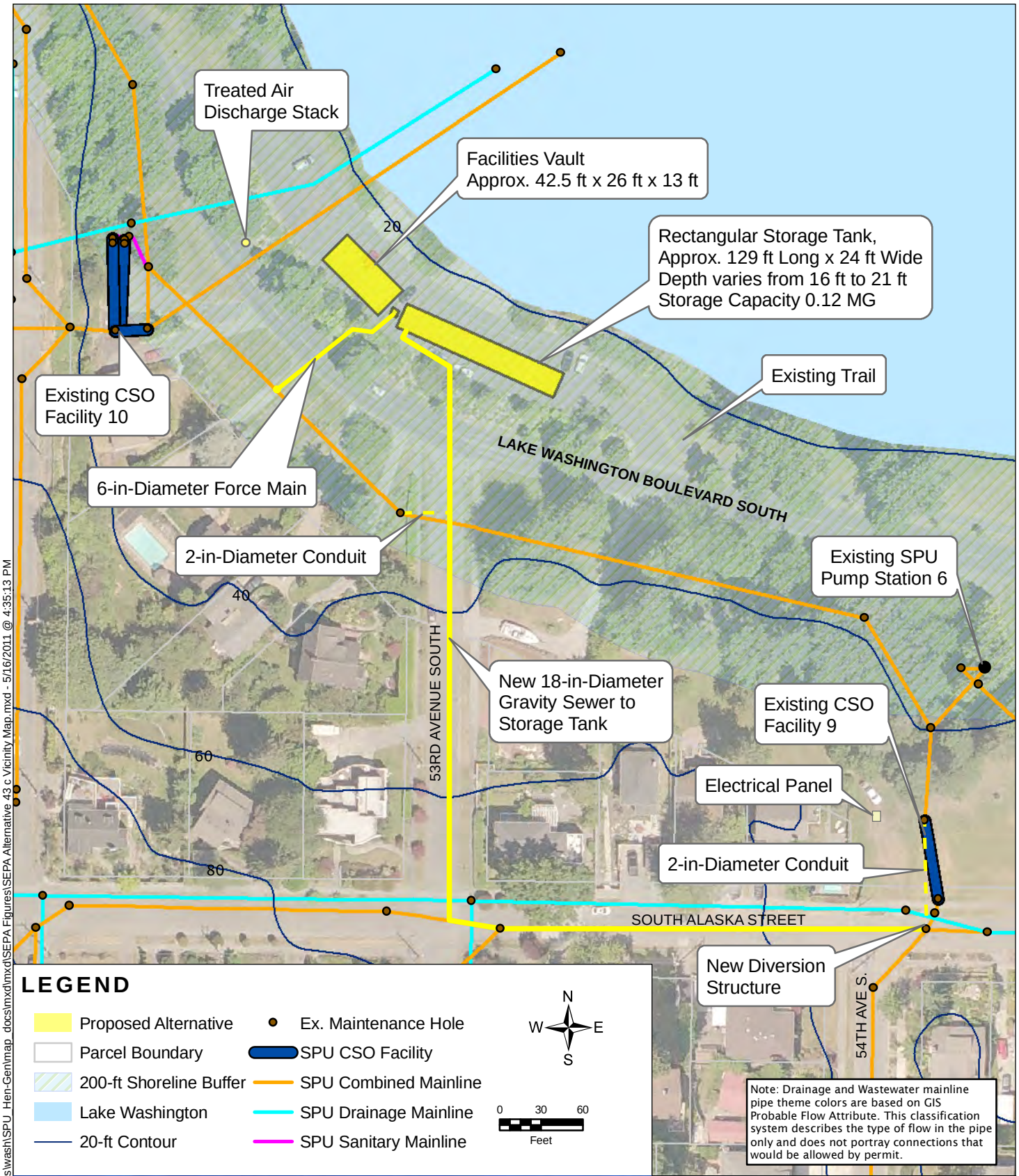
Seattle Public Utilities

SEPA Environmental Checklist

Basin 40/41 b
CONTRACTOR PARKING AND STAGING

MAY 2011 | **FIGURE 3**



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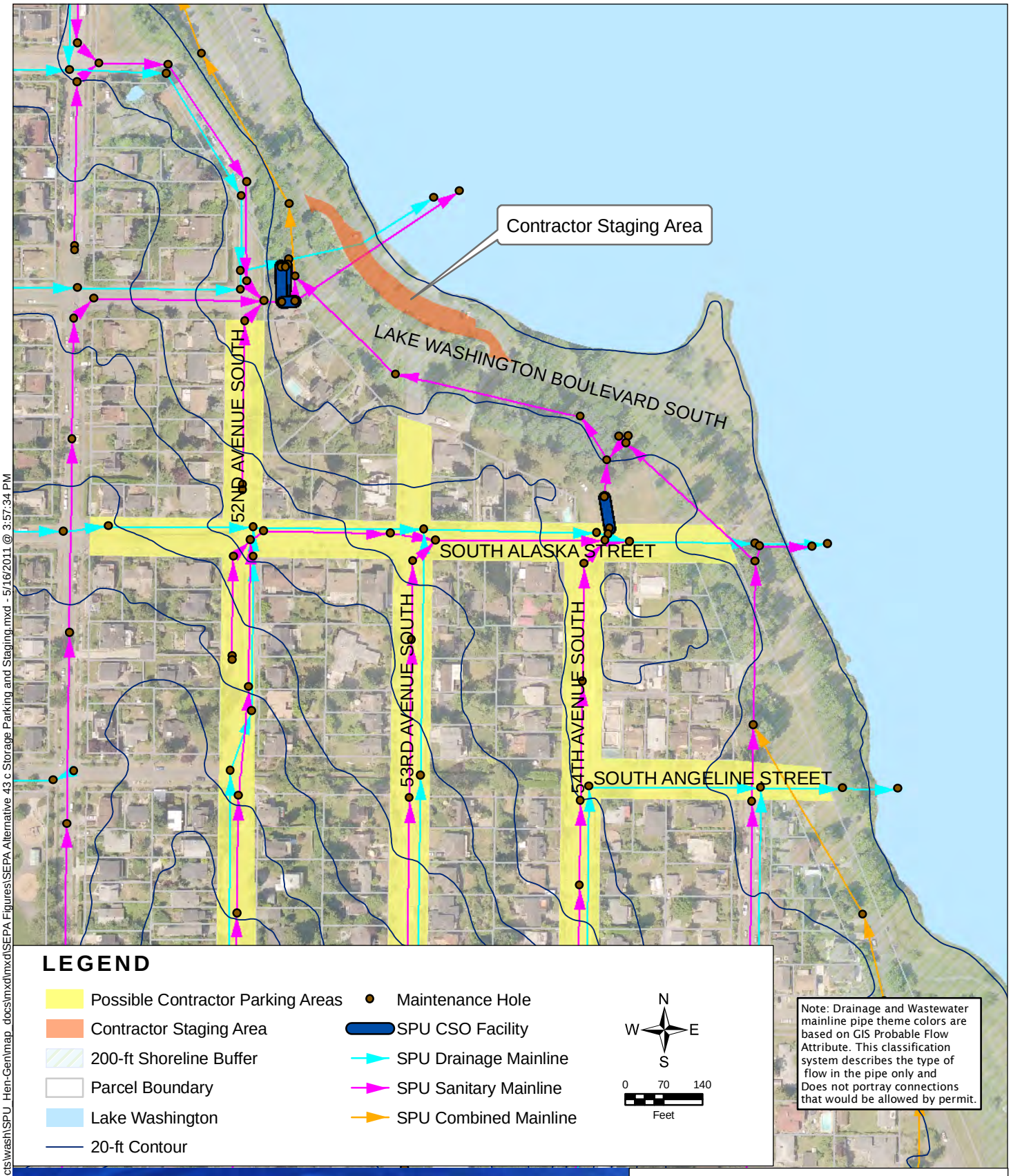
Seattle Public Utilities

SEPA Environmental Checklist

Basin 43 c
SITE LAYOUT

MAY 2011 | **FIGURE 4**



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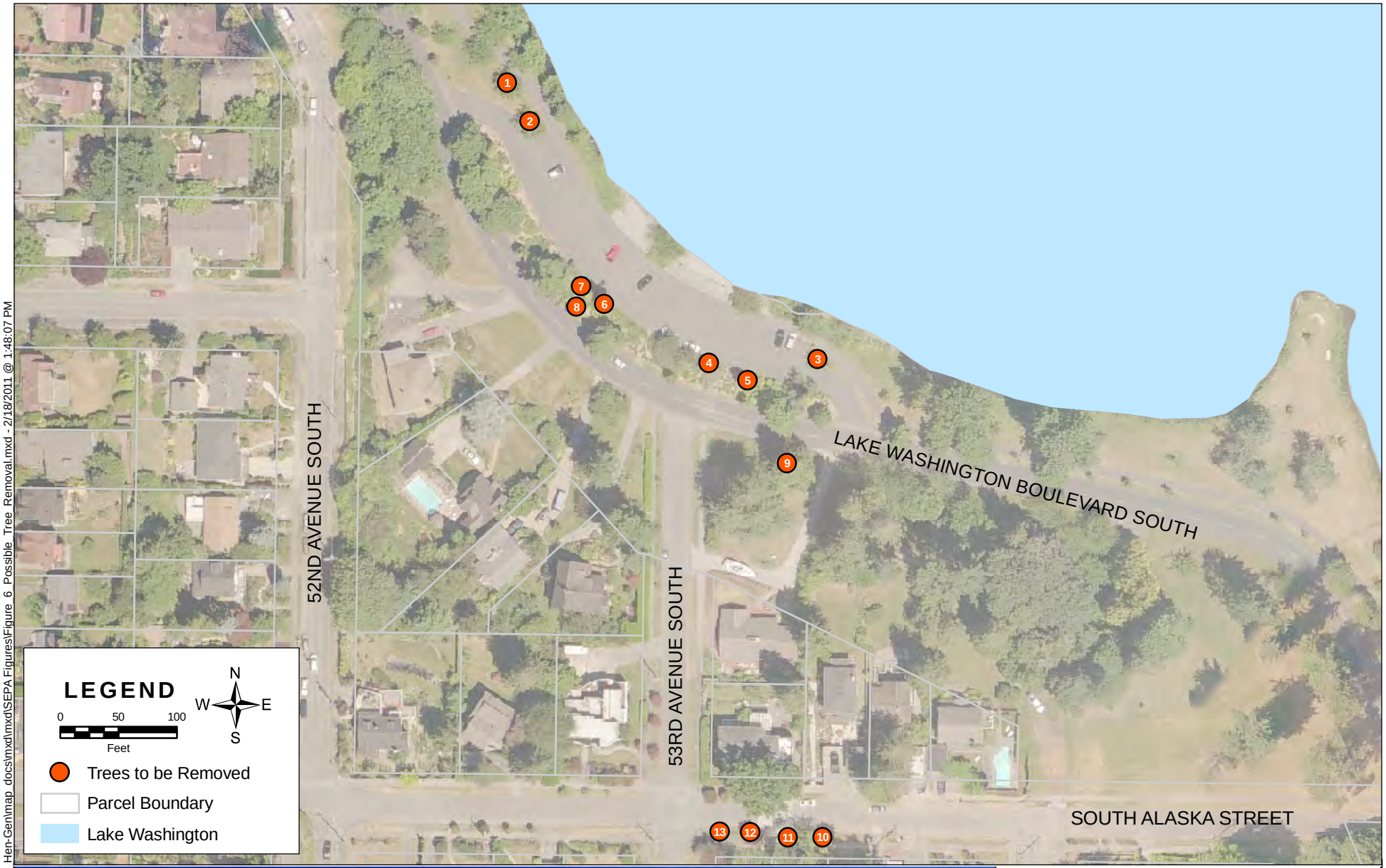
Basin 43 c
CONTRACTOR PARKING AND STAGING AREAS

MAY 2011

FIGURE 5



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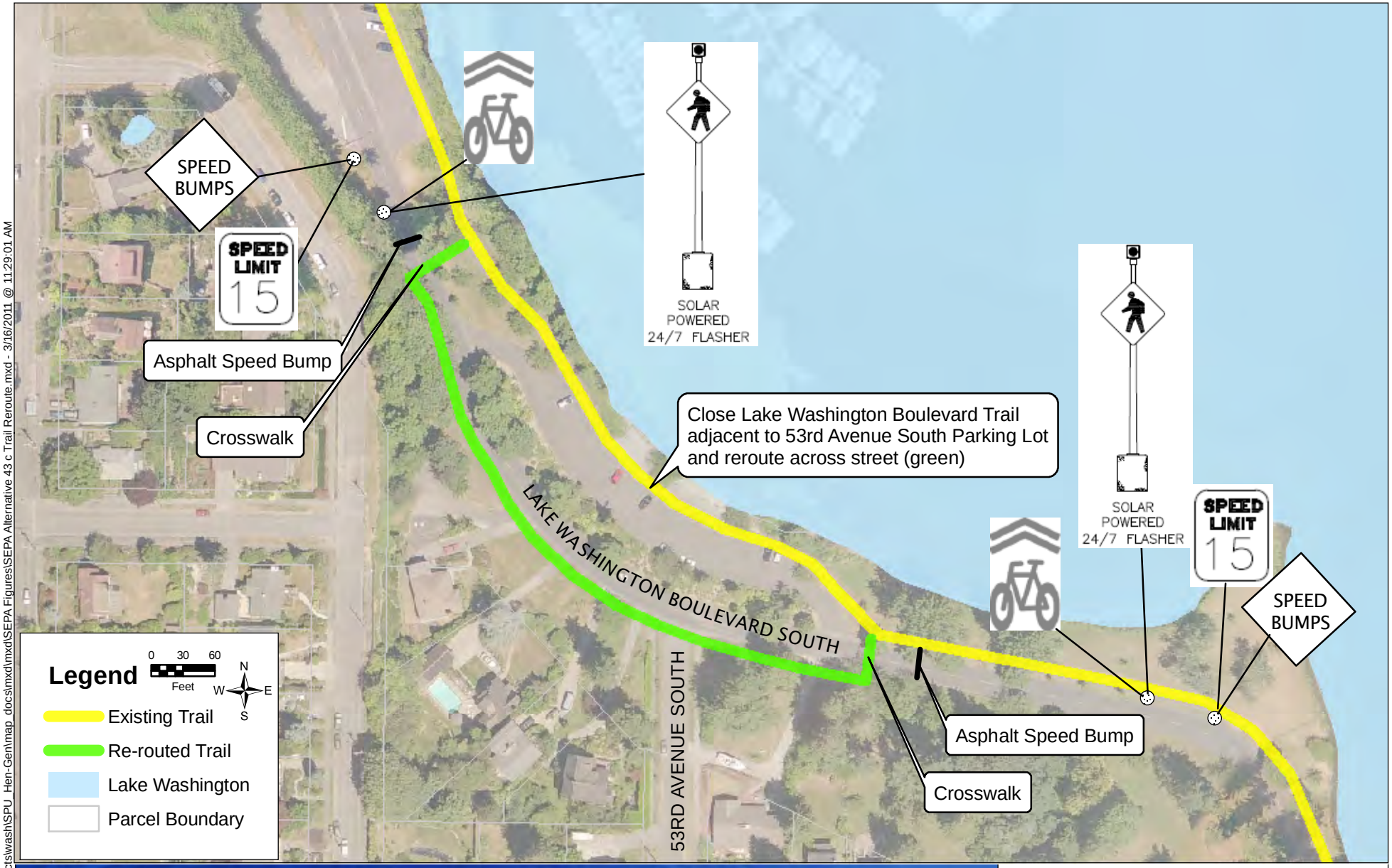
Basin 43 c
TREE REMOVAL PLAN

MAY 2011

FIGURE 6



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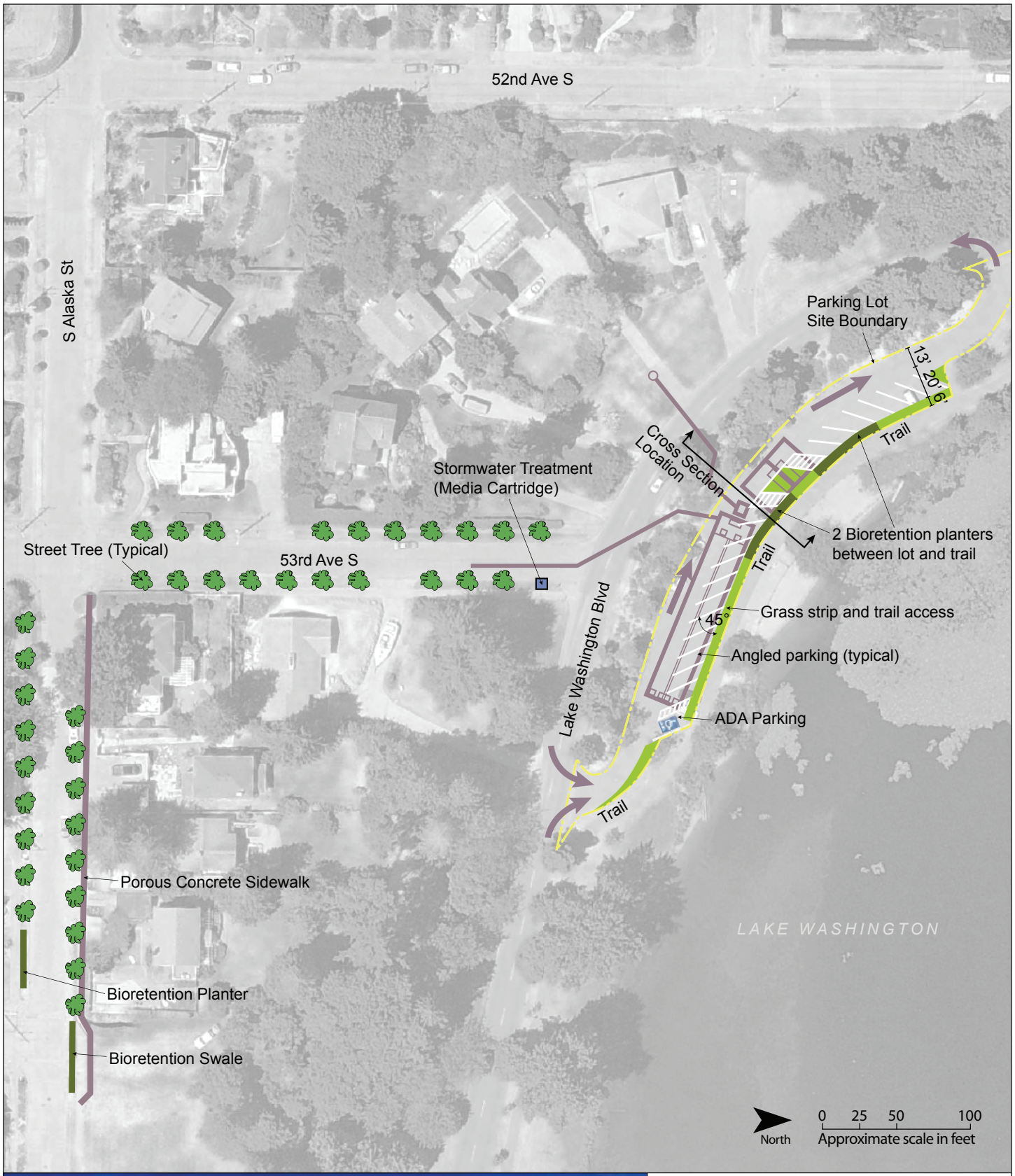
Basin 43 c
LAKE WASHINGTON BOULEVARD TEMPORARY TRAIL REROUTE

MAY 2011

FIGURE 7



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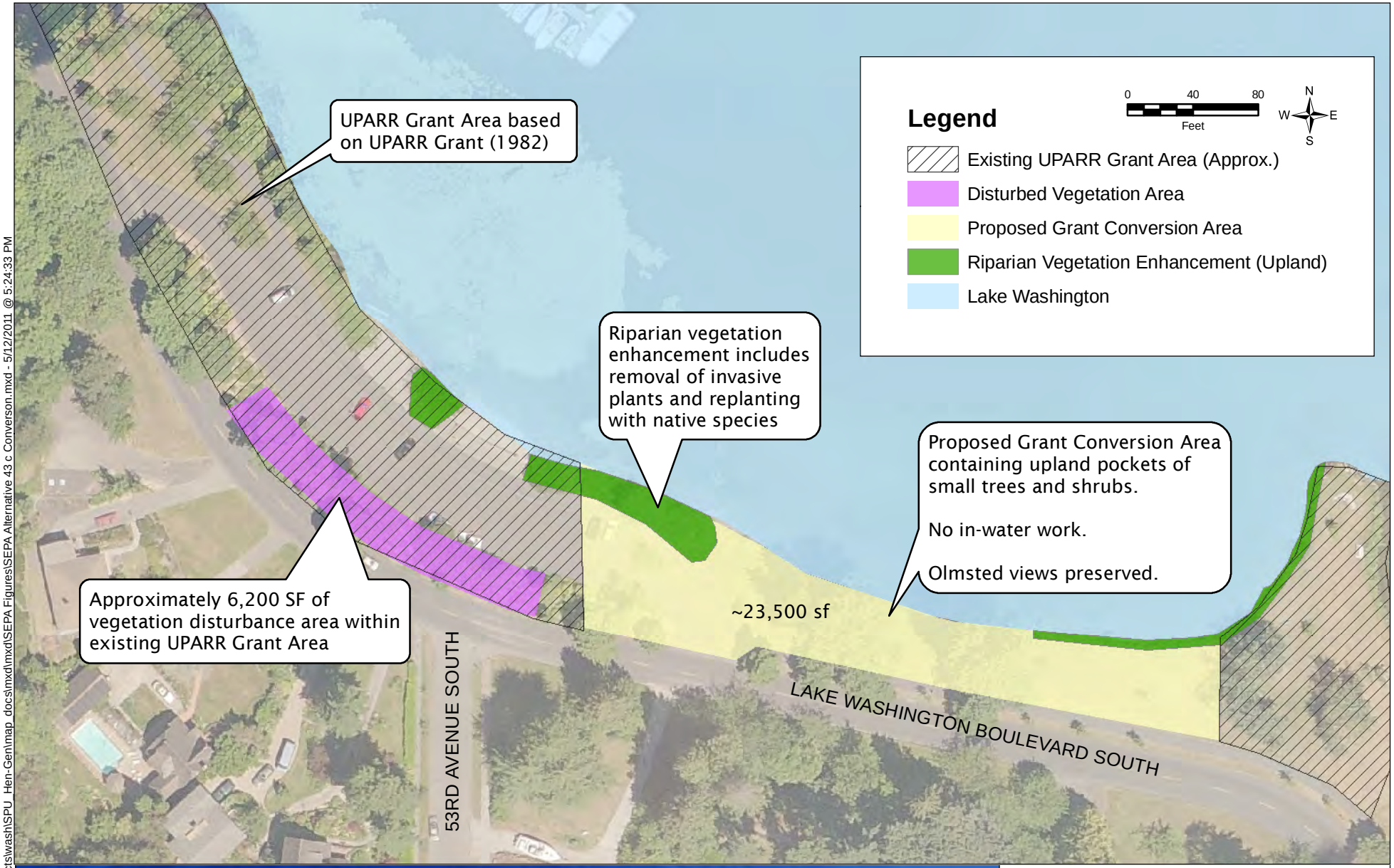
BASIN 43c STORMWATER IMPROVEMENTS

MAY 2011

FIGURE 8



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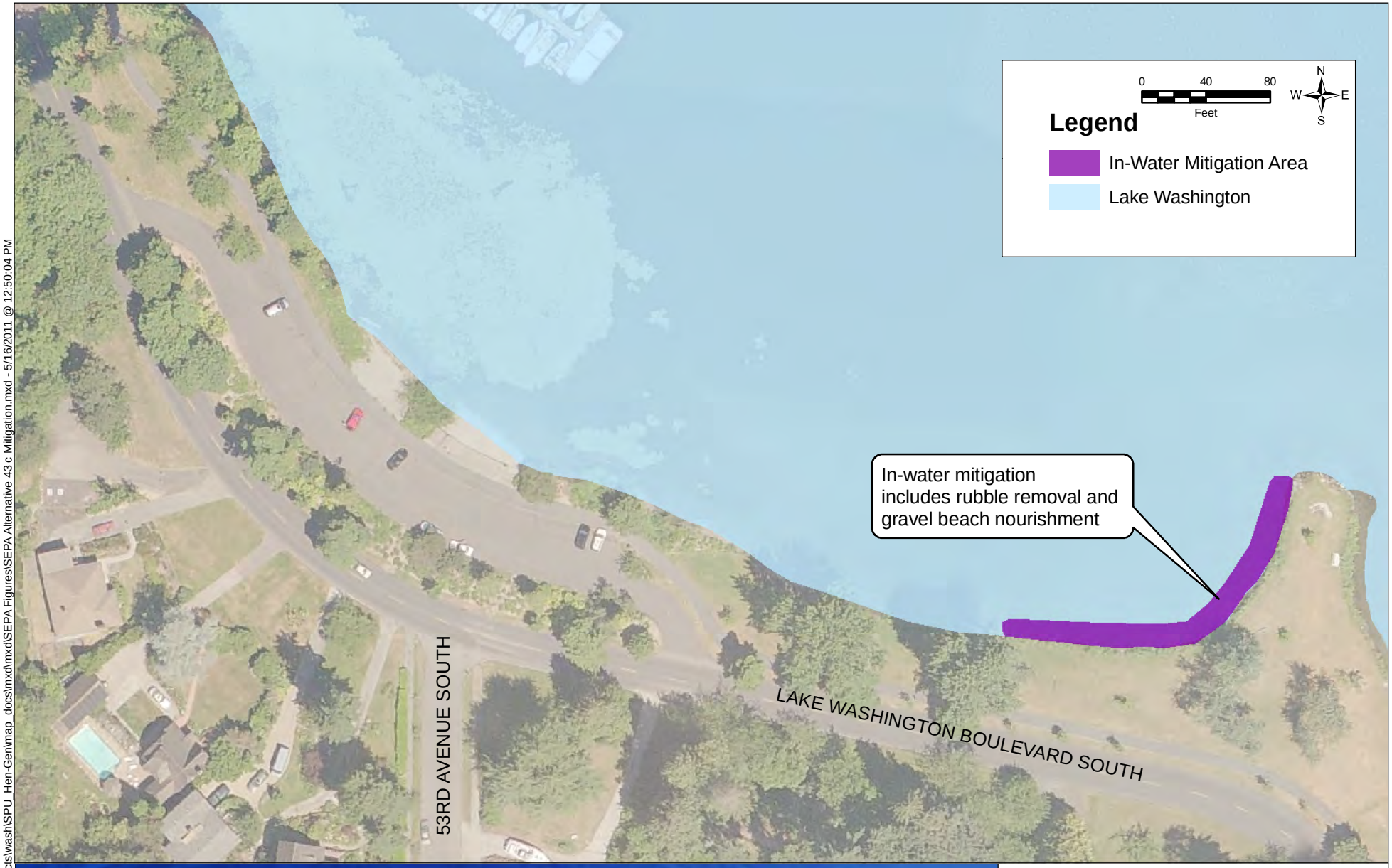
Basin 43 c
GRANT CONVERSION AREA

MAY 2011

FIGURE 9



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Seattle Public Utilities

SEPA Environmental Checklist

Basin 43 c
PARK MITIGATION AREA

MAY 2011

FIGURE 10

Attachment C – GHG Calculations

Genesee Basins 40/41 b GHG Calculations
Genesee Basin 43 c GHG Calculations

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Section III: Construction Details

Construction: Diesel

Equipment	Diesel (gallons)	Assumptions
Semi Truck (Standard Engine w/ Flatbed)	12,000	200 days * 6 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Semi Truck (Standard Engine w/ Flatbed)	2,000	100 days * 2 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Dump Truck (w/ Pup Trailer)	9,120	38 days * 24 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Misc Heavy Trucking (Equipment)	650	65 days * 1 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Concrete Truck, Standard Rear Barrel, or equal	12,000	60 days * 20 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Concrete Pump, Trailer Mounted, 60HP	538	24 days * 8 hr/day * 2.8 gallons/hr
Service/Work Truck/Van, Standard	8,000	320 days * 6 round trip/day * 50 miles/round trip * (1/12 miles/gallon)
Drill Rig, Truck Mounted, Vertical, 115HP	172	5 days * 8 hr/day * 4.3 gallons/hr
Drill Rig, Crane Mounted, Vertical, 190HP	456	10 days * 8 hr/day * 5.7 gallons/hr
Excavator, Wheel Mounted Hydraulic, 164HP	3,944	85 days * 8 hr/day * 5.8 gallons/hr
Front End Loader, GP, 4X4, 165HP	2,038	52 days * 8 hr/day * 4.9 gallons/hr
Crane, Lattice Boom, 200ft, 260HP	12,852	153 days * 8 hr/day * 10.5 gallons/hr
Subtotal Diesel Gallons	**63,770**	
GHG Emissions in lbs CO_2e	**1,415,694**	22.2 lbs CO_2e per gallon of diesel
GHG Emissions in metric tons CO_2e	**642.15**	1,000 lbs = 0.45359237 metric tons

Construction: Gasoline

Equipment	Gasoline (gallons)	Assumptions
Construction Worker Personal Vehicles	21,333	320 days * 20 round trip/day * 50 miles/round trip * (1/15 miles/gallon)
Subtotal Gasoline Gallons	**21,333**	
GHG Emissions in lbs CO_2e	**413,867**	19.4 lbs CO_2e per gallon of gasoline
GHG Emissions in metric tons CO_2e	**187.73**	1,000 lbs = 0.45 metric tons

Construction Summary

Activity	CO_2e in pounds	CO_2e in metric tons	
Diesel	**1,415,694**	**642.15**	
Gasoline	**413,867**	**187.73**	
Total for Construction	**1,829,561**	**830**	Note: Value rounded to nearest 10

Section IV: Long-Term Operations and Maintenance Details

Operations and Maintenance: Diesel

Equipment	Diesel (gallons)	Assumptions
Subtotal Diesel Gallons	**0**	
GHG Emissions in lbs CO_2e	**0**	22.2 lbs CO_2e per gallon of diesel
GHG Emissions in metric tons CO_2e	**0.00**	1,000 lbs = 0.45 metric tons

Operations and Maintenance: Gasoline

Equipment	Gasoline (gallons)	Assumptions
O&M Crew Vehicles	600	100 years * 12 trips/year * 0.5 gal/trip
Subtotal Gasoline Gallons	**600**	
GHG Emissions in lbs CO_2e	**11,640**	19.4 lbs CO_2e per gallon of gasoline
GHG Emissions in metric tons CO_2e	**5.28**	1,000 lbs = 0.45 metric tons

Operations and Maintenance Summary

Activity	CO_2e in pounds	CO_2e in metric tons	
Diesel	**0**	**0.00**	
Gasoline	**11,640**	**5.28**	
Total for Operations and Maintenance	**11,640**	**5**	Note: Value rounded to nearest 5

Basin 40/41 b - Storage in 49th Avenue South Parking Lot Project
Attachment C -- Greenhouse Gase Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet ($MTCO_2e$) Embodied	Energy	Transportation	Lifespan Emissions ($MTCO_2e$)
Single-Family Home			98	672	792	**0**
Multi-Family Unit in Large Building			33	357	766	**0**
Multi-Family Unit in Small Building			54	681	766	**0**
Mobile Home			41	475	709	**0**
Education			39	646	361	**0**
Food Sales			39	1541	282	**0**
Food Service			39	1994	561	**0**
Health Care Inpatient			39	1938	582	**0**
Health Care Outpatient			39	737	571	**0**
Lodging			39	777	117	**0**
Retail (Other than Mall)			39	577	247	**0**
Office			39	723	588	**0**
Public Assembly			39	733	150	**0**
Public Order and Safety			39	899	374	**0**
Religious Worship			39	339	129	**0**
Service			39	599	266	**0**
Warehouse and Storage			39	352	181	**0**
Other		5.2	39	1278	257	**8180**
Vacant			39	162	47	**0**
					TOTAL Section I Buildings	**8,180**

Section II: Pavement

			Emissions ($MTCO_2e$)
Pavement (sidewalk, asphalt patch)			0
Concrete Pad	22.5		1130
		TOTAL Section II Pavement	**1,130**

Section III: Construction

(See detailed calculations below)	Emissions ($MTCO_2e$)
TOTAL Section III Construction	**830**

Section IV: Operations and Maintenance

(See detailed calculations below)	Emissions ($MTCO_2e$)
TOTAL Section IV Operations and Maintenance	**5**

TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT ($MTCO_2e$)	**10,145**

Section III: Construction Details

Construction: Diesel

Equipment	Diesel (gallons)	Assumptions
Semi Truck (Standard Engine w/ Flatbed)	10,800	180 days * 6 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Semi Truck (Standard Engine w/ Flatbed)	1,800	90 days * 2 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Dump Truck (w/ Pup Trailer)	11,280	47 days * 24 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Misc Heavy Trucking (Equipment)	750	75 days * 1 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Concrete Truck, Standard Rear Barrel, or equal	12,000	60 days * 20 round trip/day * 50 miles/round trip * (1/5 miles/gallon)
Concrete Pump, Trailer Mounted, 60HP	493	22 days * 8 hr/day * 2.8 gallons/hr
Service/Work Truck/Van, Standard	12,000	480 days * 6 round trip/day * 50 miles/round trip * (1/12 miles/gallon)
Drill Rig, Truck Mounted, Vertical, 115HP	172	5 days * 8 hr/day * 4.3 gallons/hr
Drill Rig, Crane Mounted, Vertical, 190HP	456	10 days * 8 hr/day * 5.7 gallons/hr
Excavator, Wheel Mounted Hydraulic, 164HP	5,568	120 days * 8 hr/day * 5.8 gallons/hr
Front End Loader, GP, 4X4, 165HP	2,862	73 days * 8 hr/day * 4.9 gallons/hr
Crane, Lattice Boom, 200ft, 260HP	12,852	153 days * 8 hr/day * 10.5 gallons/hr
Subtotal Diesel Gallons	**71,032**	
GHG Emissions in lbs CO_2e	**1,576,919**	22.2 lbs CO_2e per gallon of diesel
GHG Emissions in metric tons CO_2e	**715.28**	1,000 lbs = 0.45359237 metric tons

Construction: Gasoline

Equipment	Gasoline (gallons)	Assumptions
Construction Worker Personal Vehicles	32,000	480 days * 20 round trip/day * 50 miles/round trip * (1/15 miles/gallon)
Subtotal Gasoline Gallons	**32,000**	
GHG Emissions in lbs CO_2e	**620,800**	19.4 lbs CO_2e per gallon of gasoline
GHG Emissions in metric tons CO_2e	**281.59**	1,000 lbs = 0.45 metric tons

Construction Summary

Activity	CO_2e in pounds	CO_2e in metric tons	
Diesel	**1,576,919**	**715.28**	
Gasoline	**620,800**	**281.59**	
Total for Construction	**2,197,719**	**1,000**	Note: Value rounded to nearest 10

Section IV: Long-Term Operations and Maintenance Details

Operations and Maintenance: Diesel

Equipment	Diesel (gallons)	Assumptions
Subtotal Diesel Gallons	**0**	
GHG Emissions in lbs CO_2e	**0**	22.2 lbs CO_2e per gallon of diesel
GHG Emissions in metric tons CO_2e	**0.00**	1,000 lbs = 0.45 metric tons

Operations and Maintenance: Gasoline

Equipment	Gasoline (gallons)	Assumptions
O&M Crew Vehicles	600	100 years * 12 trips/year * 0.5 gal/trip
Subtotal Gasoline Gallons	**600**	
GHG Emissions in lbs CO_2e	**11,640**	19.4 lbs CO_2e per gallon of gasoline
GHG Emissions in metric tons CO_2e	**5.28**	1,000 lbs = 0.45 metric tons

Operations and Maintenance Summary

Activity	CO_2e in pounds	CO_2e in metric tons	
Diesel	**0**	**0.00**	
Gasoline	**11,640**	**5.28**	
Total for Operations and Maintenance	**11,640**	**5**	Note: Value rounded to nearest 5

Basin 43 c - Storage in 53rd Avenue South Parking Lot Project
Attachment C -- Greenhouse Gase Emissions Worksheet

Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet ($MTCO_2e$) Embodied	Energy	Transportation	Lifespan Emissions ($MTCO_2e$)
Single-Family Home			98	672	792	0
Multi-Family Unit in Large Building			33	357	766	0
Multi-Family Unit in Small Building			54	681	766	0
Mobile Home			41	475	709	0
Education			39	646	361	0
Food Sales			39	1541	282	0
Food Service			39	1994	561	0
Health Care Inpatient			39	1938	582	0
Health Care Outpatient			39	737	571	0
Lodging			39	777	117	0
Retail (Other than Mall)			39	577	247	0
Office			39	723	588	0
Public Assembly			39	733	150	0
Public Order and Safety			39	899	374	0
Religious Worship			39	339	129	0
Service			39	599	266	0
Warehouse and Storage			39	352	181	0
Other		4.16	39	1278	257	6550
Vacant			39	162	47	0
					TOTAL Section I Buildings	**6,550**

Section II: Pavement

			Emissions ($MTCO_2e$)
Pavement (sidewalk, asphalt patch)		7.79	390
Concrete Pad		42.9	2150
		TOTAL Section II Pavement	**2,540**

Section III: Construction

(See detailed calculations below)	Emissions ($MTCO_2e$)
TOTAL Section III Construction	**1,000**

Section IV: Operations and Maintenance

(See detailed calculations below)	Emissions ($MTCO_2e$)
TOTAL Section IV Operations and Maintenance	**5**

TOTAL GREENHOUSE GAS (GHG) EMISSIONS FOR PROJECT ($MTCO_2e$)	**10,095**