

Environmental Checklist State Environmental Policy Act

Houghton Transfer Station Mitigation Project

November 2007



King County

Department of
Natural Resources and Parks
Solid Waste Division

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Prepared for King County
by R. W. Beck, Inc.

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206-296-4466 TTY Relay: 711

ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of proposed project, if applicable:

Houghton Transfer Station Mitigation Project

2. Name of applicant:

King County Department of Natural Resources and Parks, Solid Waste Division

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

King County Department of Natural Resources and Parks, Solid Waste Division
Francisco Gaspay, Project Manager
King Street Center
201 S. Jackson Street, Suite 701
Seattle, WA 98104-3855
206.296.8445

4. Date checklist prepared:

November 21, 2007

5. Agency requesting checklist:

King County Department of Natural Resources and Parks

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

<i>Schedule Components</i>	<i>Estimated Dates/Time Periods</i>
Zoning Permit Process II-B and Building Permit	Fall 2007 – Summer 2008
Advertise for bids	Summer 2008
Construction begins ^a	Fall 2008
Onsite construction begins ^b	Spring 2009
Construction complete	Summer 2009
Station reopens	Summer 2009

^a Offsite construction will consist of submittals review and roof fabrication.

^b Onsite construction is estimated at 18 weeks with approximately 12 weeks of station closure.

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 known plans for future additions, expansion, or further activity beyond those specified in this proposal.

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

PacRim Geotechnical, Inc. June 5, 2000. *Draft Geotechnical Report, Houghton Transfer Station Safety Improvements Project*. Prepared for R.W. Beck. Seattle, Washington.

PacRim Geotechnical, Inc. March 29, 2002. *Final Geotechnical Report, Houghton, Renton, Algona Transfer Stations Roof Replacements Project*. Prepared for ABKJ, Inc. Seattle, Washington.

R.W. Beck. September 7, 2000. *Houghton Transfer Station Safety Improvement Project, Task 3.3 Conceptual Design Report*. Prepared for King County Department of Natural Resources, Solid Waste Division. Seattle, Washington.

The Greenbusch Group, Inc. October 12, 2001. *Site Noise Analysis, Houghton Transfer Station, N.E. 60th Street, Kirkland, Washington*. Prepared for R.W. Beck. Seattle, Washington.

The Greenbusch Group, Inc. October 30, 2001. *Houghton Transfer Station Roof Replacement Project, Acoustical Recommendations*. Prepared for Andersen, Bjornstad, Kane, Jacobs, Inc. Seattle, Washington.

The Greenbusch Group, Inc. August 30, 2007. *Acoustical Study: Houghton Transfer Station Site Mitigation and Roof Replacement Project*. Prepared for R.W. Beck. Seattle, Washington.

Herrera Environmental Consultants, Inc. February 2007. *Wetland Assessment, Houghton Transfer Station Mitigation Project*. Prepared for R. W. Beck. Seattle, Washington.

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

There are no known applications pending for governmental approvals of other proposals directly affecting the property involved in the Houghton Transfer Station Mitigation Project.

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

City of Kirkland	Process II-B Zoning permit ^a
City of Kirkland	Grading/Excavation permit
City of Kirkland	Surface Water Improvements approval
City of Kirkland	Demolition permit (roof, fence)
City of Kirkland	Building/Plumbing/Mechanical permit
City of Kirkland	Electrical permit
City of Kirkland	Sewer connection permit
King County	Industrial Waste Permit
U.S. Army Corps of Engineers	Possible Nationwide permit No. 46

- ^a Issuance of the City of Kirkland Process II-B permit is subject to Hearing Examiner and Houghton Community Council recommendations to the Kirkland City Council, and a Houghton Community Council final decision to approve or veto the City Council decision on the permit.

On October 18, 2005, the City of Kirkland and the King County Solid Waste Division entered into a Memorandum of Understanding (MOU) regarding proposed improvement projects at the Houghton Transfer Station that will provide for safer operating conditions and make the facility more compatible with the residential neighborhood in which it is located. The Agreement reflects a mutual understanding regarding the projects to be implemented at the transfer station, subject to nine provisos, and subject to the City's Process II-B permitting requirements and community involvement process. The nine provisos established by the MOU are as follows:

Proviso 1: Reduce solid waste at the Houghton Transfer Station to a maximum annual tonnage of 135,000 tons/year over a ten year period.

Proviso 2 (as modified by Addendum): Prohibit any overnight parking of full or partially-full trailers at the transfer station. The only exception would be the trailers located in the tipping area at the end of regular business hours. The City and the Division agree that:

- The Division shall remove all full trailers at the end of each workday ninety percent (90%) of the time even if Division vehicles are on City streets after 5:30 PM.
- Empty trailers and up to two partially-full trailers may remain on site overnight.
- Removal of all full trailers may be precluded by unforeseen and unpreventable situations such as, but not limited to: emergency roadway conditions, equipment breakdown, inclement weather conditions, natural disasters such as, but not limited to, earthquakes, pandemics, or any other unexpected force majeure.

Proviso 3: King County shall pay for ADA compliant pathway construction on the north side of NE 60th Street from 116th Avenue NE to 120th Avenue NE.

- The City removes the requirement for the pathway to be compliant with equestrian standards.
- The pathway will be designed similar to the asphalt pathway west of Ben Franklin Elementary School but with the addition of extruded curb along its length and thermoplastic crosswalk markings across the driveway entrances to the transfer station. The Division will work with the City on specific design standards. Etc.

Proviso 4: Shade existing luminaries that spill light into residential areas.

Proviso 5: Construct a sound barrier wall to mitigate noise from the transfer station into the residential neighborhood. Sound absorption material must be applied on the east side of the wall to avoid reflecting noise into the residential neighborhood to the east.

Proviso 6: Landscape around the Houghton Transfer Station to reduce the visual impacts of the solid waste facility. Landscaping shall be non-deciduous.

Proviso 7: King County shall honor the Comprehensive Solid Waste Management Plan Policy RTS-3, which states: "The County should focus capital investment in part to expand, relocate, or replace, or any combination thereof, transfer stations when safety, efficiency, capacity, or customer service needs cannot be met by existing transfer facilities."

Provisio 8: Cities that host County transfer stations provide value to the entire region and should be provided opportunities for compensation.

Provisio 9: If there are legitimate safety concerns or operational efficiencies that mitigate the impacts of the operation of this facility on the neighborhood, such improvements should be made. However, no capital improvements to this facility should lead to increased capacity.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Houghton Transfer Station Mitigation Project includes several independent improvements intended to increase customer and employee operational safety, and to attenuate noise at adjacent residential property associated with day-to-day transfer station operations. The work includes five components, described below. The transfer station site is 6.68 acres (290,980 square feet) in size within the fenced area. References to “the site” throughout this document are generally to the transfer station site overall, rather than to the specific area of disturbance, unless otherwise noted.

ROOF STRUCTURE REPLACEMENT – The proposal includes replacing the existing, 40-year-old transfer station roof structure with a new structure in order to provide additional vertical clearance between the floor and the ceiling, and reduce the number of roof support columns. The existing low roof and numerous columns conflict with customer traffic and commercial truck movements, particularly inhibiting the tipping process of large commercial collection vehicles. The building has suffered structural damage due to impact from vehicles. Customer vehicles have also been damaged.

The new roof structure will not alter the existing footprint of the transfer building. The intent of the design is to increase the interior vertical clearances and open up the floor plan to promote a safer, more user-friendly facility. The proposed design incorporates three steel trusses to clear-span the building (see Figure 1). This approach responds to the design objective in two ways. First, by using an inverted truss design in which the support structure is located above the roof plane, the roof can be kept closer to the operating floor while still providing the necessary minimum truck tipping vertical clearance of 25 feet 10 inches within the building (see Figure 2). Second, the clear span will allow the number of support columns to be reduced from 20 to 6, which will open up the floor plan and create a more obstruction-free (and thus more safe) tipping floor area.

The replacement roof structure will be constructed with an absorptive surface on the underside for noise reduction.

A series of masonry enclosure walls are proposed at the north and south ends of the tipping floor to provide additional screening along the public side of the building that fronts NE 60th Street, and to the sports fields to the north. The enclosure walls will range in height from 10 feet to 14 feet above the tipping floor. This will screen the majority of work occurring in the structure. The enclosure walls will also aid in the reduction of noise generated at the tipping floor. In addition to the screen walls on the southern, public facade, landscaping is proposed on the hillside to soften the appearance of the structure.

A fire suppression sprinkler system will be installed in the replacement roof structure. This will constitute a safety improvement over the existing structure, in which there is no sprinkler system. An

on-site 6-inch water main extension is proposed south of the trailer yard to provide sprinkler service to the transfer building (see Figure 3).

TRAILER YARD RECONFIGURATION – The existing trailer (solid waste container) yard located west of the transfer station will be expanded to the east from the existing 13,760 square feet (sf) of paved area to 33,410 sf. This will provide additional maneuvering area for transfer trailers. The existing, very restricted yard area results in conflicts between transfer trailer movements and out-bound customer traffic, creating safety hazards. The proposal includes increasing the number of “aisles” for transfer trailer parking from 7 to 14, though the number of trailers to be temporarily stored on the site will remain a maximum of 18. During normal operations, transfer trailers will only be parked two per aisle compared to three per aisle under existing conditions. This will increase the efficiency of truck movements while maneuvering trailers, reduce conflicts with outbound commercial and self-haul vehicles, and improve access to loaded containers to move them off-site more quickly.

Three additional pole-mounted light fixtures will be added at the perimeter of the yard to increase visibility when natural lighting levels are low. Two of these poles will be located along the north edge of the yard, and one will be added to the east side (see Figure 3). The lights will be baffled and directed downward so that light does not intrude on adjoining residential properties to the west.

As part of the reconfiguration of the paved yard area, the existing sanitary sewer pump station located in this area may be expanded to accommodate additional surface water collection from the increased trailer yard area. A gravity sewer conversion was originally intended as part of this project. The conversion has since been modified to an expansion of the existing pump system due to the limited life of the facility and the construction cost associated with gravity sewer conveyance to NE 116th Avenue NE. The expanded sewer pump system will provide for sanitary sewage collection from the existing and expanded trailer yard storage areas. Storm drainage from the trailer yard is considered to be potentially contaminated by leakage from loaded trailers. The primary constraint to the new sewer pump system design is the sewer discharge limitation for the site. The existing pump system has the capacity to discharge the increased surface water volume; however, the discharge limit will need to be increased through a County permit process. Any additional on-site storage required will be the result of discharge limitations set by the new permit. In the event of a storage requirement, a new vault will be incorporated into the pump system design. The stormwater collection system for the expanded trailer yard will consist of existing and new catch basins that connect to the pump station with 8-inch and 12-inch diameter pipes. Shallow concrete rolled curb and gutters will be installed perpendicular to sheet flow to improve runoff interception in the yard. A continuous precast concrete barrier wall along the west edge of the yard will help intercept flow along the west edge and direct this flow to existing catch basins.

SOUND WALL – A 433-foot long sound wall is proposed along the west boundary of the site (see Figure 2). The wall will be 12 feet tall along the majority of the west boundary. At the location where the wall encroaches on a wetland buffer from the west (approximately the middle of the wall), the wall will be constructed at a height of 6 feet, to replace existing fencing. This wall will help buffer the adjacent residential properties from noise generated within the trailer yard and to a lesser extent inside the transfer building. The new sound wall will replace the existing parallel wood and chainlink fences along the western edge of the property. The wall will be located on the same alignment as the two existing fences. The wall will be a pre-engineered system consisting of heavy timber posts approximately 12 feet on center with T1-11 patterned plywood sandwich panels between posts. This patterned plywood is often used as siding on residential and light commercial structures. All wall

materials will be pressure treated to resist decay. The treatment process will result in a rustic greenish-gray or brownish appearance to the finished wall.

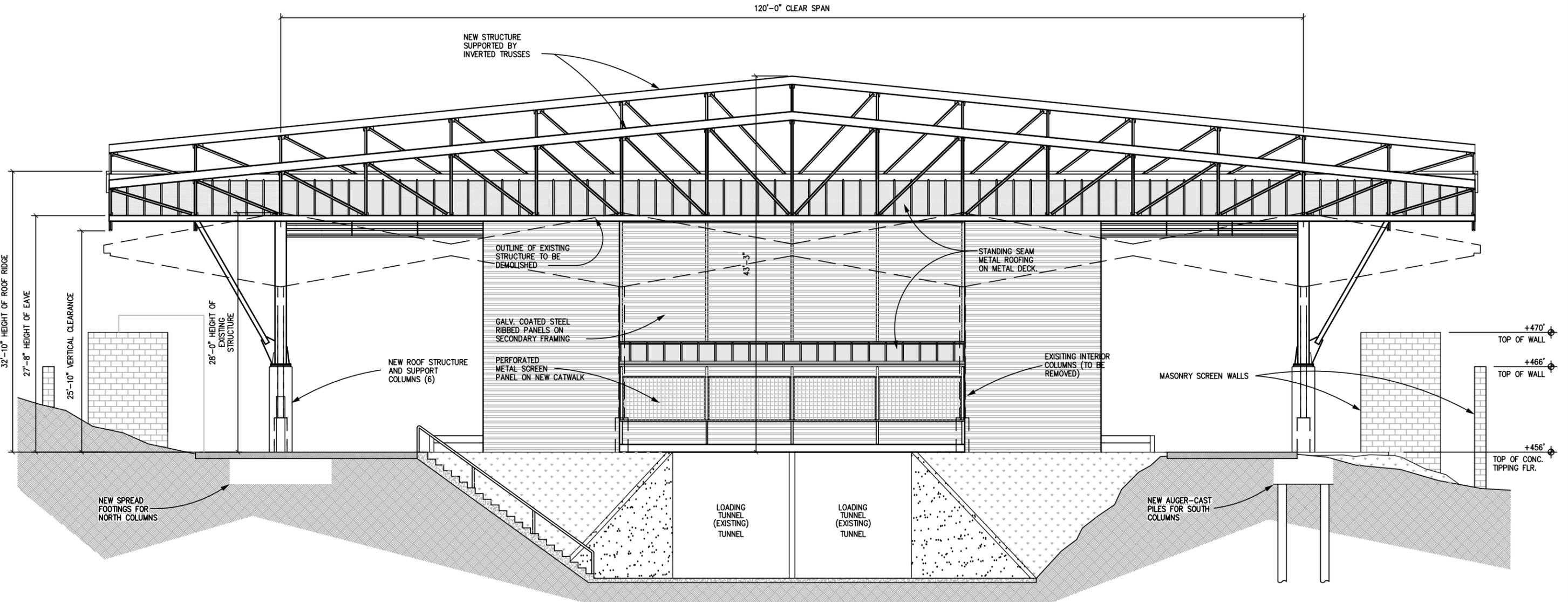
LOADING BAY APPROACH ROAD – As King County has transitioned to using longer transfer trailers, the curved approach road to the loading bay has become increasingly hazardous since the truck and trailers cannot swing wide enough to clear the inner hillside. Trailers tracking onto the unpaved toe of the inner slope contribute to the erosion of soil which eventually adds considerable sediment load to surface water runoff from the site. The proposal includes widening the paved approach road from 18 feet to 24 feet, and increasing the radius of the curve from approximately 68 feet to 73 feet (see Figure 4). The roadside slopes will be retained with a two-tier height of concrete blocks. A bumper strip and curb along the face of the inner blocks will help guide the trailers. Side slopes will be regraded. These side slopes are currently too steep to allow personnel to safely mow the grass cover. Steeper slope areas will be finished with a shotcrete (thin concrete layer) cover to eliminate the need for grass maintenance.

PEDESTRIAN PATHWAY – The Memorandum of Understanding (MOU) between the City of Kirkland and King County Solid Waste Division (October 18, 2005) sets forth design and performance standards for an ADA-compliant pedestrian pathway to be constructed along the north side of NE 60th Street between 116th Avenue NE and 120th Avenue NE. The pathway is proposed as a 5-foot wide asphalt surface with extruded curbing. Pedestrian refuge areas will be provided in front of the transfer station, along with thermoplastic crosswalk markings across the driveway entrances. Some lengths will include a planter area buffer for path separation from NE 60th Street (see Figure 5).

A preliminary assessment of the construction sequence indicates that the Houghton Transfer Station will need to be closed for a construction period of approximately 12 weeks. At the time of this writing, King County projects that construction hours will not exceed those allowed by the Kirkland City Code, and work days will be limited to Monday through Saturday, excluding any major holidays that may fall within this 12-week period. A more detailed assessment of the closure period requirement will be prepared as part of the design work.

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

The Houghton Transfer Station site is located within the City of Kirkland, in Section 9, Township 25 North, Range 5 East, W.M. The street address is 11724 NE 60th Street, Kirkland, WA 98033. The site is bordered on the south by NE 60th Street and on the east by a residential lot and 120th Avenue NE (see Figure 6). Single-family homes between the site and 116th Avenue NE border the trailer yard area on the west. The north boundary of the site borders the closed Houghton Landfill, recently redeveloped as a ballfield park (Taylor Sports Park).



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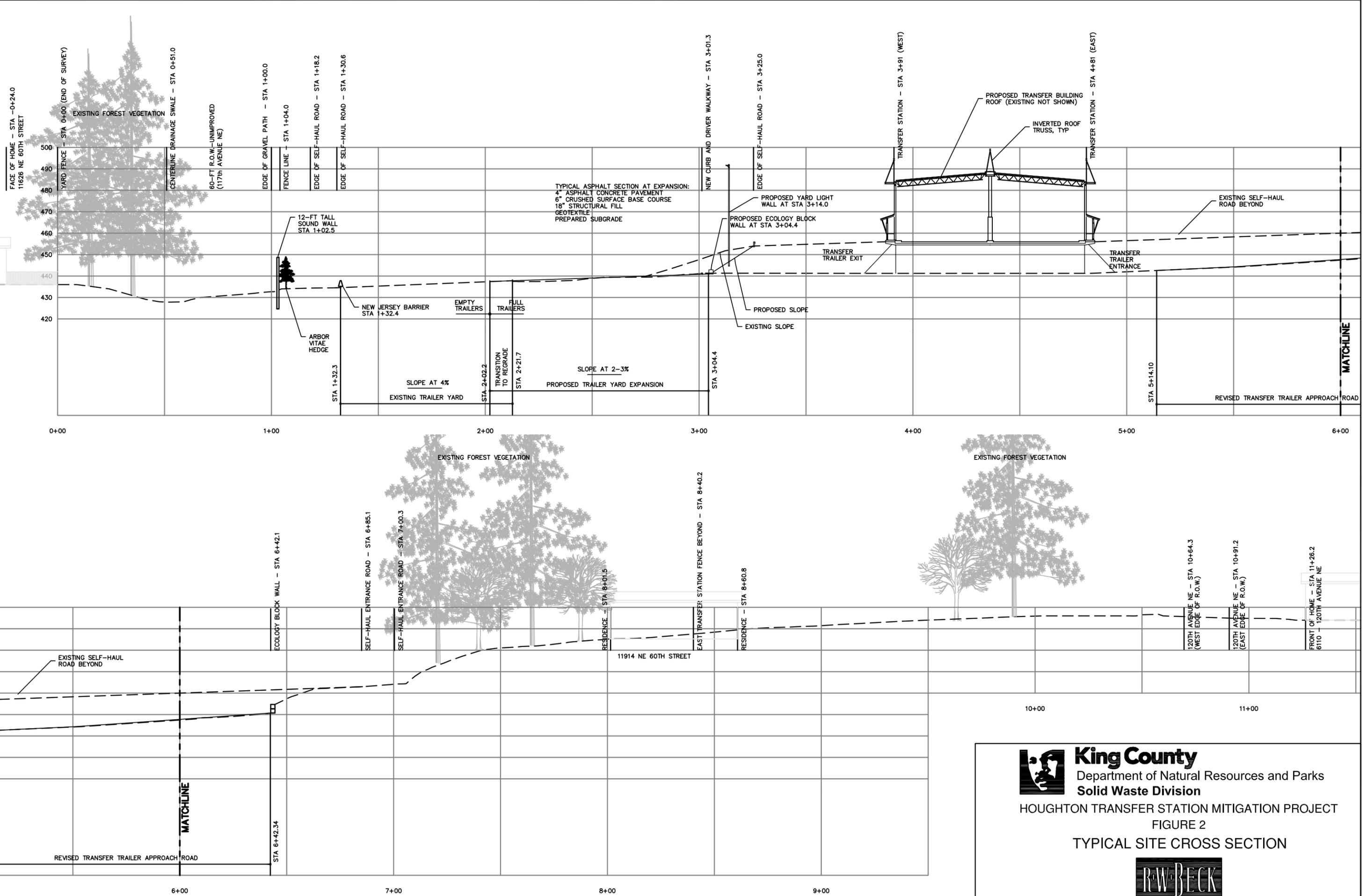
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HOUGHTON TRANSFER STATION MITIGATION PROJECT

FIGURE 1

ROOF STRUCTURE REPLACEMENT

dnupehoren Nov 26, 2007 - 8:58am - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\SEPA_CAD_112107\Figure 2 - Site Section.dwg
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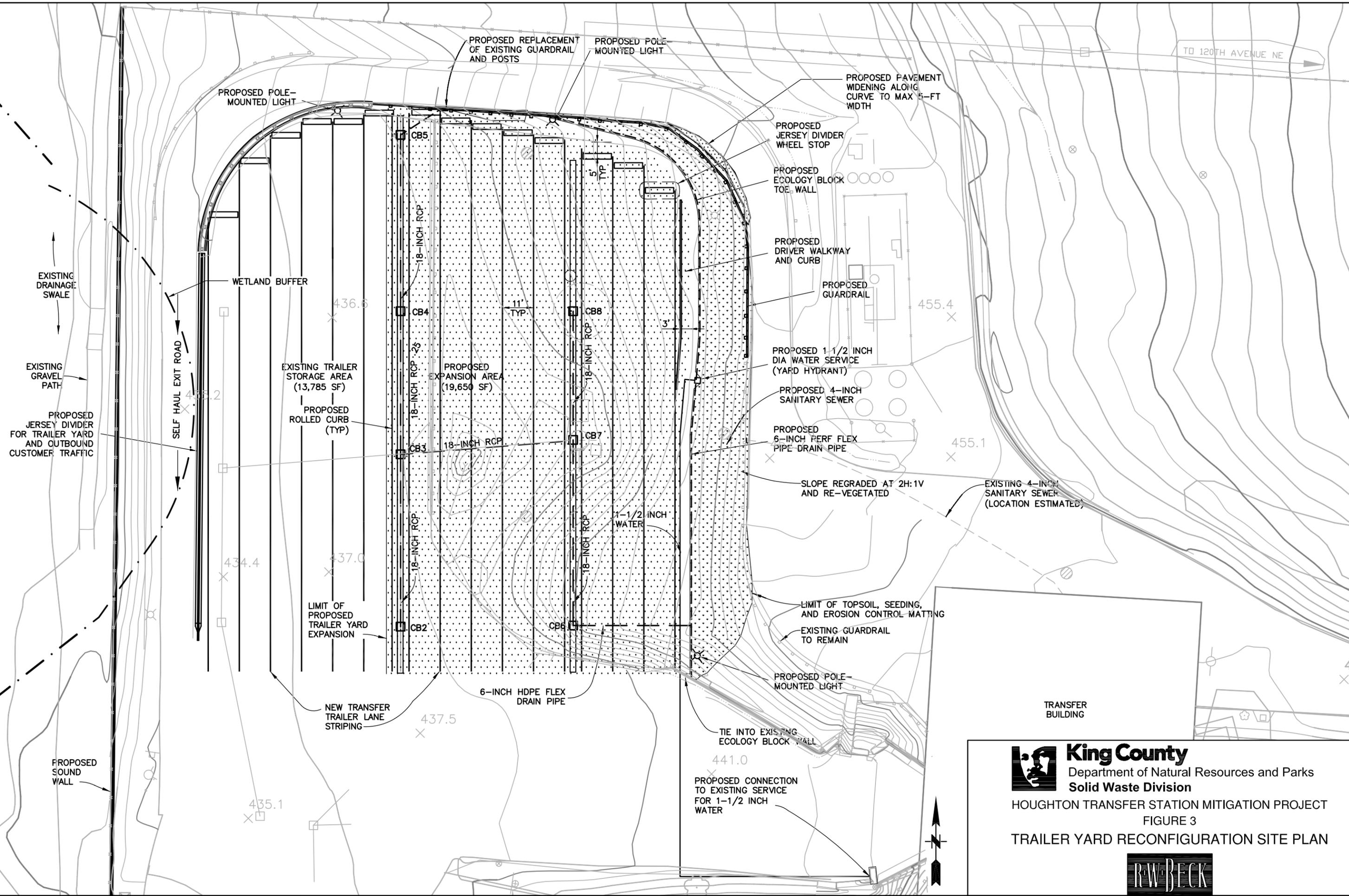


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HOUGHTON TRANSFER STATION MITIGATION PROJECT
 FIGURE 2
 TYPICAL SITE CROSS SECTION



Nov 26, 2007 - 8:58am - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\SEPA_CAD 112107\Figure 3 - Trailer Yard.dwg
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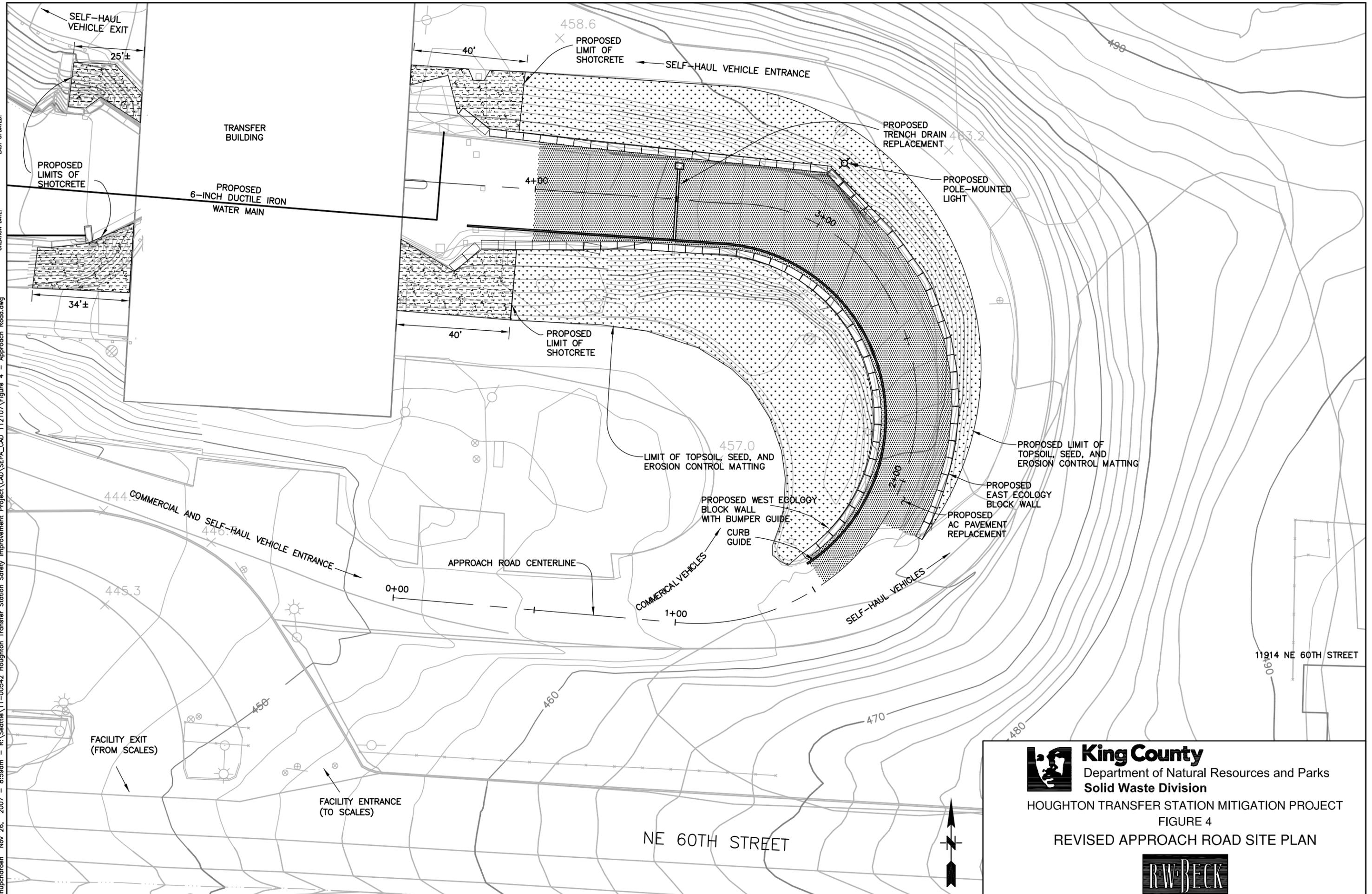


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HOUGHTON TRANSFER STATION MITIGATION PROJECT
FIGURE 3
TRAILER YARD RECONFIGURATION SITE PLAN



LAST UPDATED: CREATION DATE: dnrpcharcen Nov 26, 2007 - 8:59am - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\SEPA_CAD_112107\Figure 4 - Approach Road.dwg

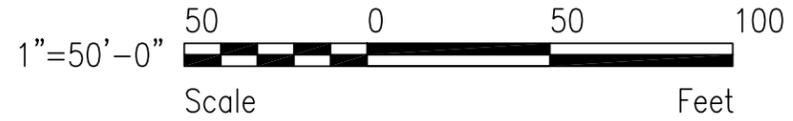
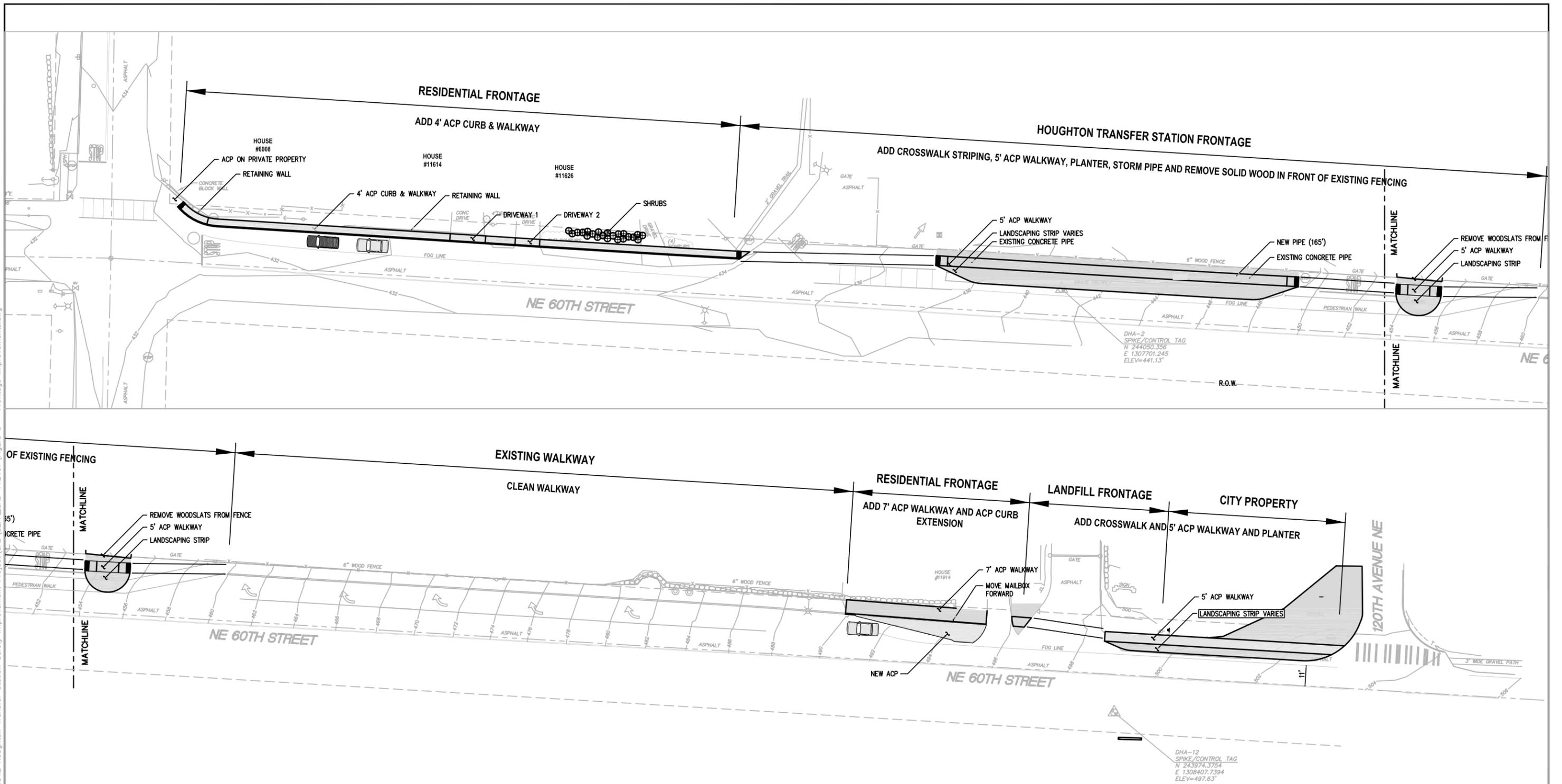


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HOUGHTON TRANSFER STATION MITIGATION PROJECT
FIGURE 4
REVISED APPROACH ROAD SITE PLAN



dnupcharoen Nov 26, 2007 9:00am - R:\Seattle\11-00542 Houghton Transfer Station Safety Improvement Project\CAD\SEPA_CAD_112107\Figure 5 - Frontage Improvements.dwg

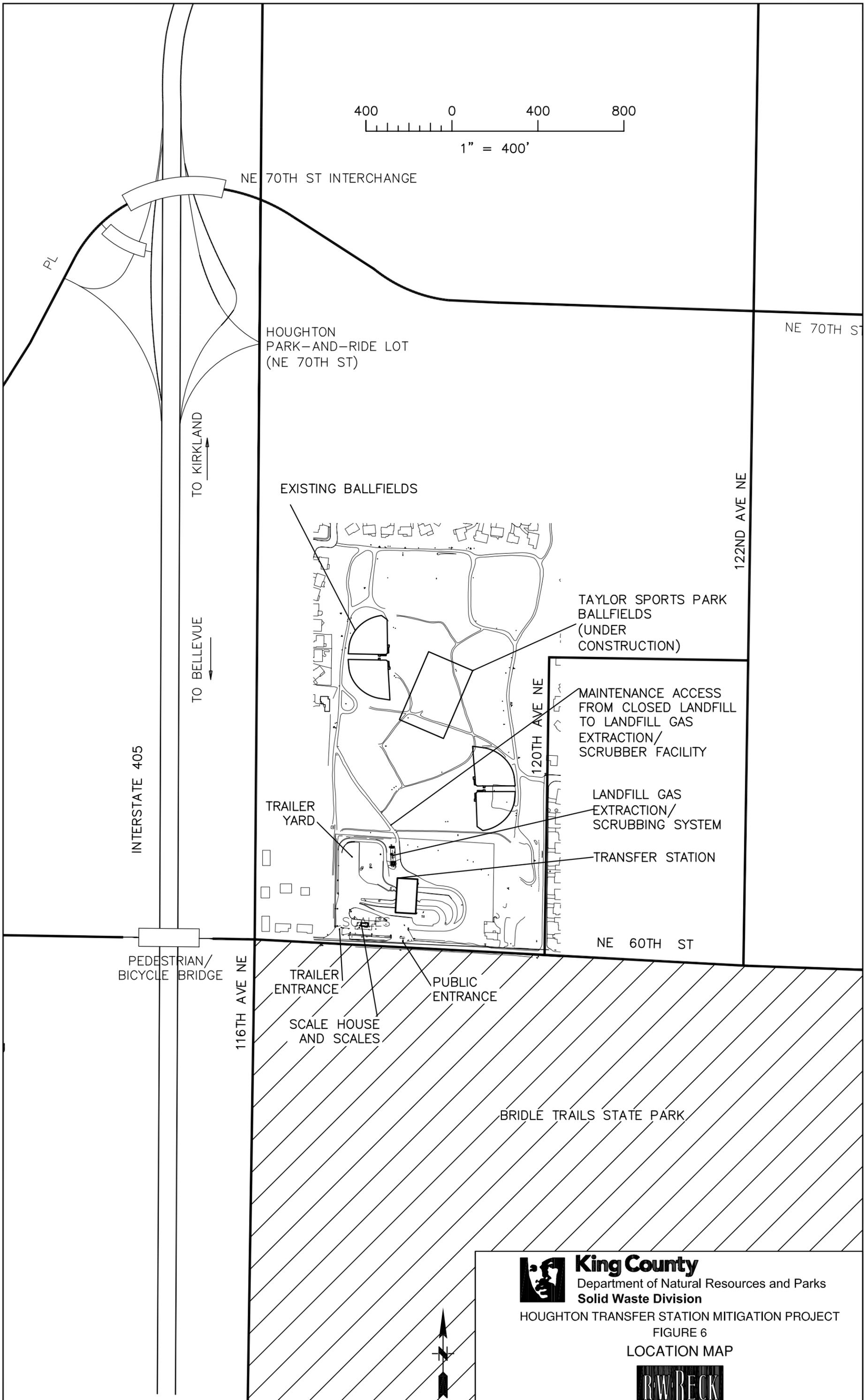
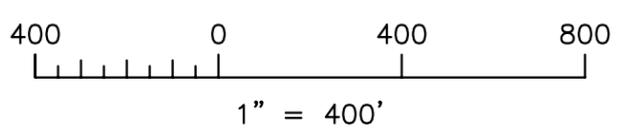


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HOUGHTON TRANSFER STATION MITIGATION PROJECT
 FIGURE 5
 FRONTAGE IMPROVEMENTS



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HOUGHTON TRANSFER STATION MITIGATION PROJECT
FIGURE 6
LOCATION MAP



B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (underscore one): rolling, steep slopes, mountainous, other: relatively flat with some man-made slopes.

The Houghton Transfer Station active site area is generally flat with some created slopes in the south central portion of the site. The slopes were created for grade tie-ins at the approach road to the transfer trailer tunnel, and to tie into the existing transfer trailer storage yard (see Figure 2). Existing topography ranges in elevation from a low point of +431 feet mean sea level (MSL) at the transfer trailer entrance/exit to a high point of +464 MSL on the north side of the self-haul vehicle access road.

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

In general, the steepest slope is 2H:1V (horizontal to vertical) – a 50% slope, though there are some short localized slopes that exceed this grade. This slope occurs in a small area north and east of the area proposed for site safety improvements, along the self-haul access road. The City of Kirkland Landslide and Seismic Hazard Areas map designates the southeast portion of the transfer station site as a “medium hazard” landslide hazard area due to the steepness of the access road side slopes. The mapped area encompasses the steep wooded slope east of the public access road, and curves northward to the boundary between the transfer station and former Houghton Landfill, following the alignment of the self-haul access road.

General site slopes are approximately 4%. The slope across the proposed trailer yard reconfiguration area is approximately 3%. The slope of the transfer trailer approach road is approximately 7.2%. The slope across the existing transfer station building is less than 1%.

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.

Site soils are typically poorly-graded sandy silts. These are classified under the Unified Soil Classification System established by the U.S. Natural Resources Conservation Service (NRCS) as SP for poorly-graded sand, and SM for silty sand. The transfer station site is located partially on a former solid waste landfill site, and has no history of agricultural use. The soil cover over the refuse fill in the trailer yard reconfiguration area (northwest corner of the site) is approximately 4.5 to 5.5 feet thick. As indicated in the *Draft Geotechnical Report* (PacRim Geotechnical, Inc., June 5, 2000), refuse will likely be encountered during the work proposed in the trailer yard reconfiguration area. There is no indication that refuse will be encountered during any other element of this project.

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

The trailer yard reconfiguration work will be conducted over a closed former solid waste landfill site, requiring design considerations and construction methods to address potential settlement (described in SEPA Checklist Section B.1.h, below).

A minor amount of soil sloughing occurs from the exposed, unvegetated slope faces that border portions of the on-site traffic circulation system.

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

SOUND WALL. Excavation and fill required for installation of the sound wall along the west side of the project site will be approximately balanced (about 40 cubic yards [cy]). The excavated material will be redistributed on-site, used for some beneficial purpose, in the area of other project elements to be constructed. If any of the excavated material is contaminated with refuse, it will be disposed at a regulated regional landfill facility. Approximately 40 cy of gravel will be imported from a local source for use as backfill material to create a base for the sound wall panels.

TRAILER YARD RECONFIGURATION. Approximately 4,000 cy of material will be excavated and removed from the site in the proposed trailer yard reconfiguration area. Since it is anticipated that a portion of this material may be contaminated with refuse from the former landfill operation, contaminated soil will be disposed at a regulated regional landfill facility. Approximately 2,000 cy of material will be imported to the site from a local source for use as fill in the trailer yard reconfiguration area. This will include approximately 1,100 cy of structural fill, 360 cy of crushed surface base course, 300 cy of pipe bedding and backfill, and 240 cy of asphalt concrete pavement.

APPROACH ROAD WIDENING. Excavation and fill will be approximately balanced (500 cy) in the area of proposed approach road widening. Excavated material will be used to re-establish slopes and grades on each side of the approach road. Approximately 440 cy of material (360 cy of subgrade material and crushed surface base course, and 80 cy of asphalt concrete pavement) will be imported from a local source to be used in re-constructing the driving surface of the approach road.

ROOF REPLACEMENT. Minor excavation and fill may be required associated with replacing the roof section of the transfer station. Existing roof columns will be demolished down to grade. Drilling will be performed for the installation of auger-cast piling for the three south column footings. The new structural columns will have concrete bases to a height approximately 10 feet above the floor. Forms will be constructed and concrete will be poured to create pile caps, footings and columns. Minor excavation will be required to accommodate construction of the proposed masonry enclosure walls at the north and south ends of the tipping floor.

PEDESTRIAN PATHWAY. Proposed frontage improvements to construct a pedestrian pathway will require placing a 12-inch diameter pipeline in the existing ditch to convey stormwater runoff, and fill in the amount of approximately 25 cy. Ditch fill will consist of pipe bedding, backfill, topsoil and asphalt. There will be fill related to the pedestrian pathway: a raised sidewalk approximately 300 feet long, extending east from 116th Avenue NE, along NE 60th Street. The sidewalk will be 4 feet wide and consist of a 2-inch asphalt depth and 4-inch crushed aggregate depth for a total fill of approximately 20 cy. The majority of the remaining pathway will be at-grade, utilizing existing pavement. For any other inset pathway along NE 60th Street, there will be an additional 230 feet of at-grade asphalt pathway installed (5 feet wide). For this section, there will be approximately 20 cy of cut that will be filled with 20 cy of pathway crushed aggregate (4 inches) and asphalt (2 inches). Additionally, there will be a landscape berm to be installed in the northeast corner of the 120th Avenue NE and NE 60th Street intersection. The berm will require approximately 60 cy of fill material. Total pathway cut and fill are expected to be 20 cy and 125 cy, respectively.

Table 1. Summary of the purpose, type and approximate quantities of proposed excavation and fill.

Location	Purpose	Excavation	Fill	Type
Sound wall	Replacement/new construction	40 cy	40 cy	On-site soils
Trailer yard (excavation)	Yard reconfiguration	4,000 cy		On-site soils, some buried waste
Trailer yard (fill)	Yard reconfiguration		2,000 cy	Imported fill + 240 cy of asphalt
Approach road	Road widening	500 cy	440 cy	Imported fill + 80 cy of asphalt
Roof replacement	Roof structure replacement	86 cy		
Pedestrian pathway	ADA-compliant pathway construction	20 cy	125 cy	Imported fill + 20 cy of asphalt
Total Estimates:		4,646 cy	2,605 cy	

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

It is not expected that there will be a significant potential for, or amount of, erosion during the proposed construction activities, because the majority of the work will be done in areas already paved with impervious surfaces.

Silt fencing, slope protection, and other best management practices will be used to control sediments that could be generated by construction activities associated with the sound wall along the west boundary of the site, nearest the off-site drainage course.

Slope protection, catch basin inserts and other measures will be used to control sediments that could be generated during construction activities in the trailer yard reconfiguration area, the approach road widening area, and the frontage improvements area. If necessary, sediment-laden runoff from the work site will be detained and treated in portable filter tanks before discharge from site.

No additional on-site erosion or sedimentation control measures should be needed for construction activities associated with replacing the transfer station roof.

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

Prior to the proposed construction, approximately 51% (148,100 sf of 290,980 sf total) of the Houghton Transfer Station site is covered with existing impervious materials. Proposed improvements will increase the amount of impervious surface to 59% (170,500 sf of 290,980 sf total).

SOUND WALL. Construction of the sound wall along the west side of the project site will not add any impervious surface, as it is a vertical structure. The proposed sound wall will replace two parallel existing 6-foot high fences in this area: one wood and one chainlink.

TRAILER YARD RECONFIGURATION. The proposed trailer yard reconfiguration will increase the amount of pavement on the site by approximately 19,650 sf.

APPROACH ROAD. Proposed changes to the transfer tunnel approach road will add approximately 650 sf of new pavement and about 2,100 sf of shotcrete ground cover as impervious surfaces.

ROOF REPLACEMENT. Replacement of the transfer station roof structure will not increase the amount of impervious surface on the site because the new roof will shelter the existing footprint of the transfer building.

PEDESTRIAN PATHWAY. Proposed frontage improvements will result in a net reduction in impervious surface area in the NE 60th Street right-of-way by approximately 1,200 sf, due to the removal of roadside asphalt shoulders or compacted gravel surfaces, and replacement with a planter area buffer. This area is not included in the calculations above, because it is off-site.

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

Catch basin inserts, silt fences and possibly hay bales will be used as temporary erosion control measures during construction. Depending on the relative timing of construction in relation to the rainy season, additional slope protection measures such as plastic sheeting and PAM (acrylamide monomer), temporary mulch filter berms and portable filter systems may be used (since there is no area available to construct temporary siltation ponds).

Permanent erosion control measures to be introduced with site improvements include: 1) jute matting, topsoil and grass seeding applied to exposed slopes in the trailer yard reconfiguration area and adjacent to the transfer trailer approach road; and 2) covering a small portion of the exposed slopes at the east and west entrances of the transfer trailer tunnel with shotcrete. These slopes are too steep to maintain in a vegetated condition.

To address potential concerns that settlement might occur in the trailer yard reconfiguration area after proposed excavating, regrading and backfilling have been completed, the paving section for this area will include a non-woven geotextile and a layer of structural backfill to help strengthen the area against possible differential settlement. These measures are in accordance with the recommendations of the geotechnical consultant (PacRim Geotechnical, Inc., June 5, 2000). Other elements of proposed site improvements will be performed outside the limits of the former solid waste landfill, and therefore will not be subject to settlement or unstable soil concerns.

2. Air

a. What types 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.

Emissions to the air during construction will include construction vehicle (diesel) exhaust, suspended particulates (dust), and odors due to refuse excavation.

Greenhouse gas emissions (GHG) have been estimated in carbon dioxide equivalents (CO₂e) for material manufacturing of – and construction with – cement, steel, and fuel. These values (shown in Table 2) have been calculated using the King County Climate Change Impacts Worksheet. Emissions for on-going use of the Houghton Transfer Station have not been included, as it is an existing facility. CO₂e has

Table 2. Greenhouse gas emissions calculation for proposed construction.

Construction Material/ Product	Assumed/Estimated Volume of Product	Resulting GHG Emission (in CO₂e)
<i>GHG emissions that would be created in the manufacture of construction materials (“upstream”):</i>		
Cement	352,000 pounds ¹	341,000 pounds
Iron or Steel	359,000 pounds	628,000 pounds
<i>GHG emissions that would be created during construction of the project (“on site”):</i>		
Diesel fuel	50 gpd for 120 days	159,000 pounds
<i>Cumulative total estimate of GHG emissions attributable to construction:</i>		<i>1,128,000 pounds</i>

¹ Note that the majority of cement to be used in construction will be in the form of ecology block walls that utilize recycled concrete.

Note that following completion of the transfer station improvements, no new or increased quantity of emissions to the air is projected to occur, since the facility is currently operating at or near maximum capacity.

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

Off-site sources of emissions and odor in the site vicinity are predominantly attributable to vehicle exhaust generated by vehicles traveling on I-405 to the west, and local roadways (NE 60th Street and 116th Avenue NE). At the time of this writing, the closed Houghton Landfill north of the transfer station site was undergoing periodic construction to expand the ball fields park. Earthwork was a potential source of suspended particulates, and excavations had the potential to encounter buried refuse. Neither of these off-site sources of emission or odor are expected to affect the Houghton Transfer Station Mitigation Project.

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

Contractor(s) will be required to control dust during construction by watering exposed areas (as needed), using a construction site entrance/exit trackoff pad, and cleaning mud and dust from public roadways, as necessary. Additional measures that could be imposed in the construction contract include requiring contractor(s) to broom off and/or wash off trucks before leaving the site, use properly maintained equipment to minimize vehicle exhaust emissions, use electrically-powered equipment where practical, and avoid prolonged idling of vehicles and equipment.

During refuse excavation, the contractor will be required to implement Best Management Practices to control odors. Representative measures include applying an odor-neutralizing agent, and providing daily cover over exposed landfill areas. An Environmental Protection Plan (EPP) will be prepared in accordance with guidelines established by the Seattle–King County Public Health Department. The EPP will address all requirements for waste excavation.

The trailer yard reconfiguration will increase the efficiency of accessing loaded containers, thereby reducing parked time for full trailers. This should reduce this potential source of odor on the western portion of the site. An Addendum to the Memorandum of Understanding between the City of Kirkland and King County Solid Waste Division (October 18, 2005) requires that full trailers be removed from the site at the end of each work day, 90% of the time; and only empty trailers and up to two partially-full trailers may remain on-site overnight (unless precluded by unforeseen and unpreventable situations, as previously described in Section A.10 of this SEPA Checklist).

Proposed hose reel improvements (i.e., installing a motorized hose reel) will make the use of water for trailer parking area washdown more accessible and more convenient, and therefore more likely to be used frequently by transfer station operators. This could help suppress suspended particulates (dust) and odors in this area of the transfer station.

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.

There is a Type 2 wetland approximately 0.135 acres in size in the wooded area west of the transfer station site (Herrera Environmental Consultant, Inc., 2007).

There is an unnamed, seasonal surface water drainage course within 200 feet of the west boundary of the Houghton Transfer Station trailer yard reconfiguration area (see Figure 3). This biofiltration swale collects runoff from other parts of the transfer station site unrelated to the proposed project area, from the closed landfill area, and from roadside ditches along NE 60th Street. This seasonal water course drains south through a culvert beneath NE 60th Street to Bridle Trails State Park. The characteristics of the drainage course meet the Washington Department of Natural Resources (WDNR) definition of a Type 5 water (WAC 222.16.030). It has a defined channel, with intermittent flow during periods of spring or storm runoff.

The transfer station site and off-site drainage swale are located within the Yarrow Bay Creek drainage basin, tributary to Lake Washington.

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.

Proposed transfer station improvements will not result in any work over or within the wetland or drainage swale; however, the roadside ditch between the transfer station and NE 60th Street will be replaced with a buried pipe as part of the pedestrian pathway construction. Other roadside ditches will not be affected.

Construction of the proposed sound wall and reconfiguration in the transfer trailer yard area will occur within 200 feet of the off-site wetland and drainage swale (approximately 10 to 20 feet east of the swale). The proposed sound wall that will replace existing fencing along the west boundary of the site will be installed through the wetland buffer at the same 6-foot height as the existing two fences. The sound wall to replace existing fencing outside the wetland buffer will be constructed 12 feet in height.

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.

A roadside ditch parallels the north side of NE 60th Street for a distance of approximately 200 feet adjacent to the southwest corner of the Houghton Transfer Station site. It has not yet been determined

whether this ditch meets the definition of a “jurisdictional ditch” under a recent change in U.S. Army Corps of Engineers regulations. It seems unlikely that it does, as the ditch appears to have been excavated (decades ago) in uplands. In the unlikely event that this ditch is determined to be defined as a wetland, proposed fill in the ditch is described here.

A 12-inch diameter stormwater conveyance pipe and approximately 25 cy of fill will be placed in the roadside ditch in the NE 60th Street right-of-way adjacent to the transfer station to construct the proposed pedestrian pathway. Fill will consist of imported pipe bedding and potentially clean material redistributed from other work on the transfer station site.

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

The proposed transfer station improvements will not require any surface water withdrawals or diversions during construction or in the completed condition of the facility.

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

No, the Houghton Transfer Station site does not lie 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.

The proposed transfer station improvements will not result in the discharge of waste materials to surface waters, either during construction or in the completed condition of the facility.

b. Ground:

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

Boring logs prepared by the geotechnical consultant for the project (PacRim Geotechnical, Inc., June 5, 2000) indicate a variable depth to groundwater across the site, ranging from approximately 21 to 32 feet below ground surface. The proposed transfer station improvements will not require groundwater withdrawal or discharge 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.

There will be no discharges to groundwater and no use of septic systems as a result of proposed transfer station improvements.

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.

Stormwater runoff from the transfer station site is segregated based on the potential for contamination from solid waste handling operations. In areas where stormwater may come in contact with waste either due to the runoff passing through refuse, or being contaminated by drippings from transfer trailers, stormwater is collected on-site and directed through catch basins and conveyance systems to a small pump station where it is combined with sanitary sewage generated on-site. This combined flow is discharged to the existing City of Kirkland sanitary sewer system in 120th Avenue NE. Stormwater from other areas of the site is collected and directed through catch basins and conveyances to the biofiltration swale located along the west property line. This flow then passes beneath NE 60th Street in a culvert and flows in an open channel and piped system to Lake Washington.

Proposed transfer station improvements will increase the amount of impervious surface area from which stormwater is collected and discharged to the sanitary sewer system, in the area of the trailer yard reconfiguration. The existing pump station will be evaluated and possibly expanded to accommodate the additional volume. The size of the possible pump station expansion will be dependent upon discharge limitations to be determined by a County permit process (described in SEPA Checklist Section A.11). The possible expansion will be designed to contain the detention volume and control the discharge rate to meet discharge restrictions.

Clean stormwater will continue to be collected and discharged to the biofiltration swale west of the site.

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

During construction of proposed transfer station improvements, the station will be closed to operations and disposal activities. Existing trailers and other sources of waste materials or leakage will not be present on-site; therefore, the likelihood of waste materials entering the ground or surface water will be very small. Refuse exposed during excavation in the trailer yard reconfiguration area will be loaded directly into waiting trucks, and will not be temporarily stockpiled on-site.

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

The contractor will be required to construct intercept trenches and berms to protect open excavations from surface water intrusion during construction. In the unlikely event that groundwater is encountered in any excavations, the contractor will be required to dewater the work area and treat any collected water prior to discharge. This could involve using a portable filter system, or collecting the water in a tanker truck for transport to an approved off-site desiltation pond.

As part of the trailer yard reconfiguration, permanent improvements will be made to the stormwater intercept facilities in the yard to reduce the possibility of any stray waste or liquid contamination leaving the site. These improvements will include adding a barrier wall along the west side (down slope) of the trailer yard that will direct any flow reaching this area to the sanitary sewer catch basins located nearby, and installing rolled curb and gutter along the two lines of new catch basins in the reconfigured yard area. These gutters will also intercept sheet flow and direct it (and any floating debris) to the sanitary sewer. Washdown

water from the transfer trailer yard area is also considered sanitary sewerage, and will be directed to the sewage collection system.

Rooftop runoff will be collected in gutters and tightlined to the existing storm drainage collection system, from which it will be conveyed through the biofiltration swale along the west property boundary prior to being discharged to the off-site conveyance system to Lake Washington.

In the event that the roadside ditch in the NE 60th Street right-of-way is determined to be a U.S. Army Corps of Engineers jurisdictional wetland, fill to construct the pedestrian pathway required by the Memorandum of Understanding between the City of Kirkland and the King County Solid Waste Division (described in SEPA Checklist Section A.10) would require federal authorization under a Nationwide Permit 46, and mitigation to replace lost hydrology and water quality functions. This mitigation (if required) could be accomplished by widening the bioswale near the southwest corner of the transfer station site.

4. Plants

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

- X **deciduous trees: alder, maple, aspen, other: cascara, locust, dogwood, hazelnut, willow**
- X **evergreen trees: fir, cedar, arborvitae, pine, other: madrone**
- X **Shrubs: Scot's broom, ocean spray, sword fern, fotinia, juniper tams, blackberry**
- X **grass: mowed lawn areas**
- **pasture**
- **crop or grain**
- **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other:**
- **water plants: water lily, eelgrass, milfoil, other:**
- **other types of vegetation:**

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

Approximately 21,750 sf of grass (mowed lawn areas) and Himalayan blackberry will be removed between the existing trailer yard and the fenced landfill gas extraction/scrubbing system to the east on the site, and along the west fenceline, to reconfigure the trailer yard, replace the existing fence, and construct the proposed sound wall.

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

There are no threatened or endangered plant species known to occur on or near the Houghton Transfer Station site.

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

Landscaping is not an element of the on-site transfer station mitigation project. An *arborvitae* hedge that provides nearly full screening on the inside of the wooden fence along the west and north property lines (to the point of the gravel access road along the north boundary) will be preserved during fence replacement and construction of the proposed sound wall. Several of these small trees may need to be temporarily relocated during construction to permit access to the west fence line.

Off-site landscaping enhancements are proposed with the frontage improvements element of the project. Proposed landscaping will be located in planter areas between the roadway and the proposed pedestrian pathway along the north side of NE 60th Street between 116th Avenue NE and 120th Avenue NE, and also in a few locations between the pathway and adjacent fencing. Proposed species will be drought resistant/xeriscape and include Wintercreeper (*Euonymus fortunei*), Sand Strawberry (*Fragaria chiloensis*), and in some areas handseeding with an appropriate grass seed mix (fescues and ryegrasses). Irrigation is not proposed.

5. Animals

a. Check or underscore any birds and animals which have been observed on or near the site or are known to be on or near the site:

- X birds: hawk, heron, eagle, songbirds, other: starlings, crows
X mammals: deer, bear, elk, beaver, other: raccoon, opossum, feral cats, rodents
— fish: bass, salmon, trout, herring, shellfish, other:

Starlings and crows frequent the site, and raccoon, opossum, feral cats and rodents likely forage on-site during nighttime hours when the station is closed. A prior SEPA Checklist prepared for the site (King County Solid Waste Division, April 8, 1996) also reported the occurrence of hawks and deer in the site vicinity.

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

There are no threatened or endangered species of animals known to occur on or near the Houghton Transfer Station site.

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

The Puget Sound area is part of the Pacific Flyway. Birds that inhabit the area vary seasonally due to migrations. There is nothing about the size, location or physical attributes of the Houghton Transfer Station site that make it particularly important or valuable to migrating birds.

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

The proposed improvements will not alter existing habitat conditions on the transfer station site when completed.

6. Energy and Natural Resources

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

The proposed improvements are minor modifications to an existing use. A slight increase in electrical energy consumption will occur to operate three additional yard lights proposed in the trailer yard reconfiguration area.

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

No, proposed improvements will not interfere with potential 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:

As an energy conservation measure, the three new yard lights will be controlled by photocells so that lights will be on only when natural light is low.

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.

There are no known environmental health hazards associated with the transfer station site in its present condition. It is a solid waste handling facility, and operates in accordance with all applicable state, federal and local permit conditions for this type of activity. Surface water runoff and washdown water are collected and discharged to the municipal sewage collection system in the area. This will continue to be the case in the completed condition of currently proposed improvements.

The transfer station is constructed over the southern margin of a soil-capped solid waste landfill. A landfill gas extraction system controls methane gas emissions from the landfill (west and north of the trailer yard area) to maintain safe air quality conditions in the area. No earthwork is proposed in the area where the subsurface gas extraction system is constructed.

It is likely that excavations to reconfigure the trailer yard area will encounter landfilled waste, that may be a temporary source of odor during the early stages of the construction period. Excavated waste will be disposed at an approved regional landfill. Exposed waste will not be left uncovered for any extended period of time.

1) Describe special emergency services that might be required.

It is not expected that any special emergency services will be required during construction or in the completed condition of proposed improvements. There have been occasional occurrences in the past when a customer or employee required emergency medical aid at the transfer station for various reasons, and when a fire department response was required to extinguish a “hot load” (smoldering fire within a collection vehicle). The improvements proposed at this time will not result in any increase in the incidence of these occurrences.

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

Existing facility washdown practices will continue in the same manner that they are currently implemented: two full washdowns per day during the course of a normal day (one around noon, and one at the end of the day), with additional spill clean-ups as needed.

Excavation in areas with suspected landfilled waste will follow the procedures defined by an approved Environmental Protection Plan (EPP) in accordance with Seattle-King County Public Health Department

requirements. The procedures will address identifying, testing, and handling of potentially contaminated material. Excavated refuse and soils that may have been in contact with refuse will be directly deposited in trucks and removed from the site for disposal at a regulated regional landfill. Any soil requiring testing will be temporarily stored onsite in approved containers. Best Management Practices will be followed to minimize refuse and contaminated soil exposure to the environment.

The new roof structure will be equipped with a sprinkler system, which will enhance on-site capabilities to extinguish fires on the transfer floor. Drainage during a fire event will enter the building floor drain system, which runs to the sanitary sewer collection system.

b. Noise

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

Vehicles traveling on Interstate 405 (I-405) generate a prominent, continuous source of audible noise in the vicinity of the Houghton Transfer Station site. Other noise sources include aircraft flyovers; cars and trucks traveling on local roadways (NE 60th Street and 116th Avenue NE); and noise internal to the transfer station. On-site noise levels are due to truck and other heavy vehicle movement, and impact sounds caused by dumping activities. In addition, many of the vehicles that operate on the transfer station site are equipped with back-up beepers. Beepers and tractor-coupling noise are a predominant noise source near the west boundary of the site. The predominant source of noise along the east boundary is commercial and private vehicles traveling on the on-site access road to the tipping floor, and noise emanating from the open ends of the transfer building.

Existing noise levels at the east boundary of the Houghton Transfer Station are compliant with the City of Kirkland noise code limit of 57 dBA for the Park/Public Use zone in which the site is located, adjacent to a Residential zone. Code exceedance from activity on the site occurred only along the west boundary, and was due primarily to truck traffic traveling to and from the tipping floor (The Greenbusch Group, August 30, 2007).

Sound generated by vehicles traveling on public roadways is exempt from state and local noise control regulations. Similarly, noise associated with back-up alarms is not expected to comply with the noise code, as warning devices are considered exempt for safety reasons.

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

SHORT-TERM. Noise will be generated on the site throughout the construction phase of the project. Construction noise levels will vary depending on the type of equipment being used, the condition and model of each piece of equipment, and the operations being performed. Table 3 lists typical sound pressure levels at a distance of 50 feet from the individual pieces of equipment.

Table 3. Construction equipment noise levels (typical).

<i>Typical Noise Level (dBA)</i>		<i>Typical Noise Level (dBA)</i>	
<i>Equipment</i>	<i>50 ft from Source</i>	<i>Equipment</i>	<i>50 ft from Source</i>
Air compressor	81	Impact wrench	85
Auger cast pile driver	81	Jack hammer	88
Backhoe	80	Loader	85
Compactor	82	Paver	89
Concrete mixer	85	Pneumatic tool	85
Concrete pump	82	Pump	76
Concrete vibrator	76	Roller	74
Crane, mobile	83	Saw	76
Dozer	85	Scarifier	83
Generator	81	Shovel	82
Grader	85	Truck	88

Information in Table 3 is based on EPA Report (U.S. Environmental Protection Agency, December 31, 1981) measured data from railroad construction equipment taken during the Northeast Corridor improvement project (U.S. Department of Transportation, September 16, 1981), and other measured data (Rosenberg and Salter, April 20-22, 1971; and Fuller and Brown, June 1981).

Noise associated with excavation, haul trucks, asphalt cutting, debris dumping, backhoes, front loaders, trench cutting and digging, as well as scrapers, graders and pavers is likely to temporarily contribute to an elevated noise environment in the site vicinity.

LONG-TERM. The proposed transfer station improvements will not increase daily operations. The station is currently operating at or near maximum capacity, which is constrained by the size of the transfer building floor and number of customer unloading stalls. Increasing the yard area would not increase the throughput capacity of the station or result in increased customer or transfer trailer traffic to or from the station. Therefore, no operational noise level increases over existing conditions are expected. Hours of facility operation will be determined through agreement with the City of Kirkland.

The proposal to add a sound-absorbent finish to the new roof structure will have a significant effect in reducing reverberant noise that will primarily benefit workers on the tipping floor. Noise reduction in the community would be less effective, on the order of 2 to 3 A-weighted decibels (dBA), which would be barely audible. However, the dominant source of sound exposure in the community is not from activity on the tipping floor, but rather from on-site truck traffic. Sound exposure levels are expected to remain compliant at the eastern residential property line, so the focus of the 2007 *Acoustical Study* was the proposal to construct a sound wall along the western property line (The Greenbusch Group, August 30, 2007).

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

SHORT-TERM. Construction hours will be limited to hours allowed by Kirkland City Code (KCC 115.95), as described in the project *Acoustical Study* (The Greenbusch Group, August 30, 2007).

The following measures could be implemented to minimize noise during construction:

- Maintain equipment, including silencers, in good condition.
- Locate equipment on the site as far as possible from noise-sensitive receivers.
- Construct enclosures around especially noisy activities, or clusters of noisy equipment.

- Combine noisy operations to occur in the same time period. The total noise level produced would not be significantly greater than the level produced if the operations were performed separately.
- Limit exceptionally noisy operations to workday core hours (9:00 AM to 3:00 PM) when it is more likely that adjacent residential neighbors may be away from home.

LONG-TERM. A sound wall is proposed along the west boundary of the site to buffer adjacent residential properties from noise generated by truck traffic traveling to and from the tipping floor, and within the trailer yard. The new sound wall will replace the existing wood and chainlink fences along this boundary. A 6-foot high section of the wall (through the wetland buffer) will replace the existing 6-foot high fences. North and south of the wetland buffer, the sound wall will be 12 feet in height, as described in SEPA Checklist Section A.11. The sound wall will be a pre-engineered system consisting of heavy timber posts approximately 12 feet on-center with T1-11 patterned plywood (minimum ¾-inch) sandwich panels between posts. Wall materials will be pressure-treated to resist decay. Analysis performed for the *Acoustical Study* prepared for the project indicates that this proposed sound wall configuration will provide sufficient mitigation to ensure code compliance (The Greenbusch Group, Inc., August 30, 2007). Average sound levels (Leq) are predicted to reach 57 dBA at the western property line and 57 dBA at the nearest residence.

Installation of a new roof structure affords an opportunity to add absorptive materials to the shelter. The noise consultant recommends an acoustical deck with a perforated inner skin and batt insulation above. The deck should be specified with a film facing to withstand moisture levels within the facility. The deck selected should have a minimum NRC 0.60. Alternatively, a standard single-ply deck could be sprayed with a one-inch thick cellulose, minimum NRC 0.65. This material would need an overcoating of silicone to prevent deterioration within the moist environment (The Greenbusch Group, August 30, 2007). King County is considering these recommendations in the process of selecting absorptive surface materials for the replacement roof structure.

8. Land and Shoreline Use

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

The transfer station site is currently used as a municipal solid waste transfer station – a facility where refuse collected from or by residential and commercial customers is directly dumped from a tipping floor into containers (transfer trailers), and hauled off-site for disposal. This site has been used for this purpose since approximately 1965.

Adjacent properties to the east and west are developed with single-family homes. North of the site, the closed Houghton Landfill is currently being redeveloped as ball fields (Taylor Sports Park). South of the site, between NE 60th Street and NE 40th Street (if extended), is Bridle Trails State Park (see SEPA Checklist Section B.12.a). A single-family residential neighborhood also occupies a “notch” out of the Bridle Trails State Park property, between NE 60th Street and approximately NE 55th Street (if extended), and from east to west between 120th Avenue NE and 128th Avenue NE.

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

The site has not been used for agriculture.

c. Describe any structures on the site.

Buildings on the site include the existing solid waste transfer station and a scale house with truck scales (see Figure 6). The transfer building is a 95-foot x 160-foot steel column and truss structure approximately 25 feet in height, in which refuse is transferred from private and commercial vehicles to transfer trailers staged in a tunnel running below the main floor of the facility. The scale house is a 14-foot x 30-foot wood-framed building approximately 12 feet in height. This building is used to house the equipment and scale operators that weigh incoming and outgoing vehicles.

A landfill gas extraction and scrubbing facility is located north of the transfer building, east and upslope from the existing trailer yard area (see Figure 6). This facility consists of a 20-foot x 56-foot uncovered concrete pad enclosed by a 6-foot high chainlink fence. A 6-foot high concrete masonry sound wall encloses a portion of the west and north sides of the pad. Landfill gas extraction blowers, carbon filter canisters and a discharge stack are located on the pad.

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

Two existing fences along the west property line will be demolished and replaced during construction of the proposed sound wall. Both fences are approximately 6 feet tall. One is a chainlink fence, the other is constructed of wood. The wood fence is in a deteriorated condition.

The transfer station roof replacement portion of the project includes demolishing and replacing the existing roof structure over the transfer floor. The roof is a “multiple pitch” design – portions of the roof alternate being sloped up or sloped down (see Figure 1). The roof supports an electrical system used for lighting the tipping floor area. The existing roof structure is too low for safe tipping operations by large commercial refuse collection trucks.

The replacement roof will be constructed of similar materials: steel columns, trusses and metal sheeting. The proposed improvements will include raising the elevation of the roof approximately 5 feet, and reducing the number of support columns from 20 to 6.

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

The City of Kirkland zoning classification of the site is Park/Public Use.

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

The City of Kirkland *Comprehensive Land Use Plan* designation of the site is Public Facility.

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

The Houghton Transfer Station site is not within a Shoreline area.

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

The south central portion of the transfer station site has a “medium hazard” designation on the City of Kirkland Landslide and Seismic Hazard Areas map. This area encompasses the steep wooded slope east of the public access road, and curves northward to the boundary between the transfer station and closed Houghton Landfill. The existing slope shows no signs of instability, past or present. The geotechnical

consultant characterized site soils in this area as “very good, consisting of dense native soils” (PacRim Geotechnical, Inc., June 5, 2000).

The site improvements proposal includes regrading the outside slope of the turn of the east approach road (see Figure 4). Redesign of this area will strengthen the slope by providing a toe wall, flattening the slope, and improving slope vegetation.

A small portion of the western site boundary encroaches on a Type 2 wetland buffer (Herrera Environmental Consultants, Inc., 2007). Construction within this buffer area will be limited to replacing existing fencing, which is in a deteriorated condition. This element of the proposal is described in SEPA Checklist Sections A.11 and B.3.a.2), above.

It has not yet been determined whether the roadside ditch that parallels the north side of NE 60th Street for a distance of approximately 200 feet adjacent to the southwest corner of the Houghton Transfer Station site meets the definition of a “jurisdictional ditch” under a recent change in U.S. Army Corps of Engineers regulations. It seems unlikely that it does, as the ditch appears to have been excavated (decades ago) in uplands. In the unlikely event that this ditch is determined to be defined as a wetland, potential impacts and mitigation measures are described in SEPA Checklist Sections A.11 and B.3.a.3), above.

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

King County employs approximately 5 workers at the Houghton Transfer Station at the present time. This number would not change as a result of proposed improvements.

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

No workers or residents in the surrounding area will be displaced by the completed project.

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

Since there will be no displacement impacts, no measures are proposed to avoid or reduce impacts of this nature.

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

The Houghton Transfer Station has been operating at its present location since approximately 1965. The King County Solid Waste Division operates the facility in accordance with the conditions of a City of Kirkland Process III Zoning Permit, which imposes several conditions to assure compatibility between the facility and City of Kirkland infrastructure and to minimize nuisance factors such as noise, odor, views of the site, off-site queuing, and litter. In mid-2001, the City of Kirkland rezoned the site from Single-Family Residential (RS 8.5) to Parks/Public Use. The transfer station is an Essential Public Facility. The proposed sound wall will improve visual screening and noise attenuation for adjacent residential neighbors to the west.

The Houghton Transfer Station Mitigation Project will implement a King County Council (Council) directive issued in Ordinance No. 11949 (September 5, 1995). The ordinance provided guidance for King County *Comprehensive Solid Waste Management Plan* (CSWMP) update, and directed that certain interim measures be taken prior to completion of the updated CSWMP. The Council directed that the Solid Waste

Division study alternatives to reduce or eliminate the need for new transfer facilities, improve the function of existing facilities, and continue to defer all spending in preparation for possible new transfer stations in south King County and the Northeast Lake Washington Area pending additional studies specified in Ordinance No. 11949. The Council advised that King County should not seek to site a replacement landfill for Cedar Hills Regional Landfill, but rather complete a waste export study, anticipating that out-of-County waste transport and disposal would be the direction in the future. Interim system improvement measures authorized by the Council included transfer station improvements to address safety, efficiency or other known problems that remain compelling no matter which option for the transfer and disposal system were ultimately chosen in the CSWMP.

The Houghton Transfer Station Mitigation Project will also implement the provisos of the October 18, 2005, Memorandum of Understanding between the City of Kirkland and the King County Solid Waste Division, as described in Section A.10 (above) of this SEPA Checklist.

9. Housing

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

No housing units are proposed on the Houghton Transfer Station site.

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

No housing units will be eliminated as a result of the proposed transfer station improvements project.

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

Since there will be no housing impacts, no measures are proposed to reduce or control impacts of this nature.

10. Aesthetics

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

The tallest structure in proposed site improvements will be the transfer station replacement roof structure. The height will be approximately 43 feet 3 inches to the top of the inverted truss design (compared to the existing transfer station roof height of approximately 27 feet). The inverted truss is an open structure, allowing views beyond. The actual roof ridge height will only be 32 feet 10 inches (see Figure 1). The roof and intermittent sidewall areas will be enclosed by metal panels and masonry screen walls. The roof structure will be sheathed with standing-seam metal components. Solid wall panels will either be clad in a "box" corrugated metal panel system, or will be constructed as free-standing masonry screen walls. The remaining building components will be primarily structural steel.

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

Views across the site from neighboring homes and from NE 60th Street will not be adversely altered by construction of the proposed sound wall or transfer station roof replacement. Views looking east across the

site from homes along 116th Avenue NE are partially screened by forest vegetation (large evergreen and deciduous trees), and by an existing solid wood fence approximately 6 feet high. At locations where the wall will be increased to 12 feet in height, the proposed sound wall will more effectively screen views across the site for residents of these homes (see Figure 6). Views from homes along 120th Avenue NE (east of the site) look northwesterly through deciduous and evergreen trees toward the former Houghton Landfill site, now a ballfields park. The interface between the ballfields park and the transfer station includes landscape screening – a row of western red cedar trees planted at the end of 2006 to obstruct the view of the transfer station from the ballfields and homes beyond. Proposed improvements on the transfer station site will not alter views from this perspective.

The site is most visible to motorists using NE 60th Street. The increased height of the west boundary fence (sound wall), and the additional 16 feet of height of open truss roof structure may slightly alter the appearance of the transfer station from the NE 60th Street perspective, but will not obstruct any desirable views past the site to the north (as there are none). The free-standing masonry screen walls proposed along the north and south sides of the transfer building will improve views from NE 60th Street and the ballfields by screening operations within the transfer building. Proposed frontage improvements in the NE 60th Street right-of-way will enhance views of the site for passing motorists and for persons engaged in non-motorized forms of travel.

The proposed pedestrian pathway will not alter or obstruct views in the immediate vicinity.

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

The color palette for the replacement roof structure will be earth tones to blend in with the surrounding environment. The pressure-treated sound wall materials will be rustic greenish-gray or brownish in appearance, blending with forest vegetation along the western boundary of the transfer station site. The southern portion of the roof structure will be enhanced by earth tone masonry screen walls and additional landscaping (trees) to soften the appearance of the structure as viewed from NE 60th Street.

11. Light and Glare

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

Proposed improvements include the addition of three yard lights to the trailer yard reconfiguration area, and one light along the lower bay approach tunnel (see Figures 3 and 4). These lights will be similar in character and height to existing trailer yard lights currently in place on the transfer station site. The additional lighting is proposed to improve the safety of transfer truck and trailer maneuvering operations. The new lights will be illuminated as necessary during the hours when the transfer station is open and operating, currently 8:00 AM through 5:30 PM, seven days per week (with the exception of major holidays). Proposed lights will be controlled by timers. Existing lighting controls vary between timers, photocells, and lights that are kept on at all hours through the night, including, two lights at the gated entrance, two lights in the tipping floor area, and two lights in the transfer trailer parking area.

Fifteen-inch, high-pressure metal halide lights are proposed for illumination of the tipping floor beneath the replacement roof structure. These fixtures are equipped with an aluminum reflector that directs light downward in a manner that no direct light can be seen from the side. The reflector is adjustable for precise control.

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

Although the additional yard lights will be placed at a height about 45 feet above the paved surface of the trailer yard area, the luminaries will be baffled and directed downward toward the trailer yard area. Existing yard lights at the same height are not known to cause a safety hazard or interfere with views.

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

Off-site sources of light and glare in the project area include streetlights on NE 60th Street and 116th Avenue NE, exterior residential lighting, and motor vehicle headlights. These sources do not adversely impact transfer station operations, and will not affect the proposed improvements.

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

Proposed new yard lights and roof-mounted lights to be directed at the tipping floor will be baffled, shielded and directed to focus the area of illumination on-site.

12. Recreation

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

The most prominent recreational opportunity in the Houghton Transfer Station site vicinity is the Bridle Trails State Park south of NE 60th Street, across from the transfer station. This is a state-owned and operated equestrian park, with an indoor arena. This very large park is sparsely developed with equestrian and hiking trails through dense woods. The road shoulder along the south side of NE 60th Street opposite the transfer station site, extending southward on 116th Avenue NE to the Bridle Trails State Park entrance, is also designated by the City of Kirkland as an equestrian trail. The paved trail extending westward from the NE 60th Street right-of-way across a bridge over I-405 is also part of the Bridle Trails system, though not designated for equestrian use.

Informal pedestrian pathways are used along the transfer station west boundary (between the fence and an off-site drainage course), and across the closed Houghton Landfill north of the transfer station site. The former landfill area is now developed as a ballfields park (Taylor Sports Park), which is a significant area of designated and formal recreational opportunities.

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

The proposed transfer station improvements will all occur on-site within the existing fenced area, and therefore will not displace or adversely affect any existing recreational uses in the vicinity.

Proposed pedestrian improvements along NE 60th Street will temporarily restrict use of the existing pathway in this area during pathway construction. The safety of recreational use of this pathway will be improved post-construction.

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

Since there will be no adverse impacts to existing recreational opportunities in the area, no measures are proposed to reduce or control such impacts.

As a condition of the Memorandum of Understanding between the City of Kirkland and the King County Solid Waste Division (October 18, 2005), the proposed ADA-compliant pedestrian pathway in frontage improvements will provide a more clearly defined pathway between 116th Avenue NE and 120th Avenue NE along the north side of NE 60th Street. This pathway will increase passive recreational opportunities for pedestrians, joggers and bicyclists (e.g., children and parents on bikes), and other path users.

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.

There are no places or objects listed on or proposed for national, state, or local preservation registers known to exist on or next to the Houghton Transfer Station site.

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

There are no landmarks or evidence of historic, archaeological, scientific or cultural importance known to exist on or next to the site. The transfer station was constructed on the southern margin of the closed Houghton Landfill, which operated in this area between the early 1940s and 1967.

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

Since no adverse impacts to existing historic or cultural resources are anticipated, no measures are proposed to reduce or control such impacts.

14. Transportation

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

Regional access to the Houghton Transfer Station site is via I-405 from the NE 70th Street exit. From the freeway and from local arterials north of the station, vehicles travel south on 116th Avenue NE for approximately one mile to NE 60th Street (see Figure 6). Local access roadways are within the City of Kirkland.

116TH AVENUE NE. 116th Avenue NE is a two-lane roadway, approximately 24 feet wide with striped road edge and centerline, and a posted speed limit of 35 mph. The shoulders of 116th Avenue NE are intermittently gravel or new curb, gutter and sidewalk where recent housing developments have been completed. From 116th Avenue NE, traffic bound for the transfer station turns east onto NE 60th Street.

NE 60TH STREET. The transfer station site lies adjacent to and north of NE 60th Street, approximately 400 feet east of 116th Avenue NE. NE 60th Street is a two-lane roadway approximately 24 feet wide with striped road edge and centerline, and a posted speed limit of 25 mph. The recycling and transfer trailer entrance to the site is about 400 feet east of 116th Avenue NE, at the southwest corner of the site. The commercial and self-haul exit and entrance to the transfer station is located in the east-central portion of the

NE 60th Street frontage, about 700 feet from the 116th Avenue NE intersection. No modifications to streets or points of access/egress to/from the site are proposed.

MAINTENANCE ROAD. A gravel road approximately 12 feet wide roughly parallels the north boundary of the transfer station site, and enters the site at the location of the fenced landfill gas extraction and scrubbing facility. The gravel road is infrequently used by King County during maintenance of the gas extraction system, and for access to the closed landfill site.

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

The Houghton Transfer Station site is not currently served by public transit. King County Metro routes 245, 251, 254, 260, 265, 277, 342, 630, 952, 986, and 997 presently stop at the Houghton Park-n-Ride Lot located at the NE 70th Street interchange with I-405, along 116th Avenue NE, approximately 1 mile north of the transfer station site (see Figure 6). There is also a Houghton Flyer stop at this location.

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

There are six existing marked parking stalls for employees and visitors on the Houghton Transfer Station site. The proposed improvements will not eliminate or increase the number of these personal vehicle parking stalls.

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

The proposed improvements to the transfer station will not involve improvements to off-site roads or streets. The proposed work will include widening the existing transfer trailer tunnel approach road, which will involve on-site regrading and resurfacing (see Figure 4). The proposed work will also include adding paint striping, raised pavement markers, and signage to help direct customers while on the transfer station site.

The proposed pedestrian pathway improvements, as specified in Proviso 3 of the Memorandum of Understanding between the City of Kirkland and the King County Solid Waste Division (October 18, 2005), are improvements to an existing pedestrian pathway and will not require any new roads or streets or improvements to existing roads or streets.

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

The Houghton Transfer Station site is not situated in the vicinity of water, rail or air transportation systems.

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

The station will be temporarily closed during construction. Therefore, there will be no increase in the number of vehicle trips to/from the site during the construction period.

The Houghton Transfer Station is already operating at or near maximum capacity; therefore, the completed condition of proposed improvements is not projected to result in any increase in vehicular trips to/from the site.

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

Since no increase in vehicular trips to or from the site is anticipated, no adverse impacts to off-site transportation systems are anticipated as a result of the project. Therefore, no transportation mitigation measures are proposed.

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.

Since the proposed transfer station improvements are projected to have no effect on the existing level of use of the Houghton Transfer Station, there is no anticipation that the need for public services would increase. Rather, it is likely that the potential need for fire protection and emergency services may decline due to the nature and function of the improvements (discussed in Section B.15.b, below).

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

The trailer yard reconfiguration will reduce maneuvering conflicts between transfer trailer trucks and exiting vehicles (both commercial and private). The proposed roof replacement will reduce the number of columns on the tipping floor from 20 to 6, and increase the minimum vertical clearance from approximately 18 feet to 25 feet. Private and commercial vehicles will be able to maneuver more easily and safely on the tipping floor, and commercial trucks will be able to tip their loads without risk of hitting overhead roof trusses. The roof replacement project will also include a sprinkler system for fire suppression, and improvements to meet all current structural requirements for potential earthquake damage, making the facility safer for use by the workers and the public.

16. Utilities

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

Puget Sound Energy	Electricity
Puget Sound Energy	Natural gas
City of Kirkland	Water
City of Kirkland	Sewer
City of Kirkland	Storm drainage
Verizon	Telephone
Waste Management/Sno-King	Commercial solid waste collection service

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

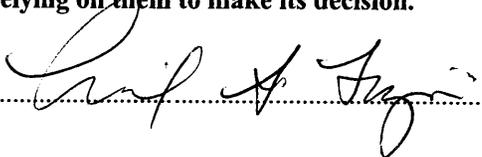
In general, the existing surface water collection system on the Houghton Transfer Station site drains south through a culvert beneath NE 60th Street to Bridle Trails State Park. The exception is the trailer yard, from which runoff is considered contaminated. Runoff from the trailer yard is directed to a small pump station, which then directs the flow up to a connection with the existing sanitary sewer system in 120th Avenue NE, east of the transfer station site. The sanitary sewer system will be incorporated into the reconfigured trailer yard construction. Proposed improvements to this system (described in SEPA Checklist Section A.11) will also allow for possible pump station relocation and expansion with a detention vault that would limit daily discharge to within the requirements of a new King County waste discharge permit. The remainder of the site will continue to drain through Bridle Trails State Park.

The proposed frontage improvements will require storm drainage system improvements along NE 60th Street, including new catchbasins and underground piping. This work will maintain continuity in the existing storm drainage system that currently consists of two small open ditch sections. A new pipe segment 12 inches in diameter and approximately 140 feet long is proposed.

The roof replacement project includes installing a sprinkler system for fire protection. A new 6-inch diameter water main will feed this system. This water main will be constructed across the trailer yard during improvements in this area, from the existing water main located inside the west fence of the facility to the transfer building (see Figure 3 in Section A).

C. SIGNATURE

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

Signature:  P.E. for FRANCIS GAFFAY, P.M.

Date Submitted: 11-30-07

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