AECOM Environment

Prepared for:
The BNSF Railway Company

Prepared by:
AECOM
Seattle, WA
60191113.0605
October 26, 2011

2010 Remediation – As-Built Completion Report

BNSF Former Maintenance and Fueling Facility
Skykomish, Washington

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BNSF Former Maintenance and Fueling Facility Skykomish, Washington

Prepared by Eric Storkerson, Project Specialist

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Approved by Winston Chen, P.E., Engineer of Record

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Construction Completion Report
2010 Remediation
BNSF Former Maintenance and Fueling Facility
Skykomish, Washington

Based on direct observations made by AECOM Environment (AECOM), materials testing, laboratory testing and other construction documentation described in this report, it is the opinion of the undersigned that the portion of the Skykomish Remediation completed in 2010 has been constructed in substantial compliance with the scope of work presented in the *Cleanup Action Plan* (CAP), *2010 Engineering Design Report* (EDR), and *2010 Construction Plans and Specifications* (CPS). The work carried out in 2010 described herein was completed, and the material and data in this report were prepared, under supervision and direction of the undersigned.

AECOM Environment.

Winston Chen, P.E., Engineer of Record
Registered Professional Engineer
State of Washington #39227

EXPIRES 12/11/ 2011

Contents

List of Figures

List of Tables

List of Appendices

1.0 Introduction

This 2010 As-Built Completion Report (As-Built Report) was prepared pursuant to WAC 173-340-400 requirements, and describes 2010 remediation construction activities completed for the BNSF Railway Company (BNSF) Former Maintenance and Fueling Facility located in Skykomish, Washington (site). Figure 1 shows the site location. Site remediation activities are being completed in accordance with the Cleanup Action Plan (CAP; Ecology; 2007a). BNSF entered into a Consent Decree (Ecology 2007b; *State of WA v. BNSF Railway Company*, King County Case No. 07-2-33672-9SEA) with Washington State Department of Ecology (Ecology) to implement the CAP. The overall cleanup approach is described in the *Master Engineering Design Report* (ENSR 2008).

The remediation activities described in this As-Built Report were performed from January 1, 2010 through December 31, 2010. Table 1-1 summarizes the activities that were planned for 2010, as originally described in the *2010 Engineering Design Report* (EDR; AECOM 2010a), *Former Maloney Creek West Wetlands Special Design Report* (FMCW SDR; AECOM 2009a) and amendments, *Former Maloney Creek East Wetlands Special Design Report* (FMCE SDR; AECOM 2009b) and amendments, and *2010 Compliance Monitoring Plan* (CMP; AECOM 2010b). The table summarizes the status of each activity including: 1) work completed in 2010, 2) work initiated in 2010 and scheduled to be completed after 2010, and 3) work scheduled to begin in 2011. The table also summarizes the types of compliance monitoring that were completed for each activity, as well as other relevant construction activities that were not described in the 2010 EDR, but were completed during 2010 consistent with the CAP and Master EDR.

Table 1-1 2010 Remediation Activity Summary

Activity***	Status			Compliance Monitoring Performed		
	Completed in 2010	Started in 2010 – to be Completed After 2010	Scheduled to Begin After 2010	Protection	Performance	Confirmation
1. Air Sparging System Operation[1]	X			X	X	
2. Bridge Area Excavation and Remediation	X[2]		X[3]	X	X	
3. Hazardous Material Surveys and Asbestos Abatement	X			X	X	
4. Construction Water Treatment System Operation	X			X	X	
5. FMCE Remediation and Restoration		X		X	X	
6. FMCW Remediation and Restoration	X			X	X	
7. Hydraulic Control and Containment (HCC) East End Excavation and Barrier Wall Extension	X			X	X	
8. HCC System Construction and Operation[4]	X				X	
9. Levee West End Excavation and Remediation			X	X	X	
10. Cascadia Inn Excavation, Remediation and Restoration[5]	X			X	X	
11. Lift Mackner House and a Forest Service Building and Build New Foundations	X					

Activity***	Status			Compliance Monitoring Performed		
	Completed in 2010	Started in 2010 – to be Completed After 2010	Scheduled to Begin After 2010	Protection	Performance	Confirmation
12. Railyard Zone (RYZ) Excavation (TPH and Metals)		X		X	X	
13. School Remediation			X[6]	X	X	
14. Schoolyard Excavation			X	X	X	
15. Stormwater Pond Excavation and Stormwater Liner Installation	X			X	X	
16. Air, Noise, Weather, and Mitigation Monitoring	X	X		X	X	
17. Routine Groundwater Monitoring[7]	X				X	
18. Final Town Restoration: Utilities, Final Grading, Curb and Gutter, Plantings and Grass, etc. Move Depot		X				

Notes:

1. System was operated in 2010 and will be operated in 2011 and beyond, if necessary.
2. Excavation upland of the bridge abutment and ordinary high water mark (OHWM) was completed in 2010.
3. Excavation waterward of the bridge abutment and OHWM will be completed in 2011 pending approval of the Joint Aquatic Resources Permit Application (JARPA).
4. System was operated in 2010 and will be operated in 2011 and beyond. Construction included adding recovery well RW-9, redirecting injection well IW-01 into the east HCC vault and adding piezometer PZ-1B.
5. Cascadia Inn excavation, remediation, and restoration included 1) demolition of part of the restaurant; 2) excavating TPH-impacted soil; 3) backfilling; and 4) re-construction of the demolished section of the restaurant.
6. Contingent upon the School granting access to the property.
7. Routine Groundwater Monitoring encompasses all quarterly and semi-annual groundwater monitoring activities described in the *2010 Groundwater Monitoring Plan* to evaluate overall groundwater quality at the site. It does not include groundwater monitoring activities intended to evaluate system performance. Additional routine Groundwater Monitoring will be completed in 2011 in accordance with the 2011 Groundwater Monitoring Plan.

*** Excavation and remediation activities, as listed in this table, include all associated preparation, access agreements, building relocation, engineering design, excavation, mitigation, traffic control, restoration, utility construction, etc., unless otherwise noted.

1.1 Report Organization

This As-Built report is organized into the following sections:

- **Section 1.0 – Introduction**
- **Section 2.0 – Project Management and Organization.** This section describes the roles and responsibilities of BNSF, AECOM, the general contractor and their consultants and subcontractors in the completion of the 2010 remediation activities.
- **Section 3.0 – Permitting.** This section describes the permitting activities that were conducted for the 2010 remediation.
- **Section 4.0 – Site Preparation.** This section describes the general site preparation activities that were completed prior to the start of construction.
- **Section 5.0 – Construction Activities.** This section describes the 2010 remediation construction activities, including: 1) activities described in the 2010 EDR, *2010 Construction Plans and Specifications* (CPS; AECOM 2010c), FMCW SDR, and FMCE SDR that were completed in 2010; 2) additional activities that were completed, but not described in these documents; 3) related compliance monitoring activities.
- **Section 6.0 – Work to be Completed After 2010.** This section describes the remaining remediation activities described in the 2010 CPS that will begin or will be completed in 2011.
- **Section 7.0 – Summary and Conclusions**
- **Section 8.0 – References**

2.0 Project Management and Organization

AECOM was retained by BNSF as the Engineer for the project. AECOM prepared the 2010 CPS, oversaw the remediation activities, and served as a liaison for BNSF with contractors, the Town of Skykomish (Town) and local stakeholders. Ecology provided regulatory oversight of the project. Brief descriptions of the roles of each contractor, subcontractor, consultant, and/or company in the 2010 remediation are provided below.

2.1 Primary General Contractor

Strider Construction Company (Strider) – Responsible for implementation of the 2010 CPS and execution of the project contract documents and requirements. Strider provided a Construction Manager and Superintendent who were responsible for on-site management and coordination for the duration of the project. Strider generally performed excavation, backfilling and grading of remediation areas, loading of excavated materials for disposal, restoration, and infrastructure reconstruction.

2.1.1 Subcontractors to Strider

- ACF West, Inc. – Stormwater pond liner installation
- Axis Crane – Sheet pile wall installation
- Bravo Environmental – Septic tank and water treatment system pumping
- Clear Water Compliance Services, Inc. (CWCS) – Temporary construction water treatment system (CWTS) installation and operation
- Cusick Construction – Construction of new Cascadia Inn restaurant
- GeoTest Services, Inc. – Backfill soils and field compaction testing
- HWA Geoscience, Inc. – FMCW soil bentonite liner (SBL) backfill material testing
- Inca Engineers (Inca) – Land surveying
- Kingworks Consulting – Structural engineer for foundation design
- Marine Vacuum Service, Inc. (MARVAC) – Oil recovery
- McCandlish Electric, Inc. – Remediation equipment building and site-wide electrical work
- Michaels Construction – Cured in-place pipe installation
- National Construction Rentals – Temporary site security fencing
- Nickel Bros. House Moving, Ltd. – Structure moving
- RW Rhine – Cascadia Inn restaurant demolition

2.2 Consultants and Contractors to AECOM

- Argus Pacific (Argus) – Air and Noise Monitoring Plan (AMP) development and implementation
- Cascade Drilling – Well installation and abandonment
- Northwest Archeological Associates Inc. (NWAA) – Archeological Monitoring and Discovery Plan development and implementation

- Pillar and Post – Residential structural assessments for building relocations
- Puget Sound Energy (PSE) – Electrical utilities infrastructure design and construction
- Frontier Communications (Frontier; formerly Verizon Communications) – Communications utilities design and construction
- True North Land Surveying, Inc. (True North) – Land surveying of pre-construction project remediation areas

2.3 Consultant to the Town

- Gray and Osborne, Inc. (G&O) – Town sanitary sewer system design

2.4 Contractors to BNSF

- AECOM – Engineer of Record; 2010 CPS plan development; remediation oversight; and BNSF liaison with contractors, Town, and local stakeholders
- EMR, Inc. – Hazardous materials assessment and abatement of asbestos materials
- EnviroIssues – Public outreach
- Farallon Consulting, LLC (Farallon) – School property test pit soil sampling
- Jacobs and Associates – Geotechnical engineering design and construction oversight and monitoring (e.g., mechanically stabilized earthen (MSE) wall design, sheet pile installation, excavation slope stability, vibration monitoring, etc.)
- TestAmerica – Chemical analysis of soil samples at both on-site and remote laboratories
- Pace Analytical Services, Inc. (Pace) – National Pollutant Discharge Elimination System (NPDES) permit sample chemical analysis
- Rabanco/Allied Waste – Impacted soil disposal facility
- Securitas – Site security
- Waste Management – Cascadia construction debris disposal

3.0 Permitting

The 2010 remediation work required that BNSF obtain or apply for the following permits from the agencies listed below:

- 2010 NPDES permit – Ecology
- Clearing and grading permit – Town
- Building permits – Town
- Labor & Industries permits for asbestos containing material removal
- Clean Water Act Section 404 Permits to Discharge Dredged or Fill Material (in-water excavation permit) – U.S. Army Corps of Engineers (USACE)
- Bridge permit – Washington Department of Transportation (WSDOT)
- Hydraulic Project Approval – Washington Department of Fish and Wildlife (WDFW)
- Joint Aquatic Resources Permit Application (JARPA) – submitted to USACE, Ecology, Washington Department of Natural Resources, U.S. Fish and Wildlife Service (USFWS) and WDFW

Copies of all permits are included in Appendix A.

3.1 NPDES Permit

CWTS and the hydraulic control and containment (HCC) system discharges during the 2010 remediation were performed in accordance with the project NPDES permit (Permit No. WA-003212-3; Ecology 2008).

The NPDES permit was originally issued on May 4, 2006 and authorized discharge of excavation dewatering water and industrial stormwater resulting from levee remediation activities to Outfall 1. Three modifications to the NPDES permit have been authorized since the issuance of the permit.

- Modification 1 (issued August 15, 2006) increased the stringency of some of the permit conditions and set the criteria that allowed flexibility to BNSF in choosing between two approved chitosan products for water treatment.
- Modification 2 (issued June 30, 2008) authorized CWTS discharge at Outfall 2 (6th Street outfall), HCC system discharge at Outfall 3 (3rd Street outfall), and HCC system effluent injection to groundwater wells IW-1 and IW-2.
- Modification 3 increased the allowable summer seasonal CWTS Outfall 2 discharge flow rate.

Per the NPDES permit requirements, BNSF prepared and implemented the *Stormwater Pollution and Prevention Plan* (SWPPP), which is included in the *Operations and Maintenance Manual for Water Treatment System* (AECOM 2010d).

BNSF also submitted monthly discharge monitoring reports to Ecology. CWTS operation is described in Section 4.0. HCC system operation, including railyard subsurface injection to support hydraulic containment at the east side of the HCC barrier wall and to flush free product toward the recovery wells between the central and west gates is described in Section 5.0.

4.0 Site Preparation

4.1 Pre-Construction Meeting, Weekly Construction Meetings and Stakeholder Meetings

A pre-construction meeting was held in Skykomish on April 15, 2010. Meeting attendees included representatives of Strider, AECOM, and BNSF. Some of the key items discussed in the meeting were:

- Roles and responsibilities
- Communication protocol
- Site health and safety
- Weekly construction meetings
- Project contacts
- Submittal procedure
- Anticipated construction schedule

Weekly on-site construction meetings were held to review construction activity status and to address any construction issues related to the 2010 CPS and the project contract. Meeting attendees included representatives of BNSF, AECOM, EnviroIssues, Strider, and select subcontractors. The meeting agenda generally included the following:

- Resolution of construction issues
- Review of two-week look ahead project schedule
- Submittal status and delivery schedule
- Review of contract modifications
- Health and safety concerns

Weekly on-site stakeholder meetings were also held during the construction season following the weekly construction meetings. The attendees included representatives of AECOM, Ecology, EnviroIssues, and the Town. At the stakeholder meetings, AECOM provided updates on project schedule and planned construction activities, and responded to any Ecology and/or Town construction-related questions.

4.2 Well Decommissioning

4.2.1 Decommissioning of Existing Monitoring Wells

Twenty-eight monitoring wells located within the 2010 excavation extents were decommissioned in accordance with WAC 173-160-381 by Cascade Drilling (a Washington State licensed well driller)

using either chipping-in-place or over-drilling methods prior to the excavations.[1] Well locations are shown on Figure 2. Copies of the well decommissioning reports are included in Appendix B.

4.3 Temporary Facilities and Controls

Strider and their subcontractors provided the following 2010 remediation temporary facilities and controls. Locations are shown on Figure 3.

4.3.1 Construction Fencing

Temporary construction fencing was installed at excavation area perimeters. Silt fencing was installed at appropriate locations throughout the site to prevent stormwater runoff sediments from leaving the construction areas.

4.3.2 Job Trailers

Strider provided jobsite trailers with electricity, HVAC, first aid kits, fire extinguishers, eyewash kits, printer, scanner, fax machines, and telephone lines with high-speed internet access. The trailers were used by Strider, AECOM, and McCandlish Electric as field offices. Strider also provided a number of portable restrooms to be used by all on-site personnel and visitors.

Test America provided a mobile analytical laboratory for soil sampling analysis.

4.3.3 Sound Wall

A hay-bale sound wall was constructed along the south boundary of the soil handling facility (SHF) in 2008 to dampen sound and provide privacy for the local residences located south of the SHF along Old Cascade Highway. The wall was inspected and repaired by Strider during the 2010 construction season.

4.3.4 Soil Handling Facility

Prior to stockpiling impacted material stockpiling in 2010, Strider repaired portions of the SHF asphalt surface and high density polyethylene (HDPE) liner beneath the asphalt surface that were damaged during 2009 construction. In areas where the HDPE liner was damaged, a new piece of HDPE liner was installed directly over the damaged liner with at least 12 inches additional length in all directions. After the new liner was installed, a compacted asphalt layer was constructed on top of the repaired liner.

4.3.5 Temporary Traffic Control

4.3.5.1 Railroad Crossing

A temporary railroad crossing was constructed by Strider in 2008 to allow the construction vehicles to enter the SHF without using the 5th Street public crossing. Prior to 2010 construction activities, Strider repaired the crossing by filling and compacting potholes and bare areas with asphalt. During 2010 construction activities, Strider provided a flagger at this crossing to control and direct non-construction traffic and pedestrians away from this area, and at the same time, safely guided construction traffic

[1] Decommissioned wells included 5-W-2, 5-W-3, 5-W-4, 5-W-52, 5-W-53, 1A-W-5, 2A-W-11, 2B-W-11, 2B-W-12, 2B-W-13, 2B-W-14, 2B-W-15, 2B-B-21, 2B-W-19, 2B-W-21, 2B-W-30, 2B-W-32, 2B-W-33, 2B-W-45, 2B-W-46, 3-W-41, 3-W-42, 3-W-43, MW-12, MW-17, MW-22, MW-39, and PZ-1.

through the crossing. Additionally, a railroad flagger provided by BNSF was stationed at the construction railroad crossing to alert construction personnel of train traffic. At the end of each day, gates at this construction crossing were closed and locked to prevent any unauthorized access across the railroad tracks and onto BNSF property.

4.3.5.2 Temporary Roads and Detours

Strider developed a temporary traffic control plan (TCP), as part of the 2010 Technical Execution Plan (TEP). The TCP provided described temporary road lane adjustments, detours, and road closures designed to maximize pedestrian and driver safety, while minimizing delays during construction.

Temporary detours were made during the construction to accommodate different excavation phases. 5th Street traffic to and from Highway 2 was diverted to Old Cascade Highway east of Skykomish during the bridge closure. As part of this detour, traffic signs on Highway 2 and on Old Cascade Highway were modified to notify drivers of the detour, and a temporary turning lane was added to Highway 2 at the intersection Old Cascade Highway.

Temporary traffic signage was placed on both ends of 5th Street to warn drivers and pedestrians. In addition, East and West River Drives were temporarily closed during the bridge closure. Signs were placed at both roads to notify pedestrians and drivers of the closure. Information concerning the temporary roads, closures, and detours was communicated to the Town, Ecology, and EnviroIssues through the weekly stakeholder meetings prior to the closures and detours.

4.3.6 Temporary Erosion and Sediment Controls (TESCs)

Silt fencing was installed in selected areas at the excavation boundaries. Sediment filter socks/inserts were installed in catch basins located in areas that were affected by remediation activities. A certified TESC inspector from Strider inspected these measures in accordance with the SWPPP. The TESC inspection reports are included in Appendix C. Strider repaired the silt fence and replaced sediment filter socks/inserts as necessary.

As part of the TEP, Strider prepared a Turbidity Monitoring and Mitigation Plan (TMMP) for surface water during construction. The TMMP was submitted to Ecology for review and approval prior to construction. Turbidity monitoring and mitigation was completed by AECOM and Strider during construction. TMMP implementation is described in Section 5.0.

4.3.7 Construction Water Treatment System (CWTS) Facility

The CWTS was installed by CWCS on the railyard west of the SHF prior to the commencement of construction activities. The approximate location of the CWTS is shown on Figure 3. The CWTS was operational on May 10, 2010. Water that was treated by the CWTS included that removed from excavation areas and stormwater runoff collected within the SHF area. The CWTS was operated and maintained in accordance with the *Operations and Maintenance Manual for Water Treatment System*, and monitored in accordance with the NPDES permit requirements.

The CWTS began discharge on May 25, 2010 and the final discharge occurred on October 14, 2010. A total of 9,731,753 gallons of water was treated and discharged from the CWTS during the 2010 construction season. NPDES permit-required CWTS monitoring was performed by CWCS. CWTS samples were collected by CWCS and analyzed by Fremont Analytical in Seattle, Washington. CWCS prepared system operation reports, which are included in Appendix D. These reports were used to develop discharge monitoring reports, which were submitted to Ecology. All discharges were in compliance with the NPDES permit. The CWTS was partially demobilized at the end of the construction season.

4.3.8 Clearing and Grubbing

The designated NWDZ clean overburden area was cleared, grubbed, and rough-graded prior to the excavation. FMCW and FMCE excavation areas were cleared and grubbed prior to excavation. All foliage, trees, shrubs, and organic debris removed from these areas were stockpiled for eventual chipping and offsite recycling/reuse. The approximate location of the clean overburden stockpile area is shown on Figure 3.

4.4 Surveying

True North conducted an initial land survey of the site in November 2007. The 2007 survey covered most of the remediation areas planned for 2008 and beyond. Additional surveying data was appended to the initial survey during the 2010 period, as requested by AECOM. The survey control points established by True North were used by Strider's surveyor, Inca, for locating the construction areas and site features. Strider also utilized the survey-grade global positioning system components (known as a Total Station) to locate site features in the field.

The 2010 as-built figures are based on interim survey information. A final and comprehensive as-built survey of the 2008–2011 permanent restoration features will be conducted upon completion of the 2011 remediation activities. The final survey will include the completed restoration features, e.g., roadway surfaces, sidewalks, curbs, stormwater catch basins, electrical vaults and relocated structures, etc. The final as-built survey is expected to be included in the 2011 Construction As-Built Report, which will be submitted to Ecology in draft form in March 2012.

4.5 Structure Demolition

The only structure that was demolished in 2010 was the restaurant portion of the Cascadia Inn. The restaurant area was located within the planned excavation limits. The demolition was performed in accordance with the requirements described in the Master EDR, TEP, 2010 CPS, and 2010 CMP.

Materials in the excavation footprint, including asphalt, concrete building foundations, slabs and walkways, were demolished. All construction debris was turned over to Waste Management for off-site disposal.

4.5.1 Pre-Demolition Inspection

AECOM, Strider, and EMR conducted a pre-demolition inspection of the Cascadia Inn restaurant during the first week of June 2010. The inspection included the building structure and adjacent infrastructure (asphalt paving, building foundation, basement, sidewalk, curb and gutter, street light bases, concrete slabs, existing storm pipe and catch basins, sewer lines and septic tanks, water lines and other utility appurtenances, as well as overhead power and telecommunications lines). Based on results of the pre-demolition inspection, Strider determined how to protect existing utilities and other unmarked features from damage. AECOM personnel determined a sequential pattern of disconnecting the overhead power and communications utilities. PSE and Frontier subsequently disconnected utilities.

4.5.2 Asbestos Abatement

EMR conducted an asbestos survey of the Cascadia Inn restaurant prior to the demolition. EMR identified and collected samples of suspected asbestos containing material in vinyl flooring and sub-flooring. Based on sampling results, EMR concluded that part of the flooring was potentially composed of friable asbestos that required abatement.

RW Rhine was retained by Strider to abate the Cascadia Inn restaurant asbestos containing materials. All identified and suspect asbestos containing materials were bagged and disposed offsite by RW Rhine under the supervision of EMR. Copies of the survey report and abatement/disposal records are included in Appendix E.

4.5.3 Demolition Debris Disposal

RW Rhine demolished the Cascadia Inn restaurant on June 7, 2010, after the asbestos abatement was completed. All demolition debris was loaded into trucks, signed over to Waste Management, and transported offsite for proper disposal.

4.6 Structure Relocation

The following buildings were relocated in 2010:

- Wheatley House (from 2009 temporary location to permanent location)
- BNSF Building (former General Store; from 2009 temporary location to permanent location)
- School District Community Center
- Former Opera House
- Town Maintenance Building

The Wheatley House and General Store were moved to their permanent locations in 2010 after being moved to temporary locations in 2009. The Community Center, Opera House, and Town Maintenance Building were moved to temporary locations at the start of 2010 NWDZ excavation activities, and moved back to their final permanent locations after NWDZ backfilling was completed. The structure relocation work was completed in accordance with the requirements described in the Master EDR, TEP, and CPS, as described below. The following summary lists the dates each building was moved and returned:

- Community Center moved on April 29, 2010 and returned on June 15, 2010
- Former Opera House moved on May 5, 2010 and returned on June 18, 2010
- Town Maintenance Building moved on May 7, 2010 and returned on June 16, 2010
- Wheatley House moved on August 12, 2009 and returned on June 30, 2010
- Former General Store moved on July 8, 2009 and returned on July 1, 2010

The only building which has not yet been placed at its permanent location is the Depot, which is planned to be moved in 2011 or 2012.

4.6.1 Pre-Move Inspection

Nickel Brothers (NB) completed pre-move inspections of all buildings to be relocated. The inspection was used to prepare rigging plans for each structure. These plans are included in Appendix F. As required in the CPS, Strider performed a pre-move video survey to document the pre-existing interior and exterior conditions of the buildings. In addition, Pillar and Post completed a survey of all major components of the structures prior to relocation using photographs, sketches, and notes.

4.6.2 Building Storage

After the structures were moved to their temporary locations for storage, fans and heaters were installed in the buildings to inhibit mold and mildew growth. Strider inspected the temporarily stored

buildings' interior and exterior conditions during temporary storage on a bi-weekly basis for evidence of settling, micro-fungal growth, indoor temperatures and any damage due to weather or vandalism, as well as other observations related to the condition of the buildings. The observations and documentation of the building inspections are included in the Strider daily construction reports. NB also conducted bi-monthly inspections of the stored structures. If settling was observed during the inspections, NB added additional support to address this issue. Securitas, a security monitoring firm under contract to BNSF, provided security monitoring of the buildings during the construction season on a 24-hour, seven days a week basis.

4.6.3 Hazardous Material Abatement

In 2009, EMR completed hazardous material surveys of the buildings to be relocated in 2010. The surveys identified hazardous materials, primarily lead paint and asbestos, that contractors might encounter. With the exception of the Cascadia (as described in Section 4.5.2), no hazardous materials were encountered or abated. Copies of the hazardous materials survey reports are included in Appendix E.

4.6.4 Foundation Design and Construction

All relocated structures were placed on new code compliant foundations designed by Kingworks and constructed by Strider under building permits issued by the Town. Permit copies are included in Appendix A. The new foundations were inspected and approved by the Town building inspector prior to structure replacement.

4.7 Archeological Monitoring

Archaeological monitoring was conducted during the remediation work at the Cascadia Inn property and in the NWDZ in accordance with the *Archaeological Resources Monitoring and Discovery Plan* (ARMDP; NWAA, 2010). Archaeological monitoring was performed after the building demolition or temporary relocation and prior to any excavation. The results of the 2010 archaeological monitoring will be provided in a NWAA forthcoming report titled *Results of Archaeological Monitoring, 2009-2010 Remediation in Skykomish, King County, Washington*. The report will describe the archaeological monitoring results for the 2009 and 2010 construction seasons and is scheduled to be finalized in mid-2011 under separate cover. Artifacts recovered from private properties will be returned to their respective property owners. Artifacts recovered from BNSF and public properties (e.g. Town right-of-way [ROW]) will be curated at the Burke Museum or Town of Skykomish Historical Society.

5.0 Construction Activities

The 2010 remediation scope of work included the following activities described in the 2010 EDR, 2010 CPS, FMCE SDR, and FMCW SDR:

1) Operation of treatment systems constructed in 2008/2009 and ancillary activities
2) Railyard Zone (RYZ) remediation
3) Bridge Area remediation
4) HCC barrier east end remediation and barrier wall extension
5) Cascadia Inn Property remediation
6) FMCE Wetland remediation
7) FMCW Wetland remediation
8) School Yard and Levee West End remediation
9) Continuation and/or completion of cleanup activities in the NWDZ not completed in 2009 (including the Community Center, Opera House and Town Maintenance Building property excavation)

The Levee West End remediation and the Bridge Area remediation waterward of the ordinary high water mark (OHWM), as described in the 2010 EDR, were not started in 2010 due to delays in agency processing of the JARPA. Work associated with the remediation activities listed above included building demolition and relocation, Cascadia Inn restaurant reconstruction, the School Building property test pit investigation, stormwater control system construction of FMCE and SDZ, and other utilities construction.

BNSF also conducted performance, protection, and mitigation monitoring to confirm that human health and the environment were adequately protected during construction. This section describes each of these activities in detail. Each remediation area (i.e. Bridge Area, HCC East End, etc.) is described separately. Monitoring activities are described by area, where appropriate, and separately where they are not area-specific.

BNSF submitted weekly progress reports to Ecology as required in the Consent Decree. AECOM documented activities in daily construction reports, which are included in Appendix G. Photographs showing the construction activities are included in Appendix H.

The following subsections describe the 2010 construction activities summarized above.

5.1 Excavation Overview

5.1.1 Excavation

The 2010 remediation included 1) soil sampling to characterize overburden; 2) overburden and below vertical delineation limit (VDL) excavation; 3) excavation performance sampling to determine whether the remediation level (RL) and/or cleanup level (CUL) had been achieved; 4) archaeological resource monitoring to identify and preserve culturally significant artifacts discovered; and 5) turbidity monitoring to demonstrate that excavation activities did not result in an exceedance of applicable water quality standards for turbidity in the Skykomish River and Former Maloney Creek.

Table 5-1 was adapted from Table 1 of the 2010 CAP and summarizes the applicable RLs and CULs.

Table 5-1 Soil and Sediment Remediation and Cleanup Level Concentrations

Environmental Medium: Soil	Level Type	Chemical	Concentration	Point of Compliance per the CAP	Applicability to the 2010 Remediation
	Remediation	Petroleum	3,400 mg/kg NWTPH-Dx	Off the portion of the railyard owned by BNSF to any depth, except within 25 feet south of the OHWM of the Skykomish River and within 25 feet of the Former Maloney Creek as delineated by the OHWM or the wetland boundary, where the cleanup level of 22 mg/kg NWTPH-Dx must be met to a depth of 4 feet.	Bridge Area, RYZ, and NWDZ excavations below 2 feet bgs; FMCE hot spots
	Remediation	Petroleum	1,870 mg/kg NWTPH-Dx	Soil within 2 feet of the surface	Bridge Area, RYZ, and NWDZ excavations
	Cleanup	Arsenic and Lead	20 mg/kg Arsenic (EPA 6020) 250 mg/kg Lead (EPA 6020)	Soil within 2 feet of the surface	RYZ metals excavations
	Remediation	Petroleum	8702.1 mg/kg TOC-Normalized (EPA 9060M & NWTPH-Dx)	Soil within 4 feet of the surface	FMCW

Excavation was completed in several phases to facilitate soil handling, temporary storage, and load-out. Excavation performance sampling and backfilling was typically completed for each phase before proceeding to the next phase, with the exception of the RYZ excavations, which were completed concurrently with the various other excavations, as necessary to avoid impacting railyard activities.

The excavation was performed in the following sequence:

- **Phase 1:** Five excavations
  1. 5th Street Bridge Area, landward of the abutment and OHWM
  2. West end of the NWDZ

3. Portions or all of the Town Maintenance, Opera House, and Community Center properties
4. 6th Street ROW
5. West Railroad Avenue and part of the School Property

- **Phase 2:** HCC East End and Cascadia Inn property.
- **Phase 3:** FMCE and RYZ east of 5th Street (RYZE).
- **Phase 4:** FMCW and stormwater pond excavation and the stormwater conveyance system construction

5.1.2 Backfill Materials

Backfill materials used in the excavation areas were specified in the 2010 CPS. The contractor submitted the testing results for each borrow source material for review and approval prior to importing the materials to the site to demonstrate that the proposed material met the project specifications. The contractor submittals and AECOM responses to these submittals are included in Appendix I.

5.2 Remediation Areas

5.2.1 NWDZ Excavation

The NWDZ excavation extents were included in the NWDZ CPS. NWDZ excavation was partially completed during the 2009 construction season, and the remaining remediation excavation was included in the 2010 scope of work. The 2010 excavation area was divided into north and south sections. The north section extended from the west end of the 2009 excavation to the west side of 6th Street, north to the school tennis court northern property boundary (the southern property line of the Moore Property). The south section extended from the west end of the 2009 excavation to the School Property west side of 6th street, and included the Community Center, Town Maintenance Building, and Opera House properties. The 2010 NWDZ excavation extents (both planned and actual) are shown on Figure 4.

5.2.1.1 Overburden Pre-Characterization

The 2010 NWDZ excavation area overburden pre-characterization was conducted in accordance with the procedures described in the *2010 Sampling and Analysis Plan* (SAP), which is found in the 2010 CMP as Appendix D. The sampling grid shown in Figure 4 was developed for the excavation area overburden pre-characterization. Analytical results are summarized in Table 5-2.

5.2.1.2 Below VDL Excavation

After the overburden was removed and temporarily stockpiled in the designated areas, the impacted soils below the VDL within the excavation area were excavated and transported to the SHF for off-site disposal. Performance sampling was completed as described in the SAP using the sampling grid shown in Figure 4. Analytical results are summarized in Table 5-3.

5.2.1.3 School Property Soil Investigation

As part of the ongoing school remediation investigation, Strider excavated a total of 14 test pits and AECOM and Farallon collected soil samples in July and August 2010. This investigation was described in *Additional Subsurface Investigation and Preliminary Implications for Cleanup Alternatives, Skykomish School* (Farallon 2010). Approximate test pit locations are shown on Figure 5 and analytical results are summarized in Table 5-3.

5.2.1.4 Petroleum Hydrocarbon-Impacted Soil Excavation Beyond the Planned Excavation Limits

Additional excavations were conducted beyond the proposed NWDZ excavation limits at the following four locations to remove impacted soils: 1) in the 6th Street ROW; 2) near the intersection of 6th Street and Railroad Avenue; 3) in the Railroad Avenue ROW; and 4) at the southeast corner of the School Property.

6th Street ROW

The planned NWDZ excavation extends to the west boundary of the Community Center property, as shown in the NWDZ CPS. An MSE wall was planned along the east property boundary of the 6th Street ROW. The MSE wall was intended to facilitate future excavation on the 6th Street and the school remediation. In 2010, after obtaining access to the school properties east of 6th Street, BNSF modified the planned west excavation extents to include the 6th Street ROW. This modification reduced the potential for disturbing the properties east of the 6th Street ROW during the future School Property remediation. Performance sampling was completed according to the NWDZ below VDL procedures described in the SAP. Analytical results are summarized in Table 5-3. NWTPH-Dx concentrations in west excavation sidewall performance samples (at the School Property boundary) were above the 3,400 mg/kg RL, so a plastic liner was placed along the west sidewall, and then the excavation was backfilled.

Near Intersection of 6th Street & Railroad Avenue ROW

Free product was observed in water that had collected in the excavation along the sidewall of grid cell B1 during excavation in the 6th Street ROW near the southeast corner of the School Property. Soil samples were collected from the west sidewall of cell B1. Based on sampling results and visual observations, the excavation extents were extended further west to the School Property boundary. Performance sidewall sampling indicated that NWTPH-Dx concentrations in the sidewall along the School Property boundary (sample EXV10-B1-WW) were above the 3,400 mg/kg RL. The excavation sidewall was lined with a plastic liner and then backfilled.

Railroad Avenue ROW

Free product was observed along the southern sidewalls of Railroad Avenue ROW grid cells B3 to B6 at approximately 6-10 feet bgs. Based on performance sampling results and visual observations, the excavation area was expanded further south into grid cells A3 through A6. Performance sampling confirmed that NWTPH-Dx concentrations in A3 through A6 bottom and sidewall samples were below the 3,400 mg/kg RL and the excavation was backfilled.

Southeast Corner of School Property

Based on test pit 1 and 5 sampling results, additional excavation was performed on the south side of the school building and in the Railroad Avenue ROW to remove soil with NWTPH-Dx concentrations above the 3,400 mg/kg RL. The excavation limits and elevation contours are shown in Figure 6. The excavation prism was described in the July 30, 2010 AECOM memorandum titled *Skykomish 2010 Remediation – Construction Drawings for School Property and Railroad Avenue*. A Jacobs and Associates representative was on-site during the excavation to monitor field conditions related to slope stability and settlement. Excavation was conducted to the northern extent adjacent to the school building with a setback distance of 5 feet and a maximum excavation horizontal:vertical side slope of 2:1. Performance sampling was completed according to the NWDZ below VDL procedures described in the SAP. Analytical results are summarized in Table 5-3. NWTPH-Dx concentrations in the south boundary grid cell samples (in Railroad Avenue) were below the 3,400 mg/kg RL. Concentrations in

the north boundary grid cell samples (on the School Property) were above the RL. Figure 6 shows the proposed and as-built excavation limits.

5.2.1.5 Grids Not Sampled

Sidewall performance sampling was not completed for grid cells J0 through J7. As shown on Figure 4, these cells are located along the northern NWDZ excavation boundary, adjacent to the Moore Property boundary. During the 2006 construction season, impacted soils were removed between the Moore Property boundary and the levee. An MSE wall was then constructed immediately south of the Moore Property boundary. The MSE wall extended vertically from 2 to 3 feet bgs to the bottom of the VDL. The MSE wall included cells J0 through J7. During the 2010 excavation, impacted soil on the south side of the MSE wall was excavated, such that the MSE wall formed the clean north excavation boundary. Samples were also not collected from column S3 cells, which were beyond the actual excavation limits.

5.2.1.6 Tennis Court Expansion

The tennis court, which is owned by the Skykomish School District and located north of the Community Center, was demolished during the NWDZ excavation. Through access agreement negotiations, the School District proposed and BNSF agreed that the tennis court would be restored to 60 feet by 120 feet, instead of the original dimensions of 45 feet by 120 feet. AECOM, on behalf of BNSF, stated to the School Board that an evaluation of potential drainage impacts resulting from an increase in impervious area was necessary. The School Board did not request that AECOM complete this evaluation. But the School Board did request that the Town review and approve the design before construction. The new tennis court was constructed per the Town-approved design, using a 60- by 120-foot concrete pad and surrounded by a chain link fence. The timing of the negotiation to increase the size of the tennis court has delayed final restoration to 2011, at which time the final tennis court surface layer will be installed when the ambient temperature and dry conditions meet the manufacturer recommendations.

5.2.1.7 Backfilling and Grading

The NWDZ excavations within Town ROWs were backfilled to the final grade in general accordance with, and using the materials specified in the 2010 CPS. Each NWDZ private property was backfilled to the final grade in general accordance with property-specific plans approved by the owners. In areas where field conditions required backfill elevations and grading to vary from the plans these minor variations did not impact stormwater control.

5.2.2 HCC East End Excavation and Barrier Wall Extension

Impacted material was excavated from the HCC east end to install sheet pile and extend the HCC barrier wall. Traffic control was established to close the south side of Railroad Avenue while maintaining one-way traffic on the north side of the street during excavation and sheet pile installation. A BNSF flagger was on site during the construction to monitor excavation adjacent to the mainline tracks. The planned excavation limits, the as-built excavation contours, and the sampling grid for this excavation area are shown in Figure 7.

5.2.2.1 Overburden and Below VDL Excavation

Based on previous investigations results, NWTPH-Dx concentrations in overburden were above the 1,870 mg/kg criteria for re-use. All overburden soil in this excavation area was therefore designated as impacted and removed for off-site disposal. The sampling grid shown in Figure 7 was developed for below VDL excavation performance sampling, which was completed according to procedures

described in the SAP. Analytical results are summarized in Table 5-3 and indicated that all sample NWTPH-Dx concentrations were below the 3,400 mg/kg RL.

5.2.2.2 Metals Impacted Soil Excavation

The TPH excavation removed co-located metals-impacted soils that exceeded the arsenic and/or lead CULs. Metals-impacted soils beyond the TPH excavation extents (depicted in Figure 7 as grid cells without excavation contour lines) were also excavated to a depth of 2 feet bgs. The metals impacted soil extents were based on historic investigative sampling. Performance sampling was completed according to the procedures described in the SAP. Analytical results are summarized in Table 5-4.

5.2.2.3 Metals Impacted Soil Excavation Beyond the Planned Excavation Limits

Lead and arsenic concentrations were below the applicable CUL in all samples, with the exception of arsenic concentrations in sidewall samples A5-NW, C3-SW, C4-SW, and C8-SW. These cells were over-excavated to remove impacted soil and re-sampled until lead and arsenic concentrations were below the CUL.

5.2.2.4 Grids Not Sampled

Samples were not collected from cells west of column A. These cells included only clean backfill from HCC barrier wall construction completed in 2008. TPH samples were not collected from cells B3 and C4. The TPH excavation did not include extend into these cells.

5.2.2.5 Archaeological Monitoring, Protection and Documentation

No archeological monitoring was required in this excavation area.

5.2.2.6 Sheet Pile Wall Extension

Axis Crane installed 30 PZ-35 sheet piles using a vibratory hammer to extend the HCC wall by approximately 60 feet, after the excavation was backfilled. Jacobs Associates conducted the vibration monitoring during the sheet pile installation. Details pertaining to the vibration monitoring were provided in the *Geotechnical Action Plan* (Appendix I of the 2010 CMP) prepared by Jacobs Associates. AECOM performed noise monitoring during the sheet pile installation in accordance with the *Air and Noise Monitoring Plan* (Appendix C of the 2010 CMP).

5.2.2.7 Piezometer Decommissioning and Installation

Piezometer PZ-1 was decommissioned by Cascade Drilling prior to the HCC East End excavation. The PZ-1 vault was subsequently removed. Replacement Piezometer PZ-1A was constructed after the HCC wall extension was completed. The location of PZ-1A is shown on Figure 7. Decommissioning records and boring logs are included in Appendix B. The electrical appurtenances for PZ-1A were assembled in the HCC treatment building and connected into the programmable logic control system.

5.2.2.8 Recovery Well Installation

Recovery well RW-9 was installed by Cascade Drilling near the east end of the HCC wall extension to aid in controlling groundwater gradient through the east gate vault. The electrical appurtenances for RW-9 were assembled in the HCC treatment building and connected to the computer monitoring system.

5.2.2.9 Backfilling and Grading

The HCC east end excavation was backfilled to the final grade in general accordance with, and using the materials specified in the 2010 CPS. In areas where field conditions required backfill elevations and grading to vary from the plans these minor variations did not impact stormwater control.

5.2.3 Cascadia Inn Property

The Cascadia Inn Property remediation involved excavation pre-characterization, temporary shoring, excavation performance sampling, and backfilling. After the restaurant portion of the Cascadia Inn property was demolished and cleared, excavation was conducted to remove overburden and impacted soil. The final excavation extents were generally within the pre-existing restaurant footprint and in a small area underneath the hotel. Part of Railroad Avenue ROW was also excavated to remove impacted materials. The planned and as-built excavation limits are shown in Figure 8.

5.2.3.1 Overburden Pre-Characterization

Overburden within the Cascadia Inn Property excavation area was pre-characterized prior to excavation. Overburden sampling and analysis was completed as described in the 2010 SAP. Analytical results are summarized in Table 5-2 and indicated that all sample NWTPH-Dx concentrations were below the 1,870 mg/kg re-use criteria.

5.2.3.2 Below VDL Excavation

Below VDL excavation performance sampling was completed using the sampling grid shown in Figure 8 and as described in the SAP. Analytical results are summarized in Table 5-3 and indicated that all NWTPH-Dx concentrations were below the 3,400 mg/kg RL.

5.2.3.3 Grid Cells Not Sampled

Excavation performance samples were not collected from the following grid cells due to the stated field conditions:

- **A1, B1, and C1 –** These grid cells included only clean backfill and part of an MSE. No bottom or west sidewall samples were therefore collected.
- **B4, C4, and D4 –** Only minor shallow excavation was completed in these grid cells, as necessary to excavate soil from the adjacent B3, C3, and D3 cells. Sidewall samples were not collected from cells B4, C4, and D4 because these cells were in the planned side slope of the excavation, none of them involved the excavation bottom, and NWTPH-Dx concentrations in east sidewall samples collected from cells B3, C3 and D3 were very low (ND to 100 mg/kg).

5.2.3.4 Archaeological Monitoring, Protection and Documentation

Archaeological monitoring, protection, and documentation were performed in the NWDZ excavation area in accordance with the ARMDP. Artifacts will be handled and reporting will be completed as described in Section 4.7.

5.2.3.5 Backfilling and Grading

The Cascadia Inn property excavation was backfilled to the final grade in general accordance with property-specific plans approved by the owners. In areas where field conditions required backfill elevations and grading to vary from the plans these minor variations did not impact stormwater control.

5.2.4 Bridge Area

The Bridge Area includes both upland (above the OHWM) and in-water (below the OHWM) excavation areas, as shown on Figure 9. The Bridge Area remediation required a WSDOT-issued permit for construction activities around the bridge abutment and impacts to bridge traffic, and receipt of an in-water excavation permit for work completed below the OHWM. A copy of the WSDOT permit is included in Appendix A. A JARPA was submitted in 2009, but the in-water excavation permit was not issued by USACE during the 2010 construction season. Only upland remediation work was completed in 2010. The as-built area of the 2010 excavation is shown on Figure 9.

Prior to the excavation, AECOM submitted a technical memorandum to WSDOT for the proposed excavation and restoration of the levee area that was affected by the remediation activities. A copy of the memorandum is included in Appendix J. The excavation limits (both planned and actual) for this excavation are shown in Figure 9.

Excavation performance sampling was completed in accordance with the 2010 SAP and as described in Section 5.1.2. Analytical results are summarized in Table 5-3.

5.2.4.1 Overburden Pre-Characterization

Overburden sampling was completed using the sampling grid shown in Figure 9 and as described in the SAP. Analytical results are summarized in Table 5-2 and indicated that all NWTPH-Dx concentrations were below the 1,870 mg/kg re-use criteria.

5.2.4.2 Below VDL Excavation

Below VDL excavation performance sampling was completed using the grid shown in Figure 9 and as described in the SAP. Analytical results are summarized in Table 5-3 and indicated that all but four samples, which were collected from grid cells S11, S12, S13, and P17, had NWTPH-Dx concentrations below the 3,400 mg/kg RL.

5.2.4.3 Bridge Abutment Sampling and Backfill

Sample EXV10-S11-NW was collected from the grid cell S11 north wall and samples EXV10-S12-abutment, and EXV10-S13-abutment were collected from cells S12 and S13, respectively, on the north side of the bridge abutment. All of these samples were collected upland of the 25-foot buffer. A liner was placed between the impacted soils left in place near the abutment, and the excavation was backfilled as described in the September 2, 2010 CRETE memorandum included in Appendix J.

5.2.4.4 Additional Excavation Beyond the Planned Limits

Excavation was expanded into cells R17 and S17 on the Sky River Inn property and East River Drive to remove visually TPH impacted soil observed in the sidewalls of cells R16 and S16 at approximately 8-10 feet bgs.

Excavation was expanded to approximately 15 feet east of the planned excavation limits to remove visually TPH -impacted soil observed in the cell Q17 sidewall at approximately 8-10 feet bgs. The excavation included part of the Baggenstos property. Access was obtained prior to excavating soil on the Baggenstos property.

Sidewall and bottom performance sampling in the expanded excavation confirmed that NWTPH-Dx concentrations were below the 3,400 mg/kg RL, and the excavations were backfilled.

5.2.4.5 Grids Not Sampled

Samples were not collected from cells R18 and S18. These cells formed a small part of the east boundary side slope and bordered clean east side slope samples collected in cells R17 and S17, respectively.

Samples were not collected from cells O16, O17, and O18, or from cells in rows M and N. These cells contained only clean backfill placed in 2009.

5.2.4.6 MSE Wall Construction

An MSE wall, designed by Jacobs Associates, was constructed along the south side of the levee, as shown on Figure 9. The MSE wall is intended to provide shoring for future river area excavation. A portion of the levee that was removed during this excavation was backfilled to the pre-existing grade.

5.2.4.7 Archaeological Monitoring, Protection and Documentation

Archaeological monitoring, protection, and documentation were performed in this excavation area in accordance with the ARMDP.

5.2.4.8 Backfilling and Grading

The Bridge Area excavation within the Town ROW was backfilled to the final grade in general accordance with, and using the materials specified in the 2010 CPS. Private properties were backfilled to the final grade in general accordance with property-specific plans approved by the owners. In areas where field conditions required backfill elevations and grading to vary from the plans these minor variations did not impact stormwater control.

5.2.5 Former Maloney Creek East (FMCE) Wetland

Four TPH “hot spots” identified in the 2010 CPS Alternative Remediation approach described in the 2010 EDR and FMCE SDR were excavated. All four hot-spot excavations were performed generally within the planned excavation limits with minor additional excavation in some of the areas, as described in the following paragraph. Additional excavations were conducted to remove the impacted materials beyond the planned excavation limits. The excavation limits (both planned and actual) and the associated gridlines for this excavation are shown in Figure 10.

5.2.5.1 TPH Excavation

Previous investigations concluded that overburden was TPH-impacted at concentrations above the 1,870 NWTPH-Dx re-use criteria. Therefore, all hot spot overburden soil was designated as impacted and was excavated and stockpiled for disposal. Below VDL excavation performance sampling was completed using the sampling grid shown in Figure 10 and as described in the SAP. Analytical results are summarized in Table 5-3 and indicated that all NWTPH-Dx concentrations were below the 3,400 mg/kg RL in all but four locations.

5.2.5.2 Petroleum Hydrocarbon-Impacted Soil Excavation Beyond Planned Excavation Limits

Five locations were over-excavated due to visual observations or performance sampling results. These locations included 1) the four planned “hot spot” excavations; and 2) part of the northern hot spot located at the FMCE/RYZ boundary. The four hot spots and the part of the northern hot spot within the FMCE were excavated and re-sampled until NWTPH-Dx concentrations were below the 3,400 mg/kg RL.

5.2.6 Robinson Property Soil Investigation

Strider excavated five test pits east of the Robinson property garage to evaluate potential TPH impacts in the near vicinity of the eastern FMCZ TPH hot spot. AECOM collected two soil samples were collected from each test pit: one from each west wall at 3 feet bgs and one from each pit bottom, at approximately 6 feet bgs. Approximate test pit locations are shown on Figure 10 and analytical results are summarized in Table 5-3. All concentrations were below the SDZ RL of 3,400 mg/kg NWTPH-Dx.

5.2.6.1 Archaeological Monitoring, Protection and Documentation

No archeological monitoring was required in this excavation area.

5.2.6.2 Backfilling and Grading

BNSF property excavation within the FMCE was partially backfilled using the materials specified in the 2010 CPS. Backfill will be placed to final grade during 2011 construction activities. Post-construction surveying will confirm that backfill was completed in accordance with the CPS.

The excavation on the Scisco Property was backfilled using the materials specified in the 2010 CPS. Additional fill (beyond the quantity shown in the CPS) was placed on the property. This fill will be removed in 2011. Post-construction surveying in 2011 will confirm that backfilling is completed in accordance with the CPS.

The excavation on the Robinson Property was backfilled using the materials specified in the 2010 CPS. Post-construction surveying will confirm that backfilling was completed in accordance with the CPS.

5.2.7 Former Maloney Creek West (FMCW) Wetland

The FMCW remediation was performed under the in-water excavation permit issued by USACE, and the Hydraulic Project Approval issued by WDFW. Site preparation activities were conducted before the excavation. Some of the key preparation activities included:

- AECOM personnel constructed up- and down-gradient fishnets to prevent fish from entering the construction area. The nets were made of small diameter metal mesh and were constructed as described in the *Former Maloney Creek Wetlands Biological Evaluation* (AECOM 2010e).
- Fish located within the contained area were electro-shocked, collected, classified according to species and length, and ultimately released into Maloney Creek, in accordance with the process described in the *Former Maloney Creek Wetlands Biological Evaluation*. A total of 86 Coho salmon and 1 rainbow trout were collected from within the construction area. Two Coho salmon mortalities were observed.
- Following the removal of fish species and prior to excavation, a series of cofferdams were installed within and around FMCW. Cofferdam locations are shown on Figure 11.
  - Cofferdam #1: Located upgradient of the excavation area, but below the up-gradient fishnet. The purpose of this cofferdam was to prevent water from FMCW to enter the work area.
  - Cofferdam #2: Located immediately down-gradient of the work area and was used to prevent water from migrating beyond the work area and into Maloney Creek.

  - Cofferdam #3: Located in the farthest down-gradient position and was used as a stop-gap measure for any potential turbid or TPH-impacted water from entering Maloney Creek, if high water overwhelmed Cofferdam #2.
  - Cofferdam #4: Installed in a side-gradient position that ran from Cofferdam #1 to Cofferdam #2. The purpose of this cofferdam was to prevent water from entering the work area from the rest of FMCW in a side-gradient direction.
  - Each cofferdam was constructed with large sacks of clean soil placed up against each other. A plastic liner was placed over all of the sacks to create a watertight seal.
- Several pumps were installed at various locations within the FMCW work area to support the cofferdams. The purpose of the pumps was to help control surface water in the work area to allow for impacted soil excavation and wetland restoration.

5.2.7.1 Overburden and TPH Excavation

Previous investigations concluded that overburden NWTPH-Dx concentrations in this area were above the 1,870 mg/kg re-use criteria. All overburden soil in this area was therefore designated as impacted and was excavated and stockpiled for disposal.

Below VDL excavation performance sampling was completed using the grid shown in Figure 11 and as described in the SAP. Analytical results are summarized in Table 5-5 and indicated that all samples collected from within the planned excavation limits had NWTPH-Dx concentrations below the 8,702.1 mg/kg TOC-normalized (TOC-n) RL, with the exception of those described in Section 5.2.7.2. The excavation limits (both planned and actual) and the associated gridlines for this excavation are shown in Figure 11.

5.2.7.2 Petroleum Hydrocarbon-Impacted Soil Excavation

TOC-n TPH concentration exceeded the TOC-n RL in A14-EW, B14-EW, C14-B, C14-EW, D13-WW, D13-B, D14-EW, D14-B, E13-NW, E13-B, E14-EW, E14-B, F15-B, G6-B, G9-B, G12-B, G16-B, H5-B, H5-WW, H5-SW, H6-B, H10-B, H11-B, H13-SW and H16-SW samples. Samples designated -NW, -SW, -EW, and -WW were collected from north, south, east, and west grid cell sidewalls, respectively. Samples designated -B were collected from grid cell bottoms. These cells were over-excavated and re-sampled. Excavation was also extended into cells G5 and H5. The final performance sampling results confirmed that all of the grid cell NWTPH-Dx concentrations were below the TOC-n RL.

Two corrections to the original analytical reports were made due to laboratory errors:

- The analytical results for samples F19-NW and H16-SW were inadvertently switched by the laboratory and provided to AECOM during the excavation. The error was discovered and sample F19-NW was re-extracted and re-analyzed. The analytical results are summarized in Table 5-5. Additional excavation was conducted at cell H16 until performance sampling results met the TOC modified RL.
- Sample H5-WW was initially reported to contain unusually high TPH concentration. Analyses, which were re-run to confirm the concentrations, indicated lower concentrations than what was initially reported, as shown in Table 5-5.

5.2.7.3 Archaeological Monitoring, Protection and Documentation

No archaeological monitoring was required for this area.

5.2.7.4 5th Street Culvert Lining

A cured in-place pipe was installed at the existing 5th Street culvert on Old Cascade Highway by Michaels Construction. Prior to the installation, Strider conducted a video inspection of the existing culvert to determine the conditions of the culvert. The culvert was determined to be suitable for the cured in-place pipe installation. A copy of the video inspection and installation testing results are provided in Strider's Contractor Submittals, included in Appendix I (Submittals #27 and #27A).

5.2.7.5 Backfilling and Grading

The FMCW excavation was backfilled to the final grade in general accordance with the 2010 CPS. In areas where field conditions required backfill elevations and grading to vary from the plans, these minor variations did not impact stormwater control. The excavation was backfilled with the materials specified in the 2010 CPS. Specific backfill materials for the wetland and upland zones in FMCW were placed based on the wetland restoration plans with the following exceptions:

- An alternate SBL was installed in lieu of the clay loam and silty clay loam backfill material (Zone A Backfill). The SBL was described as an alternate method, and constructed in accordance with the specifications provided in the 2010 CPS. Prior to the field activities, laboratory permeability testing was conducted to determine the bentonite application rate to achieve the required maximum hydraulic conductivity of 1×10^{-6} centimeters per second (cm/sec). Strider retained HWA Geoscience, Inc. to provide a third-party inspector for construction quality assurance and control (QA/QC) during the field SBL installation. A representative of HWA Geoscience, Inc. was on site to assist Strider in preparing the SBL mixture and to ensure proper mixing procedure. The SBL mixture was prepared in batches and was transported to the FMCW for installation. The SBL was placed in the pre-staked areas and compacted with the excavator bucket. Field density was measured by a HWA Geoscience, Inc. representative to ensure the compaction meet the minimum compaction requirement. A copy of the testing report prepared by HWA Geoscience, Inc. is included in Appendix K.
- An additional layer of backfill material (i.e., riverbed fill material) was placed in parts of Zone A to provide additional erosion and sediment control. The approximate extent of the additional backfill is shown on Figure 12. The river bed fill material consisted of primarily washed cobbles and met the grading requirements of Skykomish River Bed Fill Material specified in the 2010 CPS.
- An additional erosion control blanket (North American Green S150BN) was installed in the FMCW upland area to provide additional erosion protection of the slope areas. The approximate extent of the erosion control blanket is shown on Figure 12.

5.2.7.6 Wetland Restoration

Planting and wetland features were installed in accordance with the wetland restoration plans in the 2010 CPS. An AECOM biologist was on site to oversee the planting and verify that the wetland restoration was performed per the design plans.

5.2.8 Railyard Zone Excavation

The RYZ remediation consisted of excavating several metals-impacted soil areas to a depth of 2 feet bgs, and excavating several areas to remove TPH-impacted soil (depth varies) throughout the railyard, as shown in the 2010 CPS. During the 2010 construction season, the RYZW metals areas (designated 1 through 4 on Figure 13) were excavated and backfilled to the final grade. Additionally, three shallow metals excavation areas in the RYZE adjacent to the library and east of 5th Street were

excavated and backfilled to the final grade. The as-built excavation contours are shown on Figure 14. One deep TPH excavation occurred in RYZE, in an area adjacent to the construction trailers. The remaining RYZE shallow and deep TPH-impacted soil excavation areas are scheduled to be completed after 2010.

5.2.8.1 Metals Excavation Performance Monitoring and Additional Excavation

Metals excavation performance sampling was completed using the sampling grid shown in Figure 13 and as described in the SAP. Analytical results are summarized in Table 5-4. Grid cells were over-excavated to remove additional soil with lead and/or arsenic concentrations exceeding CULs where no obstructions were present (e.g., railroad tracks, buildings). Over-excavation was terminated in areas where obstructions occurred and advancement became impossible. The arsenic concentration in the sample collected from the west wall of RYZW Excavation Area 2, grid cell B000' (sample ME10-RYZW-EA2-B000'-WW) is above the CUL. In this circumstance, additional westward over-excavation was not completed. Additional excavation or other measures will be taken to address this area during the 2011 construction season. The third RYZE metals hot spot, which includes grid cells C3 and D3, underlies the CWTS and will be excavated after the system is demobilized.

5.2.8.2 RYZ/FMCE Hot-Spot Excavation

As described in Section 5.2.5.2, part of the northern free product hot spot located at the RYZ/FMCE boundary was excavated in 2010. Performance sampling results are summarized in Table 5-3. A plastic liner was placed along the north excavation sidewalls to provide a barrier between the clean backfill and the existing impacted soils prior to backfilling. No liner was placed on the west sidewall in order not to impede groundwater movement; groundwater generally flows in a northwesterly direction.

5.2.8.3 Archaeological Monitoring, Protection and Documentation

Archaeological monitoring was not required for this excavation area.

5.3 Stormwater Control System Construction

A stormwater control system consisting of a stormwater pond, catch basins/manholes, and stormwater conveyance piping system were constructed as part of the FMCE Alternate Remedy, which was implemented as described earlier in Section 5.4.5. After the FMCE hot-spots were excavated and backfilled, the stormwater piping was installed in accordance with the 2010 CPS. The primary and secondary piping systems were connected to the 5th Street culvert which discharges the stormwater to the FMCW. The stormwater pond construction details were modified during the construction to address the impacted materials encountered during the excavation of the basin area.

5.3.1 Stormwater Pond Construction

The stormwater pond design described in the 2010 CPS was modified prior to construction to include a bottom liner system, as described in FMCE SDR Addendum #2. The modification was initiated by BNSF to address potential TPH impacts (less than 3,400 mg/kg NWTPH-Dx) to the pond water resulting from direct contact with the soil underlying the pond. The modification included raising the pond bottom elevation to above the field observed seasonal high groundwater elevation and installing a geomembrane liner system at the pond bottom. The modified stormwater pond layout is shown on Figure 15. As shown, the pond footprint was expanded due to the raised pond bottom elevation in order to adjust for the storage volume change.

Overburden and VDL soil sampling was performed before and during the excavation in accordance with the general procedures described in the SAP. The overburden sampling analytical results are summarized in Table 5-2 and below VDL sampling results are summarized in Table 5-3.

Buried concrete, wood, metal, and other industrial debris were encountered during the pond excavation. This debris was removed and disposed as CDW. TPH impacted soil was encountered along the north excavation sidewall near the remediation equipment building in grid cell B41. Additional excavation was conducted to remove the impacted soil from the north wall to the extent practical without compromising the stability of the HCC remediation building. The linear low-density polyethylene liner was installed by ACF West, Inc., of Woodinville, Washington. All supporting documentation regarding the liner material, installation process, and construction QA/QC are included in Appendix L.

5.3.2 Archaeological Monitoring, Protection and Documentation

No archaeological monitoring was required for this area.

5.3.3 Stormwater Piping Construction

The stormwater piping system was constructed in accordance with the 2010 CPS. The piping system layout is shown in Figure 16.

In order to provide additional protection around the stormwater line where the storm pipes were installed near impacted soil, BNSF installed additional protective features during the pipe installation. These protections included the following general features:

- Sealing the pipe joints with WrapidSeal™
- Sealing areas near and around manholes
- Sealing permeable backfill around the pipe

More specifically, the seal protection was installed at the following locations: 1) from Catch Basin #2 to #4 of the primary pipeline and a trench cutoff by #2; 2) at CB #3 and CB #4; and 3) from CB #7 to just before CB #8 of the secondary pipeline and a cutoff by #7. The cutoff was constructed of cast-in-place controlled density fill with a maximum compressive strength of 150 pounds per square inch. The cutoff was continuous around the pipe/manhole/catch basin in order to provide a complete seal on the pipe or structure and was placed up to an elevation equal to the crown elevation of the primary pipeline and up to elevation 930 feet above mean sea level on the secondary pipeline. Controlled density fill is not required to be placed below the structures in question since the structure bottom sections are solid, one-piece construction.

All supporting documentation regarding the FMCE upland stormwater system is contained in Appendix M.

5.4 HCC Operation and Expansion

The HCC system construction was largely completed in 2008 and is described in the *2008 Skykomish Remediation – As-Built Completion Report* AECOM 2008). End well EW-1, four gate wells (GW-1 through GW-4), two recovery wells (RW-7 and RW-8), and related appurtenances were installed in 2009. The HCC system went online on January 15, 2009. The operation of the HCC system in 2010, from January 1, 2010 to December 31, 2010, is described in the *Draft Annual Hydraulic, Containment and Control System Operations Report – 2010* (AECOM 2011a). As described earlier in this report, the 2010 construction activities included excavation of impacted materials and sheetpile installation to extend the HCC barrier wall further east.

5.5 Air Sparging System Operation

The air sparging system has been in operation since 2009. Operation and monitoring data from the 2010 operation were presented in the *Draft 2010 Annual Air Sparging System Report* (AECOM 2011b).

5.6 Site Restoration

5.6.1 General Site Restoration

The site restoration was conducted based on the scope and features described in the 2010 CPS. Generally, the private properties that were relocated in the NWDZ remediation area were fully restored and returned to the property owners in accordance with the access agreements conditions. Within the Town public ROW properties, public utilities (i.e., potable water, electrical, telecommunications, drainage and sewer) were constructed and restored, while the sidewalks and pavement were temporarily restored (i.e., winterized) prior to the contractor demobilization. The final ROW restoration is expected to be completed in 2011. The general scope of the 2010 site restoration included the following:

- Backfilling and grading of the excavated areas.
- Construction of stormwater sewer system.
- Installation of water main components.
- Construction of new building foundations for the Community Center, Maintenance Building, Opera House, Stove Shop, Cascadia Restaurant, Wheatley House and Forrest Service Building Number 1341.
- Construction of new septic holding tanks and related appurtenances for the Community Center, Maintenance Building, Opera House, Stove Shop, and Wheatley House.
- Moving buildings back to their new foundations.
- Restoring electrical and communication utilities services.
- Existing roads within the excavation area were temporarily paved with asphalt treated base.
- Replacement of the original septic tanks for the relocated structures by connecting to the Town sewage treatment system designed by Gray & Osborne. The replacement sanitary sewer system consists of individual septic tanks and sewer lines. The septic tanks are designed to collect solid wastes from the businesses and houses while the sewer lines are designed to convey the liquid waste component to the Town lift station located at the west end of Railroad Avenue. All applicable permits are contained in Appendix A and the as-built drawings are provided in the figures and Appendix N.

5.6.2 Underground Utilities

The utilities restoration for the Community Center, Maintenance Building, Stove Shop, and Wheatley House involved converting the pre-existing above-ground overhead electrical power and phone lines to underground utilities. The underground utilities restoration involved construction of the joint utility trench (JUT) in the public ROW, installation of conduit from the JUT to each building on the restored properties, inspection by the Washington Department of Labor and Industries, installation of electrical panel (where necessary), and final testing and inspection. Frontier Communications also installed conduit from the JUT to each building and restored the telecommunications connection to pre-existing conditions.

5.6.3 Structure Restoration

The structures that were moved back to their respective properties in 2010 included Community Center, Maintenance Building, Stove Shop, Opera House, Wheatley House, and Forrest Service Building Number 1341. New foundations were constructed for each structure at their pre-existing locations. The new foundations were designed by the Strider structural engineer and approved by the Town. A copy of the building permit for each structure is included in Appendix A. The new foundations were designed and constructed to meet the current applicable building codes. All connections between the structures and the new foundations were performed by the contractor. Repairs to the existing structures (e.g., rotted rim and floor joists) were also performed by the contractor to the extent necessary to establish connection to the new foundations. Other restoration activities included connections of utilities, driveways, walkways, patios, and sidewalks, etc.

5.7 Laboratory Analysis, Reporting and Data Validation

During the 2010 remediation, the overburden pre-characterization samples were analyzed for NWTPH-Dx by the TestAmerica laboratory in Tacoma, Washington, or at their on-site laboratory in Skykomish. All NWTPH-Dx performance samples were analyzed for NWTPH-Dx by the TestAmerica on-site laboratory. Metals and TOC analyses were completed by TestAmerica laboratory in Tacoma. Upon receiving the preliminary laboratory reports, the analytical results were posted on the VPM website within 24 hours of receipt.

The excavation backfilling was performed after preliminary review of the laboratory analytical results. The data provided to Ecology for approval of backfilling were subsequently reviewed to ensure that the QA/QC criteria established in the 2010 SAP were satisfied. Level III data validation using standard EPA-approved procedures was performed and a copy of the report is included in Appendix O. The laboratory reports for the overburden and performance excavation samples are included in Appendix P.

5.8 Overburden and Impacted Materials Stockpiling

The materials that were temporarily stockpiled on-site during the construction season included the pre-characterized clean overburden and the excavated impacted materials. The pre-characterized overburden was stockpiled in the designated area adjacent to the HCC remediation building, while the excavated impacted materials were stockpiled in the SHF.

5.8.1 Clean Overburden Material Stockpile

As described earlier in the report, some of the overburden in the remediation areas was pre-characterized prior to the excavation of impacted materials. Clean overburden (overburden with NWTPH-Dx below 1,870 mg/kg) was generally reused as backfill materials. Overburden with NWTPH-Dx concentrations at or above 1,870 mg/kg was designated as “impacted.” The clean overburden was hauled to the clean stockpile area in off-road trucks. The trucks were decontaminated at the on-site decon area prior to hauling any non-impacted material. As part of the site temporary erosion and sediment controls plan, silt fence was installed around the stockpile area and weekly TESC inspections were conducted to ensure the stockpiled material was fully contained within the designated area.

5.8.2 Impacted Material Stockpile

All the impacted materials generated during the 2010 construction season were stockpiled in the SHF. The impacted materials generally included the following sources:

- Overburden with NWTPH-Dx concentrations at or above 1,870 mg/kg, and/or the overburden containing visible staining, burn-zone material or other debris unsuitable as backfill
- Soils excavated below the VDL
- Soils excavated from FMCE and FMCW remediation areas
- Soils excavated from the designated shallow metals-impacted areas

The impacted materials were transported using off-road dump trucks to the SHF. The trucks used the construction crossing to access the SHF to minimize the impact to local traffic. The construction crossing was monitored by the contractor during the designated work hours and access was closed to the public at all times.

5.9 Stockpiled Impacted Soils Handling and Disposal

The stockpiled impacted soils in the SHF were loaded directly onto railcars and transported off-site to the waste disposal facility. When the stockpiled soils contained water in excess of that suitable for railcars, the soils were gravity drained to the extent practicable. In the event that the soils could not be drained in a timely manner, the contractor installed liners in the railcars prior to loading the soils. Any water drained from the stockpile was collected and pumped to the on-site CWTS for treatment.

The stockpiled soils were loaded onto the railcars using a front end loader with an on-board scale. The on-board scale was certified prior to use at the site. The scale provided soil load-out weight and assisted the contractor in meeting weight limitations of the railcars. The railcar loading activities were typically performed five days per week. Approximately 1,000 tons of impacted soils were transported offsite to the disposal facility per week. The total disposal quantity for the 2010 construction season was 117,000 tons.

5.10 Oil Recovery

The free product encountered during the excavation was recovered by the contractor's subcontractor MARVAC. In addition to the oil recovery, MARVAC also provided oil control during the excavation activities. Containment booms and water were used to isolate and prevent the floating oil from re-contaminating clean backfill. The floating oil product was collected from the excavation area using a vacuum truck hose. The floating oil/water mixture collected in the vacuum truck was pumped into on-site Baker tanks. An oil/water separator installed in the Baker tanks separated the floating oil and water in the tank. The collected oil was delivered to an oil recycling facility. The remaining water in the tanks was delivered to the on-site CWTS for treatment and discharge per the NPDES permit. Approximately 55,000 gallons of oil were recovered and sent to the disposal/recycling facility. Disposal records were provided in Strider daily construction reports.

5.11 Bird Control

Mylar tape was installed along the perimeter fencing to keep waterfowl and other birds from flying into the open excavations and coming in contact with floating Bunker C or diesel. The Mylar tape provided a visible and audible deterrent to the birds. In addition to the Mylar tape, several 18-inch owl predator decoys were placed and moved throughout the excavation during times when open water was present.

5.12 Surface Water and Turbidity Monitoring

Surface water and turbidity monitoring was performed during the 2010 construction season in accordance with the TMMP, which was included in the TEP. The purpose of the TMMP was to provide

guidelines concerning observation and mitigation for any effects to surface water conditions in the South Fork Skykomish River and FMCW that might have been caused by construction activities.

Surface water monitoring activities included the following:

- Daily visual observations of water in the South Fork of the Skykomish River for turbidity impacts that resulted from construction activities
- Weekly turbidity sampling of Skykomish River
- Multiple daily visual monitoring and turbidity sampling of FMCW during construction activities.

A discussion of surface water monitoring and applicable action limits is presented in Section 5.14 of the 2010 CMP and in the TMMP. Visual monitoring was performed by inspecting the riverbank from the 3rd Street outfall westward to the 6th Street stormwater outfall location north of the Shawver residence. Turbidity samples of the South Fork of the Skykomish River were collected just downstream or west of the 5th Street Bridge. Turbidity sampling for FMCW was performed 300 feet upstream and 300 feet downstream of the daily construction activity. A turbidity meter was used and the turbidity readings were recorded in the field notes. The turbidity data for Skykomish River and FMCW are summarized in Table 5-6 and Table 5-7. As shown in the tables, no impacts above the action limits described in the TMMP were observed during the 2010 construction season.

5.13 Groundwater Monitoring

Site-wide groundwater monitoring was completed in accordance with GWMP and will be described in the forthcoming *2010 Annual Site-Wide Groundwater Monitoring Report* (AECOM 2011c).

5.14 Archaeological Monitoring, Protection and Documentation

Archeological monitoring was performed by NWAA from May 3, 2010 to June 21, 2010, in accordance with the ARMDP. Artifacts will be handled and reporting will be completed as described in Section 4.7.

5.15 Field Compaction Testing

Field density testing of the backfill materials (with the exception of FMCW) was conducted by Geo Test Services, Inc. of Bellingham, Washington. A representative of the licensed material testing firm was on site to observe the backfilling operation and field verify the densities of the compacted backfill materials. A copy of the compaction reports is included in Appendix K. As shown, all the compaction achieved greater than or equal to 95% maximum dry density (ASTM D-1557), as specified in the 2010 CPS.

Field density testing of the FMCW backfill material soil bentonite liner (SBL) was conducted by HWA Geoscience, Inc., as described in Section 5.2.6.5.

5.16 Protection Monitoring

5.16.1 Air Monitoring

Air monitoring was performed by Argus in accordance with the Skykomish AMP (Argus Pacific 2010), and documented in weekly Air and Noise Monitoring reports that were submitted to AECOM. These reports were posted on the VPM website for Ecology, BNSF and other interested parties to view. Copies of these reports are included in Appendix Q.

5.16.2 Noise Monitoring

Noise monitoring was performed by Argus and AECOM in accordance with the AMP. Monitoring results were presented in the weekly Air and Noise Monitoring reports and submitted to AECOM. These reports were posted on the VPM website. Copies of these reports are included in Appendix Q.

5.16.3 Weather Monitoring

Monitoring of weather conditions was performed in accordance with the AMP and the NPDES permit. A weather station was set up on the roof of the HCC treatment building, south of Railroad Avenue and the SHF. Weather data, including temperature, wind direction and speed, and precipitation were monitored continuously and downloaded periodically from the station, which was located in the AECOM trailer. These data are included in Appendix R.

6.0 Work to Be Completed After 2010

This section describes remediation activities which were described in the NWDZ CPS, but were either not completed during the 2010 construction season or were re-scheduled to be completed after the 2010 construction season. Table 6-1 summarizes these activities and indicates the construction year during which they are likely to be completed. Future as-built reports will describe completion of these activities.

6.1 HCC Operation

The HCC system is operated on a 24-hour basis, 7 days a week. At this time, there is not a completion date of HCC activities and a subsequent shutdown date. The annual HCC system operations report covering the period from January 1, 2010 until December 31, 2010 was submitted in draft form on February 18, 2011.

6.2 Air Sparging System Operation

The air sparging system is operated on a 24-hour basis, 7 days a week. At this time, there is not a completion date of air sparging activities and a subsequent shutdown date. The annual air sparging system operations report covering the period from January 1, 2010 until December 31, 2010 was submitted in draft form on February 4, 2011.

6.3 Bridge Area Excavation

Excavation in the area south of the bridge abutment was completed during the 2010 construction season (see Section 5.6). The remediation area north of the bridge abutment, including the levee and part of the river, is expected to be completed in 2011. The 2011 in-water area remediation will require the issuance of an in-water permit. A plastic liner has been installed across the north excavation face to prevent cross-contamination of clean backfill in the upland area.

6.4 Levee West End

Due to a delay in the permitting process, the levee west end remediation was not completed in 2010. The scope of the remediation could be modified pending the access agreement between the school and BNSF. As a result, upland, buffer, potential in-water excavation is scheduled to commence during the 2011 construction season. It was determined that the upland excavation should occur at the same time as the buffer and in-water excavation; therefore, the upland excavation has also been re-scheduled to begin in the 2011 construction season.

6.5 School Remediation

Alternative remediation options for impacts underneath the school are currently being evaluated. Access agreement negotiations for the School Property have not been completed. The School Property remediation schedule has not yet been set.

6.6 Building Relocation

6.6.1 Depot

Depot relocation was not completed during the 2010 construction season. The final placement of the Depot is currently under consideration by BNSF with a potential move occurring in 2011 or 2012.

6.7 Utility and Town Restoration

Substantial restoration was completed in the 2010 construction season; however, with continued excavations planned for 2011, final restoration will need to be completed pending property access and the subsequent remediation remedies as described in the CAP. Permanent sewer, water, and electrical utilities will continue to be installed as excavations progress. Final permanent roadways, sidewalks, and plantings are anticipated to be completed in 2011.

Table 6-1 Work Not Completed in 2010

Activity	Work Summary	Year to be Completed	
		2011	2012
HCC System Operation	System compliance monitoring, operations and maintenance.	X[1]	X[1]
Air Sparging System Operation	System compliance monitoring, operations and maintenance.	X[2]	X[2]
Bridge Area Excavation	Cofferdam installation/removal, TPH-impacted soil removal below the OHWM, backfill, and river restoration.	X[3]	
Levee West End	Cofferdam installation/removal, TPH-impacted soil removal, backfill and river restoration.	X[4]	
RYZW Metals Excavation	Complete metals excavations started in 2010.	X	
RYZE Metals and TPH Excavation	Complete TPH excavations started in 2010.	X	
School Excavation	Assist Farallon in the remedial efforts on the School Property.	X[5]	X[5]
Building Relocation	Relocating Depot.	X[6]	X[6]
Utility and Town Restoration	Complete permanent ground surface curb gutter and sidewalk restoration, street paving and surface restoration.	X[7]	

Notes:

The schedule presented in Table 6-1 is preliminary and may change.

1. System will be operated in 2011 and beyond.
2. System will be operated in 2011 and in 2012 if necessary based on performance monitoring.
3. Excavation waterward of the bridge abutment and OHWM will be completed in 2011 pending approval of the JARPA permit.
4. Excavation waterward of OHWM will be completed in 2011 pending approval of the JARPA permit and results of upland sampling.
5. Contingent upon the School granting access to the property.
6. Contingent upon agreement with the Town.
7. Contingent upon completion of remaining remediation north of the RYZ.

7.0 Summary and Conclusions

From the period starting January 1, 2010 and ending December 31, 2010, personnel from AECOM Environment oversaw the remediation activities at the Former BNSF Maintenance and Fueling Facility in Skykomish, Washington on behalf of BNSF.

Some of the approximate quantities pertinent to 2010 remediation activities include the following:

- 55,000 gallons of oil was recovered during excavation activities and delivered to a recycling facility
- 117,000 tons of impacted soil was excavated and transported to the Rabanco Subtitle D landfill in Roosevelt, Washington for disposal
- 7,100 cubic yards of clean overburden was reused at the site
- 9,731,700 gallons of construction water were treated at the on-site CWTS and discharged per the project NPDES permit

Properties within the NWDZ, including Community Center, Town Maintenance Building, Opera House, and Stove Shop, were restored and returned to the property owners in accordance with the access agreements. The tennis court, which is owned by Skykomish School, was expanded in surface area per the school's request and approved by the Town. The final surfacing layer is scheduled to be installed in the spring of 2011. The NWDZ remediation conducted in 2010 extended farther west to the west side of the 6th Street ROW, adjacent to the sidewalk. This extended excavation will avoid future disturbance to the properties in the NWDZ east of 6th Street (i.e., Community Center and tennis court) during the school remediation.

The Cascadia Inn property remediation was completed including demolition and reconstruction of the restaurant, excavation of impacted soil, backfilling, and grading on the property. Restoration was completed in accordance with the access agreement requirements. The Bridge Area in-water and Levee West End remediation were not completed due to the delay in obtaining the JARPA permit. This permit is expected to be obtained in early 2011. The upland portion of the Bridge Area was completed in 2010 and an MSE wall has been constructed along the south side of the bridge abutment to facilitate the remaining remediation work on the levee and the in-water area. The top of levee in the upland remediation area was temporarily restored to the pre-construction level using structural fill and rock riprap. The Levee West End Remediation will be conducted in 2011 after the JARPA permit is issued. The HCC East End Extension was completed with removal of impacted soil and installation of additional 60 feet of sheet pile wall extending from the East Gate vault. Modifications to the HCC system included: 1) decommissioning of existing piezometer PZ-1 and replacement with PZ-1A; and 2) installation of a new recovery well RW-9.

Metals impacted soils were excavated from most of the areas in the RYZ. The remaining remediation areas will be completed in 2011, including areas that were excavated in 2010 with residual impacted soil to be addressed.

FMCE remediation was conducted based on the selected Upland Alternative. The FMCE successfully removed the TPH impacted hot-spots and has been backfilled near the design final grading. The remaining backfilling to the final grade will be completed in 2011. The stormwater pipe system was installed per design which was developed based on the hydraulic study performed by AECOM and approved by Ecology. A lined stormwater pond was constructed as part of the stormwater drainage

system. The pond liner system will provide protection to the surface water that may come in contact with the impacted soil underneath the pond bottom.

FMCW remediation was completed accordance with the 2010 CPS and JARPA permit. Slight modifications were made to the restoration plan to add riverbed fill material for erosion control in the wetland backfill zones. Surface water quality monitoring was performed as described in the TMMP. No action level exceedances occurred. Additional soil investigation was completed on the School Property in 2010 to better define the impacted area and refine the remediation alternatives that are being prepared by BNSF. BNSF has been negotiating with the Skykomish School District to obtain an access agreement for the School Building Property remediation. The construction schedule will not be available until the remediation alternative is selected and access agreement is obtained.

Underground utilities were installed within the site per the 2010 CPS, including the sewer system consisting of new septic tanks and piping and a joint utility trench that undergrounded and consolidated electrical, cable and telephone services. All applicable permits are contained in Appendix A, and the as-built drawings are provided in the figures and in Appendix N.

Prior to the contractor demobilization for the 2010 construction season, the site was winterized and secured. Temporary asphalt-treated base paving of roads and sidewalks with painted lines were completed in areas of the Town disturbed by the 2010 construction activities. Permanent and temporary lighting was also installed to illuminate identified areas of concern. Security fence was installed around the construction areas and railroad construction crossings.

The planned work was substantially complete in 2010 with some activities still remain to be completed in 2011. Work completed in 2011 will be described in the 2011 Construction As-Built Report.

8.0 References

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Tables

Table 5-2 2010 Overburden Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=1,870mg/kg
OVBN10-B1-0.69	2009-2010 excavation	Center	0.69	5/11/10	11:30	5/12/10	<0.595	<1.97	ND
OVBN10-B2-0.69	2009-2010 excavation	Center	0.69	5/3/10	9:12	5/10/10	160	1,800	1,960
OVBN10-B3-1.46	2009-2010 excavation	Center	1.46	5/3/10	9:23	5/10/10	330	4,300	4,630
OVBN10-B4-1.82	2009-2010 excavation	Center	1.82	5/3/10	9:34	5/10/10	22	320	342
OVBN10-B5-2.16	2009-2010 excavation	Center	2.16	5/3/10	9:54	5/10/10	28	230	258
OVBN10-B6-2.13	2009-2010 excavation	Center	2.13	5/3/10	9:56	5/10/10	23	230	253
OVBN10-B7-2.25	2009-2010 excavation	Center	2.25	5/3/10	9:59	5/10/10	24	230	254
OVBN10-B8-2.45	2009-2010 excavation	Center	2.45	5/3/10	10:02	5/10/10	17	190	207
OVBN10-C1-0.69	2009-2010 excavation	Center	0.69	5/11/10	11:32	5/12/10	28.5	95.2	123.7
OVBN10-C2-0.69	2009-2010 excavation	Center	0.69	5/3/10	9:10	5/10/10	16	130	146
OVBN10-C3-1.46	2009-2010 excavation	Center	1.46	5/3/10	9:21	5/10/10	23	160	183
OVBN10-C4-1.82	2009-2010 excavation	Center	1.82	5/3/10	9:32	5/10/10	12	73	85
OVBN10-C5-2.16	2009-2010 excavation	Center	2.16	5/3/10	9:50	5/10/10	15	86	101
OVBN10-C6-2.13	2009-2010 excavation	Center	2.13	5/10/10	9:00	5/12/10	34.5	184	218.5
OVBN10-C7-2.25	2009-2010 excavation	Center	2.25	5/10/10	9:02	5/12/10	3.8	18.7	22.5
OVBN10-C8-2.45	2009-2010 excavation	Center	2.45	5/7/10	8:05	5/12/10	<0.601	<1.99	ND
OVBN10-D1-0.75	2009-2010 excavation	Center	0.75	5/11/10	11:35	5/12/10	9.54	34.8	44.34
OVBN10-D2-0.75	2009-2010 excavation	Center	0.75	5/3/10	9:08	5/10/10	210	1,900	2,110
OVBN10-D3-1.00	2009-2010 excavation	Center	1.00	5/3/10	9:18	5/10/10	29	88	117
OVBN10-D4-1.46	2009-2010 excavation	Center	1.46	5/3/10	9:30	5/10/10	58	420	478
OVBN10-D5-1.55	2009-2010 excavation	Center	1.55	5/6/10	9:42	5/12/10	9.14	10.9	20.04
OVBN10-D6-1.58	2009-2010 excavation	Center	1.58	5/10/10	9:05	5/12/10	0.69	<2.04	0.69
OVBN10-D7-2.06	2009-2010 excavation	Center	2.06	5/10/10	9:07	5/12/10	30.2	154	184.2
OVBN10-D8-2.27	2009-2010 excavation	Center	2.27	5/7/10	8:00	5/12/10	1.19	2.55	3.74
OVBN10-E1-0.32	2009-2010 excavation	Center	0.32	5/11/10	11:37	5/12/10	11.1	37	48.1
OVBN10-E2-0.32	2009-2010 excavation	Center	0.32	5/3/10	9:06	5/10/10	13	86	99
OVBN10-E3-0.50	2009-2010 excavation	Center	0.50	5/3/10	9:15	5/10/10	61	500	561
OVBN10-E4-0.97	2009-2010 excavation	Center	0.97	5/3/10	9:27	5/10/10	390	1800	2190
OVBN10-E5-1.13	2009-2010 excavation	Center	1.13	5/6/10	9:40	5/12/10	83	490	573
OVBN10-E6-1.45	2009-2010 excavation	Center	1.45	5/10/10	9:09	5/12/10	286	1,120	1,406
OVBN10-E7-1.64	2009-2010 excavation	Center	1.64	5/10/10	9:12	5/12/10	<0.615	<2.03	ND
OVBN10-E8-1.98	2009-2010 excavation	Center	1.98	5/7/10	7:55	5/12/10	194	829	1023

Table 5-2 2010 Overburden Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=1,870mg/kg
OVBN10-F0-0.12	2009-2010 excavation	Center	0.12	5/11/10	11:40	5/12/10	2.78	9.66	12.44
OVBN10-F1-0.12	2009-2010 excavation	Center	0.12	5/3/10	9:00	5/10/10	210	1,900	2,110
OVBN10-F2-0.12	2009-2010 excavation	Center	0.12	5/3/10	9:02	5/10/10	30	120	150
OVBN10-F3-0.60	2009-2010 excavation	Center	0.60	5/3/10	9:04	5/10/10	35	330	365
OVBN10-F4-0.70	2009-2010 excavation	Center	0.70	5/3/10	9:25	5/10/10	100	640	740
OVBN10-F5-0.91	2009-2010 excavation	Center	0.91	5/6/10	9:37	5/12/10	1.66	13.5	15.16
OVBN10-F6-1.07	2009-2010 excavation	Center	1.07	5/7/10	7:36	5/12/10	0.618	2.64	3.258
OVBN10-F7-1.41	2009-2010 excavation	Center	1.41	5/7/10	7:50	5/12/10	49.2	361	410.2
OVBN10-F8-1.58	2009-2010 excavation	Center	1.58	5/7/10	7:52	5/12/10	1.21	<2.38	1.21
OVBN10-G0-0.41	2009-2010 excavation	Center	0.41	5/11/10	11:42	5/12/10	2.87	25.6	28.47
OVBN10-G1-0.41	2009-2010 excavation	Center	0.41	5/3/10	8:45	5/10/10	190	1,600	1,790
OVBN10-G2-0.41	2009-2010 excavation	Center	0.41	5/3/10	8:47	5/10/10	16	140	156
OVBN10-G3-0.63	2009-2010 excavation	Center	0.63	5/3/10	8:50	5/10/10	23	100	123
OVBN10-G4-0.70	2009-2010 excavation	Center	0.70	5/3/10	8:52	5/10/10	32	210	242
OVBN10-G5-0.83	2009-2010 excavation	Center	0.83	5/6/10	9:35	5/12/10	34.8	175	209.8
OVBN10-G6-0.84	2009-2010 excavation	Center	0.84	5/7/10	7:34	5/12/10	26.6	131	157.6
OVBN10-H0-0.38	2009-2010 excavation	Center	0.38	5/11/10	11:44	5/12/10	1.18	<2.25	1.18
OVBN10-H1-0.38	2009-2010 excavation	Center	0.38	5/3/10	8:18	5/10/10	260	2,000	2,260
OVBN10-H2-0.38	2009-2010 excavation	Center	0.38	5/3/10	8:20	5/10/10	30	270	300
OVBN10-H3-0.41	2009-2010 excavation	Center	0.41	5/3/10	8:23	5/10/10	130	1,200	1,330
OVBN10-H4-0.57	2009-2010 excavation	Center	0.57	5/3/10	8:26	5/10/10	79	700	779
OVBN10-H5-0.57	2009-2010 excavation	Center	0.57	5/3/10	8:28	5/10/10	33	270	303
OVBN10-H6-0.65	2009-2010 excavation	Center	0.65	5/3/10	8:30	5/10/10	36	250	286
OVBN10-I0-0.17	2009-2010 excavation	Center	0.17	5/11/10	11:47	5/12/10	<0.604	<2	ND
OVBN10-I1-0.17	2009-2010 excavation	Center	0.17	5/3/10	8:12	5/10/10	17	150	167
OVBN10-I2-0.17	2009-2010 excavation	Center	0.17	5/3/10	8:09	5/10/10	37	280	317
OVBN10-I3-0.27	2009-2010 excavation	Center	0.27	5/3/10	8:07	5/10/10	72	700	772
OVBN10-I4-0.35	2009-2010 excavation	Center	0.35	5/3/10	8:05	5/10/10	200	470	670
OVBN10-I5-0.44	2009-2010 excavation	Center	0.44	5/3/10	8:02	5/10/10	34	220	254
OVBN10-I6-0.50	2009-2010 excavation	Center	0.50	5/3/10	8:00	5/10/10	58	290	348

Table 5-2 2010 Overburden Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=1,870mg/kg
OVBN10-J1-0.17	2009-2010 excavation	Center	0.17	5/3/10	8:14	5/10/10	14	110	124
OVBN10-J2-0.17	2009-2010 excavation	Center	0.17	5/3/10	7:53	5/10/10	66	440	506
OVBN10-J3-0.27	2009-2010 excavation	Center	0.27	5/3/10	7:50	5/10/10	59	430	489
OVBN10-J4-.035	2009-2010 excavation	Center	0.35	5/3/10	7:48	5/10/10	60	440	500
OVBN10-J5-0.38	2009-2010 excavation	Center	0.38	5/3/10	7:45	5/10/10	58	400	458
OVBN10-J6-0.40	2009-2010 excavation	Center	0.40	5/3/10	7:40	5/10/10	45	420	465
OVBN10-O10-1.00	bridge abutment excavation	Center	1.00	6/15/10	12:48	6/18/10	<5.9	11	11
OVBN10-P10-1.00	bridge abutment excavation	Center	1.00	6/15/10	12:51	6/18/10	<5.8	19	19
OVBN10-P11-2.50	bridge abutment excavation	Center	2.50	6/15/10	12:55	6/18/10	<5.7	22	22
OVBN10-P11-7.00	bridge abutment excavation	Center	7.00	6/15/10	12:57	6/18/10	<5.8	12	12
OVBN10-P12-2.50	bridge abutment excavation	Center	2.50	6/15/10	11:29	6/18/10	10	47	57
OVBN10-P12-7.25	bridge abutment excavation	Center	7.25	6/15/10	11:33	6/18/10	<5.8	24	24
OVBN10-P13-3.50	bridge abutment excavation	Center	3.50	6/15/10	12:30	6/18/10	10	72	82
OVBN10-Q9-0.50	bridge abutment excavation	Center	0.50	6/16/10	7:47	6/18/10	<5.5	<8.8	ND
OVBN10-Q10-1.00	bridge abutment excavation	Center	1.00	6/15/10	13:34	6/18/10	<5.7	<9.1	ND
OVBN10-Q11-2.50	bridge abutment excavation	Center	2.50	6/15/10	13:37	6/18/10	<5.6	<8.9	ND
OVBN10-Q11-7.5	bridge abutment excavation	Center	7.50	6/15/10	13:39	6/18/10	<5.6	<8.9	ND
OVBN10-Q12-2.50	bridge abutment excavation	Center	2.50	6/15/10	10:56	6/18/10	<5.9	29	29
OVBN10-Q12-7.63	bridge abutment excavation	Center	7.63	6/15/10	11:01	6/18/10	13	95	108
OVBN10-Q13-3.50	bridge abutment excavation	Center	3.50	6/15/10	12:41	6/18/10	42	210	252
OVBN10-R9-2.50	bridge abutment excavation	Center	2.50	6/16/10	8:28	6/18/10	<5.7	<9.2	ND
OVBN10-R10-2.50	bridge abutment excavation	Center	2.50	6/16/10	8:58	6/18/10	<5.8	15	15
OVBN10-R10-5.50	bridge abutment excavation	Center	5.50	6/16/10	9:00	6/18/10	<5.8	14	14
OVBN10-R11-2.50	bridge abutment excavation	Center	2.50	6/21/10	7:58	6/22/10	<5.9	9.9	9.9
OVBN10-R11-7.75	bridge abutment excavation	Center	7.75	6/21/10	8:03	6/22/10	<6.3	16	16
OVBN10-R12-2.50	bridge abutment excavation	Center	2.50	6/15/10	10:27	6/18/10	6.4	27	33.4
OVBN10-R12-7.88	bridge abutment excavation	Center	7.88	6/15/10	10:32	6/18/10	<5.8	11	11
OVBN10-S10-1.50	bridge abutment excavation	Center	1.50	6/16/10	8:54	6/18/10	49	490	539
OVBN10-S11-1.50	bridge abutment excavation	Center	1.50	6/16/10	8:48	6/18/10	11	74	85
OVBN10-S12-2.00	bridge abutment excavation	Center	2.00	6/16/10	9:13	6/18/10	<5.5	13	13
OVBN10-T12-2.50	bridge abutment excavation	Center	2.50	6/16/10	9:16	6/18/10	6.7	46	52.7

Table 5-2 2010 Overburden Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=1,870mg/kg
OVBN10-U13-2.50	bridge abutment excavation	Center	2.50	6/16/10	9:21	6/18/10	14	70	84
OVBN10-U13-5.50	bridge abutment excavation	Center	5.50	6/16/10	9:27	6/18/10	24	150	174
OVBN10-U14-2.50	bridge abutment excavation	Center	2.50	6/16/10	9:35	6/18/10	11	65	76
OVBN10-Cascadia-A1-1.5	Cascadia Inn	Center	1.5	6/8/10	12:49	6/17/10	<5.9	31	31
OVBN10-Cascadia-A2-1.5	Cascadia Inn	Center	1.5	6/8/10	12:44	6/17/10	<6.0	22	22
OVBN10-Cascadia-A3-2.5	Cascadia Inn	Center	2.5	6/8/10	12:33	6/17/10	<5.9	<9.4	ND
OVBN10-Cascadia-A3-6.5	Cascadia Inn	Center	6.5	6/8/10	12:37	6/17/10	<6.1	<9.7	ND
OVBN10-Cascadia-B1-1.5	Cascadia Inn	Center	1.5	6/8/10	12:54	6/17/10	<6.0	29	29
OVBN10-Cascadia-B2-1.5	Cascadia Inn	Center	1.5	6/8/10	13:04	6/17/10	<6.0	19	19
OVBN10-Cascadia-B3-2.5	Cascadia Inn	Center	2.5	6/8/10	13:14	6/17/10	<5.6	12	12
OVBN10-Cascadia-B3-6.5	Cascadia Inn	Center	6.5	6/8/10	13:17	6/17/10	<5.9	12	12
OVBN10-Cascadia-C1-1.5	Cascadia Inn	Center	1.5	6/8/10	13:32	6/17/10	<5.6	<9.0	ND
OVBN10-Cascadia-C2-1.5	Cascadia Inn	Center	1.5	6/8/10	13:28	6/17/10	<5.8	11	11
OVBN10-Cascadia-C3-2.5	Cascadia Inn	Center	2.5	6/8/10	13:21	6/17/10	<5.6	27	27
OVBN10-Cascadia-C3-6.5	Cascadia Inn	Center	6.5	6/8/10	13:24	6/17/10	20	34	54
OVBN10-Cascadia-D1-2.5	Cascadia Inn	Center	2.5	6/8/10	13:36	6/17/10	<6.1	13	13
OVBN10-Cascadia-D2-2.5	Cascadia Inn	Center	2.5	6/8/10	13:40	6/17/10	<6.1	27	27
OVBN10-Cascadia-D2-6.5	Cascadia Inn	Center	6.5	6/8/10	13:43	6/17/10	<5.9	<9.5	ND
OVBN10-Cascadia-D3-2.5	Cascadia Inn	Center	2.5	6/8/10	13:46	6/17/10	<5.9	<9.3	ND
OVBN10-Cascadia-D3-6.5	Cascadia Inn	Center	6.5	6/8/10	13:48	6/17/10	<5.6	13	13
OVBN10-Cascadia-E1-2.5	Cascadia Inn	Center	2.5	6/8/10	14:18	6/17/10	<5.6	25	25
OVBN10-Cascadia-E2-2.5	Cascadia Inn	Center	2.5	6/8/10	14:07	6/17/10	7.2	23	30.2
OVBN10-Cascadia-E2-6.5	Cascadia Inn	Center	6.5	6/8/10	14:09	6/17/10	440	690	1,130
OVBN10-Cascadia-E3-2.5	Cascadia Inn	Center	2.5	6/8/10	14:03	6/17/10	8.4	19	27.4
OVBN10-Cascadia-E3-6.5	Cascadia Inn	Center	6.5	6/8/10	14:05	6/17/10	<5.5	28	28
OVBN10-Cascadia-E4-2.5	Cascadia Inn	Center	2.5	6/8/10	13:59	6/17/10	<5.7	<9.0	ND
OVBN10-Cascadia-E4-6.5	Cascadia Inn	Center	6.5	6/8/10	14:01	6/17/10	<5.7	<9.1	ND
OVBN10-Cascadia-F1-2.5	Cascadia Inn	Center	2.5	6/8/10	14:17	6/17/10	<5.6	16	16
OVBN10-Cascadia-F2-2.5	Cascadia Inn	Center	2.5	6/8/10	14:15	6/17/10	<5.9	24	24
OVBN10-Cascadia-F3-2.5	Cascadia Inn	Center	2.5	6/8/10	13:54	6/17/10	<5.8	12	12
OVBN10-Cascadia-F4-2.5	Cascadia Inn	Center	2.5	6/8/10	13:57	6/17/10	<5.9	31	31

Table 5-2 2010 Overburden Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=1,870mg/kg
OVBN10-Pond-B42-1.50	Storm Pond	Center	1.50	7/19/10	12:45	7/21/10	35	270	305
OVBN10-Pond-C42-1.50	Storm Pond	Center	1.50	7/19/10	12:48	7/21/10	53	410	463
OVBN10-Pond-B41-1.50	Storm Pond	Center	1.50	7/19/10	12:50	7/21/10	83	330	413
OVBN10-Pond-C41-1.50	Storm Pond	Center	1.50	7/19/10	12:52	7/21/10	87	260	347
OVBN10-Pond-B40-1.50	Storm Pond	Center	1.50	7/19/10	12:58	7/21/10	<5.7	26	26
OVBN10-Pond-C40-2.50	Storm Pond	Center	2.50	7/19/10	13:03	7/21/10	13	160	173
OVBN10-Pond-C40-8.00	Storm Pond	Center	8.00	7/19/10	13:06	7/21/10	<8.6	38	38
OVBN10-Pond-B39-2.50	Storm Pond	Center	2.50	7/19/10	13:23	7/21/10	880	2,000	2,880
OVBN10-Pond-C39-2.50	Storm Pond	Center	2.50	7/19/10	13:13	7/21/10	64	620	684
OVBN10-Pond-C39-8.00	Storm Pond	Center	8.00	7/19/10	13:16	7/21/10	12	100	112
OVBN10-Pond-B38-1.00	Storm Pond	Center	1.00	7/19/10	13:27	7/21/10	540	4,800	5,340
OVBN10-Pond-C38-2.50	Storm Pond	Center	2.50	7/19/10	13:29	7/21/10	100	940	1,040
OVBN10-Pond-C38-5.50	Storm Pond	Center	5.50	7/19/10	13:34	7/21/10	20	130	150
OVBN10-Pond-B37-0.75	Storm Pond	Center	0.75	7/19/10	14:25	7/21/10	620	2,000	2,620
OVBN10-Pond-C37-1.50	Storm Pond	Center	1.50	7/19/10	14:27	7/21/10	1,300	11,000	12,300
OVBN10-Pond-A40-1.00	Storm Pond	Center	1.00	7/19/10	13:40	7/21/10	45	390	435
OVBN10-Pond-A39-0.75	Storm Pond	Center	0.75	7/19/10	13:42	7/21/10	58	600	658
OVBN10-Pond-B36-0.50	Storm Pond	Center	0.50	7/19/10	14:29	7/21/10	1,700	8,000	9,700
OVBN10-Pond-C36-0.50	Storm Pond	Center	0.50	7/19/10	14:32	7/21/10	61	380	441
Duplicates									
OVBN10-Z1-050310	duplicate for OVBN10-H6-0.65	Center	0.65	5/3/10	12:00	5/10/10	24	210	234
OVBN10-Z2-050310	duplicate for OVBN10-C5-2.16	Center	2.16	5/3/10	13:00	5/10/10	16	99	115
OVBN10-Z1-051010	duplicate for OVBN10-C6-2.13	Center	2.13	5/10/10	9:30	5/12/10	69.1	321	390.1
OVBN10-Z1-051110	duplicate for OVBN10-F0-0.12	Center	0.12	5/11/10	12:00	5/12/10	7.54	27.8	35.34
OVBN10-Z1-061610	duplicate for OVBN10-U13-5.50	Center	5.50	6/16/10	9:29	6/18/10	13	76	89

Notes:

Sample Result in mg/kg : Sample results exceeding CULs.

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-AS1-B	RR Ave & School Excavation	bottom	14	8/2/10	17:40	8/4/10	9.0	<11	9.0
EXV10-AS2-WW	RR Ave & School Excavation	west wall	9	8/2/10	12:20	8/4/10	2,000	2,800	4,800
EXV10-AS2-B	RR Ave & School Excavation	bottom	14	8/2/10	14:15	8/4/10	8.3	<10	8.3
EXV10-A'S1-SW	RR Ave & School Excavation	south wall	9	8/2/10	17:25	8/4/10	41	170	211
EXV10-A'S1-B	RR Ave & School Excavation	bottom	14	8/2/10	17:45	8/4/10	9.3	<11	9.3
EXV10-A'S2-WW	RR Ave & School Excavation	west wall	9	8/2/10	14:07	8/4/10	13	20	33
EXV10-A'S2-SW	RR Ave & School Excavation	south wall	9	8/2/10	14:30	8/4/10	8.2	<10	8.2
EXV10-A'S2-B	RR Ave & School Excavation	bottom	14	8/2/10	15:35	8/4/10	8.4	<11	8.4
EXV10-A0-B	RR Ave & School Excavation	bottom	14	8/3/10	8:50	8/4/10	8.3	<11	8.3
EXV10-A'0-B	RR Ave & School Excavation	bottom	14	8/3/10	8:45	8/4/10	12	<12	12
EXV10-A'0-SW	RR Ave & School Excavation	south wall	9	8/3/10	7:52	8/4/10	16	41	57
EXV10-A'1-SW	RR Ave & School Excavation	south wall	9	8/3/10	10:58	8/4/10	13	33	46
EXV10-A1-EW	RR Ave & School Excavation	east wall	9	8/3/10	10:55	8/4/10	17	38	55
EXV10-A1-B	RR Ave & School Excavation	bottom	14	8/3/10	10:50	8/4/10	9.6	<12	9.6
EXV10-A3-WW	2009-2010 excavation	west wall	8	6/1/10	10:26	6/3/10	<6.4	11	11
EXV10-A3-SW	2009-2010 excavation	south wall	8	6/1/10	10:31	6/3/10	12	31	43
EXV10-A3-B	2009-2010 excavation	bottom	18	6/1/10	11:07	6/3/10	<7.2	<11	ND
EXV10-A3-B'	2009-2010 excavation	bottom	21	6/1/10	12:00	6/3/10	<15	<25	ND
EXV10-A4-SW	2009-2010 excavation	south wall	8	6/1/10	13:30	6/3/10	<6.3	10	10
EXV10-A4-B	2009-2010 excavation	bottom	18	6/1/10	13:57	6/3/10	<7.7	<12	ND
EXV10-A5-SW	2009-2010 excavation	south wall	8	6/1/10	15:20	6/3/10	<7.5	<12	ND
EXV10-A5-B	2009-2010 excavation	bottom	18	6/1/10	15:15	6/3/10	<6.6	<11	ND
EXV10-A6-SW	2009-2010 excavation	south wall	8	6/1/10	16:38	6/3/10	<6.0	34	34
EXV10-A6-EW	2009-2010 excavation	east wall	8	6/1/10	16:42	6/3/10	28	120	148
EXV10-A6-B	2009-2010 excavation	bottom	18	6/1/10	16:35	6/3/10	8.2	24	32.2
EXV10-BS1-NW	RR Ave & School Excavation	north wall	9	8/2/10	14:52	8/4/10	2,100	2,400	4,500
EXV10-BS2-NW	RR Ave & School Excavation	north wall	9	8/2/10	12:18	8/4/10	3,700	4,300	8,000
EXV10-B0-NW	RR Ave & School Excavation	north wall	9	8/2/10	16:00	8/4/10	640	990	1,630
EXV10-B0-WW-5'	6th Street Excavation	west wall	5	6/9/10	13:58	6/17/10	690	3,300	3,990
EXV10-B0-WW-7'	6th Street Excavation	west wall	7	6/9/10	14:10	6/17/10	620	2700	3,320
EXV10-B0-SW-8'	6th Street Excavation	south wall	8	6/9/10	14:20	6/17/10	700	3,200	3,900
EXV10-B0-SW'-8'	6th Street Excavation	south wall	8	6/9/10	14:23	6/17/10	560	2,600	3,160
EXV10-B0-WW-9'	6th Street Excavation	west wall	9	6/9/10	14:40	6/17/10	2,500	6,000	8,500
EXV10-B0-B-10'	6th Street Excavation	bottom	10	6/9/10	15:02	6/17/10	500	990	1,490
EXV10-B0-B-12'	6th Street Excavation	bottom	12	6/9/10	15:12	6/17/10	220	460	680
EXV10-B1-B	RR Ave & School Excavation	bottom	14	8/3/10	10:52	8/4/10	8.0	<11	8.0
EXV10-B1-WW	2009-2010 excavation	west wall	10	5/15/10	16:05	5/20/10	4,300	4,900	9,200
EXV10-B2-SW	2009-2010 excavation	south wall	10	5/15/10	15:05	5/20/10	17	46	63
EXV10-B2-B	2009-2010 excavation	bottom	22	5/15/10	14:55	5/20/10	<16	<13	ND

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-B3-SW	2009-2010 excavation	south wall	10	5/17/10	9:50	5/20/10	1,000	3,400	4,400
EXV10-B3'-SW	2009-2010 excavation	south wall	10	5/17/10	12:37	5/20/10	9,700	14,000	23,700
EXV10-B3-B	2009-2010 excavation	bottom	22	5/17/10	10:30	5/20/10	<15	<24	ND
EXV10-B4-SW	2009-2010 excavation	south wall	10	5/17/10	12:15	5/20/10	690	3,200	3,890
EXV10-B4-B	2009-2010 excavation	bottom	22	5/17/10	12:12	5/20/10	<6.4	<10	ND
EXV10-B5-SW	2009-2010 excavation	south wall	10	5/17/10	17:15	5/20/10	5,000	6,500	11,500
EXV10-B5-B	2009-2010 excavation	bottom	22	5/17/10	17:10	5/20/10	<7.4	<12	ND
EXV-B6-B	2009-2010 excavation	bottom	22	5/21/10	11:35	5/25/10	<8.1	<13	ND
EXV10-B7-B	2009-2010 excavation	bottom	22	5/21/10	12:55	5/25/10	<7.8	<12	ND
EXV10-B8-B	2009-2010 excavation	bottom	22	5/25/10	9:30	5/26/10	<7.9	<13	ND
EXV10-B9-B	2009-2010 excavation	bottom	22	5/25/10	13:40	5/26/10	<7.7	<12	ND
EXV10-C1-WW	2009-2010 excavation	west wall	10	5/15/10	16:10	5/20/10	72	540	612
EXV10-C2-B	2009-2010 excavation	bottom	22	5/15/10	14:58	5/20/10	<8	<25	ND
EXV10-C3-B	2009-2010 excavation	bottom	22	5/16/10	16:23	5/20/10	<7.7	<12	ND
EXV10-C4-B	2009-2010 excavation	bottom	22	5/17/10	12:10	5/20/10	<7.9	<13	ND
EXV10-C5-B	2009-2010 excavation	bottom	22	5/20/10	13:30	5/25/10	<7.6	<12	ND
EXV10-C6-B	2009-2010 excavation	bottom	22	5/21/10	14:10	5/26/10	<7.3	14	14
EXV10-C7-B	2009-2010 excavation	bottom	22	5/24/10	9:50	5/26/10	<7.7	<12	ND
EXV10-C8-B	2009-2010 excavation	bottom	22	5/25/10	15:30	5/26/10	<7.6	<12	ND
EXV10-C9-B	2009-2010 excavation	bottom	22	5/26/10	9:05	5/27/10	<7.4	<12	ND
EXV10-D1-WW	2009-2010 excavation	west wall	10	5/15/10	16:22	5/20/10	16	180	196
EXV10-D2-B	2009-2010 excavation	bottom	22	5/15/10	16:25	5/20/10	<6.6	<20	ND
EXV10-D3-B	2009-2010 excavation	bottom	22	5/16/10	15:30	5/20/10	<7.4	<12	ND
EXV10-D4-B	2009-2010 excavation	bottom	22	5/17/10	13:05	5/20/10	<8.3	<13	ND
EXV10-D5-B	2009-2010 excavation	bottom	22	5/20/10	14:50	5/25/10	<7.4	<12	ND
EXV10-D6-B	2009-2010 excavation	bottom	22	5/21/10	16:10	5/26/10	<7.6	<12	ND
EXV10-D7-B	2009-2010 excavation	bottom	22	5/24/10	9:55	5/26/10	<7.1	<11	ND
EXV10-D8-B	2009-2010 excavation	bottom	22	5/26/10	12:05	5/27/10	<7.2	<12	ND
EXV10-D9-B	2009-2010 excavation	bottom	22	5/26/10	13:45	5/27/10	<7.6	<12	ND
EXV10-E1-WW	2009-2010 excavation	west wall	10	5/15/10	16:50	5/20/10	290	410	700
EXV10-E2-B	2009-2010 excavation	bottom	22	5/15/10	16:46	5/20/10	<17	<13	ND
EXV10-E3-B	2009-2010 excavation	bottom	22	5/16/10	14:49	5/20/10	<7.6	<12	ND
EXV10-E4-B	2009-2010 excavation	bottom	22	5/17/10	14:30	5/20/10	11	<11	11
EXV10-E5-B	2009-2010 excavation	bottom	22	5/20/10	17:15	5/25/10	<15	<23	ND
EXV10-E6-B	2009-2010 excavation	bottom	22	5/21/10	16:55	5/26/10	<7.6	<12	ND
EXV10-E7-B	2009-2010 excavation	bottom	22	5/24/10	13:20	5/26/10	<7.3	<12	ND
EXV10-E8-B	2009-2010 excavation	bottom	22	5/26/10	18:10	5/27/10	<7.3	<12	ND

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-E9-B	2009-2010 excavation	bottom	22	5/26/10	18:05	5/27/10	<7.6	<12	ND
EXV10-F1-WW	2009-2010 excavation	west wall	10	5/15/10	17:00	5/20/10	34	88	122
EXV10-F1-B	2009-2010 excavation	bottom	22	5/15/10	16:58	5/20/10	<16	<14	ND
EXV10-F2-B	2009-2010 excavation	bottom	22	5/16/10	10:50	5/20/10	<7.5	<12	ND
EXV10-F3-B	2009-2010 excavation	bottom	22	5/16/10	13:37	5/20/10	<7.4	<12	ND
EXV10-F4-B	2009-2010 excavation	bottom	22	5/17/10	15:45	5/20/10	<15	<24	ND
EXV10-F5-B	2009-2010 excavation	bottom	22	5/21/10	16:50	5/26/10	<7.2	<12	ND
EXV10-F6-B	2009-2010 excavation	bottom	22	5/22/10	15:25	5/26/10	<7.4	<12	ND
EXV10-F7-B	2009-2010 excavation	bottom	22	5/24/10	16:00	5/26/10	<6.9	<11	ND
EXV10-F8-B	2009-2010 excavation	bottom	22	5/27/10	13:45	6/1/10	16	20	36
EXV10-G1-WW	2009-2010 excavation	west wall	6	6/2/10	9:30	6/3/10	300	1,800	2,100
EXV10-G1-B	2009-2010 excavation	bottom	20	6/2/10	9:25	6/3/10	<7.3	<12	ND
EXV10-G2-B	2009-2010 excavation	bottom	20	6/2/10	16:25	6/3/10	<8.2	15	15
EXV10-G3-B	2009-2010 excavation	bottom	20	6/4/10	9:44	6/7/10	<7.4	<12	ND
EXV10-G4-B	2009-2010 excavation	bottom	20	6/4/10	14:54	6/7/10	<7.1	<11	ND
EXV10-G5-B	2009-2010 excavation	bottom	20	6/5/10	11:15	6/10/10	<7.4	<12	ND
EXV10-G6-B	2009-2010 excavation	bottom	22	6/5/10	14:15	6/10/10	<7.5	<12	ND
EXV10-G7-B	2009-2010 excavation	bottom	20	6/7/10	11:42	6/9/10	<7.5	<12	ND
EXV10-H0-WW	2009-2010 excavation	west wall	8	5/28/10	10:20	6/1/10	3,700	4,400	8,100
EXV10-H1-B	2009-2010 excavation	bottom	20	5/28/10	10:45	6/1/10	<7.3	<12	ND
EXV10-H2-B	2009-2010 excavation	bottom	20	6/2/10	16:30	6/3/10	<7.3	<12	ND
EXV10-H3-B	2009-2010 excavation	bottom	20	6/4/10	9:40	6/7/10	<7.1	<11	ND
EXV10-H4-B	2009-2010 excavation	bottom	20	6/4/10	14:51	6/7/10	<7.0	<11	ND
EXV10-H5-B	2009-2010 excavation	bottom	20	6/5/10	11:13	6/10/10	<7.6	20	20
EXV10-H6-B	2009-2010 excavation	bottom	22	6/5/10	13:57	6/10/10	<7.3	15	15
EXV10-H7-B	2009-2010 excavation	bottom	20	6/7/10	14:00	6/9/10	<7.9	<13	ND
EXV10-I0-WW	2009-2010 excavation	west wall	8	5/28/10	9:38	6/1/10	24,000	31,000	55,000
EXV10-I1-B	2009-2010 excavation	bottom	20	5/28/10	9:30	6/1/10	<7.4	<12	ND
EXV10-I2-B	2009-2010 excavation	bottom	20	6/2/10	8:08	6/3/10	<7.8	<12	ND
EXV10-I3-B	2009-2010 excavation	bottom	20	6/4/10	9:30	6/7/10	<7.4	<12	ND
EXV10-I4-B	2009-2010 excavation	bottom	20	6/4/10	14:49	6/7/10	<7.2	<11	ND
EXV10-I5-B	2009-2010 excavation	bottom	20	6/7/10	10:30	6/9/10	<7.2	22	22
EXV10-I6-B	2009-2010 excavation	bottom	20	6/8/10	10:25	6/10/10	<7.2	14	14
EXV10-I7-B	2009-2010 excavation	bottom	20	6/9/10	12:00	6/17/10	<6.9	<11	ND
EXV10-J3-B	2009-2010 excavation	bottom	22	6/4/10	10:45	6/7/10	<7.4	<12	ND
EXV10-J4-B	2009-2010 excavation	bottom	20	6/4/10	14:47	6/7/10	<7.6	12	12
EXV10-J5-B	2009-2010 excavation	bottom	20	6/7/10	10:34	6/9/10	7.8	22	29.8

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-J6-B	2009-2010 excavation	bottom	20	6/8/10	15:18	6/10/10	<7.8	17	17
EXV10-O10-B	bridge abutment excavation	bottom	17	6/23/10	11:14	6/25/10	19	38	57
EXV10-O11-B	bridge abutment excavation	bottom	17	6/23/10	13:02	6/25/10	14	35	49
EXV10-O12-B	bridge abutment excavation	bottom	17	6/23/10	13:57	6/25/10	17	37	54
EXV10-O13-B	bridge abutment excavation	bottom	17	6/24/10	12:35	6/28/10	9.1	15	24.1
EXV10-O14-B	bridge abutment excavation	bottom	17	6/24/10	13:38	6/24/10	14	21	35
EXV10-O15-B	bridge abutment excavation	bottom	17	6/25/10	15:10	6/28/10	<14	<22	ND
EXV10-P10-B	bridge abutment excavation	bottom	17	6/22/10	19:05	6/24/10	<8.1	19	19
EXV10-P11-B	bridge abutment excavation	bottom	17	6/23/10	8:32	6/25/10	<7.3	<12	ND
EXV10-P12-B	bridge abutment excavation	bottom	17	6/23/10	9:41	6/25/10	17	40	57
EXV10-P13-B	bridge abutment excavation	bottom	17	6/24/10	12:38	6/25/10	14	34	48
EXV10-P14-B	bridge abutment excavation	bottom	17	6/24/10	12:40	6/25/10	11	21	32
EXV10-P15-B	bridge abutment excavation	bottom	17	6/24/10	14:45	6/25/10	10	22	32
EXV10-P16-B	bridge abutment excavation	bottom	17	6/25/10	15:15	6/28/10	<16	41	41
EXV10-P17-B	bridge abutment excavation	bottom	17	6/25/10	12:38	6/28/10	12	34	46
EXV10-P17-EW	bridge abutment excavation	east wall	10	6/25/10	8:10	6/28/10	7,800	10,000	17,800
EXV10-P18-B	bridge abutment excavation	bottom	17	7/8/10	10:55	7/12/10	58	120	178
EXV10-P18-EW	bridge abutment excavation	east wall	10	7/8/10	10:59	7/12/10	8.2	17	25.2
EXV10-Q9-WW	bridge abutment excavation	west wall	10	6/22/10	19:25	6/24/10	5.7	14	19.7
EXV10-Q10-B	bridge abutment excavation	bottom	17	6/22/10	19:12	6/24/10	<6.6	13	13
EXV10-Q11-B	bridge abutment excavation	bottom	17	6/23/10	8:35	6/25/10	8.4	22	30.4
EXV10-Q12-B	bridge abutment excavation	bottom	17	6/23/10	9:39	6/25/10	17	40	57
EXV10-Q13-B	bridge abutment excavation	bottom	17	6/24/10	7:48	6/28/10	<7.1	<11	ND
EXV10-Q14-B	bridge abutment excavation	bottom	17	6/24/10	7:54	6/28/10	<7.3	14	14
EXV10-Q15-B	bridge abutment excavation	bottom	17	6/24/10	14:40	6/28/10	8.9	13	21.9
EXV10-Q16-B	bridge abutment excavation	bottom	17	6/25/10	11:15	6/28/10	22	65	87
EXV10-Q17-EW	bridge abutment excavation	east wall	10	6/25/10	8:15	6/28/10	82	120	202
EXV10-Q17-B	bridge abutment excavation	bottom	17	6/25/10	11:20	6/28/10	<15	35	35
EXV10-Q18-B	bridge abutment excavation	bottom	17	7/8/10	10:50	7/12/10	<7.4	<12	ND
EXV10-Q18-EW	bridge abutment excavation	east wall	10	7/8/10	10:57	7/12/10	<6.0	12	12
EXV10-R9-WW	bridge abutment excavation	west wall	10	6/22/10	19:22	6/24/10	14	32	46
EXV10-R10-B	bridge abutment excavation	bottom	17	6/22/10	19:15	6/24/10	<6.5	11	11
EXV10-R11-B	bridge abutment excavation	bottom	17	6/23/10	8:40	6/25/10	11	25	36
EXV10-R11-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:18	6/24/10	180	290	470
EXV10-R12-B	bridge abutment excavation	bottom	17	6/23/10	9:37	6/25/10	9.6	23	32.6
EXV10-R12-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:21	6/24/10	30	61	91
EXV10-R13-B	bridge abutment excavation	bottom	17	6/23/10	19:28	6/25/10	16	36	52

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-R13-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:24	6/24/10	300	750	1,050
EXV10-R14-B	bridge abutment excavation	bottom	17	6/23/10	19:30	6/25/10	<7.1	18	18
EXV10-R15-B	bridge abutment excavation	bottom	17	6/24/10	12:12	6/28/10	11	22	33
EXV10-R16-B	bridge abutment excavation	bottom	17	6/24/10	15:30	6/28/10	8.2	18	26.2
EXV10-R17-B	bridge abutment excavation	bottom	17	6/25/10	9:08	6/28/10	18	48	66
EXV10-R17-EW	bridge abutment excavation	east wall	10	6/24/10	17:40	6/28/10	<5.9	12	12
EXV10-S9-NW	bridge abutment excavation	north wall	10	6/22/10	18:45	6/24/10	8.1	28	36.1
EXV10-S10-B	bridge abutment excavation	bottom	17	6/22/10	18:42	6/24/10	<6.4	18	18
EXV10-S10-NW	bridge abutment excavation	north wall	10	6/22/10	18:35	6/24/10	320	1400	1,720
EXV10-S11-NW	bridge abutment excavation	north wall	10	6/23/10	8:20	6/25/10	2,200	3,500	5,700
EXV10-S11-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:10	6/24/10	11	32	43
EXV10-S12-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:12	6/24/10	1,100	3,500	4,600
EXV10-S13-B	bridge abutment excavation	bottom	21	6/23/10	16:55	6/25/10	90	120	210
EXV10-S13-abutment	bridge abutment excavation	top of footer	10	6/22/10	9:15	6/24/10	1,200	5,300	6,500
EXV10-S14-B	bridge abutment excavation	bottom	21	6/23/10	17:25	6/25/10	<16	<26	ND
EXV10-S15-B	bridge abutment excavation	bottom	17	6/24/10	9:26	6/28/10	<7.8	13	13
EXV10-S16-EW	bridge abutment excavation	east wall	10	6/24/10	11:32	6/28/10	280	1,000	1,280
EXV10-S17-EW	bridge abutment excavation	east wall	10	6/24/10	18:10	6/28/10	69	110	179
EXV10-T12-NW	bridge abutment excavation	north wall	10	6/23/10	8:26	6/25/10	16	89	105
EXV10-T13-NW	bridge abutment excavation	north wall	10	6/23/10	9:24	6/25/10	19	37	56
EXV10-T14-NW	bridge abutment excavation	north wall	10	6/23/10	15:52	6/25/10	18	37	55
EXV10-T15-NW	bridge abutment excavation	north wall	10	6/24/10	9:10	6/28/10	8.4	17	25.4
EXV10-T16-EW	bridge abutment excavation	east wall	10	6/24/10	9:53	6/28/10	8.1	17	25.1
EXV10-HCC-A1-WW	East End HCC Excavation	west wall	11	5/25/10	10:42	5/26/10	<6.0	<9.6	ND
EXV10-HCC-A1-NW	East End HCC Excavation	north wall	11	5/25/10	10:45	5/26/10	<6.2	<9.8	ND
EXV10-HCC-A1-B	East End HCC Excavation	bottom	18	5/25/10	11:53	5/26/10	<7.6	<12	ND
EXV10-HCC-A2-NW	East End HCC Excavation	east wall	11	6/1/10	9:18	6/3/10	16	43	59
EXV10-HCC-B1-WW	East End HCC Excavation	west wall	11	5/25/10	10:40	5/26/10	<5.7	<9.1	ND
EXV10-HCC-B1-B	East End HCC Excavation	bottom	18	5/26/10	10:10	5/27/10	<7.5	<12	ND
EXV10-HCC-B2-B	East End HCC Excavation	bottom	18	6/1/10	9:15	6/3/10	<7.4	<12	ND
EXV10-HCC-C1-WW	East End HCC Excavation	west wall	11	5/26/10	10:15	5/27/10	31	89	120
EXV10-HCC-C1-SW	East End HCC Excavation	south wall	11	5/26/10	10:18	5/27/10	7.3	17	24.3
EXV10-HCC-C1-B	East End HCC Excavation	bottom	18	5/26/10	10:05	5/27/10	<7.6	<12	ND
EXV10-HCC-C2-SW	East End HCC Excavation	south wall	11	6/1/10	9:22	6/3/10	<5.9	11	11
EXV10-HCC-C2-B	East End HCC Excavation	bottom	18	6/1/10	9:10	6/3/10	<7.3	<12	ND
EXV10-HCC-C3-SW	East End HCC Excavation	south wall	11	6/2/10	10:53	6/3/10	100	240	340
EXV10-HCC-C3-B	East End HCC Excavation	bottom	18	6/2/10	11:35	6/3/10	<8.0	17	17

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-HCC-C3-EW	East End HCC Excavation	east wall	11	6/2/10	11:00	6/3/10	<6.1	20	20
EXV10-HCC-C3-NW	East End HCC Excavation	north wall	11	6/2/10	10:57	6/3/10	8.4	27	35.4
EXV10-Cascasdia-A1-NW	Cascadia Inn	north wall	14	6/14/10	10:35	6/17/10	28	160	188
EXV10-Cascasdia-A2-NW	Cascadia Inn	north wall	14	6/14/10	9:45	6/17/10	<7.6	<12	ND
EXV10-Cascadia-A3-NW	Cascadia Inn	north wall	14	6/14/10	9:42	6/17/10	13	11	24
EXV10-Cascadia-B2-B	Cascadia Inn	bottom	18	6/14/10	11:05	6/17/10	<7.5	<12	ND
EXV10-Cascadia-B3-B	Cascadia Inn	bottom	18	6/14/10	10:22	6/17/10	<6.5	<10	ND
EXV10-Cascadia-B3-EW	Cascadia Inn	east wall	14	6/14/10	10:30	6/17/10	12	<9.3	12
EXV10-Cascadia-C2-B	Cascadia Inn	bottom	18	6/14/10	13:50	6/17/10	<7.3	<12	ND
EXV10-Cascadia-C3-B	Cascadia Inn	bottom	18	6/14/10	13:10	6/17/10	<7.3	<12	ND
EXV10-Cascadia-C3-EW	Cascadia Inn	east wall	14	6/14/10	13:15	6/17/10	19	48	67
EXV10-Cascadia-D1-WW	Cascadia Inn	west wall	14	6/15/10	14:22	6/17/10	310	1,100	1,410
EXV10-Cascadia-D2-B	Cascadia Inn	bottom	18	6/15/10	13:08	6/17/10	<7.5	12	12
EXV10-Cascadia-D3-B	Cascadia Inn	bottom	18	6/15/10	10:11	6/17/10	<6.4	<10	ND
EXV10-Cascadia-D3-EW	Cascadia Inn	bottom	14	6/15/10	10:13	6/17/10	<6.1	<9.7	ND
EXV10-Cascadia-E1-WW	Cascadia Inn	west wall	14	6/15/10	14:53	6/17/10	<5.5	16	16
EXV10-Cascadia-E2-B	Cascadia Inn	bottom	18	6/15/10	13:45	6/17/10	<7.6	<12	ND
EXV10-Cascadia-E3-B	Cascadia Inn	bottom	18	6/15/10	11:40	6/17/10	<7.6	16	16
EXV10-Cascadia-E3-EW	Cascadia Inn	east wall	14	6/15/10	11:45	6/17/10	14	86	100
EXV10-Cascadia-E4-EW	Cascadia Inn	east wall	14	6/15/10	11:48	6/17/10	<5.7	19	19
EXV10-Cascadia-F1-SW	Cascadia Inn	south wall	14	6/15/10	14:12	6/17/10	30	140	170
EXV10-Cascadia-F2-SW	Cascadia Inn	south wall	14	6/15/10	14:15	6/17/10	8.1	46	54.1
EXV10-Cascadia-F3-SW	Cascadia Inn	south wall	14	6/15/10	11:53	6/17/10	13	87	100
EXV10-Cascadia-F4-SW	Cascadia Inn	south wall	14	6/15/10	11:50	6/17/10	11	47	58
EXV10-Robinson-1-3.00	Robinson Property	west wall	3	7/1/10	9:16	7/6/10	34	83	117
EXV10-Robinson-1-6.00	Robinson Property	bottom	6	7/1/10	9:30	7/6/10	34	170	204
EXV10-Robinson-2-3.00	Robinson Property	west wall	3	7/1/10	9:18	7/6/10	18	54	72
EXV10-Robinson-2-6.00	Robinson Property	bottom	6	7/1/10	9:32	7/6/10	13	71	84
EXV10-Robinson-3-3.00	Robinson Property	west wall	3	7/1/10	9:20	7/6/10	480	2,900	3,380
EXV10-Robinson-3-6.00	Robinson Property	bottom	6	7/1/10	9:34	7/6/10	21	85	106
EXV10-Robinson-4-3.00	Robinson Property	west wall	3	7/1/10	9:22	7/6/10	8.6	23	31.6
EXV10-Robinson-4-6.00	Robinson Property	bottom	6	7/1/10	9:36	7/6/10	47	220	267
EXV10-Robinson-5-3.00	Robinson Property	west wall	3	7/1/10	9:24	7/6/10	14	53	67
EXV10-Robinson-5-6.00	Robinson Property	bottom	6	7/1/10	9:38	7/6/10	46	190	236
EXV10-School-1-9.00	School Property	bottom	9	7/12/10	12:40	7/15/10	16,000	21,000	37,000
EXV10-School-2-9.00	School Property	bottom	9	7/12/10	13:55	7/15/10	2,500	3,000	5,500

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-School-3-9.00	School Property	bottom	9	7/12/10	14:56	7/15/10	9,800	11,000	20,800
EXV10-School-4-9.00	School Property	bottom	9	7/12/10	15:32	7/15/10	6,300	7,800	14,100
EXV10-School-5-9.00	School Property	bottom	9	7/12/10	16:15	7/15/10	5,100	6,200	11,300
EXV10-School-6-4.00	School Property	bottom	4	8/16/10	8:35	8/23/10	7.6	<9.8	7.6
EXV10-School-6-6.00	School Property	bottom	6	8/16/10	8:38	8/23/10	13	17	30
EXV10-School-6-8.00	School Property	bottom	8	8/16/10	8:45	8/23/10	11	21	32
EXV10-School-6-10.00	School Property	bottom	10	8/16/10	8:55	8/23/10	9.9	20	29.9
EXV10-School-7-5.00	School Property	bottom	5	8/16/10	10:05	8/23/10	9.6	22	31.6
EXV10-School-7-7.00	School Property	bottom	7	8/16/10	10:10	8/23/10	11	29	40
EXV10-School-7-9.50	School Property	bottom	9.5	8/16/10	10:15	8/23/10	7.9	12	19.9
EXV10-School-8-5.50	School Property	bottom	5.5	8/16/10	10:45	8/23/10	11	31	42
EXV10-School-8-7.50	School Property	bottom	7.5	8/16/10	10:55	8/23/10	8.4	16	24.4
EXV10-School-8-9.50	School Property	bottom	9.5	8/16/10	11:05	8/23/10	120	260	380
EXV10-School-9-5.50	School Property	bottom	5.5	8/16/10	13:10	8/23/10	7.2	<9.2	7.2
EXV10-School-9-7.50	School Property	bottom	7.5	8/16/10	13:20	8/23/10	7.4	9.9	17
EXV10-School-9-9.50	School Property	bottom	9.5	8/16/10	13:30	8/23/10	16	<21	16
EXV10-School-10-5.00	School Property	bottom	5	8/16/10	14:45	8/23/10	120	750	870
EXV10-School-10-7.00	School Property	bottom	7	8/16/10	14:50	8/23/10	26	140	166
EXV10-School-10-9.00	School Property	bottom	9	8/16/10	14:55	8/23/10	32	170	202
EXV10-School-10-11.00	School Property	bottom	11	8/16/10	15:00	8/23/10	13	35	48
EXV10-School-11-5.00	School Property	bottom	5	8/16/10	15:35	8/23/10	13	47	60
EXV10-School-11-7.00	School Property	bottom	7	8/16/10	15:40	8/23/10	12	36	48
EXV10-School-11-9.00	School Property	bottom	9	8/16/10	15:45	8/23/10	7,300	11,000	18,300
EXV10-School-11-11.00	School Property	bottom	11	8/16/10	15:55	8/23/10	1,600	2,500	4,100
EXV10-School-12-5.00	School Property	bottom	5	8/23/10	8:30	8/25/10	8.0	<9.5	8.0
EXV10-School-12-7.00	School Property	bottom	7	8/23/10	8:38	8/25/10	8.0	<9.6	8.0
EXV10-School-12-9.00	School Property	bottom	9	8/23/10	8:45	8/25/10	7.9	<10	7.9
EXV10-School-13-5.00	School Property	bottom	5	8/23/10	9:05	8/25/10	6.8	<9.4	6.8
EXV10-School-13-7.00	School Property	bottom	7	8/23/10	9:11	8/25/10	7.1	<9.0	7.1
EXV10-School-13-9.00	School Property	bottom	9	8/23/10	9:27	8/25/10	8.5	<11	8.5
EXV10-School-14-5.00	School Property	bottom	5	8/23/10	10:09	8/25/10	14	26	40
EXV10-School-14-7.00	School Property	bottom	7	8/23/10	10:12	8/25/10	10	16	26
EXV10-School-14-9.00	School Property	bottom	9	8/23/10	10:18	8/25/10	13	14	27
EXV10-RR Ave-Pothole-1-9.00	6th Street Excavation	bottom	9	7/19/10	8:00	7/19/10	5,700	7,200	12,900
EXV10-RR Ave-Pothole-2-9.00	6th Street Excavation	bottom	9	7/19/10	8:36	7/19/10	<6.6	30	30
EXV10-RR Ave-Pothole-3-9.00	6th Street Excavation	bottom	9	7/19/10	9:33	7/19/10	<6.3	31	31
EXV10-RR Ave-Pothole-4-13.00	6th Street Excavation	bottom	13	7/19/10	10:15	7/19/10	11	72	83
EXV10-RR Ave-Pothole-5-13.00	6th Street Excavation	bottom	13	7/19/10	10:45	7/19/10	<6.5	54	54

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-Pond-A39	Storm Pond	bottom	2	7/22/10	10:25	7/23/10	250	1,200	1,450
EXV10-Pond-A40	Storm Pond	bottom	2	7/22/10	12:10	7/23/10	<5.8	<9.3	ND
EXV10-Pond-B36	Storm Pond	bottom	2	7/22/10	9:12	7/23/10	66	340	406
EXV10-Pond-B37	Storm Pond	bottom	3	7/22/10	9:16	7/23/10	7.2	40	47.2
EXV10-Pond-B38	Storm Pond	bottom	4	7/22/10	9:50	7/23/10	<6.5	<10	ND
EXV10-Pond-B39	Storm Pond	bottom	5	7/22/10	10:27	7/23/10	20	110	130
EXV10-Pond-B40	Storm Pond	bottom	5	7/22/10	12:14	7/23/10	<6.9	43	43
EXV10-Pond-B41	Storm Pond	bottom	4	7/22/10	14:08	7/23/10	890	3,500	4,390
EXV10-Pond-B42	Storm Pond	bottom	4	7/22/10	16:10	7/23/10	140	860	1,000
EXV10-Pond-C36	Storm Pond	bottom	2	7/22/10	9:14	7/23/10	59	260	319
EXV10-Pond-C37	Storm Pond	bottom	3	7/22/10	9:18	7/23/10	130	810	940
EXV10-Pond-C38	Storm Pond	bottom	4	7/22/10	9:52	7/23/10	13	52	65
EXV10-Pond-C39	Storm Pond	bottom	5	7/22/10	10:30	7/23/10	52	490	542
EXV10-Pond-C40	Storm Pond	bottom	5	7/22/10	12:16	7/23/10	25	260	285
EXV10-Pond-C41	Storm Pond	bottom	4	7/22/10	14:10	7/23/10	<6.2	26	26
EXV10-Pond-C42	Storm Pond	bottom	4	7/22/10	16:14	7/23/10	40	410	450
EXV10-FMCE-A1-WW	FMCE	west wall	2	8/5/10	10:20	8/12/10	160	750	910
EXV10-FMCE-A1-B	FMCE	bottom	3	8/5/10	10:22	8/12/10	16	27	43
EXV10-FMCE-A2-NW	FMCE	north wall	2	8/5/10	10:40	8/12/10	34	83	117
EXV10-FMCE-A2-B	FMCE	bottom	3	8/5/10	10:42	8/12/10	100	510	610
EXV10-FMCE-A3-NW	FMCE	north wall	2	8/5/10	10:55	8/12/10	49	230	279
EXV10-FMCE-A3-B	FMCE	bottom	3	8/5/10	10:57	8/12/10	13	43	56
EXV10-FMCE-A4-B	FMCE	bottom	3	8/5/10	12:05	8/12/10	19	22	41
EXV10-FMCE-A4-NW	FMCE	north wall	2	8/5/10	12:08	8/12/10	25	130	155
EXV10-FMCE-A5-EW	FMCE	east wall	2	8/5/10	12:10	8/12/10	16	61	77
EXV10-FMCE-A5-B	FMCE	bottom	3	8/5/10	12:12	8/12/10	9.8	<9.6	9.8
EXV10-FMCE-A11-NW	FMCE	north wall	3	8/5/10	13:32	8/12/10	11	35	46
EXV10-FMCE-A12-B	FMCE	bottom	5	8/5/10	14:45	8/12/10	10	11	21
EXV10-FMCE-A12-NW	FMCE	north wall	3	8/5/10	14:40	8/12/10	28	110	138
EXV10-FMCE-A13-B	FMCE	bottom	5	8/5/10	14:35	8/12/10	10	30	40
EXV10-FMCE-A13-NW	FMCE	north wall	3	8/5/10	14:38	8/12/10	24	96	120
EXV10-FMCE-A13-EW	FMCE	east wall	3	8/5/10	14:42	8/12/10	7.7	14	21.7
EXV10-FMCE-A20-WW	FMCE	west wall	4	8/6/10	13:15	8/10/10	18	60	78
EXV10-FMCE-A21-NW	FMCE	north wall	4	8/6/10	13:17	8/10/10	16	55	71
EXV10-FMCE-A21-B	FMCE	bottom	7	8/6/10	13:58	8/10/10	28	68	96
EXV10-FMCE-A22-NW	FMCE	north wall	4	8/6/10	13:19	8/10/10	86	590	676
EXV10-FMCE-A22-B	FMCE	bottom	7	8/6/10	14:00	8/10/10	120	310	430

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-FMCE-A28-B	FMCE	bottom	6	8/17/10	13:20	8/21/10	40	120	160
EXV10-FMCE-A28-NW	FMCE	north wall	3	8/17/10	13:23	8/21/10	17,000	28,000	45,000
EXV10-FMCE-A28-WW	FMCE	west wall	3	8/19/10	8:00	8/21/10	53	110	163
EXV10-FMCE-A28-NW2	FMCE	north wall	3	8/19/10	7:55	8/21/10	1,900	7,900	9,800
EXV10-FMCE-A29-EW	FMCE	east wall	3	8/19/10	7:50	8/21/10	18,000	30,000	48,000
EXV10-FMCE-A29-B	FMCE	bottom	6	8/17/10	15:15	8/21/10	170	270	440
EXV10-FMCE-A29-NW	FMCE	north wall	3	8/17/10	13:26	8/21/10	14,000	24,000	38,000
EXV10-FMCE-A29-NW2	FMCE	north wall	3	8/19/10	7:58	8/21/10	8,200	14,000	22,200
EXV10-FMCE-A30-SW	FMCE	south wall	3	8/24/10	12:40	8/25/10	17	<20	17
EXV10-FMCE-A30-EW	FMCE	east wall	3	8/24/10	13:08	8/25/10	16	<19	16
EXV10-FMCE-B1-SW	FMCE	south wall	2	8/5/10	10:27	8/12/10	420	2,500	2,920
EXV10-FMCE-B1-WW	FMCE	west wall	2	8/5/10	10:25	8/12/10	36	110	146
EXV10-FMCE-B1-B	FMCE	bottom	3	8/5/10	10:29	8/12/10	11	13	24
EXV10-FMCE-B2-SW	FMCE	south wall	2	8/5/10	10:43	8/12/10	81	310	391
EXV10-FMCE-B2-B	FMCE	bottom	3	8/5/10	10:45	8/12/10	150	750	900
EXV10-FMCE-B3-SW	FMCE	south wall	2	8/5/10	10:59	8/12/10	80	660	740
EXV10-FMCE-B3-B	FMCE	bottom	3	8/5/10	11:02	8/12/10	170	900	1,070
EXV10-FMCE-B4-B	FMCE	bottom	3	8/5/10	11:55	8/12/10	52	160	212
EXV10-FMCE-B4-B2	FMCE	bottom	4	8/5/10	15:36	8/12/10	200	140	340
EXV10-FMCE-B5-B	FMCE	bottom	3	8/5/10	11:58	8/12/10	4,700	14,000	18,700
EXV10-FMCE-B5-B2	FMCE	bottom	4	8/5/10	15:38	8/12/10	14	45	59
EXV10-FMCE-B5-EW	FMCE	east wall	2	8/5/10	12:00	8/12/10	92	230	322
EXV10-FMCE-B9-NW	FMCE	north wall	3	8/5/10	13:12	8/12/10	95	530	625
EXV10-FMCE-B10-NW	FMCE	north wall	3	8/5/10	13:30	8/12/10	12	44	56
EXV10-FMCE-B10-B	FMCE	bottom	5	8/5/10	14:10	8/12/10	12	36	48
EXV10-FMCE-B11-B	FMCE	bottom	5	8/5/10	14:12	8/12/10	9.3	17	26.3
EXV10-FMCE-B12-B	FMCE	bottom	5	8/5/10	14:20	8/12/10	17	29	46
EXV10-FMCE-B13-B	FMCE	bottom	5	8/5/10	14:22	8/12/10	11	14	25
EXV10-FMCE-B13-EW	FMCE	east wall	3	8/5/10	14:25	8/12/10	16	30	46
EXV10-FMCE-B20-WW	FMCE	west wall	4	8/6/10	13:28	8/10/10	18	59	77
EXV10-FMCE-B21-B	FMCE	bottom	7	8/6/10	13:50	8/10/10	240	380	620
EXV10-FMCE-B22-B	FMCE	bottom	7	8/6/10	13:52	8/10/10	210	490	700
EXV10-FMCE-B23-EW	FMCE	east wall	4	8/6/10	13:22	8/10/10	41	230	271
EXV10-FMCE-B28-B	FMCE	bottom	6	8/17/10	13:18	8/21/10	9.9	23	32.9
EXV10-FMCE-B28-SW	FMCE	south wall	3	8/17/10	13:35	8/21/10	10	16	26
EXV10-FMCE-B29-B	FMCE	bottom	6	8/17/10	13:15	8/21/10	23	51	73
EXV10-FMCE-B29-SW	FMCE	south wall	3	8/17/10	13:30	8/21/10	13	24	37

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-FMCE-C4-SW	FMCE	south wall	2	8/5/10	11:20	8/12/10	16	81	97
EXV10-FMCE-C4-B	FMCE	bottom	3	8/5/10	11:22	8/12/10	15	47	62
EXV10-FMCE-C4-B (ALT)	FMCE	bottom	3	8/5/10	12:40	8/12/10	35,000	98,000	133,000
EXV10-FMCE-C4-B2	FMCE	bottom	4	8/5/10	15:34	8/12/10	10	<13	10
EXV10-FMCE-C5-EW	FMCE	east wall	2	8/5/10	11:24	8/12/10	15	52	67
EXV10-FMCE-C5-B	FMCE	bottom	3	8/5/10	11:24	8/12/10	14	19	33
EXV10-FMCE-C5-B2	FMCE	bottom	4	8/5/10	15:32	8/12/10	8.3	<11	8.3
EXV10-FMCE-C9-SW	FMCE	south wall	3	8/5/10	13:06	8/12/10	210	1,300	1,510
EXV10-FMCE-C9-WW	FMCE	west wall	3	8/5/10	13:08	8/12/10	99	380	479
EXV10-FMCE-C9-B	FMCE	bottom	5	8/5/10	13:10	8/12/10	11	25	36
EXV10-FMCE-C10-SW	FMCE	south wall	3	8/5/10	13:15	8/12/10	540	3,500	4,040
EXV10-FMCE-C10-SW2	FMCE	south wall	3	8/9/10	8:40	8/12/10	970	4,600	5,570
EXV10-FMCE-C10-SW3	FMCE	south wall	3	8/10/10	9:25	8/12/10	420	2,100	2,520
EXV10-FMCE-C10-B	FMCE	bottom	5	8/5/10	14:15	8/12/10	8.2	11	19.2
EXV10-FMCE-C11-SW	FMCE	south wall	3	8/5/10	13:17	8/12/10	17	60	77
EXV10-FMCE-C12-SW	FMCE	south wall	3	8/5/10	13:20	8/12/10	13	64	77
EXV10-FMCE-C12-SW2	FMCE	south wall	3	8/5/10	14:30	8/12/10	2,100	3,500	5,600
EXV10-FMCE-C12-SW3	FMCE	south wall	3	8/9/10	8:45	8/12/10	48	97	145
EXV10-FMCE-C13-SW	FMCE	south wall	3	8/5/10	13:22	8/12/10	15,000	24,000	39,000
EXV10-FMCE-C13-SW2	FMCE	south wall	3	8/5/10	14:32	8/12/10	190	350	540
EXV10-FMCE-C20-WW	FMCE	west wall	4	8/6/10	13:30	8/10/10	18	30	48
EXV10-FMCE-C21-B	FMCE	bottom	7	8/6/10	13:54	8/10/10	31	67	98
EXV10-FMCE-C22-B	FMCE	bottom	7	8/6/10	13:56	8/10/10	49	130	179
EXV10-FMCE-C23-EW	FMCE	east wall	4	8/6/10	13:38	8/10/10	9.2	15	24.2
EXV10-FMCE-D20-SW	FMCE	south wall	4	8/6/10	13:32	8/10/10	7.6	14	21.6
EXV10-FMCE-D21-SW	FMCE	south wall	4	8/6/10	13:34	8/10/10	43	74	117
EXV10-FMCE-D22-SW	FMCE	south wall	4	8/6/10	13:36	8/10/10	43	74	117
EXV10-RYZE-H11-NW	RYZE	north wall	9	8/11/10	11:48	8/13/10	7,700	13,000	20,700
EXV10-RYZE-H11-B	RYZE	bottom	18	8/11/10	12:40	8/13/10	<7.0	<11	ND
EXV10-RYZE-H12-NW	RYZE	north wall	9	8/11/10	10:58	8/13/10	5,700	9,800	15,500
EXV10-RYZE-H12-B	RYZE	bottom	18	8/11/10	12:45	8/13/10	7.9	12	19.9
EXV10-RYZE-H13-B	RYZE	bottom	18	8/10/10	12:15	8/12/10	12	17	29
EXV10-RYZE-H13-NW	RYZE	north wall	9	8/10/10	11:45	8/12/10	14,000	18,000	32,000
EXV10-RYZE-H14-B	RYZE	bottom	18	8/9/10	14:12	8/12/10	18	<24	18
EXV10-RYZE-H14-NW	RYZE	north wall	9	8/9/10	14:05	8/12/10	5,400	7,100	12,500
EXV10-RYZE-H15-B	RYZE	bottom	18	8/9/10	12:52	8/12/10	8.3	12	20.3
EXV10-RYZE-H15-NW	RYZE	north wall	9	8/9/10	13:48	8/12/10	9,900	13,000	22,900

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
EXV10-RYZE-H18-NW	RYZE	north wall	9	8/17/10	9:25	8/21/10	8,900	20,000	28,900
EXV10-RYZE-H19-NW	RYZE	north wall	9	8/17/10	9:30	8/21/10	6,900	2,400	9,300
EXV10-RYZE-I11-B	RYZE	bottom	18	8/11/10	14:05	8/13/10	8.8	15	23.8
EXV10-RYZE-I12-B	RYZE	bottom	18	8/11/10	14:10	8/13/10	8.2	12	20.2
EXV10-RYZE-I13-B	RYZE	bottom	18	8/10/10	13:25	8/12/10	20	<23	20
EXV10-RYZE-I14-B	RYZE	bottom	18	8/9/10	15:35	8/12/10	9.9	12	21.9
EXV10-RYZE-I15-B	RYZE	bottom	18	8/9/10	13:42	8/12/10	16	<23	16
EXV10-RYZE-J11-B	RYZE	bottom	18	8/16/10	13:40	8/18/10	22	<21	22
EXV10-RYZE-J11-SW	RYZE	south wall	9	8/16/10	14:45	8/18/10	23	57	80
EXV10-RYZE-J12-B	RYZE	bottom	18	8/16/10	14:30	8/18/10	9.5	16	25.5
EXV10-RYZE-J12-SW	RYZE	south wall	9	8/16/10	16:05	8/18/10	7.8	16	23.8
EXV10-RYZE-J13-B	RYZE	bottom	18	8/11/10	15:30	8/13/10	8.3	<13	8.3
EXV10-RYZE-J13-SW	RYZE	south wall	9	8/16/10	16:10	8/18/10	9.0	<10	9.0
EXV10-RYZE-J14-B	RYZE	bottom	18	8/10/10	9:00	8/12/10	20	<23	20
EXV10-RYZE-J14-SW	RYZE	south wall	9	8/16/10	16:15	8/18/10	7.5	<11	7.5
EXV10-RYZE-J15-B	RYZE	bottom	18	8/10/10	9:05	8/12/10	23	29	52
EXV10-RYZE-J15-SW	RYZE	south wall	9	8/16/10	16:20	8/18/10	7.1	<10	7.1
EXV10-RYZE-J16-B	RYZE	bottom	18	8/23/10	10:25	8/25/10	15	<21	15
EXV10-RYZE-J16-SW	RYZE	south wall	9	8/20/10	9:45	8/23/10	8.5	10	18.5
EXV10-RYZE-J17-B	RYZE	bottom	18	8/23/10	10:35	8/25/10	7.5	<10	7.5
EXV10-RYZE-J17-SW	RYZE	south wall	9	8/20/10	9:50	8/23/10	8.4	16	24.4
EXV10-RYZE-J18-SW	RYZE	south wall	9	8/19/10	10:20	8/21/10	8.9	15	23.9
EXV10-RYZE-J18-B	RYZE	bottom	18	8/19/10	10:25	8/21/10	23	35	58
EXV10-RYZE-J19-B	RYZE	bottom	18	8/19/10	11:46	8/21/10	16	<24	16
EXV10-RYZE-J19-SW	RYZE	south wall	9	8/19/10	14:36	8/21/10	28	87	105
EXV10-RYZE-J20-B	RYZE	bottom	18	8/19/10	12:40	8/21/10	8.6	<12	8.6
EXV10-RYZE-J20-SW	RYZE	south wall	9	8/19/10	14:03	8/21/10	7.0	<10	7.0
EXV10-RYZE-J21-B	RYZE	bottom	18	8/19/10	13:55	8/21/10	8.2	<12	8.2
EXV10-RYZE-J21-EW	RYZE	east wall	9	8/19/10	13:50	8/21/10	9.3	<10	9.3
EXV10-RYZE-J21-SW	RYZE	south wall	9	8/19/10	13:58	8/21/10	8.1	<10	8.1

Table 5-3 2010 Excavation Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Diesel (mg/kg)	Oil (mg/kg)	Total TPH-Dx (Diesel + Oil) (mg/kg) RL=3,400mg/kg
Duplicates									
EXV10-Z1-051610 (dup of EXV10-E3-B)	2009-2010 excavation	bottom	22	5/16/10	14:51	5/20/10	<7.4	<12	ND
EXV10-Z1-051710 (dup of EXV10-B5-SW)	2009-2010 excavation	south wall	10	5/17/10	17:17	5/20/10	4,400	5,900	10,300
EXV10-Z1-052010 (dup of EXV10-E5-B)	2009-2010 excavation	bottom	22	5/20/10	17:20	5/25/10	<7.2	<12	ND
EXV10-Z1-052410 (dup of EXV10-F7-B)	2009-2010 excavation	bottom	22	5/24/10	16:10	5/25/10	<7.0	<11	ND
EXV10-Z1-052710 (dup of EXV10-F8-B)	2009-2010 excavation	bottom	22	5/27/10	13:50	6/1/10	<7.4	<12	ND
EXV10-Z1-060110 (dup of EXV10-A4-SW)	2009-2010 excavation	south wall	18	6/1/10	13:35	6/3/10	<6.3	19	19
EXV10-Z1-060710 (dup of EXV10-G7-B)	2009-2010 excavation	bottom	20	6/7/10	11:45	6/9/10	<7.7	14	14
EXV10-Z1-060910 (dup of EXV10-I7-B)	2009-2010 excavation	bottom	20	6/9/10	12:02	6/17/10	<7.0	<11	ND
EXV10-Z1-062210 (dup of EXV10-P10-B)	2009-2010 excavation	bottom	17	6/22/10	19:08	6/24/10	<7.9	25	25
EXV10-Z1-062410 (dup of EXV10-R15-B)	2009-2010 excavation	bottom	17	6/24/10	12:14	6/28/10	11	21	32
EXV10-Z1-072210 (dup of EXV10-Pond-C39)	Storm Pond	bottom	5	7/22/10	10:35	7/23/10	150	500	650
EXV10-Z1-080210 (dup of EXV10-A'S2-B)	RR Ave & School Excavation	bottom	14	8/2/10	15:40	8/4/10	9.0	<12	9.0
EXV10-Z1-080510 (dup of EXV10-FMCE-C5-B)	FMCE	bottom	3	8/5/10	11:30	8/12/10	14	18	32
EXV10-Z2-080510 (dup of EXV10-FMCE-C13-SW)	FMCE	south wall	3	8/5/10	13:25	8/12/10	16,000	25,000	41,000
EXV10-Z1-080610 (dup of EXV10-FMCE-A22-B)	FMCE	bottom	7	8/6/10	14:10	8/10/10	110	380	490
EXV10-Z1-081110 (dup of EXV10-RYZE-H12-B)	RYZE	bottom	18	8/11/10	12:50	8/13/10	7.9	<12	7.9
EXV10-Z1-081710 (dup of EXV10-RYZE-A29-B)	RYZE	bottom	18	8/17/10	15:20	8/21/10	120	240	360
EXV10-Z1-082310 (dup of EXV10-School12-9.00)	School Property	bottom	9	8/23/10	8:50	8/25/10	8.4	11	19.4

Notes:

Sample Result in mg/kg : Sample results exceeding CULs.

Table 5-4 2010 Metals Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Arsenic (mg/kg) CUL=20mg/kg	Lead (mg/kg) CUL=250mg/kg
ME10-HCC-A1-WW	East End HCC Metals	west wall	2	5/24/10	14:05	5/26/10	4.9	5.5
ME10-HCC-A1-NW	East End HCC Metals	north wall	2	5/24/10	14:10	5/26/10	10	17
ME10-HCC-A1-6.00	East End HCC Metals	center	6	5/24/10	14:15	5/26/10	6.5	4.1
ME10-HCC-A2-NW	East End HCC Metals	north wall	2	5/24/10	15:35	5/26/10	9.5	44
ME10-HCC-A3-NW	East End HCC Metals	north wall	2	5/24/10	15:40	5/26/10	9.6	7.6
ME10-HCC-A4-NW	East End HCC Metals	north wall	1	6/22/10	14:25	6/25/10	14	14
ME10-HCC-A5-NW	East End HCC Metals	north wall	1	6/22/10	14:30	6/25/10	21	94
ME10-HCC-A5'-NW	East End HCC Metals	north wall	1	6/28/10	8:30	6/30/10	5.1	5.4
ME10-HCC-A6-NW	East End HCC Metals	north wall	1	7/6/10	10:24	7/7/10	6.6	24
ME10-HCC-B1-WW	East End HCC Metals	west wall	2	5/24/10	12:55	5/26/10	5.4	7.0
ME10-HCC-B7-NW	East End HCC Metals	north wall	1	7/6/10	10:16	7/7/10	7.2	92
ME10-HCC-B8-NW	East End HCC Metals	north wall	1	7/6/10	10:12	7/7/10	6.1	64
ME10-HCC-B9-NW	East End HCC Metals	north wall	1	7/6/10	10:06	7/7/10	7.5	38
ME10-HCC-B9-EW	East End HCC Metals	east wall	1	7/6/10	10:02	7/7/10	11	58
ME10-HCC-C1-SW	East End HCC Metals	south wall	2	5/24/10	12:50	5/26/10	5.0	3.5
ME10-HCC-C2-SW	East End HCC Metals	south wall	2	5/24/10	12:30	5/26/10	4.1	2.9
ME-10-HCC-C3-SW	East End HCC Metals	south wall	2	5/24/10	12:40	5/26/10	37	8.7
ME10-HCC-C3'-SW	East End HCC Metals	south wall	1	6/28/10	8:10	6/30/10	8.3	33
ME10-HCC-C4-SW	East End HCC Metals	south wall	1	6/22/10	14:35	6/25/10	20	7.4
ME10-HCC-C4'-SW	East End HCC Metals	south wall	1	6/28/10	8:15	6/30/10	3.7	4.7
ME10-HCC-C5-SW	East End HCC Metals	south wall	1	6/22/10	14:40	6/25/10	7.1	6.3
ME10-HCC-C6-SW	East End HCC Metals	south wall	1	7/6/10	10:18	7/7/10	8.2	40
ME10-HCC-C7-SW	East End HCC Metals	south wall	1	7/6/10	10:14	7/7/10	6.8	17
ME10-HCC-C8-SW	East End HCC Metals	south wall	1	7/6/10	10:09	7/7/10	25	19
ME10-HCC-C8'-SW	East End HCC Metals	south wall	1	7/26/10	14:35	7/27/10	7.3	42
ME10-HCC-C9-SW	East End HCC Metals	south wall	1	7/6/10	10:04	7/7/10	7.0	91
ME10-HCC-C9-EW	East End HCC Metals	east wall	1	7/6/10	10:00	7/7/10	17	7.6
ME10-RYZW-EA1-A1-NW	RYZ West Excavation Metals	north wall	1	7/7/10	11:20	7/9/10	10	52
ME10-RYZW-EA1-A1-WW	RYZ West Excavation Metals	west wall	1	7/7/10	11:27	7/9/10	8.0	31
ME10-RYZW-EA1-A1-SW	RYZ West Excavation Metals	south wall	1	7/7/10	11:13	7/9/10	6.0	16
ME10-RYZW-EA1-A2-NW	RYZ West Excavation Metals	north wall	1	7/7/10	11:30	7/9/10	9.9	12
ME10-RYZW-EA1-A2-EW	RYZ West Excavation Metals	east wall	1	7/7/10	11:25	7/9/10	9.7	78
ME10-RYZW-EA1-B2-EW	RYZ West Excavation Metals	east wall	1	7/7/10	11:15	7/9/10	9.4	6.8
ME10-RYZW-EA1-B2-SW	RYZ West Excavation Metals	south wall	1	7/7/10	11:18	7/9/10	7.3	15

Table 5-4 2010 Metals Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Arsenic (mg/kg) CUL=20mg/kg	Lead (mg/kg) CUL=250mg/kg
ME10-RYZW-EA1-C1-NW	RYZ West Excavation Metals	north wall	1	7/6/10	16:54	7/7/10	19	390
ME10-RYZW-EA1-C1'-NW	RYZ West Excavation Metals	north wall	1	7/6/10	16:54	7/22/10	15	220
ME10-RYZW-EA1-C1-EW	RYZ West Excavation Metals	east wall	1	7/6/10	16:48	7/7/10	14	80
ME10-RYZW-EA1-C1-SW	RYZ West Excavation Metals	south wall	1	7/6/10	16:50	7/7/10	11	420
ME10-RYZW-EA1-C1-WW	RYZ West Excavation Metals	west wall	1	7/6/10	16:52	7/7/10	15	12
ME10-RYZW-EA2-AA3-NW	RYZ West Excavation Metals	north wall	1	7/13/10	9:35	7/15/10	11	90
ME10-RYZW-EA2-AA3-WW	RYZ West Excavation Metals	west wall	1	7/13/10	9:38	7/15/10	13	6.6
ME10-RYZW-EA2-AA3-SW	RYZ West Excavation Metals	south wall	1	7/13/10	9:48	7/15/10	6.8	230
ME10-RYZW-EA2-AA4-NW	RYZ West Excavation Metals	north wall	1	7/13/10	9:41	7/15/10	6.2	15
ME10-RYZW-EA2-AA4-EW	RYZ West Excavation Metals	east wall	1	7/13/10	9:44	7/15/10	7.2	15
ME10-RYZW-EA2-AA4-SW	RYZ West Excavation Metals	south wall	1	7/13/10	9:46	7/15/10	5.6	1600
ME10-RYZW-EA2-A0'-NW	RYZ West Excavation Metals	north wall	1	7/15/10	11:40	7/20/10	8.8	6.3
ME10-RYZW-EA2-A0'-WW	RYZ West Excavation Metals	west wall	1	7/15/10	12:05	7/20/10	7.7	22
ME10-RYZW-EA2-A0'-SW	RYZ West Excavation Metals	south wall	1	7/15/10	11:45	7/20/10	77	32
ME10-RYZW-EA2-A00'-NW	RYZ West Excavation Metals	north wall	1	7/28/10	13:20	7/29/10	12	22
ME10-RYZW-EA2-A000'-NW	RYZ West Excavation Metals	north wall	1	7/28/10	13:22	7/29/10	9.1	5.0
ME10-RYZW-EA2-A000'-WW	RYZ West Excavation Metals	west wall	1	7/28/10	13:25	7/29/10	10	5.4
ME10-RYZW-EA2-A0-NW	RYZ West Excavation Metals	north wall	1	7/13/10	11:20	7/15/10	15	13
ME10-RYZW-EA2-A0-WW	RYZ West Excavation Metals	west wall	1	7/13/10	11:22	7/15/10	31	150
ME10-RYZW-EA2-A1-WW	RYZ West Excavation Metals	west wall	1	6/30/10	16:10	7/2/10	130	38
ME10-RYZW-EA2-A1-SW	RYZ West Excavation Metals	south wall	1	6/30/10	16:00	7/2/10	120	67
ME10-RYZW-EA2-A1-NW	RYZ West Excavation Metals	north wall	1	6/30/10	15:25	7/2/10	12	33
ME10-RYZW-EA2-A2-NW	RYZ West Excavation Metals	north wall	1	6/30/10	15:20	7/2/10	19	36
ME10-RYZW-EA2-A2-SW	RYZ West Excavation Metals	south wall	1	6/30/10	15:45	7/2/10	140	96
ME10-RYZW-EA2-A3-NW	RYZ West Excavation Metals	north wall	1	6/30/10	14:54	7/2/10	7.3	260
ME10-RYZW-EA2-A3-SW	RYZ West Excavation Metals	south wall	1	6/30/10	14:56	7/2/10	730	520
ME10-RYZW-EA2-A4-EW	RYZ West Excavation Metals	east wall	1	6/30/10	14:45	7/2/10	280	170
ME10-RYZW-EA2-A4-SW	RYZ West Excavation Metals	south wall	1	6/30/10	14:48	7/2/10	45	230
ME10-RYZW-EA2-A4-NW	RYZ West Excavation Metals	north wall	1	6/30/10	14:50	7/2/10	4.7	110
ME10-RYZW-EA2-B0'-SW	RYZ West Excavation Metals	south wall	1	7/20/10	11:22	7/22/10	16	44
ME10-RYZW-EA2-B0'-WW	RYZ West Excavation Metals	west wall	1	7/20/10	11:24	7/22/10	22	69
ME10-RYZW-EA2-B00'-SW	RYZ West Excavation Metals	south wall	1	7/26/10	16:30	7/27/10	14	15
ME10-RYZW-EA2-B00'-WW	RYZ West Excavation Metals	west wall	1	7/26/10	16:35	7/27/10	420	130
ME10-RYZW-EA2-B00'-NW	RYZ West Excavation Metals	north wall	1	7/26/10	16:40	7/27/10	25	26
ME10-RYZW-EA2-B000'-WW	RYZ West Excavation Metals	west wall	1	7/28/10	13:30	7/29/10	340	11
ME10-RYZW-EA2-B000'-SW	RYZ West Excavation Metals	south wall	1	7/28/10	13:35	7/29/10	12	23
ME10-RYZW-EA2-B0-WW	RYZ West Excavation Metals	west wall	1	7/13/10	11:40	7/15/10	8.2	21

Table 5-4 2010 Metals Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Arsenic (mg/kg) CUL=20mg/kg	Lead (mg/kg) CUL=250mg/kg
ME10-RYZW-EA2-B0-SW	RYZ West Excavation Metals	south wall	1	7/13/10	11:42	7/15/10	18	22
ME10-RYZW-EA2-B1-SW	RYZ West Excavation Metals	south wall	1	7/13/10	13:15	7/15/10	6.8	6.5
ME10-RYZW-EA2-B2-SW	RYZ West Excavation Metals	south wall	1	7/13/10	13:17	7/15/10	5.3	6.0
ME10-RYZW-EA2-B3-SW	RYZ West Excavation Metals	south wall	1	7/13/10	13:20	7/15/10	7.5	5.0
ME10-RYZW-EA2-B3-NW	RYZ West Excavation Metals	north wall	1	7/13/10	13:22	7/15/10	23	140
ME10-RYZW-EA2-B4-SW	RYZ West Excavation Metals	south wall	1	7/13/10	16:26	7/15/10	6.0	7.1
ME10-RYZW-EA2-B4-NW	RYZ West Excavation Metals	north wall	1	7/14/10	8:20	7/16/10	31	170
ME10-RYZW-EA3-A1-WW	RYZ West Excavation Metals	west wall	1	7/1/10	11:15	7/3/10	19	140
ME10-RYZW-EA3-A1-NW	RYZ West Excavation Metals	north wall	1	7/1/10	11:18	7/3/10	8.1	52
ME10-RYZW-EA3-A1-EW	RYZ West Excavation Metals	east wall	1	7/1/10	11:20	7/3/10	130	120
ME10-RYZW-EA3-A2-NW	RYZ West Excavation Metals	north wall	1	7/14/10	14:35	7/16/10	5.5	12
ME10-RYZW-EA3-A2-SW	RYZ West Excavation Metals	south wall	1	7/14/10	14:38	7/16/10	5.6	270
ME10-RYZW-EA3-A3-NW	RYZ West Excavation Metals	north wall	1	7/14/10	14:18	7/16/10	12	67
ME10-RYZW-EA3-A3-SW	RYZ West Excavation Metals	south wall	1	7/14/10	14:24	7/16/10	29	70
ME10-RYZW-EA3-B0-NW	RYZ West Excavation Metals	north wall	1	7/14/10	8:25	7/16/10	22	76
ME10-RYZW-EA3-B1-WW	RYZ West Excavation Metals	west wall	1	7/1/10	11:22	7/3/10	64	5,700
ME10-RYZW-EA3-B1-SW	RYZ West Excavation Metals	south wall	1	7/1/10	11:25	7/3/10	8.6	610
ME10-RYZW-EA3-B1-EW	RYZ West Excavation Metals	east wall	1	7/1/10	11:28	7/3/10	9.1	33
ME10-RYZW-EA3-B2-SW	RYZ West Excavation Metals	south wall	1	7/21/10	10:40	7/22/10	7.3	11
ME10-RYZW-EA3-B2-NW	RYZ West Excavation Metals	north wall	1	7/21/10	10:23	7/22/10	23	760
ME10-RYZW-EA3-B3-SW	RYZ West Excavation Metals	south wall	1	7/21/10	11:24	7/22/10	4.7	4.9
ME10-RYZW-EA3-B4-SW	RYZ West Excavation Metals	south wall	1	7/21/10	11:40	7/22/10	4.6	30
ME10-RYZW-EA3-C0-SW	RYZ West Excavation Metals	south wall	1	7/14/10	8:27	7/16/10	7.1	12
ME10-RYZW-EA3-C1-SW	RYZ West Excavation Metals	south wall	1	7/14/10	8:35	7/16/10	5.9	40
ME10-RYZW-EA3-C1-EW	RYZ West Excavation Metals	east wall	1	7/14/10	8:45	7/16/10	6.0	4.3
ME10-RYZW-EA4-A1-NW	RYZ West Excavation Metals	north wall	1	7/6/10	9:38	7/7/10	5.5	67
ME10-RYZW-EA4-A1-WW	RYZ West Excavation Metals	west wall	1	7/6/10	9:35	7/7/10	13	7.3
ME10-RYZW-EA4-A1-SW	RYZ West Excavation Metals	south wall	1	7/6/10	9:40	7/7/10	8.1	7.1
ME10-RYZW-EA4-A2-NW	RYZ West Excavation Metals	north wall	1	7/6/10	9:42	7/7/10	10	280
ME10-RYZW-EA4-A2-SW	RYZ West Excavation Metals	south wall	1	7/6/10	9:45	7/7/10	60	36
ME10-RYZW-EA4-A3-NW	RYZ West Excavation Metals	north wall	1	7/6/10	9:48	7/7/10	7.0	35
ME10-RYZW-EA4-A3-SW	RYZ West Excavation Metals	south wall	1	7/6/10	9:50	7/7/10	18	150
ME10-RYZW-EA4-A4-NW	RYZ West Excavation Metals	north wall	1	7/6/10	9:55	7/7/10	7.5	33
ME10-RYZW-EA4-A4-SW	RYZ West Excavation Metals	south wall	1	7/6/10	9:56	7/7/10	61	260
ME10-RYZW-EA4-A5-NW	RYZ West Excavation Metals	north wall	1	7/6/10	11:02	7/7/10	25	270
ME10-RYZW-EA4-A5-SW	RYZ West Excavation Metals	south wall	1	7/6/10	11:05	7/7/10	10	76

Table 5-4 2010 Metals Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Arsenic (mg/kg) CUL=20mg/kg	Lead (mg/kg) CUL=250mg/kg
ME10-RYZW-EA4-A6-NW	RYZ West Excavation Metals	north wall	1	7/6/10	11:08	7/7/10	5.3	15
ME10-RYZW-EA4-A6-SW	RYZ West Excavation Metals	south wall	1	7/6/10	11:10	7/7/10	6.5	6.1
ME10-RYZW-EA4-A7-NW	RYZ West Excavation Metals	north wall	1	7/6/10	12:00	7/7/10	15	120
ME10-RYZW-EA4-A7-SW	RYZ West Excavation Metals	south wall	1	7/6/10	12:05	7/7/10	2.8	4.6
ME10-RYZW-EA4-A8-NW	RYZ West Excavation Metals	north wall	1	7/6/10	12:15	7/7/10	4.4	4.3
ME10-RYZW-EA4-A8-SW	RYZ West Excavation Metals	south wall	1	7/6/10	12:10	7/7/10	3.8	6.3
ME10-RYZW-EA4-A8-EW	RYZ West Excavation Metals	east wall	1	7/6/10	12:12	7/7/10	24	140
ME10-RYZW-EA4-B4-NW	RYZ West Excavation Metals	north wall	1	7/1/10	12:37	7/3/10	21	74
ME10-RYZW-EA4-B4-WW	RYZ West Excavation Metals	west wall	1	7/1/10	12:35	7/3/10	26	1,600
ME10-RYZW-EA4-B5-NW	RYZ West Excavation Metals	north wall	1	7/1/10	12:38	7/3/10	22	310
ME10-RYZW-EA4-B6-NW	RYZ West Excavation Metals	north wall	1	7/1/10	12:30	7/3/10	39	160
ME10-RYZW-EA4-B6-SW	RYZ West Excavation Metals	south wall	1	7/1/10	12:32	7/3/10	26	310
ME10-RYZW-EA4-B7-NW	RYZ West Excavation Metals	north wall	1	7/1/10	12:22	7/3/10	270	130
ME10-RYZW-EA4-B7-EW	RYZ West Excavation Metals	east wall	1	7/1/10	12:20	7/3/10	160	150
ME10-RYZW-EA4-B7-SW	RYZ West Excavation Metals	south wall	1	7/1/10	12:25	7/3/10	97	61
ME10-RYZW-EA4-B8-EW	RYZ West Excavation Metals	east wall	1	7/14/10	11:56	7/16/10	170	34
ME10-RYZW-EA4-B9-NW	RYZ West Excavation Metals	north wall	1	7/20/10	9:30	7/22/10	50	450
ME10-RYZW-EA4-B9-EW	RYZ West Excavation Metals	east wall	1	7/20/10	9:32	7/22/10	7.6	42
ME10-RYZW-EA4-B9-SW	RYZ West Excavation Metals	south wall	1	7/20/10	9:35	7/22/10	8.9	40
ME10-RYZW-EA4-C2-SW	RYZ West Excavation Metals	south wall	1	7/20/10	8:30	7/22/10	120	6200
ME10-RYZW-EA4-C3-NW	RYZ West Excavation Metals	north wall	1	7/1/10	13:22	7/3/10	140	230
ME10-RYZW-EA4-C3-WW	RYZ West Excavation Metals	west wall	1	7/1/10	14:35	7/3/10	9.9	15
ME10-RYZW-EA4-C3-SW	RYZ West Excavation Metals	south wall	1	7/19/10	15:22	7/20/10	76	390
ME10-RYZW-EA4-C5-EW	RYZ West Excavation Metals	east wall	1	7/1/10	15:25	7/3/10	38	21
ME10-RYZW-EA4-C6-SW	RYZ West Excavation Metals	south wall	1	7/14/10	10:12	7/16/10	3.5	4.1
ME10-RYZW-EA4-C7-SW	RYZ West Excavation Metals	south wall	1	7/14/10	11:05	7/16/10	4.9	4.8
ME10-RYZW-EA4-C8-SW	RYZ West Excavation Metals	south wall	1	7/14/10	12:30	7/16/10	8.8	28
ME10-RYZW-EA4-C8-EW	RYZ West Excavation Metals	east wall	1	7/14/10	12:32	7/16/10	6.3	100
ME10-RYZW-EA4-D3-WW	RYZ West Excavation Metals	west wall	1	7/1/10	14:34	7/3/10	7.0	31
ME10-RYZW-EA4-D3-SW	RYZ West Excavation Metals	south wall	1	7/1/10	14:38	7/3/10	9.0	160
ME10-RYZW-EA4-D4-SW	RYZ West Excavation Metals	south wall	1	7/1/10	14:40	7/3/10	6.2	18
ME10-RYZW-EA4-D5-EW	RYZ West Excavation Metals	east wall	1	7/1/10	15:20	7/3/10	7.9	12
ME10-RYZW-EA4-D5'-SW	RYZ West Excavation Metals	east wall	1	7/20/10	10:30	7/22/10	5.8	36
ME10-RYZW-EA4-D5-SW	RYZ West Excavation Metals	south wall	1	7/14/10	10:08	7/16/10	20	250
ME10-RYZW-EA4-D6-SW	RYZ West Excavation Metals	south wall	1	7/14/10	10:10	7/16/10	6.8	29
ME10-RYZE-E1-NW	RYZ East Excavation Metals	north wall	1	6/30/10	10:35	7/2/10	2.2	18

Table 5-4 2010 Metals Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Arsenic (mg/kg) CUL=20mg/kg	Lead (mg/kg) CUL=250mg/kg
ME10-RYZE-E1-EW	RYZ East Excavation Metals	east wall	1	6/30/10	10:50	7/2/10	6.2	22
ME10-RYZE-E1-SW	RYZ East Excavation Metals	south wall	1	6/30/10	10:40	7/2/10	19	230
ME10-RYZE-E1-WW	RYZ East Excavation Metals	west wall	1	6/30/10	10:45	7/2/10	7.0	15
ME10-RYZE-G2-NW	RYZ East Excavation Metals	north wall	1	7/20/10	15:48	7/22/10	12	28
ME10-RYZE-G2-WW	RYZ East Excavation Metals	west wall	1	7/20/10	15:52	7/22/10	19	100
ME10-RYZE-G3-NW	RYZ East Excavation Metals	north wall	1	7/20/10	15:55	7/22/10	17	240
ME10-RYZE-G3-EW	RYZ East Excavation Metals	east wall	1	7/20/10	15:58	7/22/10	5.6	15
ME10-RYZE-H2-WW	RYZ East Excavation Metals	west wall	1	7/20/10	16:00	7/22/10	7.3	200
ME10-RYZE-H2-SW	RYZ East Excavation Metals	south wall	1	7/20/10	16:05	7/22/10	11	570
ME10-RYZE-H3-EW	RYZ East Excavation Metals	east wall	1	7/20/10	16:08	7/22/10	5.4	37
ME10-RYZE-H3-SW	RYZ East Excavation Metals	south wall	1	7/20/10	16:10	7/22/10	13	130
Duplicates								
ME10-Z1-063010 (dup of RYZE-E1-EW)	RYZ East Excavation Metals	east wall	1	6/30/10	10:55	7/2/10	7.2	33
ME10-Z1-070610 (dup of RYZW-EA4-A3-SW)	RYZ West Excavation Metals	south wall	1	7/6/10	9:52	7/7/10	18	170
ME10-Z2-070610 (dup of RYZW-EA1-C1-NW)	RYZ West Excavation Metals	north wall	1	7/6/10	16:56	7/7/10	17	400
ME10-Z1-070710 (dup of RYZW-EA1-B2-SW)	RYZ West Excavation Metals	south wall	1	7/7/10	11:20	7/9/10	7.9	7.0
ME10-Z1-071310 (dup of RYZW-EA2-A0-WW)	RYZ West Excavation Metals	west wall	1	7/13/10	11:25	7/15/10	33	160
ME10-Z1-071410 (dup of RYZW-EA4-B8-EW)	RYZ West Excavation Metals	east wall	1	7/14/10	12:00	7/16/10	95	24
ME10-Z1-072010 (dup of RYZW-EA4-B9-SW)	RYZ West Excavation Metals	south wall	1	7/20/10	9:38	7/22/10	11	33
ME10-Z1-072110 (dup of RYZW-EA3-B4-SW)	RYZ West Excavation Metals	south wall	1	7/21/10	11:45	7/22/10	5.5	12
ME10-Z1-072610 (dup of HCC-C8'-SW)	East End HCC Metals	south wall	1	7/26/10	14:40	7/27/10	9.7	240

Notes:

Sample Result in mg/kg : Sample results exceeding CULs.

Table 5-5 2010 OC-Normalized FMCW Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Total TPH-Dx (Diesel + Oil) (mg/kg)	Total Organic Carbon (TOC) (mg/kg dry)	% TOC	OC-normalized (mg/kg) RL=8702.1 mg/kg
EXV10-FMCW-A13-WW	FMCW	west wall	3	8/16/10	12:32	8/19/10	59	10,000	1	5,900
EXV10-FMCW-A14-B	FMCW	bottom	4	8/16/10	12:15	8/19/10	26.5	5,600	0.56	4,732
EXV10-FMCW-A14-EW	FMCW	east wall	3	8/16/10	12:20	8/19/10	128	12,000	1.2	10,667
EXV10-FMCW-A14-EW2	FMCW	east wall	3	8/20/10	12:45	8/23/10	36	8,600	0.86	4,186
EXV10-FMCW-A14-NW	FMCW	north wall	3	8/16/10	12:35	8/19/10	111	27,000	2.7	4,111
EXV10-FMCW-B13-WW	FMCW	west wall	3	8/16/10	12:22	8/19/10	42	11,000	1.1	3,818
EXV10-FMCW-B14-EW	FMCW	east wall	3	8/16/10	12:00	8/19/10	256	27,000	2.7	9,481
EXV10-FMCW-B14-EW2	FMCW	east wall	3	8/20/10	12:48	8/23/10	24.8	8,800	0.88	2,818
EXV10-FMCW-B14-B	FMCW	bottom	4	8/16/10	12:44	9/19/10	37	9,900	0.99	3,737
EXV10-FMCW-C13-B	FMCW	bottom	5	8/18/10	6:28	8/20/10	36	—	—	—
EXV10-FMCW-C13-WW	FMCW	west wall	3	8/16/10	12:25	8/19/10	59	12,000	1.2	4,917
EXV10-FMCW-C14-B	FMCW	bottom	4	8/16/10	12:17	8/19/10	116,000	230,000	23	504,348
EXV10-FMCW-C14-B2	FMCW	bottom	5	8/18/10	6:26	8/20/10	8.4	230,000	23	37
EXV10-FMCW-C14-EW	FMCW	east wall	3	8/16/10	12:38	8/19/10	1,510	18,000	1.8	83,889
EXV10-FMCW-C14-EW2	FMCW	east wall	3	8/20/10	12:50	8/23/10	6.5	2,900	0.29	2,241
EXV10-FMCW-D13-WW	FMCW	west wall	3	8/16/10	12:28	8/19/10	101,000	64,000	6.4	1,578,125
EXV10-FMCW-D13-WW2	FMCW	west wall	3	8/20/10	8:55	8/23/10	18.1	4,900	0.49	3,694
EXV10-FMCW-D13-B	FMCW	bottom	4	8/16/10	11:40	8/19/10	48,000	120,000	12	400,000
EXV10-FMCW-D13-B2	FMCW	bottom	5	8/18/10	6:20	8/20/10	48	120,000	12	400
EXV10-FMCW-D14-EW	FMCW	east wall	3	8/16/10	11:42	8/19/10	233	24,000	2.4	9,708
EXV10-FMCW-D14-EW2	FMCW	east wall	3	8/20/10	11:10	8/23/10	21.9	5,600	0.56	3,911
EXV10-FMCW-D14-B	FMCW	bottom	4	8/16/10	11:44	8/19/10	1,260	29,000	2.9	43,448
EXV10-FMCW-D14-B2	FMCW	bottom	5	8/18/10	6:23	8/20/10	37	29,000	2.9	1,276
EXV10-FMCW-E7-NW	FMCW	north wall	3	8/11/10	9:45	8/13/10	48	23,900	2.39	2,008
EXV10-FMCW-E7-B	FMCW	bottom	4	8/11/10	16:48	8/13/10	26.2	5,400	0.54	4,852
EXV10-FMCW-E8-NW	FMCW	north wall	3	8/11/10	9:50	8/13/10	36	10,100	1.01	3,564
EXV10-FMCW-E8-B	FMCW	bottom	4	8/12/10	9:55	8/13/10	25	4,400	0.44	5,682
EXV10-FMCW-E11-NW	FMCW	north wall	3	8/13/10	8:00	8/17/10	116	37,000	3.7	3,135
EXV10-FMCW-E12-NW	FMCW	north wall	3	8/16/10	11:57	8/19/10	311	86,000	8.6	3,616
EXV10-FMCW-E12-B	FMCW	bottom	4	8/13/10	13:15	8/17/10	45	87,000	8.7	517
EXV10-FMCW-E13-NW	FMCW	north wall	3	8/16/10	9:54	8/19/10	970	16,000	1.6	60,625
EXV10-FMCW-E13-NW2	FMCW	north wall	3	8/20/10	9:00	8/23/10	120	46,000	4.6	2,609
EXV10-FMCW-E13-B	FMCW	bottom	4	8/16/10	9:52	8/19/10	401	23,000	2.3	17,435
EXV10-FMCW-E13-B2	FMCW	bottom	5	8/20/10	8:20	8/23/10	18.2	23,000	2.3	791
EXV10-FMCW-E14-EW	FMCW	east wall	3	8/16/10	11:50	8/19/10	411	44,000	4.4	9,341
EXV10-FMCW-E14-EW2	FMCW	east wall	3	8/20/10	11:15	8/23/10	119	44,000	4.4	2,705
EXV10-FMCW-E14-B	FMCW	bottom	4	8/16/10	11:46	9/19/10	435	20,000	2	21,750
EXV10-FMCW-E14-B2	FMCW	bottom	5	8/20/10	8:15	8/23/10	31	20,000	2	1,550
EXV10-FMCW-F6-NW	FMCW	north wall	3	8/11/10	9:35	8/13/10	71	15,600	1.56	4,551
EXV10-FMCW-F7-WW	FMCW	west wall	3	8/11/10	9:40	8/13/10	53	10,200	1.02	5,196
EXV10-FMCW-F7-B	FMCW	bottom	4	8/11/10	16:45	8/13/10	28	7,600	0.76	3,684
EXV10-FMCW-F8-B	FMCW	bottom	4	8/12/10	9:58	8/13/10	30	5,600	0.56	5,357

Table 5-5 2010 OC-Normalized FMCW Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Total TPH-Dx (Diesel + Oil) (mg/kg)	Total Organic Carbon (TOC) (mg/kg dry)	% TOC	OC-normalized (mg/kg) RL=8702.1 mg/kg
EXV10-FMCW-F9-NW	FMCW	north wall	3	8/12/10	14:30	8/17/10	37	24,000	2.4	1,542
EXV10-FMCW-F9-B	FMCW	bottom	4	8/18/10	11:00	8/20/10	8.3	4,000	0.4	2,075
EXV10-FMCW-F10-NW	FMCW	north wall	3	8/12/10	14:44	8/17/10	52	67,000	6.7	776
EXV10-FMCW-F10-B	FMCW	bottom	4	8/18/10	11:48	8/20/10	8.6	3,200	0.32	2,688
EXV10-FMCW-F11-B	FMCW	bottom	4	8/13/10	7:58	8/17/10	245	30,000	3	8,167
EXV10-FMCW-F12-B	FMCW	bottom	4	8/16/10	12:00	8/19/10	123	62,000	6.2	1,984
EXV10-FMCW-F13-B	FMCW	bottom	4	8/16/10	12:02	8/19/10	187	85,000	8.5	2,200
EXV10-FMCW-F14-B	FMCW	bottom	4	8/16/10	12:04	8/19/10	139	100,000	10	1,390
EXV10-FMCW-F15-B	FMCW	bottom	4	8/16/10	11:54	8/19/10	860	28,000	2.8	30,714
EXV10-FMCW-F15-B2	FMCW	bottom	5	8/20/10	8:08	8/23/10	34	28,000	2.8	1,214
EXV10-FMCW-F15-NW	FMCW	north wall	3	8/16/10	12:07	8/19/10	455	65,000	6.5	7,000
EXV10-FMCW-F16-NW	FMCW	north wall	3	8/16/10	9:50	8/19/10	55	23,000	2.3	2,391
EXV10-FMCW-F17-NW	FMCW	north wall	3	8/13/10	11:15	8/17/10	70	15,000	1.5	4,667
EXV10-FMCW-F18-NW	FMCW	north wall	3	8/13/10	11:10	8/17/10	50	26,000	2.6	1,923
EXV10-FMCW-F19-NW	FMCW	north wall	3	8/13/10	11:05	8/17/10	70	18,000	1.8	3,889
EXV10-FMCW-F19-NW2	FMCW	north wall	3	8/18/10	17:56 (lab)	8/20/10	64	13,000	1.3	4,923
					17:56 (lab rerun)	8/20/10	71	13,000	1.3	5,462
					17:56 (mobile)	8/21/10	69	—	—	—
EXV10-FMCW-G5-NW	FMCW	north wall	3	8/10/10	13:10	8/13/10	47	20,600	2.06	2,282
EXV10-FMCW-G6-NW	FMCW	north wall	3	8/11/10	7:50	8/13/10	69	26,300	2.63	2,624
EXV10-FMCW-G6-B	FMCW	bottom	4	8/11/10	9:32	8/13/10	262	24,100	2.41	10,871
EXV10-FMCW-G6-B2	FMCW	bottom	5	8/18/10	13:55	8/20/10	38	24,100	2.41	1,577
EXV10-FMCW-G7-B	FMCW	bottom	4	8/11/10	16:42	8/13/10	59	7,200	0.72	8,194
EXV10-FMCW-G8-B	FMCW	bottom	4	8/11/10	16:58	8/13/10	29.7	8,600	0.86	3,453
EXV10-FMCW-G9-B	FMCW	bottom	4	8/12/10	14:26	8/17/10	620	23,000	2.3	26,957
EXV10-FMCW-G9-B2	FMCW	bottom	5	8/18/10	11:04	8/20/10	7.9	23,000	2.3	343
EXV10-FMCW-G10-B	FMCW	bottom	4	8/12/10	14:40	8/17/10	43	14,000	1.4	3,071
EXV10-FMCW-G11-B	FMCW	bottom	4	8/13/10	9:10	8/17/10	40	4,800	0.48	8,333
EXV10-FMCW-G12-B	FMCW	bottom	4	8/13/10	13:10	8/17/10	1,160	58,000	5.8	20,000
EXV10-FMCW-G12-B2	FMCW	bottom	5	8/18/10	17:47	8/20/10	15	58,000	5.8	259
EXV10-FMCW-G13-B	FMCW	bottom	4	8/16/10	9:30	8/19/10	24	3,100	0.31	7,742
EXV10-FMCW-G14-B	FMCW	bottom	4	8/16/10	9:34	8/19/10	30	15,000	1.5	2,000
EXV10-FMCW-G15-B	FMCW	bottom	4	8/16/10	9:38	8/19/10	20	3,200	0.32	6,250
EXV10-FMCW-G16-B	FMCW	bottom	4	8/13/10	12:54	8/17/10	295	25,000	2.5	11,800
EXV10-FMCW-G16-B2	FMCW	bottom	5	8/18/10	13:15	8/20/10	23.9	25,000	2.5	956
EXV10-FMCW-G17-B	FMCW	bottom	4	8/13/10	12:46	8/17/10	54	7,600	0.76	7,105
EXV10-FMCW-G18-B	FMCW	bottom	4	8/13/10	12:38	8/17/10	164	140,000	14	1,171
EXV10-FMCW-G19-EW	FMCW	east wall	3	8/13/10	11:00	8/17/10	87	65,000	6.5	1,338
EXV10-FMCW-G19-B	FMCW	bottom	4	8/13/10	12:30	8/17/10	37	8,700	0.87	4,253
EXV10-FMCW-H5-B	FMCW	bottom	4	8/10/10	13:00	8/13/10	50	3,420	0.342	14,620
EXV10-FMCW-H5-B2	FMCW	bottom	5	8/18/10	18:05	8/20/10	117	16,000	1.6	7,313
EXV10-FMCW-H5-WW	FMCW	west wall	3	8/10/10	13:04	8/13/10	1,440	1,670	0.167	862,275

Table 5-5 2010 OC-Normalized FMCW Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Total TPH-Dx (Diesel + Oil) (mg/kg)	Total Organic Carbon (TOC) (mg/kg dry)	% TOC	OC-normalized (mg/kg) RL=8702.1 mg/kg
EXV10-FMCW-H5-WW2	FMCW	west wall	3	8/18/10	18:00 (lab)	8/20/10	77	31,000	3.1	2,484
					18:00 (lab rerun)	8/20/10	82	31,000	3.1	2,645
					18:00 (mobile)	8/21/10	82	—	—	—
EXV10-FMCW-H5-SW	FMCW	south wall	3	8/10/10	13:07	8/13/10	3,600	4,860	0.486	740,741
EXV10-FMCW-H5-SW2	FMCW	south wall	3	8/18/10	18:10	8/20/10	162	11,000	1.1	14,727
EXV10-FMCW-H5-SW3	FMCW	south wall	3	8/25/10	8:50	8/26/10	368	48,000	4.8	7,667
EXV10-FMCW-H6-SW	FMCW	south wall	3	8/10/10	15:00	8/13/10	67	13,800	1.38	4,855
EXV10-FMCW-H6-B	FMCW	bottom	4	8/11/10	9:30	8/13/10	592	21,900	2.19	27,032
EXV10-FMCW-H6-B2	FMCW	bottom	5	8/18/10	13:50	8/20/10	73	21,900	2.19	3,333
EXV10-FMCW-H7-SW	FMCW	south wall	3	8/11/10	16:35	8/13/10	372	84,000	8.4	4,429
EXV10-FMCW-H7-B	FMCW	bottom	4	8/11/10	16:38	8/13/10	26.2	5,700	0.57	4,596
EXV10-FMCW-H8-SW	FMCW	south wall	3	8/11/10	16:52	8/13/10	193	64,000	6.4	3,016
EXV10-FMCW-H8-B	FMCW	bottom	4	8/11/10	16:55	8/13/10	23.8	5,400	0.54	4,407
EXV10-FMCW-H9-B	FMCW	bottom	4	8/12/10	14:23	8/17/10	66	22,000	2.2	3,000
EXV10-FMCW-H9-SW	FMCW	south wall	3	8/12/10	14:20	8/17/10	101	40,000	4	2,525
EXV10-FMCW-H10-B	FMCW	bottom	4	8/12/10	14:35	8/17/10	444	14,000	1.4	31,714
EXV10-FMCW-H10-B2	FMCW	bottom	5	8/18/10	11:40	8/20/10	21.6	14,000	1.4	1,543
EXV10-FMCW-H10-SW	FMCW	south wall	3	8/12/10	14:32	8/17/10	62	20,000	2	3,100
EXV10-FMCW-H11-B	FMCW	bottom	4	8/13/10	7:55	8/17/10	212	14,000	1.4	15,143
EXV10-FMCW-H11-B2	FMCW	bottom	5	8/18/10	12:20	8/20/10	6.7	14,000	1.4	479
EXV10-FMCW-H11-SW	FMCW	south wall	3	8/13/10	7:50	8/17/10	87	25,000	2.5	3,480
EXV10-FMCW-H12-SW	FMCW	south wall	3	8/13/10	8:05	8/17/10	58	18,000	1.8	3,222
EXV10-FMCW-H12-B	FMCW	bottom	4	8/13/10	13:06	8/17/10	39	24,000	2.4	1,625
EXV10-FMCW-H13-SW	FMCW	south wall	3	8/13/10	8:10	8/17/10	143	9,900	0.99	14,444
EXV10-FMCW-H13-SW2	FMCW	south wall	3	8/18/10	15:00	8/20/10	203	61,000	6.1	3,328
EXV10-FMCW-H13-B	FMCW	bottom	4	8/16/10	9:46	8/19/10	232	38,000	3.8	6,105
EXV10-FMCW-H14-SW	FMCW	south wall	3	8/13/10	9:14	8/17/10	51	42,000	4.2	1,214
EXV10-FMCW-H14-B	FMCW	bottom	4	8/16/10	9:43	8/19/10	304	42,000	4.2	7,238
EXV10-FMCW-H15-SW	FMCW	south wall	3	8/13/10	9:18	8/17/10	230	62,000	6.2	3,710
EXV10-FMCW-H15-B	FMCW	bottom	4	8/16/10	9:40	8/19/10	31	6,900	0.69	4,493
EXV10-FMCW-H16-SW	FMCW	south wall	3	8/13/10	9:24	8/17/10	11,400	31,000	3.1	367,742
EXV10-FMCW-H16-SW2	FMCW	south wall	3	8/25/10	8:05	8/26/10	81	19,000	1.9	4,263
EXV10-FMCW-H16-B	FMCW	bottom	4	8/13/10	13:00	8/17/10	36	74,000	7.4	486
EXV10-FMCW-H17-SW	FMCW	south wall	3	8/13/10	9:26	8/17/10	500	98,000	9.8	5,102
EXV10-FMCW-H17-B	FMCW	bottom	4	8/13/10	12:50	8/17/10	167	55,000	5.5	3,036
EXV10-FMCW-H18-SW	FMCW	south wall	3	8/13/10	10:45	8/17/10	80	120,000	12	667
EXV10-FMCW-H18-B	FMCW	bottom	4	8/13/10	12:42	8/17/10	186	73,000	7.3	2,548
EXV10-FMCW-H19-EW	FMCW	east wall	3	8/13/10	10:55	8/17/10	46	14,000	1.4	3,286
EXV10-FMCW-H19-B	FMCW	bottom	4	8/13/10	12:34	8/17/10	81	120,000	12	675
EXV10-FMCW-H19-SW	FMCW	south wall	3	8/13/10	10:40	8/17/10	101	24,000	2.4	4,208
3-B-36A	FMCW	composite	0-2	8/13/10	11:45	8/17/10	47	26,000	2.6	1,808

Table 5-5 2010 OC-Normalized FMCW Performance Soil Sample Results

Sample Name	Excavation Area	Location in Grid	Approximate Sample Depth (ft bgs)	Date Collected	Time Collected	Date Results	Total TPH-Dx (Diesel + Oil) (mg/kg)	Total Organic Carbon (TOC) (mg/kg dry)	% TOC	OC-normalized (mg/kg) RL=8702.1 mg/kg
Duplicates										
EXV10-Z1-081310 (dup of EXV10-FMCW-H18-SW)	FMCW	south wall	3	8/13/10	10:50	8/17/10	79	75,000	7.5	1,053
EXV10-Z2-081310 (dup of EXV10-FMCW-H16-B)	FMCW	bottom	4	8/13/10	13:04	8/17/10	44	67,000	6.7	657
EXV10-Z1-081610 (dup of EXV10-FMCW-A14-EW)	FMCW	east wall	3	8/16/10	12:50	8/19/10	59	13,000	1.3	4,538
EXV10-Z1-081810 (dup of EXV10-FMCW-H11-B2)	FMCW	bottom	5	8/18/10	12:25	8/20/10	15	14,000	1.4	1,071
EXV10-Z1-082010 (dup of EXV10-FMCW-E13-NW2)	FMCW	north wall	3	8/20/10	9:05	8/23/10	76	90,000	9	844

Notes:

: Sample results exceeding CULs.

West Wetland:

Upon receipt, analytical results collected from the FMC West Wetland excavation will be OC-normalized and compared with the NWTPH-Dx concentration of 8702.1 mg/kg, which is the OC-normalized CUL (OCN-CUL) determined to comply with the 40.9 mg/kg sediment CUL. If the excavations meet this OCN-CUL, then the grid from which the sample was collected will be designated as "clean" and backfilling will proceed. If the OCN-CUL is not met, then the grid from which the sample was collected will be designated as "impacted." Impacted grids will be excavated an additional 6 inches to 1 foot, measured as vertical distance in excavation bottoms and as lateral distances in sidewalls, and re-sampled until the grid can be designated clean.

Table 5-6 Skykomish Turbidity Readings

Skykomish Location: **Skykomish River**
Construction Year: **2010**

Date	Turbidity (NTU)	Date	Turbidity (NTU)	Date	Turbidity (NTU)
1/21/2010	1.08	5/18/2010	8.23	9/10/2010	1.65
1/26/2010	1.15	5/25/2010	1.34	9/17/2010	1.43
2/2/2010	1.85	6/1/2010	11.3	9/23/2010	1.25
2/9/2010	0.78	6/8/2010	8.5	9/28/2010	0.85
2/16/2010	2.17	6/16/2010	3.85	10/5/2010	1.12
2/23/2010	0.56	6/23/2010	2.25	10/12/2010	2.25
3/2/2010	0.52	7/2/2010	1.97	10/19/2010	0.85
3/9/2010	0.43	7/9/2010	0.55	10/26/2010	4.45
3/16/2010	2.45	7/13/2010	0.45	11/2/2010	3.50
3/23/2010	4.68	7/20/2010	0.73	11/12/2010	
3/30/2010	0.4	7/27/2010	0.85	11/19/2010	
4/8/2010	0.4	7/30/2010	0.27	11/26/2010	
4/13/2010	0.25	8/3/2010	0	12/3/2010	
4/20/2010	2.14	8/10/2010	0	12/10/2010	
4/27/2010	1.23	8/20/2010	0.18	12/17/2010	
5/4/2010	2.85	8/27/2010	2.34	12/24/2010	
5/11/2010	0.85	9/3/2010	1.85	12/31/2010	

Table 5-7 FMCW Turbidity Results

Skykomish Location **West FMC Wetlands**
Construction Year: **2010**

Date	Time	Work Activity	1) Upstream Reading (NTU)	2) Downstream Reading (NTU)	Is Background Reading More Than 50 NTU? (Y/N)	If (N), Does Reading Exceed 5 NTU Over Background? (Y/N)	If (Y), Does Reading Increase Turbidity by More Than 10% of Background?	Visible Impact (Product, Sheen or Odor) To Water? (Y/N)	If (Y) to Any of Previous 3 Questions, Have Actions Been Taken to Reduce Turbidity? (to be described in field notes)
7/30/10	9:00	Pre-construction background monitoring	0.00	0.50	N	N	—	N	
8/3/10	14:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	16:30	Install cofferdams 1, 2, and 3 and pump. Clear and grub.	0.00	0.00	N	N	—	N	
	18:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/4/10	7:45	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	10:00	Install cofferdams 1, 2, and 3 and pump. Clear and grub.	0.00	0.00	N	N	—	N	
	13:15		0.00	0.00	N	N	—	N	
	16:45	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/5/10	8:15	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	15:00	Clear and grub	0.00	0.00	N	N	—	N	
	18:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/6/10	7:30	Pre-activity monitoring	0.00	0.43	N	N	—	N	
	12:00	Clear and grub	0.00	0.00	N	N	—	N	
	15:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/9/10	7:20	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	9:30	FMCW excavation	0.00	0.00	N	N	—	N	
	12:30		0.00	0.00	N	N	—	N	
	13:55		0.00	0.00	N	N	—	N	
	16:00		0.00	0.00	N	N	—	N	
	17:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/10/10	6:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	8:30	FMCW excavation	0.00	0.00	N	N	—	N	
	12:30		0.00	0.00	N	N	—	N	
	14:30		0.00	0.00	N	N	—	N	
	16:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/11/10	7:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	15:45	FMCW excavation	0.00	0.00	N	N	—	N	
	17:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/12/10	7:50	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:00	FMCW excavation	0.00	0.00	N	N	—	N	
	16:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/13/10	7:40	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:00	FMCW excavation	0.00	0.00	N	N	—	N	
	16:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/16/10	7:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:50	FMCW excavation	0.00	0.00	N	N	—	N	
	16:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/17/10	7:40	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	15:30	FMCW excavation	0.00	0.00	N	N	—	N	
	17:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
8/18/10	7:45	Pre-activity monitoring	0.00	dry	N	N	—	N	
	14:15	FMCW excavation	0.00	dry	N	N	—	N	
	18:20	Post-activity monitoring	0.00	dry	N	N	—	N	
8/19/10	6:00	Pre-activity monitoring	0.00	dry	N	N	—	N	
	12:30	FMCW excavation	0.00	dry	N	N	—	N	
	17:00	Post-activity monitoring	0.00	dry	N	N	—	N	
8/20/10	7:15	Pre-activity monitoring	0.00	dry	N	N	—	N	
	13:00	FMCW excavation	0.00	dry	N	N	—	N	
	14:30	Post-activity monitoring	0.00	dry	N	N	—	N	
8/23/10	6:30	Pre-activity monitoring	0.00	dry	N	N	—	N	
	10:40	FMCW excavation	0.00	dry	N	N	—	N	
	17:30	Post-activity monitoring	0.00	dry	N	N	—	N	

Table 5-7 FMCW Turbidity Results

Skykomish Location **West FMC Wetlands**
Construction Year: **2010**

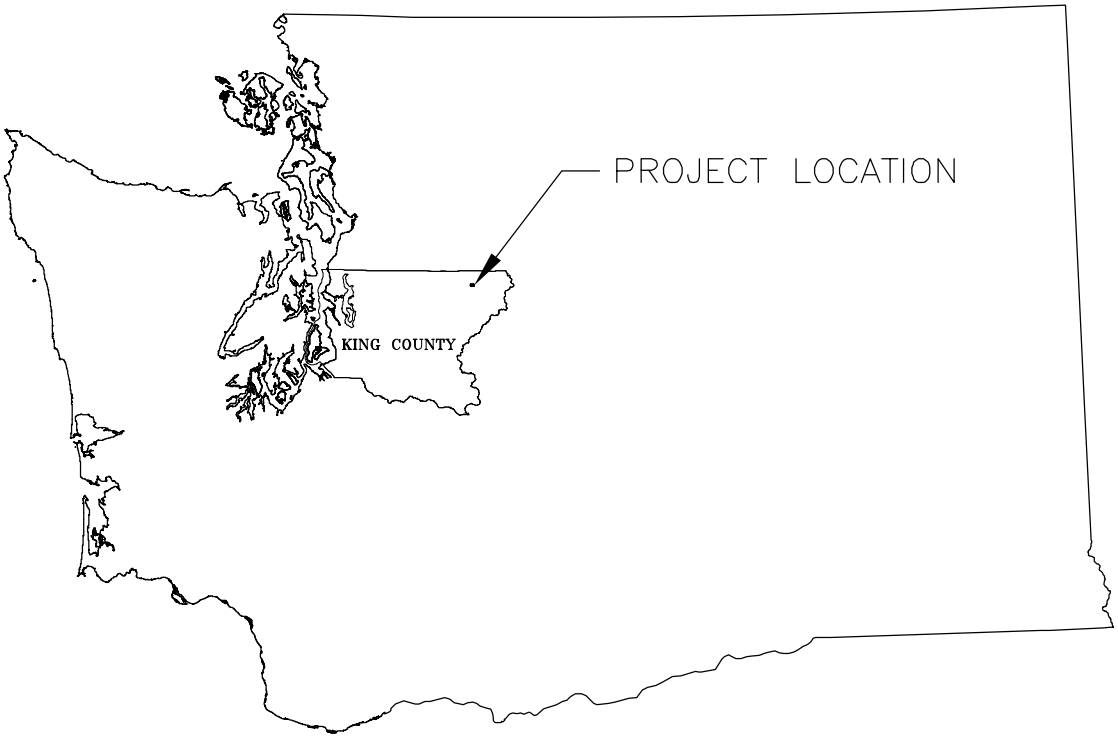
Date	Time	Work Activity	1) Upstream Reading (NTU)	2) Downstream Reading (NTU)	Is Background Reading More Than 50 NTU? (Y/N)	If (N), Does Reading Exceed 5 NTU Over Background? (Y/N)	If (Y), Does Reading Increase Turbidity by More Than 10% of Background?	Visible Impact (Product, Sheen or Odor) To Water? (Y/N)	If (Y) to Any of Previous 3 Questions, Have Actions Been Taken to Reduce Turbidity? (to be described in field notes)
8/24/10	6:30	Pre-activity monitoring	0.00	dry	N	N	—	N	
	14:00	FMCW Backfill	0.00	dry	N	N	—	N	
	16:00	Post-activity monitoring	0.00	dry	N	N	—	N	
8/25/10	7:40	Pre-activity monitoring	0.00	dry	N	N	—	N	
	14:00	FMCW Backfill	0.00	dry	N	N	—	N	
	17:30	Post-activity monitoring	0.00	dry	N	N	—	N	
8/26/10	8:00	Pre-activity monitoring	0.00	dry	N	N	—	N	
	14:00	FMCW Backfill	0.00	dry	N	N	—	N	
	17:00	Post-activity monitoring	0.00	dry	N	N	—	N	
8/27/10	7:30	Pre-activity monitoring	0.00	dry	N	N	—	N	
	9:30	Removal of cofferdam	0.00	dry	N	N	—	N	
	11:30		0.00	dry	N	N	—	N	
	13:30	Post-activity monitoring	0.00	dry	N	N	—	N	
8/30/10	7:30	Pre-activity monitoring	0.00	dry	N	N	—	N	
	9:30	Removal of Cofferdam	0.00	dry	N	N	—	N	
	16:30	Post-activity monitoring	0.00	dry	N	N	—	N	
8/31/10	7:30	Pre-activity monitoring	0.00	dry	N	N	—	N	
	11:30	no activity	0.39	dry	N	N	—	N	
	17:15	Post-activity monitoring	0.85	dry	N	N	—	N	
9/1/10	7:30	Pre-activity monitoring	0.50	0.25	N	N	—	N	
	13:30	FMCW restoration	0.00	0.00	N	N	—	N	
	17:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/2/10	7:40	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	13:15	FMCW restoration	0.00	0.00	N	N	—	N	
	17:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/3/10	7:45	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	13:00	FMCW restoration	0.00	0.00	N	N	—	N	
	18:10	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/4/10	8:10	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:30	FMCW restoration	0.00	0.00	N	N	—	N	
	15:15	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/7/10	7:30	Pre-activity monitoring	2.50	0.75	N	N	—	N	
	12:00	FMCW restoration	0.36	0.12	N	N	—	N	
	17:15	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/8/10	7:50	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	14:00	FMCW restoration	0.00	0.00	N	N	—	N	
	17:45	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/9/10	7:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:45	FMCW restoration	0.00	0.00	N	N	—	N	
	17:40	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/10/10	7:30	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	9:30	Removal of cofferdam and pumps	0.00	0.00	N	N	—	N	
	11:30		0.00	0.00	N	N	—	N	
	13:30		0.00	0.00	N	N	—	N	
	15:30		0.00	0.00	N	N	—	N	
	17:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/11/10	7:55	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:30	FMCW restoration	0.00	0.00	N	N	—	N	
	15:45	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/12/10	7:50	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:30	FMCW restoration	0.00	0.00	N	N	—	N	
	17:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/14/10	7:45	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	13:00	FMCW restoration	0.00	0.00	N	N	—	N	
	17:00	Post-activity monitoring	0.00	0.00	N	N	—	N	

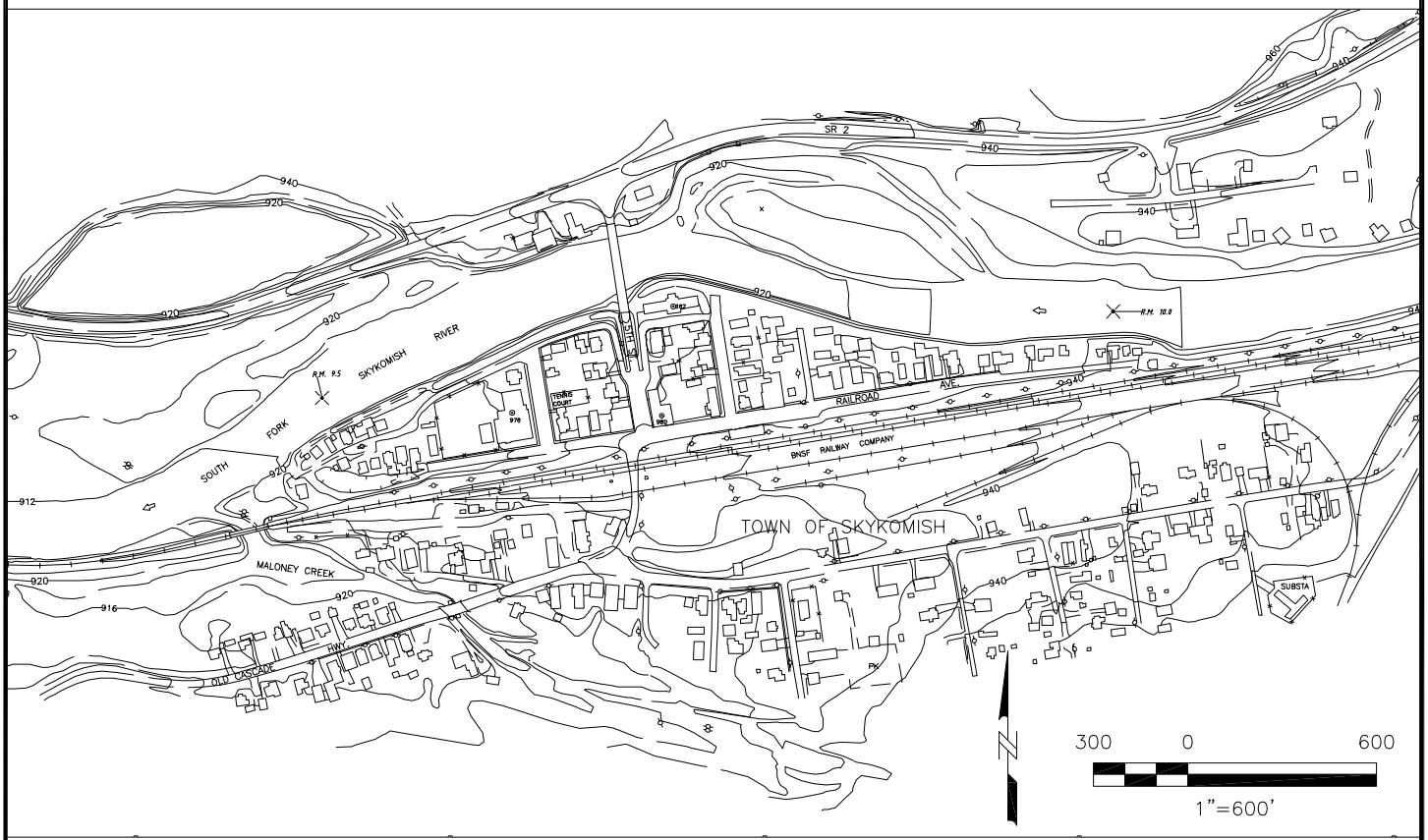
Table 5-7 FMCW Turbidity Results

Skykomish Location **West FMC Wetlands**
Construction Year: **2010**

Date	Time	Work Activity	1) Upstream Reading (NTU)	2) Downstream Reading (NTU)	Is Background Reading More Than 50 NTU? (Y/N)	If (N), Does Reading Exceed 5 NTU Over Background? (Y/N)	If (Y), Does Reading Increase Turbidity by More Than 10% of Background?	Visible Impact (Product, Sheen or Odor) To Water? (Y/N)	If (Y) to Any of Previous 3 Questions, Have Actions Been Taken to Reduce Turbidity? (to be described in field notes)
9/15/10	7:45	Pre-activity monitoring	0.00	0.00	N	N	—	N	
	12:30	FMCW restoration	0.00	0.00	N	N	—	N	
	15:30	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/16/10	7:45	Pre-activity monitoring	0.32	0.00	N	N	—	N	
	12:10	FMCW restoration	0.00	0.00	N	N	—	N	
	17:00	Post-activity monitoring	0.00	0.00	N	N	—	N	
9/20/10	10:30	Post-activity monitoring	—	0.00	N	N	—	N	
	13:00		—	0.10	N	N	—	N	
	17:20		—	0.05	N	N	—	N	
9/24/10	8:10	Post-activity monitoring	—	0.00	N	N	—	N	
	12:45		—	0.00	N	N	—	N	

Figures





AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**SITE LOCATION MAP**
DATE: 9/27/10	DRWN: E.M./SEA		**FIGURE 1**

File: N:\CADD\BNSF-Skykomish\2010 remediation\Completion Report\SITE LOCATION.dwg Layout: FIG 1 User: marshalle Plotted: Sep 27, 2010 - 9:27am Xref's:

SKYKOMISH RIVER

SKYKOMISH RIVER

1A–W–5

WEST RIVER DRIVE

EAST RIVER DRIVE

FOURTH STREET

SIXTH STREET

FIFTH STREET

5–W–3

MW–22

5–W–2

5–W–4

5–W–53

5–W–52

RAILROAD AVENUE

PZ–1

EXISTING WETLAND BOUNDARY

2B–W–30

MW–17

MW–12

2A–W–11

2B–B–21

2B–W–13

2B–W–12

2B–W–15

2B–W–14

2B–W–11

2B–W–33

REMEDIATION EQUIPMENT BUILDING

MW–39

2B–W–45

2B–W–46

2B–W–21

2B–W–32

2B–W–19

3–W–41

3–W–42

3–W–43

Decommissioned Well

75 0 150

GRAPHIC SCALE IN FEET

N

AECOM

COMPLETION REPORT
2010 SKYKOMISH REMEDIATION
60154595-0610

WELLS DECOMMISSIONED IN 2010

DATE: 2/9/11 | DRWN: E.M./SEA | **FIGURE 2**

File: G:\BNSFSecure\CADD\BNSF–Skykomish\2010 remediation\Completion Report\Decommissioned Wells.dwg Layout: FIGURE 2 User: oliveniam Plotted: Apr 08, 2011 – 11:03am

Community Center temporary location

General Store temporary location

SKYKOMISH RIVER

WEST RIVER DRIVE

Temporary Ramp from 5th Street to East River Drive

EAST RIVER DRIVE

SIXTH STREET

FIFTH STREET

FOURTH STREET

THIRD STREET

SECOND STREET

Opera House temporary location

Maintenance Building temporary location

RAILROAD AVENUE

Wheatley House temporary location

Depot temporary location

Temporary Railroad Avenue lane adjustment

TEMPORARY CONSTRUCTION CROSSING

TEMPORARY CONSTRUCTION CROSSING

Wheel wash/ Decontamination pad

Construction Water Treatment System

Portable equipment storage area and construction trailers

Soil Handling Facility

Clean Overburden Soil location

REMEDIATION EQUIPMENT BUILDING

Hay-Bale Sound Wall

Stormwater Pond

EXISTING WETLAND BOUNDARY

Settlement monitoring points
Excavation Limits
Temporary Fencing
Hay-Bale Sound Wall
Test Pit Locations

75 0 150

GRAPHIC SCALE IN FEET

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**TEMPORARY FEATURES**	
DATE: 2/9/11	DRWN: E.M./SEA			**FIGURE 3**

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610		**2009-2010 NWOZ** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA	**FIGURE 4**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\finalVSplanned_2009-10-MO.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 11:02am

6' Chain Link Fence

6' Chain Link Fence

SD

SD

SD

SD

924.34

924.21

EXISTING MSE WALL

SIXTH STREET

11

9

12

13

8

4

Covered Play Area

14

Play Area

7

3

Play Area

10

5' Chain Link Fence

6

5

2

1

5' Chain Link Fence

5' Chain Link Fence

Pothole Location

15 0 30

GRAPHIC SCALE IN FEET

N

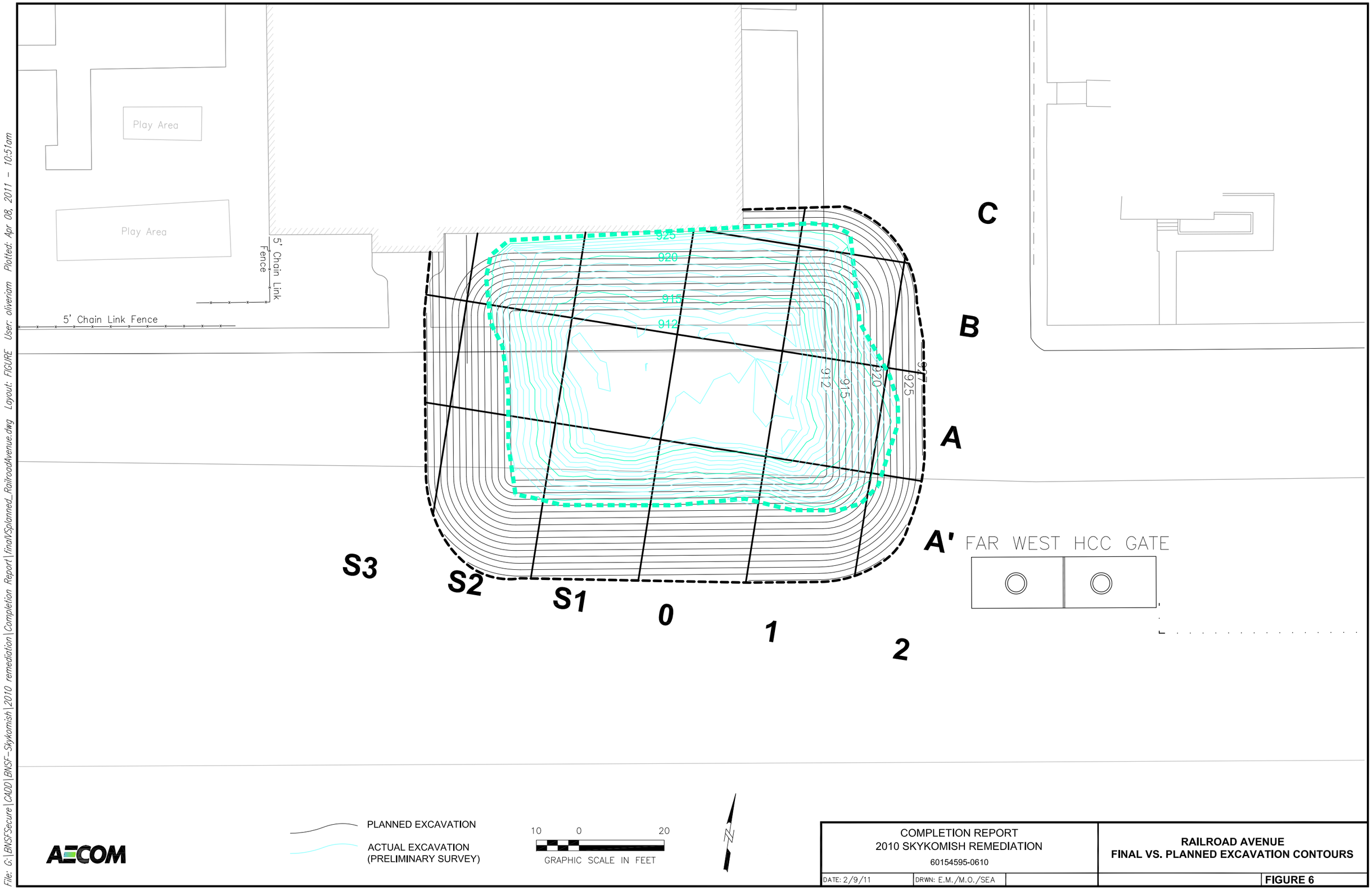
AECOM

COMPLETION REPORT
2010 SKYKOMISH REMEDIATION
60154595-0610

SCHOOL PROPERTY POTHOLE LOCATIONS

DATE: 2/9/11 | DRWN: E.M./SEA | FIGURE 5

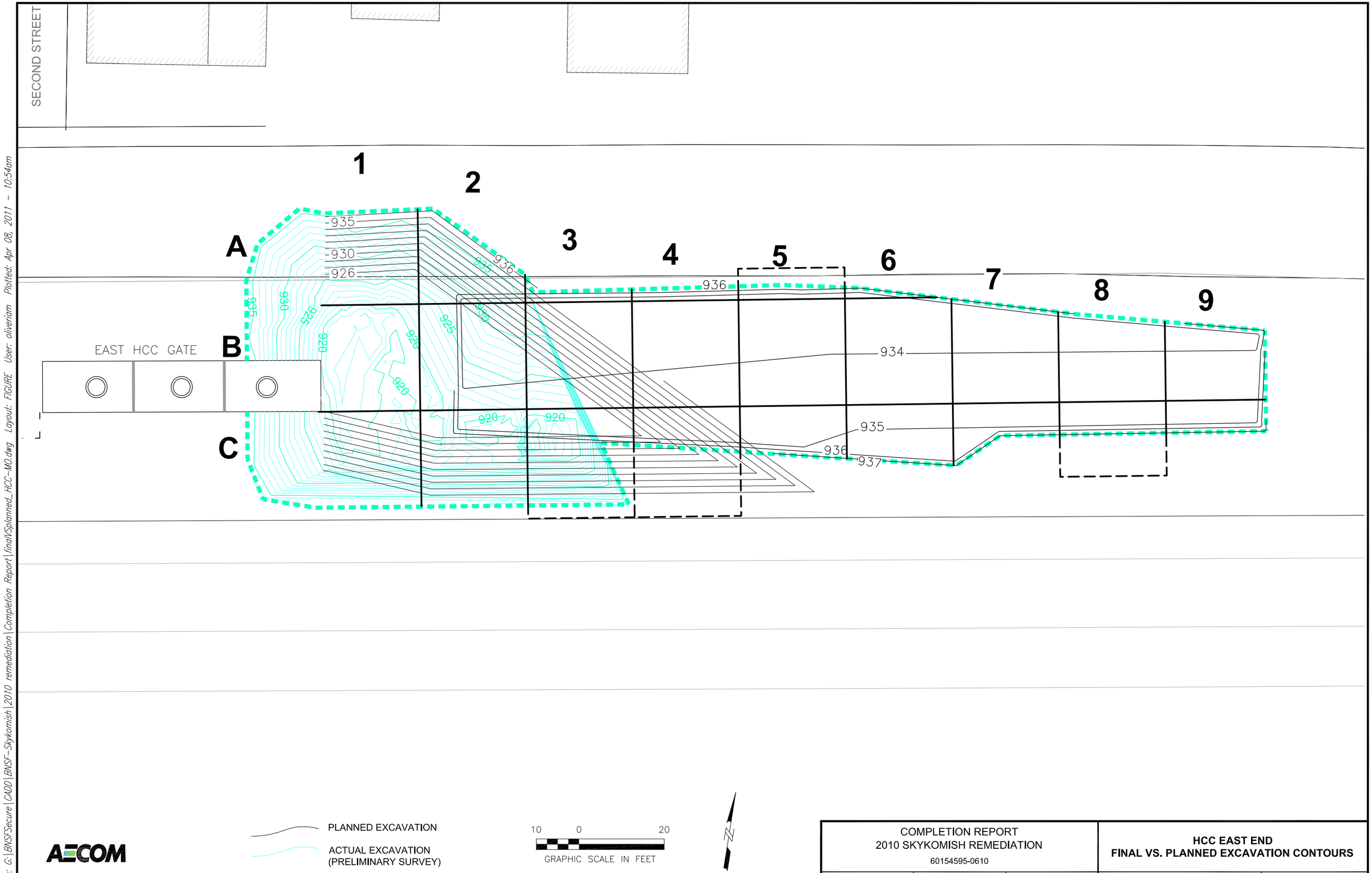
File: C:\Documents and Settings\oliveriam\Desktop\Completion Report\School Pothole.dwg Layout: FIGURE User: oliveriam Plotted: Feb 09, 2011 - 11:00am



AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**RAILROAD AVENUE** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA		**FIGURE 6**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\final\Splanned_RailroadAvenue.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:51am



PLANNED EXCAVATION

ACTUAL EXCAVATION (PRELIMINARY SURVEY)

10 0 20

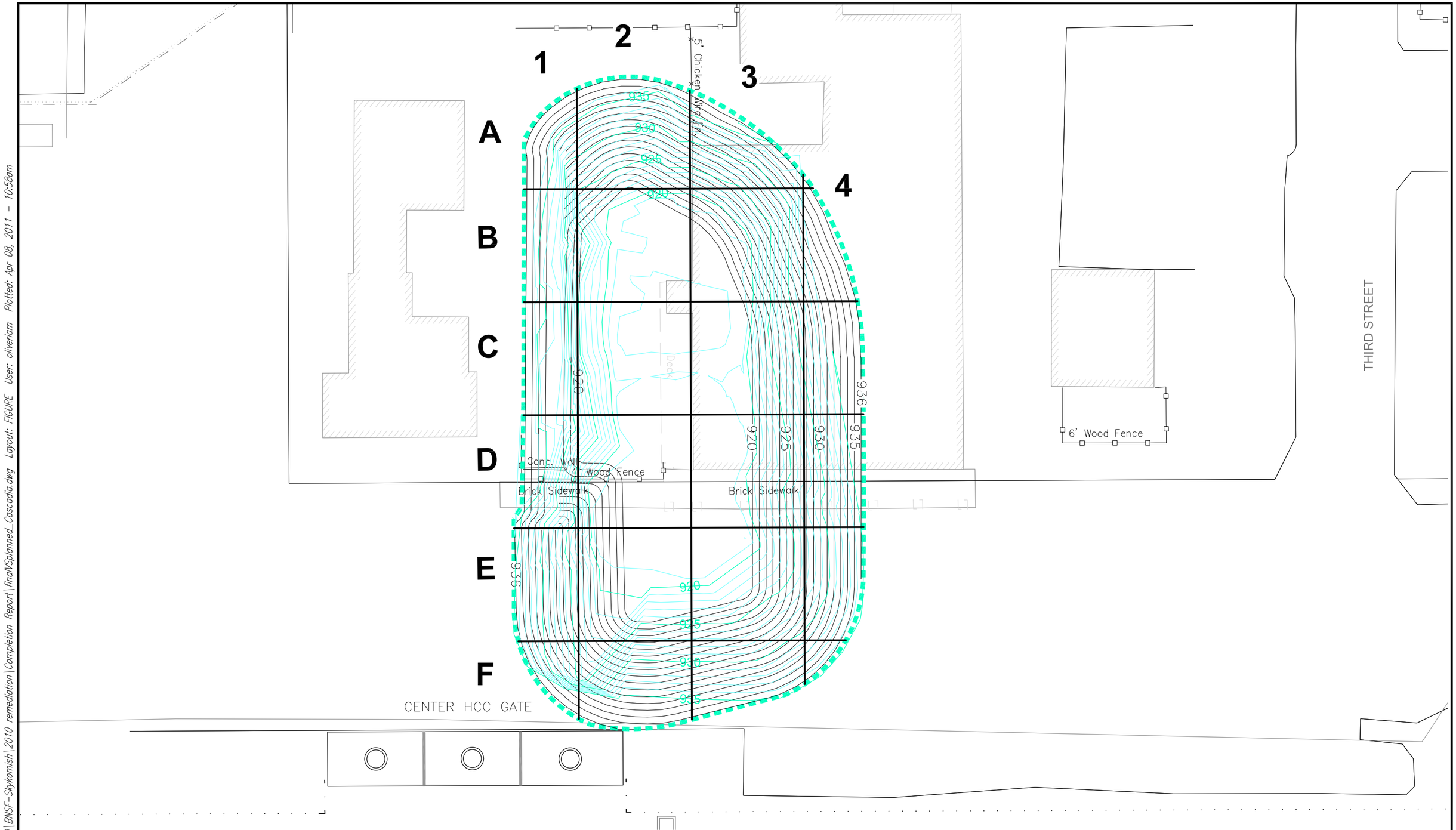
GRAPHIC SCALE IN FEET

N

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**HCC EAST END** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA		**FIGURE 7**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\finalVSplanned_HCC-MO.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:54am



AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**CASCADIA INN** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA		**FIGURE 8**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\finalVSplanned_Cascadia.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:58am

SKYKOMISH RIVER

WEST RIVER DRIVE

EAST RIVER DRIVE

FOURTH STREET

EXISTING MSE WALL

PROPOSED MSE WALL

SAND & ROCK BEACH

Conc. Wall

3' Wood Fence

5' Chain Link Fence

Wood Ramp

Hand Rail

Overhang

W V U T S R 8 Q P 9 O N M L 10 11 12 13 14 15 16 17 18

PLANNED EXCAVATION

ACTUAL EXCAVATION (PRELIMINARY SURVEY)

20 0 40

GRAPHIC SCALE IN FEET

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610		**BRIDGE ABUTMENT** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA	**FIGURE 9**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\finalVSplanned_Bridge.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:59am

Soil Handling Facility

EXISTING WETLAND BOUNDARY

6' Chain Link Fence

7' Chain Link Fence

Sump

Communication Tower

Conc. Wall

Sump
No Pipes

Conc.
Unknown
Manhole

Asphalt

1 2 3 4 5
A
B
C
924
925
930

9 10 11 12 13
A
B
C
922
925
930

20 21 22 23
A
B
C
D
922
925
930

ROBINSON GARAGE

A 28 29 30
B
924
925
930

6.3' Block Fence

Deck

Block Wall

8" Wood Fence

CELL A30 EXCAVATION
EXTENTS NOT SURVEYED

PLANNED EXCAVATION

ACTUAL EXCAVATION
(PRELIMINARY SURVEY)

25 0 50
GRAPHIC SCALE IN FEET

N

AECOM

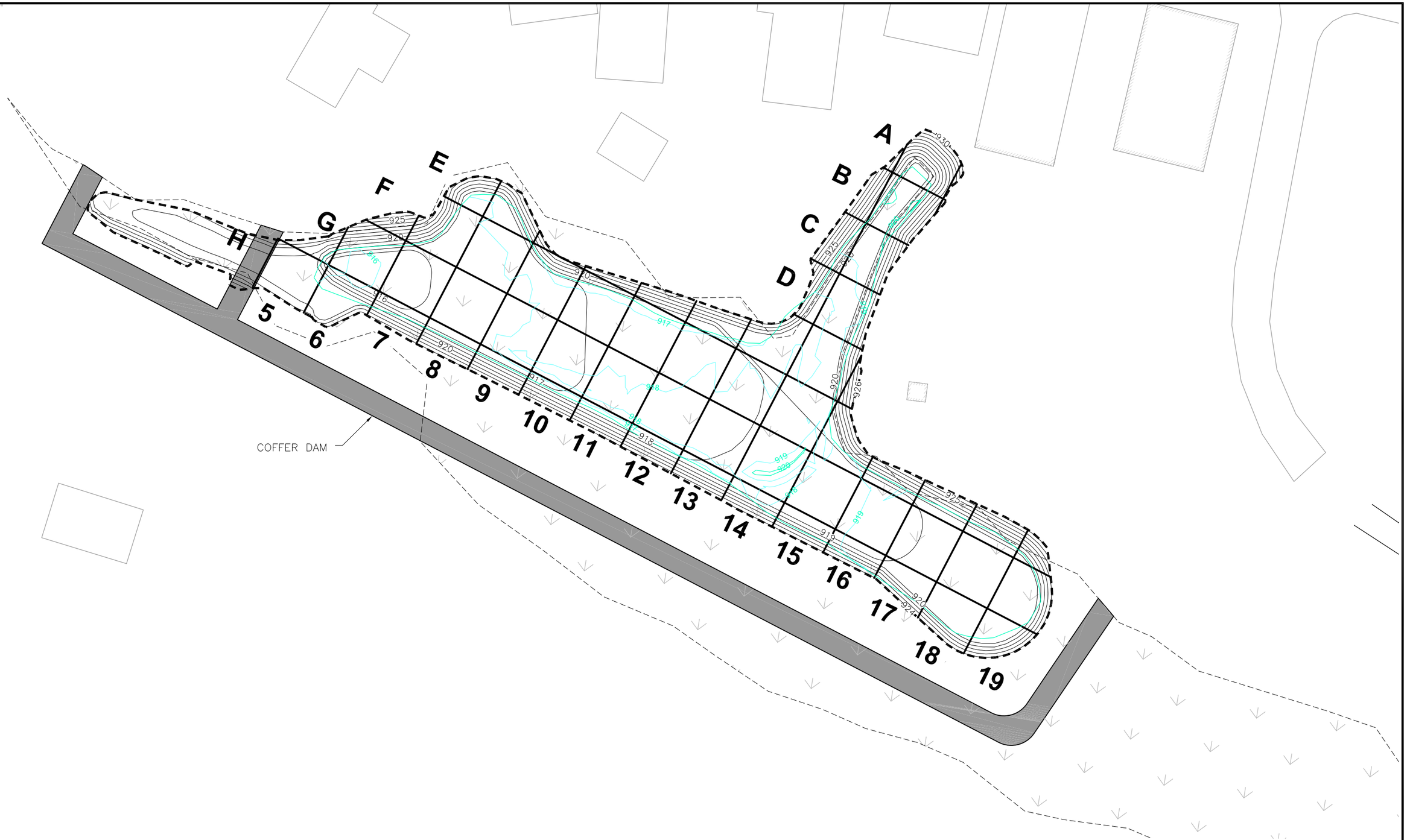
COMPLETION REPORT
2010 SKYKOMISH REMEDIATION
60154595-0610

DATE: 2/9/11 | DRWN: E.M./M.O./SEA

FORMER MALONEY CREEK EAST
FINAL VS. PLANNED EXCAVATION CONTOURS

FIGURE 10

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\final\Splanned_MaloneyCreekEast.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:53am



PLANNED EXCAVATION

ACTUAL EXCAVATION
(PRELIMINARY SURVEY)

20 0 40

GRAPHIC SCALE IN FEET

N

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**FORMER MALONEY CREEK WEST** **FINAL VS. PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA		**FIGURE 11**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\final\Splanned_MaloneyCreekWest.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:52am

WEST OLD CASCADE

MALONEY CREEK

BERM

HELEN STREET

1 Story Metal Building

Satellite Dish

TRAILER

Wood Shed

3-W-41

3-W-43

CP #159

30" DIA. LOGS

4' TALL PILE OF BRANCHES

SWALLOW BIRDHOUSES MOUNTED ON POST

24" DIA. VERTICAL TREE TRUNK WITH ATTACHED BATHOUSE

PILE OF BRANCHES

BAT(1)

BIRD(2)

4' TALL BRUSH PILES

BAT(2)

30" DIA. LOGS (TYPICAL)

30" DIA. VERTICALLY SET TREE TRUNK

BIRD(1)

WREN / CHICKADEE BIRDHOUSE MOUNTED ON VERTICAL STEEL POLE

STACKED RIP-RAP BERM

30" LOGS (TYPICAL)

RIP-RAP BERM

24" ALDER WITH ATTACHED FLICKER BIRDHOUSE

BNSF Skykomish FMC West Wetland As-Built

Table 1. Native Vegetation As-built Installation Summary

Common Name	Scientific Name	Size/Spacing	Planting Area A PFO Wetand (Approximately 21,715 square feet) [0.50 acre]	Planting Area B Upland (Approximately 5,900 square feet[0.14 acre]	Total Planting Area: 27,615 square feet (0.63 acre)
Trees:				Total:	90
Sitka spruce	*Picea stichensis*	Bareroot: 24" minimum 10 feet o.c.	20	0	20
Western red cedar	*Thuja plicata*		28	5	33
Black cottonwood	*Populus balsamifera*		14	6	20
Big leaf maple	*Acer macrophyllum*		0	4	4
Douglas fir	*Pseudotsuga menziesii*		0	3	3
Red Alder	*Alnus rubra*		9	1	10
Tall Shrubs:				Total:	91
Pacific willow	*Salix lucinda spp. lasiandra*	Bareroot: 24" minimum 10 feet o.c.	8	0	8
Sitka willow	*Salix stichensis*		24	0	24
Pacific ninebark	*Physocarpus capitatus*		36	0	36
Scouler's willow	*Salix scouleria*		5	0	5
Black hawthorn	*Crataegus douglasii*		8	0	8
Vine maple	*Acer circinatum*		0	4	4
Red flowering currant	*Ribes sanguineum*		0	3	3
Red elderberry	*Sambucus racemosa*		0	3	3
Shrubs:				Total:	596
Black twinberry	*Lonicera involucrata*	Bareroot:18" minimum height, 5' o.c.	130	0	130
Western salmonberry	*Rubus spectabilis*		184	21	205
Red-twig dogwood	*Cornus stolonifera*		113	9	122
Western snowberry	*Symphoricarpos albus*		0	70	70
Nootka rose, wild clustered rose	*Rosa nutkana, Rosa pisocarpos*		43	26	69
		Total Plants:	622	155	777

AECOM

LEGEND

- ORDINARY HIGH WATER
- ORIGINAL WETLAND DELINEATION BOUNDARY
- OBSERVED AREA OF INUNDATION DURING AS-BUILT SURVEY (DECEMBER, 2010)
- BUILDINGS/STRUCTURES (SURVEYED)
- BUILDINGS/STRUCTURES (APPROXIMATE)
- EXISTING CONTOUR
- AS-BUILT CONTOUR
- PROPERTY/LOT LINE
- LIMIT OF EXCAVATION (27,895 SQ. FT.)
- CONIFER HABITAT LOGS (20)
- S CONIFER SNAG (5)
- BRUSH PILES (8)
- BAT HOUSES (3)
- BIRD HOUSES (5)
- (1) PHOTO STATION

- OPEN WATER POOL AREA = 9,245 SQ. FT.
- PFO WETLAND VEGETATION (PLANTING AREA A) AREA = 21,715 SQ. FT.
- UPLAND FOREST VEGETATION (PLANTING AREA B) AREA = 5,900 SQ. FT.

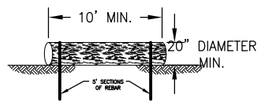
TOTAL PROJECT AREA = 36,860 SQUARE FEET (0.85 ACRE)

N

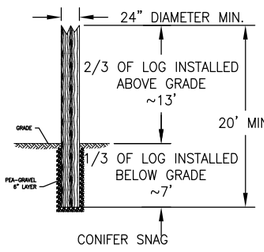
20 0 40

1"=40'

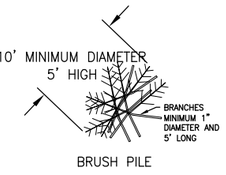
DETAILS (ALL DETAILS NOT TO SCALE)



HABITAT LOG



CONIFER SNAG



BRUSH PILE

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610		**FMC-WEST WETLAND AS-BUILT RESTORATION PLAN VIEW**
DATE: 2/9/11	DRWN: E.M./SEA	**FIGURE 12**

Deck
Brick
5' Chain Link Fence
Play Area
5' Chain Link Fence
5' Chain Link Fence

1 2

Excavation Area 1

A
B
C

1

FAR WEST HCC GATE

CONTAINERS WERE REMOVED PRIOR TO EXCAVATION

A000' A00' A0' A0 AA3 AA4
B000' B00' B0' B0 B1 B2 B3 B4
A1 A2 A3 A4
B0 B1 B2 B3 B4
C0 C1 B3 B4
A1 A2 A3 A4 A5 A6 A7 A8
A1 A2 A3
COVERED PARKING AREA
B4 B5 B6 B7 B8 B9
C3 C5 C6 C7 C8
D4 D5

Excavation Area 2
Excavation Area 3
Excavation Area 4

Old 4' Wire Fn.
Old 4' Wire Fn.
6' Wood Fence
4.5' Chain Link Fence

PLANNED EXCAVATION
ACTUAL EXCAVATION (PRELIMINARY SURVEY)

20 0 40
GRAPHIC SCALE IN FEET

N

NOTE:
ALL EXCAVATION COMPLETED TO A MINIMUM OF 2 FEET BGS

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610	RAILYARD ZONE WEST METALS FINAL VS. PLANNED EXCAVATION CONTOURS
DATE: 2/9/11 | DRWN: E.M./M.O./SEA	FIGURE 13

TO BE EXCAVATED
AFTER 2010

Soil Handling Facility

EXISTING WETLAND BOUNDARY

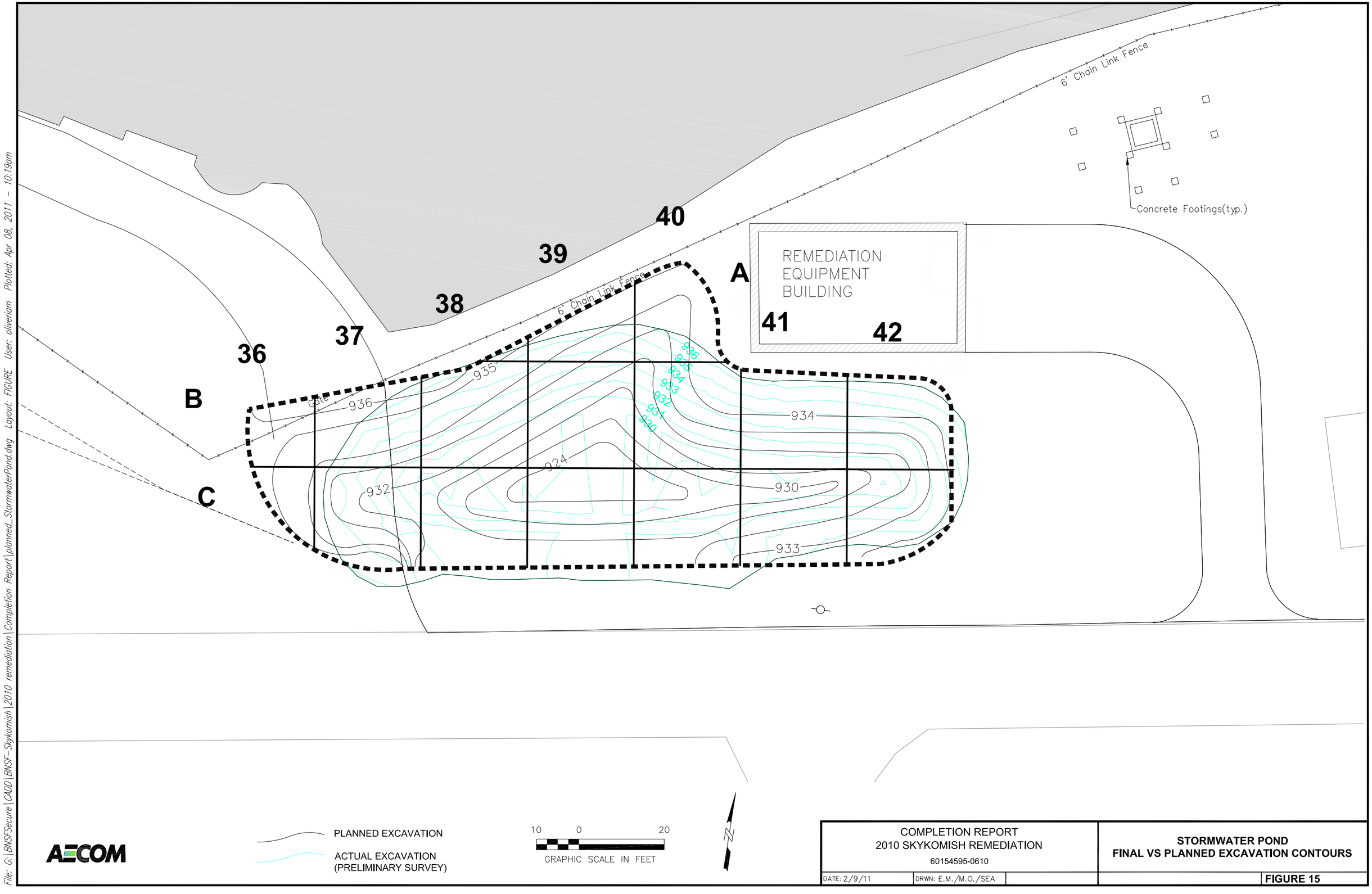
PLANNED EXCAVATION

ACTUAL EXCAVATION
(PRELIMINARY SURVEY)

25 0 50
GRAPHIC SCALE IN FEET

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610		RAILYARD ZONE EAST FINAL VS. PLANNED EXCAVATION CONTOURS
DATE: 2/9/11	DRWN: E.M./M.O./SEA	FIGURE 14



AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**STORMWATER POND** **FINAL VS PLANNED EXCAVATION CONTOURS**
DATE: 2/9/11	DRWN: E.M./M.O./SEA		**FIGURE 15**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\planned_StormwaterPond.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 10:19am

EXISTING WETLAND BOUNDARY

CIPP INSTALLED IN CULVERT

REMEDIATION EQUIPMENT BUILDING

Stormwater Pond

40 0 80

GRAPHIC SCALE IN FEET

N

AECOM

COMPLETION REPORT 2010 SKYKOMISH REMEDIATION 60154595-0610			**STORMWATER POND AND CONVEYANCE LINE LAYOUT**
DATE: 2/9/11	DRWN: E.M./SEA		**FIGURE 16**

File: G:\BNSFSecure\CADD\BNSF-Skykomish\2010 remediation\Completion Report\Stormwater Pond Conveyance Line.dwg Layout: FIGURE User: oliveriam Plotted: Apr 08, 2011 - 9:13am

Appendices A – R (Note: All appendices are provided on the attached CD.)

Appendix A	Permits and Inspection Records
Appendix B	Well Decommissioning and Construction Reports
Appendix C	TESC Reports
Appendix D	CWTS Operations Reports
Appendix E	Lead and Asbestos Inspection and Abatement Records
Appendix F	Structural Assessment Reports
Appendix G	Daily Construction Reports
Appendix H	Project Photographs
Appendix I	Contractor Submittals
Appendix J	WSDOT Bridge Excavation Memo
Appendix K	Compaction Testing Results
Appendix L	Stormwater Pond Liner Documentation
Appendix M	Stormwater Conveyance Line Documentation
Appendix N	As-Built Construction Drawings
Appendix O	Data Validation Reports
Appendix P	Analytical Reports
Appendix Q	Air and Noise Reports
Appendix R	Weather Data