

# **INTERIM ACTION COMPLETION REPORT**

## **Eldridge Municipal Landfill Project**

*Prepared for*  
**City of Bellingham, Public Works**  
210 Lottie Street  
Bellingham, WA 98225

*Prepared by*

**Herrenkohl Consulting LLC**  
321 Summerland Road  
Bellingham, WA 98229

*and*

**Wilson Engineering, LLC**  
805 Dupont Street, Suite 7  
Bellingham, WA 98225

December 15, 2011

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Table 1 is within the text. Tables 2-4 are provided at the end of the text.

## **ACRONYMS AND ABBREVIATIONS**

ARI	Analytical Resources Inc.
bgs	below ground surface
BTC	Bellingham Technical College
City	City of Bellingham, Public Works Department
CY	cubic yards
DCAP	draft cleanup action plan
EDR	engineering design report
EML	Eldridge Municipal Landfill
EPA	United States Environmental Protection Agency
GPS	global positioning system
Ecology	Washington State Department of Ecology
FS	feasibility study
Glacier	Glacier Environmental Services
IA	interim action
LSC	Little Squalicum Creek
mg/kg	milligrams per kilogram
MTCA	Model Toxics Control Act
PAHs	polycyclic aromatic hydrocarbons
Park	Little Squalicum Park
PCP	pentachlorophenol
PLP	potential liable person
RI	remedial investigation
RL	remediation level
TCP	Toxics Cleanup Program
WAC	Washington Administrative Code

## CERTIFICATION

I, Mark J. Herrenkohl, a professional engineering geologist in the State of Washington, certify that I have reviewed the geosciences portions of this document.

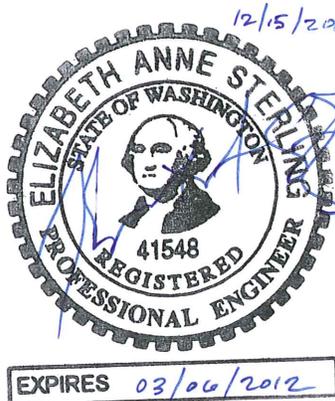


Mark J. Herrenkohl

A handwritten signature in black ink that reads "Mark J. Herrenkohl".

Signature and Name of Geologist: Mark J. Herrenkohl, LEG Date: December 15, 2011

I, Elizabeth Sterling, a professional engineer in the State of Washington, certify that I have reviewed the engineering portions of this document.



Signature and Name of Engineer: Elizabeth Sterling, PE Date: December 15, 2011

# **1 INTRODUCTION**

This completion report describes the construction activities and performance monitoring conducted by the City of Bellingham (City) to implement the interim action cleanup of landfill debris and contaminated soils for the Eldridge Municipal Landfill Site (Site) located in Bellingham, Washington. The interim action was developed based on information presented in the draft Remedial Investigation/Feasibility Study (RI/FS) (Herrenkohl Consulting and Integral Consulting 2011a) and satisfies the requirements of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, administered by the Washington State Department of Ecology (Ecology) under the MTCA Cleanup Regulation, Chapter 173-340-430 Washington Administrative Code (WAC). Performance monitoring and contingency responses (as necessary) for the interim action are described in the Performance Monitoring and Contingency Plan (Monitoring Plan), an appendix to the Engineering Design Report (Herrenkohl Consulting and Wilson Engineering 2011).

Herrenkohl Consulting LLC (Herrenkohl Consulting) has written this report with Wilson Engineering, LLC (Wilson Engineering) under contract with the City Public Works Department, and with direction from Ecology's Toxic Cleanup Program. The City and Ecology signed an amended Agreed Order (DE 8073) to include the interim action (effective date July 18, 2011) which is described in the Interim Action Work Plan (Herrenkohl Consulting and Integral Consulting 2011b).

Interim action activities included the excavation of 4,290 tons of landfill debris and contaminated soil from the Site and disposal at a Subtitle D landfill located in Roosevelt, Washington. The excavation was stabilized, backfilled with clean soil, and vegetated by hydroseeding. In addition, a 750 ft<sup>2</sup> depressional wetland was created within the project area. Remedial activities were conducted from approximately August 22, 2011 to October 7, 2011. The cleanup of landfill debris and contaminated soil on the Site was confirmed by the collection and testing of soils as described in the Monitoring Plan.

The following sections of this report provide a description and history of the Site, an account of the cleanup activities, the performance monitoring results, and remediation effectiveness.

## 2 SITE DESCRIPTION AND HISTORY<sup>1</sup>

A separate and distinct area of contamination from an old municipal landfill was discovered in Little Squalicum Park (Park) while performing an RI under separate order (Agreed Order No. DE 2016). In the mid- to late-1930s, the City had used a portion of the Park as a “sanitary landfill” for burning and burying local municipal waste hauled by a garbage collection contractor. The landfill was operated for only a few years before operations ceased. The landfill area is located on property owned by Whatcom County (Parcel Number: 38022347 32190000), which is currently leased by the City for management of the Park. The remains of the landfill are located west of the Bellingham Technical College (BTC) campus parking lot and north of Building-U (Figure 1).

The initial boundaries of the landfill were delineated in January 2006 as part of the draft Park RI, through the excavation of reconnaissance test pits in which evidence of municipal garbage was found within various fill materials. The types of municipal garbage observed consisted of glass bottles, metal scraps, ash, ceramics, construction debris, and various indiscernible rusted materials.

Upon completion of the draft Park RI in December 2008, the area of the historical landfill was estimated to be approximately 7,100 ft<sup>2</sup>. The draft Park RI documented the presence of low levels of polycyclic aromatic hydrocarbons (PAHs), benzoic acid, phthalates, and pentachlorophenol (PCP) in surface soil samples collected in the landfill area, as well as elevated concentrations of some heavy metals (e.g., lead). Higher levels of metals were detected in subsurface soils.

In November 2009, Ecology listed the landfill area as a separate site and named both the City and County as potentially liable persons (PLPs). Soon after, the City and Ecology began negotiating an Agreed Order for completing a remedial investigation/feasibility study (RI/FS) and draft cleanup action plan (DCAP) for the Site.

In September 2010, the United States Environmental Protection Agency (EPA) uncovered additional landfill material during excavations in support of the cleanup at the Oeser/Little Squalicum Creek site. In order to allow the EPA work to continue, the City undertook an independent action to investigate, analyze, relocate and secure most of the contaminated soil. Some contaminated soil that was left in-place would be addressed, along with the relocated material, as part of the landfill cleanup. The estimated area of the historical landfill was revised to be approximately 19,000 ft<sup>2</sup> (Figure 1).

The Agreed Order (No. DE 8073) requiring the City to complete an RI/FS report and DCAP for the Site was signed by the City and Ecology on November 19, 2010.

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<sup>1</sup> The section includes excerpts from previously written project documents.

A draft RI/FS report was completed for the Site in February 2011 (Herrenkohl Consulting and Integral Consulting 2011a). After review by Ecology and further discussion between parties, the City agreed to conduct an interim action for the Site in summer 2011.

An amendment to the Agreed Order was negotiated and signed by the City and Ecology on July 18, 2011. The scope of the interim action was described in an Interim Action Work Plan (Exhibit B of the Amended Agreed Order) (Herrenkohl Consulting and Integral Consulting 2011b).

The City completed an Engineering Design Report (EDR) on June 24, 2011 for implementing the interim action (Herrenkohl Consulting and Wilson Engineering 2011). The EDR includes engineering design plans and specifications for the interim action, and ancillary documents (e.g., Monitoring Plan, Wetland Restoration Plan).

### 3 CLEANUP ACTIVITIES

The City advertised the interim action on June 30, 2011. Contractor bids were opened on July 14 with Glacier Environmental Services Inc. (Glacier Environmental) located in Mukilteo, Washington selected as the lowest responsible and responsive bidder. Glacier Environmental has completed other similar projects and proven to be knowledgeable contractors for environmental cleanup work. The project management team included Sam Shipp, PE (City project manager); Phil Stellflug (Glacier Environmental project manager) and Chris Erickson (Glacier Environmental site foreman); Sean Angeley (City construction inspector); Liz Sterling, PE (engineer-of-record) from Wilson Engineering, and Mark Herrenkohl, LEG (soil performance monitoring lead) from Herrenkohl Consulting.

Glacier Environmental contracted Republic Services, Inc for the disposal of contaminated soils excavated from the Site during construction. Republic Services owns and operates the Roosevelt Regional Landfill located in Klickitat County, Washington. Landfill debris and contaminated soils were transported in containers by rail to the Subtitle D landfill<sup>2</sup>. The waste profile of the debris and contaminated soil are presented in Appendix A. The landfill waste manifests are provided in Appendix B.

The following sections provide information on the chronology of events with additional details on the soil cleanup.

#### 3.1 CHRONOLOGY OF EVENTS

Table 1 provides a chronological summary of construction and performance monitoring activities related to cleanup actions on the Site.

<b>Table 1. Eldridge Municipal Landfill Interim Action Cleanup Chronology.</b>	
<b>Primary Activity</b>	<b>Date(s)</b>
Mobilization	August 2011
Clearing and Grubbing	August 22-23
Pothole Excavation	August 23
Performance Monitoring – Pothole Sampling	August 23
Initial Soil Excavation from Area 1 (~3-7 ft bgs)	August 24-25
Performance Monitoring – Initial Soil Excavation from Area 1	August 25-26

<sup>2</sup> Approximately 575 tons of landfill debris and contaminated soils was transported by truck and trailer (Harlow Construction Company, Inc.) from the Site to Republic Service's Seattle facility where it was transferred to containers for transport by rail to the Roosevelt Landfill.

<b>Table 1. Eldridge Municipal Landfill Interim Action Cleanup Chronology.</b>	
<b>Primary Activity</b>	<b>Date(s)</b>
Additional Soil Excavation from Area 1	August 31
Performance Monitoring – Additional Soil Excavation from Area 1	August 31
Initial Soil Excavation from Area 2 (~2-6 ft bgs)	August 30-September 14
Performance Monitoring – Initial Soil Excavation from Area 2	September 13-16
Additional Soil Excavation from Area 2	September 19-20
Performance Monitoring – Additional Soil Excavation from Area 2	September 19-20
Additional Soil Excavation from Area 2	September 24-26
Performance Monitoring – Additional Soil Excavation from Area 2	September 24-26
Loading and Transport of Landfill Debris and Contaminated Soil to Roosevelt Landfill	August 29-September 26
Wetland Restoration	October 3-6
Fill, Grade, and Hydroseed Excavation Areas	September 6 – October 7
Demobilization Complete	October 7
Final City Inspection	October 19

A photo log of the interim action is provided in Appendix C.

### **3.2 SOIL CLEANUP**

A total of about 4,290 tons of landfill debris and contaminated soil was removed from the Site in support of the interim action and transported to Roosevelt Regional Landfill for proper disposal. A brief description of the interim action (Herrenkohl Consulting and Wilson Engineering 2011) is provided below.

#### **3.2.1 Interim Action Area**

As designed in the EDR, approximately 2,300 cy (~3,500 tons *in situ*) of landfill debris and contaminated soil was removed from the Site at depths ranging from 2-ft to 7-ft below ground surface (bgs) (Figures 2 and 3). After the excavation in each designated area (Areas 1 and 2), confirmation sampling was completed as required in the Monitoring Plan.

In Area 1, confirmation soil samples were collected from 15 bottom samples (e.g., A1B)<sup>3</sup> and 12 sidewall samples (e.g., A1S) (Figure 2). Six sidewall and two bottom sample locations were above the remediation level (RL) for one or more metals requiring additional removal of soils. For three of the sidewall samples, additional removal was not possible either due to steep, unstable slopes or encroachment onto BTC property. After this final removal, confirmation sampling and testing met the requirements of the monitoring plan with exceptions stated above (Figure 3).

In Area 2, confirmation soil samples were collected from 15 bottom samples (e.g., B1B) and 9 sidewall samples (e.g., B1S) (Figure 2). Seven sidewall and 4 bottom sample locations were above the RL for one or more metals requiring additional removal of soils at these locations. For two of the sidewall samples, additional removal was not possible due to encroachment into a wetland (Wetland A) or large Cottonwood tree. Additional confirmation sampling indicated 4 sidewall locations were still above the RLs for one or more metals. The City and Ecology decided to excavate additional soil from these locations until no obvious landfill debris was observed in the soils or there were encroachment or engineering (e.g., slope stability) concerns. After this final removal, confirmation sampling and testing indicated that a total of 6 sidewall locations in Area 2 were above RLs (Figure 3). Additional removal was not possible due to either steep, unstable slopes or encroachment into Wetland A or the Cottonwood tree.

Excavated landfill debris and contaminated soil was loaded into containers and transferred by truck and trailer (Ferndale Ready Mix & Gravel, Inc.) to Ferndale for loading on rail and transport to the Roosevelt landfill. Approximately 575 tons of the total debris and contaminated soils excavated from the Site was transported by truck and trailer (Harlow Construction Company, Inc.) from the Site to Republic Service's Seattle facility where it was transferred to containers for transport by rail to the Roosevelt Landfill. Landfill manifests are provided in Appendix B.

### **3.2.2 Stockpile Area**

Approximately 500 cy (~750 tons) of landfill debris and contaminated soil stockpiled in summer 2010 during the EPA cleanup of Little Squalicum Creek (LSC) was also loaded into containers and transferred to Ferndale for loading on rail and transport to the Roosevelt landfill.

### **3.2.3 Backfilling, Top Soil, and Hydroseeding**

After confirmation sampling was completed, the excavation was backfilled with about 4,310 tons of clean sand with gravel. The fill material originated from the Polaris borrow pit (pit run south wall) operated by Ferndale Ready Mix and located in Whatcom County. Fill was initially stockpiled onsite and then spread over the Site in 1-2 ft lifts with a bulldozer and compacted using a roller as required by the project specifications.

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<sup>3</sup> Confirmation sample identifications begin with EML-IA- (Eldridge Municipal Landfill-Interim Action-)

Approximately 770 tons of top soil was spread over the fill base at a thickness of 4 inches as required by the project specifications. Top soil (sandy loam) was provided by Cowden Gravel and Ready Mix, located in Whatcom County. Once graded, the Site was hydroseeded using a mulch, seed, and fertilizer mixture. A series of straw wattles were installed throughout the newly graded area to reduce erosion. Also, a silt fence was installed between the Site and the BTC/ Birchwood storm channel for erosion control.

### **3.2.4 Trail Construction**

The quarry-spall access road was left in-place for possible future access to the Eldridge Site. However, a walking trail was constructed over the quarry spalls for public use. A woven geotextile was applied ovetop the quarry spalls before adding a 6-inch layer of crushed surfacing base course and a final 3-inch layer of crushed limestone. Coarse mulch was placed along the edges of the trail to cover any remaining quarry spalls.

### **3.3 WETLAND RESTORATION**

From October 3-6, an approximate 750 ft<sup>2</sup> wetland was created in accordance with the Wetland Restoration Plan (Herrenkohl Consulting and Wilson Engineering 2011) (Figures 4 and 5). The wetland creation site was prepared by excavating an area previously backfilled, followed by placement of a 6-inch low permeability layer, and then covered with 9-inches of topsoil. Approximately 33 tons of low permeability soil, provided by Ferndale Ready Mix, was compacted using the excavator bucket. Shelterbelt Inc. installed the wetland plants and placed a 3- to 6-inch mulch layer over the entire creation area.

Shelterbelt installed a total of 40 shrubs and 45 herbaceous plants (refer to Figure 5). Plants were installed according to the approved restoration plan, with the exception of the Pacific dogwood (*Cornuss Nuttallii*), which was replaced with cascara (*Frangula purshiana*) due to plant availability at the local nurseries. Blue tube plant protectors were installed around each plant to protect the plants from excessive grazing.

## **4 PERFORMANCE MONITORING RESULTS**

Performance monitoring was completed as part of the interim action consistent with requirements described in the Monitoring Plan (Herrenkohl Consulting and Wilson Engineering 2011). The following sections describe the verification collection methods and testing results for the project.

### **4.1 VERIFICATION COLLECTION METHODS**

Soil samples were collected using a stainless-steel hand auger at locations shown on Figures 2 and 3. Samples were collected from 0 to 0.5 ft below ground surface (bgs) and the location of each was documented with a hand-held global positioning system (GPS). A marked, wooden stake was installed at each station which was later located by project surveyors. Soil sampling and location procedures for performance monitoring were consistent with those described in the Monitoring Plan (Herrenkohl Consulting and Wilson Engineering 2011).

Station coordinates and elevations are provided in Table 2 at the end of text.

### **4.2 TESTING RESULTS**

A summary of testing results for performance monitoring is presented in Tables 3 and 4 at the end of text. The data validation report and laboratory data reports and electronic data deliverables (EDDs) are provided in Appendix D. The results are described in the following sections in chronological order.

#### **4.2.1 Existing Stockpile and Pothole Stations**

The landfill required additional testing of Site debris and contaminated soil to complete the waste profile for the Site (Appendix B). Composite samples (Comp-1 and Comp-2) were collected from stockpiled material and tested for barium, selenium, and sulfate. Results were within allowable levels for Subtitle D disposal.

In an attempt to delineate the landfill better in Area 2, the contractor completed a series of pothole excavations (Pothole 1 through Pothole 7). Landfill debris was observed in all locations except Pothole 4 (Figure 2). A representative sample was collected from this location and analyzed for PCP and metals (arsenic, cadmium, copper, lead, mercury, zinc). Soil concentrations at this location were below RLs (Table 3).

#### **4.2.2 Excavation Area 1**

On August 25 and 26, performance monitoring samples were collected from 27 locations (bottom and sidewall) within the initial excavation of Area 1 (Figure 2). All samples were

analyzed for PCP and metals (arsenic, cadmium, copper, lead, mercury, zinc) following analytical methods described in the Monitoring Plan. A field duplicate was collected and tested for PCP and metals at stations A4B and A8B. Six samples (including a field duplicate for A8B) were also analyzed for PAHs.

Pentachlorophenol was not detected in any of the confirmation soil samples. PAHs were detected in one (A2S) of 6 locations at low concentrations (<0.019 mg/kg to 0.078 mg/kg) (Table 3).

In consultation with Ecology, 7 sidewall and two bottom sample locations were above the RL for one or more metals requiring additional removal of soils at these locations (Table 3 and Figure 2). For three of the sidewall samples (A1S, A2S, A8S), additional removal was not possible either due to steep, unstable slopes or encroachment onto BTC property.

On August 31, approximately 5-10 ft of additional sidewall was excavated from stations A3S, A6S, and A16S. An additional 1 ft of soil was excavated from the bottom of stations A1B and A13B. The additional soil was excavated midway (delineated by tape measure) between the failing sample location and adjacent clean sample locations as described in the Monitoring Plan.

After final removal, confirmation sampling and testing met the requirements of the monitoring plan with exceptions stated above (Figure 3).

#### **4.2.3 Excavation Area 2**

From September 13-16, performance monitoring samples were collected from 24 locations (bottom and sidewall) within the initial excavation of Area 2 (Figure 2). All samples were analyzed for PCP and metals (arsenic, cadmium, copper, lead, mercury, zinc) (Table 4). A field duplicate sample was collected and tested for PCP and metals at stations B2S and B7B. Five samples were also analyzed for PAHs.

Pentachlorophenol was not detected in any of the confirmation soil samples. PAHs were detected in three (B5S, B7S, B12S) of 5 locations at low concentrations (<0.019 mg/kg to 0.076 mg/kg) (Table 4).

In consultation with Ecology, 7 sidewall and 4 bottom sample locations were above the RL for one or more metals requiring additional removal of soils at these locations (Table 4 and Figure 2). For two sidewall samples (B9S, B12S), additional removal was not possible due to encroachment on Wetland A and a large Cottonwood tree, respectively.

On September 19-20, approximately 5 ft to 10 ft of additional sidewall was excavated from stations B1S, B2S, B5S, B6S, and B15S. An additional 0.5 ft to 1 ft of soil was excavated from bottom stations B2B, B4B, B5B, and B15B. The additional soil was excavated midway (delineated by tape measure) between the failing sample location and adjacent clean sample locations.

On September 24-26, approximately 10 ft of additional sidewall was excavated adjacent to B12S and included a portion of the access roadbed (station B12S2).

Four sidewall sample locations (B1S2, B3S2, B5S2, B6S2) were above the RL for one or more metals requiring additional removal of soils from these locations. For three of the sidewall samples (B3S2, B5S2, B6S2), additional removal was not possible either because of steep, unstable slopes or encroachment into Wetland A (Figure 3).

After final removal, confirmation sampling and testing met the requirements of the monitoring plan with exceptions stated above and station B16S (Figure 3). After consultation with Ecology, additional excavation at station B16S was not required because there was no evidence of landfill debris in the soils at or near this location and the potential encroachment into Wetland A.

## 5 CLEANUP EFFECTIVENESS

The effectiveness of the cleanup activities completed for the project was assessed by implementation of the Monitoring Plan (Herrenkohl Consulting and Wilson Engineering 2011). Based on the testing results and performance evaluation, soils containing PCP and metals above the RLs have been removed from the Site except from the following locations (also refer to Tables 3 and 4):

<b>Station</b>	<b>RLs Exceeded</b>	<b>Explanation</b>
EML-IA-A1S	Cu, Pb, Zn	BTC property, steep unstable slope
EML-IA-A2S	Cu, Pb, Hg, Zn	BTC property, steep unstable slope
EML-IA-A8S	Cu, Pb, Hg, Zn	Steep, unstable slope
EML-IA-B3S2	Cu, Pb, Hg, Zn	Wetland A encroachment
EML-IA-B5S2	Pb, Zn	Steep, unstable slope
EML-IA-B6S2	Pb, Hg, Zn	Steep, unstable slope
EML-IA-B9S	Pb, Zn	Wetland A encroachment
EML-IA-B12S	Cu, Pb, Hg, Zn	Tree and Wetland A encroachment
EML-IA-B16S	Pb, Zn	No landfill debris observed, possible wetland encroachment

Additional evaluation of soil above RLs will be completed for the final RI/FS report.

## **6 REFERENCES**

Ecology. 2007. Model Toxics Control Act (MTCA) Cleanup Regulation Chapter 173-340 WAC. Washington State Department of Ecology. Publication No. 94-06. Olympia, WA. Last updated October 12, 2007.

Integral Consulting. 2008. Draft Final. Little Squalicum Park Remedial Investigation Report, Bellingham, Washington. Prepared for the Washington State Department of Ecology, Bellingham, WA and City of Bellingham, Parks & Recreation and Public Works Departments, Bellingham, Washington. Prepared by Integral Consulting Inc., Bellingham, Washington. December 2008.

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Herrenkohl Consulting and Integral Consulting. 2011b. Interim Action Work Plan, Eldridge Municipal Landfill Project, Bellingham, WA. Prepared for the City of Bellingham Public Works Department, Bellingham, WA. Prepared by Herrenkohl Consulting LLC of Bellingham, WA in association with Integral Consulting Inc of Seattle, WA. April 2011.

Herrenkohl Consulting and Wilson Engineering. 2011. Engineering Design Report, Eldridge Municipal Landfill Interim Action, Bellingham, WA. Prepared for the City of Bellingham Public Works Department, Bellingham, WA. Prepared by Herrenkohl Consulting LLC of Bellingham, WA and Wilson Engineering Inc., of Bellingham, WA. June 24, 2011.

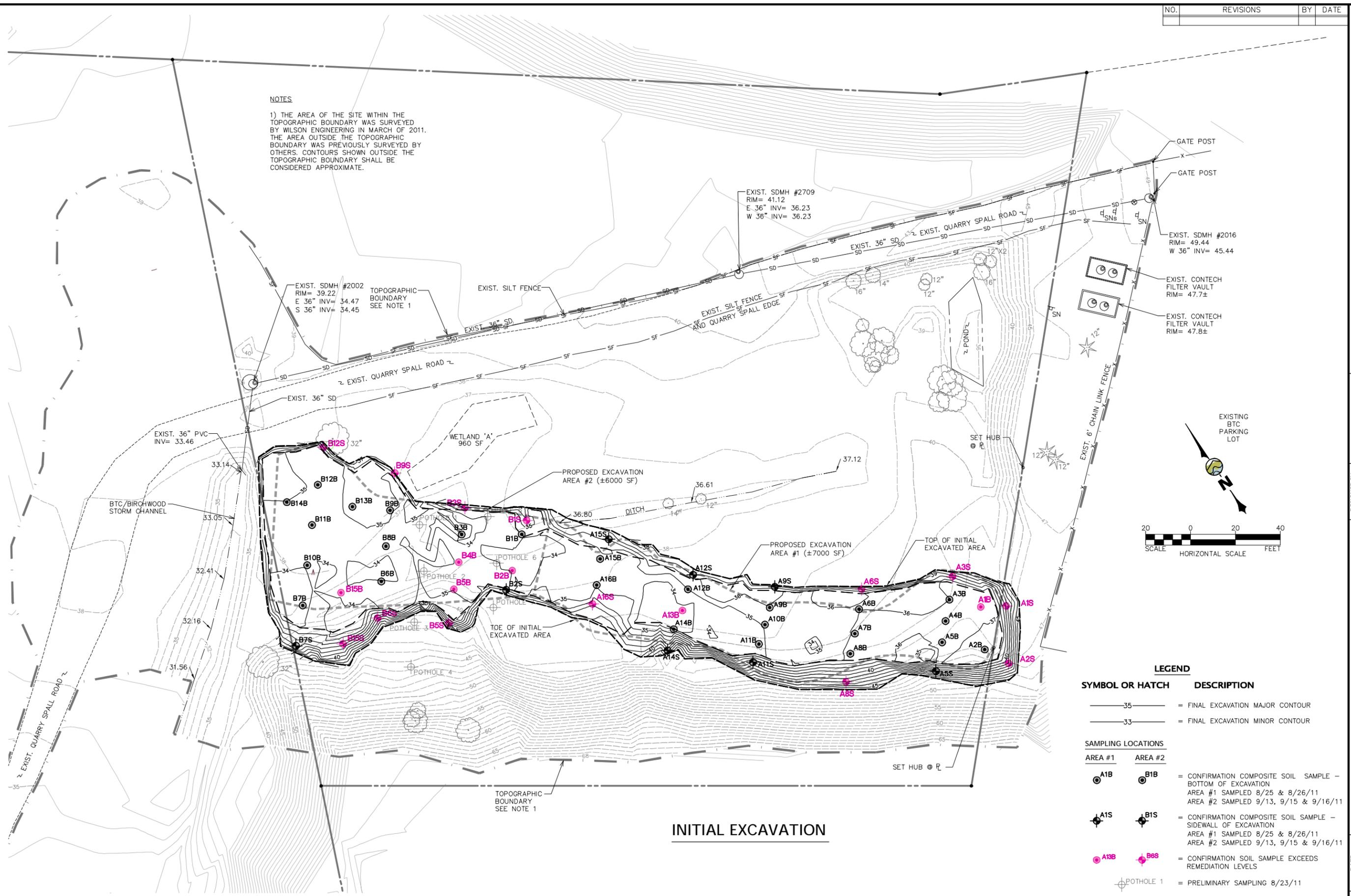


NO.	REVISIONS	BY	DATE

WILSON ENGINEERING, LLC  
 805 DUPONT STREET  
 BELLINGHAM, WA 98225  
 (360) 733-6100 • FAX (360) 647-9061  
 www.wilsonengineering.com



**NOTES**  
 1) THE AREA OF THE SITE WITHIN THE TOPOGRAPHIC BOUNDARY WAS SURVEYED BY WILSON ENGINEERING IN MARCH OF 2011. THE AREA OUTSIDE THE TOPOGRAPHIC BOUNDARY WAS PREVIOUSLY SURVEYED BY OTHERS. CONTOURS SHOWN OUTSIDE THE TOPOGRAPHIC BOUNDARY SHALL BE CONSIDERED APPROXIMATE.



**INITIAL EXCAVATION**

**LEGEND**

SYMBOL OR HATCH	DESCRIPTION
—35—	= FINAL EXCAVATION MAJOR CONTOUR
—33—	= FINAL EXCAVATION MINOR CONTOUR
<b>SAMPLING LOCATIONS</b>	
● A1B	= CONFIRMATION COMPOSITE SOIL SAMPLE – BOTTOM OF EXCAVATION AREA #1 SAMPLED 8/25 & 8/26/11 AREA #2 SAMPLED 9/13, 9/15 & 9/16/11
● B1B	
● A1S	= CONFIRMATION COMPOSITE SOIL SAMPLE – SIDEWALL OF EXCAVATION AREA #1 SAMPLED 8/25 & 8/26/11 AREA #2 SAMPLED 9/13, 9/15 & 9/16/11
● B1S	
● A13B	= CONFIRMATION SOIL SAMPLE EXCEEDS REMEDIATION LEVELS
● B6S	
○ POTHOLE 1	= PRELIMINARY SAMPLING 8/23/11
[Dashed Box]	= EXTENT OF PROPOSED LANDFILL EXCAVATION

**CITY OF BELLINGHAM**

WASHINGTON  
 BELLINGHAM  
 ELDRIDGE MUNICIPAL LANDFILL INTERIM ACTION  
 PERFORMANCE MONITORING SAMPLED LOCATIONS  
 INITIAL EXCAVATION

DESIGNED BY: [Blank]  
 DRAWN BY: RDN  
 CHECKED BY: [Blank]

DATE: 12-15-2011  
 SCALE: AS SHOWN  
 JOB NUMBER: 2011-020

**FIG 2**  
 OF **5**



NO.	REVISIONS	BY	DATE

WILSON ENGINEERING, LLC  
 805 DUPONT STREET  
 BELLINGHAM, WA 98225  
 (360) 733-6100 • FAX (360) 647-9061  
 www.wilsonengineering.com

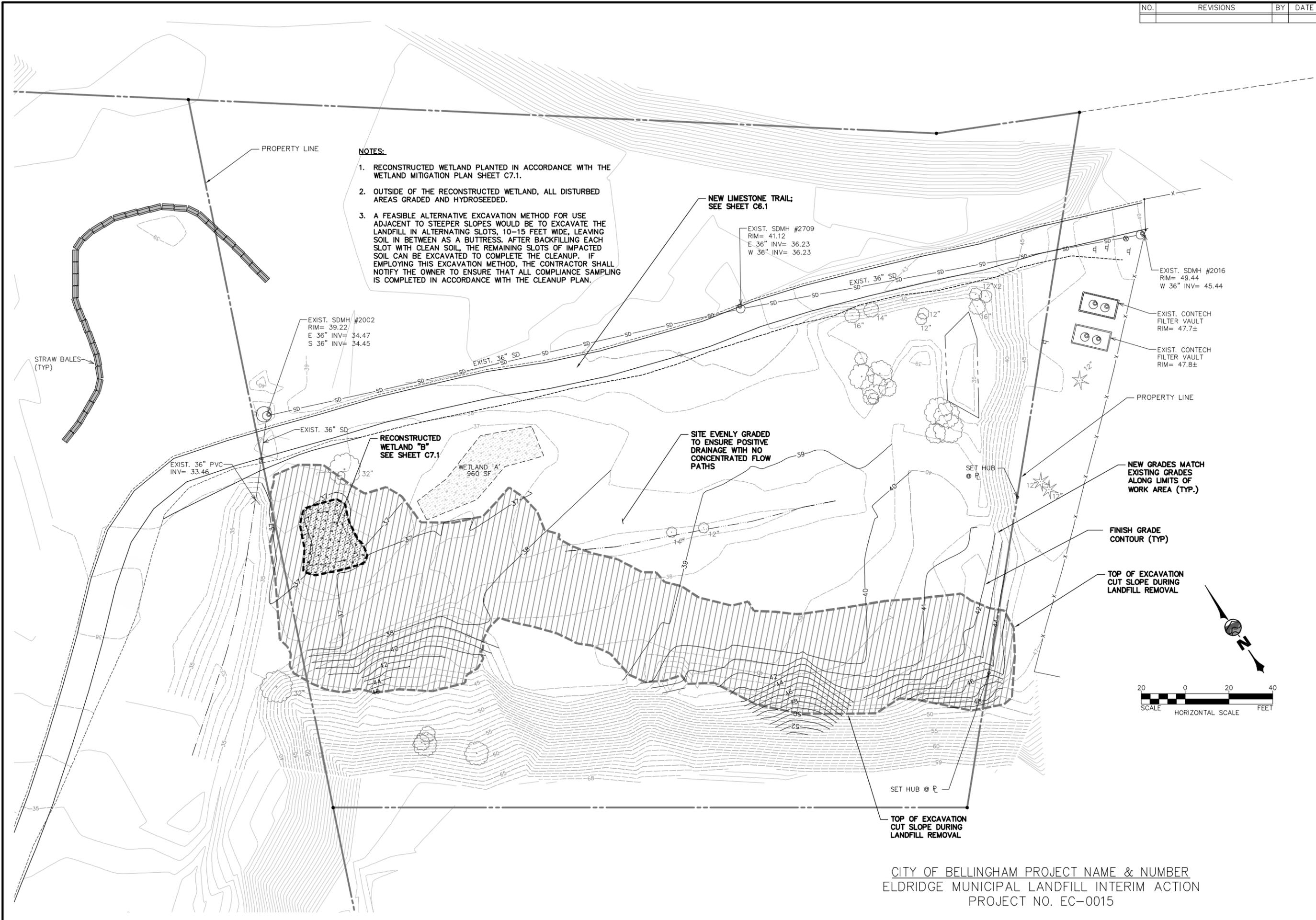


DESIGNED BY: EAS  
 DRAWN BY: JGS/BAH  
 CHECKED BY: [blank]

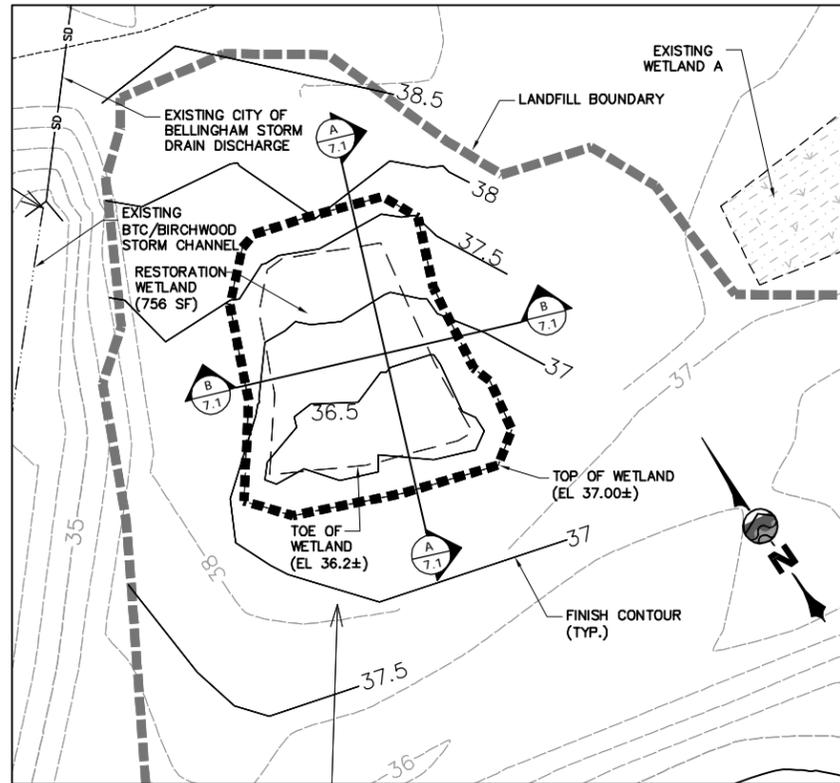
**CITY OF BELLINGHAM**  
 WASHINGTON  
**ELDRIDGE MUNICIPAL LANDFILL INTERIM ACTION**  
**FINISH GRADING PLAN**

DATE: 12-15-2011  
 SCALE: AS SHOWN  
 JOB NUMBER: 2011-020

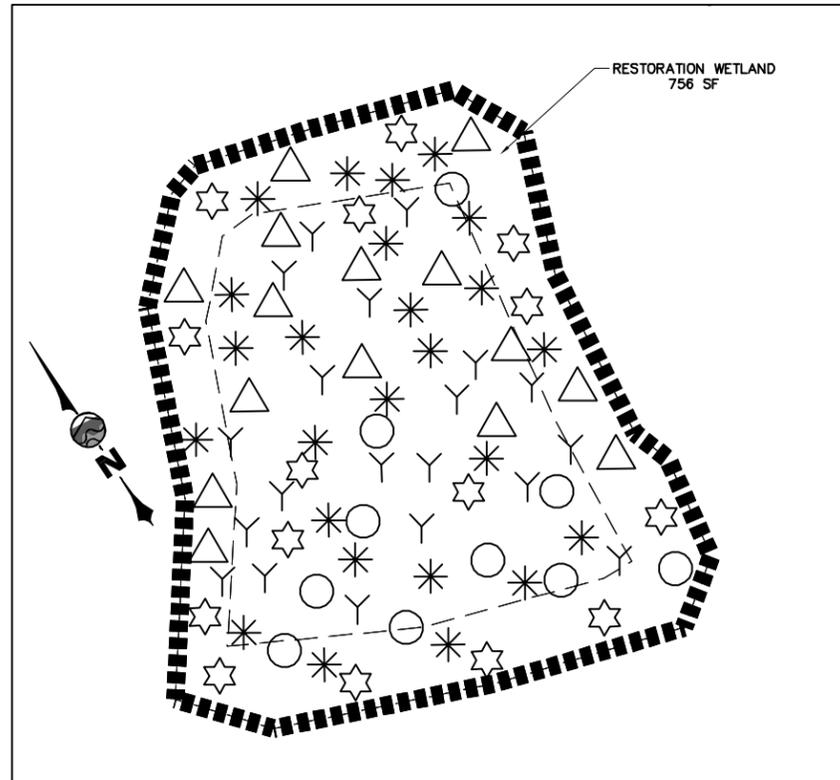
SHEET: **FIG 4**  
 OF: **5**



CITY OF BELLINGHAM PROJECT NAME & NUMBER  
 ELDRIDGE MUNICIPAL LANDFILL INTERIM ACTION  
 PROJECT NO. EC-0015



**RESTORATION WETLAND PLAN**



**RESTORATION WETLAND SCHEMATIC PLANTING PLAN**

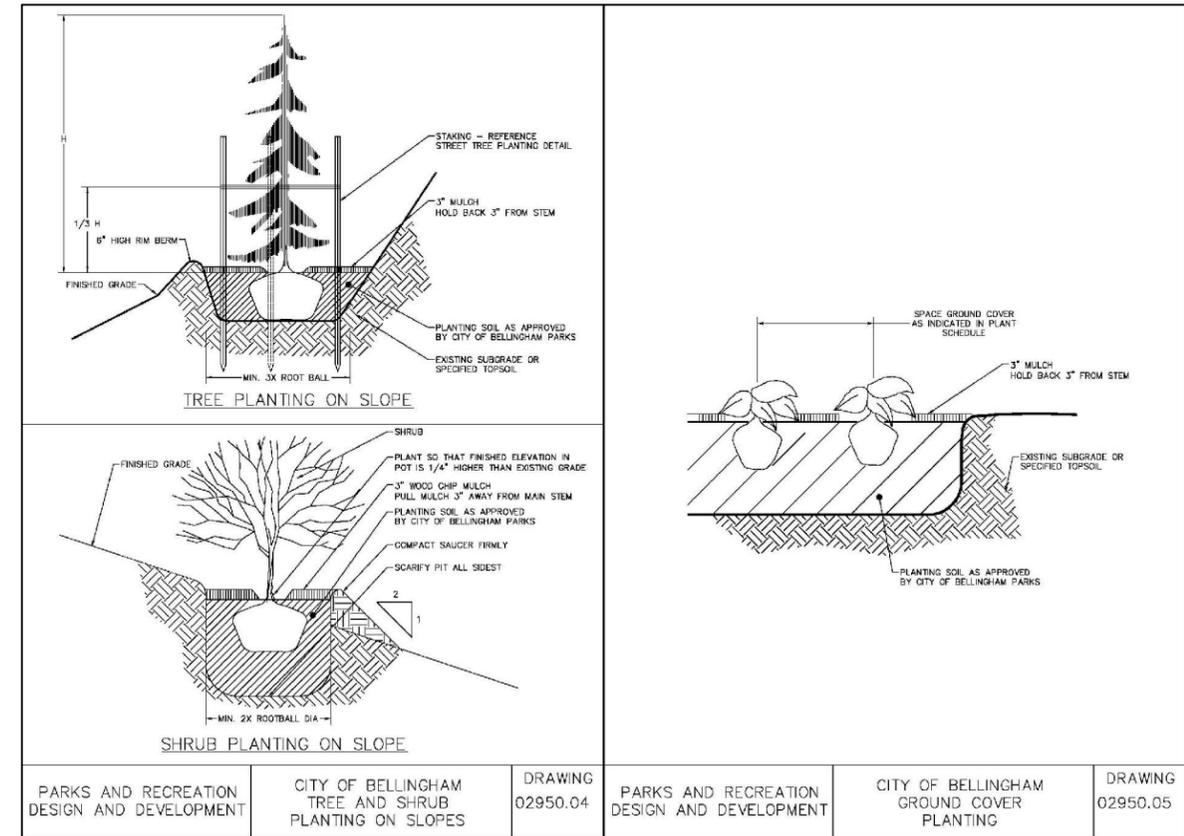
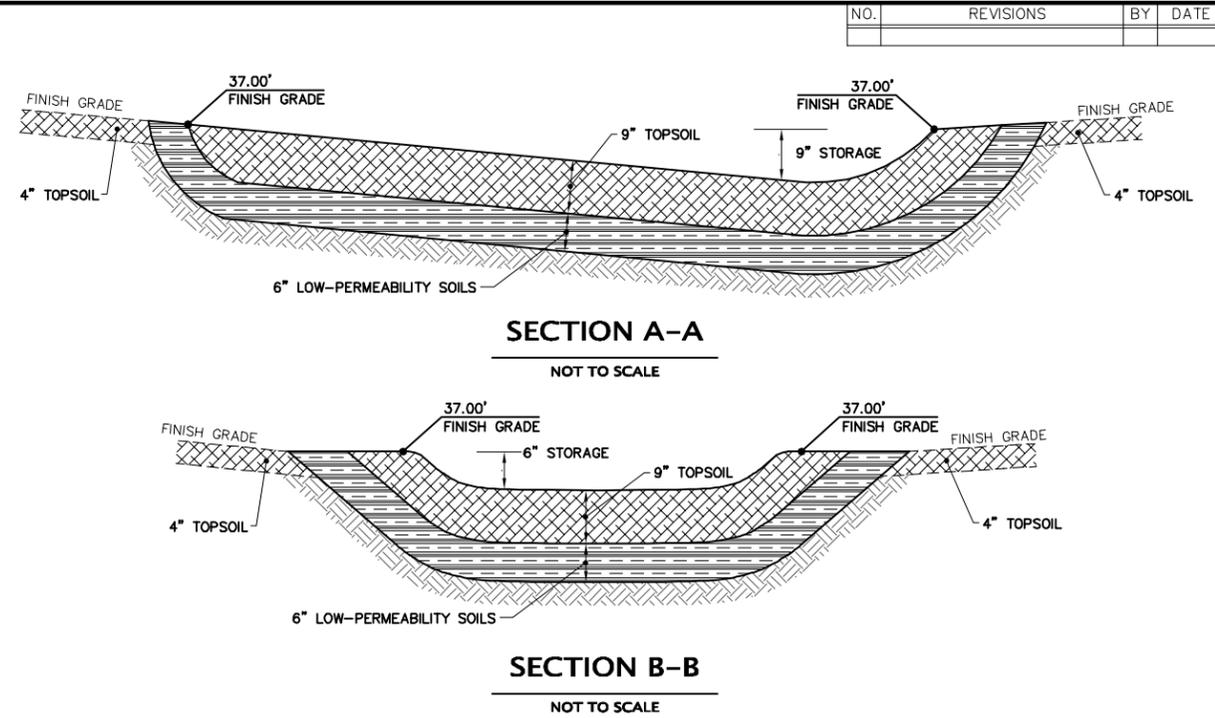


**MITIGATION NOTES:**

- SITE PREPARATION:**
  - Site preparation shall consist of excavating the appropriate wetland depression, installing a restrictive soil layer, if needed, and completing any other work necessary to prepare the area for planting. No preparation is necessary for plants that are supplied by a nursery or transplants.
- EXCAVATION:**
  - Excavation Plan:** The wetland creation area will be over-excavated to allow for placement of 6-inches of compacted low permeability soil containing silts and clays, 9-inches of silty loam soil, and upon completion will be a depression approximately 9-inches deep at its deepest point. The deepest point will be located on the side of the creation area closest to Wetland A and should be set a little off center and gradually rise to surrounding ground surface elevation.
  - Excavation Criteria:** If excavation takes place in the rainy season or during a rain storm, appropriate erosion control measures should be implemented to prevent sediment runoff into the nearby storm channel or wetland. Care should be taken to not impact the nearby wetland (Wetland A) with heavy equipment during construction.
  - Subsurface and Liner Criteria:** The wetland should be excavated approximately 15 inches below the finished grade and a 6-inch layer of low permeability soil containing silts and clays should be placed as a relatively restrictive layer. The layer should have a minimum 30% silt and clay content to reduce infiltration and prevent drainage of the wetland. A 9-inch layer of silt loam or loamy silt should be installed on top of the clay liner as a base for plant growth. This soil should be a hydric soil.
- PLANTING:**
  - Planting Plan:** Planting shall consist of installing plants, and plant protective devices, and mulch. No planting shall occur until the site is prepared in accordance with this restoration plan and any and all requirements made by U.S. Army Corp of Engineers (USACE), Washington State Department of Ecology (Ecology) or any other jurisdictional agencies have been completed, and the site has been inspected and approved by a qualified wetland scientist.
  - Plant Sources:** All plant materials used at the restoration site shall be acquired from local or near local sources, grown in the Puget Sound lowlands, and obtained from a reputable native plant nursery preferably within Whatcom County or salvaged onsite from areas designated for disturbance. Native vegetation should be planted using species currently existing onsite or other native species suited for the project site location.
  - Planting Locations:** Using the planting plan as a reference, plants should be located in areas best suited to promote growth and produce a natural and attractive habitat area. Plants should be laid out in clusters and islands that mimic natural plant distribution. Specific attention should be paid to hydrologic, soil, and shade conditions that can contribute to the success of the plantings. The planting plan locations may vary based on actual site conditions, but the total number of plants installed and the area enhanced should not be below the suggested numbers.
  - Plant Installation:**
    - Water all container stock and bare root plants the day before planting.
    - Wet hole prior to placing roots in hole.
    - Place plant in hole without roots pointing up or out of hole.
    - Water plant after placing soil on roots and pat down the soil to close any air holes.
    - Create soil basin around plantings to help plant collect water while the plant establishes itself.
    - Plant protectors should be used for all installed plants to minimize browsing by deer and rodents.
  - Mulch:** Mulch shall be applied in such a way that avoids causing significant soil compaction and/or damage to nearby trees, shrubs, and/or herbaceous plants. Wood chip mulch should be a medium sized texture (not fine or coarse), aged for at least one year, and should be free of weeds and/or weed seeds, deleterious materials, or other foreign materials harmful to plant life. The use of mulch made from cedar and/or exclusively of bark is not acceptable.

**DEFINITIONS FOR PLANTING SCHEDULE:**

- Size and Condition:** Size of stock container and/or condition of plant material
- 6" and 1 Gallon: container stock plants in 6" and 1 gallon containers, dependent on specific recommendations. Other container sizes may be recommended.
  - BR: Bare root plants
  - LS: Live stake plants acquired from nursery stock or from onsite
  - Seed: Seeds
  - Plugs: Small plugs for direct planting
- Availability:** How easy are the plants to find in area nurseries
- (H) High: common at most nurseries
  - (M) Medium: more likely at larger nurseries
  - (L) Low: Usually only found at native plant and specialty nurseries
- Ease:** How difficult are the plants to grow
- (H) High: large margin of error on growing conditions, relatively easy to grow
  - (M) Medium: easy to grow if the specific growing conditions are met
  - (L) Low: specific or uncommon requirements for survival make plant challenging to grow
- Deciduous:** Drops leaves at end of growing season
- Evergreen:** Retains leaves for more than a year
- Perennial:** An herbaceous plant living year to year and not dying after flowering once
- Exposure:** Amount of sun the plant needs
- Sun: Areas receiving at least 6 hours of sun including afternoon sun.
  - Part shade: 2-6 hours of sun
  - Shade: less than two hours of sun
- Moisture:** Amount of water the plant needs
- Dry: quick drying, well drained soils
  - Moist: damp much of the year, may dry out completely during late summer, and no standing water
  - Wet: very rarely or never dries out (usually wetlands)



**RESTORATION PLANTING SCHEDULE**

NUMBER OF PLANTS	COMMON NAME	LATIN NAME	SIZE & CONDITION	SPACING	LIGHT	MOISTURE	HEIGHT	AVAIL.	EASE
15	CASCARA	Frangula Purshiana	6" 1 GAL. OR BR	4'	PART SHADE	DRY-MOIST	60	M	L
15	PACIFIC NINEBARK	Physocarpus Capitatus	6" 1 GAL. OR BR	4'	SUN-SHADE	MOIST-WET	13'	M	H
10	PACIFIC WILLOW	Salix Lasianдра	1-2 GAL. OR BR OR LS	8'	SUN-PART SHADE	MOIST-WET	40	M	H
25	LADY FERN	Athyrium Filix-femina	1-2 GAL. OR BR OR LS	2'	SUN-SHADE	MOIST-WET	4	H	H
20	SLOUGH SEDGE	Carex Obnupta	SEED OR PLUG	N/A	SUN-PART SHADE	MOIST-WET	3	M	H

NO.	REVISIONS	BY	DATE

WILSON ENGINEERING, LLC  
 805 DUPONT STREET  
 BELLINGHAM, WA 98225  
 (360) 733-6100 • FAX (360) 647-9061  
 www.wilsonengineering.com

**Wilson**  
 SURVEY/ENGINEERING

DESIGNED BY: EAS  
 DRAWN BY: RDN  
 CHECKED BY: [ ]

CITY OF BELLINGHAM  
 WASHINGTON  
 ELDRIDGE MUNICIPAL LANDFILL INTERIM ACTION  
 RESTORED WETLAND AS-BUILT

DATE: 12-15-2011  
 SCALE: AS SHOWN  
 SHEET: FIG 5 OF 5  
 JOB NUMBER: 2011-020

CITY OF BELLINGHAM PROJECT NAME & NUMBER  
 ELDRIDGE MUNICIPAL LANDFILL INTERIM ACTION  
 PROJECT NO. EC-0015

*Interim Action Completion Report  
Eldridge Municipal Landfill*

**Table 2.** Confirmation Soil Sample Locations

Station	Northing (ft)	Easting (ft)	Elevation (ft)
EML IA A1B	648918.95	1235723.48	36.81
EML IA A1B2	648918.25	1235724.50	35.14
EML IA A1S	648913.03	1235733.08	40.28
EML IA A2S	648891.25	1235719.82	40.98
EML IA A2B	648902.28	1235714.41	37.36
EML IA A3S	648937.25	1235720.57	38.38
EML IA A3S2	648938.91	1235722.47	38.38
EML IA A3B	648929.43	1235713.68	35.98
EML IA A4B	648922.46	1235706.94	36.53
EML IA A5B	648915.52	1235700.39	36.17
EML IA A5S	648906.43	1235691.01	41.17
EML IA A6B	648948.33	1235677.90	35.96
EML IA A6S	648955.10	1235683.81	38.09
EML IA A6S2	648956.60	1235684.58	37.52
EML IA A7B	648940.37	1235670.30	36.05
EML IA A8S	648924.75	1235655.10	41.91
EML IA A8B	648934.07	1235663.65	36.11
EML IA A9S	648977.47	1235652.22	37.50
EML IA A9B	648971.08	1235645.28	35.96
EML IA A10B	648965.93	1235639.28	35.07
EML IA A11B	648960.31	1235632.26	34.71
EML IA A11S	648955.05	1235625.56	39.13
EML IA A12B	648998.08	1235619.56	35.00
EML IA A12S	649002.20	1235625.04	37.11
EML IA A13B	648991.69	1235612.26	33.67
EML IA A13B2*	648992.30	1235612.16	31.67
EML IA A14S	648980.59	1235596.84	39.67
EML IA A14B	648986.91	1235604.42	34.02
EML IA A15S	649036.22	1235602.66	36.15
EML IA A15B	649031.13	1235594.60	34.77
EML IA A16B	649022.34	1235586.85	34.75
EML IA A16S	649016.40	1235580.61	36.64
EML IA A16S2	649015.22	1235573.06	36.72
EML IA B1S	649063.57	1235576.92	35.69
EML IA B1S2	649069.15	1235580.97	35.90
EML IA B1B	649059.61	1235571.67	34.12
EML IA B2B	649048.64	1235559.19	33.96
EMF IA B2B2	649048.25	1235561.01	33.49
EML IA B2S	649043.06	1235552.20	35.82
EML IA B3B	649074.48	1235549.43	35.14
EML IA B3S	649083.54	1235557.23	36.33
EML IA B3S2	649088.77	1235562.35	36.22
EML IA B4B	649064.98	1235540.35	34.97
EML IA B5S	649045.00	1235522.84	38.40

*Interim Action Completion Report  
Eldridge Municipal Landfill*

**Table 2.** Confirmation Soil Sample Locations

Station	Northing (ft)	Easting (ft)	Elevation (ft)
EML IA B5S2	649040.04	1235510.27	38.66
EML IA B5B	649055.43	1235531.96	35.08
EML IA B6B	649077.08	1235508.09	34.25
EML IA B6S	649064.52	1235497.72	37.98
EML IA B6S2	649052.98	1235489.54	40.34
EML IA B7S	649074.53	1235460.61	36.98
EML IA B7B	649087.75	1235473.13	33.79
EML IA B8B	649088.96	1235518.51	34.85
EML IA B9S	649113.77	1235539.93	36.34
EML IA B9B	649101.14	1235528.92	35.18
EML IA B10B	649101.44	1235484.71	34.13
EML IA B11B	649115.10	1235496.43	34.51
EML IA B12B	649128.46	1235508.53	34.60
EML IA B12S	649140.94	1235519.83	36.07
EML IA B12S2	649155.19	1235509.11	36.83
EML IA B13B	649111.81	1235515.94	35.22
EML IA B14B	649129.81	1235492.78	34.94
EML IA B15S	649063.56	1235478.49	36.59
EML IA B15S2	649063.52	1235470.18	38.54
EML IA B15B	649082.96	1235490.39	34.62
EML IA B15B2	649081.55	1235486.23	33.69
EML IA B16S	649081.77	1235585.91	36.75
EML IA B16B	649077.95	1235582.71	35.44

**Notes:**

EML IA A13B2\* Location was estimated after filling of area for construction purposes.  
Horizontal coordinates (northing and easting) in North American Datum 1983/1998  
Vertical elevation in North American Vertical Datum 1988

**Table 3.** Summary of Testing Results for Performance Monitoring Soil Samples in Area 1 (mg/kg dw).

Station	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc	PCP	PAHs	Exceeds RLS?	Additional Removal?	Description/Explanation
RLs	10	45	50	50	0.1	86	2.5	NA			
EML-IA-A1S	5.9	1.7	75.2	213	0.10	550	0.190 U		✓	No	BTC property and steep, unstable slope - no additional removal
EML-IA-A1B	3.6	0.2	19.4	5.2	0.02 U	117	0.190 U		✓	Yes	Ecology required additional removal; 1 ft removed and resampled
EML-IA-A1B2						61					
EML-IA-A2S	8.1	3.3	86.1	477	0.18	500	0.190 U	0.019 U - 0.078	✓	No	BTC property and steep, unstable slope - no additional removal
EML-IA-A2B	5.0	0.2	26.9	6.9	0.04	76	0.190 U				
EML-IA-A3S	4.9	0.5	43.2	15.6	0.05	107	0.190 U		✓	Yes	Ecology required additional removal; 5-ft of sidewall removed, resampled
EML-IA-A3S2						53					
EML-IA-A3B	3.4	0.1	22.4	5.1	0.03	63	0.190 U				
EML-IA-A4B	4.7	0.2	30.9	5.5	0.05	65	0.180 U				
EML-IA-A4BD	4.8	0.2	33.5	5.9	0.05	72	0.180 U				
EML-IA-A5B	5.3	0.2	41.5	4.2	0.05	70	0.190 U	0.019 U			
EML-IA-A5S	2.6	0.3	19.9	5.7	0.04	69	0.190 U				
EML-IA-A6S	5.8	0.5	34.9	106	0.08	162	0.570 U		✓	Yes	Removed 5 ft of sidewall between stations A3S and A9S, resampled
EML-IA-A6S2						84					
EML-IA-A6B	4.6	0.2	28.7	10.7	0.04	86	0.180 U				
EML-IA-A7B	5.3	0.2	30.5	5.4	0.05	87	0.180 U		✓	No	Zinc only exceeded by 1 mg/kg (within laboratory error).
EML-IA-A8B	4.7	0.2	22.0	3.0	0.04	61	0.200 U	0.020 U			
EML-IA-A8BD	5.1	0.2	24.9	3.1	0.04	64	0.180 U	0.018 U			
EML-IA-A8S	9.8	1.4	79.7	310	0.32	480	0.560 U		✓	No	Steep, unstable slope - no additional removal
EML-IA-A9S	4.4	0.2	31.8	13.3	0.06	73	0.190 U	0.019 U			
EML-IA-A9B	5.7	0.1	26.1	3.3	0.04	54	0.180 U				
EML-IA-A10B	3.6	0.1	28.5	4.9	0.03	79	0.190 U				
EML-IA-A11B	2.3	0.1	16.9	3.3	0.02	62	0.190 U				
EML-IA-A11S	4.4	0.2	25.0	3.6	0.03	53	0.190 U				
EML-IA-A12S	7.5	0.3	43.3	17.9	0.08	74	0.180 U				
EML-IA-A12B	4.6	0.1 U	25.4	2.6	0.03	42	0.190 U				
EML-IA-A13B	2.7	0.4	46.1	11.3	0.09	145	0.190 U		✓	Yes	Ecology required additional removal; 1 ft removed and resampled
EML-IA-A13B2						63					
EML-IA-A14B	1.9	0.1 U	18.1	2.7	0.03	59	0.190 U				
EML-IA-A14S	7.1	0.2	25.7	16.8	0.03	69	0.190 U				
EML-IA-A15S	5.0	0.1	39.4	9.6	0.05	50	0.190 U				
EML-IA-A15B	3.0	0.1 U	18.4	3.6	0.02 U	64	0.190 U	0.019 U			
EML-IA-A16B	1.8	0.1	18.5	2.9	0.03	85	0.190 U				
EML-IA-A16S	7.3	0.5	26.1	18.2	0.04	112	0.190 U		✓	Yes	Ecology required additional removal; removed 5-10 ft of sidewall and resampled
EML-IA-A16S2						68					
Pothole 4	3.4	0.1 U	18.1	2.4	0.02 U	46	0.180 U				
	Exceeds Corresponding RL										

**Table 4.** Summary of Testing Results for Performance Monitoring Soil Samples in Area 2 (mg/kg dw).

Station	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc	PCP	PAHs	Exceeds RLs?	Additional Removal?	Description/Explanation
RLs	10	45	50	50	0.1	86	2.5	NA			
EML-IA-B1S	5.5	0.2	37.2	52.4	0.14	116	0.190 U		✓	Yes	Removed additional 5-ft of sidewall and resampled
EML-IA-B1S2				104	0.21	135			✓	Yes	No obvious landfill materials; removed additional 10-ft of sidewall and resampled
EML-IA-B1B	2.9	0.1	21.8	4.4	0.03	76	0.200 U				
EML-IA-B2B	4.9	0.2	21.7	19.1	0.03	100	0.180 U	0.018 U	✓	Yes	Ecology required additional removal - additional 0.5-1 ft removed and resampled
EML-IA-B2B2						84					
EML-IA-B2S	10.0	0.2	24.2	42.2	0.04	62	0.180 U				
EML-IA-B2S2	11.2	0.2	26.1	46.6	0.04	66	0.180 U		✓	No	The field duplicate for arsenic is at the RL.
EML-IA-B3S	5.8	0.7	134	222	0.43	233	0.190 U		✓	Yes	Removed additional 5- to 10-ft of sidewall and resampled
EML-IA-B3S2			57.4	129	0.12	155			✓	No	Adjacent to wetland A, no additional removal without impacting wetland.
EML-IA-B3B	3.9	0.1	25.8	15.3	0.02	64	0.190 U	0.019 U			
EML-IA-B4B	5.9	0.3	30.3	24.4	0.04	138	0.200 U		✓	Yes	Removed additional 0.5-1 ft and resampled
EML-IA-B4B2						61					
EML-IA-B5B	12.3	0.4	65	50.3	0.22	83	0.190 U		✓	Yes	Removed additional 0.5-1 ft and resampled
EML-IA-B5B2	4.3		52.2	13.3	0.17				✓	No	Copper is minor exceedance, mercury still exceeds. Scrapped clean after sampling.
EML-IA-B5S	9.5	0.4	41.7	63.1	0.06	117	0.190 U	0.019 U - 0.048	✓	Yes	Removed additional 10-ft of sidewall and resampled
EML-IA-B5S2				74.2		105			✓	No	Steep, unstable slope - no additional removal
EML-IA-B6S	6.9	0.5	46.5	108	0.13	190	0.190 U		✓	Yes	Removed additional 10-ft of sidewall and resampled
EML-IA-B6S2				84.2	0.13	673*			✓	No	Steep, unstable slope. Reanalyze zinc to confirm number - no additional removal
EML-IA-B6B	1.3	0.1 U	31.2	9.7	0.08	75	0.200 U				
EML-IA-B7S	2.8	0.2	17.2	6.8	0.04	82	0.190 U	0.019 U - 0.037			
EML-IA-B7B	2.5	0.1	43.1	3.8	0.06	47	0.180 U				
EML-IA-B7BD	2.2	0.1	37.0	2.9	0.05	41	0.200 U				
EML-IA-B8B	3.0	0.1 U	13.8	2.9	0.02	46	0.190 U				
EML-IA-B9B	4.0	0.1 U	14.4	2.9	0.02	41	0.180 U				
EML-IA-B9S	4.4	0.2	34.1	62.1	0.06	95	0.200 U		✓	No	Adjacent to wetland A, no additional removal without impacting wetland.
EML-IA-B10B	2.4	0.2	52.9	5.4	0.10	87	0.200 U		✓	No	Copper and zinc have minor exceedances
EML-IA-B11B	1.7	0.1 U	16.7	2.9	0.02 U	51	0.200 U				
EML-IA-B12B	1.2	0.1 U	15.4	2.1	0.02 U	50	0.180 U				
EML-IA-B12S	8.2	1.0	147	536	0.38	370	0.580 U	0.035 J - 0.076	✓	Yes	Removed additional 10-ft of sidewall and resampled
EML-IA-B12S2	5.4	0.1	32.8	4.4	0.03	53					
EML-IA-B13B	1.7	0.1	29.5	4.3	0.02	44	0.190 U				
EML-IA-B14B	1.4	0.1 U	18.1	3.5	0.03	51	0.190 U				
EML-IA-B15B	6.6	0.5	112	28.8	0.43	263	0.190 U		✓	Yes	Removed additional 0.5 ft and resampled
EML-IA-B15B2			14.2		0.03	79					
EML-IA-B15S	4.1	0.5	33.6	14.2	0.1	187	0.180 U		✓	Yes	Removed additional 10-ft of sidewall and resampled
EML-IA-B15S2						62					
EML-IA-B16S	5.4	0.4	36.1	86.9	0.07	101			✓	No	No obvious landfill materials in soils - no additional removal
EML-IA-B16B	4.2	0.2	29.2	13.5	0.03	75					

673\* = average value of triplicate analysis (680, 690, 650 mg/kg)

Exceeds Corresponding RL

**APPENDIX A**  
**WASTE PROFILE**



Requested Disposal Facility: --- Select a Facility ---

Waste Profile #

Saveable fill-in form. Restricted printing until all required (yellow) fields are completed.

**I. Generator Information**

Sales Rep #:

Generator Name: City of Bellingham			
Generator Site Address: 3000 Block of W. Illinois Street			
City: Bellingham	County: Whatcom	State: Washington	Zip: 98225
State ID/Reg No:	State Approval/Waste Code:	(if applicable)	NAICS # :
Generator Mailing Address (if different): <input checked="" type="checkbox"/> 210 Lottie Street			
City: Bellingham	County: Whatcom	State: Washington	Zip: 98225
Generator Contact Name: Sam Shipp		Email: SShipp@cob.org	
Phone Number: (360) 778-7900	Ext:	Fax Number: (360) 778-7901	

**Ila. Transporter Information**

Transporter Name: Ferndale Ready Mix & gravel, Inc.		Contact Name: Keith Korthuis	
Transporter Address: 144 River Road			
City: Lynden	County: Whatcom	State: WA	Zip: 98264
Phone: (360) 354-1400	Fax: (360) 354-0486	State Transportation Number:	

**Iib. Billing Information**

Bill To: Glacier Environmental Services, Inc.		Contact Name: Lauren Golembiewski	
Billing Address: 4416 Russell Road, Suite A		Email: LMiles@glacierenviron.com	
City: Mukilteo	State: WA	Zip: 98275	Phone: (425) 355-2826

**III. Waste Stream Information**

Name of Waste: Landfill Ash	
Process Generating Waste: Remediation of a former municipal landfill. Landfill from the 1930's containing incinerated municipal waste, now mostly ash and some debris (i.e. glass bottles).	
Type of Waste:	<input type="checkbox"/> INDUSTRIAL PROCESS WASTE <input checked="" type="checkbox"/> POLLUTION CONTROL WASTE
Physical State:	<input checked="" type="checkbox"/> SOLID <input type="checkbox"/> SEMI-SOLID <input type="checkbox"/> POWDER <input type="checkbox"/> LIQUID
Method of Shipment:	<input checked="" type="checkbox"/> BULK <input type="checkbox"/> DRUM <input type="checkbox"/> BAGGED <input type="checkbox"/> OTHER:
Estimated Annual Volume:	6,600 Tons
Frequency:	<input checked="" type="checkbox"/> ONE TIME <input type="checkbox"/> ANNUAL
Disposal Consideration:	<input checked="" type="checkbox"/> LANDFILL <input type="checkbox"/> SOLIDIFICATION <input type="checkbox"/> BIOREMEDIATION

**IV. Representative Sample Certification**

NO SAMPLE TAKEN

Is the representative sample collected to prepare this profile and laboratory analysis, collected in accordance with U.S. EPA 40 CFR 261.20(c) guidelines or equivalent rules?		<input checked="" type="checkbox"/> YES or <input type="checkbox"/> NO
Sample Date: 1/31/06	Type of Sample:	<input type="checkbox"/> COMPOSITE SAMPLE <input checked="" type="checkbox"/> GRAB SAMPLE
Sample ID Numbers: See Attached		

Waste Profile #

**V. Physical Characteristics of Waste**

Characteristic Components	% by Weight (range)
1. Soil/Ash	80.000
2. Debris	20.000
3.	
4.	
5.	
Color brown	Odor (describe) none
Does Waste Contain Free Liquids? <input type="checkbox"/> YES or <input checked="" type="checkbox"/> NO	% Solids 80.00
	pH: 7
	Flash Point <140 °F

**Attach Laboratory Analytical Report (and/or Material Safety Data Sheet) Including Chain of Custody and Required Parameters Provided for this Profile**

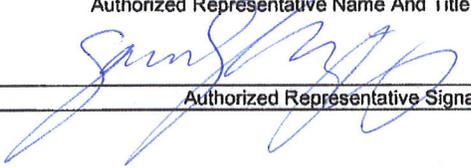
Does this waste or generating process contain regulated concentrations of the following Pesticides and/or Herbicides: Chlordane, Endrin, Heptachlor (and it epoxides), Lindane, Methoxychlor, Toxaphene, 2,4-D, or 2,4,5-TP Silvex as defined in 40 CFR 261.33?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does this waste contain reactive sulfides (greater than 500 ppm) or reactive cyanide (greater than 250 ppm)[reference 40 CFR 261.23(a)(5)]?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does this waste contain regulated concentrations of Polychlorinated Biphenyls (PCBs) as defined in 40 CFR Part 761?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does this waste contain concentrations of listed hazardous wastes defined in 40 CFR 261.31, 261.32, 261.33, including RCRA F-Listed Solvents?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does this waste exhibit a Hazardous Characteristic as defined by Federal and/or State regulations?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does this waste contain regulated concentrations of 2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD), or any other dioxin as defined in 40 CFR 261.31?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Is this a regulated Radioactive Waste as defined by Federal and/or State regulations?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Is this a regulated Medical or Infectious Waste as defined by Federal and/or State regulations?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Is this waste a reactive or heat generating waste?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Does the waste contain sulfur or sulfur by-products?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Is this waste generated at a Federal Superfund Clean Up Site?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No
Is this waste from a TSD facility, TSD like facility or consolidator?	<input type="checkbox"/> Yes or <input checked="" type="checkbox"/> No

**VI. Certification**

I hereby certify that to the best of my knowledge and belief, the information contained herein is a true, complete and accurate description of the waste material being offered for disposal and all known or suspected hazards have been disclosed. All Analytical Results/Material Safety Data Sheets submitted are truthful and complete and are representative of the waste.

I further certify that by utilizing this profile, neither myself nor any other employee of the company will deliver for disposal or attempt to deliver for disposal any waste which is classified as toxic waste, hazardous waste or infectious waste, or any other waste material this facility is prohibited from accepting by law. I shall immediately give written notice of any change or condition pertaining to the waste not provided herein. Our company hereby agrees to fully indemnify this disposal facility against any damages resulting from this certification being inaccurate or untrue.

I further certify that the company has not altered the form or content of this profile sheet as provided by Republic Services Inc.

Sam Shipp, Project Engineer	City of Bellingham
_____ Authorized Representative Name And Title (Type or Print)	_____ Company Name
 _____ Authorized Representative Signature	08/19/2011 _____ Date



# Republic Services, Inc.

18500 N. Allied Way, Phoenix, AZ 85054

## SPECIAL WASTE DEPARTMENT DECISION

	Waste Profile # 41781113527	Expiration Date 8/19/2012	
<b>I. Decision Request:</b>	<input checked="" type="checkbox"/> Initial	<input type="checkbox"/> Recertification	<input type="checkbox"/> Change
Disposal Facility: 4178 - Roosevelt Regional MSW L/F			
Generator Name: City of Bellingham			
Generator Site Address: 3000 Block of W. Illinois St			
City: Bellingham	County: _____	State: WA	Zip: _____
Name of Waste: Landfill Ash			
Estimated Annual Volume: 6600 Tons			

### II. Special Waste Department Decision: Approved Rejected

Management Method(s):  Landfill  Solidification  Bioremediation  Transfer Facility

Problematic Special Waste according to Republic?  Yes  No

If yes, which one? \_\_\_\_\_

Approved by Special Waste Review Committee?  Yes  No  Not Applicable

### Precautions, Conditions or Limitations on Approval

"Dusty/Powdery" Material: Waste must be shipped in a manner that minimizes fugitive dust emissions.  
Proper PPE must be worn when handling this material.

Special Waste Analyst Signature: \_\_\_\_\_

Date: 8/29/2011

Name (Printed): Leslie Hamilton

### III. Facility Decision: Approved Rejected

### Precautions, Conditions or Limitations on Approval

By signing below, the General Manager or Designee agrees that a fully executed Special Waste Service Agreement is on file for this profile and that the special waste file is complete.

General Manager or Designee: \_\_\_\_\_

Name (Printed): \_\_\_\_\_

Date: 8/29/2011

## **APPENDIX B**

### **LANDFILL DISPOSAL MANIFESTS**

# Activity By Job ID

Report period September 2011

Job ID:	LW-11319		10,249		Glacier Environmental Services Inc					
Date	Ticket #	Rail Car/Train Address	Container	Material Code/Desc	Gross	Tare	Net	Tons	Origin/Facility	Dispatch Date
9/5/11	8:47 am	504,785 DTTX623030	GCEU440078	66 Cont Soil	97,200	41,480	55,720	27.86	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	8:47 am	504,787 DTTX623030	TOLU465401	66 Cont Soil	95,600	40,140	55,460	27.73	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:07 am	504,791 DTTX623030	TPHU252255	66 Cont Soil	105,180	38,900	66,280	33.14	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:10 am	504,796 DTTX623030	GCEU432248	66 Cont Soil	107,100	39,380	67,720	33.86	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:32 am	504,806 BNSF231025	GCEU432163	66 Cont Soil	97,360	37,200	60,160	30.08	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:46 am	504,810 BNSF231025	TOLU472418	66 Cont Soil	95,860	39,500	56,360	28.18	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:37 am	504,811 BNSF231025	GCEU426051	66 Cont Soil	105,040	42,020	63,020	31.51	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:31 am	504,816 BNSF231025	TOLU458292	66 Cont Soil	95,500	40,880	54,620	27.31	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:52 am	504,818 BNSF231025	GCEU425035	66 Cont Soil	104,440	41,060	63,380	31.69	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	9:58 am	504,823 BNSF231025	TOLU475894	66 Cont Soil	101,040	39,900	61,140	30.57	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	1:28 pm	504,920 DTTX54793	GCEU435068	66 Cont Soil	101,540	40,040	61,500	30.75	Ferndale/Bellingham 20 or 40 -	08/30/11
9/5/11	2:03 pm	504,927 DTTX54793	GCEU445165	66 Cont Soil	92,860	40,600	52,260	26.13	Ferndale/Bellingham 20 or 40 -	08/30/11
9/6/11	10:08 am	505,127 BNSF230124	TOLU467872	66 Cont Soil	106,860	44,480	62,380	31.19	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:06 am	505,128 BNSF230124	UPCU411451	66 Cont Soil	104,720	47,540	57,180	28.59	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:26 am	505,140 BNSF230124	GCEU435209	66 Cont Soil	104,820	45,200	59,620	29.81	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:27 am	505,142 BNSF230124	GCEU431430	66 Cont Soil	104,900	45,960	58,940	29.47	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:34 am	505,150 BNSF230124	TOLU468551	66 Cont Soil	109,320	46,280	63,040	31.52	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:16 am	505,151 BNSF230124	RBSU200065	66 Cont Soil	87,180	47,980	39,200	19.60	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:46 am	505,157 BNSF203011	GCEU425637	66 Cont Soil	104,920	47,680	57,240	28.62	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	10:58 am	505,161 BNSF203011	TOLU466638	66 Cont Soil	104,600	45,400	59,200	29.60	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	11:17 am	505,171 DTTX456112	GCEU425410	66 Cont Soil	102,460	44,940	57,520	28.76	Ferndale/Bellingham 20 or 40 -	09/01/11
9/6/11	11:07 am	505,174 DTTX456112	TOLU468768	66 Cont Soil	98,420	45,200	53,220	26.61	Ferndale/Bellingham 20 or 40 -	09/01/11
9/9/11	8:46 am	505,946 BNSF231136	TOLU422644	66 Cont Soil	114,360	47,740	66,620	33.31	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	8:43 am	505,947 BNSF231136	GCEU431710	66 Cont Soil	103,460	46,080	57,380	28.69	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	8:44 am	505,949 BNSF231136	TOLU456860	66 Cont Soil	92,480	39,180	53,300	26.65	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	8:50 am	505,950 BNSF231136	GCEU435291	66 Cont Soil	92,340	47,540	44,800	22.40	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	8:50 am	505,952 BNSF231136	GCEU432088	66 Cont Soil	106,320	46,760	59,560	29.78	Ferndale/Bellingham 20 or 40 -	09/06/11

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9/9/11	9:01 am	505.954	BNSF231189	66	Cont Soil	81,020	44,920	36,100	18.05	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	9:02 am	505.955	BNSF231189	66	Cont Soil	92,120	47,460	44,660	22.33	Ferndale/Bellingham 20 or 40 -	09/06/11
9/9/11	9:00 am	505.957	BNSF231136	66	Cont Soil	91,100	40,240	50,860	25.43	Ferndale/Bellingham 20 or 40 -	09/06/11
9/10/11	5:26 pm	506.412	DTTX456315	66	Cont Soil	98,140	46,460	51,680	25.84	Ferndale/Bellingham 20 or 40 -	09/07/11
9/10/11	5:34 pm	506.414	DTTX456924	66	Cont Soil	94,160	48,460	45,700	22.85	Ferndale/Bellingham 20 or 40 -	09/07/11
9/10/11	5:41 pm	506.418	DTTX430124	66	Cont Soil	99,040	45,620	53,420	26.71	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	8:32 am	506.439	DTTX456315	66	Cont Soil	99,520	46,200	53,320	26.66	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	8:35 am	506.442	DTTX430124	66	Cont Soil	103,100	47,140	55,960	27.98	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	8:37 am	506.444	DTTX430124	66	Cont Soil	96,920	47,960	48,960	24.48	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	4:57 pm	506.674	DTTX430124	66	Cont Soil	97,100	46,680	50,420	25.21	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	5:01 pm	506.678	DTTX456924	66	Cont Soil	98,640	45,480	53,160	26.58	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	5:02 pm	506.680	BNSF230101	66	Cont Soil	94,680	46,340	48,340	24.17	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	5:07 pm	506.683	DTTX430124	66	Cont Soil	100,380	46,380	54,000	27.00	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	5:46 pm	506.700	BNSF230101	66	Cont Soil	115,820	47,480	68,340	34.17	Ferndale/Bellingham 20 or 40 -	09/07/11
9/12/11	6:03 pm	506.706	DTTX430124	66	Cont Soil	108,120	45,600	62,520	31.26	Ferndale/Bellingham 20 or 40 -	09/07/11
9/13/11	11:10 am	506.797	DTTX623030	66	Cont Soil	117,000	47,340	69,660	34.83	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	11:19 am	506.801	DTTX623030	66	Cont Soil	98,720	46,520	52,200	26.10	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	11:47 am	506.813	DTTX623030	66	Cont Soil	108,840	45,580	63,260	31.63	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	11:59 am	506.821	DTTX623030	66	Cont Soil	111,480	47,580	63,900	31.95	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	12:09 pm	506.831	DTTX623030	66	Cont Soil	111,260	44,640	66,620	33.31	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	12:19 pm	506.842	DTTX623030	66	Cont Soil	113,420	44,120	69,300	34.65	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	5:28 pm	506.950	BNSF231025	66	Cont Soil	109,040	45,140	63,900	31.95	Ferndale/Bellingham 20 or 40 -	09/08/11
9/13/11	5:55 pm	506.964	DTTX54793	66	Cont Soil	98,640	50,200	48,440	24.22	Ferndale/Bellingham 20 or 40 -	09/08/11
9/15/11	2:07 pm	507.461	BNSF231025	66	Cont Soil	113,760	46,360	67,400	33.70	Ferndale/Bellingham 20 or 40 -	09/08/11
9/15/11	2:05 pm	507.467	BNSF231025	66	Cont Soil	104,040	42,460	61,580	30.79	Ferndale/Bellingham 20 or 40 -	09/08/11
9/15/11	2:36 pm	507.470	BNSF231025	66	Cont Soil	112,540	46,460	66,080	33.04	Ferndale/Bellingham 20 or 40 -	09/08/11
9/16/11	9:22 am	507.622	BNSF230124	66	Cont Soil	109,480	47,060	62,420	31.21	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	9:39 am	507.627	BNSF230124	66	Cont Soil	101,500	44,480	57,020	28.51	Ferndale/Bellingham 20 or 40 -	09/12/11

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9/16/11	9:40 am	507.629	BNSF230124	UPCU411451	66	Cont Soil	99,060	46,940	52,120	26.06	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	9:44 am	507.630	BNSF230124	GCEU435209	66	Cont Soil	104,520	45,400	59,120	29.56	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	9:45 am	507.639	BNSF230124	GCEU431430	66	Cont Soil	106,640	46,260	60,380	30.19	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	10:07 am	507.645	BNSF230124	TOLU468551	66	Cont Soil	105,860	44,980	60,880	30.44	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	10:19 am	507.651	BNSF203011	RBSU200065	66	Cont Soil	98,100	48,020	50,080	25.04	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	10:31 am	507.653	BNSF203011	GCEU425637	66	Cont Soil	109,700	47,260	62,440	31.22	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	10:33 am	507.654	DTTX456112	TOLU466638	66	Cont Soil	118,040	45,600	72,440	36.22	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	10:34 am	507.656	DTTX456112	GCEU425410	66	Cont Soil	115,100	44,900	70,200	35.10	Ferndale/Bellingham 20 or 40 -	09/12/11
9/16/11	11:17 am	507.673	BNSF231017	TRLU901527	66	Cont Soil	110,620	44,980	65,640	32.82	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	11:24 am	507.679	BNSF231017	TOLU457079	66	Cont Soil	113,760	46,500	67,260	33.63	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	11:21 am	507.680	BNSF231017	EGTU420553	66	Cont Soil	104,280	46,760	57,520	28.76	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	11:33 am	507.683	BNSF230028	EGTU420664	66	Cont Soil	103,380	49,480	53,900	26.95	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	11:52 am	507.691	BNSF230028	TOLU422610	66	Cont Soil	105,760	46,760	59,000	29.50	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:04 pm	507.695	BNSF231136	TOLU422644	66	Cont Soil	98,260	46,760	51,500	25.75	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:11 pm	507.701	BNSF231136	GCEU431710	66	Cont Soil	105,660	45,840	59,820	29.91	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:21 pm	507.706	BNSF231136	GCEU435291	66	Cont Soil	113,940	47,100	66,840	33.42	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:18 pm	507.709	BNSF231136	TOLU456860	66	Cont Soil	104,820	47,200	57,620	28.81	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:26 pm	507.714	BNSF231136	GCEU432088	66	Cont Soil	109,780	46,220	63,560	31.78	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	1:36 pm	507.756	BNSF231136	TOLU452520	66	Cont Soil	99,820	44,460	55,360	27.68	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	1:40 pm	507.739	BNSF231189	ITEU133071	66	Cont Soil	104,320	47,060	57,260	28.63	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	1:43 pm	507.740	BNSF231189	TOLU476122	66	Cont Soil	107,040	46,260	60,780	30.39	Ferndale/Bellingham 20 or 40 -	09/13/11
9/19/11	9:11 am	508.153	DTTX623121	GCEU426806	66	Cont Soil	89,680	39,920	49,760	24.88	Ferndale/Bellingham 20 or 40 -	09/06/11
9/19/11	10:44 am	508.197	DTTX623121	TOLU458299	66	Cont Soil	82,120	38,920	43,200	21.60	Ferndale/Bellingham 20 or 40 -	09/06/11
9/19/11	11:26 am	508.224	DTTX623121	TOLU422388	66	Cont Soil	94,280	39,220	55,060	27.53	Ferndale/Bellingham 20 or 40 -	09/06/11
9/19/11	3:49 pm	508.372	BNSF230101	GCEU445181	66	Cont Soil	100,600	46,480	54,120	27.06	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	3:50 pm	508.373	BNSF230101	GCEU440180	66	Cont Soil	110,640	49,240	61,400	30.70	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:00 pm	508.380	BNSF230101	GCEU435366	66	Cont Soil	96,180	44,880	51,300	25.65	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:16 pm	508.388	BNSF230101	EGTU420206	66	Cont Soil	95,020	45,980	49,040	24.52	Ferndale/Bellingham 20 or 40 -	09/14/11

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9/19/11	4:23 pm	508.391	BNSF230101	66	Cont Soil	GCEU432123	95,640	46,260	49,380	24.69 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:32 pm	508.398	BNSF230101	66	Cont Soil	GCEU425341	96,320	44,480	51,840	25.92 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:33 pm	508.402	DTTX430124	66	Cont Soil	TOLU442464	97,620	46,700	50,920	25.46 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:33 pm	508.404	DTTX430124	66	Cont Soil	TOLU459386	94,060	47,880	46,180	23.09 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:46 pm	508.406	DTTX430124	66	Cont Soil	TOLU422004	99,440	45,420	54,020	27.01 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	4:47 pm	508.407	DTTX430124	66	Cont Soil	GCEU425116	90,960	46,380	44,580	22.29 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:00 pm	508.416	DTTX430124	66	Cont Soil	GCEU431482	103,460	47,760	55,700	27.85 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:12 pm	508.420	DTTX430124	66	Cont Soil	TOLU457735	113,620	45,340	68,280	34.14 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:16 pm	508.422	DTTX456924	66	Cont Soil	TOLU457711	105,120	47,400	57,720	28.86 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:36 pm	508.426	DTTX456924	66	Cont Soil	TOLU459721	110,380	44,620	65,760	32.88 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:31 pm	508.427	DTTX456315	66	Cont Soil	GCEU426879	105,080	46,680	58,400	29.20 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:31 pm	508.433	DTTX456315	66	Cont Soil	TRLU900521	105,360	49,520	55,840	27.92 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:37 pm	508.436	DTTX656527	66	Cont Soil	GCEU425658	91,580	44,840	46,740	23.37 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/19/11	5:40 pm	508.437	DTTX656527	66	Cont Soil	TOLU469363	89,040	40,180	48,860	24.43 ✓	Ferndale/Bellingham 20 or 40 -	09/14/11
9/16/11	12:51 pm	508.579	DTTX56527	66	Cont Soil	GCEU431233	94,280	46,600	47,680	23.84 ✓	Ferndale/Bellingham 20 or 40 -	09/13/11
9/16/11	12:51 pm	508.580	DTTX56527	66	Cont Soil	UPCU411516	105,200	46,560	58,640	29.32 ✓	Ferndale/Bellingham 20 or 40 -	09/13/11
9/20/11	2:43 pm	508.633	DTTX623121	66	Cont Soil	TPHU252626	96,060	47,020	49,040	24.52 ✓	Ferndale/Bellingham 20 or 40 -	09/06/11
9/20/11	4:37 pm	508.697	DTTX623121	66	Cont Soil	GCEU435435	98,580	46,660	51,920	25.96 ✓	Ferndale/Bellingham 20 or 40 -	09/06/11
9/20/11	4:56 pm	508.705	DTTX623121	66	Cont Soil	TOLU459722	96,300	49,620	46,680	25.34 ✓	Ferndale/Bellingham 20 or 40 -	09/06/11
9/22/11	8:07 am	509.037	DTTX54793	66	Cont Soil	TOLU455168	111,400	47,240	64,160	32.08 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:18 am	509.038	DTTX623030	66	Cont Soil	GCEU435484	109,900	47,840	62,060	31.03 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:22 am	509.041	DTTX54793	66	Cont Soil	GCEU431157	110,240	46,180	64,060	32.03 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:25 am	509.043	DTTX623030	66	Cont Soil	GCEU420218	101,300	45,880	55,420	27.71 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:35 am	509.045	DTTX623030	66	Cont Soil	TRLU900315	90,780	46,860	43,920	21.96 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:35 am	509.048	DTTX623030	66	Cont Soil	TRLU901943	113,900	48,140	65,760	32.88 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	8:57 am	509.057	DTTX456745	66	Cont Soil	GCEU431477	95,840	44,920	50,920	25.46 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	9:07 am	509.061	DTTX623030	66	Cont Soil	TOLU466658	89,980	47,000	42,980	21.49 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11
9/22/11	9:07 am	509.065	DTTX623030	66	Cont Soil	AWIU8357	98,540	46,660	51,880	25.94 ✓	Ferndale/Bellingham 20 or 40 -	09/16/11

# Activity By Job ID

Report period September 2011

9/22/11	9:17 am	509,066	DTTX456745	GCEU435543	66	Cont Soil	93,520	48,280	45,240	22.62	Ferndale/Bellingham 20 or 40 -	09/16/11
9/24/11	12:18 pm	509,761	DTTX56527	ICSU464224	66	Cont Soil	93,880	42,500	51,380	25.69	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	12:19 pm	509,764	BNSF231017	GCEU426622	66	Cont Soil	104,420	45,600	58,820	29.41	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	12:22 pm	509,765	BNSF231017	TOLU468753	66	Cont Soil	105,060	47,220	57,840	28.92	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	12:16 pm	509,767	DTTX56527	UPCU411467	66	Cont Soil	95,300	45,320	49,980	24.99	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	12:35 pm	509,770	BNSF231017	TOLU458196	66	Cont Soil	103,840	47,520	56,320	28.16	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:33 pm	509,774	BNSF231017	EGTU420340	66	Cont Soil	98,900	46,980	51,920	25.96	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:40 pm	509,777	BNSF231017	TPHU252623	66	Cont Soil	93,380	47,020	46,360	23.18	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:43 pm	509,778	BNSF231017	GCEU430480	66	Cont Soil	95,680	46,520	49,160	24.58	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:57 pm	509,784	BNSF230028	TOLU467600	66	Cont Soil	103,800	47,000	56,800	28.40	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:58 pm	509,785	BNSF230028	GCEU431594	66	Cont Soil	104,260	46,300	57,960	28.98	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	1:52 pm	509,786	BNSF230028	GCEU430689	66	Cont Soil	100,320	42,900	57,420	28.71	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	2:01 pm	509,788	BNSF230028	TOLU453190	66	Cont Soil	88,140	45,200	42,940	21.47	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	2:00 pm	509,789	BNSF230028	TOLU458526	66	Cont Soil	92,660	46,040	46,620	23.31	Ferndale/Bellingham 20 or 40 -	09/20/11
9/24/11	2:04 pm	509,793	BNSF230028	TOLU465401	66	Cont Soil	109,140	46,920	62,220	31.11	Ferndale/Bellingham 20 or 40 -	09/20/11
9/26/11	3:24 pm	510,090	BNSF230124	TOLU476597	66	Cont Soil	101,920	48,180	53,740	26.87	Ferndale/Bellingham 20 or 40 -	09/21/11
9/26/11	3:22 pm	510,092	BNSF230124	TOLU458869	66	Cont Soil	98,220	47,340	50,880	25.44	Ferndale/Bellingham 20 or 40 -	09/21/11
9/26/11	3:28 pm	510,093	BNSF230124	TOLU467347	66	Cont Soil	110,740	48,060	62,680	31.34	Ferndale/Bellingham 20 or 40 -	09/21/11
9/26/11	3:45 pm	510,105	BNSF230124	TRLU900542	66	Cont Soil	106,140	45,380	60,760	30.38	Ferndale/Bellingham 20 or 40 -	09/21/11
9/26/11	4:07 pm	510,108	BNSF230124	TOLU457714	66	Cont Soil	108,860	49,880	58,980	29.49	Ferndale/Bellingham 20 or 40 -	09/21/11
9/26/11	3:46 pm	510,110	BNSF230124	EGTU420229	66	Cont Soil	106,860	46,260	60,600	30.30	Ferndale/Bellingham 20 or 40 -	09/21/11

Total For Job LW-11319

132 Loads

3715.80 TN

# Activity By Job ID

Report period September 2011

Grand Total

132 Loads

✓ 3715.80 TN



**APPENDIX C**  
**PHOTOGRAPH LOG**



Photo 1. Clearing and grubbing Site.



Photo 2. Landfill excavation begins on August 24, 2011.



Photo 3. Excavation of Area 1, loading, and stockpiling within boundary of Site.



Photo 4. Excavation of Area 1, loading and stockpiling.



Photo 5. Confirmation sampling in Area 1.



Photo 6. Area 1/Area 2 Site boundary marked by yellow flagging.



Photo 7. Landfill debris including long-saw blade, bottles, metal/rubber gasket, and misc. metal.



Photo 8. Loading container for transport to Roosevelt landfill.



Photo 9. Loading container for transport to Roosevelt landfill.



Photo 10. Confirmation sampling in Excavation Area 1.



Photo 11. Additional sidewall excavation in Area 1 (delineated by orange paint).



Photo 12. Clean fill stockpile.



Photo 13. Filling excavation Area 1 with clean sand and gravel.



Photo 14. Compacting/rolling fill in Area 1.



Photo 15. Excavation of Area 2.



Photo 16. Landfill debris field in Area 2.



Photo 17. Sampling and field observations in Area 2 Landfill debris field.



Photo 18. Excavation of Area 2 and load-out.



Photo 19. Confirmation sample locations in Area 2.



Photo 20. Additional removal required in Area 2.



Photo 21. Additional removal of sidewall in Area 2.



Photo 22. Grading and compacting low-permeable soil for wetland creation.



Photo 23. Shelterbelt Inc. arranging wetland plants and mulch for wetland creation.



Photo 24. Wetland planting completed.



Photo 25. Finished trail entering Little Squalicum Park from Bellingham Technical College.



Photo 26. Site construction complete.



Photo 27. Site construction complete including wetland restoration.

**APPENDIX D**  
DATA VALIDATION REPORT  
AND  
LABORATORY DATA SUMMARY REPORTS  
AND ELECTRONIC DATA DELIVERABLES  
(Compact Disk)



*Herrenkohl Consulting LLC*

321 Summerland Road  
Bellingham, WA 98229

telephone: 360.319.0721  
mherrenkohl@msn.com

## MEMORANDUM

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To: Project File

From: Mark Herrenkohl, LEG

Date: October 26, 2011

Subject: Laboratory Data Evaluation

Project Name: Eldridge Municipal Landfill Interim Action

Project No.: HCL026

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The data were validated using guidance and quality control (QC) criteria documented in the analytical methods; the Performance Monitoring and Contingency Plan (Herrenkohl Consulting and Wilson Engineering 2011), and the National Functional Guidelines for Organic and Inorganic Data Review (USEPA 1999, 2004, 2009). Soil samples were analyzed by Analytical Resources, Inc. (ARI) of Tukwila, Washington. Samples submitted to ARI were analyzed for one or more of the following:

Test	Method
Arsenic, Cadmium, Copper, Lead, Zinc	EPA 200.8
Mercury	SW 7471A
Pentachlorophenol	SW 8270D low level
Polycyclic Aromatic Hydrocarbons	SW 8270D low level
Total Sulfate <sup>1</sup>	EPA 300.0
Barium, Selenium <sup>1</sup>	SW 6010B

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<sup>1</sup> Total sulfate, barium, and selenium were analyzed on two composite soil samples (SDG TJ72) for determining disposal options by the landfill.

Soil sample data are presented in the following sample delivery groups (SDGs):

<b>Laboratory Sample Delivery Group</b>	<b>Soil Samples<sup>2</sup></b>
TJ55	Pothole 4
TJ72	Comp1, Comp2
TK15-TK16	A1B, A1S, A2B, A2S, A3B, A3S, A4B, A4BD, A5B, A5S, A6B, A6S, A7B, A8B, A8BD, A8S, A9B, A9S, A10B, A11B, A11S, A12B, A13B, A14B, A14S, A15B, A15S, A16B, A16S
TK69	A1B2, A3S2, A6S2, A13B2, A16B2
TM21	B1B, B1S, B2B, B2S, B3B, B3S, B4B, B5B, B5S, B6S, B7S, B2SD
TM37	B6B, B7B, B7BD, B8B, B9B, B9S, B10B, B11B, B12B, B12S
TM57	B13B, B14B, B15B, B15S
TN02	B2B2, B4B2, B5B2, B1S2, B3S2, B5S2, B6S2
TN22	B15B2, B15S2
TN86	B2B2, B4B2, B5B2, B1S2, B3S2, B5S2, B6S2
TO24	B16B, B16S, B12S2

Summary data packages and electronic data deliverables (EDD) are presented in Appendix A (compact disk).

A partial data review was completed for all data packages which included review of the following:

- Data package completeness
- Analytical holding time and sample preservation
- Reporting limits
- Blank contamination
- Accuracy (compound recovery)
- Precision (replicate analyses)
- Blind field duplicates

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<sup>2</sup> All samples begin with EML-IA-

## **DATA PACKAGE COMPLETENESS**

Completeness is defined as the total number of usable results (results that were not rejected during data validation) divided by the total results reported by the laboratory. The results reported by the laboratory were 100% complete for the soil analyses. No qualifications are recommended in the data set.

## **HOLDING TIME AND SAMPLE PRESERVATION**

For all analyses and all samples, the time between sample collection, extraction (if applicable), and analysis was determined to be within method and project-specified holding times. No qualification of the data is necessary.

The initial sample preservation requirement (cooler temperature of 4°C ±2°) was not met for all samples. The majority of the sample coolers were received at the laboratory within the recommended range of temperature. These temperature outliers did not impact data quality and no action was taken.

## **REPORTING LIMITS**

Reporting limits were at or below target reporting limits for the project.

## **BLANK CONTAMINATION**

At least one method blank was analyzed with each batch of samples for each analysis. No contamination was detected in any of the method blanks except for the following:

<b>SDG</b>	<b>Analysis</b>	<b>Compound</b>
TM57	Metals	Lead
TO24	Metals	Lead

Sample concentrations were ten times greater than the lead concentration detected in blank. No qualification of the data was necessary.

## **ACCURACY**

### Surrogate Compound Recoveries

Surrogate compounds were added to samples analyzed for organics by EPA method SW8270D. The surrogate recoveries reported by the laboratory typically met the criteria for acceptable performance.

### Matrix Spike Recoveries

Matrix spike and/or matrix spike duplicate (MS/MSD) analyses were performed at the proper frequency for conventionals (e.g., total sulfate), metals, and organic analyses. All spike recoveries reported by the laboratory for MS/MSD analyses met the criteria for acceptable performance except for the following:

<b>SDG</b>	<b>Sample</b>	<b>Spike Analysis</b>	<b>Compound</b>
TM21	B1S	MS	Copper
TM37	B6B	MS	Lead
TN02	B5B2	MS	Copper

No qualifications were deemed necessary because spike recoveries were only slightly outside control limits and other data used for assessing accuracy (e.g., laboratory control spikes) in these samples were considered acceptable.

### Laboratory Control Spike Recoveries

Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses were performed at the proper frequency for metals and organic analyses of soil samples. All of the recoveries reported by the laboratory for LCS/LCSD analyses met the criteria for acceptable performance.

### Standard Reference Material Recoveries

A standard reference material (ERA No. 220109) was analyzed for total sulfate (SDG TJ72). The sample recovery met the criteria for acceptable performance.

## **PRECISION**

MS/MSD, LCS/LCSD, and laboratory replicate analyses were evaluated for laboratory precision. All of the relative percent difference (RPD) values for MS/MSD, laboratory replicate, and LCS/LCSD analyses met the criteria for acceptable performance except for the following:

<b>SDG</b>	<b>Sample</b>	<b>Replicate Analysis</b>	<b>Compound</b>
TJ55	Pothole 4	MS/MSD	Arsenic
TM21	B1S	Matrix Duplicate	Copper, Mercury, Zinc
TN02	B5B2	Matrix Duplicate	Lead

No qualifications of the data are recommended because RPD results were slightly outside control limits and other data used for assessing precision (e.g., LCS/LCSD) in these samples were considered acceptable.

## **BLIND FIELD DUPLICATES**

Field duplicates were collected and analyzed for the following stations (1 per 20 samples collected):

<b>Laboratory Sample Delivery Group</b>	<b>Sample Pair</b>	<b>Analysis</b>
TK15/TK16	A4B/A4BD	Metals, PCP
TK15/TK16	A8B/A8BD	Metals, PCP, PAHs
TM21	B2S/B2SD	Metals, PCP
TM37	B7B/B7BD	Metals, PCP

A project-specified control limit of 20 percent was used to evaluate the RPDs between the duplicate soil samples, except when the sample results were within five times the reporting limit. In these cases, a project-specified control limit of plus or minus the reporting limit was used. RPDs for the duplicate sample pair submitted for analysis were within the project-specified control limits.

EPA. 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85 EPA 540-R-08-005. U.S. Environmental Protection Agency. January.

EPA. 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA-540/R-04-004. U.S. Environmental Protection Agency. Office of Superfund Remediation and Technology Innovation (OSRTI). Washington, D.C. October.

EPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. EPA-540/R-99-008. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Washington, D.C. October.

Herrenkohl Consulting and Wilson Engineering. 2011. Performance Monitoring and Contingency Plan, Eldridge Municipal Landfill Interim Action. Prepared for the City of Bellingham, Public Works Department, Bellingham, WA. Prepared by Herrenkohl Consulting LLC and Wilson Engineering, LLC of Bellingham, WA. July.