Completion Report & Performance Monitoring Plan
Black Sand Beach Project
Stevens County, Washington

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ABBREVIATIONS AND ACRONYMS

APN	Assessor Parcel Number
B.C.	British Columbia
BMPs	Best Management Practices
BNSF	BNSF Railway Company
CARB	California Air Resources Board
CBP	U.S. Customs and Border Patrol
CCC	Citizens for a Clean Columbia
CCT	Colville Confederated Tribes
CFR	Code of Federal Regulations
CVC	Colville Valley Concrete
CWA	Clean Water Act
DAHP	Washington State Department of Archaeology and Historical Preservation
DNS	Determination of Non-Significance
E.	east
Ecology	Washington State Department of Ecology
EL	Elevation
Envirocon	Envirocon, Inc.
GPS	Global Positioning System
KFR	Kettle Falls International Railway, LLC
msl	mean sea level
MTCA	Model Toxics Control Act
N.	north
NAVD 1988	North American Vertical Datum of 1988
NPS	U.S. National Park Service
NTU	nephelometric turbidity unit
OmniTrax	OmniTrax, Inc.
Project	Black Sand Beach Project
RCW	Revised Code of Washington

RV	Recreational Vehicle
SEPA	State Environmental Policy Act
SF	square feet
SWPPP	Stormwater Pollution Prevention Plan
Teck	Teck American Incorporated
TESC	Temporary Erosion and Sediment Control Measures
Trimac	Trimac Transportation Services
URS	URS Corporation
U.S.	United States of America
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
VCP	Voluntary Cleanup Program
VCP Agreement	Voluntary Cleanup Agreement dated July 13, 2009
WA	Washington
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
Work Plan	Final Work Plan, Black Sand Beach Project, Stevens County

1.0 INTRODUCTION

This Project Completion Report & Performance Monitoring Plan documents the implementation of the Black Sand Beach Project in Stevens County, Washington (Project) and measures that will be undertaken to annually monitor and document conditions at the Black Sand Beach over the next five years (through October 2015). Black Sand Beach is the unofficial name of a locally recognized beach along the upper Columbia River near the City of Northport, Washington (Figure 1). The Project was completed in two phases. Phase 1 activities were associated with planning, designing, and permitting the interim cleanup action. Phase 2 included implementation of the interim cleanup action, which consisted of removing approximately 9,100 tons (about 6,500 cubic yards) of materials containing granulated slag from a prescribed area within the upland portions of Black Sand Beach, loading and transporting these materials to the Trimac facility (Trimac) located at 9595 Highway 22A, Trail, British Columbia for subsequent recycling at the Teck Metals, Ltd. Facility in Trail, British Columbia (B.C.), replacing the beach with clean fill materials, and returning temporary road improvements to original primitive conditions.

The Project was conducted by Teck American Incorporated (Teck) as a voluntary independent interim action in accordance with the Model Toxics Control Act (MTCA), Chapter 173-340 of the Washington Administrative Code (WAC), and with Revised Code of Washington (RCW) 70.105D. The Project was performed under the Washington State Department of Ecology (Ecology's) Voluntary Cleanup Program (VCP) pursuant to the Interim Action Voluntary Cleanup Program Agreement between Teck and Ecology dated July 13, 2009 (VCP Agreement). Project activities were conducted in accordance with the Ecology-approved Final Work Plan for Black Sand Beach Project, Stevens County, Washington dated August 2010 (Work Plan) and associated documents.

The draft Work Plan, 60-Percent Engineering Design, State Environmental Policy Act (SEPA) Checklist, and Determination of Non-Significance (DNS) were made available to the public during the public review period from January 4 – February 5, 2010. A public meeting was held by Ecology and Teck on January 14, 2010 at the Northport High School to present information and answer questions concerning the Project. The final design, Work Plan, and associated documents for the Project, and its implementation, considered input from the public and other stakeholders. These stakeholders included the Citizens for a Clean Columbia (CCC), Colville Confederated Tribes (CCT), Spokane Tribe of Indians, U.S. Environmental Protection Agency (USEPA), U.S. Army Corp of Engineers (USACE), U.S. Customs and Border Protection (CBP), U.S. National Park Service (NPS), Ecology, Washington State Department of Fish and Wildlife (WDFW), Washington State Department of Natural Resources (WDNR), Washington State Department of Archaeology and Historic Preservation (DAHP), Stevens County, City of Northport Chamber of Commerce, local residents, and others.

Project permits and approvals associated with the Project included:

- Low Rainfall Erosivity Waiver approval by Ecology on July 26, 2010.

- Hydraulic Project Approval (Control Numbers: 120568-1 and 120568-2) issued by WDFW on July 27, 2010, as modified on October 20, 2010 to extend the construction period from October 31, 2010 to December 31, 2010.
- Final DNS under SEPA and WAC 197-11-340(2) (SEPA File No. 2010-0040) issued by Ecology on July 28, 2010.
- Forest Practices Permit (Permit # 3016025) issued by WDNR on August 2, 2010.
- Shoreline Substantial Development Permit (Permit #ER-10-10029-1) issued by Stevens County on August 19, 2010, and approved by Ecology on August 19, 2010, and active on September 20, 2010 (i.e., following 21 day waiting period).
- Truck Haul Plan approved by Stevens County Department of Public Works on September 16, 2010.
- Short-term Surface Water Use Authorization issued by Ecology on September 14, 2010.
- Conditional Approval of Final Work Plan from Ecology on September 17, 2010.
- Clean Water Act (CWA) Section 404 Nationwide Permit 38, Reference: NWS-2010-659, issued by USACE, Seattle District on September 23, 2010.

Copies of the above-listed permits are provided in Appendix A.

2.0 SITE CONDITIONS

This section presents a summary of site conditions relevant to the Project. Additional details are presented in the Work Plan (URS 2010).

2.1 Site Location

Black Sand Beach is located in Stevens County, Washington, along the southeastern bank of the upper Columbia River just downstream from United States Geological Survey (USGS) Columbia River Auxiliary Gage Station at approximately river mile 743. Black Sand Beach is accessed by an approximately 800-foot-long unpaved access road that crosses railroad tracks at an existing railroad crossing. The access road and railroad crossing are located off the Northport-Waneta Road, about 8 miles northeast of Northport, Washington. Stevens County maintains the Northport-Waneta Road, BNSF Railway Company (BNSF) owns the railroad crossing and rail line, and the unpaved access road is the responsibility of the State. Figure 2 is an aerial photograph depicting the township, range, section, and parcel map of Black Sand Beach and its surrounding area. Figure 3 shows similar information for the truck turn-around parcel located on BNSF property and Stevens County right-of-way. Figure 4 illustrates the latitude and longitude of Black Sand Beach.

The Project site may be located as follows:

- Assessor Parcel Number (APN) 8000367
- Section 16, Township 40 North (N.), Range 41 East (E.).
- Latitude 48°58'48″ (48.98°), longitude 117°38'53″ (117.65°)
- Columbia River mile 743

The Project site is located approximately 113 miles northwest of Spokane, Washington, and approximately 2.7 miles southwest of the Canada-United States border crossing (Waneta crossing). Directions to the Black Sand Beach from Northport are as follows:

- Turn right at Northport-Boundary Road/Northport-Waneta Road (8.1 miles).
- Turn left on unpaved access road and cross railroad tracks (500 feet).
- Continue on unpaved access road to Black Sand Beach (300 feet).

2.2 Site Description

Black Sand Beach is the unofficial name of a locally recognized beach in the upper reaches of the Columbia River. Its name is derived from the granulated slag deposits that have accumulated over time on the southeastern bank of the river.

The WDNR is the land trust manager for the property and is responsible for decisions regarding maintenance and/or improvements to the access road. Though not a formally recognized or managed beach area, Black Sand Beach is known to be used by local Northport area residents as a familiar recreation/beach area (Ecology 2008). Recorded activities at Black Sand Beach include swimming/wading, fishing, camping, beach play, and small-scale mineral prospecting.

Identified residents nearest to the Project site include several residential properties located approximately 0.4 mile west-southwest of the site along the Northport-Waneta Road. A USGS auxiliary gauging station is located several hundred feet northwest and upriver of the Project site. A BNSF rail corridor exists between the site and the Northport-Waneta Road. A private crossing of the railroad tracks between BNSF mile marker 137 and 138 provides access to Black Sand Beach. This corridor contains a single set of tracks that are used daily to transport railcars between Kettle Falls, Washington and British Columbia.

2.3 Site Features Prior to Interim Action

Black Sand Beach occupies an area of approximately 42,580 square feet (SF). For the purposes of the Project, it was divided into four subareas (Figure 5):

- Rock outcropping (8,280 SF)
- Downstream beach (18,510 SF)
- Upstream beach (9,850 SF)
- Middle beach (5,940 SF)

These site features are further described below.

2.3.1 Rock Outcropping

A predominant feature of Black Sand Beach is a north-south trending bedrock outcropping that protrudes into the river. The outcropping divides Black Sand Beach into two approximately equal parts (Figure 5). The eastern half (upstream of the outcropping) consists of the middle and upstream beach areas. The western half is the downstream beach. This rock outcropping and a series of additional bedrock outcroppings farther upstream likely produced the hydrodynamic conditions that allowed the granulated slag to deposit at the Black Sand Beach.

2.3.2 Downstream Beach

The downstream beach is approximately 215 feet long (parallel to the river) and 150 feet wide. This is where the majority of granulated slag was deposited. Deposition of the granulated slag in this area is suspected to have occurred as river flow of the Columbia River and its associated suspended particles intercepted the bedrock outcrop between this beach and the upstream beach. The granulated slag is uniform and sand-sized with little or no gravel.

2.3.3 Upstream Beach

The upstream beach is located east of the middle beach and is approximately 130 feet long by 80 feet wide. The upper surface of the upstream beach prior to construction was composed mostly of black, sandy material containing granulated slag. Similar to the downstream beach, the granulated slag on the upstream beach is uniform, sand-sized materials with little or no gravel and cobbles.

2.3.4 Middle Beach

The middle beach area is located between the rock outcroppings and the upstream beach and is approximately 25 to 80 feet long by about 110 feet wide. Unlike the downstream and upstream beach areas, a relatively large percentage of gravel and cobbles appeared on the surface of the middle beach. The middle beach does not appear to represent a significant depositional area.

2.3.5 Surface Water

The Columbia River is adjacent to the north portion of Black Sand Beach. The granulated slag removal activities described in this Report were completed during early fall low-water-stage periods to maximize the removal of granulated slag materials from the upland beaches. The ordinary high-water mark of the Columbia River in the area of Black Sand Beach is approximately 1,312 feet above mean sea level (msl). This is measured by the North American Vertical Datum of 1988 (NAVD 88). During the construction period from September 20 through October 29, 2010, river elevations ranged from approximately 1297 to 1301 feet above msl, with water levels at or about 1299 feet above msl during the majority of the daytime construction period.

2.3.6 Vegetation

Little to no vegetation is present on Black Sand Beach, while the surrounding area can be characterized by two vegetative zones. The first zone occurs along the shoreline. From the low-water line, sand with deposits of rounded cobbles and coarse gravels are present with little to no vegetation. Away from erosion forces of the river and into the 100-year flood plain, soil substrate transitions to an olive-gray to brown coarse sand, and provides a transitional growth media where grasses, scattered low lying forbs, and occasional ponderosa pines are present.

As elevation increases, the vegetation transitions to a coniferous ponderosa pine (*Pinus ponderosa*) forest typical of drier climates in northeastern Washington. *Pinus ponderosa* are characteristic *"of a short growing season and minimal summer precipitation"* (USFS 1973). Ponderosa pines are scattered within the 100-year flood plain and increase in density as elevation increases. Within the 100-year flood plain, juniper trees are occasionally present, such as on the rock outcrop upstream of Black Sand Beach.

Douglas fir, cottonwood, aspen and paper birch also are present in the vicinity of the site, particularly as the elevation and tree density increases. The understory of the ponderosa forest

contains forbs such as service berry, snowberry, bulbous bluegrass, chokecherry, and starry false Solomon's seal (USFS 1973).

A wetlands investigation was conducted at the project site in April 2010 by qualified wetland scientists under the supervision of a qualified archaeologist. The investigation included an inspection of the vegetation between the ordinary high-water mark and the river's edge, a review of the site hydrology, and visual inspection of underlying soils within areas adjacent to Black Sand Beach. Areas investigated consisted of a narrow fringe of vegetation along the upland edge of Black Sand Beach, which were dominated by redtop grass (*Agrostis alba* FAC) and field horsetail (*Equisetum laevigatum* FACW). The conclusion from this investigation was that there was no clear and convincing wetland features in soils and the site is not a jurisdictional wetland (Geographical Services and URS 2010).

2.4 Subsurface Conditions

2.4.1 Regional Geology

The Project site is located within the upper reach of the Columbia River valley. The Kootenay Arc comprises mountains east of the site and includes remnant coastal plain sedimentary rocks that were accreted to the former western edge of the North American continent during the Jurassic Period and later intruded by volcanic rocks. Bedrock beneath the Black Sand Beach area includes metamorphosed Carboniferous to Ordovician sedimentary and volcanic rocks that also were accreted to the western edge of the North American continent. Additional later accretion sequences comprise the Kettle Metamorphic Core Complex and Okanagan Highlands west of the site area. The Columbia thrust fault is located in the general vicinity south of the site (WDNR 1987).

2.4.2 Local Geology

Two types of natural soils are generally found within the project area, based on observations of soil types exposed at the ground surface at the site. Riverbed granitic gravel and cobble soils are found along the shoreline within the 100-year flood plain and the channel migration zone. These coarse materials are supported in a matrix composed largely of quartzitic coarse sand. Likely, the coarse clasts in this soil include fluvially reworked morainal deposits.

Several river terraces comprise the upland area of the site inland from the 100-year flood plain. These terraces are composed of relatively poorly graded (well sorted) fine sand, which likely represents glacially derived sand deposited through glacioaeolian or fluvial processes.

2.4.3 Groundwater

Groundwater conditions were not explored during preparation of the Work Plan. However, based on our experience with similar sites located adjacent to the Columbia River, near-surface groundwater flow is likely toward the river (north) or parallel to the river (west). During high

river stage periods, river water likely recharges the shallow alluvial groundwater system, causing some intermittent interruption of the usual upland-to-river groundwater flow pattern. Saturated soil conditions were encountered beneath the Black Sand Beach during excavation activities beginning at the approximate elevation of the river. These observations of near-shore saturation suggest active hydraulic communication with the river.

2.5 Ownership of Affected Parcels, Easements, and Right-of-Way Considerations

Uplands portion of Black Sand Beach (APN 8000367) are owned by the State of Washington and managed by WDNR. Other properties or easements affected by the project included an adjacent private parcel west of Black Sand Beach (APN 5704900), a BNSF railroad crossing along the unpaved access road leading from Northport-Waneta Road to Black Sand Beach, the right-of-way and easement of Stevens County Northport-Waneta Road (former Washington State Highway 251), a truck turn-around area southwest of the Project site and located on BNSF property (which is also Stevens County right-of-way), and a Stevens County owned lot located southeast of the Black Sand Beach, which was used as a staging area for equipment and clean imported fill materials. Although no excavation work was performed on these other properties, access to them was required for ingress and egress to Black Sand Beach, or for staging trucks and clean fill materials.

As part of Phase 1 planning activities, URS Corporation (URS) completed a title review of properties adjacent to or near Black Sand Beach to obtain information on property ownership and easements of the properties directly affected by the Project. This information is presented in the Work Plan.

Records indicate that a portion of the access road between Northport-Waneta Road and the BNSF rail line is located on the Walker Trust property. Teck obtained written authorization from Walker Trust to access their property for ingress and egress to and from Black Sand Beach to conduct this project. Additionally, the access road crosses a BNSF rail line. Approvals were obtained from OmniTrax, Inc. (OmniTrax), the operator of the rail line, to cross the railroad track at the existing crossing between the Northport-Waneta Road and Black Sand Beach.

2.6 Interim Action Performance Standards

The goal of the Project was to remove as much granulated slag material from the defined limits of the Black Sand Beach area as practical based on the following considerations:

- Visual observations of areal granulated slag distribution during preconstruction reconnaissance;
- Test pit observations;
- Findings from the Teck-initiated 2009 assessment of apparent granulated slag thickness;

- Shoreline and river conditions; and
- Visual observations during the time of construction.

Visual evidence was sufficient for screening the material, as the granulated slag was readily identifiable by physical appearance (e.g., color, size, and glass-like appearance). Analytical samples were not necessary to guide the extent of the excavation. The Engineer and Construction Manger, in consultation with Ecology, jointly determined the actual limits of excavation in the field.

Samples were collected by Ecology from 15 separate locations within the upstream and downstream beach areas for the primary purpose of characterizing the concentrations of metals in soil at the limits of excavation. In addition, one sample was collected from a fine-grained material within the granulated slag deposit that was later removed. Eleven of these samples were selected by the Ecology coordinator for analytical testing for select metals. A January 26, 2011 memorandum prepared by Ecology to document the methods, results, and Ecology's overall conclusions is included in Appendix B.

3.0 SUMMARY OF CONSTRUCTION ACTIVITES

This section summarizes Phase 2 construction activities and describes As-Built conditions. Phase 2 construction activities were performed by Envirocon, Inc. (Envirocon) from September 20 to October 29, 2010 when substantial completion was achieved following a close-out inspection by Ecology and WDNR. Engineering, construction management, and archaeological monitoring services were provided by URS throughout the entire construction period.

The 90-percent construction drawings, which were included in the Work Plan and subsequently issued for construction, are included in Appendix C. The 100-percent As-Built drawings, which were produced following the post-construction As-Built survey, are provided in Appendix D. Project photographs are included in Appendix E.

3.1 Purpose

The purpose of the Project, as described in the Work Plan, was to remove granulated slag that had accumulated over time within the upland portion of the Black Sand Beach where granulated slag was readily visually identifiable and accessible, by conventional excavation equipment. The intent was to remove as much granulated slag in the upland Black Sand Beach areas as possible, while not adversely impacting the adjacent river or cultural resources that were known to exist in the vicinity of the Site and those that were identified during the project. Other project objectives included the following:

- Establish final grades in the affected work area following excavation of the granulated slag to minimize potential disturbance of any known, recognized, or suspected cultural resource(s) and to allow continued beach access and function to the public, while minimizing future erosion problems.
- Maintain and promote positive stakeholder relationships by actively supporting and participating in the public participation process as requested by Ecology and the cultural resource coordination process under Ecology guidance.
- Secure all necessary permits and approvals so that the construction phase (Phase 2) of the project can begin no later than early September 2010, when the water level is low in the river. Permitting and approvals were dependent on several outside agencies' review schedules.
- Provide continuous on-site archaeological monitoring during all intrusive site work.
- Minimize disruption to local activities, including but not limited to adjacent landowner residence activities, local business activities, school bus traffic, general public road use, and Waneta Border crossing.
- Perform the work efficiently within a reasonable timeframe and cost.

- Maintain construction Best Management Practices (BMPs) to minimize potential air quality or water quality impacts.
- Maintain strict emphasis on safe construction work practices for all elements of the project.
- Re-establish access road conditions that are similar in condition to the original pre-construction conditions.
- Utilize local businesses and resources to support the manpower, equipment and material requirements of the project.

Project objectives listed above were satisfied.

3.2 Construction Summary

3.2.1 Pre-Construction Meeting

On September 1, 2010, a preconstruction meeting was held at the Project site to discuss key elements of the Project prior to mobilization of construction crews and equipment. The meeting was held in advance of mobilizing the equipment and crews to allow sufficient time for advanced planning based on the meeting discussions. Attendees included:

- Ecology (Carol Bergin, Chuck Gruenenfelder)
- Envirocon (Jeff Johnson)
- Omnitrax (Burrel Sellars)
- Teck (Marko Adzic)
- URS (David Enos, Don Laford, Paul McCullough)
- WDNR (Arne Johnson)
- Personnel from Stevens County planning department and public works department were invited to the pre-construction meeting, but were unable to attend.

The following topics were discussed in the pre-construction meeting:

- Project organization including roles, responsibilities, and authority of the various project team members
- Scope of work, including cultural resource monitoring, water quality monitoring, site security, erosion and sediment control measures, excavation, backfill, trucking, and temporary road improvements; and project documentation
- Project schedule and anticipated construction sequence

- Administrative procedures, including inspections, project communications, photo-documentation, and coordination with public and other project stakeholders during construction work
- Site safety expectations and emergency response actions, including measures to be implemented in the event of a fire or spill

3.2.2 Mobilization and Site Security

Mobilization of personnel and equipment to the Project site began on September 20, 2010, following a written authorization to proceed from Ecology on September 17, 2010. Major equipment items mobilized to the Project site included:

- One excavator: Kobelco Model SK210 (track-mounted)
- One dozer: New Holland Model D85 (track-mounted)
- One water truck: F750 with 2,500 gallon tank, turret, and fire hose
- One pick-up truck (with general work tools)
- One flat bed trailer (for various supplies)
- One 24-foot recreational vehicle (RV) trailer (for site security)
- Miscellaneous items: fire pump and hose; fire box; spill kit; portable outhouses

Movement of the track-mounted construction equipment across the railroad tracks was directed by OmniTrax personnel to ensure that proper procedures were followed. OmniTrax is the owner and manager of the Kettle Falls International Railway, LLC (KFR), which operates the BNSF trackage in Northeastern Washington State and Southeastern B.C., including the rail line near the Project site. As directed by OmniTrax, the track-mounted equipment crossed the railroad tracks at the Truck Turn-around Area designated in the plans. It was then driven northeast alongside the railroad tracks and entered the Black Sand Beach access road just north (i.e., the side closest to the river) of the railroad crossing along the access road to the Black Sand Beach. This equipment unload and travel route to the site was selected to maximize public safety on Northport-Waneta Road.

Black Sand Beach was closed to the public for a 39 calendar day period beginning on September 20, 2010 and ending October 29, 2010. During this period, access to Black Sand Beach was limited primarily to construction workers and agency inspection personnel for safety reasons. Two personnel from Envirocon provided site security during non-working hours. Security personnel were housed in a 24-foot long RV trailer that remained at the Project site throughout the construction timeframe. Approvals were obtained from WDNR to maintain the RV at the Project site.

3.2.3 Site Preparation

Site preparation included the following activities:

- Notified Stevens County and the local Northport Fire District of planned construction startup activities
- Prepared a temporary stabilized access road entrance to facilitate construction vehicle traffic
- Removed two trees and low tree branches to facilitate truck access, as approved by WDNR
- Performed temporary access road improvements
- Installed road signs on Northport-Waneta Road per the Stevens County approved truck haul plan
- Installed safety fencing and signs to delineate work zones
- Setup portable outhouses (one at Black Sand Beach and one at the truck turnaround area)
- Setup fire pump, hose, fire box (picks, axes, and associated tools)
- Installed temporary erosion and sediment control measures (e.g., straw waddles)

Sheet 1 (Appendix D) depicts general Project site construction features, including temporary road improvements and various stockpile and staging areas.

3.2.4 Silt Barrier and Berm Installation

After creating a safe work platform parallel to the shoreline, a temporary silt barrier was installed parallel to the shoreline and immediately adjacent to the river. The purpose of the temporary silt barrier was to prevent/minimize adverse water quality impacts to the adjacent river from potential disturbances to the river from nearby excavation and backfill placement activities in the uplands. The temporary silt barrier consisted of impermeable polypropylene sheeting secured to 4 foot-high vertical metal posts. These vertical posts were inserted into five gallon buckets that were filled with concrete and spaced at approximately six foot centers to support the temporary silt barrier. The temporary silt barrier was constructed in such a manner that it could be disassembled and moved if necessary. A detail showing the silt barrier construction and its key specifications is included in Sheet 4 (Appendix D).

The temporary silt barrier served as the primary engineering control to protect the river while excavating an initial 30 to 40 feet wide strip parallel and immediately adjacent to the river. Once this initial strip was excavated and backfilled with the basal cobble layer, a berm was constructed parallel to the river using clean fill materials. The temporary soil berm provided an additional measure of protection to help physically isolate the active excavation pit from the adjacent river. Grades of the berm were the same as the final design beach grades from the edge of the river to about elevation (EL) +1304 feet msl.

3.2.5 Test Pit Excavations

Two exploratory test pits (one at the upstream beach and one at the downstream beach) were excavated on September 22 and 23, 2010 to confirm design assumptions pertaining to the depth of the granulated slag materials. The test pits also allowed the on-site and design engineers, on-site archaeological monitor, and Ecology to inspect subsurface conditions. Test pit locations are depicted on Sheet 5 (Appendix D). Test pits were inspected by Ecology on September 23, 2010.

Downstream Beach Test Pit

The test pit at the downstream beach was excavated in a location where granulated slag was believed to be at or near its deepest levels (Sheet 5, Appendix D). The downstream test pit was excavated to a depth of approximately 14 feet below ground surface from approximately EL + 1306 feet msl to a depth of about EL +1292 feet msl. Water level at the river's edge at the time of excavation was approximately EL +1299 feet msl. The depth of the test pit was estimated based on observing how far the excavator bucket/arm assembly extended below water.

Photographs of the test pit are provided in Appendix E. As illustrated in the photographs, underlying stratigraphy consisted of poorly graded, fine to medium sand, containing variable, but relatively large percentages (i.e., generally greater than 30 percent based on visual observations) of granulated slag materials. Small amounts of well rounded gravel were encountered near the bottom of the downstream test pit at approximately EL +1292 feet msl.

Upstream Beach Test Pit

The upstream beach test pit was excavated on September 23, 2010 to an approximate depth of 6 to 7 feet below ground surface (approximately El +1300 feet msl). No water was observed at the bottom of the upstream beach test pit. The water level at the edge of the river at this time was approximately El +1299 feet msl.

Photographs of the upstream beach test pit are shown in Appendix E. Stratigraphy observed in the upstream beach test pit included inter-bedded sequences of poorly graded fine to medium sand with granulated slag, with sequences of cobble and gravel, and fine to medium sand to a depth of about 5.5 feet. Beneath about 5.5 feet, a unit containing angular to sub-angular cobbles, rocks, and sand with little or no visible granulated slag was observed.

3.2.6 Bulk Excavation, Load-out, and Transport to Canada

After excavating and inspecting the test pits and installing the silt barrier, excavation of the uplands began on September 24, 2010 at the downstream beach along an approximately 30 to 40 foot strip parallel to the shoreline. Excavation continued until native gravels and cobbles were encountered. On-site verbal approvals from Ecology were obtained prior to partial backfill of the excavation to the water level with imported cobbles. Excavation then proceeded to the middle and upstream beaches, followed by the remainder of the downstream beach. Excavation continued until little to no granulated slag was visually identified at the bottom or until a

gravel/cobble layer was encountered. The final excavation depth was determined jointly by the Ecology inspector in consultation with the Engineer and/or Construction Manager. Figure 6 presents the estimated excavation depth contours, based on visual observations and field measurements obtained during construction activities. Granulated slag containing materials on the rock outcropping and within the interstices of the cobbles located west of the downstream beach were removed using a vacuum truck on October 6-7, 2010. Materials removed with the vacuum truck were temporarily stockpiled along with the other excavated materials, pending load-out and truck transportation to the Trimac facility in Trail, B.C.

Excavated materials were stockpiled in the upland portions of the upstream and downstream beaches pending subsequent load-out and truck transport to Trimac. Trucking of the excavated and stockpiled materials was conducted daily (including weekends) from October 6 to October 22, 2010, while the Waneta border crossing was open (9:00 am to 5:00 pm). The truck drivers were checked for enhanced driver's license or valid passport. Trucks were visually inspected for safety and load covers. Exported materials removed from Black Sand Beach consisted of a mixture of granulated slag and native sand, gravels, and cobbles. At Trimac, trucks were weighed using a dedicated truck scale installed by Impact Equipment, Ltd. Materials were then placed in stockpiles for subsequent screening to remove gravel and cobbles prior to recycling at the Teck Metals, Ltd. Smelter facility in Trail, B.C.

Table 1 summarizes the amounts of excavated materials removed from Black Sand Beach and transported to Trimac. Volume estimates were based on the measured weight of excavated materials using the truck scales (9,136 tons), and the actual number of solo truck loads to Trimac (i.e., 647 truck trips at about 10 cubic yards per load). As shown on Table 1, approximately 6,500 cubic yards of materials were removed from the Project site and transported to Trimac. Table 2 summarizes information from each truck load delivered to Trimac, including the truck identification number, date/time of delivery, truck tare weight (empty weight), and full load weight for each delivery.

3.2.7 Import of Clean Fill Materials and Backfill

After obtaining Ecology approval, the excavation was backfilled with imported fill materials to establish desired grades. Approximately 6,914 cubic yards of imported fill materials, as determined from truck counts and individual truck volume estimates, were used to backfill the excavation. Imported fill materials included:

- Approximately 2,802 cubic yards of sand from Colville Valley Concrete (CVC), East 1175 Third Avenue, Colville, WA 99114. This material was used for the top layer.
- Approximately 2,002 cubic yards of gravel from CVC (same address as above). This material was used for the middle layer.
- Approximately 2,070 cubic yards of large cobbles from Columbia River Rock, 4765 B Mitchell Road, Northport, WA 99126. This material was used for the bottom layer.

- Approximately 40 cubic yards of small cobbles from Aubert Rock Products, 1310 Williams Lake Road, Evans, WA 99126. This material was used for the top of the erosional rock pads for aesthetic purposes, and to provide a more stable and level walking surface.

CVC has a Surface Mining Reclamation permit from WDNR, which would have considered cultural resource issues as part of the permit issuance process. Sources of cobbles from Columbia River Rock and Aubert Rock Products were inspected by a professional archaeologist meeting the Secretary of Interior's Professional Qualification Standards to confirm that these sources were acceptable for use on the Project. Additionally, a URS archaeologist performed a records review of each commercial borrow source area using a confidential database maintained by DAHP to verify that these borrow sources did not contain any previously reported archaeological or historical items. Furthermore, a URS archaeologist notified Ecology, DAHP, WDNR, and other cultural resources stakeholders prior to obtaining materials from these sources. No cultural resource issues were identified in these consultations.

Ten representative samples of the top sand materials provided by CVC were collected by URS for analytical testing to confirm that the fill material was suitable. Samples were analyzed by Test America Incorporated for 13 select metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc) using EPA Methods 6010C and 7471. Additionally, two additional samples of fill materials from the CVC source were collected by URS and analyzed by Test America Incorporated for asbestos using California Air Resources Board (CARB) Method 435. Results of these analyses were provided to Ecology on September 9, 2010 and Ecology approved the use of these materials on September 9, 2010. Copies of the analytical reports are included in Appendix F.

Cobble materials from Columbia River Rock and Aubert Rock Products were visually inspected by Washington State Licensed Geologists from URS and Ecology, and were found to be acceptable without further chemical analysis for asbestos, metals, or other constituents. The cobble-sized fill materials appeared largely similar to, in size and mineral composition, the coarse, alluvial deposits found naturally along the upper Columbia River banks near the Black Sand Beach.

3.2.8 Final Punch List, Substantial Completion and Site Restoration

Upon completion of excavation activities and substantial fill placement, an inspection was conducted by URS, Ecology and WDNR on October 27, 2010 to identify punch list items that needed to be completed before achieving substantial completion and demobilizing from the Project site. Key stakeholders, including Mr. Joe Wichmann of CCC and Mr. Matt Wolohan, a nearby local resident and adjacent property owner, also attended the October 27, 2010 meeting to participate in identifying punch list items. Identified punch list items included:

- Final grading (including additional fill placement in certain areas and fine-grading)

- Completion of the erosion rock pads with small cobbles from Aubert Rock Products
- Placement of a thin veneer of imported sand on top of the cobble area west of the downstream beach for aesthetic purposes
- Photo-documentation and As-Built Survey
- Road restoration (including guidance and direction from WDNR personnel who were present at the punch list meeting)
- Site cleanup (e.g., removal of equipment, trash, signs, and final wash down of roads)

The above punch list items were addressed on October 27-29, 2010.

On October 29, 2010, a final inspection was conducted by URS, Ecology and WDNR. Mr. Wichmann of CCC and Mr. Art Grobben, a local resident, also participated in the final inspection. During the final inspection, the items on the punch list were inspected to document that they were satisfactorily completed. Additionally, minor access road restoration work was completed under the direction of WDNR. After satisfactorily addressing punch list items and restoring the access road to the satisfaction of WDNR, substantial completion was achieved at 1:00 pm, October 29, 2010. The track-mounted equipment was removed from the Project site, which included crossing the railroad tracks under the direction of Omnitrax. The final As-Built survey was completed on November 1, 2010, and remaining Project related equipment and items were removed from the Project site.

3.2.9 Public and Construction Safety

The Envirocon Site Specific Safety Plan was reviewed by URS and adopted to apply to personnel at the site. First Aid Kits and Fire Fighting equipment were set-up as part of mobilization. At the start of each shift, a safety tool box meeting was conducted with all personnel on-site in attendance. The work plan for the day was discussed along with the appropriate safety precautions to be observed. Visitors to the site that were not in attendance to this meeting were escorted on site to assure safety protocols were followed. There were no injuries to any personnel involved with this Project.

Public safety was provided by the use of road signs and flaggers as defined in the approved Traffic Control Plan. Vehicle speed was reduced through the construction zone using signs. A flagger was used to stop southbound traffic on Northport-Waneta Road when trucks entered or exited the Black Sand Beach access road. A second flagger was used to direct traffic at the truck turnaround area. There were no public vehicle accidents related to trucking for the Project.

3.3 Construction Monitoring and Inspections

This section summarizes the monitoring and inspection activities during the Project.

3.3.1 Archaeological Monitoring

Teck contracted with URS to provide an on-site professional archaeologist meeting the Secretary of Interior's Professional Qualification Standards (as outlined in 36 Code of Federal Regulations (CFR) Part 61) in the event that cultural resources were encountered during construction activities. URS archaeological monitors included: Anisa Becker, MA; Sarah McDaniel, MA; RPA; and Michelle Stegner, BA. Monitoring occurred between September 20 and October 29, 2010 for all construction-related, ground-disturbing activities. Monitoring was conducted in accordance with the Ecology-approved Work Plan and applicable permit requirements.

Prior to construction activities, the monitoring archaeologist provided an overview of the protocol outlined in Appendix C of the Work Plan: Revised Cultural Resources Plan (URS 2010) to the construction crew and technical observers. A Confidentiality Agreement regarding the importance of non-disclosure of any potential archaeological finds was prepared and signatures were collected from construction personnel. Daily monitoring notes were taken, recording construction activities and site visits. Construction work and monitoring was photo-documented and a photo log was completed each day.

No pre-contact period archaeological materials were observed as a result of mechanical excavation activities. Modern debris including recent beer bottles, machine-cut logs, nylon tire, rubber tire, a lead fishing weight, a zinc lid, metal/plastic shell casing, a glass jar base, a plastic shotgun shell, a brick fragment, and a plastic pocket protector, were observed at depths ranging from 1 to 15 ft (Table 3). Approximate locations and depths of these encountered items are shown on Figure 7.

A Cultural Resources Monitoring Report has been prepared by URS to more fully document archaeological and cultural resource monitoring activities and results for the Project. The Cultural Resources Monitoring report will be submitted to USACE, DAHP, and Tribal Historic Preservation Officers for the CCT and Spokane Tribe of Indians. To avoid potential vandalism, information in the Cultural Resources Monitoring Report will be kept Confidential, as provided for by Section 304 of the National Historic Preservation Act and Section 9(a) of the Archaeological Resources Protection Act, and Washington law, RCW 27.53.070 and RCW 42.56.30.

3.3.2 Water Quality Monitoring

Water quality field monitoring of the adjacent Columbia River for pH and turbidity was conducted throughout the Project in accordance with the Work Plan and associated Storm Water Pollution Prevention Plan (SWPPP).

At a minimum, pH and turbidity meters were calibrated daily in accordance with the manufacturer's instructions. The pH meter (Ultra Meter 6P, Myron Company, Serial Number 602692) was calibrated to a pH value of 7.0 using a reference standard provided by the instrument supplier. The turbidity meter (Lomotte, Model 2020, Serial Number 1508-5199) was calibrated to a reference standard of 1 nephelometric turbidity units (NTU), which was also provided by the instrument supplier. Water pH and turbidity measurements in the river were

collected prior to construction activities to establish baseline conditions. For the purposes of the work and as agreed to by Ecology, established criterion for pH in the river for the project was 6.0 to 9.0 standard units; and for turbidity was less than 5 NTUs above baseline turbidity measurements.

Field measurement results for pH and turbidity are summarized in Table 4. All results were within the Project specified limits. These monitoring results, as well as visual observations of the adjacent river, demonstrate that the silt barrier and clean fill berm were effective controls to adequately protect water quality in the river while working in the uplands. Some minor localized turbidity impacts were visually observed in the river after removing the silt barrier as fine grained materials in the replacement sand contacted the river, and when portions of the silt barrier were temporarily removed to facilitate excavation of granulated slag containing materials within the narrow strip between the river and silt barrier. Periodically, adjustments were made to the silt barrier to ensure a proper seal between the plastic sheet and the shoreline to prevent/minimize underflow of water on either side of the barrier.

3.3.3 Dust Monitoring

Dust monitoring was conducted daily by visual inspections. A portable dust meter was available at the Project site throughout the period of construction. Air monitoring with the dust meter did not measure any significant detector response. No significant dust from construction activities was observed throughout the Project. Minor amounts of dust were generated when the dump trucks emptied imported fill materials (most noticeably with the cobble trucks). These minor and temporary dust impacts were localized to the immediate area of the dump truck and were only observed during the unloading event. No significant dust was observed during excavation or load-out activities.

A water truck was present at the site throughout the period of construction. On occasion, the water truck was used to wet down the access roads during heavy truck traffic to keep the dust levels minimal. The water truck was also used to periodically wash down Northport-Waneta Road in the vicinity of the site entrance and in the vicinity of the staging area.

3.3.4 Stormwater Inspections

Temporary erosion and sediment control (TESC) measures were in place throughout the period of construction in accordance with the SWPPP. The TESC for stormwater included placement of straw waddles in certain areas along the access roads and the placement of temporary soil berms in areas to prevent potential stormwater runoff from adversely impacting the river. TESC measures were routinely inspected by the Construction Manager to ensure that they were functional and adequately maintained. No significant deficiencies in the stormwater TESC measures were identified and no impacts to the river were observed during or after rain events throughout the Project. Ecology routinely inspected the TESC measures at the Project site. On October 4, 2010, Ecology recommended some minor modifications to the shoreline berm to improve the seal between the plastic sheeting and the shoreline, which were implemented immediately. No deficiencies were noted during construction.

4.0 PERFORMANCE MONITORING PLAN

This Section presents a Performance Monitoring Plan, which discusses the measures that will be undertaken by Teck to monitor and document conditions at Black Sand Beach. Performance monitoring will be conducted on an annual basis for a maximum of five years. Consistent with the VCP agreement, Teck will perform annual monitoring for a three year period (through 2013), as discussed below. Following the three year period, Ecology will evaluate findings from the annual monitoring program and discuss with Teck possible modifications to the monitoring program including, but not limited to, a possible reduction in the duration of annual performance monitoring. Annual monitoring events will be conducted in the mid- to late-October timeframe to coincide with approximate river stage and seasonal conditions at the time of the Project.

Pursuant to the VCP agreement and Work Plan, the purpose of the annual performance monitoring is to observe and document potential changes in Project site conditions, including sediment erosion and/or re-deposition that may occur after completion of the Project. A thorough visual inspection will be performed by a technical representative of Teck (preferably someone familiar with the original project conditions at the time of construction completion). Annual inspections will serve as the primary means for assessing the magnitude and extent of potential re-deposition of granulated slag materials on the replacement beach, as well as documenting areas where erosion or scour has occurred. As indicated in the Ecology-approved Work Plan, and in Ecology's Responsiveness Summary dated June 2010, the visual appearance and measured grades of Black Sand Beach are expected to change over time due to natural fluvial processes associated with the Columbia River. No future activities will be conducted by Teck to maintain the current Black Sand Beach configuration.

As described in the Work Plan, the performance monitoring program at Black Sand Beach will primarily consist of visual observations, photographic documentation, and surface elevation measurements using a surveyor's level instrument and GPS unit. Anticipated photograph and surface elevation locations for the annual monitoring events are shown on Figure 8. Other photographic reference points and surface elevation surveying stations may be established, as needed, to adequately document potential changes at the beach. Consistent with the VCP agreement, Teck will notify Ecology at least 10 calendar days in advance of annual monitoring activities. Ecology personnel may choose to participate in these annual monitoring activities, and may collect sediment samples for analytical laboratory and/or semi-quantitative (e.g., x-ray fluorescence) analysis. The GPS coordinates (hand held GPS unit) of any sample locations will be recorded. Prior to analyzing potential samples, Ecology will discuss with Teck the type of analyses to be performed.

Within 45-days of completing the annual monitoring event, Teck will submit a report to Ecology documenting the results of the monitoring activities. The report will include:

- ***General Information***: Name of inspector, date and time of inspection, weather conditions, users of the beach, conditions of the upland area, river elevation stage (height of water at gage on cement pier at nearby USGS gauging station, and, if available, river

height from USGS website: http://waterdata.usgs.gov/usa/nwis/uv?site_no=12399500) at time of monitoring event, manufacturer and serial number information for equipment used for the monitoring event.

- ***Summary of Field Observations:*** A brief narrative summary of the monitoring activities, including a map showing: (1) location and direction of photographs; (2) locations of elevation measurements and measured elevation values; (3) river elevation at the time of the monitoring event, and (4) location and GPS coordinates of samples.

5.0 PROFESSIONAL ENGINEER'S STATEMENT

URS was retained by Teck to assist in planning, design, and construction management for the Black Sand Beach Project in Stevens County, Washington. In that role, URS, represented by the undersigned, maintained active involvement in the planning and implementation of the various project activities; preparation of construction drawings and technical specifications and other project documents; construction monitoring and oversight; and documentation of construction activities.

This report is intended for the sole use of Teck. The scope of services performed during Phase 1 and Phase 2 of the Project may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or of its findings, conclusions, or recommendations presented herein is at the sole risk of said user. The services performed by URS have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in Washington. No other warranty is expressed or implied.

As the designated URS representative, I hereby conclude that, to the best of my knowledge, the construction activities summarized in this report have been satisfactorily completed in substantial compliance with the Work Plan, the construction drawings and specifications, permits, and other related documents.

URS CORPORATION

Paul T. McCullough, PE
Senior Project Engineer
Washington P.E. Certificate/License No. 43590

6.0 REFERENCES

Geographical Services and URS. 2010. *Wetlands Investigation at Black Sand Beach*. Letter Report from Mr. Michael M. Folsom, PhD, Geographic Services and Mr. A. David Every, PhD, URS Corporation to Mr. Paul T. McCullough, PE, URS Corporation, dated 6 April 2010, amended 9 April 2010.

URS. 2010. *Final Work Plan for Black Sand Beach Project, Stevens County, Washington*. August.

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Washington State Department of Ecology (Ecology). 2008. Upper Columbia River – Black Sand Beach Proposal to Conduct Static Acute Fish Toxicity Tests. March 6.

Washington State Department of Natural Resources (WNDR). 1987. *Selected Papers on the Geology of Washington.* Washington Division of Geology and Earth Resources, Bulletin 77. J Eric Schuster, Editor.

TABLES

Table 1
Exacavation and Backfill Volumes
Black Sand Beach Project

Area	Excavate (CY)	Backfill (CY)
Downstream Beach	5,100	5,150
Middle Beach	395	514
Upstream Beach	1,000	1,250
Rock Outcropping	5	0
Total	**6,500**	**6,914**

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Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/06/10	1	70-95	8:48	10:08	9:39	11,830	22,890	11,060	12.2
10/06/10		70-95	Tare		9:46	11,830	11,830	0	0.0
10/06/10	2	70-95	10:19	11:09	10:42	11,830	24,770	12,940	14.3
10/06/10	3	70-95	11:16	12:04	11:40	11,830	23,490	11,660	12.9
10/06/10	4	70-95	12:07	12:55	12:32	11,830	22,110	10,280	11.3
10/06/10	5	70-95	12:59	13:40	13:22	11,830	21,490	9,660	10.6
10/06/10	6	70-95	13:56	14:58	14:16	11,830	21,760	9,930	10.9
10/06/10	7	70-95	15:10	15:52	15:31	11,830	22,080	10,250	11.3
10/06/10	8	70-95	15:56	16:45	16:28	11,830	22,100	10,270	11.3
10/06/10	9	81-07	8:46	10:04	9:36	11,960	23,750	11,790	13.0
10/06/10		81-07	Tare		9:44	11,960	11,960	0	0.0
10/06/10	10	81-07	10:15	11:06	10:34	11,960	24,020	12,060	13.3
10/06/10	11	81-07	11:11	12:00	11:35	11,960	23,240	11,280	12.4
10/06/10	12	81-07	12:05	12:51	12:25	11,960	23,040	11,080	12.2
10/06/10	13	81-07	12:56	13:46	13:20	11,960	23,370	11,410	12.6
10/06/10	14	81-07	13:53	14:59	14:12	11,960	22,950	10,990	12.1
10/06/10	15	81-07	15:04	15:50	15:25	11,960	23,330	11,370	12.5
10/06/10	16	81-07	15:54	16:40	16:24	11,960	23,340	11,380	12.5
10/07/10	17	70-95	9:03	9:47	9:24	11,770	21,330	9,560	10.5
10/07/10	18	70-95	9:52	10:51	10:13	11,770	21,640	9,870	10.9
10/07/10	19	70-95	10:54	11:37	11:15	11,770	21,670	9,900	10.9
10/07/10	20	70-95	11:44	12:28	12:04	11,770	22,400	10,630	11.7
10/07/10	21	70-95	12:36	13:42	12:55	11,770	22,310	10,540	11.6
10/07/10	22	70-95	13:49	14:34	14:13	11,770	21,850	10,080	11.1
10/07/10	23	70-95	14:40	15:28	15:01	11,770	22,860	11,090	12.2
10/07/10	24	70-95	15:34	16:24	16:05	11,770	22,910	11,140	12.3
10/07/10	25	70-95	16:30	17:05	16:48	11,770	22,070	10,300	11.4
10/07/10		70-95	Tare	9:29		11,770	11,770	0	0.0
10/07/10	26	81-07	8:59	9:44	9:20	12,000	22,990	10,990	12.1
10/07/10	27	81-07	9:48	10:45	10:11	12,000	22,880	10,880	12.0
10/07/10	28	81-07	10:53	11:36	11:13	12,000	22,380	10,380	11.4
10/07/10	29	81-07	11:40	12:23	12:02	12,000	23,110	11,110	12.2
10/07/10	30	81-07	12:34	13:47	12:49	12,000	23,100	11,100	12.2
10/07/10	31	81-07	13:45	14:30	14:09	12,000	22,220	10,220	11.3
10/07/10	32	81-07	14:35	15:26	14:55	12,000	22,450	10,450	11.5
10/07/10	33	81-07	15:29	16:23	16:03	12,000	22,850	10,850	12.0
10/07/10	34	81-07	16:26	17:00	16:43	12,000	22,730	10,730	11.8
10/07/10		81-07	Tare	9:26		12,000	12,000	0	0.0

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/08/10	35	70-95	8:35	9:45	9:19	11,800	22,370	10,570	11.7
10/08/10	36	70-95	9:50	11:08	10:15	11,800	22,800	11,000	12.1
10/08/10	37	70-95	11:10	12:13	11:38	11,800	22,340	10,540	11.6
10/08/10	38	70-95	12:16	13:19	12:47	11,800	21,630	9,830	10.8
10/08/10	39	70-95	13:22	14:19	13:49	11,800	22,290	10,490	11.6
10/08/10	40	70-95	14:21	15:10	14:44	11,800	22,150	10,350	11.4
10/08/10	41	70-95	15:13	16:13	15:35	11,800	21,890	10,090	11.1
10/08/10	42	70-95	16:18	17:07	16:38	11,800	21,950	10,150	11.2
10/08/10		70-95	Tare	9:24		11,800	11,800	0	0.0
10/08/10	43	81-07	8:32	9:43	9:17	12,030	22,280	10,250	11.3
10/08/10	44	81-07	9:45	11:06	10:08	12,030	22,520	10,490	11.6
10/08/10	45	81-07	11:08	12:12	11:32	12,030	21,710	9,680	10.7
10/08/10	46	81-07	12:15	13:18	12:44	12,030	21,970	9,940	11.0
10/08/10	47	81-07	13:21	14:18	13:46	12,030	22,040	10,010	11.0
10/08/10	48	81-07	14:20	15:09	14:42	12,030	21,920	9,890	10.9
10/08/10	49	81-07	15:12	16:12	15:32	12,030	22,450	10,420	11.5
10/08/10	50	81-07	16:15	17:05	16:34	12,030	22,020	9,990	11.0
10/08/10		81-07	Tare	9:22		12,030	12,030	0	0.0
10/09/10	51	1	13:32	14:55	14:08	11,740	23,350	11,610	12.8
10/09/10	52	1	15:10	16:03	15:36	11,740	23,130	11,390	12.6
10/09/10	53	1	16:06	16:55	16:27	11,740	22,160	10,420	11.5
10/09/10	54	2	13:27	14:45	14:00	11,710	24,610	12,900	14.2
10/09/10	55	2	15:30	15:52	15:27	11,710	26,420	14,710	16.2
10/09/10	56	2	15:55	16:55	16:16	11,710	22,120	10,410	11.5
10/09/10	57	77-01	8:36	10:18	9:24	12,180	22,140	9,960	11.0
10/09/10	58	77-01	10:22	11:32	10:42	12,180	22,650	10,470	11.5
10/09/10	59	77-01	11:36	12:25	12:00	12,180	22,790	10,610	11.7
10/09/10	60	77-01	12:29	13:18	12:54	12,180	22,260	10,080	11.1
10/09/10	61	77-01	13:23	14:30	14:04	12,180	22,840	10,660	11.8
10/09/10	62	81-07	8:30	10:15	9:20	11,950	21,940	9,990	11.0
10/09/10	63	81-07	10:18	11:29	10:38	11,950	23,340	11,390	12.6
10/09/10	64	81-07	11:32	12:20	11:56	11,950	22,890	10,940	12.1
10/09/10	65	81-07	12:25	13:15	12:51	11,950	22,860	10,910	12.0
10/09/10	66	81-07	13:18	14:41	13:57	11,950	21,850	9,900	10.9
10/09/10	67	81-07	14:45	15:31	15:08	11,950	22,720	10,770	11.9
10/09/10	68	81-07	15:34	16:13	15:53	11,950	22,150	10,200	11.2
10/09/10	69	81-07	16:18	17:10	16:37	11,950	21,810	9,860	10.9
10/10/10	70	1	8:40	10:00	9:24	11,760	22,750	10,990	12.1

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/10/10	71	1	10:07	10:57	10:28	11,760	21,130	9,370	10.3
10/10/10	72	1	11:02	11:45	11:22	11,760	23,070	11,310	12.5
10/10/10	73	1	11:50	12:35	12:12	11,760	22,210	10,450	11.5
10/10/10	74	1	12:40	13:27	12:59	11,760	21,380	9,620	10.6
10/10/10	75	1	13:31	14:15	13:54	11,760	22,010	10,250	11.3
10/10/10	76	1	14:18	14:58	14:43	11,760	22,060	10,300	11.4
10/10/10	77	1	15:01	15:48	15:31	11,760	22,720	10,960	12.1
10/10/10	78	1	15:51	16:45	16:15	11,760	21,730	9,970	11.0
10/10/10		1	Tare	9:29		11,760	11,760	0	0.0
10/10/10	79	2	8:37	9:58	9:18	11,650	22,030	10,380	11.4
10/10/10	80	2	10:03	10:55	10:24	11,650	22,220	10,570	11.7
10/10/10	81	2	10:57	11:43	11:18	11,650	21,870	10,220	11.3
10/10/10	82	2	11:46	12:31	12:09	11,650	22,370	10,720	11.8
10/10/10	83	2	12:35	13:24	12:57	11,650	23,050	11,400	12.6
10/10/10	84	2	13:27	14:11	13:52	11,650	23,260	11,610	12.8
10/10/10	85	2	14:15	14:54	14:39	11,650	24,790	13,140	14.5
10/10/10	86	2	14:58	15:45	15:28	11,650	22,530	10,880	12.0
10/10/10	87	2	15:48	16:40	16:13	11,650	21,440	9,790	10.8
10/10/10		2	Tare	9:27		11,650	11,650	0	0.0
10/11/10	88	1	8:37	9:41	9:20	11,660	19,910	8,250	9.1
10/11/10	89	1	9:44	10:38	10:13	11,660	22,590	10,930	12.0
10/11/10		1	Tare		10:18	11,660	11,660	0	0.0
10/11/10	90	1	10:41	11:43	11:11	11,660	22,010	10,350	11.4
10/11/10	91	1	11:41	12:28	12:13	11,660	22,180	10,520	11.6
10/11/10	92	1	12:32	13:14	12:57	11,660	22,750	11,090	12.2
10/11/10	93	1	13:18	14:06	13:48	11,660	21,380	9,720	10.7
10/11/10	94	1	14:08	14:50	14:37	11,660	21,590	9,930	10.9
10/11/10	95	1	14:54	15:43	15:28	11,660	21,660	10,000	11.0
10/11/10	96	1	15:46	16:40	16:17	11,660	22,110	10,450	11.5
10/11/10	97	2	8:33	9:38	9:17	11,530	22,740	11,210	12.4
10/11/10	98	2	9:41	10:32	10:08	11,530	22,170	10,640	11.7
10/11/10	99	2	10:35	11:32	11:00	11,530	22,170	10,640	11.7
10/11/10		2	Tare		11:06	11,530	11,530	0	0.0
10/11/10	100	2	11:35	12:19	12:02	11,530	21,990	10,460	11.5
10/11/10	101	2	12:24	13:08	12:47	11,530	21,910	10,380	11.4
10/11/10	102	2	13:11	13:57	13:38	11,530	22,390	10,860	12.0
10/11/10	103	2	15:40	16:30	14:07	11,530	22,230	10,700	11.8
10/11/10	104	2	14:00	14:45	14:29	11,530	21,750	10,220	11.3

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/11/10	105	2	14:49	15:38	15:20	11,530	21,560	10,030	11.1
10/11/10	106	77-01	8:43	9:48	9:23	12,400	22,400	10,000	11.0
10/11/10		77-01	Tare		9:27	12,400	12,400	0	0.0
10/11/10	107	77-01	9:51	10:45	10:16	12,400	22,700	10,300	11.4
10/11/10	108	77-01	10:48	11:40	11:08	12,400	22,790	10,390	11.5
10/11/10	109	77-01	11:44	12:32	12:08	12,400	22,840	10,440	11.5
10/11/10	110	77-01	12:35	13:18	12:53	12,400	23,140	10,740	11.8
10/11/10	111	77-01	13:22	14:29	13:44	12,400	22,480	10,080	11.1
10/11/10	112	77-01	14:12	14:54	14:34	12,400	23,120	10,720	11.8
10/11/10	113	77-01	15:04	15:46	15:24	12,400	21,830	9,430	10.4
10/11/10	114	77-01	15:50	16:50	16:12	12,400	22,360	9,960	11.0
10/11/10	115	81-07	8:40	9:44	9:21	11,980	21,340	9,360	10.3
10/11/10		81-07	Tare		9:26	11,980	11,980	0	0.0
10/11/10	116	81-07	9:47	10:41	10:14	11,980	22,530	10,550	11.6
10/11/10	117	81-07	10:45	11:35	11:04	11,980	22,600	10,620	11.7
10/11/10	118	81-07	11:39	12:24	12:04	11,980	22,110	10,130	11.2
10/11/10	119	81-07	12:28	13:11	12:50	11,980	22,170	10,190	11.2
10/11/10	120	81-07	13:14	14:00	13:41	11,980	22,020	10,040	11.1
10/11/10	121	81-07	14:05	14:47	14:31	11,980	21,960	9,980	11.0
10/11/10	122	81-07	14:50	15:40	15:22	11,980	20,770	8,790	9.7
10/11/10	123	81-07	15:43	16:35	16:09	11,980	21,780	9,800	10.8
10/12/10	124	1	8:46	10:10	9:31	11,720	20,440	8,720	9.6
10/12/10	125	1	10:14	10:59	10:40	11,720	23,850	12,130	13.4
10/12/10	126	1	11:04	11:45	11:28	11,720	25,130	13,410	14.8
10/12/10	127	1	11:49	12:27	12:13	11,720	24,930	13,210	14.6
10/12/10	128	1	12:30	13:18	12:54	11,720	25,580	13,860	15.3
10/12/10	129	1	13:21	13:58	13:42	11,720	25,600	13,880	15.3
10/12/10	130	1	14:01	14:41	14:25	11,720	25,640	13,920	15.3
10/12/10	131	1	14:44	15:30	15:13	11,720	25,240	13,520	14.9
10/12/10	132	1	15:35	16:20	16:04	11,720	24,070	12,350	13.6
10/12/10	133	2	8:30	10:03	9:23	11,710	21,620	9,910	10.9
10/12/10	134	2	10:07	10:52	10:30	11,710	23,640	11,930	13.2
10/12/10	135	2	10:56	11:36	11:19	11,710	25,620	13,910	15.3
10/12/10	136	2	11:40	12:20	12:03	11,710	24,780	13,070	14.4
10/12/10	137	2	12:24	13:04	12:48	11,710	26,130	14,420	15.9
10/12/10	138	2	13:10	13:52	13:33	11,710	26,430	14,720	16.2
10/12/10	139	2	13:55	14:38	14:21	11,710	26,850	15,140	16.7
10/12/10	140	2	14:41	15:34	15:10	11,710	25,680	13,970	15.4

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/12/10	141	2	15:37	16:25	16:02	11,710	25,440	13,730	15.1
10/12/10	142	15	8:58	10:14	9:34	10,770	18,800	8,030	8.9
10/12/10	143	15	10:18	11:03	10:46	10,770	22,770	12,000	13.2
10/12/10	144	15	11:09	11:49	11:36	10,770	24,450	13,680	15.1
10/12/10	145	15	12:02	12:42	12:26	10,770	24,010	13,240	14.6
10/12/10	146	15	12:52	13:34	13:16	10,770	24,180	13,410	14.8
10/12/10	147	15	13:32	14:05	14:05	10,770	25,100	14,330	15.8
10/12/10	148	15	14:27	15:20	14:52	10,770	26,310	15,540	17.1
10/12/10	149	15	15:25	16:08	15:51	10,770	26,580	15,810	17.4
10/12/10	150	15	16:11	16:55	16:33	10,770	25,630	14,860	16.4
10/12/10	151	16			9:25	10,820	19,130	8,310	9.2
10/12/10	152	16	10:10	10:55	10:35	10,820	22,910	12,090	13.3
10/12/10	153	16	10:59	11:40	11:23	10,820	23,620	12,800	14.1
10/12/10	154	16	11:44	12:45	12:06	10,820	24,300	13,480	14.9
10/12/10	155	16	12:48	13:29	13:11	10,820	25,330	14,510	16.0
10/12/10	156	16	13:36	14:10	13:55	10,820	25,770	14,950	16.5
10/12/10	157	16	14:13	15:00	14:36	10,820	26,310	15,490	17.1
10/12/10	158	16	15:04	15:51	15:31	10,820	26,140	15,320	16.9
10/12/10	159	16	15:54	16:40	16:21	10,820	27,950	17,130	18.9
10/12/10	160	77-01	8:38	9:36	9:17	12,280	20,850	8,570	9.4
10/12/10	161	77-01	9:39	10:25	10:04	12,280	21,960	9,680	10.7
10/12/10	162	77-01	10:28	11:13	10:52	12,280	22,300	10,020	11.0
10/12/10	163	77-01	11:16	12:00	11:45	12,280	22,150	9,870	10.9
10/12/10	164	77-01	12:05	12:51	12:30	12,280	22,070	9,790	10.8
10/12/10	165	77-01	12:55	13:34	13:19	12,280	22,980	10,700	11.8
10/12/10	166	77-01	13:39	14:15	14:00	12,280	22,880	10,600	11.7
10/12/10	167	77-01	14:19	15:36	14:44	12,280	23,630	11,350	12.5
10/12/10	168	77-01	15:40	16:01	15:44	12,280	22,200	9,920	10.9
10/12/10	169	77-01	16:02	16:56	16:26	12,280	22,440	10,160	11.2
10/12/10	170	81-07	15:43	16:30	16:07	11,920	22,000	10,080	11.1
10/12/10	171	81-07	8:35	9:33	9:16	11,920	20,170	8,250	9.1
10/12/10	172	81-07	9:36	10:22	10:01	11,920	21,530	9,610	10.6
10/12/10	173	81-07	10:25	11:10	10:49	11,920	21,540	9,620	10.6
10/12/10	174	81-07	11:13	11:55	11:39	11,920	22,350	10,430	11.5
10/12/10	175	81-07	11:59	12:42	12:22	11,920	22,270	10,350	11.4
10/12/10	176	81-07	12:45	13:23	13:08	11,920	22,670	10,750	11.8
10/12/10	177	81-07	13:28	14:09	13:51	11,920	22,060	10,140	11.2
10/12/10	178	81-07	14:10	14:49	14:32	11,920	22,880	10,960	12.1

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/12/10	179	81-07	14:54	15:40	15:19	11,920	23,130	11,210	12.4
10/13/10	180	1	10:03	11:03	10:36	11,600	25,170	13,570	15.0
10/13/10	181	2	8:29	9:29	9:18	11,710	24,620	12,910	14.2
10/13/10		2	Tare			11,710			0.0
10/13/10	182	9	14:10	15:11	14:36		21,720	21,720	23.9
10/13/10	183	9			15:40	11,630	25,580	13,950	15.4
10/13/10	184	9	15:15	16:15	16:26	11,630	24,560	12,930	14.3
10/13/10	185	15	8:35	9:56	9:21	11,630	26,180	14,550	16.0
10/13/10	186	15	10:00	11:34	10:24	10,640	24,760	14,120	15.6
10/13/10	187	15	11:36	12:40	12:16	10,640	25,720	15,080	16.6
10/13/10	188	15	12:45	13:40	13:14	10,640	27,600	16,960	18.7
10/13/10	189	15	13:43	14:30	14:10	10,640	25,330	14,690	16.2
10/13/10	190	15	14:33	15:31	15:00	10,640	25,410	14,770	16.3
10/13/10	191	15	15:34	16:34	16:01	10,640	25,970	15,330	16.9
10/13/10	192	16	8:32	11:00	9:19	10,640	25,120	14,480	16.0
10/13/10	193	16	11:02	12:30	11:30	10,950	24,500	13,550	14.9
10/13/10	194	16	12:34	13:20	12:45	10,950	24,840	13,890	15.3
10/13/10	195	16	13:25	15:00	13:46	10,950	25,880	14,930	16.5
10/13/10	196	16			14:30	10,950	26,020	15,070	16.6
10/13/10	197	16	15:06	15:50	15:28	10,950	27,610	16,660	18.4
10/13/10	198	16	15:52	16:52	16:12	10,950	24,230	13,280	14.6
10/13/10	199	77-01	9:05	10:03	9:36	10,950	22,690	11,740	12.9
10/13/10		77-01	Tare		9:40	12,370	12,370	0	0.0
10/13/10	200	77-01	10:06	10:56	10:31	12,370	22,200	9,830	10.8
10/13/10	201	77-01	11:00	11:59	11:27	12,370	22,770	10,400	11.5
10/13/10	202	77-01	12:02	12:50	12:44	12,370	24,400	12,030	13.3
10/13/10	203	77-01	12:54	13:45	13:20	12,370	22,000	9,630	10.6
10/13/10	204	77-01	13:48	14:34	14:14	12,370	22,930	10,560	11.6
10/13/10	205	77-01	14:37	15:37	15:16	12,370	22,160	9,790	10.8
10/13/10	206	77-01			16:03	12,370	24,510	12,140	13.4
10/13/10	207	87-01	8:41	9:41	9:23	12,370	21,640	9,270	10.2
10/13/10		87-01	Tare		9:28	12,050	12,050	0	0.0
10/13/10						12,050		-12,050	-13.3
10/13/10	208	1	8:30	9:40	9:19	11,600	23,730	12,130	13.4
									0.0
10/14/10	209	1	9:44	10:28	10:09	11,860	23,060	11,200	12.3
10/14/10		1	Tare		10:15	11,860	11,860	0	0.0
10/14/10	210	1	10:32	11:19	10:54	11,860	24,240	12,380	13.6

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Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/14/10	211	1	11:22	12:06	11:49	11,860	28,360	16,500	18.2
10/14/10	212	1	12:10	12:54	12:35	11,860	24,840	12,980	14.3
10/14/10	213	1	12:58	13:38	13:20	11,860	26,020	14,160	15.6
10/14/10	214	1	13:42	14:31	14:06	11,860	25,380	13,520	14.9
10/14/10	215	1	14:36	15:14	14:52	11,860	25,340	13,480	14.9
10/14/10	216	1	15:25	16:04	15:42	11,860	25,030	13,170	14.5
10/14/10	217	1	16:14	17:00	16:30	11,860	25,010	13,150	14.5
10/14/10	218	2	8:26	9:37	9:16	11,530	23,510	11,980	13.2
10/14/10	219	2	9:41	10:25	10:04	11,530	24,220	12,690	14.0
10/14/10		2	Tare		10:10	11,530	11,530	0	0.0
10/14/10	220	2	10:28	11:15	10:53	11,530	25,120	13,590	15.0
10/14/10	221	2	11:19	12:01	11:44	11,530	25,220	13,690	15.1
10/14/10	222	2	12:04	12:48	12:31	11,530	28,980	17,450	19.2
10/14/10	223	2	12:51	13:35	13:17	11,530	24,620	13,090	14.4
10/14/10	224	2	13:38	14:23	14:01	11,530	26,200	14,670	16.2
10/14/10	225	2	14:25	15:13	14:46	11,530	25,410	13,880	15.3
10/14/10	226	2	15:18	16:04	15:39	11,530	26,100	14,570	16.1
10/14/10	227	2	16:10	16:55	16:26	11,530	25,520	13,990	15.4
10/14/10	228	15	8:34	9:44	9:21	10,890	24,390	13,500	14.9
10/14/10	229	15	9:49	10:32	10:13	10,890	23,910	13,020	14.4
10/14/10		15	Tare		10:17	10,890	10,890	0	0.0
10/14/10	230	15	10:35	11:38	11:03	10,890	26,370	15,480	17.1
10/14/10	231	15	11:40	12:26	12:07	10,890	25,840	14,950	16.5
10/14/10	232	15	12:29	13:14	13:00	10,890	26,040	15,150	16.7
10/14/10	233	15	13:19	14:06	13:50	10,890	25,990	15,100	16.6
10/14/10	234	15	14:09	14:54	14:34	10,890	25,280	14,390	15.9
10/14/10	235	15	15:00	15:45	15:22	10,890	25,800	14,910	16.4
10/14/10	236	15	15:50	16:35	16:08	10,890	26,820	15,930	17.6
10/14/10	237	16	10:20	11:02	10:40	10,840	26,400	15,560	17.2
10/14/10	238	16	11:05	11:47	11:30	10,840	26,110	15,270	16.8
10/14/10		16	Tare		11:35	10,840	10,840	0	0.0
10/14/10	239	16	11:51	12:33	12:14	10,840	25,680	14,840	16.4
10/14/10	240	16	12:35	13:19	13:01	10,840	26,740	15,900	17.5
10/14/10	241	16	13:22	13:59	13:44	10,840	25,930	15,090	16.6
10/14/10	242	16	14:02	14:48	14:26	10,840	27,330	16,490	18.2
10/14/10	243	16	14:55	15:35	15:12	10,840	27,450	16,610	18.3
10/14/10	244	16	15:40	16:28	16:06	10,840	27,060	16,220	17.9
10/14/10	245	16	9:39	10:16	10:01	10,840	23,820	12,980	14.3

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Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/14/10	246	77-01	8:39	9:49	9:25	12,240	22,030	9,790	10.8
10/14/10		77-01	Tare		9:29	12,240	12,240	0	0.0
10/14/10	247	77-01	9:52	10:39	10:19	12,240	21,770	9,530	10.5
10/14/10	248	77-01	10:42	11:28	11:08	12,240	22,420	10,180	11.2
10/14/10	249	77-01	11:31	12:18	11:59	12,240	22,160	9,920	10.9
10/14/10	250	77-01	12:21	13:05	12:46	12,240	22,160	9,920	10.9
10/14/10	251	77-01	13:08	13:51	13:33	12,240	22,660	10,420	11.5
10/14/10	252	77-01	13:53	14:46	14:19	12,240	22,850	10,610	11.7
10/14/10	253	77-01	14:50	15:34	15:11	12,240	23,270	11,030	12.2
10/14/10	254	77-01	15:38	16:25	15:58	12,240	23,380	11,140	12.3
10/14/10	255	1	8:33	9:47	9:19	11,860	23,560	11,700	12.9
10/15/10		1	Tare		9:23	11,780	11,780	0	0.0
10/15/10	256	1	9:50	10:40	10:12	11,780	23,410	11,630	12.8
10/15/10	257	1	10:43	12:08	11:48	11,780	26,100	14,320	15.8
10/15/10	258	1	12:11	13:24	13:07	11,780	25,090	13,310	14.7
10/15/10	259	1	13:28	14:23	13:54	11,780	24,690	12,910	14.2
10/15/10	260	1	14:25	15:12	14:50	11,780	24,860	13,080	14.4
10/15/10	261	1	15:15	16:02	15:41	11,780	25,250	13,470	14.8
10/15/10	262	1	16:05	17:00	16:26	11,780	24,780	13,000	14.3
10/15/10	263	2	8:23	9:38	9:14	11,740	25,900	14,160	15.6
10/15/10	264	2	9:41	10:30	10:04	11,740	27,470	15,730	17.3
10/15/10		2	Tare		10:09	11,740	11,740	0	0.0
10/15/10	265	2	10:34	11:20	10:58	11,740	26,290	14,550	16.0
10/15/10	266	2	11:24	12:25	11:53	11,740	27,250	15,510	17.1
10/15/10	267	2	12:17	13:10	12:50	11,740	25,450	13,710	15.1
10/15/10	268	2	13:14	13:57	13:39	11,740	25,870	14,130	15.6
10/15/10	269	2	14:00	14:47	14:27	11,740	27,030	15,290	16.9
10/15/10	270	2	14:50	15:40	15:14	11,740	26,090	14,350	15.8
10/15/10	271	2	15:43	16:40	16:09	11,740	25,920	14,180	15.6
10/15/10	272	9	10:50	12:17	12:43	11,600	24,980	13,380	14.7
10/15/10		9	Tare		12:47	11,600	11,600	0	0.0
10/15/10	273	15	8:30	9:44	9:19	10,790	25,830	15,040	16.6
10/15/10	274	15	9:47	10:37	10:13	10,790	25,810	15,020	16.6
10/15/10	275	15	10:40	11:27	11:08	10,790	25,460	14,670	16.2
10/15/10		15	Tare		11:12	10,790	10,790	0	0.0
10/15/10	276	15	11:31	12:25	11:57	10,790	26,340	15,550	17.1
10/15/10	277	15	12:29	13:25	12:58	10,790	26,220	15,430	17.0
10/15/10	278	15	13:20	14:19	13:50	10,790	25,280	14,490	16.0

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/15/10	279	15	14:10	14:58	14:38	10,790	25,070	14,280	15.7
10/15/10	280	15	15:02	15:50	15:27	10,790	24,750	13,960	15.4
10/15/10	281	15	15:53	16:40	16:16	10,790	24,880	14,090	15.5
10/15/10	282	16	8:27	9:40	9:16	10,720	26,020	15,300	16.9
10/15/10	283	16	9:44	10:34	10:07	10,720	26,350	15,630	17.2
10/15/10	284	16	10:37	11:24	11:00	10,720	26,410	15,690	17.3
10/15/10		16	Tare		11:04	10,720	10,720	0	0.0
10/15/10	285	16	11:27	12:24	11:55	10,720	26,880	16,160	17.8
10/15/10	286	16	12:20	13:13	12:53	10,720	25,940	15,220	16.8
10/15/10	287	16	13:17	14:00	13:42	10,720	25,830	15,110	16.7
10/15/10	288	16	14:05	14:53	14:29	10,720	26,010	15,290	16.9
10/15/10	289	16	14:55	15:45	15:16	10,720	25,660	14,940	16.5
10/15/10	290	16	15:48	16:40	16:13	10,720	25,630	14,910	16.4
10/15/10	291	77-01	8:38	9:50	9:21	12,340	22,540	10,200	11.2
10/15/10		77-01	Tare		9:24	12,340	12,340	0	0.0
10/15/10	292	77-01	9:53	10:43	10:20	12,340	22,780	10,440	11.5
10/15/10		77-01	10:46	out				0	0.0
10/15/10	293	1	8:33	9:55	9:19	11,780	24,520	12,740	14.0
10/16/10		1	Tare		9:26	11,670	11,670	0	0.0
10/16/10	294	1	9:59	10:51	10:26	11,670	24,620	12,950	14.3
10/16/10	295	1	10:53	11:41	11:18	11,670	24,790	13,120	14.5
10/16/10	296	1	11:45	12:20	12:12	11,670	26,810	15,140	16.7
10/16/10	297	1	12:25	13:08	12:51	11,670	25,690	14,020	15.5
10/16/10	298	1	13:12	13:59	13:34	11,670	25,340	13,670	15.1
10/16/10	299	1	14:02	14:46	14:29	11,670	25,060	13,390	14.8
10/16/10	300	1	14:50	15:35	15:12	11,670	25,270	13,600	15.0
10/16/10	301	1	15:39	16:39	16:07	11,670	25,780	14,110	15.6
10/16/10	302	2	8:25	9:44	9:15	11,700	25,810	14,110	15.6
10/16/10	303	2	9:48	10:36	10:14	11,700	26,620	14,920	16.4
10/16/10	304	2	10:39	11:27	11:05	11,700	27,890	16,190	17.8
10/16/10		2	Tare		11:10	11,700	11,700	0	0.0
10/16/10	305	2	11:30	12:13	11:53	11,700	26,050	14,350	15.8
10/16/10	306	2	12:17	12:57	12:40	11,700	25,450	13,750	15.2
10/16/10	307	2	13:00	13:42	13:24	11,700	25,700	14,000	15.4
10/16/10	308	2	13:45	14:31	14:09	11,700	25,620	13,920	15.3
10/16/10	309	2	14:35	15:25	15:04	11,700	26,100	14,400	15.9
10/16/10	310	2	15:28	16:28	15:58	11,700	25,800	14,100	15.5
10/16/10	311	15	8:31	9:52	9:19	10,690	25,060	14,370	15.8

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/16/10	312	15	9:55	10:48	10:22	10,690	25,650	14,960	16.5
10/16/10	313	15	10:51	11:37	11:15	10,690	25,000	14,310	15.8
10/16/10		15	Tare		11:23	10,690	10,690	0	0.0
10/16/10	314	15	11:41	12:25	12:09	10,690	25,240	14,550	16.0
10/16/10	315	15	12:28	13:12	12:59	10,690	25,700	15,010	16.5
10/16/10	316	15	13:16	14:02	13:47	10,690	24,900	14,210	15.7
10/16/10	317	15	14:06	14:42	14:31	10,690	24,480	13,790	15.2
10/16/10	318	15	14:46	15:31	15:09	10,690	25,090	14,400	15.9
10/16/10	319	15	15:35	16:35	16:03	10,690	24,300	13,610	15.0
10/16/10	320	16	8:28	9:48	9:17	10,650	27,130	16,480	18.2
10/16/10	321	16	9:52	10:39	10:20	10,650	25,960	15,310	16.9
10/16/10	322	16	10:42	11:30	11:07	10,650	26,290	15,640	17.2
10/16/10		16	Tare		11:12	10,650	10,650	0	0.0
10/16/10	323	16	11:35	12:17	11:56	10,650	27,470	16,820	18.5
10/16/10	324	16	12:20	13:00	12:42	10,650	25,710	15,060	16.6
10/16/10	325	16	13:04	13:45	13:26	10,650	25,220	14,570	16.1
10/16/10	326	16	13:48	14:35	14:11	10,650	26,590	15,940	17.6
10/16/10	327	16	14:38	15:28	15:03	10,650	25,330	14,680	16.2
10/16/10	328	16	15:31	16:31	16:00	10,650	25,260	14,610	16.1
10/16/10	329	1	8:36	9:43	9:22	11,670	24,580	12,910	14.2
10/17/10		1	Tare		9:27	11,630	11,630	0	0.0
10/17/10	330	1	9:46	10:28	10:10	11,630	25,930	14,300	15.8
10/17/10	331	1	10:31	11:14	10:55	11,630	26,120	14,490	16.0
10/17/10	332	1	12:01	12:42	12:24	11,630	25,740	14,110	15.6
10/17/10	333	1	12:46	13:25	13:12	11,630	26,020	14,390	15.9
10/17/10	334	1	11:17	11:57	15:48	11,630	26,290	14,660	16.2
10/17/10	335	2	8:27	9:37	9:15	11,620	26,330	14,710	16.2
10/17/10		2	Tare		9:24	11,620	11,620	0	0.0
10/17/10	336	2	9:40	10:21	10:03	11,620	26,860	15,240	16.8
10/17/10	337	2	10:24	11:08	10:48	11,620	29,250	17,630	19.4
10/17/10	338	2	11:54	12:34	12:17	11,620	26,020	14,400	15.9
10/17/10	339	2	12:38	13:20	13:06	11,620	25,750	14,130	15.6
10/17/10	340	2	11:11	11:51	13:48	11,620	26,360	14,740	16.2
10/17/10	341	15	8:30	9:34	9:20	10,610	24,240	13,630	15.0
10/17/10	342	15	9:37	10:13	10:00	10,610	25,430	14,820	16.3
10/17/10	343	15	10:15	10:58	10:39	10,610	25,480	14,870	16.4
10/17/10		15	Tare		10:43	10,610	10,610	0	0.0
10/17/10	344	15	11:02	11:38	11:24	10,610	25,660	15,050	16.6

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/17/10	345	15	11:41	12:16	12:03	10,610	24,970	14,360	15.8
10/17/10	346	15	12:20	13:10	12:48	10,610	25,220	14,610	16.1
10/17/10	347	16	8:30	9:40	9:19	10,920	25,890	14,970	16.5
10/17/10		16	Tare		9:26	10,920	10,920	0	0.0
10/17/10	348	16	9:43	10:24	10:07	10,920	26,900	15,980	17.6
10/17/10	349	16	10:28	11:11	10:51	10,920	26,600	15,680	17.3
10/17/10	350	16	11:57	12:38	12:20	10,920	25,110	14,190	15.6
10/17/10	351	16	12:42	13:22	13:09	10,920	26,260	15,340	16.9
10/17/10	352	16	11:14	11:54	14:48	10,920	25,600	14,680	16.2
10/17/10	353	1	8:42	9:48	9:22	11,630	25,680	14,050	15.5
10/18/10	354	1	9:51	10:29	10:09	11,850	25,860	14,010	15.4
10/18/10	355	1	10:35	11:17	10:55	11,850	26,490	14,640	16.1
10/18/10		1	Tare		11:00	11,850	11,850	0	0.0
10/18/10	356	1	11:25	12:05	11:45	11,850	26,560	14,710	16.2
10/18/10	357	1	12:12	12:50	12:30	11,850	24,760	12,910	14.2
10/18/10	358	1	12:55	13:32	13:11	11,850	23,930	12,080	13.3
10/18/10	359	1	13:36	14:16	13:54	11,850	27,940	16,090	17.7
10/18/10	360	1	14:20	14:59	14:37	11,850	26,430	14,580	16.1
10/18/10	361	1	15:02	15:44	15:21	11,850	26,090	14,240	15.7
10/18/10	362	1	15:46	16:40	16:10	11,850	27,430	15,580	17.2
10/18/10	363	2	8:35	9:38	9:15	11,790	26,900	15,110	16.7
10/18/10	364	2	9:44	10:20	10:01	11,790	25,850	14,060	15.5
10/18/10	365	2	10:29	11:16	10:45	11,790	27,080	15,290	16.9
10/18/10	366	2	11:20	12:00	11:43	11,790	30,500	18,710	20.6
10/18/10	367	2	12:06	12:52	12:29	11,790	26,060	14,270	15.7
10/18/10		2	Tare		12:36	11,790	11,790	0	0.0
10/18/10	368	2	12:58	13:37	13:15	11,790	26,780	14,990	16.5
10/18/10	369	2	13:40	14:21	14:00	11,790	26,240	14,450	15.9
10/18/10	370	2	14:25	15:06	14:45	11,790	26,590	14,800	16.3
10/18/10	371	2	15:10	15:50	15:29	11,790	25,500	13,710	15.1
10/18/10	372	2	15:54	16:50	16:15	11,790	25,720	13,930	15.4
10/18/10	373	15	8:37	9:47	9:20	10,850	24,730	13,880	15.3
10/18/10	374	15	9:49	10:27	10:08	10,850	25,370	14,520	16.0
10/18/10	375	15	10:33	11:08	10:50	10,850	25,820	14,970	16.5
10/18/10		15	Tare		10:53	10,850	10,850	0	0.0
10/18/10	376	15	11:13	11:51	11:33	10,850	25,560	14,710	16.2
10/18/10	377	15	11:55	12:32	12:14	10,850	23,900	13,050	14.4
10/18/10	378	15	12:38	13:19	12:56	10,850	26,000	15,150	16.7

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Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/18/10	379	15	13:22	13:55	13:39	10,850	25,350	14,500	16.0
10/18/10	380	15	14:00	14:40	14:21	10,850	24,690	13,840	15.3
10/18/10	381	15	14:45	15:20	15:02	10,850	24,800	13,950	15.4
10/18/10	382	15	15:26	16:05	15:42	10,850	25,050	14,200	15.7
10/18/10	383	15	16:10	17:00	16:28	10,850	24,920	14,070	15.5
10/18/10	384	16	8:36	9:45	9:17	10,870	26,530	15,660	17.3
10/18/10	385	16	9:47	10:22	10:02	10,870	26,140	15,270	16.8
10/18/10		16	Tare		10:05	10,870	10,870	0	0.0
10/18/10	386	16	10:31	11:06	10:47	10,870	26,140	15,270	16.8
10/18/10	387	16	11:10	11:48	11:26	10,870	25,580	14,710	16.2
10/18/10	388	16	11:50	12:29	12:08	10,870	25,130	14,260	15.7
10/18/10	389	16	12:32	13:12	12:50	10,870	26,660	15,790	17.4
10/18/10	390	16	13:55	14:38	14:15	10,870	26,180	15,310	16.9
10/18/10	391	16	13:20	13:50	14:30	10,870	26,300	15,430	17.0
10/18/10	392	16	14:40	15:19	14:59	10,870	25,980	15,110	16.7
10/18/10	393	16	15:24	16:04	15:41	10,870	26,340	15,470	17.1
10/18/10	394	16	16:08	17:00	16:26	10,870	26,660	15,790	17.4
10/18/10	395	71-01	13:52	14:34	14:11	12,350	22,920	10,570	11.7
10/18/10	396	77-01	8:48	9:50	9:25	12,350	22,850	10,500	11.6
10/18/10		77-01	Tare		9:29	12,350	12,350	0	0.0
10/18/10	397	77-01	9:56	10:40	10:14	12,350	22,550	10,200	11.2
10/18/10	398	77-01	10:42	11:25	11:02	12,350	22,490	10,140	11.2
10/18/10	399	77-01	11:30	12:11	11:48	12,350	22,750	10,400	11.5
10/18/10	400	77-01	12:15	13:01	12:39	12,350	22,630	10,280	11.3
10/18/10	401	77-01	13:05	13:48	13:24	12,350	22,870	10,520	11.6
10/18/10	402	77-01	14:38	15:30	14:56	12,350	22,350	10,000	11.0
10/18/10	403	77-01	15:20	16:02	15:39	12,350	22,510	10,160	11.2
10/18/10	404	77-01	16:06	17:00	16:25	12,350	21,470	9,120	10.1
10/18/10	405	81-01	15:18	16:00	15:33	12,030	22,070	10,040	11.1
10/18/10		81-01	Out of Service					0	0.0
10/18/10	406	81-07	8:46	9:49	9:23	12,030	22,180	10,150	11.2
10/18/10		81-07	Tare		9:28	12,030	12,030	0	0.0
10/18/10	407	81-07	9:54	10:30	10:11	12,030	22,050	10,020	11.0
10/18/10	408	81-07	10:40	11:24	10:58	12,030	22,620	10,590	11.7
10/18/10	409	81-07	11:27	12:10	11:46	12,030	22,540	10,510	11.6
10/18/10	410	81-07	12:13	12:56	12:32	12,030	21,860	9,830	10.8
10/18/10	411	81-07	12:59	13:40	13:19	12,030	22,380	10,350	11.4
10/18/10	412	81-07	13:45	14:30	14:04	12,030	22,310	10,280	11.3

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Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/18/10	413	81-07	14:33	15:12	14:50	12,030	22,620	10,590	11.7
10/18/10	414	1	8:46	10:15	9:22	11,850	26,460	14,610	16.1
10/19/10	415	1	10:18	11:42	10:36	11,750	23,730	11,980	13.2
10/19/10	416	1			11:16	11,750	27,220	15,470	17.1
10/19/10		1	Tare		11:22	11,750	11,750	0	0.0
10/19/10	417	1	11:49	12:40	12:12	11,750	25,240	13,490	14.9
10/19/10	418	1	12:47	13:27	13:01	11,750	26,800	15,050	16.6
10/19/10	419	1	13:34	14:14	13:53	11,750	26,390	14,640	16.1
10/19/10	420	1	14:22	15:12	14:41	11,750	25,380	13,630	15.0
10/19/10	421	1	15:21	16:14	15:40	11,750	25,810	14,060	15.5
10/19/10	422	1	16:27	17:10	16:42	11,750	25,930	14,180	15.6
10/19/10	423	2	8:41	9:43	9:20	11,680	24,130	12,450	13.7
10/19/10	424	2	9:49	10:42	10:07	11,680	25,320	13,640	15.0
10/19/10	425	2	10:35	11:36	11:04	11,680	25,770	14,090	15.5
10/19/10		2	Tare		11:10	11,680	11,680	0	0.0
10/19/10	426	2	11:40	12:24	12:02	11,680	24,560	12,880	14.2
10/19/10	427	2	12:29	13:09	12:45	11,680	25,250	13,570	15.0
10/19/10	428	2	13:13	13:48	13:31	11,680	26,050	14,370	15.8
10/19/10	429	2	13:51	14:32	14:13	11,680	26,170	14,490	16.0
10/19/10	430	2	14:34	15:20	14:58	11,680	25,810	14,130	15.6
10/19/10	431	2	15:26	16:09	15:42	11,680	25,960	14,280	15.7
10/19/10	432	2	16:11	16:40	16:31	11,680	26,070	14,390	15.9
10/19/10	433	9	8:43	14:25	9:40	11,810	25,100	13,290	14.6
10/19/10		9	Tare		9:44	11,810	11,810	0	0.0
10/19/10	434	9	14:28	15:42	15:11	11,810	25,410	13,600	15.0
10/19/10	435	9	15:37	16:35	16:14	11,810	26,400	14,590	16.1
10/19/10	436	15	8:34	9:40	9:17	10,760	24,350	13,590	15.0
10/19/10	437	15	9:42	10:24	10:00	10,760	23,040	12,280	13.5
10/19/10	438	15			10:46	10,760	24,930	14,170	15.6
10/19/10		15	Tare		11:00	10,760	10,760	0	0.0
10/19/10	439	15	11:05	11:46	11:24	10,760	25,290	14,530	16.0
10/19/10	440	15	11:53	15:23	12:16	10,760	24,620	13,860	15.3
10/19/10	441	15	15:31	16:11	15:47	10,760	24,800	14,040	15.5
10/19/10	442	15	16:16	17:00	16:34	10,760	23,850	13,090	14.4
10/19/10	443	16	8:36	9:42	9:18	10,790	24,270	13,480	14.9
10/19/10	444	16	9:45	10:20	10:03	10,790	25,610	14,820	16.3
10/19/10		16	Tare		10:05	10,790	10,790	0	0.0
10/19/10	445	16	10:32	10:58	10:49	10,790	25,980	15,190	16.7

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/19/10	446	16	11:00	11:45	11:27	10,790	25,790	15,000	16.5
10/19/10	447	16	11:51	12:32	12:14	10,790	26,030	15,240	16.8
10/19/10	448	16	12:40	13:20	13:00	10,790	26,060	15,270	16.8
10/19/10	449	16	13:25	13:57	13:41	10,790	26,150	15,360	16.9
10/19/10	450	16	14:04	14:46	14:25	10,790	25,810	15,020	16.6
10/19/10	451	16	14:51	15:26	15:09	10,790	25,930	15,140	16.7
10/19/10	452	16	15:34	16:25	16:01	10,790	25,910	15,120	16.7
10/19/10	453	77-01	8:50	9:50	9:25	12,270	22,100	9,830	10.8
10/19/10		77-01	Tare		9:27	12,270	12,270	0	0.0
10/19/10	454	77-01	9:55	10:48	10:14	12,270	22,360	10,090	11.1
10/19/10	455	77-01	10:55	11:39	11:12	12,270	22,390	10,120	11.2
10/19/10	456	77-01	11:46	12:32	12:09	12,270	22,190	9,920	10.9
10/19/10	457	77-01	12:38	13:18	12:55	12,270	22,430	10,160	11.2
10/19/10	458	77-01	13:21	13:57	13:39	12,270	22,680	10,410	11.5
10/19/10	459	77-01	14:00	14:46	14:23	12,270	21,850	9,580	10.6
10/19/10	460	77-01	14:49	15:29	15:08	12,270	22,490	10,220	11.3
10/19/10	461	77-01	15:37	16:30	16:02	12,270	22,000	9,730	10.7
10/19/10	462	81-07	16:14	16:50	16:32	11,870	21,980	10,110	11.1
10/19/10	463	81-07	8:48	9:48	9:23	11,870	21,530	9,660	10.6
10/19/10		81-07	Tare		9:29	11,870	11,870	0	0.0
10/19/10	464	81-07	9:51	10:44	10:10	11,870	21,140	9,270	10.2
10/19/10	465	81-07	10:48	11:37	11:07	11,870	21,600	9,730	10.7
10/19/10	466	81-07	11:44	12:26	12:04	11,870	21,960	10,090	11.1
10/19/10	467	81-07	12:32	13:10	12:48	11,870	22,230	10,360	11.4
10/19/10	468	81-07	13:15	13:50	13:33	11,870	21,460	9,590	10.6
10/19/10	469	81-07	13:56	14:32	14:16	11,870	21,490	9,620	10.6
10/19/10	470	81-07	14:39	15:22	15:01	11,870	21,280	9,410	10.4
10/19/10	471	81-07	15:28	16:10	15:44	11,870	22,090	10,220	11.3
10/19/10	472	1	8:40	9:40	9:22	11,750	23,760	12,010	13.2
10/20/10	473	1	9:49	10:36	10:09	11,710	26,250	14,540	16.0
10/20/10		1	Tare		10:18	11,710	11,710	0	0.0
10/20/10	474	1	10:44	11:24	11:06	11,710	25,760	14,050	15.5
10/20/10	475	1	11:30	12:21	11:57	11,710	26,500	14,790	16.3
10/20/10	476	1	12:26	13:11	12:48	11,710	25,860	14,150	15.6
10/20/10	477	1	13:16	13:56	13:36	11,710	25,840	14,130	15.6
10/20/10	478	1	14:04	14:42	14:25	11,710	26,170	14,460	15.9
10/20/10	479	1	14:54	15:43	15:22	11,710	26,910	15,200	16.8
10/20/10	480	1	15:50	16:40	16:09	11,710	26,710	15,000	16.5

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/20/10	481	2	8:25	9:34	9:14	11,570	26,480	14,910	16.4
10/20/10	482	2	9:40	10:15	9:56	11,570	26,210	14,640	16.1
10/20/10		2	Tare		10:01	11,570	11,570	0	0.0
10/20/10	483	2	10:21	10:57	10:40	11,570	26,040	14,470	16.0
10/20/10	484	2	11:02	11:39	11:22	11,570	27,080	15,510	17.1
10/20/10	485	2	11:44	12:25	12:05	11,570	27,010	15,440	17.0
10/20/10	486	2	12:34	13:12	12:52	11,570	25,670	14,100	15.5
10/20/10	487	2	13:18	13:52	13:34	11,570	25,650	14,080	15.5
10/20/10	488	2	13:57	14:32	14:15	11,570	26,620	15,050	16.6
10/20/10	489	2	14:38	15:20	14:56	11,570	26,140	14,570	16.1
10/20/10	490	2	15:27	16:04	15:47	11,570	25,770	14,200	15.7
10/20/10	491	2	16:06	16:45	16:34	11,570	26,690	15,120	16.7
10/20/10	492	9	8:35	10:04	9:40	11,820	26,500	14,680	16.2
10/20/10		9	Tare		9:43	11,820	11,820	0	0.0
10/20/10	493	9	10:10	11:01	10:42	11,820	26,350	14,530	16.0
10/20/10	494	9	11:07	11:50	11:27	11,820	25,550	13,730	15.1
10/20/10	495	9	11:57	12:45	12:22	11,820	25,670	13,850	15.3
10/20/10	496	9	12:50	13:32	13:10	11,820	26,450	14,630	16.1
10/20/10	497	9	13:38	14:21	13:59	11,820	26,610	14,790	16.3
10/20/10	498	9	14:29	15:20	14:50	11,820	26,080	14,260	15.7
10/20/10	499	9	15:24	16:08	15:45	11,820	25,880	14,060	15.5
10/20/10	500	15	8:38	9:38	9:17	10,720	25,190	14,470	16.0
10/20/10	501	15	9:45	10:17	10:04	10,720	24,640	13,920	15.3
10/20/10	502	15	10:26	11:01	10:46	10,720	24,190	13,470	14.8
10/20/10		15	Tare		10:49	10,720	10,720	0	0.0
10/20/10	503	15	11:10	11:48	11:30	10,720	25,470	14,750	16.3
10/20/10	504	15	11:53	12:33	12:13	10,720	24,730	14,010	15.4
10/20/10	505	15	12:42	13:12	12:55	10,720	25,190	14,470	16.0
10/20/10	506	15	13:20	13:59	13:44	10,720	24,720	14,000	15.4
10/20/10	507	15	14:06	14:38	14:23	10,720	25,640	14,920	16.4
10/20/10	508	15	14:43	15:23	15:00	10,720	24,270	13,550	14.9
10/20/10	509	15	15:34	16:11	15:57	10,720	24,980	14,260	15.7
10/20/10	510	15	16:21	16:55	16:37	10,720	25,190	14,470	16.0
10/20/10	511	16	8:32	9:35	9:16	10,740	26,620	15,880	17.5
10/20/10	512	16	9:42	10:15	9:58	10,740	25,960	15,220	16.8
10/20/10		16	Tare		10:00	10,740	10,740	0	0.0
10/20/10	513	16	10:23	10:57	10:43	10,740	25,730	14,990	16.5
10/20/10	514	16	11:04	11:39	11:24	10,740	25,780	15,040	16.6

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/20/10	515	16	11:46	12:26	12:06	10,740	26,040	15,300	16.9
10/20/10	516	16	12:37	13:12	12:53	10,740	25,180	14,440	15.9
10/20/10	517	16	13:19	13:53	13:37	10,740	25,660	14,920	16.4
10/20/10	518	16	14:00	14:35	14:18	10,740	25,450	14,710	16.2
10/20/10	519	16	14:40	15:20	14:57	10,740	26,370	15,630	17.2
10/20/10	520	16	15:30	16:10	15:54	10,740	26,090	15,350	16.9
10/20/10	521	16	16:17	16:48	16:36	10,740	26,320	15,580	17.2
10/20/10	522	77-01	8:45	9:49	9:22	12,410	22,120	9,710	10.7
10/20/10		77-01	Tare		9:26	12,410	12,410	0	0.0
10/20/10	523	77-01	9:53	10:36	10:13	12,410	22,630	10,220	11.3
10/20/10	524	77-01	10:39	11:18	11:01	12,410	22,490	10,080	11.1
10/20/10	525	77-01	11:25	12:03	11:45	12,410	23,130	10,720	11.8
10/20/10	526	77-01	12:06	13:03	12:29	12,410	22,500	10,090	11.1
10/20/10	527	77-01	13:07	13:42	13:16	12,410	22,700	10,290	11.3
10/20/10	528	77-01	13:41	14:20	14:01	12,410	22,650	10,240	11.3
10/20/10	529	77-01	14:23	15:02	14:43	12,410	22,610	10,200	11.2
10/20/10	530	77-01	15:06	15:45	15:26	12,410	22,980	10,570	11.7
10/20/10	531	77-01	15:51	16:40	16:13	12,410	23,030	10,620	11.7
10/20/10	532	81-01	12:04	13:02	12:25	12,070	22,190	10,120	11.2
10/20/10	533	81-07	8:42	9:44	9:21	12,070	22,550	10,480	11.6
10/20/10		81-07	Tare		9:24	12,070	12,070	0	0.0
10/20/10	534	81-07	9:50	10:30	10:07	12,070	22,530	10,460	11.5
10/20/10	535	81-07	10:36	11:13	10:56	12,070	22,300	10,230	11.3
10/20/10	536	81-07	11:18	12:00	11:39	12,070	22,170	10,100	11.1
10/20/10	537	81-07	13:06	13:41	13:21	12,070	22,740	10,670	11.8
10/20/10	538	81-07	13:43	14:20	14:02	12,070	22,520	10,450	11.5
10/20/10	539	81-07	14:25	15:02	14:45	12,070	21,960	9,890	10.9
10/20/10	540	81-07	15:08	15:45	15:27	12,070	22,690	10,620	11.7
10/20/10	541	81-07	15:54	16:45	16:14	12,070	22,840	10,770	11.9
10/20/10	542	1	8:36	9:48	9:18	11,710	26,100	14,390	15.9
10/21/10	543	1	9:57	10:52	10:29	11,620	26,040	14,420	15.9
10/21/10		1	Tare		10:36	11,620	11,620	0	0.0
10/21/10	544	1	11:00	11:56	11:21	11,620	26,220	14,600	16.1
10/21/10	545	1	12:03	13:27	13:04	11,620	25,140	13,520	14.9
10/21/10	546	1	13:34	14:17	13:53	11,620	25,580	13,960	15.4
10/21/10	547	1	14:23	15:09	14:43	11,620	25,410	13,790	15.2
10/21/10	548	1	15:14	15:58	15:36	11,620	25,010	13,390	14.8
10/21/10	549	1	16:05	16:50	16:21	11,620	25,150	13,530	14.9

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/21/10	550	2	8:28	9:42	9:15	11,830	27,600	15,770	17.4
10/21/10	551	2	9:48	10:33	10:07	11,830	25,570	13,740	15.1
10/21/10	552	2	10:38	11:23	10:58	11,830	24,680	12,850	14.2
10/21/10	553	2	11:28	12:12	11:51	11,830	25,900	14,070	15.5
10/21/10		2	Tare		11:55	11,830	11,830	0	0.0
10/21/10	554	2	12:16	13:06	12:35	11,830	26,130	14,300	15.8
10/21/10	555	2	13:16	13:56	13:36	11,830	25,520	13,690	15.1
10/21/10	556	2	14:03	15:22	14:21	11,830	25,930	14,100	15.5
10/21/10	557	2			15:03	11,830	24,830	13,000	14.3
10/21/10	558	2	15:30	16:15	15:50	11,830	25,950	14,120	15.6
10/21/10	559	9			9:50	11,700	26,040	14,340	15.8
10/21/10		9	Tare		9:53	11,700	11,700	0	0.0
10/21/10	560	9	10:32	11:18	10:54	11,700	25,340	13,640	15.0
10/21/10	561	9	11:24	13:00	11:59	11,700	25,500	13,800	15.2
10/21/10	562	9	13:07	13:52	13:30	11,700	25,110	13,410	14.8
10/21/10	563	9	13:57	14:46	14:17	11,700	25,800	14,100	15.5
10/21/10	564	9	14:52	15:35	15:12	11,700	25,430	13,730	15.1
10/21/10	565	9	15:41	16:30	15:59	11,700	25,850	14,150	15.6
10/21/10	566	15	10:46	11:28	11:02	10,920	24,840	13,920	15.3
10/21/10	567	15	11:34	12:12	11:54	10,920	25,210	14,290	15.8
10/21/10		15	Tare		11:57	10,920	10,920	0	0.0
10/21/10	568	15	12:20	13:07	12:38	10,920	25,240	14,320	15.8
10/21/10	569	15	13:19	13:56	13:40	10,920	24,550	13,630	15.0
10/21/10	570	15	14:05	14:48	14:20	10,920	25,630	14,710	16.2
10/21/10	571	15	14:54	15:27	15:10	10,920	24,570	13,650	15.0
10/21/10	572	15	15:32	16:20	15:53	10,920	24,990	14,070	15.5
10/21/10	573	16	8:31	9:42	9:16	10,960	26,620	15,660	17.3
10/21/10	574	16	9:51	10:36	10:10	10,960	27,110	16,150	17.8
10/21/10	575	16	10:48	11:23	11:00	10,960	27,190	16,230	17.9
10/21/10	576	16	11:31	12:07	11:50	10,960	26,130	15,170	16.7
10/21/10	577	16	12:12	13:06	12:30	10,960	27,300	16,340	18.0
10/21/10		16	Tare		12:33	10,960	10,960	0	0.0
10/21/10	578	16	13:13	13:50	13:32	10,960	27,460	16,500	18.2
10/21/10	579	16	13:56	14:34	14:14	10,960	25,960	15,000	16.5
10/21/10	580	16	14:39	15:19	14:59	10,960	26,060	15,100	16.6
10/21/10	581	16	15:26	16:10	15:45	10,960	26,050	15,090	16.6
10/21/10	582	77-01	8:42	10:00	9:21	12,290	21,990	9,700	10.7
10/21/10		77-01	Tare		9:25	12,290	12,290	0	0.0

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Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/21/10	583	77-01	10:05	10:48	10:24	12,290	22,490	10,200	11.2
10/21/10	584	77-01	10:52	11:48	11:13	12,290	22,420	10,130	11.2
10/21/10	585	77-01			12:12	12,290	22,490	10,200	11.2
10/21/10	586	77-01	13:09	13:47	13:28	12,290	21,990	9,700	10.7
10/21/10	587	77-01	13:51	14:32	14:12	12,290	22,390	10,100	11.1
10/21/10	588	77-01	14:31	15:19	14:55	12,290	22,400	10,110	11.1
10/21/10	589	77-01	15:22	16:04	15:46	12,290	23,710	11,420	12.6
10/21/10	590	77-01	16:08	17:00	16:25	12,290	22,020	9,730	10.7
10/21/10	591	81-07	8:40	9:56	9:19	11,970	22,660	10,690	11.8
10/21/10		81-07	Tare		9:23	11,970	11,970	0	0.0
10/21/10	592	81-07	10:01	10:45	10:19	11,970	21,580	9,610	10.6
10/21/10	593	81-07	10:50	11:42	11:10	11,970	21,570	9,600	10.6
10/21/10	594	81-07	11:47	13:02	12:06	11,970	22,060	10,090	11.1
10/21/10	595	81-07	13:08	13:44	13:24	11,970	21,640	9,670	10.7
10/21/10	596	81-07	13:49	14:25	14:06	11,970	21,810	9,840	10.8
10/21/10	597	81-07	14:29	15:05	14:46	11,970	21,980	10,010	11.0
10/21/10	598	81-07	15:09	15:44	15:26	11,970	22,020	10,050	11.1
10/21/10	599	81-07	15:47	16:35	16:05	11,970	21,750	9,780	10.8
10/21/10	600	1	8:43	9:54	9:19	11,620	26,090	14,470	16.0
10/22/10	601	1			9:21	11,890	25,290	13,400	14.8
10/22/10	602	1	10:02	10:52	10:24	11,890	22,260	10,370	11.4
10/22/10		1	Tare		10:31	11,890	11,890	0	0.0
10/22/10	603	1	11:00	11:50	11:25	11,890	27,240	15,350	16.9
10/22/10	604	1	12:00	12:51	12:25	11,890	26,510	14,620	16.1
10/22/10	605	1	12:57	13:39	13:15	11,890	25,270	13,380	14.7
10/22/10	606	1	13:52	14:40	14:14	11,890	27,480	15,590	17.2
10/22/10	607	2	8:34	9:32	9:14	11,750	25,960	14,210	15.7
10/22/10	608	2	9:38	10:17	9:56	11,750	25,330	13,580	15.0
10/22/10		2	Tare		10:00	11,750	11,750	0	0.0
10/22/10	609	2	10:32	11:00	10:41	11,750	25,930	14,180	15.6
10/22/10	610	2	11:06	11:48	11:29	11,750	26,490	14,740	16.2
10/22/10	611	2	11:58	12:45	12:16	11,750	30,060	18,310	20.2
10/22/10	612	2	12:48	13:30	13:08	11,750	27,420	15,670	17.3
10/22/10	613	2	13:35	14:20	13:55	11,750	25,590	13,840	15.3
10/22/10	614	9	8:51	10:19	9:57	11,600	24,460	12,860	14.2
10/22/10	615	9	10:28	11:23	9:57	11,600	26,120	14,520	16.0
10/22/10		9	Tare		11:03	11,600	11,600	0	0.0
10/22/10	616	9	11:34	12:20	11:53	11,600	26,160	14,560	16.0

Table 2
Summary of Exported Material Records
Black Sand Beach Project

Date	Trip No.	Truck #	Time Depart from Site	Time Return to Site	Time at Scale	Tare Weight (KG)	Ticket Gross Weight (KG)	Load Weight (KG)	Load Weight (U.S. Tons)
10/22/10	617	9	12:26	13:16	12:50	11,600	27,160	15,560	17.2
10/22/10	618	9	13:22	14:12	13:41	11,600	28,210	16,610	18.3
10/22/10	619	9	14:15	15:20	14:49	11,600	25,010	13,410	14.8
10/22/10	620	15	8:35	9:37	9:16	10,850	24,260	13,410	14.8
10/22/10	621	15	9:42	10:26	10:03	10,850	24,960	14,110	15.6
10/22/10		15	Tare		10:06	10,850	10,850	0	0.0
10/22/10	622	15	10:31	11:15	11:00	10,850	25,050	14,200	15.7
10/22/10	623	15	11:20	11:58	11:38	10,850	25,240	14,390	15.9
10/22/10	624	15	12:05	12:48	12:22	10,850	26,000	15,150	16.7
10/22/10	625	15	12:53	13:31	13:10	10,850	25,920	15,070	16.6
10/22/10	626	15	13:38	14:25	14:03	10,850	26,160	15,310	16.9
10/22/10	627	16	8:43	9:53	9:26	10,840	26,800	15,960	17.6
10/22/10		16	Tare		9:32	10,840	10,840	0	0.0
10/22/10	628	16	9:56	10:36	10:16	10,840	24,500	13,660	15.1
10/22/10	629	16	10:42	11:20	11:00	10,840	27,230	16,390	18.1
10/22/10	630	16	11:29	12:10	11:49	10,840	27,970	17,130	18.9
10/22/10	631	16	12:15	12:57	12:33	10,840	27,640	16,800	18.5
10/22/10	632	16	13:04	13:49	13:22	10,840	27,580	16,740	18.5
10/22/10	633	16	13:56	14:45	14:15	10,840	27,320	16,480	18.2
10/22/10		71-01	Tare		10:13	12,320	12,320	0	0.0
10/22/10	634	77-01	8:46	9:45	9:19	12,320	22,100	9,780	10.8
10/22/10	635	77-01	9:50	10:32	10:10	12,320	22,670	10,350	11.4
10/22/10	636	77-01	10:36	11:20	10:56	12,320	22,150	9,830	10.8
10/22/10	637	77-01	11:26	12:08	11:48	12,320	22,710	10,390	11.5
10/22/10	638	77-01	12:11	12:50	12:31	12,320	23,230	10,910	12.0
10/22/10	639	77-01	12:59	13:38	13:19	12,320	22,160	9,840	10.8
10/22/10	640	77-01	13:48	14:35	14:08	12,320	23,350	11,030	12.2
10/22/10	641	81-07	8:47	9:37	9:18	11,990	21,790	9,800	10.8
10/22/10	642	81-07	9:45	10:26	10:04	11,990	22,000	10,010	11.0
10/22/10		81-07	Tare		10:07	11,990	11,990	0	0.0
10/22/10	643	81-07	10:33	11:15	10:52	11,990	22,350	10,360	11.4
10/22/10	644	81-07	11:21	13:07	11:45	11,990	22,600	10,610	11.7
10/22/10	645	81-07	12:09	12:49	12:27	11,990	21,560	9,570	10.5
10/22/10	646	81-07	12:52	13:37	13:12	11,990	23,890	11,900	13.1
10/22/10	647	81-07	13:45	14:30	14:05	11,990	22,660	10,670	11.8
Total								**8,287,620**	**9136.0**
								KG	**Tons**

Table 3
Summary of Items Observed During Monitoring
Black Sand Beach Project

Description	Photograph
No. 1 Date: 9/25/2010 Arch Monitor: M. Stegner Location: Downstream Beach Elevation: 1298 ft. (~9 ft below ground surface) Four modern (ca. 1970s) brown glass beer bottles with applied color paper "Heidelberg Beer" labels on neck, embossed "NON-REFILLABLE BOTTLE" on heel, and bases "560/NW/70/C49"; "660/NW/72/C18"; "21/["I" in circle]/72//1555T-68/1/AA"; "21/["I" in circle]/73//1555T-68/6/AA"	
No. 2 Date: 9/27/2010 Arch. Monitor: M.S & A.B. Location: Downstream Beach Elevation: 1293 ft (~15 ft below ground surface) Three machine-saw cut cedar logs.	
No. 3 Date: 9/28/2010 Arch. Monitor: A. Becker Location: Downstream Beach Elevation: 1300 ft (~7 ft below ground surface) Modern tire, embossed rim: "NYLON_TUBELESS/SENTINEL SCOUT/8.00-14/4-PLY/[LOGO]"	

Table 3
Summary of Items Observed During Monitoring
Black Sand Beach Project

Description	Photograph
No. 4 Date: 10/04/2010 Arch. Monitor: A.Becker Location: Upstream Beach Elevation: 1300 ft (~5 ft below ground surface) Rubber Tire, embossed rim: "GENERAL STREAMLINE/JUMBO/14/THE GENERAL TIRE & RUBBER COMPANY OF CANADA, LTD/P0307917' (ca.1920-1991)	
No. 5 Date: 10/06/2010 Arch. Monitor: A.Becker Location: Rock Outcrop Elevation: 1307 ft (ground surface) Lead fishing weight	
No. 6 Date: 10/06/2010 Arch. Monitor: A.Becker Location: Rock Outcrop Elevation: 1307 ft (ground surface) Metal jar lid, embossed: "DR" in center, SS-scrolls along outside edge, and "MADE IN USA" on bottom edge.	
No. 7 Date: 10/07/2010 Arch. Monitor: M.Stegner Location: Haul Route Elevation: 1329 ft (~1 ft below ground surface) Modern (ca. 1980s) clear glass bottle base, embossed: "B [in circle]/16/81/58' Manufactured by Brockway Glass Company in 1980s. http://www.fruitjar.org/	

Table 3
Summary of Items Observed During Monitoring
Black Sand Beach Project

Description	Photograph
No. 8 Date: 10/08/2010 Arch. Monitor: M.Stegner Location: Haul Route Elevation: 1329 ft (~1 ft below ground surface) Clear glass jar base, embossed: "NW/181/13"	
No. 9 Date: 10/11/2010 Arch. Monitor: M.Stegner Location: Upstream Beach Elevation: 1307 ft (~2 ft below ground surface) Chainsaw cut cedar log measures 18 in diameter by 6 ft long.	
No. 10 Date: 10/11/2010 Arch. Monitor: M. Stegner Location: Upstream Beach Elevation: 1306 ft (~1 ft below ground surface) Modern milk glass mug fragment, embossed: "…INC.//…NN.38101●LONDON●…" (zip code associated with Memphis, Tennessee). Measures 1 ½ in by 1 ½ in by 1/8 in thick.	
No. 11 Date: 10/11/2010 Arch. Monitor: M. Stegner Location: Upstream Beach Elevation: 1306 ft (~1 ft below ground surface) Modern (ca. 1960s) metal .22 caliber cartridge, embossed "C" on head.	

Table 3
Summary of Items Observed During Monitoring
Black Sand Beach Project

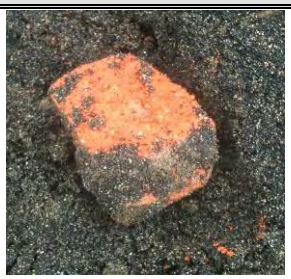
Description	Photograph
No. 12 Date: 10/16/2010 Arch. Monitor: M. Stegner Location: Downstream Beach Elevation: 1301 ft (~6 ft below ground surface) Modern brick fragment, measures 4 in by 3 ½ in by 3 ½ in thick.	
No. 13 Date: 10/16/2010 Arch. Monitor: M. Stegner Location: Downstream Beach Elevation:1306 ft (~1 ft below ground surface) Brown glass bottle base fragment, embossed: "35"double-impressed within valve mark circle; measures 2 in by 1 ½ in by ¼ in thick.	
No. 14 Date: 10/16/2010 Arch. Monitor: M. Stegner Location: Downstream Beach Elevation: 1300 ft (~7 ft below ground surface) Modern plastic pocket protector, measures 2 in by 3 in.	No Photograph.

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
09/22/10	8:00 AM	Turbidity Calib.	--	1.00	NTU	
09/22/10	8:15 AM	pH Calibration	--	7.01	pH	15.0
09/22/10	9:30 AM	Turbidity	1	0.10	NTU	
09/22/10	9:30 AM	pH	1	6.86	pH	15.1
09/22/10	9:40 AM	Turbidity	2	0.00	NTU	
09/22/10	9:40 AM	pH	2	6.87	pH	15.5
09/22/10	9:50 AM	Turbidity	3	0.10	NTU	
09/22/10	9:50 AM	pH	3	6.89	pH	15.0
09/22/10	10:00 AM	Turbidity	4	0.10	NTU	
09/22/10	10:00 AM	pH	4	6.92	pH	15.0
09/22/10	10:10 AM	Turbidity	6	0.00	NTU	
09/22/10	10:10 AM	pH	6	6.92	pH	15.0
09/23/10	9:55 AM	Turbidity Calib.	--	0.00	NTU	
09/23/10	9:55 AM	pH Calibration	--	7.00	pH	15.5
09/23/10	10:00 AM	Turbidity	6	0.00	NTU	
09/23/10	10:00 AM	pH	6	6.92	pH	13.4
09/23/10	10:20 AM	Turbidity	2	0.00	NTU	
09/23/10	10:20 AM	pH	2	6.93	pH	14.1
09/24/10	1:00 AM	Turbidity Calib.	--	0.00	NTU	
09/24/10	1:00 PM	pH calibration	--	7.00	pH	15.2
09/24/10	2:00 PM	Turbidity	6	0.00	NTU	
09/24/10	2:00 PM	pH	6	7.75	pH	16.1
09/24/10	2:00 PM	Turbidity	2	0.00	NTU	
09/24/10	2:00 PM	pH	2	7.97	pH	14.1
09/25/10	10:00 AM	Turbidity Calib.	--	1.00	NTU	
09/25/10	10:00 AM	pH Calibration	--	7.00	ph	15.2
09/25/10	10:05 AM	Turbidity	1	0.00	NTU	
09/25/10	10:05 AM	pH	1	7.34	pH	12.4
09/25/10	10:10 AM	Turbidity	2	0.00	NTU	
09/25/10	10:10 AM	pH	2	7.19	pH	12.7
09/25/10	10:15 AM	Turbidity	3	0.00	NTU	
09/25/10	10:15 AM	pH	3	7.46	pH	13.1
09/25/10	10:20 AM	Turbidity	4	0.00	NTU	
09/25/10	10:20 AM	pH	4	7.64	pH	13.0
09/25/10	10:25 AM	Turbidity	6	0.00	NTU	
09/25/10	10:25 AM	pH	6	7.68	pH	12.7
09/27/10	11:36 AM	Turbidity Calib.	--	1.00	NTU	
09/27/10	11:36 AM	pH Calibration	--	7.00	pH	15.2
09/27/10	11:36 AM	Turbidity	6	0.00	NTU	
09/27/10	11:36 AM	pH	6	7.22	pH	15.2
09/27/10	1:12 PM	Turbidity	6	0.00	NTU	
09/27/10	1:12 PM	pH	6	7.16	pH	16.2
09/27/10	2:30 PM	Turbidity	6	0.00	NTU	

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
09/27/10	2:30 PM	pH	6	7.15	pH	17.2
09/27/10	3:57 PM	Turbidity	6	0.00	NTU	
09/27/10	3:57 PM	pH	6	7.05	pH	16.8
09/27/10	4:50 PM	Turbidity	6	0.00	NTU	
09/27/10	4:50 PM	pH	6	7.03	pH	16.6
09/28/10	10:22 AM	Turbidity Calib.	--	1.00	NTU	
09/28/10	10:22 AM	pH Calibration	--	7.00	pH	15.5
09/28/10	10:25 AM	Turbidity	6	0.00	NTU	
09/28/10	10:25 AM	pH	6	7.09	pH	14.0
09/28/10	11:48 AM	Turbidity	6	0.00	NTU	
09/28/10	11:48 AM	pH	6	7.09	pH	14.0
09/28/10	1:28 PM	Turbidity	6	0.00	NTU	
09/28/10	1:28 PM	pH	6	7.10	pH	19.8
09/28/10	3:23 PM	Turbidity	2	0.00	NTU	
09/28/10	3:23 PM	pH	2	7.05	pH	17.6
09/29/10	10:05 AM	Turbidity Calib.	--	0.00	NTU	
09/29/10	1:12 AM	pH Calibation	--	7.00	pH	15.4
09/29/10	10:14 AM	Turbidity	6	0.00	NTU	
09/29/10	10:14 AM	pH	6	7.15	pH	11.2
09/29/10	11:24 AM	Turbidity	6	0.00	NTU	
09/29/10	11:24 AM	pH	6	7.15	pH	15.3
09/29/10	1:12 PM	Turbidity	6	0.00	NTU	
09/29/10	1:12 PM	pH	6	7.09	pH	17.4
09/29/10	2:34 PM	Turbidity	6	0.00	NTU	
09/29/10	2:34 PM	pH	6	7.07	pH	18.3
09/29/10	4:18 PM	Turbidity	2	0.00	NTU	
09/29/10	4:18 PM	pH	2	7.07	pH	18.3
09/29/10	4:45 PM	Turbidity	2	0.00	NTU	
09/30/10	9:35 AM	Turbidity Calib.	--	0.00	NTU	
09/30/10	9:35 AM	pH Calibation	--	7.00	pH	14.1
09/30/10	9:40 AM	Turbidity	2	0.00	NTU	
09/30/10	9:40 AM	pH	2	7.13	pH	11.9
09/30/10	9:56 AM	Turbidity	6	0.00	NTU	
09/30/10	9:56 AM	pH	6	7.15	pH	12.5
09/30/10	3:05 PM	Turbidity	6	0.05	NTU	
09/30/10	3:05 PM	pH	6	7.11	pH	18.7
10/01/00	8:40 AM	Turbidity Calib.	--	0.00	NTU	
10/01/10	8:41 AM	pH Calibation	--	7.00	pH	13.5
10/01/10	8:50 AM	Turbidity	6	0.15	NTU	
10/01/10	8:50 AM	pH	6	7.09	pH	13.3
10/01/10	9:11 AM	Turbidity	2	0.00	NTU	
10/01/10	9:11 AM	pH	2	7.12	pH	12.8
10/01/10	11:33 AM	Turbidity	2	0.00	NTU	

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
10/01/10	11:33 AM	pH	2	6.99	pH	15.5
10/01/10	1:56 PM	Turbidity	6	0.00	NTU	
10/01/10	1:56 PM	pH	6	7.12	pH	19.5
10/04/10	10:02 AM	Turbidity Calib.	--	0.00	NTU	
10/04/10	10:02 AM	pH Calibation	--	7.00	pH	14.6
10/04/10	10:08 AM	Turbidity	2	0.00	NTU	
10/04/10	10:08 AM	pH	2	7.05	pH	14.7
10/04/10	10:20 AM	Turbidity	6	0.00	NTU	
10/04/10	10:20 AM	pH	6	6.80	pH	15.3
10/05/10	9:05 AM	Turbidity Calib.	--	0.00	NTU	
10/05/10	9:05 AM	pH Calibation	--	7.00	pH	14.6
10/05/10	9:10 AM	Turbidity	6	0.00	NTU	
10/05/10	9:10 AM	pH	6	7.15	pH	13.6
10/05/10	2:14 PM	Turbidity	2	0.05	NTU	
10/05/10	2:14 PM	pH	2	7.04	pH	19.2
10/06/10	10:52 AM	Turbidity Calib.	--	0.00	NTU	
10/06/10	10:52 AM	pH Calibation	--	7.00	pH	15.2
10/06/10	10:50 AM	Turbidity	2	0.00	NTU	
10/06/10	10:50 AM	pH	2	7.15	pH	12.2
10/06/10	1:10 PM	Turbidity	6	0.00	NTU	
10/06/10	1:10 PM	pH	6	6.99	pH	16.2
10/06/10	3:47 PM	Turbidity	2	0.02	NTU	
10/06/10	3:47 PM	pH	2	6.98	pH	16.2
10/06/10	4:08 PM	Turbidity	6	0.00	NTU	
10/06/10	4:08 PM	pH	6	7.01	pH	16.2
10/07/10	11:10 AM	Turbidity Calib.	--	0.00	NTU	
10/07/10	11:10 AM	pH Calibation	--	7.00	pH	14.2
10/07/10	11:15 AM	Turbidity	2	0.00	NTU	
10/07/10	11:15 AM	pH	2	6.98	pH	13.3
10/07/10	11:26 AM	Turbidity	6	0.00	NTU	
10/07/10	11:26 AM	pH	6	7.10	pH	14.5
10/07/10	2:50 PM	Turbidity	6	0.05	NTU	
10/07/10	2:50 PM	pH	6	7.10	pH	17.1
10/07/10	3:04 PM	Turbidity	2	0.15	NTU	
10/07/10	3:04 PM	pH	2	6.98	pH	16.9
10/08/10	11:25 AM	Turbidity Calib.	--	0.00	NTU	
10/08/10	11:25 AM	pH Calibation	--	7.00	pH	15.5
10/08/10	11:26 AM	Turbidity	2	0.00	NTU	
10/08/10	11:26 AM	pH	2	6.99	pH	15.5
10/08/10	11:26 AM	Turbidity	6	0.15	NTU	
10/08/10	11:26 AM	pH	6	7.25	pH	15.3
10/08/10	2:29 PM	Turbidity	2	0.00	NTU	
10/08/10	2:29 PM	pH	2	7.00	pH	15.5

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
10/08/10	2:29 PM	Turbidity	6	0.15	NTU	
10/08/10	2:29 PM	pH	6	7.25	pH	15.1
10/09/10	2:40 AM	Turbidity Calib.	--	0.00	NTU	
10/09/10	2:40 AM	pH Calibation	--	7.00	pH	15.3
10/09/10	2:45 PM	Turbidity	2	0.00	NTU	
10/09/10	2:45 PM	pH	2	6.98	pH	15.2
10/09/10	2:45 PM	Turbidity	6	0.00	NTU	
10/09/10	2:45 PM	pH	6	7.20	pH	15.1
10/09/10	4:16 PM	Turbidity	2	0.00	NTU	
10/09/10	4:16 PM	pH	2	7.08	pH	15.0
10/09/10	4:16 PM	Turbidity	6	0.00	NTU	
10/09/10	4:16 PM	pH	6	7.31	pH	14.8
10/10/10	11:48 AM	Turbidity Calib.	--	0.00	NTU	
10/10/10	11:48 AM	pH Calibation	--	7.00	pH	15.4
10/10/10	11:50 AM	Turbidity	2	0.00	NTU	
10/10/10	11:50 AM	pH	2	6.92	pH	14.8
10/10/10	11:50 AM	Turbidity	6	0.00	NTU	
10/10/10	11:50 AM	pH	6	7.02	pH	14.5
10/10/10	4:45 PM	Turbidity	2	0.00	NTU	
10/10/10	4:45 PM	pH	2	6.82	pH	14.2
10/10/10	4:45 PM	Turbidity	6	0.00	NTU	
10/10/10	4:45 PM	pH	6	6.94	pH	14.6
10/11/10	12:20 PM	Turbidity Calib.	--	0.00	NTU	
10/11/10	12:20 PM	pH Calibation	--	7.00	pH	15.1
10/11/10	12:24 PM	Turbidity	2	0.00	NTU	
10/11/10	12:24 PM	pH	2	6.88	pH	13.4
10/11/10	12:24 PM	Turbidity	6	0.00	NTU	
10/11/10	12:24 PM	pH	6	7.01	pH	13.1
10/11/10	3:07 PM	Turbidity	2	0.00	NTU	
10/11/10	3:07 PM	pH	2	6.81	pH	14.7
10/11/10	3:07 PM	Turbidity	6	0.00	NTU	
10/11/10	3:07 PM	pH	6	7.00	pH	14.4
10/11/10	4:46 PM	Turbidity	2	0.05	NTU	
10/11/10	4:46 PM	pH	2	6.76	pH	14.5
10/11/10	4:46 PM	Turbidity	6	0.00	NTU	
10/11/10	4:46 PM	pH	6	6.95	pH	13.2
10/12/10	2:10 PM	Turbidity Calib.	--	0.00	NTU	
10/12/10	2:10 PM	pH Calibation	--	7.00	pH	14.1
10/12/10	2:14 PM	Turbidity	2	0.00	NTU	
10/12/10	2:14 PM	pH	2	6.95	pH	14.1
10/12/10	2:14 PM	Turbidity	6	0.00	NTU	
10/12/10	2:14 PM	pH	6	7.15	pH	13.7
10/12/10	4:59 PM	Turbidity	2	0.50	NTU	

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
10/12/10	4:59 PM	pH	2	6.99	pH	13.3
10/12/10	4:59 PM	Turbidity	6	0.00	NTU	
10/12/10	4:59 PM	pH	6	7.07	pH	13.5
10/13/10	3:12 PM	Turbidity Calib.	--	0.00	NTU	
10/13/10	3:12 PM	pH Calibation	--	7.00	pH	14.6
10/13/10	3:15 PM	Turbidity	2	0.00	NTU	
10/13/10	3:15 PM	pH	2	7.00	pH	14.3
10/13/10	3:15 PM	Turbidity	6	0.00	NTU	
10/13/10	3:15 PM	pH	6	7.15	pH	14.4
10/13/10	4:47 PM	Turbidity	2	0.15	NTU	
10/13/10	4:47 PM	pH	2	7.00	pH	13.6
10/13/10	4:47 PM	Turbidity	6	0.00	NTU	
10/13/10	4:47 PM	pH	6	7.08	pH	13.4
10/14/10	10:30 AM	Turbidity Calib.	--	0.00	NTU	
10/14/10	10:30 AM	pH Calibation	--	7.00	pH	13.8
10/14/10	10:31 AM	Turbidity	2	0.00	NTU	
10/14/10	10:31 AM	pH	2	6.89	pH	10.4
10/14/10	10:31 AM	Turbidity	6	0.05	NTU	
10/14/10	10:31 AM	pH	6	6.94	pH	11.2
10/14/10	2:50 PM	Turbidity	2	0.00	NTU	
10/14/10	2:50 PM	pH	2	6.93	pH	14.3
10/14/10	2:50 PM	Turbidity	6	0.00	NTU	
10/14/10	2:50 PM	pH	6	7.01	pH	13.7
10/15/10	4:25 PM	Turbidity Calib.	--	0.00	NTU	
10/15/10	4:25 PM	pH Calibation	--	7.00	pH	14.1
10/15/10	4:30 PM	Turbidity	2	0.00	NTU	
10/15/10	4:30 PM	pH	2	7.05	pH	12.2
10/15/10	4:30 PM	Turbidity	6	0.00	NTU	
10/15/10	4:30 PM	pH	6	7.24	pH	12.5
10/16/10	8:30 AM	Turbidity Calib.	--	0.00	NTU	
10/16/10	8:30 AM	pH Calibation	--	7.00	pH	12.2
10/16/10	8:40 AM	Turbidity	2	0.00	NTU	
10/16/10	4:30 PM	pH	2	6.99	pH	8.3
10/16/10	4:30 PM	Turbidity	6	0.30	NTU	
10/16/10	4:30 PM	pH	6	7.14	pH	9.5
10/16/10	3:14 PM	Turbidity	2	0.00	NTU	
10/16/10	3:14 AM	pH	2	6.98	pH	14.3
10/16/10	3:14 AM	Turbidity	6	0.00	NTU	
10/16/10	3:14 AM	pH	6	7.15	pH	13.3
10/17/10	8:40 AM	Turbidity Calib.	--	0.00	NTU	
10/17/10	8:40 AM	pH Calibation	--	7.00	pH	13.4
10/17/10	8:45 AM	Turbidity	2	0.15	NTU	
10/17/10	8:45 AM	pH	2	6.90	pH	8.2

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
10/17/10	8:45 AM	Turbidity	6	0.00	NTU	
10/17/10	8:45 AM	pH	6	7.03	pH	9.1
10/17/10	11:37 AM	Turbidity	2	0.00	NTU	
10/17/10	11:37 AM	pH	2	7.03	pH	9.3
10/17/10	11:37 AM	Turbidity	6	0.00	NTU	
10/17/10	11:37 AM	pH	6	7.21	pH	10.8
10/18/10	8:55 AM	Turbidity Calib.	--	0.00	NTU	
10/18/10	8:55 AM	pH Calibation	--	7.00	pH	11.5
10/18/10	9:00 AM	Turbidity	2	0.00	NTU	
10/18/10	9:00 AM	pH	2	7.00	pH	9.9
10/18/10	9:00 AM	Turbidity	6	0.00	NTU	
10/18/10	9:00 AM	pH	6	7.21	pH	10.4
10/18/10	2:30 PM	Turbidity	2	0.00	NTU	
10/18/10	2:30 PM	pH	2	6.96	pH	13.2
10/18/10	2:30 PM	Turbidity	6	0.00	NTU	
10/18/10	2:30 PM	pH	6	7.03	pH	12.9
10/19/10	9:00 AM	Turbidity Calib.	--	0.00	NTU	
10/19/10	9:00 AM	pH Calibation	--	7.00	pH	11.1
10/19/10	9:04 AM	Turbidity	2	0.15	NTU	
10/19/10	9:04 AM	pH	2	6.94	pH	9.5
10/19/10	9:04 AM	Turbidity	6	0.00	NTU	
10/19/10	9:04 AM	pH	6	7.05	pH	10.7
10/19/10	2:18 PM	Turbidity	2	0.00	NTU	
10/19/10	2:18 PM	pH	2	6.90	pH	13.6
10/19/10	2:18 PM	Turbidity	6	0.15	NTU	
10/19/10	2:18 PM	pH	6	7.10	pH	13.0
10/20/10	9:05 AM	Turbidity Calib.	--	0.00	NTU	
10/20/10	9:05 AM	pH Calibation	--	7.00	pH	11.8
10/20/10	9:10 AM	Turbidity	2	0.00	NTU	
10/20/10	9:10 AM	pH	2	6.95	pH	9.3
10/20/10	9:10 AM	Turbidity	6	0.05	NTU	
10/20/10	9:10 AM	pH	6	7.12	pH	10.3
10/20/10	9:10 AM	Turbidity	2	0.00	NTU	
10/20/10	9:10 AM	pH	2	6.19	pH	13.2
10/20/10	9:10 AM	Turbidity	6	0.05	NTU	
10/20/10	9:10 AM	pH	6	7.08	pH	13.2
10/21/10	9:55 AM	Turbidity Calib.	--	0.00	NTU	
10/21/10	9:55 AM	pH Calibation	--	7.00	pH	12.1
10/21/10	10:00 AM	Turbidity	2	0.05	NTU	
10/21/10	10:00 AM	pH	2	6.93	pH	9.5
10/21/10	10:00 AM	Turbidity	6	0.00	NTU	
10/21/10	10:00 AM	pH	6	7.11	pH	10.0
10/21/10	2:40 PM	Turbidity	2	0.10	NTU	

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

Date	Time	Parameter	Location	Results	Units	Temp C
10/21/10	2:40 PM	pH	2	6.97	pH	13.6
10/21/10	2:40 PM	Turbidity	6	0.15	NTU	
10/21/10	2:40 PM	pH	6	7.11	pH	12.6
10/22/10	9:10 AM	Turbidity Calib.	--	0.00	NTU	
10/22/10	9:10 AM	pH Calibation	--	7.00	pH	11.5
10/22/10	9:11 AM	Turbidity	2	0.15	NTU	
10/22/10	9:11 AM	pH	2	6.88	pH	10.1
10/22/10	9:11 AM	Turbidity	6	0.00	NTU	
10/22/10	9:11 AM	pH	6	7.00	pH	11.0
10/22/10	3:15 PM	Turbidity	2	0.00	NTU	
10/22/10	3:15 PM	pH	2	6.86	pH	13.9
10/22/10	3:15 PM	Turbidity	6	0.00	NTU	
10/22/10	3:15 PM	pH	6	7.12	pH	13.6
10/23/10	9:40 AM	Turbidity Calib.	--	0.00	NTU	
10/23/10	9:40 AM	pH Calibation	--	7.00	pH	12.1
10/23/10	9:42 AM	Turbidity	2	0.00	NTU	
10/23/10	9:42 AM	pH	2	6.84	pH	10.2
10/23/10	9:42 AM	Turbidity	6	0.00	NTU	
10/23/10	9:42 AM	pH	6	7.09	pH	11.1
10/23/10	3:00 PM	Turbidity	2	0.00	NTU	
10/23/10	3:00 PM	pH	2	7.05	pH	10.8
10/23/10	3:00 PM	Turbidity	6	0.00	NTU	
10/23/10	3:00 PM	pH	6	7.12	pH	11.5
10/24/10	8:45 AM	Turbidity Calib.	--	0.00	NTU	
10/24/10	8:45 AM	pH Calibation	--	7.00	pH	11.9
10/24/10	8:50 AM	Turbidity	2	0.00	NTU	
10/24/10	8:50 AM	pH	2	6.87	pH	10.2
10/24/10	8:50 AM	Turbidity	6	0.00	NTU	
10/24/10	8:50 AM	pH	6	7.02	pH	11.1
10/24/10	4:10 PM	Turbidity	2	0.00	NTU	
10/24/10	4:10 PM	pH	2	7.18	pH	12.1
10/24/10	4:10 PM	Turbidity	6	0.00	NTU	
10/24/10	4:10 PM	pH	6	7.12	pH	12.4
10/25/10	10:50 AM	Turbidity Calib.	--	0.00	NTU	
10/25/10	10:50 AM	pH Calibation	--	7.00	pH	11.4
10/25/10	10:55 AM	Turbidity	2	0.00	NTU	
10/25/10	10:55 AM	pH	2	6.87	pH	10.7
10/25/10	10:55 AM	Turbidity	6	0.00	NTU	
10/25/10	10:55 AM	pH	6	7.02	pH	11.1
10/25/10	4:10 PM	Turbidity	2	0.00	NTU	
10/25/10	4:10 PM	pH	2	6.86	pH	10.9
10/25/10	4:10 PM	Turbidity	6	0.00	NTU	
10/25/10	4:10 PM	pH	6	7.12	pH	11.2

Table 4
Summary of Turbidy and pH Monitoring Data
Black Sand Beach Project

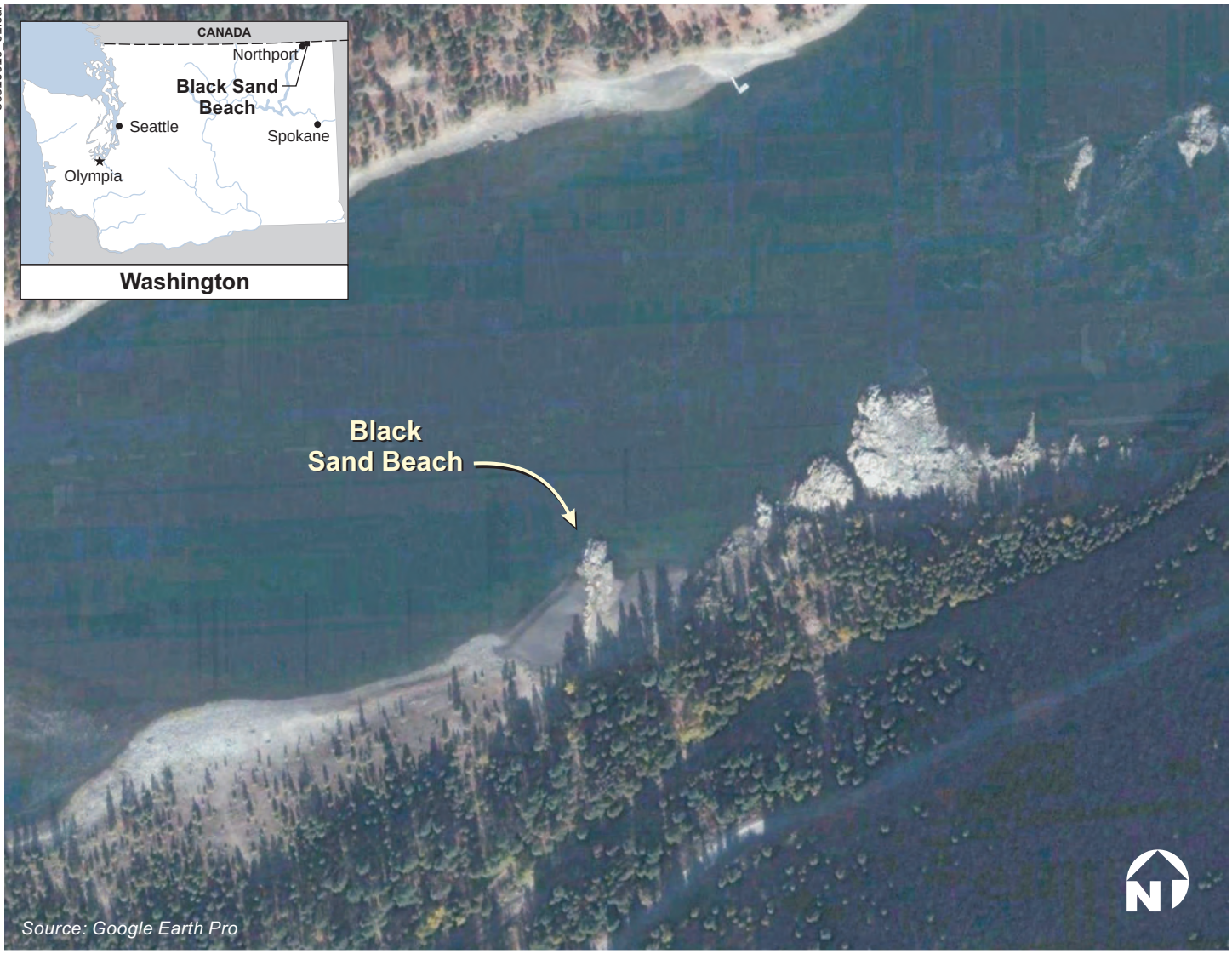
Date	Time	Parameter	Location	Results	Units	Temp C
10/26/10	9:00 AM	Turbidity Calib.	--	0.00	NTU	
10/26/10	9:00 AM	pH Calibation	--	7.00	pH	11.1
10/26/10	9:05 AM	Turbidity	2	0.00	NTU	
10/26/10	9:05 AM	pH	2	6.82	pH	9.5
10/26/10	9:05 AM	Turbidity	6	0.00	NTU	
10/26/10	9:05 AM	pH	6	6.96	pH	10.7
10/26/10	3:00 PM	Turbidity	2	0.00	NTU	
10/26/10	3:00 PM	pH	2	6.78	pH	10.7
10/26/10	3:00 PM	Turbidity	6	0.00	NTU	
10/26/10	3:00 PM	pH	6	7.12	pH	10.8
10/27/10	12:35 PM	Turbidity Calib.	--	0.00	NTU	
10/27/10	12:35 PM	pH Calibation	--	7.00	pH	11.9
10/27/10	12:40 PM	Turbidity	2	0.00	NTU	
10/27/10	12:40 PM	pH	2	6.94	pH	10.5
10/27/10	12:40 PM	Turbidity	6	0.00	NTU	
10/27/10	12:40 PM	pH	6	7.12	pH	10.8
10/27/10	3:58 PM	Turbidity	2	0.00	NTU	
10/27/10	3:58 PM	pH	2	6.74	pH	10.5
10/27/10	3:58 PM	Turbidity	6	0.00	NTU	
10/27/10	3:58 PM	pH	6	7.12	pH	10.6
10/28/10	10:03 AM	Turbidity Calib.	--	0.00	NTU	
10/28/10	10:03 AM	pH Calibation	--	7.00	pH	11.4
10/28/10	10:08 PM	Turbidity	2	0.00	NTU	
10/28/10	10:08 PM	pH	2	6.85	PH	9.8
10/28/10	10:08 PM	Turbidity	6	0.00	NTU	
10/28/10	10:08 PM	pH	6	7.12	pH	10.8
10/28/10	4:05 PM	Turbidity	2	0.00	NTU	
10/28/10	4:05 PM	pH	2	6.92	pH	9.6
10/28/10	4:05 PM	Turbidity	6	0.00	NTU	
10/28/10	4:05 PM	pH	6	7.01	pH	9.9

Notes:

1. pH Test Meter : Ultra Meter 6P Myron L. Co, Serial 602692; Calibration Standard - 7.0 pH
2. Turbidity Meter: Lomotte, Model 2020, SN 1508-5199. Calibration 1.0 NTU and 10.0 NTU
3. Dust Meter:MIE Inc. Thermo Personal Data Model PDR0-1000An serial 6710
4. Location 1 = eastern portion of upstream beach, within 5 feet of shoreline
5. Location 2 = by middle/upstream boundary, within 5 feet of shoreline
6. Location 3 = eastern portion of downstream beach near rock outcropping, within 5 feet of shoreline
7. Location 4 = central portion of downstream beach, within 5 feet of shoreline
8. Location 5 = western end of downstream beach, within 5 feet of shoreline
9. Location 6 = about 100 feet west of Location 5, within 5 feet of shoreline
10. See Figure 5 for monitoring station locations

FIGURES

36310019_01.cdr



Photos taken 5-22-09.

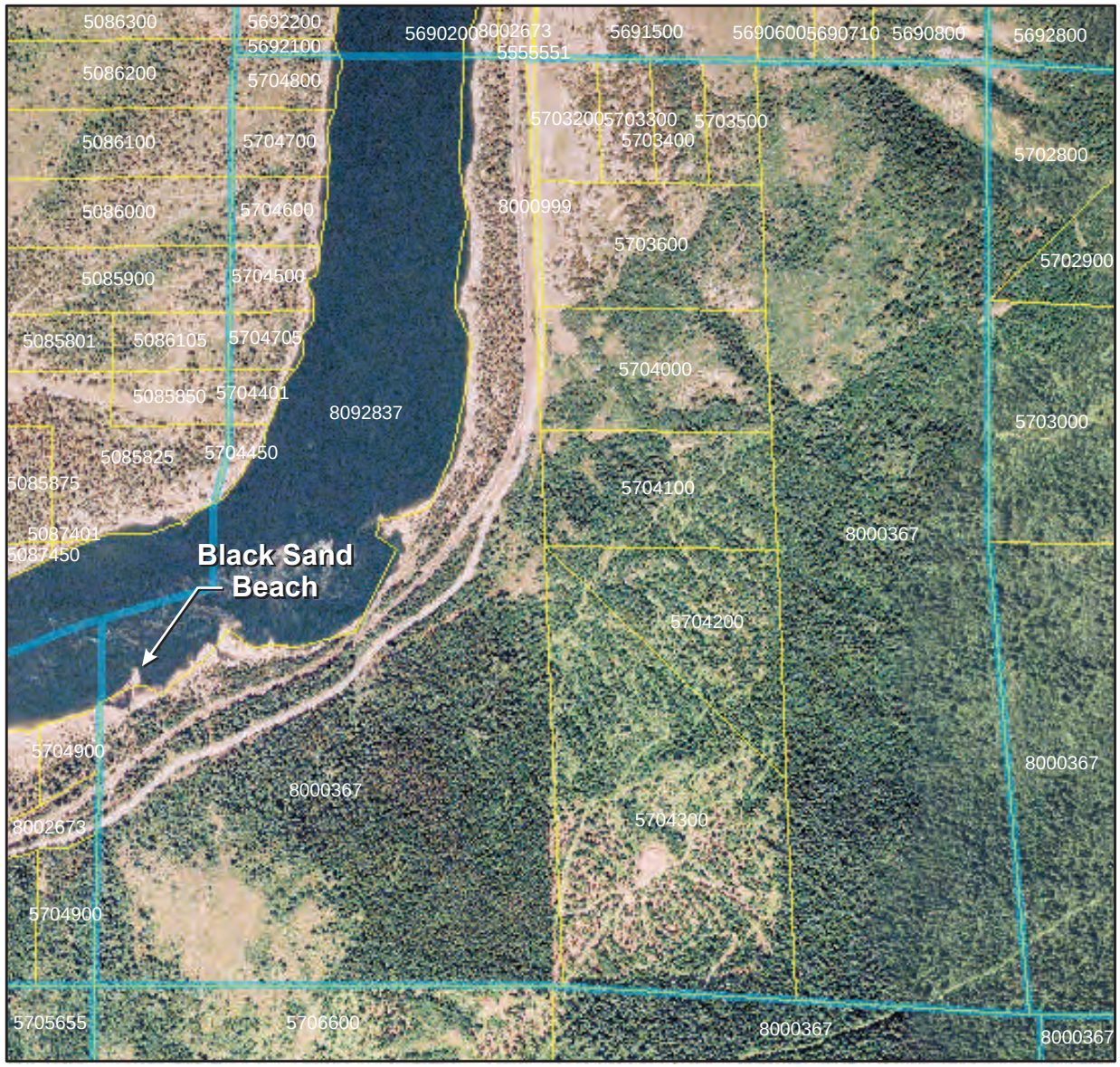
Figure 1

Black Sand Beach Location and Site Photographs (Before Construction)

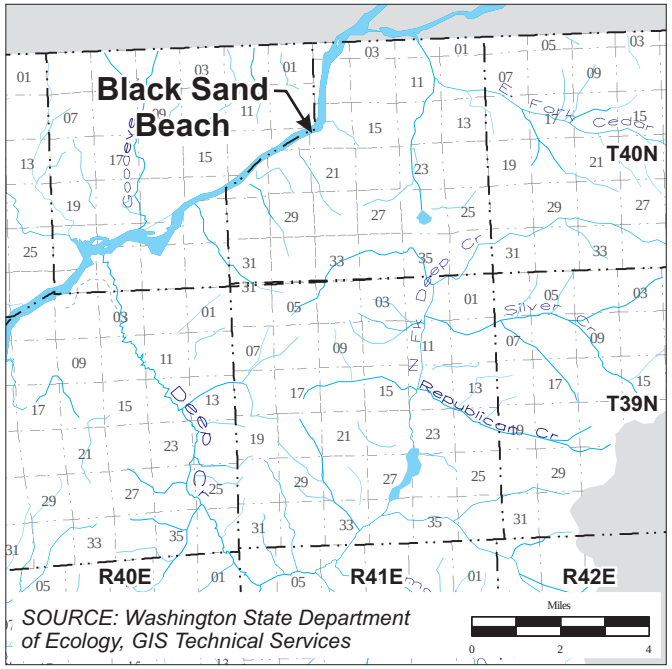
Job No. 36310019

URS

Black Sand Beach
Northport, Washington



SOURCE: Stevens County Assesor's Office



Township and Range

Stevens County Washington

Township 40 N Range 41 E Section (see grid)

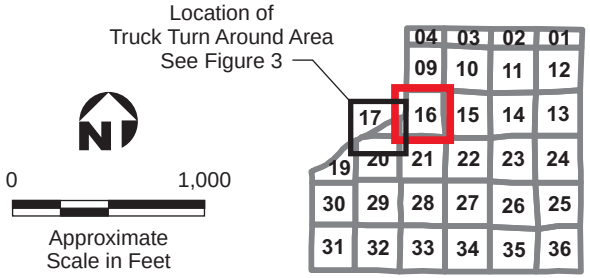


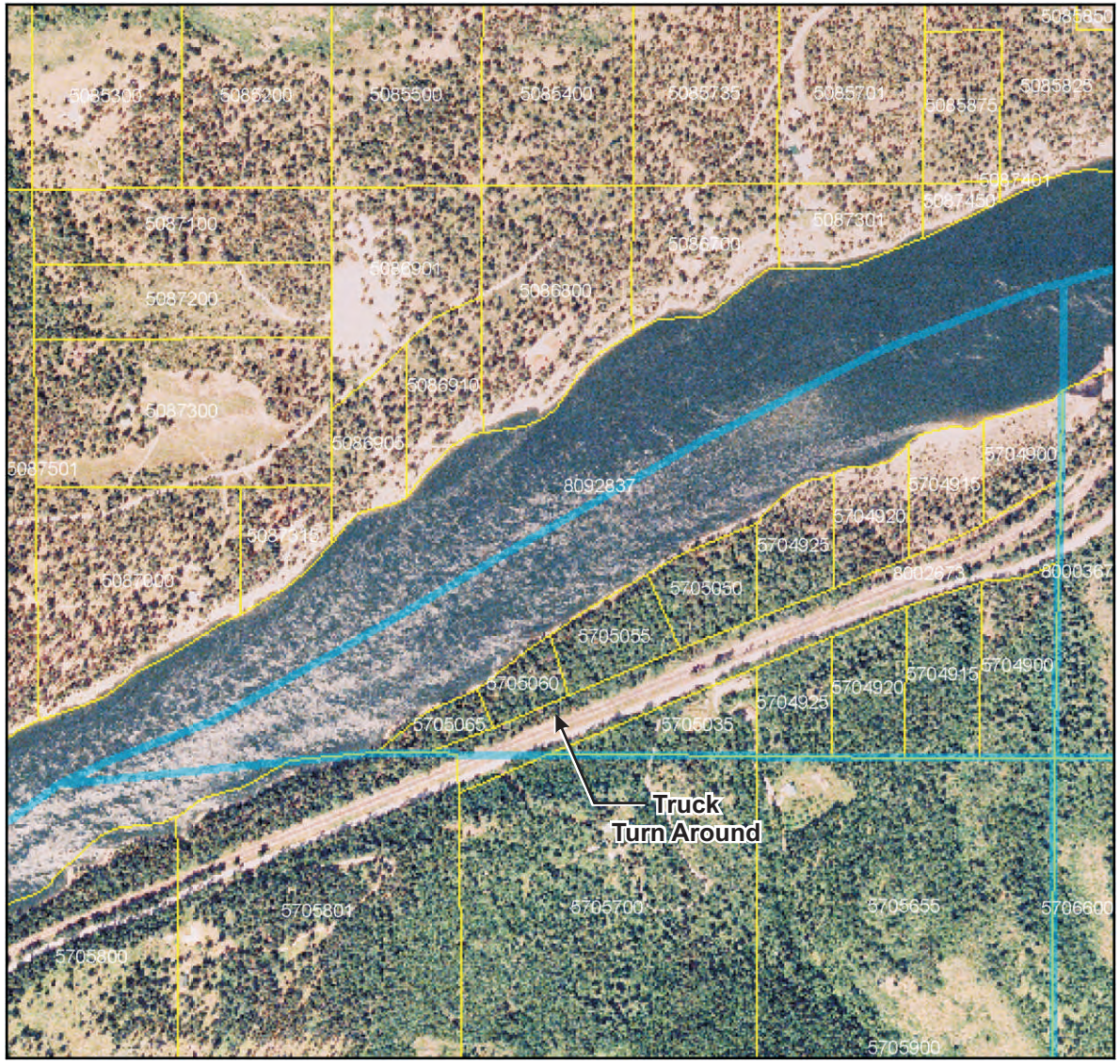
Figure 2

Black Sand Beach Parcel Map

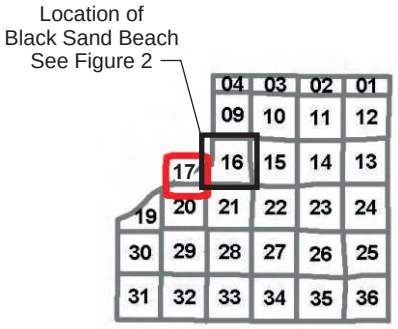
Job No. 36310019

URS

Black Sand Beach
Northport, Washington



SOURCE: Stevens County Assesor's Office



Stevens County Washington

Township 40 N Range 41 E Section (see grid)

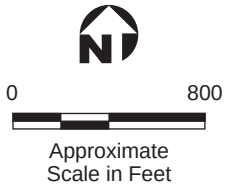


Figure 3

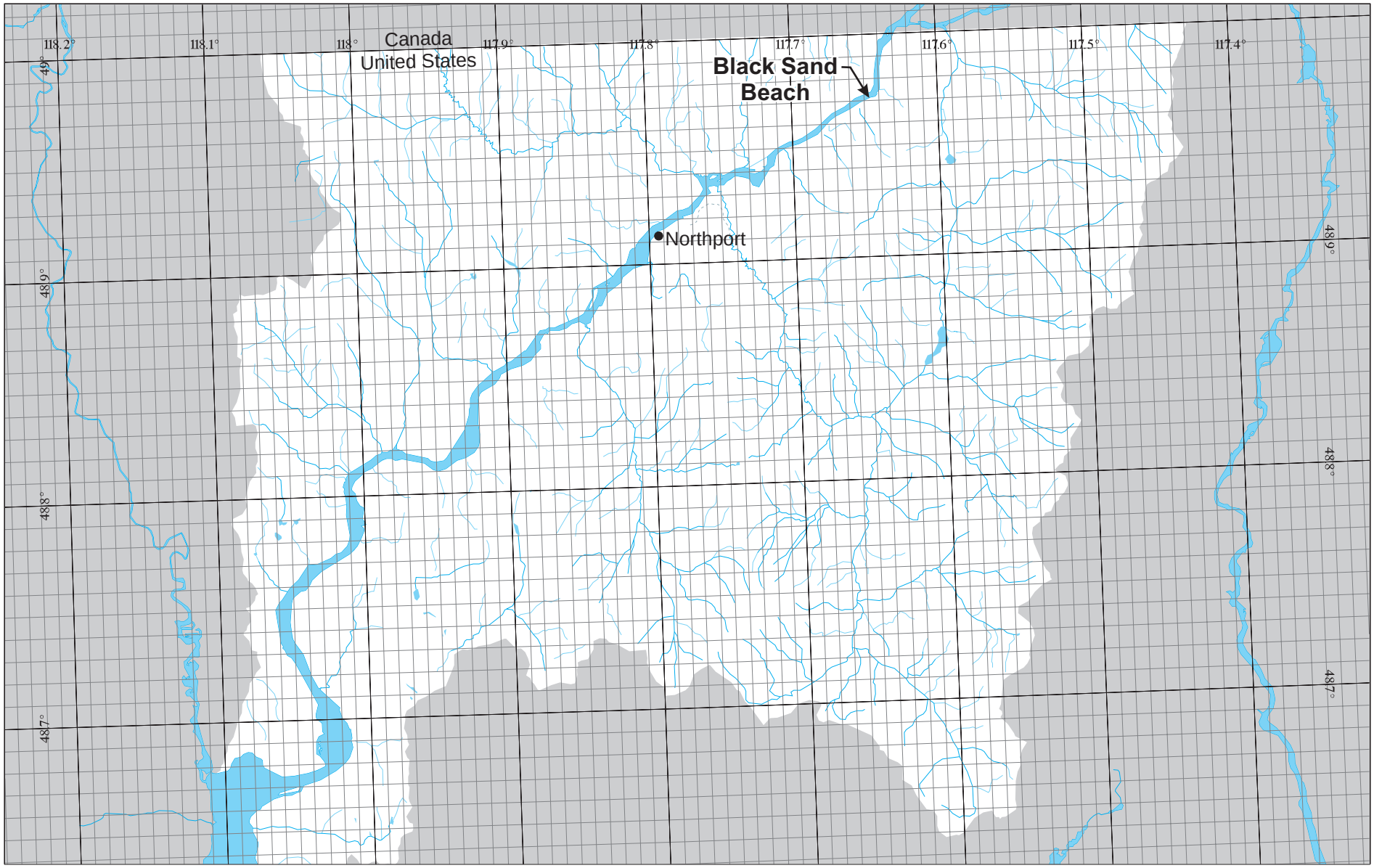
Truck Turn Around Parcel Map

Job No. 36310019

URS

Black Sand Beach
Northport, Washington

36310019_03.cdr



SOURCE: Washington State Department of Ecology, GIS Technical Services

Figure 4

Project Site Latitude and Longitude

Job No. 36310019

URS

Black Sand Beach
Northport, Washington

Legend

Estimated Limits of Slag Removal

Test Pit

Turbidity Sample Location

Previous Sampling Location by Ecology (Sampling locations were estimated based on information provided by Ecology)

Source:
Basemap provided by Survey Solutions, Spokane Washington.

Note:
1. Approximate edge of water at the time of construction.

0 20 40
SCALE IN FEET

Columbia River

Columbia River

Rock Outcropping Area
8,280 SF
Estimated Excavation Volume
5 CY
Estimated Fill Volume
0

27'±

110'±

#1

#2

#3

#4

#5

#6

Edge of Water

North 3

North 2

North 1

TP-2

Upstream Beach Area
9,850 SF
Estimated Excavation Volume
1,000 CY
Estimated Fill Volume
1,250 CY

215'±

Edge of Water 1299± (See Note 1)

Downstream Beach Area
18,500 SF
Estimated Excavation Volume
5,100 CY
Estimated Fill Volume
5,150 CY

TP-1

South 1

Rock Outcrop

Middle Beach Area
5,940 SF
Estimated Excavation Volume
395 CY
Estimated Fill Volume
514 CY

Slag Removal by Vacuum Truck in Cobble Area

South 2

South 3

Tree Line

Property Line

Parcel Number 5704900 S17-T40N-R41E-WM

Parcel Number 8000367 S16-T40N-R41E-WM

Access Road

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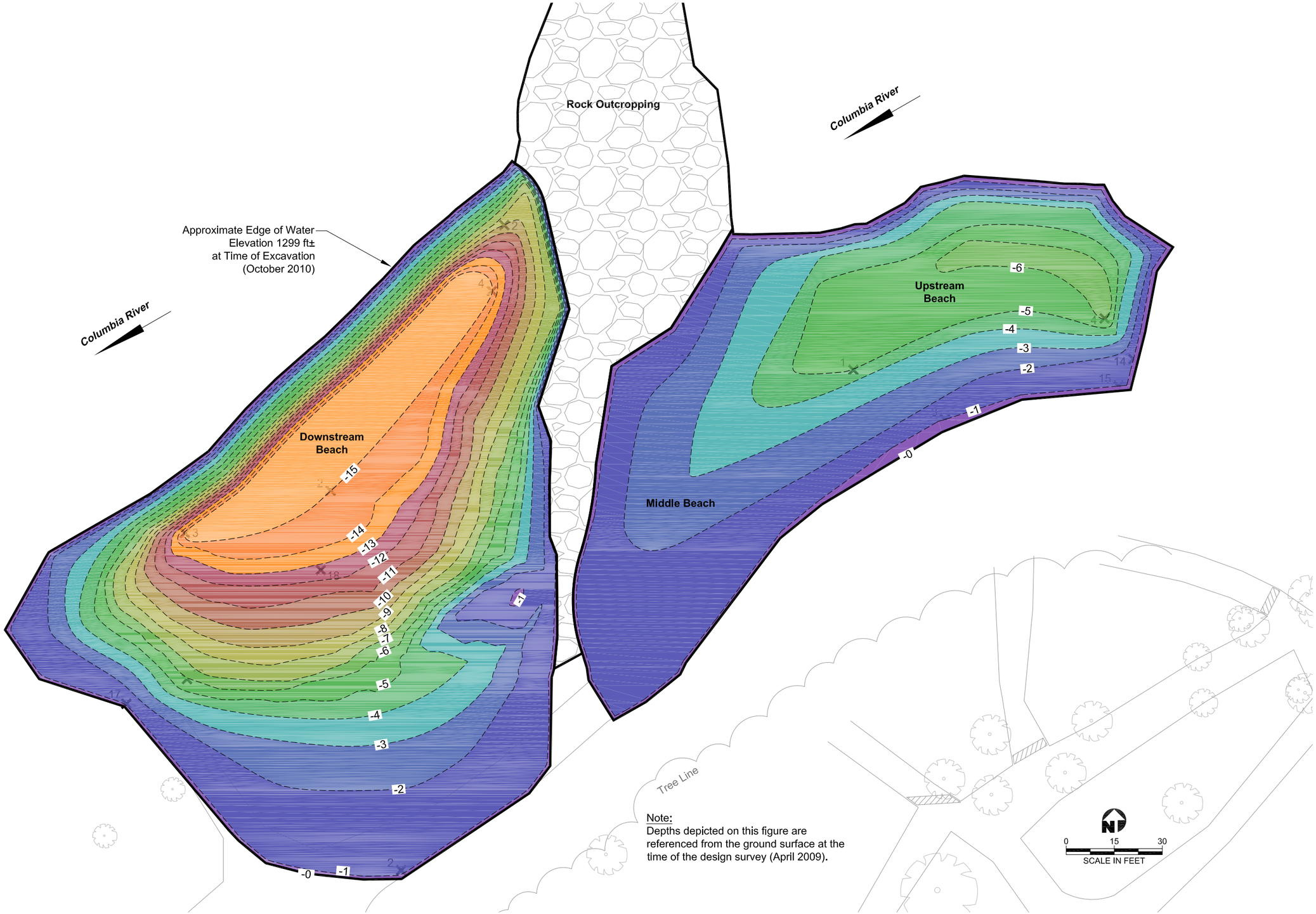
URS

Figure 5

Black Sand Beach Subareas and Area of Excavation

Black Sand Beach
Northport, Washington



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URS

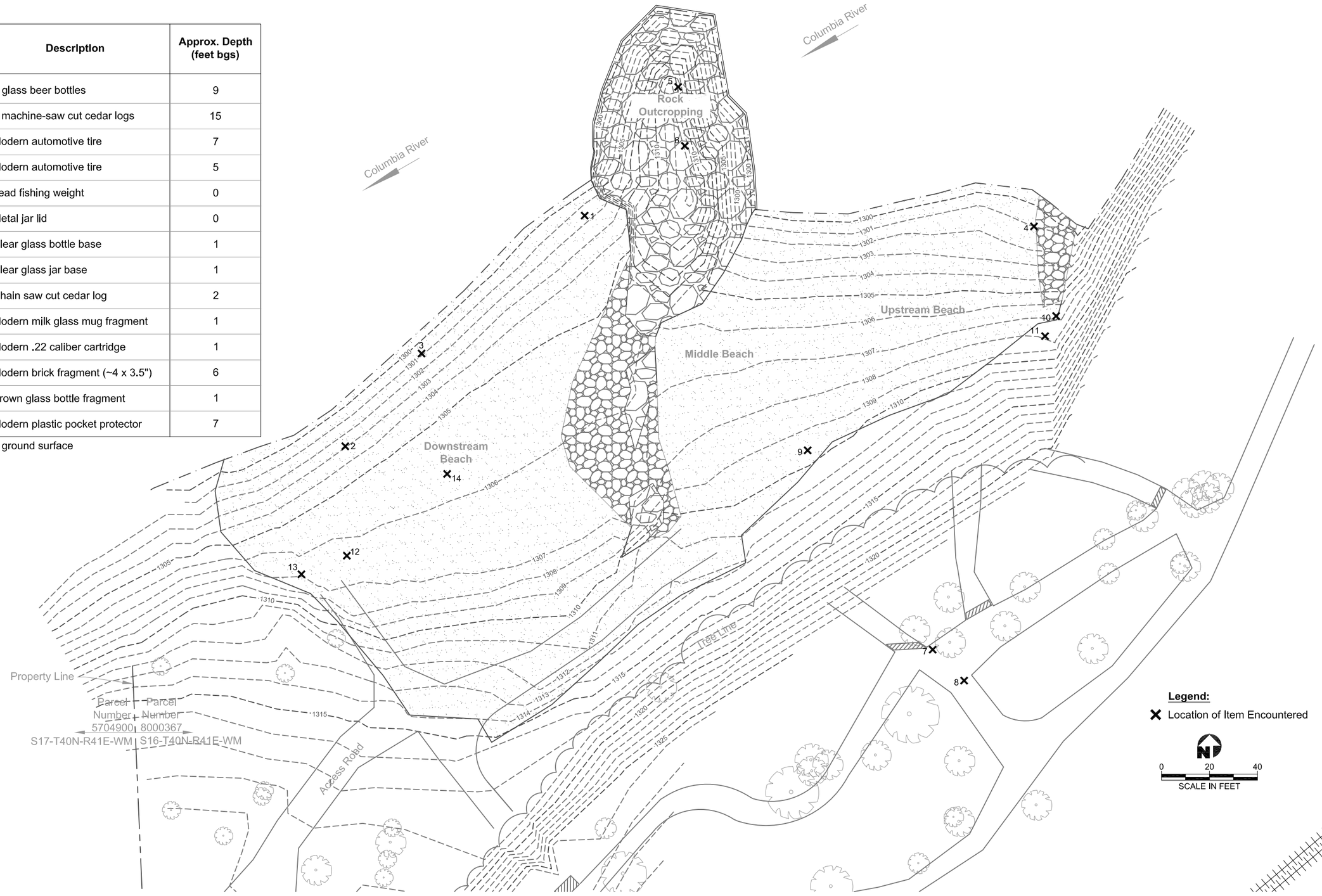
Figure 6

Estimated Excavation Depth Contours

Black Sand Beach
Northport, Washington

Item	Description	Approx. Depth (feet bgs)
1	4 glass beer bottles	9
2	3 machine-saw cut cedar logs	15
3	Modern automotive tire	7
4	Modern automotive tire	5
5	Lead fishing weight	0
6	Metal jar lid	0
7	Clear glass bottle base	1
8	Clear glass jar base	1
9	Chain saw cut cedar log	2
10	Modern milk glass mug fragment	1
11	Modern .22 caliber cartridge	1
12	Modern brick fragment (~4 x 3.5")	6
13	Brown glass bottle fragment	1
14	Modern plastic pocket protector	7

bgs = below ground surface



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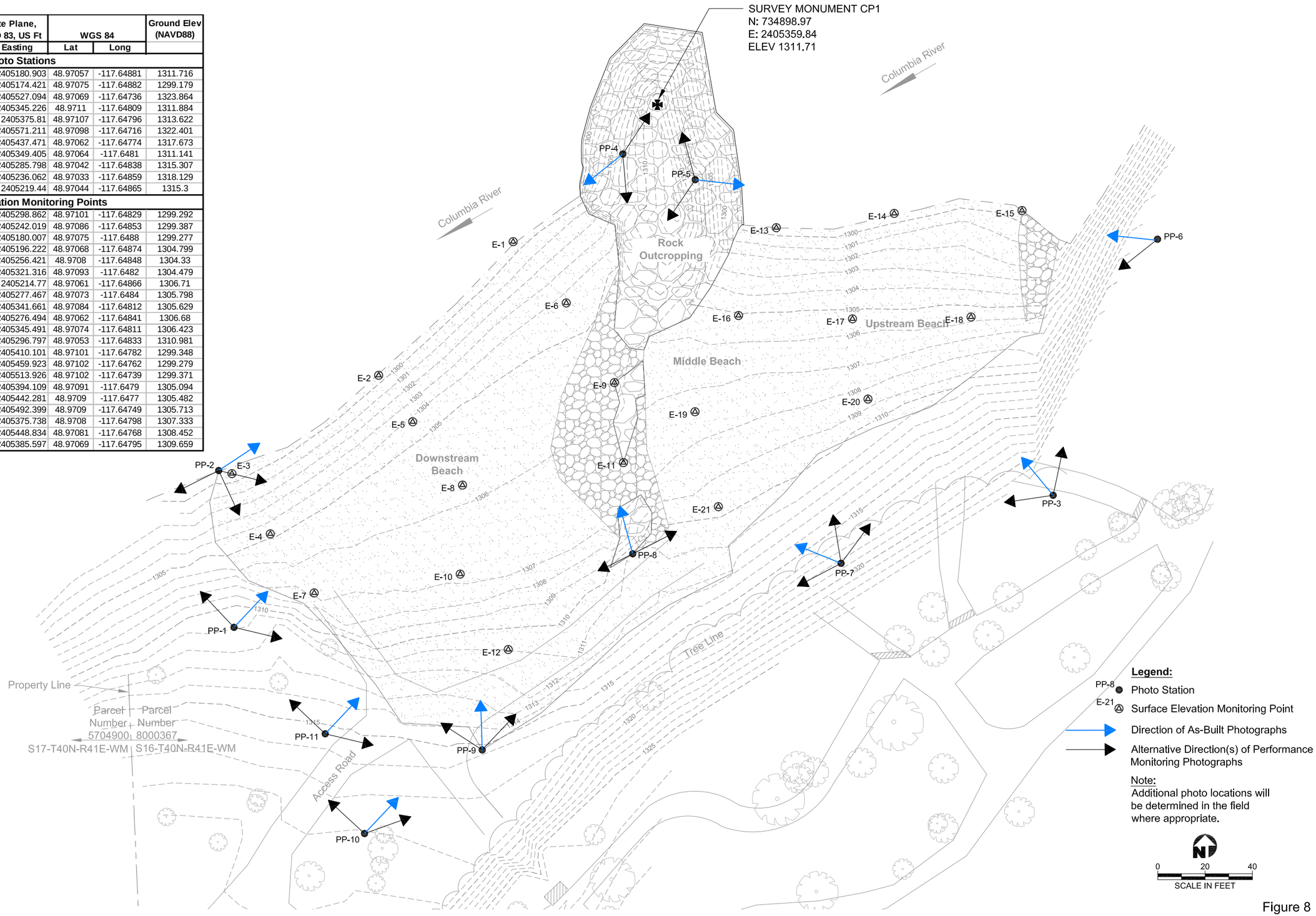
URS

Figure 7

Map of Buried Non-Artifact Items Encountered During Excavation Activities

Black Sand Beach
Northport, Washington

Location ID	Wasington State Plane, North Zone, NAD 83, US Ft		WGS 84		Ground Elev (NAVD88)
	Northing	Easting	Lat	Long	
Photo Stations					
PP-1	734678.06	2405180.903	48.97057	-117.64881	1311.716
PP-2	734744.326	2405174.421	48.97075	-117.64882	1299.179
PP-3	734733.879	2405527.094	48.97069	-117.64736	1323.864
PP-4	734878.136	2405345.226	48.9711	-117.64809	1311.884
PP-5	734867.276	2405375.81	48.97107	-117.64796	1313.622
PP-6	734842.116	2405571.211	48.97098	-117.64716	1322.401
PP-7	734705.11	2405437.471	48.97062	-117.64774	1317.673
PP-8	734709.147	2405349.405	48.97064	-117.6481	1311.141
PP-9	734626.247	2405285.798	48.97042	-117.64838	1315.307
PP-10	734590.893	2405236.062	48.97033	-117.64859	1318.129
PP-11	734633.055	2405219.44	48.97044	-117.64865	1315.3
Surface Elevation Monitoring Points					
E-1	734841.076	2405298.862	48.97101	-117.64829	1299.292
E-2	734784.592	2405242.019	48.97086	-117.64853	1299.387
E-3	734743.033	2405180.007	48.97075	-117.6488	1299.277
E-4	734717.573	2405196.222	48.97068	-117.64874	1304.799
E-5	734764.95	2405256.421	48.9708	-117.64848	1304.33
E-6	734815.17	2405321.316	48.97093	-117.6482	1304.479
E-7	734692.594	2405214.77	48.97061	-117.64866	1306.71
E-8	734738.178	2405277.467	48.97073	-117.6484	1305.798
E-9	734781.507	2405341.661	48.97084	-117.64812	1305.629
E-10	734700.576	2405276.494	48.97062	-117.64841	1306.68
E-11	734747.683	2405345.491	48.97074	-117.64811	1306.423
E-12	734668.683	2405296.797	48.97053	-117.64833	1310.981
E-13	734846.991	2405410.101	48.97101	-117.64782	1299.348
E-14	734853.02	2405459.923	48.97102	-117.64762	1299.279
E-15	734854.195	2405513.926	48.97102	-117.64739	1299.371
E-16	734809.862	2405394.109	48.97091	-117.6479	1305.094
E-17	734808.467	2405442.281	48.9709	-117.6477	1305.482
E-18	734809.245	2405492.399	48.9709	-117.64749	1305.713
E-19	734769.189	2405375.738	48.9708	-117.64798	1307.333
E-20	734774.538	2405448.834	48.97081	-117.64768	1308.452
E-21	734729.067	2405385.597	48.97069	-117.64795	1309.659



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URS

Figure 8

Performance Monitoring Locations

Black Sand Beach
Northport, Washington

APPENDIX A
PERMITS

ECOLOGY
PERMITS AND APPROVALS

WASHINGTON STATE DEPARTMENT OF ECOLOGY

July 28, 2010

Notice of Final Determination
Removal of slag-impacted sediments from an area commonly referred to as Black Sand Beach
SEPA File No. 2010-0040

The Department of Ecology issued a Determination of NonSignficance (DNS) for this proposal on January 4, 2010 under the State Environmental Policy Act (SEPA) and WAC 197-11-340(2).

This threshold determination is hereby **Retained.**

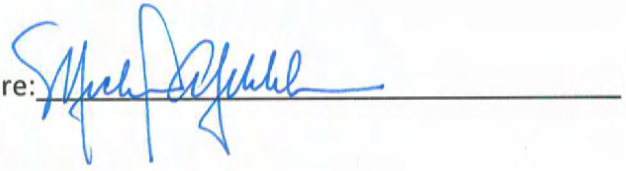
Changes were made to the proposal in response to comments received through internal and external review. Changes were made to technical aspects of the design and proposed work approaches that will contribute to the overall effectiveness of the proposal in meeting environmental goals. No changes to the analysis of environmental impacts are expected to result from the changes, however, Ecology staff will continue to work closely with the project proponent, other agencies and the public to ensure the adequacy of the DNS is maintained as the project moves forward.

Ecology has prepared a summary of comments and responses that is available upon request.

Responsible Official:
Michael A. Hibbler

Position/Title:
Toxics Clean-up Section Manager **Phone:** (509) 329-3568

Address:
Washington State Department of Ecology
Toxics Cleanup Program
4601 North Monroe
Spokane, WA 99205-1295

Date: July 28, 2010 Signature: 

There is no agency SEPA appeal

From: "Gruenenfelder,Charles (ECY)" <CHGR461@ECY.WA.GOV>
To: <marko.adzic@teck.com>
cc: <Paul_McCullough@URSCorp.com>, <dave.godlewski@teck.com>, <David_Enos@URSCorp.com>, "Hibbler,Michael A. (ECY)" <MHIB461@ECY.WA.GOV>, "Roland,John L. (ECY)" <JROL461@ECY.WA.GOV>, "Schmidt,Jeremy (ECY)" <JESC461@ECY.WA.GOV>

Date: Friday, September 17, 2010 04:35PM
Subject: Black Sand Beach: Ecology Approval to Implement Phase 2 Construction Activities

Marko,

In accordance with the existing agreement between the Department of Ecology and Teck American Incorporated regarding performance of a voluntary independent interim action at the Black Sand Beach, Ecology approval is required to implement the Phase 2 construction activities. This message transmits Ecology's approval to proceed with construction activities (Phase 2) at the Black Sand Beach. Our approval is based on the following considerations and understanding:

Receipt, on August 30, 2010, of one original and six hard copies of the ***Final Work Plan for the Black Sand Beach Project, Stevens County, Washington*** .

Receipt, on September 16, of a final ***Truck Haul Plan*** for Black Sand Beach Project, reviewed and approved by Stevens County.

Receipt, on September 9, 2010 of laboratory analysis results (metals and asbestos) for the fill sand samples from Colville Valley Concrete

Receipt, on September 15, 2010, of documentation from Dr. Robert Whitlam/DAHP – SHPO acknowledging his concurrence with the ACOE's determination of No Adverse Effect, and his concurrence with the stipulation for professional archaeological monitoring during the construction phase of work.

Confirmation from you that all necessary components of the JARPA process, including the cultural resource consultation activities to satisfy the Section 106 requirements, have been effectively completed (with the exception noted below).

We understand that you have recently talked with Mr. Randy Abrahamson, THPO for the Spokane Tribe, and Mr. Abrahamson has no outstanding objections or concerns associated with the findings from the professional archaeological survey report prepared by URS on behalf of Teck, or the Corps determination of No Adverse Effect. It is our understanding, in issuing this notice to proceed, that the Spokane Tribe will be submitting formal documentation to the ACOE on or before September 21, 2010 indicating their concurrence that the Section 106 consultation requirements have been met.

We recognize the efforts by Teck and URS to effectively complete the Phase 1-related tasks and activities, and look forward to the successful execution of the forthcoming Phase 2 construction

work at the Black Sand Beach in the weeks to come.

Please contact me if you have any questions regarding this transmittal.

Chuck Gruenenfelder, L.G.,L.Hg.
Hydrogeologist
Toxics Cleanup Program
WA State Department of Ecology
(509)329-3439

From: "Ryf,Jeremy (ECY)" <JRYF461@ECY.WA.GOV>
To: <Paul_McCullough@URSCORP.com>
cc: "Gruenenfelder,Charles (ECY)" <CHGR461@ECY.WA.GOV>

Date: Monday, July 26, 2010 12:57PM
Subject:
History: This message has been forwarded.

Paul,

Ecology has received and approved the Erosivity Waiver Certification for the Black Sand Beach Project. Please be aware you will not be receiving an approved letter for Erosivity Waiver Certification.

Please contact me if have any questions.

Stormwater Inspector

Water Quality Program

Department of Ecology - Eastern Region

4601 N Monroe

Spokane, Washington 99205-1295

(509) 329-3610

Fax (509)329-3570

jryf461@ecy.wa.gov

http://www.ecy.wa.gov/programs/wq/stormwater/index.html

From: "Gruenenfelder,Charles (ECY)" <CHGR461@ECY.WA.GOV>
To: <Paul_McCullough@URSCorp.com>
cc: <marko.adzic@teck.com>, <david_enos@urscorp.com>, "Hibbler,Michael A. (ECY)" <MHIB461@ECY.WA.GOV>, "Roland,John L. (ECY)" <JROL461@ECY.WA.GOV>, "Schmidt,Jeremy (ECY)" <JESC461@ECY.WA.GOV>

Date: Thursday, September 09, 2010 06:25PM
Subject: RE: BSB - Analytical Results for Replacement Sand Material - Ecology Approval

Paul-

Thank you for your submittal of the laboratory analysis results for the fill sand samples from Colville Valley Concrete. The laboratory testing included analysis of 10 samples for a suite of 13 metals and analyses of 2 samples for asbestos-related minerals. I've looked over the analytical results. Given the low concentrations of metals in these samples, and the absence of any detectable asbestos-related minerals, Ecology approves the use of this fill material for the beach replacement work at the Black Sand Beach. We concur that no additional analysis is required for the coarser sized (gravel and cobble) fill materials, given that these materials will be obtained from the same fill source/pit deposit.

Please notify us of if there are any changes in the current plans to exclusively use the fill material from the Colville Valley Concrete pit for the Black Sand Beach replacement work.

Sincerely,

Chuck Gruenenfelder, L.G.,L.Hg.
Hydrogeologist
Toxics Cleanup Program
WA State Department of Ecology
(509)329-3439

From: Paul_McCullough@URSCorp.com [mailto:Paul_McCullough@URSCorp.com]
Sent: Thursday, September 09, 2010 5:21 PM
To: Gruenenfelder, Charles (ECY)
Cc: marko.adzic@teck.com; david_enos@urscorp.com

Subject: BSB - Analytical Results for Replacement Sand Material

Chuck,

Attached for your review is a copy of the analytical results and data validation memo for the planned replacement sand for the Black Sand Beach project. As indicated in the attachments, a total of 10 samples of the replacement fill sand from Colville Valley Concrete were analyzed for various metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc) using EPA methods 6010C (non-mercury metals) and 7471 (mercury) . Additionally 2 samples were analyzed for asbestos using California Air Resources Board (CARB) Method 435, as per the Work Plan. Please note that the number of samples is sufficient from up to 2000 cubic yards of replacement fill sand per the Work Plan. Per the Work Plan and previous discussions, samples will not be analyzed for the gravel and cobble materials due to large partical sizes. However, these large sized fill materials will be obtained from same fill source as the sand and therefore should have similar constituents with respect to metals and asbestos. Based on the analytical results, URS believes that the fill material from Colville Valley Concrete is suitable for the project. Please advise if Ecology concurs and if the fill material from Colville Valley Concrete can be delivered to the site as part of upcoming Phase 2 construction work.

If you have any questions, please do not hesitate to contact me.

Regards, Paul

(See attached file: BSBDataValidationMemoFillMaterial.pdf)(See attached file: STG0054_asbestos.pdf)(See attached file: STG0055 FINAL UDS_UDS Level 2 Report 07-21-2010 1258.pdf)

Paul T. McCullough, PE
Senior Project Engineer
URS Corporation
1501 4th Avenue, Suite 1400
Seattle, WA 98101-1616
206-438-2231 (direct)
206-438-2700 (main)
425-301-4875 (cell)
866-495-5288 (fax)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

September 14, 2010

Mr. Skip Simpson
Environcon Inc.
3350 NW Yeon Ave
Suite 240
Portland, OR 97210

Dear Mr. Simpson:

Re: **Request for Short Term Water Use (WRIA 61 – Stevens County)**

This is your authorization for short-term water use for the purposes of dust control located in the W½ of Section 16, T. 40 N., R. 41 E.W.M. Stevens County.

You are authorized to divert 0.22 cubic feet per second (100 gallons per minute) from the Columbia River for the purposes of dust control on the project. A maximum total of 1.5 acre-feet of water is authorized under this short-term authorization.

The authorized point of diversion will be located within the W½ of Section 16, T.40 N., R. 41 E.W.M. (N. 48.98, W.117.65). The water will be diverted to a 3500 gallon tanker truck for application of water as needed for the project.

The authorized place of use is within the W½ of Section 16, T. 40 N., R. 41 E.W.M.., all within Stevens County, Washington.

The period of use will be from September 15, 2010 to November 17, 2010.

A copy of this permit shall be maintained at the site during periods of water diversion and use.

An approved measuring device shall be installed and maintained for the source identified herein in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Maintaining a record of time and date of the filling and the number of times the water trucks are filled will be considered adequate for the purposes of measuring the water use.

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

This permit shall be issued subject to Washington State Department of Fish and Wildlife screening criteria as outlined in a Hydraulic Project Approval. Please contact the Washington State Department of Fish and Wildlife, 600 Capitol Way North, Olympia, Washington 98501-1091, Attention: Habitat Management Division, Phone (360) 902-2534, to obtain specific requirements for your project.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The water source and/or water transmission facilities are not wholly located upon the land owned by the applicant. Issuance of a permit by this Department for appropriation of the waters in question does not convey a right of access to, or other right to use, land which the applicant does not legally possess. Obtainment of such right is a private matter between the applicant and the owner of that land.

This authorization to make use of public waters of the state is subject to existing rights. If any water right holders are adversely affected, the pumping from this point of diversion shall be terminated immediately.

Nothing in this authorization shall be construed as satisfying other applicable federal, state, or local statues, ordinances or regulations.

Violation of any of the provisions of this short-term authorization will result in its immediate termination, issuance of administrative orders to Cease and Desist, and may also subject the violator to civil penalties.

Representatives from the Department of Ecology may field-verify compliance with the provisions of this authorization.

You have a right to appeal this action to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this document. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of this document:

- File your appeal and a copy of this document with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this document on Ecology in paper form - by mail or in person. (See addresses below.) Email is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 Pollution Control Hearings Board 4224 – 6th Avenue SE Rowe Six, Building 2 Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Please also send a copy of your appeal to:

Mr. Keith L. Stoffel
Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205-1295

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov . To find laws and agency rules visit the Washington State Legislature Website: http://www1.leg.wa.gov/CodeReviser .

DATED this 15th day of September, 2010, at Spokane, Washington.

Keith L. Stoffel
Section Manager
Water Resources Program
Eastern Regional Office

KLS:KB:ka
Enclosures: "Water Measurement Device Installation and Operation Requirements."

cc: Chuck Gruenenfelder

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

September 29, 2010

Mr. Marko Adzic
Teck American Corporation
501 North Riverpoint Boulevard, Suite 300
Spokane, WA 99202

Re: Water Quality Certification Letter of Verification (LOV) for Nationwide Permit (NWP) # 38 - Corps Permit # NWS-2010-659 – Teck American Corporation

Dear Mr. Adzic:

The Department of Ecology (Ecology) has received the U.S. Army Corps of Engineers' letter dated September 23, 2010, authorizing your proposal to engage in the cleanup of hazardous material at Black Sand Beach on the Columbia River near Northport, Stevens County, Washington. The work will include the removal of 5,000 cubic yards of slag contaminated sediment and replacing it with 5,000 cubic yards of clean gravel, cobbles and sand.

Upon review, Ecology has determined that this project meets the requirements for Washington State 401 Water Quality Certification under NWP # 38. Therefore, an Individual 401 permit from Ecology will not be required for this project and you may proceed as directed by the Corps.

Please note this Letter of Verification does not exempt, and is provisional upon compliance with other statutes and codes administered by federal, state and local agencies.

If you have any questions, please contact me at (509) 329-3584.

Sincerely,

Michael W. Maher

Michael W. Maher
Ecology Regional Federal Permit Coordinator

MWM:ljs

cc: Chuck Gruenenfelder, ERO Toxics Cleanup Program
Federal Permit Coordinator, Ecology HQ

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

August 19, 2010

I certify that I mailed a copy of this document to the persons and addresses listed thereon, postage prepaid, in a receptacle for United States mail in Spokane, Washington on August 19, 2010

CERTIFIED MAIL (7010 0290 0003 5678 7553)

Tech American Corporation
501 N. Riverpoint Boulevard, Suite 300
Spokane, WA 99202

Re: Stevens County Permit No. SMA 2010 – 003 - Approved
Tech American Corporation - Applicant
Shoreline Substantial Development Permit #ER-10-10029-1

Dear Sir:

On August 19, 2010, the Department of Ecology received notice that Stevens County approved your application for a shoreline substantial development permit. That permit authorizes to remove slag impacted sediments from an area along the Northern reach of the Columbia River commonly known as Black Sand Beach. The proposed action will include removal of approximately 5000 cubic yards of slag impacted material along the shoreline and placement of imported backfill material to restore the beach area. The project will include minor road modifications to allow equipment to access the project site.

By law, local governments must review all SDPs for compliance with the following:

- The Shoreline Management Act (Chapter 90.58 RCW)
- Ecology's Substantial Development Permit approval criteria (Chapter 173-27-150- WAC)
- The Stevens County Shoreline Master Program

Local governments, after reviewing SDPs for compliance, are required to submit them to Ecology.

Your approved SDP has been received by Ecology.

What happens next?
Before you begin activities authorized by this permit, the law requires that you wait at least 21 days from the "date of receipt" – the date you receive this letter. Date of receipt is defined in RCW 43.21B.001 as:

1. "Business days" means Monday through Friday exclusive of any state or federal holiday.
2. "Date of Receipt " means:
    a. Five business days after the date of mailing; or
    b. The date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, shall constitute sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

This waiting period allows anyone (including you) who disagrees with any aspect of this permit to appeal the decision to the state Shorelines Hearings Board (SHB). If an appeal is filed you must wait for the conclusion of the appeal before you can begin the activities authorized by this permit.

The SHB will notify you by letter if they receive and appeal. We recommend that you contact them before you begin permit activities to ensure that no appeal has been received. They can be reached at: (360) 459-6327 or http://www.eho.wa.gov.

If **you** want to appeal this decision you can find appeal instructions (Chapter 461-08 WAC) at the SHB website listed above. These instructions are also posted on the website of the Washington State Legislature at: http://apps.leg.wa.gov/wac.

Other federal, state and local permits may be required in addition to this shoreline permit.

If you have any questions about this letter, please contact me at (509) 329-3584.

Sincerely,

Michael W. Maher, Shoreline Specialist
Shorelands and Environmental Assistance Program

MWM:ljs

cc: Erik Johanson, Spokane County Land Services

USACE
NATIONWIDE 38 PERMIT

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Regulatory Branch

September 23, 2010

Mr. Marko Adzic
Teck American Corporation
501 North Riverpoint Boulevard, Suite 300
Spokane, Washington 99202

Reference: NWS-2010-659
Teck American Incorp.

Dear Mr. Adzic:

We have reviewed your application to remove 5,000 cubic yards of slag contaminated sediment and place 5,000 cubic yards of clean gravel, cobbles and sand in the Columbia River near Northport, Stevens County, Washington. Based on the information you provided to us, Nationwide Permit (NWP) 38, Cleanup of Hazardous and Toxic Waste (Federal Register, . March 12, 2007 Vol. 72, No. 47), authorizes your proposal as depicted on the enclosed drawings dated July 16, 2010. In order for this NWP authorization to be valid, you must ensure the work is performed in accordance with the enclosed *Nationwide Permit 38, Terms and Conditions* and the following special conditions:

a. A professional archaeologist must be on-site to monitor for the presence of archaeological resources during all ground disturbing construction activities within the Black Sand Beach Project.

b. A summary report of the findings of the archaeological monitoring must be prepared and submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch within 13 months of permit issuance.

c. If human remains, historic resources, or archaeological resources are encountered during construction, all ground disturbing activities shall cease in the immediate area and the permittee shall immediately (within one business day of discovery) notify the U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch. The permittee shall perform any work required by the Corps in accordance with Section 106 of the National Historic Preservation Act and Corps regulations.

d. All work waterward of the ordinary high water mark of the Columbia River shall be completed in the dry when the elevation of the river is below the elevation of the work.

We are unable to determine whether or not your project requires individual Water Quality Certification (WQC) from the Washington State Department of Ecology (Ecology). Before you may proceed with the work authorized by this NWP, you must contact the following Ecology office regarding these requirements:

Washington State Department of Ecology, Eastern Regional Office, 4601 North Monroe, Suite 202, Spokane, Washington 99205-1295; telephone (509) 329-3584.

If more than 180 days pass without Ecology responding to your individual WQC request, your requirement to obtain an individual WQC becomes waived. You may then proceed to construction.

We have reviewed your project pursuant to the requirements of the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act in regards to Essential Fish Habitat (EFH). We have determined that this project complies with the requirements of the NWP National General Condition regarding ESA and will not adversely affect EFH.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked on March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before March 18, 2012, you will have until March 18, 2013 to complete the activity under the present terms and conditions of this NWP.

Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. Also, you must obtain all State and local permits that apply to this project.

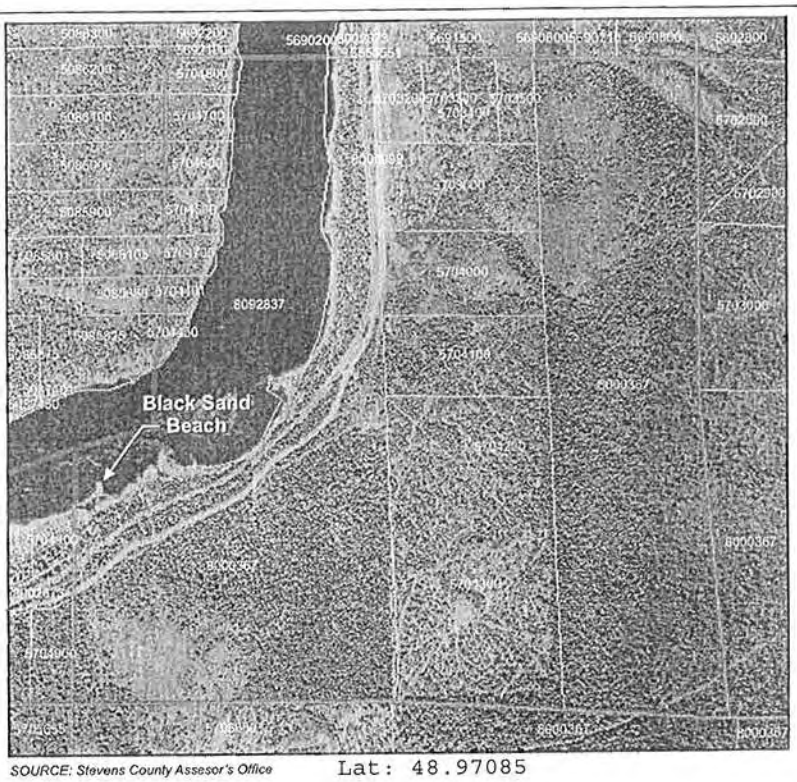
Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit* form. Thank you for your cooperation during the permit process. We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey form. This form and information about our program is available on our website.

A copy of this letter with enclosures will be furnished to Paul McCullough, URS Corporation, 1501 4th Avenue, Suite 1400, Seattle, Washington 98101-1616. If you have any questions about this letter, please contact me at (509) 238-4570 or via email at tim.r.erkel@usace.army.mil.

Sincerely,

Tim Erkel, Biologist
Regulatory Branch

Enclosures



SOURCE: Stevens County Assesor's Office

Lat: 48.97085

Long: 117.64816

Township and Range

Stevens County Washington

Township 40N Range 41E Section (see grid)

NWS-2010-659

Parcel Map

Purpose: Remove granulated slag from Black Sand Beach.

Datum: Horizontal Datum, Washington State Plane, North Zone, Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145568-09-01

Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000367

Proposed: Remove slag from exposed portion of the Black Sand Beach during low-water period and replace with clean imported fill from commercial source.

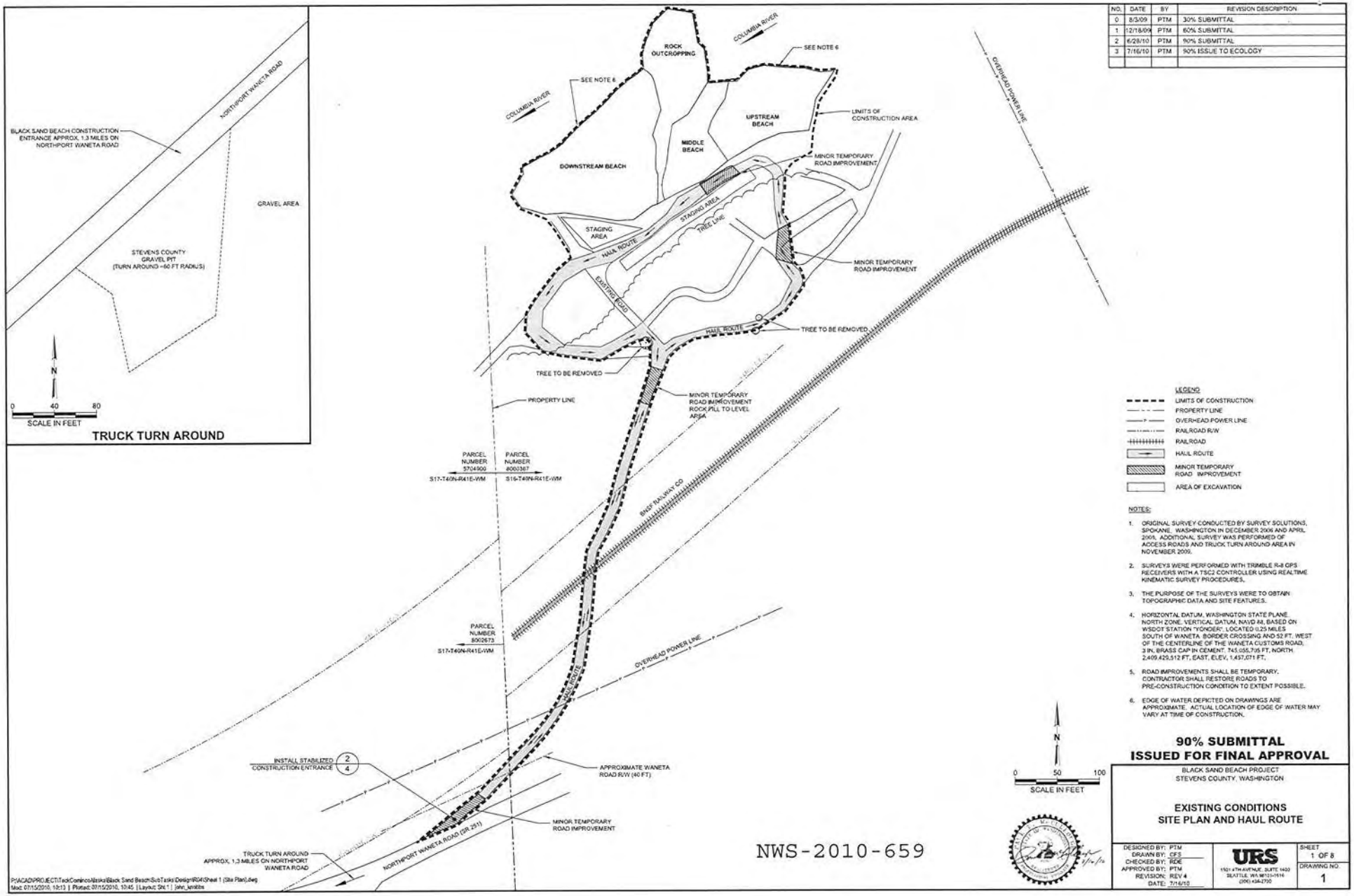
Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA

County: Stevens
State: WA

Sheet: 1 of 7

Date: April 8, 2010

38315019_14.cdr



NO.	DATE	BY	REVISION DESCRIPTION
0	8/3/09	PTM	30% SUBMITTAL
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY

NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2008. ADDITIONAL SURVEY WAS PERFORMED OF ACCESS ROADS AND TRUCK TURN AROUND AREA IN NOVEMBER 2009.
2. SURVEYS WERE PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. THE PURPOSE OF THE SURVEYS WERE TO OBTAIN TOPOGRAPHIC DATA AND SITE FEATURES.
4. HORIZONTAL DATUM, WASHINGTON STATE PLANE NORTH ZONE. VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YGNDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD, 3 IN. BRASS CAP IN CEMENT. 745,055.705 FT. NORTH. 2,409,429.512 FT. EAST. ELEV. 1,457.071 FT.
5. ROAD IMPROVEMENTS SHALL BE TEMPORARY. CONTRACTOR SHALL RESTORE ROADS TO PRE-CONSTRUCTION CONDITION TO EXTENT POSSIBLE.
6. EDGE OF WATER DEPICTED ON DRAWINGS ARE APPROXIMATE. ACTUAL LOCATION OF EDGE OF WATER MAY VARY AT TIME OF CONSTRUCTION.

90% SUBMITTAL
ISSUED FOR FINAL APPROVAL

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXISTING CONDITIONS SITE PLAN AND HAUL ROUTE

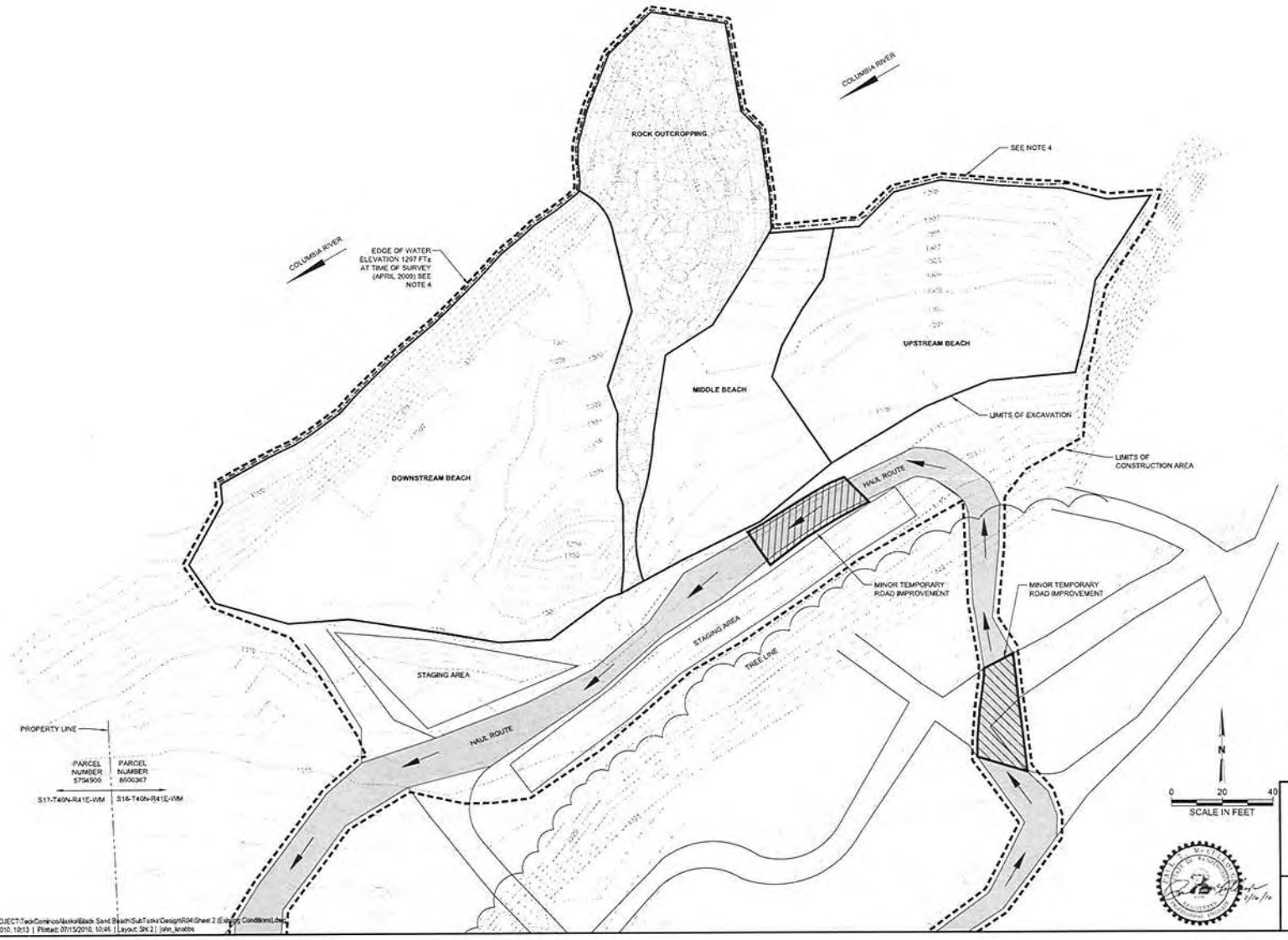
NWS-2010-659

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101-1616
(206) 438-2700

SHEET 1 OF 8
DRAWING NO. 1

NO.	DATE	BY	REVISION DESCRIPTION
0	8/3/09	PTM	30% SUBMITTAL
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- OVERHEAD POWER LINE
- EDGE OF WATER
- HAUL ROUTE
- TEMPORARY MINOR ROAD IMPROVEMENT
- AREA OF EXCAVATION

SURVEYOR'S NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2009.
2. TOPOGRAPHIC SURVEY WAS PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 32 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD, 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.
4. EDGE OF WATER ELEVATION DEPICTED ON DRAWING MAY VARY AT TIME OF CONSTRUCTION.

N

0 20 40
SCALE IN FEET

NWS-2010-659

90% SUBMITTAL
ISSUED FOR FINAL APPROVAL

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXISTING CONDITIONS

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101-1616
(206) 438-2700

SHEET 2 OF 8
DRAWING NO. 2

CONSTRUCTION SEQUENCE

1. OBTAIN OR VERIFY ACCESS PERMIT FROM BNSF FOR PRIVATE RAILROAD CROSSING AND SITE ACCESS PERMISSION FROM SITE ACCESS OWNERS, REFER TO VICINITY MAP ON SHEET 1.
2. CONTRACTOR SHALL PERFORM PRE-CONSTRUCTION SURVEY TO STAKE-OUT BOUNDARIES OF PROJECT WORK AREA AND TO IDENTIFY PROPERTY LINES AND/OR EASEMENTS IN THE VICINITY OF THE PROJECT WORK AREA.
3. PRE-CONSTRUCTION MEETING TO BE HELD WITH THE CLIENT, ENGINEER, CONTRACTOR, ECOLOGY, REPRESENTATIVE ACCESS OWNERS AND ARCHAEOLOGICAL MONITOR.
4. THE CONTRACTOR SHALL VERIFY LOCATION AND CONDITION OF SURVEY STAKES THAT DEMARCATE PROJECT WORK AREA AND PROPERTY LINES. ALL WORK ACTIVITIES (PERSONNEL AND EQUIPMENT) SHALL BE RESTRICTED TO THE BOUNDARIES OF THE DESIGNATED WORK AREA.
5. CONTRACTOR TO INSTALL APPROVED SIGNAGE IN DESIGNATED WORK AREA.
6. CONTRACTOR TO TEMPORARILY IMPROVE UNPAVED ACCESS ROAD FROM NORTHPORT WANETA ROAD TO BLACK SAND BEACH TO ALLOW TRUCK ACCESS TO THE BLACK SAND BEACH.
7. CONTRACTOR TO INSTALL PORTABLE OUTHOUSE, EMERGENCY EYEWASH STATION/FIRST AID KIT AND TENTS (FOR CONSTRUCTION PERSONNEL AND MISCELLANEOUS EQUIPMENT/HAND TOOLS) AS APPROVED BY THE ENGINEER WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION AREA DEPICTED ON THIS DRAWING.
8. TRUCK HAUL ROUTE SHALL USE THE EXISTING ROADS AS INDICATED IN THE APPROVED PLANS.
9. CONTRACTOR SHALL INSTALL SILT BARRIER PRIOR TO COMMENCING EXCAVATION WORK OR IMPORTING BACKFILL MATERIAL TO THE SITE. SEE STORM WATER POLLUTION PREVENTION PLAN FOR TURBIDITY AND PH MONITORING REQUIREMENTS.
10. CONTRACTOR TO INSTALL STRAW WADDLES OR SILT FENCE ALONG TREE LINE BUFFER SHELL, AS NEEDED, TO CONTROL STORMWATER RUNOFF.
11. CONTRACTOR SHALL INSTALL TEMPORARY SOIL STOCKPILE BERM WITH MINIMUM DIMENSIONS OF 4 FEET HIGH AND 10 FEET WIDE BETWEEN SILT BARRIER AND EXCAVATION AREA FOR PROTECTION OF RIVER FROM TURBIDITY POTENTIAL CAUSED BY EXCAVATION
12. CONTRACTOR SHALL OBTAIN APPROVAL FROM ECOLOGY AND ENGINEER PRIOR TO COMMENCING BACKFILL ACTIVITIES.
13. DO NOT REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES UNTIL EXCAVATION AND BACKFILL ARE COMPLETED AND APPROVAL FROM ENGINEER IS OBTAINED.

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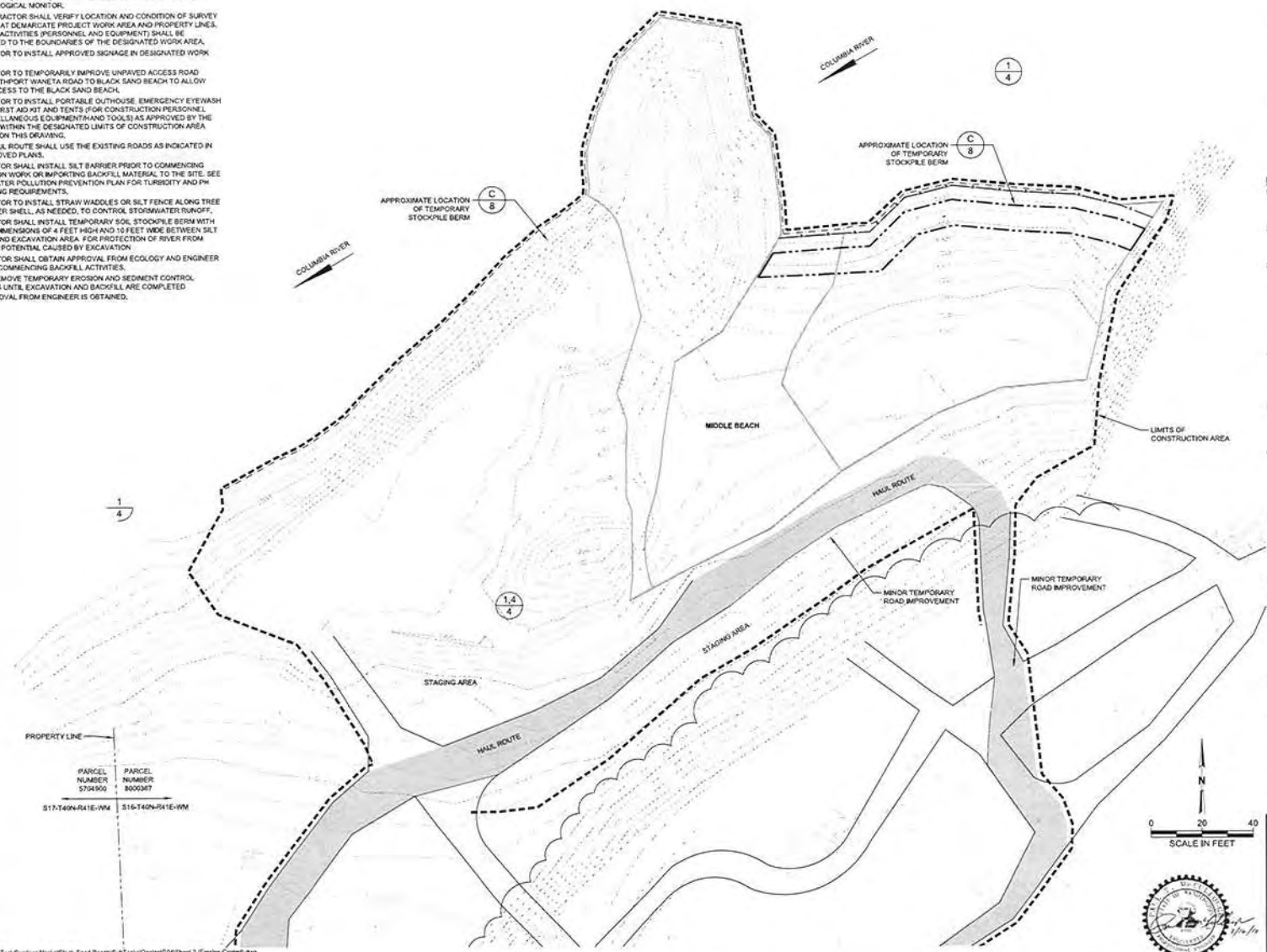
3	7/16/10	PTM	90% ISSUE TO ECOLOGY



LEGEND

- TEMPORARY STOCKPILE
- STRAW WATTLE OR SILT FENCE
- SILT BARRIER
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT
- AREA OF EXCAVATION

EROSION AND SEDIMENTATION CONTROL

1. THE IMPLEMENTATION OF THESE EROSION SEDIMENTATION CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE COLUMBIA RIVER.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOLLOWING INSPECTION AFTER STORM EVENTS OR INSPECTION WHILE NEAR THE RIVER. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED FOR SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.
4. THE ESC FACILITIES SHALL BE INSPECTED IN THE MORNING FOLLOWING AN OVERNIGHT (NON-WORKING HOURS) RAINFALL EVENT BY THE CONTRACTOR AND MAINTAINED AS NECESSARY. IN ADDITION, ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CONSTRUCTION IS COMPLETED.
5. ANY AREAS NEEDING ESC MEASURES AS DETERMINED BY CONTRACTOR OR CERTIFIED EROSION AND SEDIMENT CONTROL LEAD BUT NOT REQUIRING IMMEDIATE ATTENTION, SHALL BE ADDRESSED WITHIN TWO (2) DAYS. WORK TO BE CONDUCTED MONDAY-SATURDAY AND OR SUNDAY WITH APPROVAL OF THE ENGINEER.
6. STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL INSPECT NORTHPORT-WANETA ROAD NEAR CONSTRUCTION ENTRANCE AT LEAST AT THE END OF EACH SHIFT, OR AS OTHERWISE REQUESTED BY THE ENGINEER, AND CLEAN THE ROAD USING SWEEPING OR OTHER APPROVED MEANS IF THERE IS VISUAL EVIDENCE OF DIRT TRACKED ONTO THE ROADWAY.
7. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS OR AS APPROVED BY THE ENGINEER. ENGINEER SHALL COORDINATE WITH ECOLOGY.
8. EROSION/SEDIMENTATION CONTROLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS IN THE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL UNLESS APPROVED OTHERWISE BY ECOLOGY.
9. A COPY OF THE APPROVED EROSION CONTROL PLANS AND STORMWATER POLLUTION PREVENTION PLAN MUST BE ON THE JOBSITE AT ALL TIMES THROUGH OUT THE CONSTRUCTION PERIOD.
10. TEMPORARY EROSION/SEDIMENTATION CONTROLS SHALL BE INSTALLED AND OPERATED PRIOR TO ANY GRADING OR LAND CLEARING ACTIVITIES.
11. ALL CUT AND FILL SLOPES 5:1 (5 FEET HORIZONTAL TO 1 FOOT VERTICAL) OR STEEPER THAT WILL BE LEFT EXPOSED FOR MORE THAN 7 DAYS, SHALL BE PROTECTED BY JUTE MATTING, PLASTIC SHEETING, OR OTHER APPROVED STABILIZATION METHODS. PROVIDE ADEQUATE OFFSITE RUNOFF CONTROL BY INSTALLING SILT FENCING OR STRAW WADDLES ALONG TREE LINE BUFFER ZONE, AS NEEDED.
12. OFF-SITE STREETS MUST BE CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET, THE STREET SHALL BE CLEANED BY THE CONTRACTOR. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION VEHICLE ENTRANCES AND SHALL BE CLEANED OF MUD PRIOR TO EXITING ONTO THE STREET.
13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, BRUSH OR ANY OTHER DEPOSITS REMAIN. MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.

NWS-2010-659

90% SUBMITTAL

ISSUED FOR FINAL APPROVAL

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

URS
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(206) 438-2700

SHEET 3 OF 8
DRAWING NO 3

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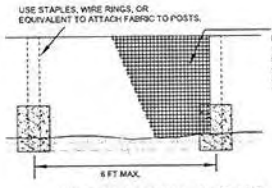
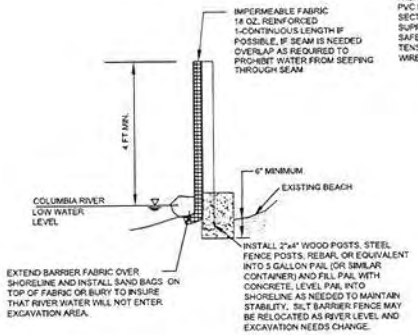


NOTE: SILT BARRIER SHALL BE INSTALLED ALONG SHORELINE CONTOUR WHENEVER POSSIBLE

ELEVATION



SECTION

TYPICAL INSTALLATION

TO INSTALL THIS BEST MANAGEMENT PRACTICE (BMP), INSTALL 2" x 4" WOOD POSTS, STEEL FENCE POSTS (RE-BAR OF SIMILAR SIZE) ON 6 FT CENTERS MAXIMUM. THE SILT BARRIER SHALL PROTRUDE 4 FT ABOVE THE RIVER WATER LEVEL.

UNROLL THE SILT BARRIER AND FASTEN TO STAKES WITH TIES ATTACHED TO STAKES, LEAVING ENOUGH FABRIC OVER PAIL TO ENABLE PLACEMENT OF SAND BAGS OR SIMILAR WEIGHT OVER FABRIC ALONG THE SIDE OF THE RIVER (HEMMED EDGE IS TOP). ONCE ENTIRE RUN IS IN PLACE AND DESIRED PATH IS IN PLACE THEN USE SAND BAGS OR SIMILAR TO CREATE A BOTTOM SEAL.

SPECIFICATION -

FABRIC SHALL CONSIST OF 18 OZ REINFORCED IMPERMEABLE PVC FABRIC - STANDARD LENGTH IS 100 FT (1500#/PALLET) - SECTION AND STAKE CONNECTIONS ARE NYLON TIES WHICH ARE SUPPLIED 50 EACH/100 FT ROLL - SIZE IS 48"- 60" WIDE - COLOR: SAFETY YELLOW - LOAD CARRYING COMPONENTS ARE 350 LBS TENSILE FABRIC AND STAKES - ALTERNATE FASTENERS ARE WIRE, HOG RINGS, STAPLES OR SIMILAR.

TEMPORARY SILT BARRIER INSTALLATION DETAIL 1/3

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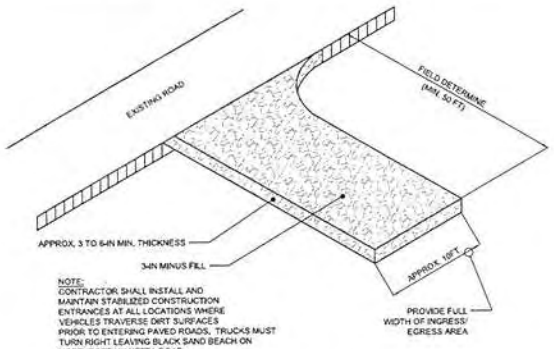
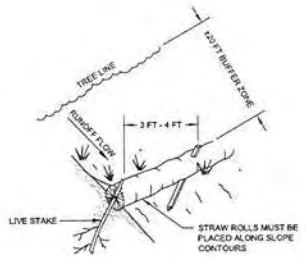
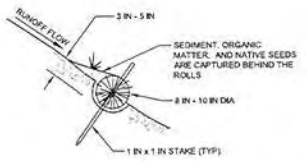


NOTE:
CONTRACTOR SHALL INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE VEHICLES TRAVERSE DIRT SURFACES PRIOR TO ENTERING PAVED ROADS. TRUCKS MUST TURN RIGHT LEAVING BLACK SAND BEACH ON NORTHPORT-WANETTA ROAD

STABILIZED TEMPORARY CONSTRUCTION ENTRANCE DETAIL 2/1

SCALE: NTS

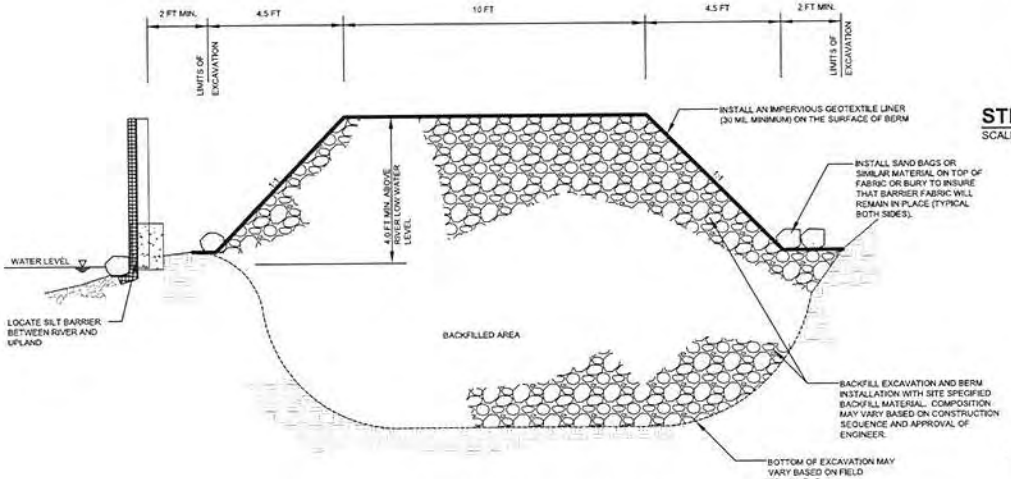




NOTE:
STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3 IN x 5 IN DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL. INSTALL ONLY AS NEEDED FOR RUNOFF PROTECTION.

STRAW WATTLES DETAIL 4/3

SCALE: NTS



TEMPORARY BERM DETAIL 3/1

SCALE: NTS

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BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EROSION CONTROL DETAILS

DESIGNED BY: PTM DRAWN BY: CFS CHECKED BY: RDE APPROVED BY: PTM REVISION: REV 4 DATE: 7/16/10	URS 1501 4TH AVENUE, SUITE 1400 SEATTLE, WA 98101-1616 (206) 438-2700	SHEET 4 OF 8 DRAWING NO. 4	

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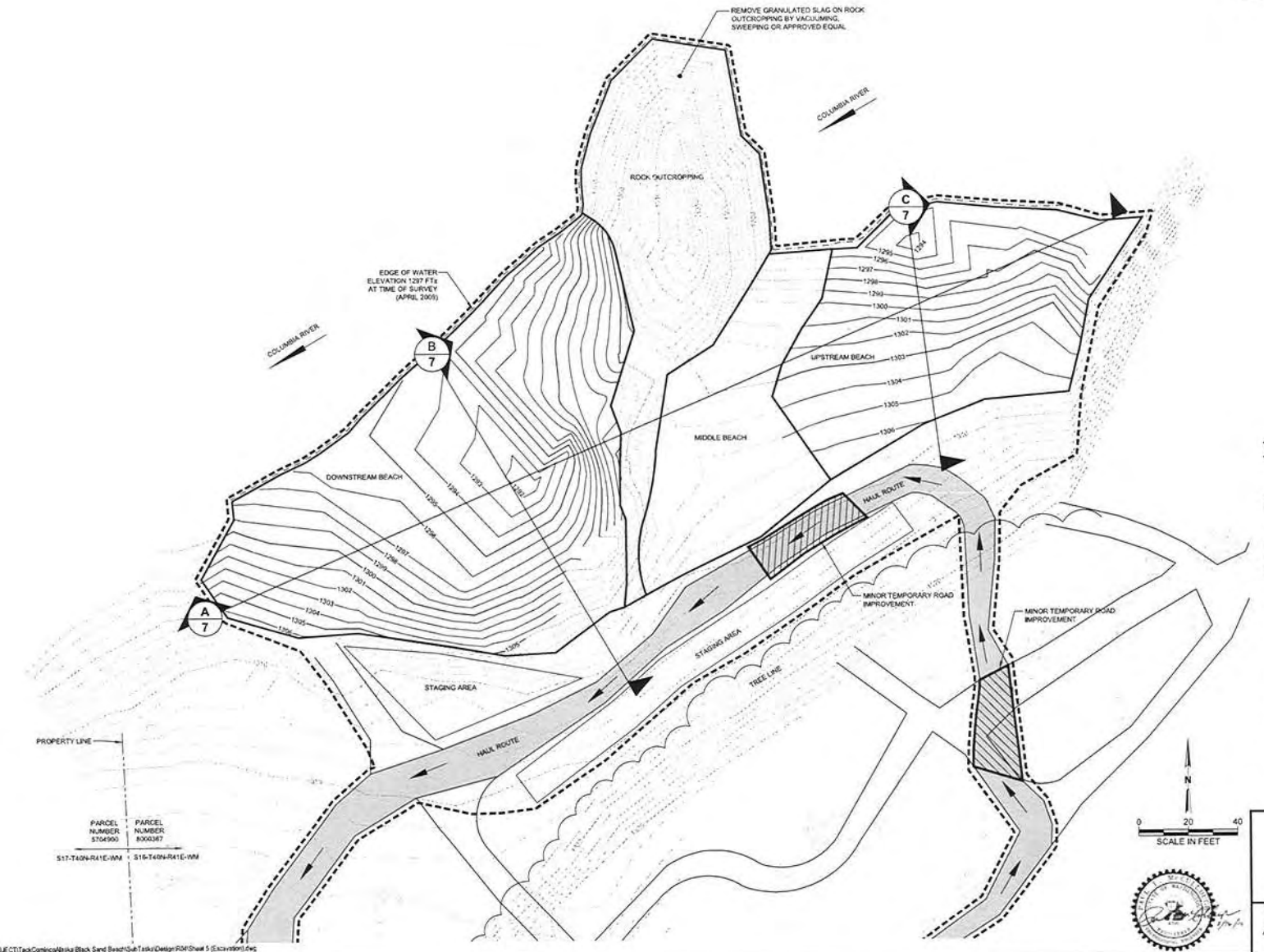

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LEGEND
- LIMITS OF EXCAVATION
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT

EXCAVATION VOLUMES (ESTIMATED)

UPSTREAM BEACH	400 C.Y.
MIDDLE BEACH	150 C.Y.
DOWNSTREAM BEACH	4,100 C.Y.
ROCK OUTCROPPING	10 C.Y.

C.Y. = CUBIC YARDS (IN-PLACE VOLUME)

SEE SHEET 6, SITE GRADING PLAN FOR ESTIMATED FILL VOLUMES

NOTE:
HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT. 745,055.705 FT., NORTH, 2,409,429.512 FT., EAST, ELEV. 1,457.071 FT.

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SCALE IN FEET

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BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXCAVATION PLAN

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

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SHEET 5 OF 8
DRAWING NO. 5

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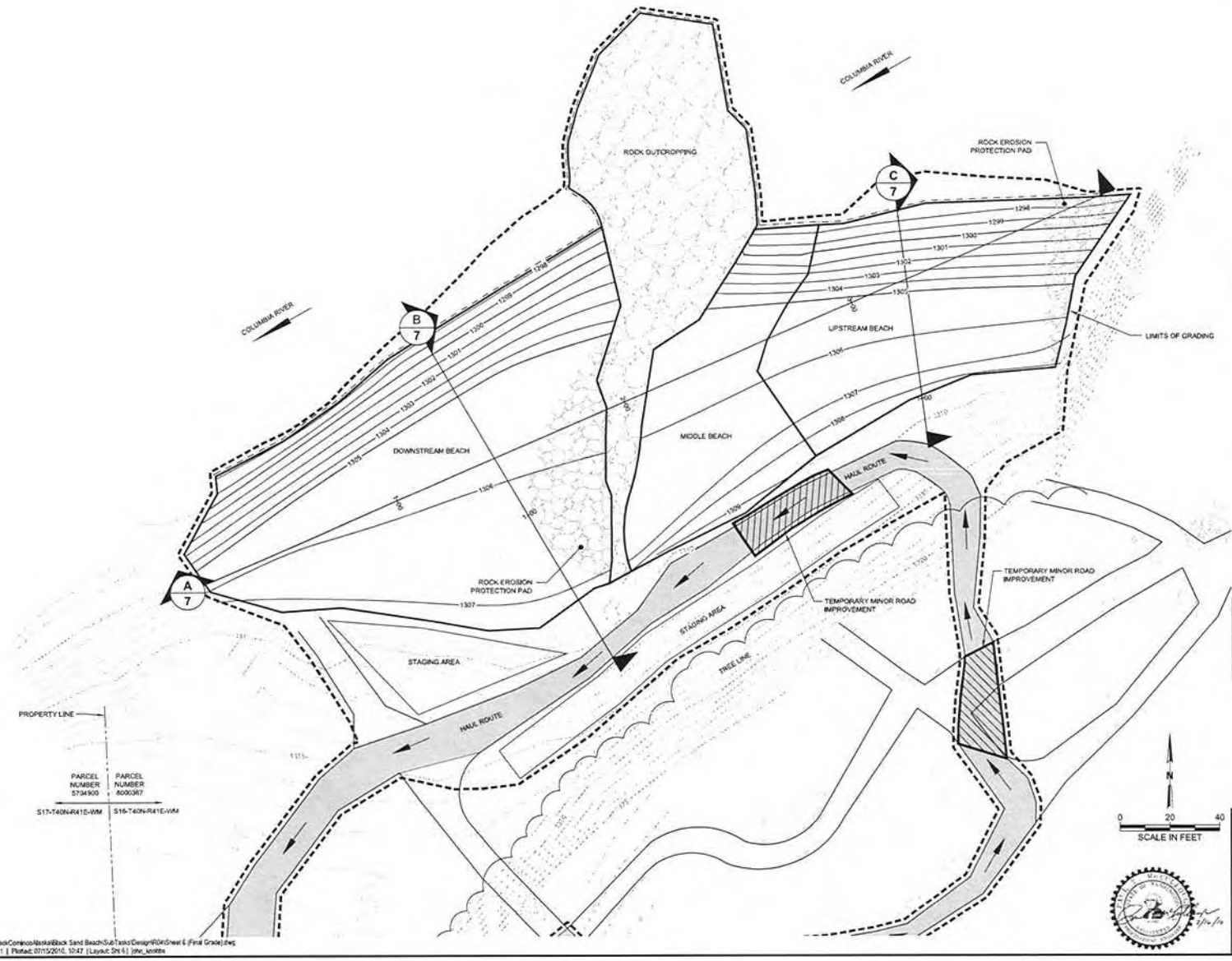

NWS-2010-659

LEGEND

- AREA OF FORMER EXCAVATION
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- TEMPORARY MINOR ROAD IMPROVEMENT

NOTES:

1. BACKFILL MATERIALS SHALL BE DETERMINED IN CONSULTATION WITH ECOLOGY AND SHALL BE APPROVED BY ECOLOGY PRIOR TO BEING TRANSPORTED TO SITE.
2. COARSE SAND/FINE GRAVEL BORROW SOURCE MATERIALS SHALL BE TESTED FOR METALS IN ACCORDANCE WITH TABLE 1 BELOW. METALS (EXCLUDING MERCURY) SHALL BE ANALYZED USING ICP-MS METHODS (EPA 200.8 OR APPROVED EQUAL). MERCURY SHALL BE ANALYZED USING EPA METHOD 7471A OR APPROVED EQUAL. RESULTS OF ANALYSIS SHALL BE PROVIDED TO ECOLOGY FOR REVIEW. SAMPLE RESULTS SHALL MEET APPLICABLE MTCA STANDARDS AS DEFINED IN WAC 173-340 SUBJECT TO AREA SPECIFIC BACKGROUND LEVELS.
3. THE BORROW SOURCE MATERIAL SHALL BE REVIEWED BY A REGISTERED PROFESSIONAL GEOLOGIST. IF THE BORROW MATERIAL IS SUSPECTED TO CONTAIN SERPENTINE MATERIALS THEN AT LEAST TWO SAMPLES SHALL BE TESTED FOR ASBESTOS USING CALIFORNIA AIR RESOURCES BOARD METHOD (CARB) 435 OR OTHER APPROVED METHOD. IF BORROW MATERIAL IS OBTAINED FROM MULTIPLE SOURCES, THEN TWO ADDITIONAL SAMPLES SHALL BE COLLECTED AND TESTED FOR ASBESTOS FOR EACH ADDITIONAL BORROW SOURCE.
4. BACKFILL MATERIALS SHALL NOT CONTAIN INVASIVE PLANT SPECIES AS DOCUMENTED BY THE BACKFILL SUPPLIER.
5. EDGE OF WATER ELEVATION DEPICTED ON DRAWING WILL VARY AT THE TIME OF CONSTRUCTION.

TABLE 1

ANALYTICAL FREQUENCY	
CUBIC YARDS OF FILL	MINIMUM # OF SAMPLES
0-100	3
101-500	5
501-1000	7
1001-2000	10
>2000	10+1 FOR EACH ADDITIONAL 500 C.Y.

TABLE 2

LIST OF ANALYTES FOR BACKFILL CERTIFICATION TESTING	
ANTIMONY	MERCURY
ARSENIC	NICKEL
BERYLLIUM	SELENIUM
CADMIUM	SILVER
CHROMIUM	THALLIUM
COPPER	ZINC
LEAD	

FILL VOLUMES (ESTIMATED)

UPSTREAM BEACH	250 C.Y.
MIDDLE BEACH	200 C.Y.
DOWNSTREAM BEACH	4,000 C.Y.
ROCK OUTCROPPING	0 C.Y.

C.Y. = CUBIC YARDS (IN-PLACE VOLUME)

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BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

SITE GRADING PLAN

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

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SHEET 6 OF 8
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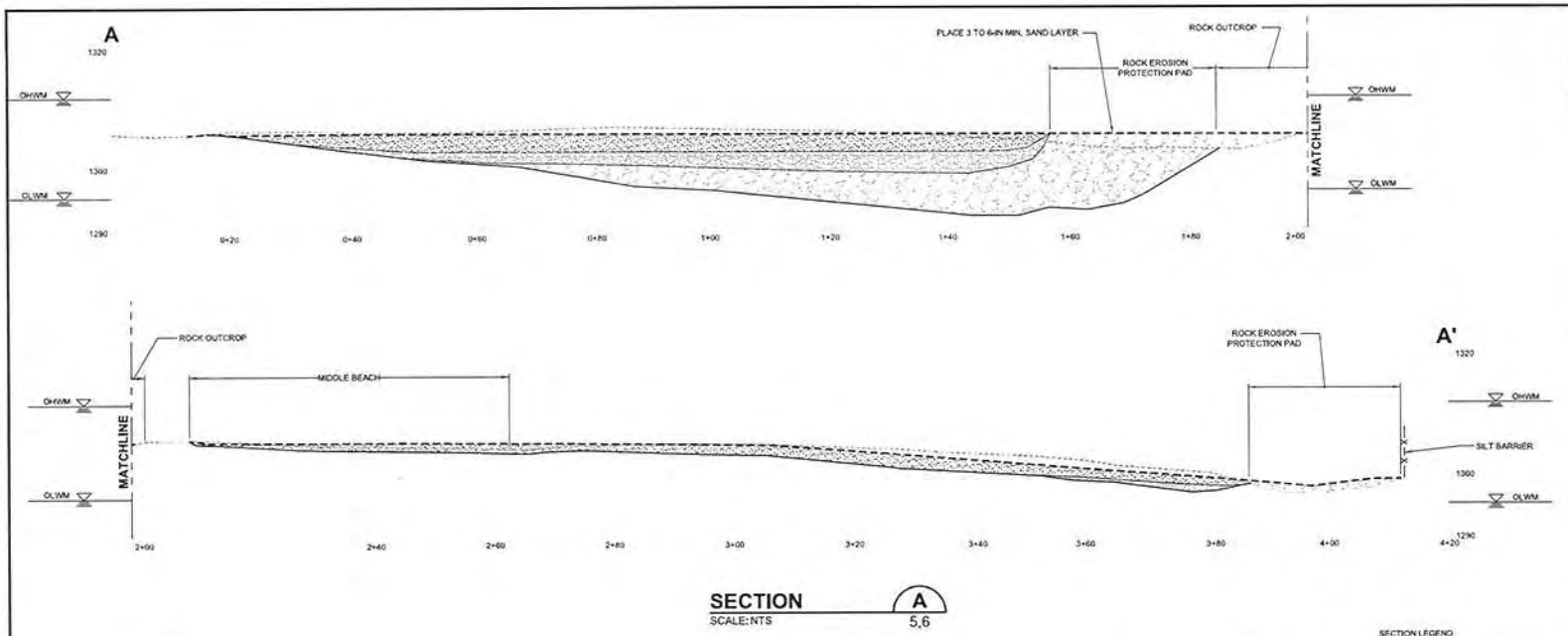

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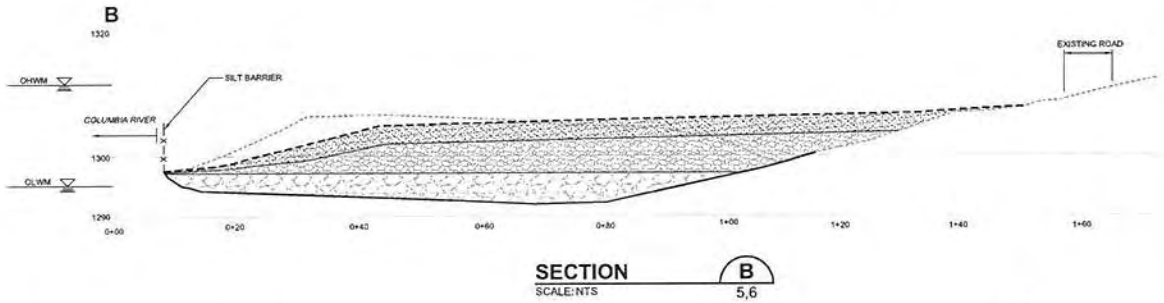

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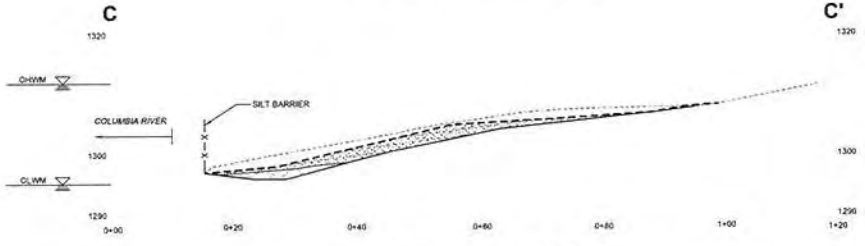

SECTION C (5,6) — SCALE: NTS

SECTION LEGEND

- EXISTING GROUND LINE
- PROPOSED BOTTOM OF EXCAVATION
- PROPOSED FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER
- OHWM — APPROXIMATE ORDINARY HIGH WATER MARK
- OLWM — APPROXIMATE ORDINARY LOW WATER MARK

NOTE:
HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 743,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.

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FILL PLACEMENT NOTES:

1. A MINIMUM OF 2 TO 3 FEET OF SAND SHALL BE PLACED AT THE UPPERMOST SURFACE OF THE BEACH PROVIDING THAT THERE IS SUFFICIENT ROOM TO INSTALL A MINIMUM 1 FOOT THICK LAYER OF COBBLES AT THE BOTTOM OF THE EXCAVATION AND A 1 FOOT INTERMEDIATE LAYER OF GRAVEL.
2. IF THE EXCAVTION IS NOT SUFFIENTLY DEEP TO MEET THE MINIMUM TWO TO THREE FEET OF SAND REQUIREMENT, THEN PLACE EQUAL AMOUNTS OF SAND (TOP LAYER), GRAVEL (MIDDLE LAYER) AND COBBLE (BOTTOM LAYER) INTO THE EXCAVATION. CONSULT WITH ENGINEER PRIOR TO PLACEMENT OF FILL.
3. THE SAND SHALL EXTEND TO THE EDGE OF THE RIVER.
4. A MAXIMUM OF 3 TO 6 INCHES OF TOP SAND SHALL BE PLACED OVER THE EROSION PROTECTION PADS. THE REMAINDER OF THE EROSION PROTECTION PADS SHALL CONSIST OF COBBLES AS SPECIFIED BELOW.

FILL SPECIFICATIONS:

TOP BEACH SAND LAYER: THE TOP LAYER SHALL CONSIST OF FINE TO COARSE SAND (SP) THAT IS ANGULAR TO SUBANGULAR. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
3 INCH	100
1-1/2 INCH	70 - 100
3/4-INCH	30 - 50
3/8-INCH	15 - 25
NO. 4	0 - 12
NO. 200	0 - 3

THE MATERIAL SHALL BE OBTAINED FROM COLVILLE VALLEY CONCRETE 1175 E. THIRD AVENUE, COLVILLE, WA 99114. OTHER SUPPLIERS WILL REQUIRE APPROVAL OF ENGINEER AND ECOLOGY (SEE DRAWING 6).

MIDDLE BEACH GRAVEL LAYER: THE MIDDLE LAYER SHALL CONSIST OF A ROUNDED TO SUBANGULAR FINE TO COARSE GRAVEL. THE SELECT GRANULAR MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFIRM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
3 INCH	100
1-1/2 INCH	70 - 100
3/4-INCH	30 - 50
3/8-INCH	15 - 25
NO. 4	0 - 12
NO. 200	0 - 3

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

BOTTOM BEACH COBBLE LAYER: THE BOTTOM LAYER SHALL CONSIST OF NATURALLY OCCURING ROUNDED TO SUBROUNDED COBBLE. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
10-INCHES	100
5 - INCHES	95 - 100
4 - INCHES	75 - 85
3 - INCHES	20 - 60
2 - INCHES	5 - 15
NO. 200	0 - 3

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

ROCK EROSIONAL PROTECTION PAD: THE ROCK EROSIONAL PROTECTION PAD SHALL CONSIST OF NATURALLY OCCURING ROUNDED TO SUBROUNDED COBBLE/ROCK. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
24-INCHES	100
18-INCHES	95 - 100
12-INCHES	60 - 80
8 - INCHES	30 - 50
6 - INCHES	15 - 20
4 - INCHES	5 - 10
2 - INCHES	0 - 5
NO. 200	0 - 2

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

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ISSUED FOR FINAL APPROVAL

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

CROSS-SECTIONS

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

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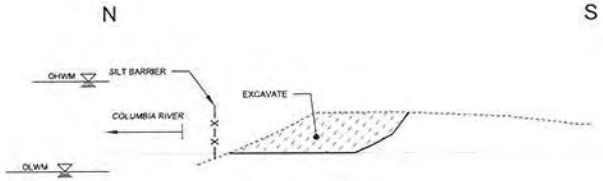
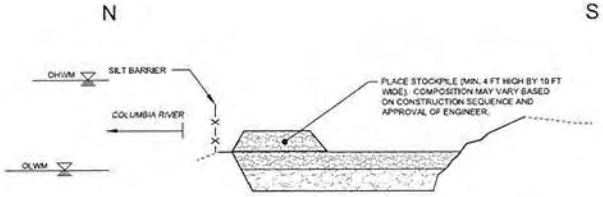
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY

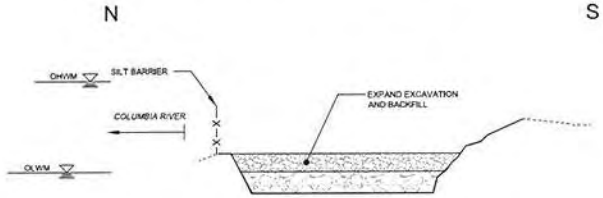
TYPICAL SECTION THROUGH EXISTING DOWNSTREAM BEACH (A)
SCALE: NTS



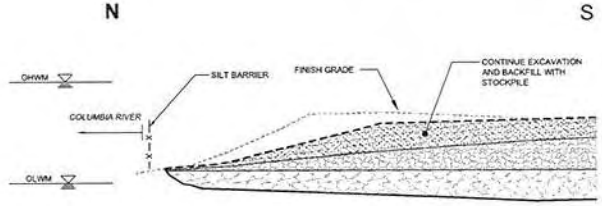
STAGE 1 SECTION (B)
SCALE: NTS



STAGE 3 SECTION (D)
SCALE: NTS



STAGE 2 SECTION (C)
SCALE: NTS



STAGE 4 SECTION (E)
SCALE: NTS

NWS-2010-659

SECTION LEGEND
- EXISTING GROUNDLINE
- PROPOSED BOTTOM OF EXCAVATION
- PROPOSED FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER
- OHWM — APPROXIMATE ORDINARY HIGH WATER MARK
- OLWM — APPROXIMATE ORDINARY LOW WATER MARK

NOTES:
1. ROCK COVER MATERIAL MAY BE REPLACED BY EROSION RESISTANT GRAVEL AND COBBLES IN AREAS ABOVE THE GROUND WATER TABLE WHEN INSPECTION INDICATES THAT SLAG HAS BEEN REMOVED SUFFICIENTLY.
2. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD, 3 IN. BRASS CAP IN CEMENT, 745,655.705 FT. NORTH, 2,409,429.512 FT. EAST. ELEV. 1,457.071 FT.
3. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO MINIMIZE IMPACT TO ADJACENT RIVER. EXCAVATION SHALL BEGIN NEAR THE WATERS EDGE AND PROCEED INLAND, UNLESS APPROVED OTHERWISE BY ENGINEER AND ECOLOGY. GRANULATED SLAG FROM ROCK OUTCROPPING SHALL BE REMOVED PRIOR TO REMOVAL OF SILT BARRIER.
4. EXCAVATION SEQUENCE SECTIONS ARE DIAGRAMATIC ONLY AND NOT TO SCALE.
5. STOCKPILE BERM AT EDGE OF RIVER SHALL BE A MINIMUM OF 4 FT HIGH AND 10 FT WIDE.

90% SUBMITTAL
ISSUED FOR FINAL APPROVAL

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

TYPICAL EXCAVATION SEQUENCE

DESIGNED BY: DJH
DRAWN BY: JK
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 4
DATE: 7/16/10

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101-1616
(206) 438-2700

SHEET 8 OF 8
DRAWING NO. 8

P:\ACAD\PROJECT\Tack Corinco\Alaska\Black Sand Beach\SubTasks\Design\PDA\Sheet 8 (Excavation Sequence).dwg
Mod: 07/15/2010, 09:45 | Plotted: 07/15/2010, 10:48 | Layout: Sht 8 | chris_knobbs

US Army Corps
of Engineers ®
Seattle District

NATIONWIDE PERMIT 38
Terms and Conditions

Effective Date: September 10, 2007

A. Description of Authorized Activities

B. Corps National General Conditions for all NWPs

C. Corps Seattle District Regional General Conditions

D. Corps Regional Specific Conditions for this NWP

E. State 401 Certification General Conditions

F. State 401 Certification Specific Conditions for this NWP

G. EPA 401 Certification General Conditions

H. EPA 401 Certification Specific Conditions for this NWP

I. Spokane Tribe of Indians 401 Certification General Conditions

J. Tribal 401 Certification Specific Conditions for this NWP

K. CZM Consistency Response Specific Conditions for this NWP

L. Additional Limitations on the Use of NWPs

In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit 38 authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

38. Cleanup of Hazardous and Toxic Waste. Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Court ordered remedial action plans or related settlements are also authorized by this NWP. This NWP does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

Note: Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL NWPs

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable

date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs. (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their World Wide Web pages at *http://www.fws.gov/* and *http://www.noaa.gov/fisheries.html* respectively.

18. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of

Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment. (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal: (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site). (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal. (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered. (d) For losses of streams or other

open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment. (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs. (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses. (g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan. (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated

liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

26. Compliance Certification. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include: (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions; (b) A statement that any required mitigation was completed in accordance with the permit conditions; and (c) The signature of the permittee certifying the completion of the work and mitigation.

27. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity: (1) Until notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or (2) If 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information: (1) Name, address and telephone numbers of the prospective permittee; (2) Location of the proposed project; (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.); (4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate; (5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan. (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the

PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. (2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5. (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act. (4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination. (5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) District Engineer's Decision: In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

28. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

C. Corps Seattle District Regional General Conditions

1. Aquatic Resources Requiring Special Protection. The following restrictions apply to activities in Washington State requiring Department of the Army authorization:

(a) Activities resulting in a loss of waters of the United States in a mature forested wetland, bog, bog-like wetland, aspen-dominated wetland, or alkali wetland are not authorized by NWP, except the following NWPs:

NWP 3 – Maintenance
NWP 20 – Oil Spill Cleanup
NWP 32 – Completed Enforcement Actions
NWP 38 – Cleanup of Hazardous and Toxic Waste
NWP 47 – Pipeline Safety Program Designated Time Sensitive Inspections and Repairs

(b) For activities in or affecting a mature forested wetland, bog, bog-like wetland, wetland in a dunal system along the Washington coast, vernal pool, aspen-dominated wetland, alkali wetland, camas prairie wetland, or marine water with eelgrass beds (except for NWP 48) *and not prohibited by the preceding general regional condition 1.a.*, the permittee must submit a pre-construction notification to the District Engineer in accordance with Nationwide Permit General Condition 27 (Pre-Construction Notification).

2. Access. You must allow representatives of this office to inspect the authorized activity at any time deemed necessary to ensure that the work is being, or has been, accomplished in accordance with the terms and conditions of your permit.

3. Commencement Bay. Activities requiring Department of the Army authorization and located in the Commencement Bay Study Area are not authorized by the following NWPs:

NWP 12 – Utility Line Activities (substations)
NWP 13 – Bank Stabilization
NWP 14 – Linear Transportation Projects
NWP 23 – Approved Categorical Exclusions
NWP 29 – Residential Developments
NWP 39 – Commercial and Institutional Developments
NWP 40 – Agricultural Activities
NWP 41 – Reshaping Existing Drainage Ditches
NWP 42 – Recreational Facilities
NWP 43 – Stormwater Management Facilities

4. Bank Stabilization. All bank stabilization projects require pre-construction notification to the District Engineer in accordance with Nationwide Permit General Condition 27 (Pre-Construction Notification). Each notification must include a planting plan using native riparian plant species unless the applicant demonstrates that a planting plan is

not appropriate or not practicable. Each notification must also include the following information, except as waived by the District Engineer:

(a) Need for the work, including the cause of the erosion and the threat posed to structures, infrastructure, and/or public safety.

(b) Current and expected post-project sediment movement and deposition patterns in and near the project area.

(c) Current and expected post-project habitat conditions, including the presence of fish, wildlife and plant species in the project area.

(d) Demonstration that the proposed project incorporates the least environmentally damaging practicable bank protection methods. These methods include, but are not limited to, the use of bioengineering, biotechnical design, root wads, large woody debris, native plantings, and beach nourishment in certain circumstances. If rock must be used due to site erosion conditions, explain how the bank stabilization structure incorporates elements beneficial to fish.

(e) Assessment of the likely impact of the proposed work on upstream, downstream and cross-stream properties (at a minimum the area assessed should extend from the nearest upstream bend to the nearest downstream bend of the watercourse). Discuss the methodology used for determining effects.

NOTE: Information on designing bank stabilization projects can be found in the Washington Department of Fish and Wildlife's *Integrated Streambank Protection Guidelines* (*http://www.wdfw.wa.gov/hab/ahg/ispgdoc.htm*); King County's *Reconnaissance Assessment of the State of the Nearshore Ecosystem* (*http://dnr.metrokc.gov/wlr/watersheds/puget/nearshore/sonr.htm*); and three technical (white) papers – *Marine and Estuarine Shoreline Modification Issues*, *Ecological Issues in Floodplains and Riparian Corridors*, and *Over-Water Structures: Marine, Freshwater, and Treated Wood Issues* (*http://wdfw.wa.gov/hab/ahg/ahgwhite.htm*).

5. Cultural Resources and Human Burials. Permittees must immediately stop work and notify the District Engineer within 24 hours if, during the course of conducting authorized work, human burials, cultural resources, or historic properties, as identified by the National Historic Preservation Act, are discovered and may be affected by the work. Failure to stop work in the area of discovery until the Corps can comply with the provisions of 33 CFR 325 Appendix C, the National Historic Preservation Act, and other pertinent laws and regulations could result in a violation of state and federal laws. Violators are subject to civil and criminal penalties.

6. Essential Fish Habitat. An activity which may adversely affect essential fish habitat, as identified under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), may not be authorized by NWP until essential fish habitat requirements have been met by the applicant and the Corps. Non-federal permittees shall notify the District Engineer if essential fish habitat may be affected by, or is in the vicinity of, a proposed activity and shall not begin work until notified by the District Engineer that the requirements of the essential fish habitat provisions of the MSA have been satisfied and the activity is authorized. The notification must identify the type(s) of essential fish habitat (i.e., Pacific salmon, groundfish, and/or coastal-pelagic species) managed by a Fishery Management Plan that may be affected. Information about essential fish habitat is available at *http://www.nwr.noaa.gov/*

7. Vegetation Protection and Restoration. Permittees must clearly mark all construction area boundaries before beginning work and minimize the removal of native vegetation in riparian areas and wetlands to the maximum extent practicable. Areas subject to temporary vegetation removal in wetlands or riparian areas during construction shall be replanted with appropriate native species by the end of the first planting season following the disturbance except as waived by the District Engineer.

D. Corps Regional Specific Conditions for this NWP: None

E. State 401 Certification General Conditions

1. For in-water construction activities. Individual 401 review is required under this condition for projects or activities authorized under NWPs that will cause, or be likely to cause or contribute to an exceedence of a State water quality standard (WAC 173-201A) or sediment management standard (WAC 173-204).
State water quality standards can be located on Ecology's website: http://www.ecy.wa.gov/programs/wq/swqs/.

Sediment management standards can be located on Ecology's website:
http://www.ecy.wa.gov/biblio/wac173204.html.
Information is also available by contacting Ecology's Federal Permit staff.

2. Projects or Activities Discharging to Impaired Waters. Individual 401 review is required by this condition for projects or activities authorized under NWPs if the project or activity may result in further exceedences of a specific parameter the waterbody is listed for on the state's list of impaired waterbodies (the 303(d) list).
The current 303(d) listed waterbodies can be identified using search tools available on Ecology's website: *http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html* or by contacting Ecology's Federal Permit staff.

3. Notification. For projects or activities that will require individual 401 review, applicants must provide Ecology with the written documentation provided to the Corps (as described in Corps Nationwide Permit General Condition 27, Pre-Construction Notification), including, when applicable:

(a) A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project would cause, any other Department of the Army permits used or intended to be used to authorize any part of the proposed project or any related activity.

(b) Delineation of special aquatic sites and other waters of the United States. Wetland delineations must be prepared in accordance with the current method required by the Corps and shall include Ecology's Wetland Rating form. *Note: Forms are available at Ecology's Wetlands website:*
http://www.ecy.wa.gov/programs/sea/wetlands/index.html or by contacting Ecology's Federal Permit staff.

(c) Coastal Zone Management Program "Certification of Consistency" Form if the project is located within a coastal county (Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum, and Whatcom counties).
Note: Forms are available at the Army Corps of Engineers website: http://www.nws.usace.army.mil
or by contacting Ecology's Federal Permit staff.

(d) Other applicable requirements of Corps Nationwide Permit General Condition 27, Corps Regional Conditions, or notification conditions of the applicable NWP.

Ecology's review time shall not begin until the applicable documents noted above have been provided to Ecology and Ecology has received a copy of the final Nationwide Permit verification letter from the Corps.

4. Aquatic resources requiring special protection. Certain aquatic resources are unique, difficult-to-replace components of the aquatic environment in Washington State. Activities that would affect these resources must be avoided to the greatest extent possible. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscape settings.
Individual 401 review is required for activities in or affecting the following aquatic resources (and not prohibited by Regional Condition 1), except for:

NWP 20 – Oil Spill Cleanup
NWP 32 – Completed Enforcement Actions
NWP 38 – Cleanup of Hazardous Waste
NWP 47 – Pipeline Safety Program Repair

(a) Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publication #s04-06-025 and #04-06-015):

- estuarine wetlands
- Natural Heritage wetlands
- Bogs
- old-growth and mature forested wetlands
- wetlands in coastal lagoons
- interdunal wetlands
- vernal pools
- alkali wetlands

(b) Bog-like wetlands, aspen-dominated wetlands, camas prairie wetlands, and marine water with eelgrass beds (except for NWP 48).

(c) Category I wetlands

(d) Category II wetlands with a habitat score >29 points.

5. Mitigation. 401 Certification is based on adequate compensatory mitigation being provided for wetland and other water quality-related impacts of projects or activities authorized under the NWP Program.
Mitigation plans submitted for Ecology review and approval shall be based on the guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (Ecology Publication #s06-06-011a and #06-06-011b) and shall, at a minimum, include the following:

(a) A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

(b) The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded)

(c) The rationale for the mitigation site that was selected

(d) The goals and objectives of the compensatory mitigation project

(e) How the mitigation project will be accomplished, including proposed performance standards for measuring success and the proposed buffer widths

(f) How it will be maintained and monitored to assess progress towards goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

(g) How the compensatory mitigation site will be legally protected for the long-term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) for guidance on developing mitigation plans.
Ecology encourages the use of alternative mitigation approaches, including advance mitigation and other programmatic approaches, such as mitigation banks and programmatic mitigation areas at the local level. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. (see *http://www.ecy.wa.gov/programs/sea/wetlands/contacts.htm*)
For information on the state wetland mitigation banking program go to:
http://www.ecy.wa.gov/programs/sea/wetlands/mitigation/banking/index.html

6. Temporary Fills. Individual 401 review is required for any project or activity with temporary fill in wetlands or other waters of the State for more than 90 days, unless the applicant has received written approval from Ecology.

7. Mill Creek Special Area Management Plan. This condition applies to all NWPs within the boundaries described in the Mill Creek Special Area Management Plan (SAMP), King County, Washington, dated April 2000 (SAMP). The boundaries of the SAMP encompass all sub-basins and tributaries drained by Algona Creek, Auburn Creek, Bingaman Creek, Midway Creek, Mill Creek, and Mullen Slough. The area is bounded roughly on the south by 8th Avenue N in Algona and 4th Street NE in Auburn, on the east and north by the Ordinary High Water Mark of the Green River, and on the west by the plateau that parallels Interstate 5 above the Green River valley.

Individual 401 review is required for projects or activities authorized under the NWPs unless:

(a) The project or activity will result in fill-related impacts to only wetlands designated as developable under Alternative #8, as shown on Figure 4-8 of the SAMP.

(b) Compensatory mitigation for such impacts is onsite and/or within the areas designated on Figure 3-3, "Maximum Areas for Restoration by Target Habitat Type," in the SAMP Aquatic Resources Restoration Plan (April 2000).

(c) Mitigation plans comply with the requirements of the SAMP and, in general, with the guidance in the interagency Wetland Mitigation in Washington State (March 2006; Ecology publications #06-06-011a and #06-06-011b). Note: You can download the SAMP and Aquatic Resources Restoration Plan at *http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=Mill_Creek_SAMP*.

8. State Certification for PCNs not receiving 45-day response. In the event the U.S. Army Corps of Engineers does not respond to a complete pre-construction notification within 45 days, the applicant must contact Ecology for Individual 401 review.

F. State 401 Certification Specific Conditions for this NWP

Certified, subject to conditions. Individual 401 review is required for projects or activities authorized under this NWP if the project or activity is not authorized though a Model Toxics Control Act (MTCA) order or a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) order.

G. EPA 401 Certification General Conditions

In order for any NWP authorization to be valid in Washington State, permittees must comply with all applicable 401 Certification general conditions. EPA 401 Certification general conditions apply to all NWP authorizations involving Section 404 activities on Native American Indian Tribal lands (excluding the tribal lands of the Chehalis Tribes, Port Gamble S'Klallum Tribe, Kalispel Tribe, Makah Indian Tribe, Puyallup Tribe, Spokane Tribe, and Tulalip Tribe) and Federal land with exclusive jurisdiction within Washington State.

A. Special Aquatic Sites. Any activities in the following types of wetlands and waters of the U.S. will need to apply for an individual 401 certification: Mature forested wetlands; bogs; bog-like wetlands; wetlands in dunal systems along the Washington coast; vernal pools; aspen-dominated wetlands; alkali wetlands; camas prairie wetlands; salt marshes; or marine water with eelgrass beds.

B. Soil Erosion and Sediment Controls. An individual 401 certification is based on the project or activity meeting established turbidity levels. EPA will be using as guidance the state of Washington's water quality standards [WAC 173-201a] and sediment quality standards [WAC 173-204]. Projects or activities that are expected to exceed these levels or that do exceed these levels will require an individual 401 certification.

C. Compliance with Stormwater Provisions. Individual 401 certification is required for projects or activities not designed in accordance with Ecology's most recent stormwater manual or Ecology approved equivalent manual.

D. Compliance with requirements of the National Pollutant Discharge Elimination System. For projects and activities requiring coverage under an NPDES permit, certification is based on compliance with the requirements of that permit. Projects and activities not in compliance with NPDES requirements will require individual 401 certification.

E. Projects or Activities Discharging to Impaired Waters. Individual 401 certification is required for projects or activities authorized under NWPs if the project will discharge to a waterbody on the list of impaired waterbodies (the 303(d) List) *and* the discharge may result in further exceedence of a specific parameter the waterbody is listed for.

EPA may issue 401 certification for projects or activities that would result in further exceedence or impairment if mitigation is provided that would result in a net decrease in listed contaminants or less impairment in the waterbody. This determination would be made during individual 401 certification review.

F. Notification. For projects requiring individual 401 certification, applicants must provide EPA with the same documentation provided to the Corps (as described in Corps National General Condition 27, Pre-Construction Notification), including, when applicable:

(a) A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project would cause, any other U.S. Department of the Army permits used or intended to be used to authorize any part of the proposed project or any related activity.

(b) Delineation of special aquatic sites and other waters of the United States. Wetland delineations must be prepared in accordance with the current method required by the Corps.

(c) A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted.

(d) Other applicable requirements of Corps National General Condition 27, Corps Regional Conditions, or notification conditions of the applicable NWP.

A request for individual 401 review is not complete until EPA receives the applicable documents noted above and EPA has received a copy of the final authorization letter from the Corps providing coverage for a proposed project or activity under the NWP Program.

G. Mitigation. An individual 401 certification is based on adequate compensatory mitigation being provided for wetland and other water quality-related impacts of projects or activities authorized under the NWP Program. Mitigation plans submitted shall be based on the Joint Agency guidance provided in *Wetland Mitigation in Washington State, Parts 1 and 2* (Ecology Publication #06-06-011a and #06-06-011b) and shall, at a minimum, include the following:

1. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.
2. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).
3. The rationale for the mitigation site that was selected.
4. The goals and objectives of the compensatory mitigation project.
5. How the mitigation project will be accomplished, including proposed performance standards for measuring success and the proposed buffer widths.
6. How it will be maintained and monitored to assess progress towards goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.
7. How the compensatory mitigation site will be legally protected for the long-term.

H. Temporary Fills. An individual 401 certification is required for any activity where temporary fill will remain in wetlands or other waterbodies for more than 90 days. The 90 day period begins when filling activity starts in the wetland or other waterbody.

H. EPA 401 Certification Specific Conditions for this NWP

Partially denied without prejudice. Individual 401 review is required for projects authorized under this NWP if the project or activities are not part of an EPA ordered cleanup.

I. Spokane Tribe of Indians 401 Certification General Conditions

Specific to the Reservation and the Tribal Water Quality Standards, the applicant must comply with the following when there could be a discharge to waters of the Spokane Indian Reservation:

1. The applicant shall be responsible for achieving compliance with the Spokane Tribal Water Quality Standards.

2. The applicant shall submit copies of applications materials to the Spokane Tribal Water Control Board for review and approval at the same time they are submitted to Army Corps of Engineers and prior to any disturbance activities.

3. The applicant shall comply with all Spokane Tribal Integrated Resource Management Plan (IRMP) guidelines for land use activities and disturbances.

4. The applicant shall allow the Tribal Water Control board and Interdisciplinary Team to inspect the area in question and adopt recommendations made throughout its operation.

5. Monitoring of the discharge shall occur at a level indicated by EPA and the Tribe, are subject to change, and shall be submitted to both entities.

J. Tribal 401 Certification Specific Conditions for this NWP

Denied without prejudice by the Chehalis, Kalispel, Makah, Port Gamble S'Klallum, Puyallup, and Tulalip tribes. Certified subject to general conditions by the Spokane Tribe.

K. CZM Consistency Response Specific Conditions for this NWP

Concur, subject to the following condition:

1. Where individual 401 review is triggered, an individual CZM Consistency Response must be obtained for projects located within the 15 coastal counties. A "Certification of Consistency" form must be submitted in accordance with State General Condition 3 (Notification).

L. ADDITIONAL LIMITATIONS ON THE USE OF NWPs

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other Federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

US Army Corps
of Engineers ®
Seattle District

CERTIFICATE OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

Permit Number: _____ NWS-2010-659_____

Name of Permittee: _____ Teck American Corporation_____

Date of Issuance: September 23, 2010

Upon completion of the activity authorized by this permit, please check the applicable boxes below, date and sign this certification, and return it to the following address:

Department of the Army
U.S. Army Corps of Engineers
Seattle District, Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of your authorization, your project is subject to suspension, modification, or revocation.

☐	The work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of this permit. Date work complete: _____
	☐ Photographs and as-built drawings of the authorized work are attached.

☐	If applicable, the mitigation required (not including monitoring (e.g., construction and plantings) in the above-referenced permit has been completed in accordance with the terms and conditions of this permit. Date work complete: _____
	☐ Photographs and as-built drawings of the mitigation are attached.

Printed Name: _____

Signature: _____

Date: _____

STEVENS COUNTY
SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT

STEVENS COUNTY LAND SERVICES

August 19, 2010

Tech American Incorporated
Marko Adzic
501 N. Riverpoint Boulevard, Suite 300
Spokane, WA 99202

RE: Substantial Development Permit
SDP2010-003

Dear Mr. Adzic:

Enclosed you will find your permit for the above referenced project. The Notice of Decision will be published in the *Chewelah Independent* next week. The newspaper has been instructed to bill URS Corporation c/o Paul McCullough for the publication costs.

If you have other questions, please feel free to contact our office.

Sincerely,

Erik Johansen
Planner
Stevens County Land Services

cc: URS Corporation (Paul McC ullough)
DNR (Arne Johnson)

Building Divison: (509) 684-8325
FAX: (509) 685-0674

Planning Division: (509) 684-2401
FAX: (509) 684-7525

MAILING ADDRESS: 215 S. Oak St. – Courthouse Annex • Colville, WA 99114
STREET ADDRESS: 260 S. Oak St. – Courthouse Annex • Colville, WA 99114

STEVENS COUNTY LAND SERVICES

SHORELINE MANAGEMENT ACT
PERMIT FOR SHORELINE MANAGEMENT
SUBSTANTIAL DEVELOPMENT

Application No. **SDP 2010-003**	**XX**	Substantial Development Permit
Administering Agency: **Stevens Co. Land Services**		Conditional Use
Date Received: **June 15, 2010**		Variance
Date of Issuance: **August 19, 2010**	**XX**	Approved
Date of Expiration: **August 19, 2015**		

Pursuant to RCW 90.58, a permit is hereby granted to:

Tech American Incorporated
501 N. Riverpoint Boulevard, Suite 300
Spokane, WA 992020

to undertake the following development:

Teck American Incorporated is proposing to remove slag impacted sediments from an area along the Northern reach of the Columbia River commonly known as Black Sand Beach. The proposed action will include removal of approximately 5000 cubic yards of slag impacted material along the shoreline and placement of imported backfill material to restore the beach area. The project will include minor road modifications to allow equipment to access the project site.

upon the following property located at:

A portion of the Northwest quarter of Section 16, Township 40 North, Range 41 East, W.M., in Stevens County, Washington, commonly known as black sands beach.

The project **will be** located within a shoreline of statewide significance (RCW 90.03.350). The project will be located within a **Rural** designation. The following master program provisions are specifically applicable to the development: **SMP Section 7.13 through 7.15.**

7.13 DREDGING AND DREDGE MATERIAL DISPOSAL
Dredging is the removal or displacement of earth or sediments such as gravel, sand, mud or silt and/or other materials or debris from any stream, river, or lake and the associated shorelines or wetlands. Dredging is normally done for specific purposes or uses such as constructing and maintaining canals, navigation channels, turning basins, marinas, the installation of submarine pipelines or cable crossings, or dike or drainage system repair and maintenance. Dredging is also used to mine for aggregates such as sand and gravel. Dredge material disposal is the depositing of dredged materials on land or into water bodies for the purpose of either creating new or additional

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FAX: (509) 685-0674
Planning Division: (509) 684-2401
FAX: (509) 684-7525
MAILING ADDRESS: 215 S. Oak St. – Courthouse Annex • Colville, WA 99114
STREET ADDRESS: 260 S. Oak St. – Courthouse Annex • Colville, WA 99114

lands for other uses or disposing of the by-products of dredging. Dredge material disposal on land is also subject to the landfill policies and regulations of this program.

Pursuant to SMP Section 7.14 and 7.15 the following provisions **have** been met:

1) Dredging and dredge material disposal should be located and conducted in a manner which minimizes damage to existing ecological values and natural resources of the area to be dredged and the disposal site.

- As part of the application, the applicants submitted multiple reports that address the potential for shoreline damage. These reports include a wetlands delineation and a cultural resources plan. The dredge materials will be loaded onto trucks and carried away from the shoreline to an upland site located in Trail, British Columbia for recycling.

2) Dredging operations should be planned and conducted to minimize interference with navigation and adverse impacts to other shoreline uses, properties and values.

- This project is designed to enhance, not adversely impact navigation and impacts to other shoreline uses. The removal of this material will allow for new clean material to be placed on the site and add restored recreational site for public use.

3)When dredge material has suitable organic and physical properties, dredging operations should be encouraged to recycle dredged material for beneficial use in wildlife habitat creation, aggregate or clean cover material at a landfill (where appropriate).

- The dredge materials are being recycled.

Dredging in all Environments shall be done in accordance with the requirements of applicable agencies and this program and the following regulations shall be enforced to the extent possible within this program's authority.

a. In evaluating permit applications for any dredging project, the adverse effects of the initial dredging, subsequent maintenance dredging and dredge disposal that will be necessary should be considered. Dredging and dredge disposal should only be permitted where the proposed action will not:
i. Result in significant and/or on going damage to water quality, fish and other essential biological elements; or
ii. Adversely alter natural drainage and circulation patterns, currents, rivers or significantly reduce flood water capacities.

- The applicants have addressed potential impacts to water quality, fish and near shore habitat. The applicants have received or are in the process of obtaining permitting from all of the agencies that have jurisdiction over some portion of the project.

b. Proposals for dredging and dredge disposal shall include all feasible mitigating measures to protect aquatic habitats and to minimize adverse impacts.

- Mitigation for this project include; the timing of the project is being aligned with low water flows, there will be silt fencing placed below the work area, and the dredge material will be moved to an upland location in Trail B.C.

c. Permitted dredging in biological wetlands shall be done in accordance with all applicable county, state and federal standards. (See wetland section 4.05)

- N/A. There were no wetlands found on site by the qualified professional who conducted the wetlands investigation. A wetlands report was completed and turned in with the application.

d. Dredging below the ordinary high water mark shall only occur:

i. For navigation or navigational access;
ii. In conjunction with a water-dependent use of water bodies or adjacent shorelands;
iii. As part of an approved habitat improvement project;
iv. To improve water flow or water quality, provided that all dredged material shall be contained and managed so as to prevent it from reentering the water;
v. For mining and/or mineral extraction, as provided for in the Mining sections;
vi. In conjunction with a bridge, navigational structure or waste-water treatment facility for which there is a documented public need and where other feasible sites or routes do not exist.

e. Containment dikes and adequate settling basins shall be built and maintained to minimize surface runoff.
f. Proper diversion of surface discharge shall be provided to maintain the integrity of the natural streams, wetlands, and drainage ways.
g. Disposal runoff water should be controlled so as to enter a waterway through grassy swales or other treatment features at a location that maximizes circulation and flushing.
h. Revegetation of land disposal sites shall occur as soon as possible in order to retard wind and water erosion and to restore the wildlife habitat value of the site.
i. Dredging for the primary purpose of obtaining material for landfill shall not be permitted.
j. Depositing of dredge materials in water areas shall be allowed only for wildlife habitat improvement or to correct problems of material distribution adversely affecting fishing resources.

- e. through j. do not apply

k. Depositing of dredge materials shall not be permitted in wetlands, significant plant communities and/or public access areas.

- The dredge materials are being shipped of site. They may be temporarily stockpiled on-site but they will not be placed in wetlands or in significant plant communities.

Development pursuant to this permit **is approved** shall be undertaken pursuant to the following terms and conditions:

1. Applicant must comply with applicable federal, state and local regulations governing the proposal. The following development regulations have been identified as being applicable to this project as provided in RCW 36.70B.040, if applicable: Title 6, Local Project Review, Resolution

#36-1997; Stevens County Critical Areas Ordinance, Title 13, Shoreline Master Program #78-1999; SEPA Ordinance #2-1991; Chapters 36.70B; 58.17 and 43.21C, RCW.
2. All fill will be moved to an upland site location approved by the Land Services Department.
3. No fill will be placed within a critical area or critical area buffer.
4. Sediment will be removed during low water conditions.
5. Dredging and dredge material disposal should be located and conducted in a manner which minimizes damage to existing ecological values and natural resources of the area to be dredged and the disposal site.
6. Dredging operations should be planned and conducted to minimize interference with navigation and adverse impacts to other shoreline uses, properties and values.
7. Dredging shall be conducted in accordance with the requirements of applicable agencies and this program.

***NOTE: Substantial progress toward completion must begin within two (2) years of the date of approval of this permit. Stevens County Land Services may authorize an extension of time, PROVIDED that the request has been received before the expiration date of this letter.**

This permit is granted pursuant to the Shoreline Management Act of 1971 and nothing in this permit shall excuse the applicant from compliance with any other federal, state or local statutes, ordinances or regulations applicable to this project, but not inconsistent with the Shoreline Management Act (Chapter 90.58).

Appeals

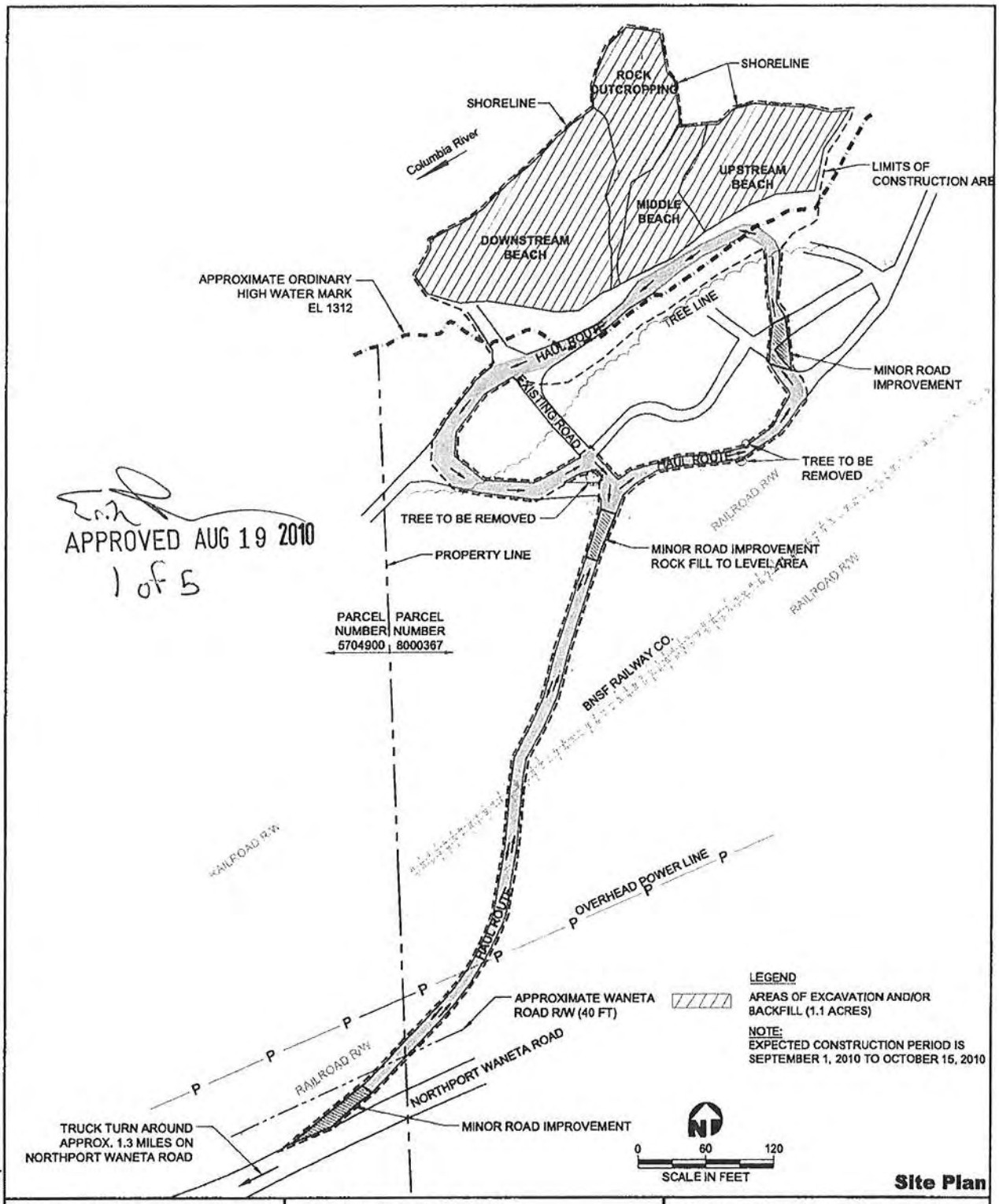
Any person aggrieved by the granting, denying, or rescinding of a permit on shorelines of the State pursuant to RCW 90.58.140 may seek review from the shorelines hearing board by filing a petition for review within twenty-one days of the date of filing as defined in RCW 90.58.140(6). Filing for this project is defined as the date this decision is received by the Department of Ecology. Should you have further questions regarding appeals of this decision please contact our office.

This permit may be rescinded pursuant to RCW 90.8.140(8) and SCC Title 3, Section 3.40 in the event the permitee fails to comply with the terms or conditions hereof.

CONSTRUCTION PURSUANT TO THIS PERMIT SHALL NOT BEGIN AND IS NOT AUTHORIZED UNTIL TWENTY-ONE DAYS FROM THE DATE OF FILING AS DEFINED IN RCW 90.58.140(6) AND WAC 173-27-130, OR UNTIL ALL REVIEW PROCEEDINGS INITIATED WITHIN TWENTY-ONE DAYS FROM THE DATE OF SUCH FILING HAVE TERMINATED; EXCEPT AS PROVIDED IN RCW 90.58.140(5)(a)(b).

Date: 8-19-2010

Erik Johansen
Planner
Stevens County Land Services



APPROVED AUG 19 2010

1 of 5

Site Plan

Purpose: Remove granulated slag from Black Sand Beach

Datum: Horizontal Datum, Washington State Plane, North Zone. Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145588-09-01

Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000367

Proposed: Remove slag from exposed portion of the Black Sand Beach during low water-period and replace with clean imported fill from commercial source.

Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA
County: Stevens
State: WA

Sheet: 3 of 7

Date: February 19, 2010

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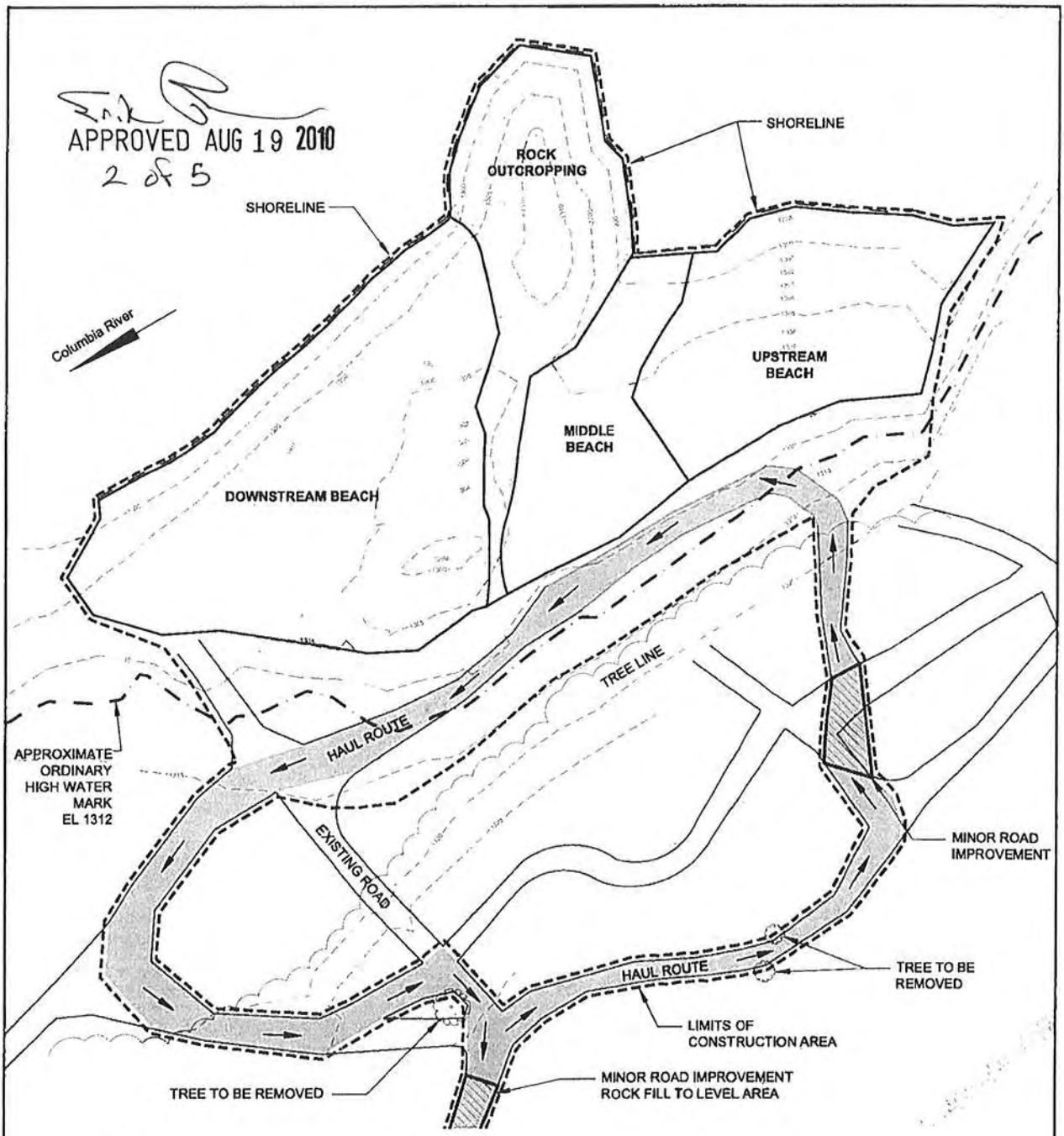
2 of 5



Existing Conditions

Purpose: Remove granulated slag from Black Sand Beach

Datum: Horizontal Datum, Washington State Plane, North Zone. Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145588-09-01

Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000367

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Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA
County: Stevens
State: WA

Sheet: 4 of 7

Date: February 19, 2010

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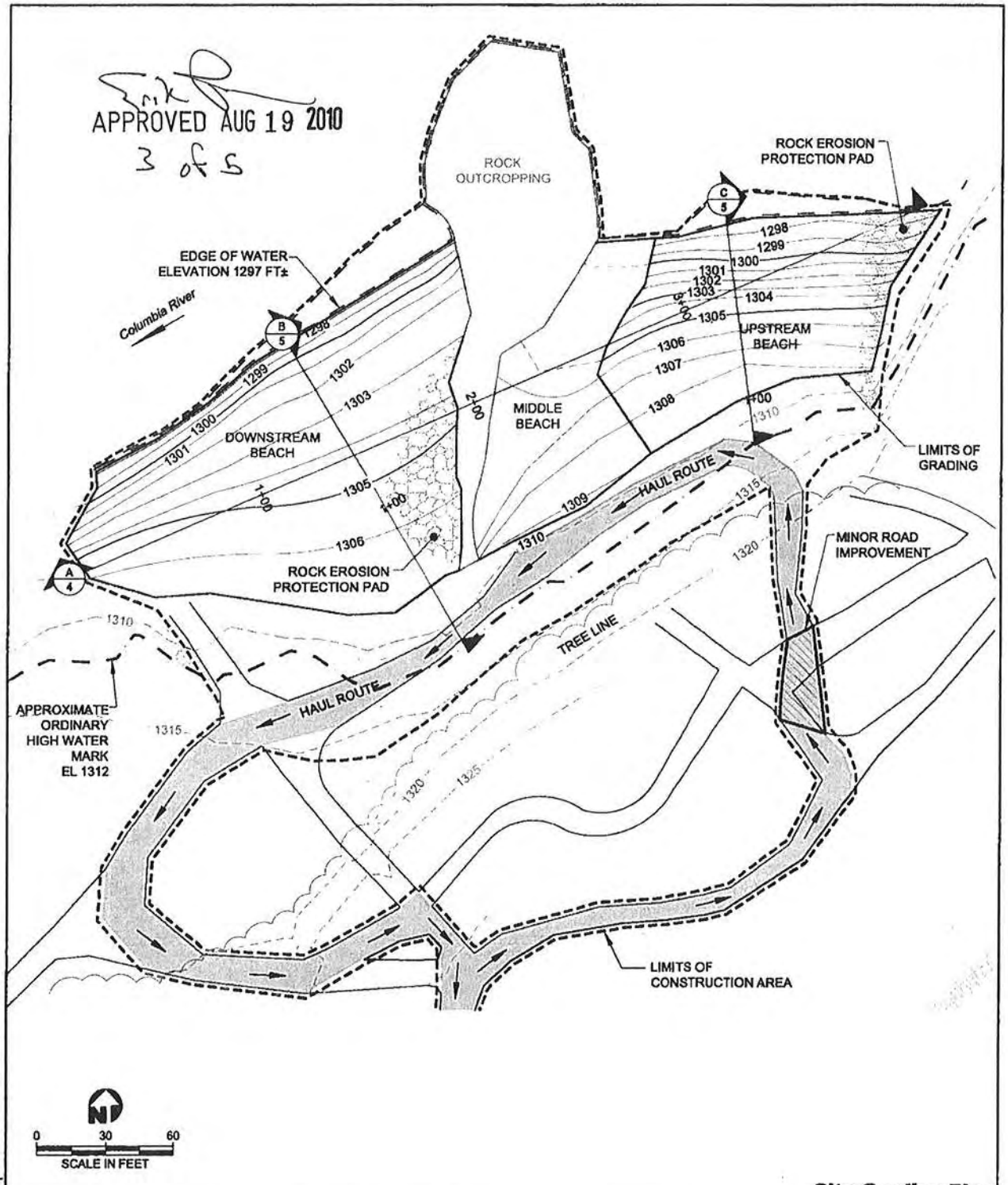
3 of 5



Site Grading Plan

Purpose: Remove granulated slag from Black Sand Beach

Datum: Horizontal Datum, Washington State Plane, North Zone. Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145588-09-01

Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000367

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Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA
County: Stevens
State: WA

Sheet: 5 of 7

Date: February 19, 2010

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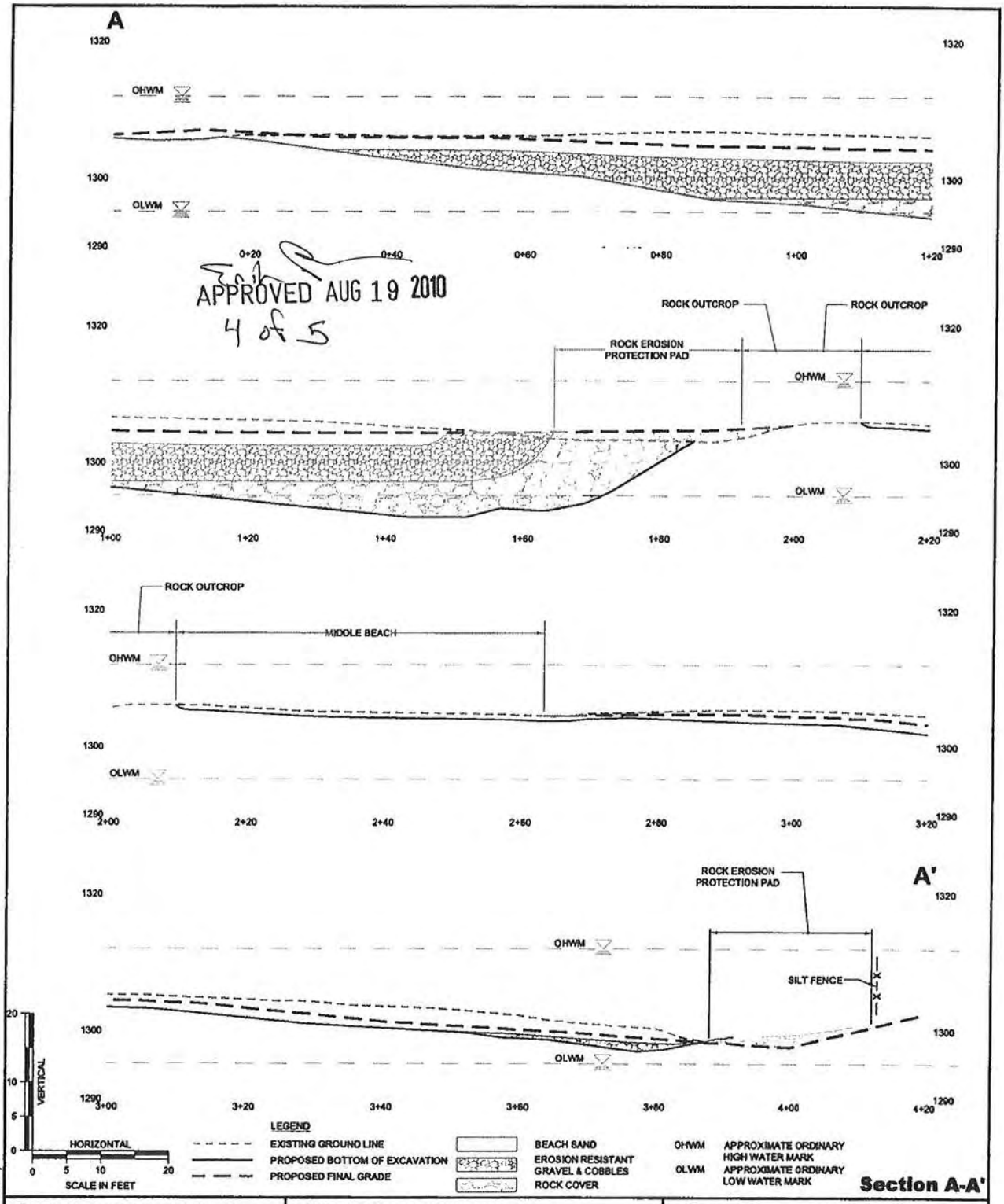

Section A-A'

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Purpose: Remove granulated slag from Black Sand Beach

Datum: Horizontal Datum, Washington State Plane, North Zone. Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145588-09-01

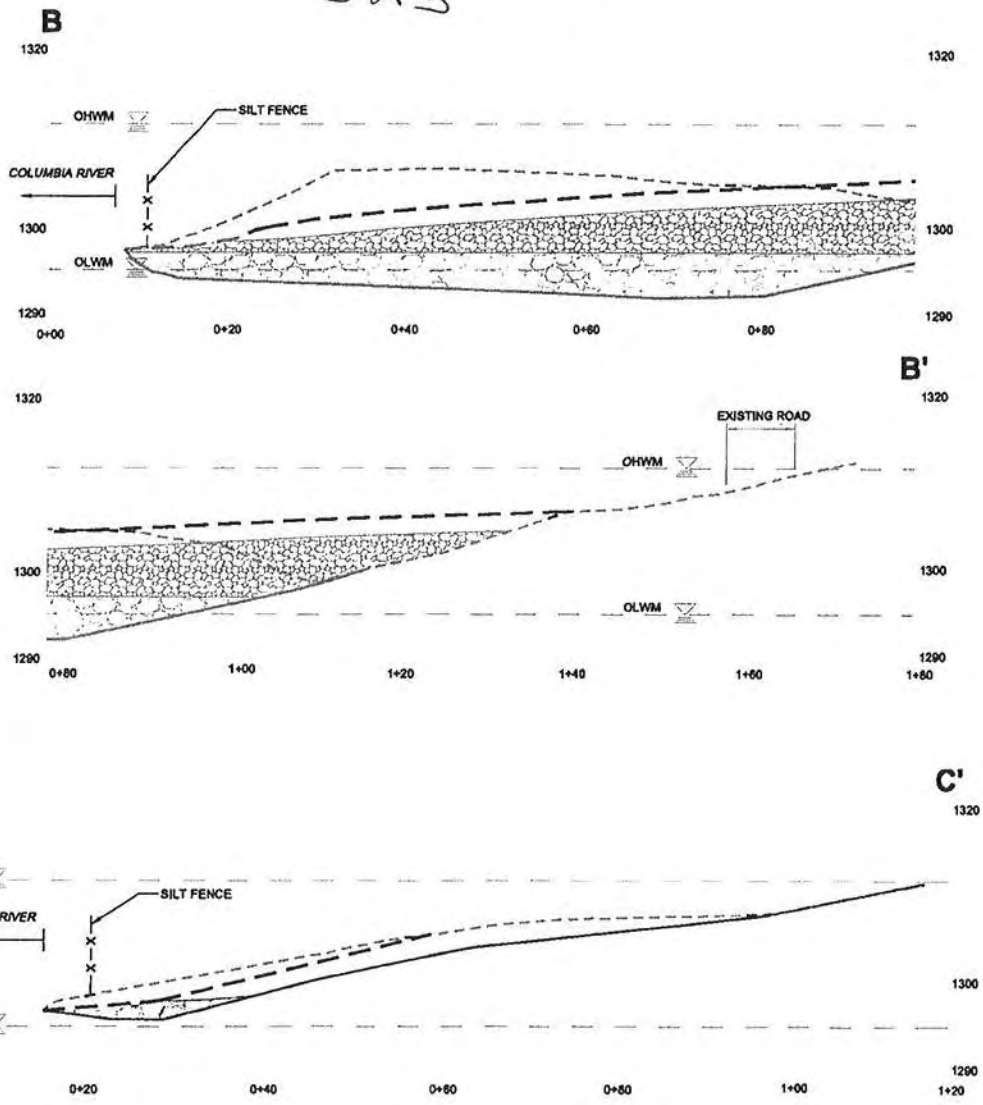
Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000367

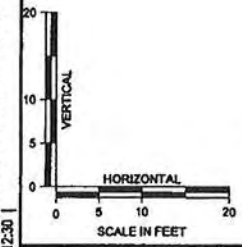
Proposed: Remove slag from exposed portion of the Black Sand Beach during low water-period and replace with clean imported fill from commercial source.

Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA
County: Stevens
State: WA
Sheet: 6 of 7
Date: February 19, 2010

APPROVED AUG 19 2010

5 of 5





LEGEND

- EXISTING GROUND LINE
- PROPOSED BOTTOM OF EXCAVATION
- PROPOSED FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER
- OHWM APPROXIMATE ORDINARY HIGH WATER MARK
- OLWM APPROXIMATE ORDINARY LOW WATER MARK

Sections B-B' and C-C'

Purpose: Remove granulated slag from Black Sand Beach

Datum: Horizontal Datum, Washington State Plane, North Zone. Vertical Datum, NAVD 88.

Adjacent Property Owners:
1. Walker Trust Property
2. State of Washington, Department of Natural Resources
3. BNSF Railway

Applicant: Teck American Incorporated
Reference: 145588-09-01

Location Address: Section 16, Township 40N, Range 41E, W.M., Stevens County, WA. APN 8000387

Proposed: Remove slag from exposed portion of the Black Sand Beach during low water-period and replace with clean imported fill from commercial source.

Near/At: USGS River Mile 743, about 8 miles northeast of downtown Northport, WA
County: Stevens
State: WA
Sheet: 7 of 7
Date: February 19, 2010

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WDFW
HYRAULIC PROJECT APPROVAL

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - See appeal process at end of HPA

Eastern
2315 N Discovery Place
Spokane, WA 99218
(509) 892-1001

Issue Date: July 27, 2010
Project Expiration Date: October 31, 2010

Control Number: 120568-1
FPA/Public Notice #: N/A

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
Teck American Incorporated	URS Corporation
ATTENTION: Marko Adzic	ATTENTION: Paul McCullough
501 N Riverpoint Blvd Ste 300	1501 4th Ave Ste 1400
Spokane, WA 99202	Seattle, WA 98101
509-747-6111	206-438-2700
Fax: 509-892-2585	Fax: 866-495-5288

Project Name: Black Sand Beach Project

Project Description: Approximately 5,000 cubic yards of slag-impacted beach sediments are propsed to be removed and transported to Trail, British Columbia for recycling.

PROVISIONS

Dredging shall not be conducted in fish spawning areas.

Dredged streambed materials shall be disposed of at approved in-water disposal sites, or upland so it will not re-enter state waters.

Dredging shall be conducted with a dragline or a clamshell.The dragline or clamshell shall be operated to minimize turbidity.During excavation, each pass with the clamshell or dragline bucket shall be complete.Dredged material shall not be stockpiled waterward of the ordinary high water line.

Upon completion of the dredging, the streambed shall contain no pits, potholes, or large depressions to avoid stranding of fish.

Equipment shall be operated to minimize turbidity.During excavation, each pass with the bucket shall be complete.Dredged material shall not be stockpiled in the stream.

Dredging shall be accomplished in the dry.Work shall be separated from the stream, if flowing, by use of a temporary bypass.

Dredging shall be accomplished by starting at the upstream end of the project boundary and working downstream.

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - See appeal process at end of HPA

Eastern
2315 N Discovery Place
Spokane, WA 99218
(509) 892-1001

Issue Date: July 27, 2010
Project Expiration Date: October 31, 2010

Control Number: 120568-1
FPA/Public Notice #: N/A

PROJECT LOCATIONS

Location #1 N of Northport-Waneta Rd

WORK START: July 28, 2010					WORK END: October 31, 2010	
WRIA: 61.0001	Waterbody: Columbia River				Tributary to: Lake Roosevelt	
1/4 SEC: SW 1/4	Section: 16	Township: 40 N	Range: 41 E	Latitude: N 48.97085	Longitude: W 117.64816	County: Stevens
Location #1 Driving Directions						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW (formerly RCW 77.20). Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

Requests for any change to an unexpired HPA must be made in writing. Requests for new HPAs must be made by submitting a new complete application. Send your requests to the department by: mail to the Washington Department of Fish and Wildlife, Habitat Program, 600 Capitol Way North, Olympia, Washington 98501-1091; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor.

Issue Date: July 27, 2010
Project Expiration Date: October 31, 2010

Control Number: 120568-1
FPA/Public Notice #: N/A

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), you may request an informal or formal appeal.

A. INFORMAL APPEALS: WAC 220-110-340 is the rule describing how to request an informal appeal of Washington Department of Fish and Wildlife (WDFW) actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by: mail to the Washington Department of Fish and Wildlife HPA Appeals Coordinator, 600 Capitol Way North, Olympia, Washington 98501-1091; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee will conduct an informal hearing and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

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C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

ENFORCEMENT: Sergeant Charron (43) P3

Habitat Biologist Mark Grandstaff	509-527-4141	Mark Grandstaff	for Director WDFW

CC:

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - See appeal process at end of HPA

Eastern
2315 N Discovery Place
Spokane, WA 99218
(509) 892-1001

Issue Date: October 20, 2010
Project Expiration Date: December 31, 2010

Control Number: 120568-2
FPA/Public Notice #: N/A

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
Teck American Incorporated	URS Corporation
ATTENTION: Marko Adzic	ATTENTION: Paul McCullough
501 N Riverpoint Blvd Ste 300	1501 4th Ave Ste 1400
Spokane, WA 99202	Seattle, WA 98101
509-747-6111	206-438-2700
Fax: 509-892-2585	Fax: 866-495-5288

Project Name: Black Sand Beach Project

Project Description: Approximately 5,000 cubic yards of slag-impacted beach sediments are propsed to be removed and transported to Trail, British Columbia for recycling.

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Dredging shall be accomplished in the dry.Work shall be separated from the stream, if flowing, by use of a temporary bypass.

Dredging shall be accomplished by starting at the upstream end of the project boundary and working downstream.

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - See appeal process at end of HPA

Eastern
2315 N Discovery Place
Spokane, WA 99218
(509) 892-1001

Issue Date: October 20, 2010
Project Expiration Date: December 31, 2010

Control Number: 120568-2
FPA/Public Notice #: N/A

PROJECT LOCATIONS

Location #1 N of Northport-Waneta Rd

WORK START: October 20, 2010					WORK END: December 31, 2010	
WRIA:	Waterbody:				Tributary to:	
61.0001	Columbia River				Lake Roosevelt	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
SW 1/4	16	40 N	41 E	N 48.97085	W 117.64816	Stevens
Location #1 Driving Directions						

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Issue Date: October 20, 2010
Project Expiration Date: December 31, 2010

Control Number: 120568-2
FPA/Public Notice #: N/A

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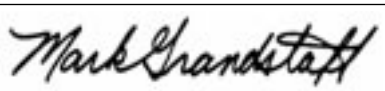
ENFORCEMENT: Sergeant Charron (43) P3

Habitat Biologist Mark Grandstaff	509-527-4141		for Director WDFW

CC:

WDNR
FOREST PRACTICE APPLICATION

From: Paul McCullough/Seattle/URSCorp
To: marko.adzic@teck.com
cc: david_enos@urscorp.com

Date: Monday, August 02, 2010 01:43PM
Subject: Fw: Black Sand Beach FPA

Marko and Dave,

Per email below from Arne Johnson, the Forest Permit Application has been approved by DNR. Shoreline Permit, Nationwide Permit, and Ecology final approval is still pending.

Regards, Paul
Paul T. McCullough, PE
Senior Project Engineer
URS Corporation
1501 4th Avenue, Suite 1400
Seattle, WA 98101-1616
206-438-2231 (direct)
206-438-2700 (main)
425-301-4875 (cell)
866-495-5288 (fax)

-----Forwarded by Paul McCullough/Seattle/URSCorp on 08/02/2010 01:38PM -----

To: Paul McCullough/Seattle/URSCorp@URSCorp
From: David Every/Seattle/URSCorp
Date: 08/02/2010 12:38PM
Subject: Fw: Black Sand Beach FPA

One more.

A. David Every, Ph.D.
Principal Ecologist
URS Corporation
1501 4th Avenue, Suite 1400
Seattle, WA 98101-1616
Telephone: 206/438-2105
Cellular: 206/200-5779
Fax: 1-866/489-4873
david_every@URSCorp.com

----- Forwarded by David Every/Seattle/URSCorp on 08/02/2010 12:37 PM -----

"JOHNSON, ARNE (DNR)" <ARNE.JOHNSON@dnr.wa.gov> To <David_Every@URSCorp.cc
cc "MURPHY, PEGGY (DNR)"

08/02/2010 12:35 PM <PEGGY.MURPHY@dnr.wa.g
Subject RE: Black Sand Beach FPA

Dave

In case you have not received notification, the FPA has been approved.

Arne Johnson
North Columbia District Manager
Northeast Region
Washington State Department of Natural Resources (DNR)
(509) 684-7474
arne.johnson@dnr.wa.gov
www.dnr.wa.gov

From: David_Every@URSCorp.com [mailto:David_Every@URSCorp.com]
Sent: Thursday, July 22, 2010 10:49 AM
To: JOHNSON, ARNE (DNR)
Subject: RE: Black Sand Beach FPA

Thanks for the quick reply!

A. David Every, Ph.D.
Principal Ecologist
URS Corporation
1501 4th Avenue, Suite 1400
Seattle, WA 98101-1616
Telephone: 206/438-2105
Cellular: 206/200-5779
Fax: 1-866/489-4873
david_every@URSCorp.com

"JOHNSON, ARNE (DNR)" <ARNE.JOHNSON@dnr.wa.gov>

"JOHNSON, ARNE (DNR)"
<ARNE.JOHNSON@dnr.wa.gov>

07/22/2010 10:46 AM

To <David_Every@
cc "MURPHY, PE
<PEGGY.MUR
Subject RE: Black Sand

Dave

Here is the info I have.

FPA # is 3016025
Comments Due by 7-25
Decision Due by 8-10

Arne Johnson
North Columbia District Manager
Northeast Region
Washington State Department of Natural Resources (DNR)
(509) 684-7474
arne.johnson@dnr.wa.gov
www.dnr.wa.gov

From: David_Every@URSCorp.com [mailto:David_Every@URSCorp.com]
Sent: Thursday, July 22, 2010 10:41 AM
To: JOHNSON, ARNE (DNR)
Subject: Black Sand Beach FPA

Arne,

Could you tell me what is the status of the FPA for the Black Sand Beach project?

Thanks,

Dave Every

A. David Every, Ph.D.
Principal Ecologist
URS Corporation
1501 4th Avenue, Suite 1400
Seattle, WA 98101-1616
Telephone: 206/438-2105
Cellular: 206/200-5779
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APPENDIX B
ECOLOGY MEMORANDUM
DATED JANUARY 26, 2011

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

FILE COPY

Technical Memorandum

To: File CRG

From: Chuck Gruenenfelder, Jeremy Schmidt / Ecology

Cc: Mike Hibbler, John Roland / Ecology

Date: January 26, 2011

Re: Black Sand Beach: Summary of Limit-of-Excavation Sample Collection and Analysis

---

Introduction

Teck American Incorporated (TAI) completed slag removal activities at the Black Sand Beach in late October 2010. As discussed in Section 1.2 of the August 2010 *Final Work Plan for Black Sand Beach Project (Work Plan),* the intent of this work was to remove granulated slag from the Trail, B.C. smelter facility that had accumulated over time at the Black Sand Beach. For purposes of design and assessment, the beach was subdivided into three primary subareas: upstream beach, downstream beach, and bedrock outcrop area. The purpose of this memorandum is to document the collection, storage, processing, and analytical testing results for a series of limit-of-excavation sediment samples collected from the Black Sand Beach in October 2010 as slag removal activities were being performed.

Black, granular slag, the dominant component of the sand-sized sediment at the beach, was intermixed (to varying degrees) with native riverine sediment. The slag-impacted sediment was visually distinct and identifiable from the local native sediments and accessible using conventional excavation equipment (e.g., excavator, loader, and vacuum equipment). The vertical and horizontal extent of the excavation was jointly determined by the Engineer, Construction Manager, and Ecology based on four main criteria:

- Visual observations of areal slag distribution during preconstruction reconnaissance.
- Test pit observations of slag thickness just prior to starting construction.
- Findings from a TAI-initiated 2009 assessment of apparent slag thickness.
- The anticipated shoreline position at the time of construction.

As noted in Section 3.1 of the Work Plan, both "wet" and "dry" excavation methods were employed to complete the removal action. "Dry" excavation was defined by removal actions that occurred at elevations lying above the level (stage) of the adjacent Upper Columbia River; "wet" excavation included slag removal from below the standing water level in the excavation pit which corresponded to the elevation of the adjacent river. During construction, river levels were found to fluctuate as much as 2-3 feet over the course of a day.

Except for some limited below-water slag removal immediately adjacent to the river, most of the excavation work in upland portions of the upstream beach was performed without encountering the underlying zone of saturation. The removal actions in this area were strongly guided by visual indications of granular slag to establish the effective vertical limits of excavation.

Granular slag also was present in the central bedrock outcrop area and the cobbled shoreline area immediately south of the downstream beach. In these two areas, the construction contractor used a vacuum extraction method to remove the relatively thin and discontinuous pockets of granular slag that were present. Visual indications of granular slag were used to guide the vacuum extraction removal efforts in these areas. No limit-of-excavation samples were collected from the areas where vacuum extraction work was conducted. Detailed photographic documentation (before and after vacuum extraction) was conducted to confirm the effectiveness of the removal efforts in these areas.

At the downstream beach, a significant amount of the excavation work involved removal of saturated granular slag from below the water line. The work plan anticipated the need for wet excavation to achieve the removal goals for the project. The agreed-upon excavation approach left open the possibility that a small quantity of residual granulated slag would unavoidably remain at the bottom of the "wet" excavation pit once the effective limits of excavation had been reached. The final design included appropriate fill-placement provisions to address this situation, including physical safeguards (coarse, cobble armoring) to minimize the potential for future erosion of any slag residuals.

As discussed in Sections 3.1 and 7.0 of the August 2010 Work Plan, Ecology planned to collect sediment samples from the limits of excavation as the slag removal process proceeded. The purpose of this sample collection effort was to document the chemical composition of residual beach sediment at several limit-of-excavation locations. As stated in the Work Plan, the vertical limit of excavation was based primarily on visual evidence of slag (e.g., color). As noted above, removal actions that necessarily occurred below the water line were not expected to result in complete slag removal due to equipment and methodological considerations.

Spatial variations in slag removal effectiveness, based on laboratory analytical results and Ecology's visual observations during construction, are described in this memorandum. At large, the excavation efforts effectively removed the vast majority of slag-impacted sediment from the Black Sand Beach, consistent with the original project objectives and as achievable with the construction methods employed. Ecology believes that the project objectives and expectations related to the removal of granular slag from the targeted area of excavation, as described in the August 2010 Work Plan, were satisfied by the Phase II construction activities performed in the fall of 2010.

Methods

Sediment samples were collected from 16 separate locations within the upstream and downstream beach areas for the primary purpose of characterizing the concentrations of metals at the limits of excavation. One sample, composed of a laminated sandy silt, was collected several feet above the bottom of the excavation. Though not collected at the actual vertical "limit-of-excavation", the grain size, visual appearance and depositional significance of this material prompted the decision to evaluate its chemical composition along with the other sand-dominated samples. Seven samples were collected from the upstream beach and nine samples were collected from the downstream beach. Samples were collected judgmentally and opportunistically based on site construction conditions, the desire to provide samples from multiple locations within each beach area, and staff availability. Samples were collected from either:

- The exposed bottom of the excavation area (except as noted above).
- From the stockpile area where the excavated material at or near the vertical limits of excavation was temporarily staged.
- From the bucket of the track hoe excavator.

Generally, samples were collected by Ecology staff during construction oversight. When Ecology staff were not present on-site, the URS field representatives obtained sediment samples on Ecology's behalf, as requested by Ecology. For some samples, GPS coordinates were used to identify the approximate location of each sample. When GPS was not available, sample locations were referenced to readily identifiable geologic landmarks and tied to URS's construction stationing coordinate system. The estimated elevation of each sample was provided by the field representatives and tied to the local vertical datum (NAVD 88). See Figure 1 and Table 1 for sample locations and descriptions.

Each sediment sample was placed into a one-quart plastic sample bag using direct hand grab methods or a clean shovel. Most samples were single point grabs; however, some samples represented a composite of 2 to 3 separate subsamples collected from a localized area. Samples were labeled with a unique identifier. They were transported to Ecology's ERO office where they were temporarily stored in a refrigerator (at or below 4 degrees C) pending further examination and processing.

Sample Description and Preparation

The limit-of-excavation sediment samples from the downstream beach typically consisted of gravelly sand. One sandy silt sample (BSB-2) was collected from a deeper horizon within the downstream beach, 1-2 feet above the inferred vertical limit of excavation. Larger quantities of residual slag were present in samples collected from areas where excavation occurred below standing water, particularly at the downstream beach. Several limit-of-excavation samples from the downstream beach were collected from below the standing water level in the excavation pit. Given how these "below water" samples were collected, some quantity of original sediment fines may have been lost through unavoidable washing or winnowing. All samples, whether collected above or below the water table, likely involved some level of disturbance due to the construction methods employed. Regardless, the sediment samples collected as part of this sampling effort are believed to provide a reasonable representation of conditions at the limits of excavation – including both above water and below water sampling stations.

Samples from the upstream beach generally consisted of gravelly sand with little to no visual indication of slag. The majority of the upstream beach samples were collected from depth horizons that were located above the level of the river. These samples were not affected by potential water washing or winnowing effects ascribed above to selected downstream beach limit-of-excavation samples.

The sediment samples were examined by the Ecology project coordinator, and 11 of the 16 original samples were selected for subsequent sample preparation (i.e., sieving to <2mm). Samples were sieved at the Ecology ERO sample preparation room using a Standard Stainless Steel Test Sieve No. 10 (ASTM E-11 Specification) manufactured by Hogentogler & Co., Inc. The sieve was thoroughly cleaned and dried between the processing of each successive sample. The <2mm sample fraction was placed into a pre-labeled 4 oz. glass sample jar. Most or all of the >2mm retained fraction included native gravelly material of mixed mineralogy. For some samples, enough material was available to allow a portion of the original parent sample to be archived. For others, the entire parent sample was used to prepare the sieved sample.

Analysis and Quality Control

Ten of the limit-of-excavation samples and one additional sample were analyzed at Ecology's Manchester Lab, four from the upstream beach, and seven from the downstream beach. Analysis was limited to target analyte list (TAL) metals, minus mercury. The laboratory followed EPA 3050B for the preparation and EPA 200.8 for the analysis of trace metals. Quality control information is located within the first three pages of the laboratory report (Attachment A). Minor quality control deviations were noted, but they do not impact the overall representativeness of the limit-of-excavation analytical results or the conclusions of this memorandum.

Results

Table 2 provides a summary of the laboratory results and Attachment A includes the raw analytical laboratory data sheets. Overall, metals concentrations at the limits of excavation in the upstream beach were comparatively lower than those at the downstream beach. All maximum metals concentrations were found in downstream beach samples and but for one exception, maximum metal concentrations were found in samples 1, 2, and 3. Arsenic, copper, lead and zinc were the four trace metals with the highest degree of concentration variation between samples. The 11 samples have been assigned to three categories based on visual characteristics (inferred percentage of granular slag) and laboratory analytical results:

Higher Percentage of Residual Slag	Lower Percentage of Residual Slag	Trace or No Evident Residual Slag
BSB-1 (DS)	BSB-2 (DS)	BSB-6 (US)
BSB-3 (DS)	BSB-8 (US)	BSB-7 (US)
BSB-11 (DS)	BSB-12 (DS)	BSB-10 (US)
BSB-13 (DS)		
BSB-14 (DS)		

DS = downstream beach
US= upstream beach

Conclusions

The laboratory analysis results, along with post-excavation visual observations, demonstrate that essentially all the granular slag was removed down to the limits of the underlying native sediment horizon in the *upstream beach* area. In this subarea of the Black Sand Beach most of the excavation work occurred above the water line.

Higher concentrations of trace metals (i.e., arsenic, copper, lead and zinc) were found in limit-of-excavation samples collected from the *downstream beach* area. Most of these samples were collected from below the water line (i.e., standing water in the excavation pit). Visual examination of these samples confirmed that some contained residual granular slag. The visual observations, coupled with the laboratory analytical results, demonstrate that a limited quantity of granulated slag remained at the vertical limits of the excavation. We believe that only a relatively thin veneer of slag-enriched sediment was present beneath most of the downstream beach area when the removal action was completed. Small, localized "pockets" of slag may have been left in limited areas where the bottom of excavation interface was more irregular due to bedrock obstructions or topography.

Despite there being a small quantity of residual slag beneath portions of the downstream beach, the removal action goals and objectives were met.

While some finite quantity of residual slag was unavoidably left behind at the base of the downstream beach excavation area, this material has been covered and buried by a considerable thickness of clean fill material. Specifically, the clean fill in the downstream beach area includes (from top to bottom):

- Three-plus feet of beach sand.
- Approximately 3 to 5 feet of coarse gravel (up to 1.5-inch diameter).
- Approximately 3-5 feet of large cobble (8-inch to 12-inch diameter).

This thick sequence of clean fill material effectively caps and armors any residual slag at depth. The fill material and associated erosion protection pads (i.e., large cobbles strategically placed to reduce potential beach erosion) are expected to minimize the potential for erosion of any slag residuals during large, seasonal discharge events on the Upper Columbia River.

It is therefore unlikely that the public and/or ecological receptors will be exposed to residual slag under the beach in the future.

Black Sand Beach - Limit of Excavation Samples

Date Collected	Sample Number	Beach Area	Coordinates or Station Location	Approx Elev. (ft)	Sample Description	Limit of Excavation?
9/29/2010	BSB-LOE-1	Downstream	N48.97092 W-117.64830 STA 0+135, ~25 from river's edge	1294	Grey gravelly sand	yes
9/29/2010	BSB-LOE-2	Downstream	STA 0+180, ~25' from BOC, ~25' from river's edge	1295-1296	Grey sandy silt with iron oxide banding/staining	No. ~2' above bottom of excavation
9/29/2010	BSB-LOE-3	Downstream	STA 0+175 ~30' from river's edge	1293-1294	Grey gravelly sand	yes
9/30/2010	BSB-LOE-4	Upstream	~20' from BOC and 20' from river's edge	1298	Grey gravelly sand/sandy gravel	yes
9/30/2010	BSB-LOE-5	Upstream	~50' from BOC and 20' from river's edge	1298	Grey rounded gravel with sand	yes
9/30/2010	BSB-LOE-6	Upstream	~25' from east edge of beach ~25' from river's edge	1298	Grey poorly graded sand	yes
10/12/2010	BSB-LOE-7	Upstream	~30' from BOC and 50' from river's edge	1304	Grey-tan gravelly sand	yes
10/12/2010	BSB-LOE-8	Upstream	~50' from BOC and 50' from river's edge	1305	Grey-tan gravelly sand	yes
10/12/2010	BSB-LOE-9	Upstream	~80' from BOC and 50' from river's edge	1304	Grey-tan gravelly sand	yes
10/12/2010	BSB-LOE-10	Upstream	~30' from BOC and 100' from river's edge	1307	Grey-brown sandy gravel	yes
10/18/2010	BSB-LOE-11	Downstream	STA 0+50; ~50' from river's edge	1294	Grey sandy gravel	yes
10/19/2010	BSB-LOE-12	Downstream	STA 0+125; ~60' from river's edge	1293	Poorly graded grey-tan sand looks well washed	yes
10/21/2010	BSB-LOE-13	Downstream	N48.97071 W-117.64825	N/R	Grey to dk olive brown poorly graded fine to med sand	yes
10/21/2010	BSB-LOE-14	Downstream	STA 0+75; ~100' from river's edge	1294	Grey gravelly sand	yes
10/22/2010	BSB-LOE-15	Downstream	N48.97064 W-117.64826	N/R	Grey gravelly sand	yes
10/22/2010	BSB-LOE-16	Downstream	N48.97062 W-117.64850	N/R	Grey-tan sandy gravel	yes

Table 1

Black Sand Beach Limit of Excavation Results - Metals Analysis

Sampling Station	Date Collected	Beach*	Antimony	Selenium	Lead	Nickel	Copper	Chromium
BSB-LOE-1	9/29/2010	DS	6.4	5.00 UJ	1320.0	9.5	***1080.0***	38.5
BSB-LOE-2	9/29/2010	DS	5.6	***1.51*** J	765.0	***22.7***	86.3	20.1
BSB-LOE-3	9/29/2010	DS	***7.6***	0.50 UJ	***1560.0***	9.3	932.0	31.2
BSB-LOE-6	9/30/2010	US	0.2 U	0.50 U	9.4	8.0	8.3	7.9
BSB-LOE-7	10/12/2010	US	0.5	0.50 UJ	15.5	8.9	28.4	11.8
BSB-LOE-8	10/12/2010	US	2.0 U	0.50 UJ	62.5	11.9	50.2	18.1
BSB-LOE-10	10/12/2010	US	0.2 UJ	0.50 UJ	14.8 J	13.8	20.7	20.6 J
BSB-LOE-11	10/18/2010	DS	2.7	0.50 U	138.0	11.6	547.0	48.1
BSB-LOE-12	10/19/2010	DS	0.3	0.50 U	24.1	9.2	42.8	11.5
BSB-LOE-13	10/21/2010	DS	7.2	0.50 U	184.0	10.9	670.0	***50.8***
BSB-LOE-14	10/21/2010	DS	2.9	0.50 U	94.8	9.3	408.0	28.7

Sampling Station	Date Collected	Beach*	Cadmium	Beryllium	Arsenic	Silver	Thallium	Zinc
BSB-LOE-1	9/29/2010	DS	3.76	1.00 UJ	***29.90***	1.75	1.00 U	17800
BSB-LOE-2	9/29/2010	DS	***10.50***	1.00 UJ	19.30	1.08	1.00 U	2810
BSB-LOE-3	9/29/2010	DS	1.83	1.00 UJ	21.00	***1.94***	1.00 U	***18300***
BSB-LOE-6	9/30/2010	US	0.23	1.00 UJ	2.32	1.00 U	1.00 U	235
BSB-LOE-7	10/12/2010	US	0.15	1.00 UJ	2.68	1.00 U	1.00 U	126
BSB-LOE-8	10/12/2010	US	1.00 U	1.00 UJ	3.45	1.00 U	1.00 U	1130
BSB-LOE-10	10/12/2010	US	0.18	1.00 UJ	3.61	1.00 U	1.00 U	143 J
BSB-LOE-11	10/18/2010	DS	1.29	1.00 UJ	4.42	1.00 U	1.00 U	9510
BSB-LOE-12	10/19/2010	DS	0.54	1.00 UJ	3.11	1.00 U	1.00 U	441
BSB-LOE-13	10/21/2010	DS	2.36	1.00 UJ	6.30	1.00 U	1.00 U	6990
BSB-LOE-14	10/21/2010	DS	1.00 U	1.00 UJ	3.74	1.00 U	1.00 U	6110

Max Value

*US = Upstream Beach; DS = Downstream Beach

Table 2


Black Sand Beach Limit of Excavation Sampling Locations and Elevations
0+200
0+150
0+100
0+50
0+00
2 1295'
3 1293'
1 1294'
4 1298'
5 1298'
6 1298'
1304'
7
1305'
8
9 1304'
12 1293'
11 1294'
13 N/R'
14 1294'
15 N/R'
16 N/R'
10 1307'
N
Feet
0
50
100
Figure 1
CoordinateSystem: NAD83 UTM Zone 11N

Attachment A

Laboratory Analytical Report

Manchester Environmental Laboratory

7411 Beach Drive E, Port Orchard, Washington 98366

Case Narrative

December 13, 2010

Project: Metals Black Sand Beach

Work Order: 1012035

Project Manager: Gruenenfelder, Charles

By: Dean Momohara DM

Summary

The laboratory followed EPA 3050B for the preparation and EPA 200.8 for the analysis of trace metals.

All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

The samples were received at the Manchester Laboratory on 12/2/2010. The cooler was received within the proper temperature range of 0°C - 6°C. The samples were received in good condition. Eleven samples were received and assigned laboratory identification numbers 1012035-01 to 1012035-11.

Holding Times

The laboratory performed all analyses within their hold times.

Calibration

The instrument was calibrated following the appropriate method. All initial and continuing calibration verification checks were within the acceptance limits. The initial calibration blank check was within the acceptance limits.

All continuing calibration blank checks were within the acceptance limits except for selenium and beryllium.

The results for samples 1012035-01 to 1012035-03 and 1012035-05 to 1012035-07 for selenium and samples 1012035-01 to 1012035-11 for beryllium were qualified as estimates.

All standard residuals were within acceptance limits. All r-values were within acceptance limits. The instrument was calibrated with a NIST traceable standard and verified to be in calibration with a second source NIST traceable standard. Oven drying temperatures were monitored before and after drying.

Method Blanks

No analytically significant level of analyte was detected in the method blank associated with these samples.

Laboratory Control Samples

All laboratory control sample recoveries were within the acceptance limits.

Replicates

All duplicate relative percent differences (RPD) of samples with concentrations greater than 5 times the reporting limit were within the acceptance limit except for lead and zinc. The duplicate RPDs for sample 1012035-07 for lead and zinc were greater than the acceptance limit. The samples were qualified as estimates.

Matrix Spikes

All matrix spike (MS) recoveries were within the acceptance limits except for antimony, zinc, chromium and lead.

One of the MS/MSD recoveries for sample 1012035-07 for zinc, chromium and lead was outside of the acceptance limits due to sample inhomogeneity. The source samples were qualified as estimates.

Both MS/MSD recoveries for sample 1012035-07 for antimony were outside of the acceptance limits due to matrix interference. The source sample was qualified as an estimate.

Internal Standards

All internal standard recoveries were within the acceptance limits.

Other Quality Assurance Measures and Issues

U - The analyte was not detected at or above the reported result.

J - The analyte was positively identified. The associated numerical result is an estimate.

UJ - The analyte was not detected at or above the reported estimated result.

bold - The analyte was present in the sample. (Visual Aid to locate detected compounds on report sheet.)

Please call Deans Momohara at (360) 871-8808 to further discuss this project.

cc: Project File

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Antimony

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/09/2010

Analyte: Antimony
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	**BSB-LOE-1**	**6.39**		2.00	0.075	09/29/10	12/09/10	B10L032
1012035-02	**BSB-LOE-2**	**5.55**		2.00	0.075	09/29/10	12/09/10	B10L032
1012035-03	**BSB-LOE-3**	**7.59**		2.00	0.075	09/29/10	12/09/10	B10L032
1012035-04	BSB-LOE-6	0.200	U	0.200	0.008	09/30/10	12/09/10	B10L032
1012035-05	**BSB-LOE-7**	**0.466**		0.200	0.008	10/12/10	12/09/10	B10L032
1012035-06	BSB-LOE-8	2.00	U	2.00	0.075	10/12/10	12/09/10	B10L032
1012035-07	BSB-LOE-10	0.200	UJ	0.200	0.008	10/12/10	12/09/10	B10L032
1012035-08	**BSB-LOE-11**	**2.74**		2.00	0.075	10/18/10	12/09/10	B10L032
1012035-09	**BSB-LOE-12**	**0.302**		0.200	0.008	10/19/10	12/09/10	B10L032
1012035-10	**BSB-LOE-13**	**7.23**		2.00	0.075	10/21/10	12/09/10	B10L032
1012035-11	**BSB-LOE-14**	**2.91**		2.00	0.075	10/21/10	12/09/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.200	U	0.200	12/09/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	40.3	40			101	85-115		
B10L032-MS1	Matrix Spike	14.9	40	1012035-07	0.159	37	75-125		
B10L032-MSD1	Matrix Spike Dup	13.2	40	1012035-07	0.159	33	75-125	12	20

Authorized by: DM **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Selenium

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/08/2010

Analyte: Selenium
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	5.00	UJ	5.00	3.03	09/29/10	12/08/10	B10L032
1012035-02	**BSB-LOE-2**	**1.51**	**J**	0.500	0.303	09/29/10	12/08/10	B10L032
1012035-03	BSB-LOE-3	0.500	UJ	0.500	0.303	09/29/10	12/08/10	B10L032
1012035-04	BSB-LOE-6	0.500	U	0.500	0.303	09/30/10	12/08/10	B10L032
1012035-05	BSB-LOE-7	0.500	UJ	0.500	0.303	10/12/10	12/08/10	B10L032
1012035-06	BSB-LOE-8	0.500	UJ	0.500	0.303	10/12/10	12/08/10	B10L032
1012035-07	BSB-LOE-10	0.500	UJ	0.500	0.303	10/12/10	12/08/10	B10L032
1012035-08	BSB-LOE-11	0.500	U	0.500	0.303	10/18/10	12/08/10	B10L032
1012035-09	BSB-LOE-12	0.500	U	0.500	0.303	10/19/10	12/08/10	B10L032
1012035-10	BSB-LOE-13	0.500	U	0.500	0.303	10/21/10	12/08/10	B10L032
1012035-11	BSB-LOE-14	0.500	U	0.500	0.303	10/21/10	12/08/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.500	U	0.500	12/08/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	44.9	40			112	85-115		
B10L032-MS1	Matrix Spike	41.7	40	1012035-07	0.500 U	104	75-125		
B10L032-MSD1	Matrix Spike Dup	41.9	40	1012035-07	0.500 U	105	75-125	0.5	20

Authorized by: DM **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Lead

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/08/2010

Analyte: Lead
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	1320		10.0	0.664	09/29/10	12/08/10	B10L032
1012035-02	BSB-LOE-2	765		1.00	0.066	09/29/10	12/08/10	B10L032
1012035-03	BSB-LOE-3	1560		10.0	0.664	09/29/10	12/08/10	B10L032
1012035-04	BSB-LOE-6	9.44		0.100	0.007	09/30/10	12/08/10	B10L032
1012035-05	BSB-LOE-7	15.5		0.100	0.007	10/12/10	12/08/10	B10L032
1012035-06	BSB-LOE-8	62.5		0.100	0.007	10/12/10	12/08/10	B10L032
1012035-07	BSB-LOE-10	14.8	J	0.100	0.007	10/12/10	12/08/10	B10L032
1012035-08	BSB-LOE-11	138		1.00	0.066	10/18/10	12/08/10	B10L032
1012035-09	BSB-LOE-12	24.1		0.100	0.007	10/19/10	12/08/10	B10L032
1012035-10	BSB-LOE-13	184		10.0	0.664	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	94.8		0.100	0.007	10/21/10	12/08/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/08/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	36.4	40			91	85-115		
B10L032-MS1	Matrix Spike	70.8	40	1012035-07	14.8	140	75-125		
B10L032-MSD1	Matrix Spike Dup	51.5	40	1012035-07	14.8	92	75-125	32	20

Authorized by: DM

Release Date: 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Nickel

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/09/2010

Analyte: Nickel
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	9.49		1.00	0.060	09/29/10	12/09/10	B10L032
1012035-02	BSB-LOE-2	22.7		1.00	0.060	09/29/10	12/09/10	B10L032
1012035-03	BSB-LOE-3	9.33		1.00	0.060	09/29/10	12/09/10	B10L032
1012035-04	BSB-LOE-6	7.97		1.00	0.060	09/30/10	12/09/10	B10L032
1012035-05	BSB-LOE-7	8.89		1.00	0.060	10/12/10	12/09/10	B10L032
1012035-06	BSB-LOE-8	11.9		1.00	0.060	10/12/10	12/09/10	B10L032
1012035-07	BSB-LOE-10	13.8		1.00	0.060	10/12/10	12/09/10	B10L032
1012035-08	BSB-LOE-11	11.6		1.00	0.060	10/18/10	12/09/10	B10L032
1012035-09	BSB-LOE-12	9.23		1.00	0.060	10/19/10	12/09/10	B10L032
1012035-10	BSB-LOE-13	10.9		1.00	0.060	10/21/10	12/09/10	B10L032
1012035-11	BSB-LOE-14	9.34		1.00	0.060	10/21/10	12/09/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/09/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	37.9	40			95	85-115		
B10L032-MS1	Matrix Spike	48.7	40	1012035-07	13.8	87	75-125		
B10L032-MSD1	Matrix Spike Dup	51.2	40	1012035-07	13.8	93	75-125	5	20

Authorized by: DM **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for

Copper

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/08/2010

Analyte: Copper
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	1080		10.0	1.16	09/29/10	12/08/10	B10L032
1012035-02	BSB-LOE-2	86.3		0.100	0.012	09/29/10	12/08/10	B10L032
1012035-03	BSB-LOE-3	932		10.0	1.16	09/29/10	12/08/10	B10L032
1012035-04	BSB-LOE-6	8.25		0.100	0.012	09/30/10	12/08/10	B10L032
1012035-05	BSB-LOE-7	28.4		0.100	0.012	10/12/10	12/08/10	B10L032
1012035-06	BSB-LOE-8	50.2		0.100	0.012	10/12/10	12/08/10	B10L032
1012035-07	BSB-LOE-10	20.7		0.100	0.012	10/12/10	12/08/10	B10L032
1012035-08	BSB-LOE-11	547		1.00	0.116	10/18/10	12/08/10	B10L032
1012035-09	BSB-LOE-12	42.8		0.100	0.012	10/19/10	12/08/10	B10L032
1012035-10	BSB-LOE-13	670		10.0	1.16	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	408		10.0	1.16	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/08/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	39.2	40			98	85-115		
B10L032-MS1	Matrix Spike	61.7	40	1012035-07	20.7	103	75-125		
B10L032-MSD1	Matrix Spike Dup	60.4	40	1012035-07	20.7	99	75-125	2	20

Authorized by: DM

Release Date: 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Chromium

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/10/2010

Analyte: Chromium
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	38.5		5.00	0.112	09/29/10	12/10/10	B10L032
1012035-02	BSB-LOE-2	20.1		5.00	0.112	09/29/10	12/10/10	B10L032
1012035-03	BSB-LOE-3	31.2		5.00	0.112	09/29/10	12/10/10	B10L032
1012035-04	BSB-LOE-6	7.89		5.00	0.112	09/30/10	12/10/10	B10L032
1012035-05	BSB-LOE-7	11.8		5.00	0.112	10/12/10	12/10/10	B10L032
1012035-06	BSB-LOE-8	18.1		5.00	0.112	10/12/10	12/10/10	B10L032
1012035-07	BSB-LOE-10	20.6	J	5.00	0.112	10/12/10	12/10/10	B10L032
1012035-08	BSB-LOE-11	48.1		5.00	0.112	10/18/10	12/10/10	B10L032
1012035-09	BSB-LOE-12	11.5		5.00	0.112	10/19/10	12/10/10	B10L032
1012035-10	BSB-LOE-13	50.8		5.00	0.112	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	28.7		5.00	0.112	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.500	U	0.500	12/10/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	39.9	40			100	85-115		
B10L032-MS1	Matrix Spike	48.0	40	1012035-07	20.6	68	75-125		
B10L032-MSD1	Matrix Spike Dup	53.9	40	1012035-07	20.6	83	75-125	12	20

Authorized by: DM

Release Date: 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Cadmium

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/09/2010

Analyte: Cadmium
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	**BSB-LOE-1**	**3.76**		1.00	0.057	09/29/10	12/09/10	B10L032
1012035-02	**BSB-LOE-2**	**10.5**		1.00	0.057	09/29/10	12/09/10	B10L032
1012035-03	**BSB-LOE-3**	**1.83**		1.00	0.057	09/29/10	12/09/10	B10L032
1012035-04	**BSB-LOE-6**	**0.232**		0.100	0.006	09/30/10	12/09/10	B10L032
1012035-05	**BSB-LOE-7**	**0.147**		0.100	0.006	10/12/10	12/09/10	B10L032
1012035-06	BSB-LOE-8	1.00	U	1.00	0.057	10/12/10	12/09/10	B10L032
1012035-07	**BSB-LOE-10**	**0.178**		0.100	0.006	10/12/10	12/09/10	B10L032
1012035-08	**BSB-LOE-11**	**1.29**		1.00	0.057	10/18/10	12/09/10	B10L032
1012035-09	**BSB-LOE-12**	**0.540**		0.100	0.006	10/19/10	12/09/10	B10L032
1012035-10	**BSB-LOE-13**	**2.36**		1.00	0.057	10/21/10	12/09/10	B10L032
1012035-11	BSB-LOE-14	1.00	U	1.00	0.057	10/21/10	12/09/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/09/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	39.6	40			99	85-115		
B10L032-MS1	Matrix Spike	36.7	40	1012035-07	0.178	91	75-125		
B10L032-MSD1	Matrix Spike Dup	36.9	40	1012035-07	0.178	92	75-125	0.7	20

Authorized by: DR **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Beryllium

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/10/2010

Analyte: Beryllium
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	1.00	UJ	1.00	0.059	09/29/10	12/10/10	B10L032
1012035-02	BSB-LOE-2	1.00	UJ	1.00	0.059	09/29/10	12/10/10	B10L032
1012035-03	BSB-LOE-3	1.00	UJ	1.00	0.059	09/29/10	12/10/10	B10L032
1012035-04	BSB-LOE-6	1.00	UJ	1.00	0.059	09/30/10	12/10/10	B10L032
1012035-05	BSB-LOE-7	1.00	UJ	1.00	0.059	10/12/10	12/10/10	B10L032
1012035-06	BSB-LOE-8	1.00	UJ	1.00	0.059	10/12/10	12/10/10	B10L032
1012035-07	BSB-LOE-10	1.00	UJ	1.00	0.059	10/12/10	12/10/10	B10L032
1012035-08	BSB-LOE-11	1.00	UJ	1.00	0.059	10/18/10	12/10/10	B10L032
1012035-09	BSB-LOE-12	1.00	UJ	1.00	0.059	10/19/10	12/10/10	B10L032
1012035-10	BSB-LOE-13	1.00	UJ	1.00	0.059	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	1.00	UJ	1.00	0.059	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/10/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	40.1	40			100	85-115		
B10L032-MS1	Matrix Spike	43.1	40	1012035-07	1.00 U	108	75-125		
B10L032-MSD1	Matrix Spike Dup	42.7	40	1012035-07	1.00 U	107	75-125	0.8	20

Authorized by: DM

Release Date: 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Arsenic

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/08/2010

Analyte: Arsenic
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	29.9		1.00	0.163	09/29/10	12/08/10	B10L032
1012035-02	BSB-LOE-2	19.3		0.100	0.016	09/29/10	12/08/10	B10L032
1012035-03	BSB-LOE-3	21.0		0.100	0.016	09/29/10	12/08/10	B10L032
1012035-04	BSB-LOE-6	2.32		0.100	0.016	09/30/10	12/08/10	B10L032
1012035-05	BSB-LOE-7	2.68		0.100	0.016	10/12/10	12/08/10	B10L032
1012035-06	BSB-LOE-8	3.45		0.100	0.016	10/12/10	12/08/10	B10L032
1012035-07	BSB-LOE-10	3.61		0.100	0.016	10/12/10	12/08/10	B10L032
1012035-08	BSB-LOE-11	4.42		0.100	0.016	10/18/10	12/08/10	B10L032
1012035-09	BSB-LOE-12	3.11		0.100	0.016	10/19/10	12/08/10	B10L032
1012035-10	BSB-LOE-13	6.30		0.100	0.016	10/21/10	12/08/10	B10L032
1012035-11	BSB-LOE-14	3.74		0.100	0.016	10/21/10	12/08/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.146		0.100	12/08/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	42.1	40			105	85-115		
B10L032-MS1	Matrix Spike	42.5	40	1012035-07	3.61	97	75-125		
B10L032-MSD1	Matrix Spike Dup	42.0	40	1012035-07	3.61	96	75-125	1	20

Authorized by: DM

Release Date: 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Silver

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/10/2010

Analyte: Silver
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	**BSB-LOE-1**	**1.75**		1.00	0.035	09/29/10	12/10/10	B10L032
1012035-02	**BSB-LOE-2**	**1.08**		1.00	0.035	09/29/10	12/10/10	B10L032
1012035-03	**BSB-LOE-3**	**1.94**		1.00	0.035	09/29/10	12/10/10	B10L032
1012035-04	BSB-LOE-6	1.00	U	1.00	0.035	09/30/10	12/10/10	B10L032
1012035-05	BSB-LOE-7	1.00	U	1.00	0.035	10/12/10	12/10/10	B10L032
1012035-06	BSB-LOE-8	1.00	U	1.00	0.035	10/12/10	12/10/10	B10L032
1012035-07	BSB-LOE-10	1.00	U	1.00	0.035	10/12/10	12/10/10	B10L032
1012035-08	BSB-LOE-11	1.00	U	1.00	0.035	10/18/10	12/10/10	B10L032
1012035-09	BSB-LOE-12	1.00	U	1.00	0.035	10/19/10	12/10/10	B10L032
1012035-10	BSB-LOE-13	1.00	U	1.00	0.035	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	1.00	U	1.00	0.035	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/10/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	40.9	40			102	85-115		
B10L032-MS1	Matrix Spike	37.8	40	1012035-07	0.054	94	75-125		
B10L032-MSD1	Matrix Spike Dup	37.6	40	1012035-07	0.054	94	75-125	0.5	20

Authorized by: DM **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for
Thallium

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/10/2010

Analyte: Thallium
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	1.00	U	1.00	0.163	09/29/10	12/10/10	B10L032
1012035-02	BSB-LOE-2	1.00	U	1.00	0.163	09/29/10	12/10/10	B10L032
1012035-03	BSB-LOE-3	1.00	U	1.00	0.163	09/29/10	12/10/10	B10L032
1012035-04	BSB-LOE-6	1.00	U	1.00	0.163	09/30/10	12/10/10	B10L032
1012035-05	BSB-LOE-7	1.00	U	1.00	0.163	10/12/10	12/10/10	B10L032
1012035-06	BSB-LOE-8	1.00	U	1.00	0.163	10/12/10	12/10/10	B10L032
1012035-07	BSB-LOE-10	1.00	U	1.00	0.163	10/12/10	12/10/10	B10L032
1012035-08	BSB-LOE-11	1.00	U	1.00	0.163	10/18/10	12/10/10	B10L032
1012035-09	BSB-LOE-12	1.00	U	1.00	0.163	10/19/10	12/10/10	B10L032
1012035-10	BSB-LOE-13	1.00	U	1.00	0.163	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	1.00	U	1.00	0.163	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	0.100	U	0.100	12/10/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	39.3	40			98	85-115		
B10L032-MS1	Matrix Spike	38.4	40	1012035-07	1.00 U	96	75-125		
B10L032-MSD1	Matrix Spike Dup	39.2	40	1012035-07	1.00 U	98	75-125	2	20

Authorized by: DM **Release Date:** 12/13/10

Washington State Department of Ecology
Manchester Environmental Laboratory
Final Analysis Report for

Zinc

Project Name: Black Sand Beach
Work Order: 1012035
Project Officer: Gruenenfelder, Charles

Date Collected: 09/29/2010
Date Analyzed: 12/08/2010

Analyte: Zinc
Method: EPA200.8
Matrix: Sediment/Soil
Units: mg/kg dw

Sample #	Sample ID	Result	Qualifier	RL	MDL	Collected	Analyzed	Batch ID
1012035-01	BSB-LOE-1	17800		500	21.8	09/29/10	12/08/10	B10L032
1012035-02	BSB-LOE-2	2810		500	21.8	09/29/10	12/08/10	B10L032
1012035-03	BSB-LOE-3	18300		500	21.8	09/29/10	12/08/10	B10L032
1012035-04	BSB-LOE-6	235		50.0	2.18	09/30/10	12/08/10	B10L032
1012035-05	BSB-LOE-7	126		5.00	0.218	10/12/10	12/08/10	B10L032
1012035-06	BSB-LOE-8	1130		50.0	2.18	10/12/10	12/08/10	B10L032
1012035-07	BSB-LOE-10	143	J	5.00	0.218	10/12/10	12/08/10	B10L032
1012035-08	BSB-LOE-11	9510		500	21.8	10/18/10	12/10/10	B10L032
1012035-09	BSB-LOE-12	441		50.0	2.18	10/19/10	12/10/10	B10L032
1012035-10	BSB-LOE-13	6990		500	21.8	10/21/10	12/10/10	B10L032
1012035-11	BSB-LOE-14	6110		500	21.8	10/21/10	12/10/10	B10L032

QC Results for Batch ID: B10L032

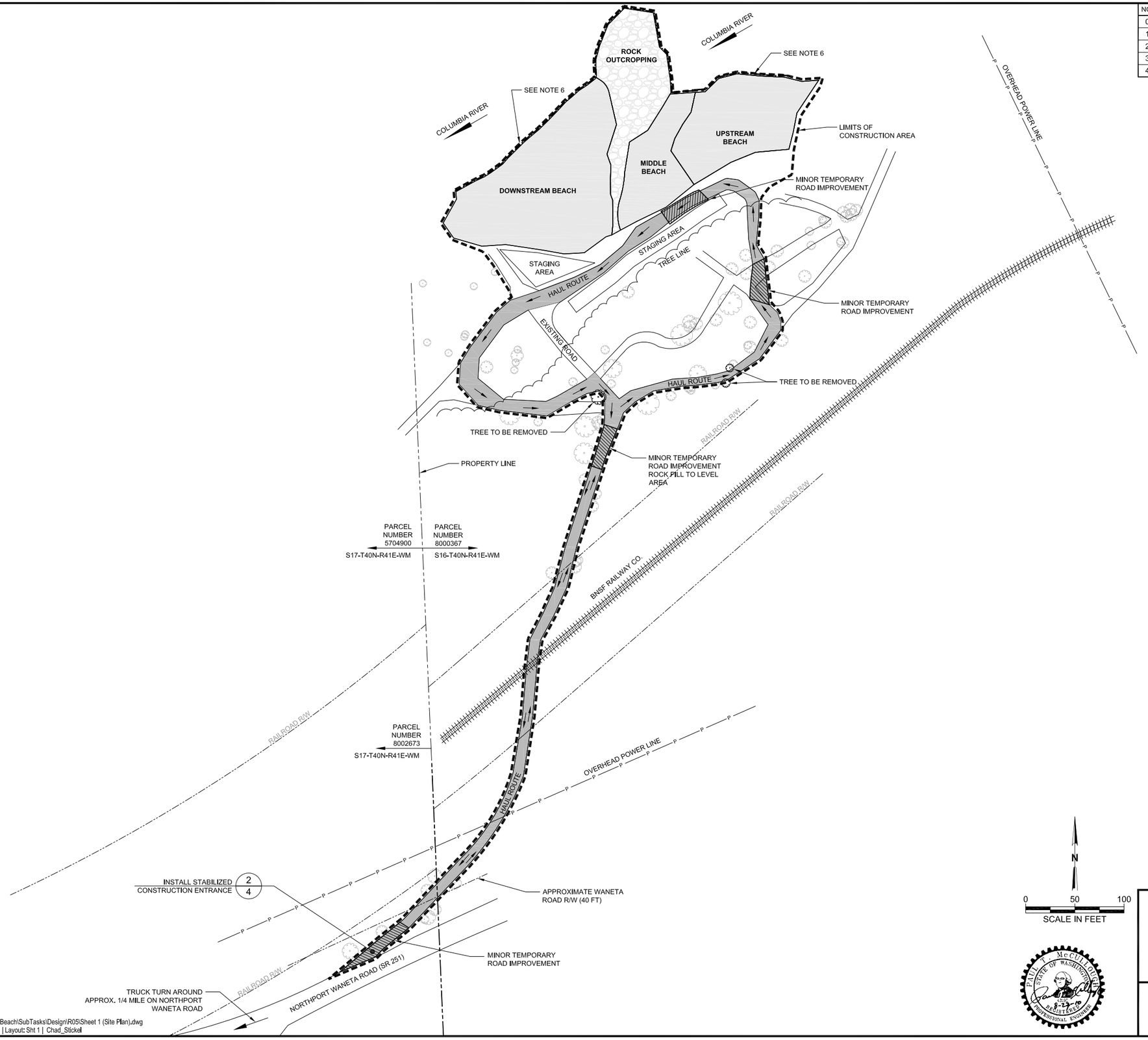
Method Blank	Sample ID	Result	Qualifer	RL	Analyzed
B10L032-BLK1	Blank	5.00	U	5.00	12/08/10

Sample #	QC Sample	Result	Spike Level	Source Sample	Source Result	%Rec	%Rec Limits	RPD	RPD Limit
B10L032-BS1	LCS	40.1	40			100	85-115		
B10L032-MS1	Matrix Spike	237	40	1012035-07	143	235	75-125		
B10L032-MSD1	Matrix Spike Dup	190	40	1012035-07	143	116	75-125	22	20

Authorized by: DM **Release Date:** 12/13/10

APPENDIX C
90-PERCENT ENGINEERING PLANS FROM WORK PLAN

NO.	DATE	BY	REVISION DESCRIPTION
0	8/3/09	PTM	30% SUBMITTAL
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- OVERHEAD POWER LINE
- RAILROAD R/W
- RAILROAD
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT
- AREA OF EXCAVATION

NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2009. ADDITIONAL SURVEY WAS PERFORMED OF ACCESS ROADS AND TRUCK TURN AROUND AREA IN NOVEMBER 2009.
2. SURVEYS WERE PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. THE PURPOSE OF THE SURVEYS WERE TO OBTAIN TOPOGRAPHIC DATA AND SITE FEATURES.
4. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.
5. ROAD IMPROVEMENTS SHALL BE TEMPORARY. CONTRACTOR SHALL RESTORE ROADS TO PRE-CONSTRUCTION CONDITION TO EXTENT POSSIBLE.
6. EDGE OF WATER DEPICTED ON DRAWINGS ARE APPROXIMATE. ACTUAL LOCATION OF EDGE OF WATER MAY VARY AT TIME OF CONSTRUCTION.
7. PROPERTY LINE ENDS AT HIGH WATER MARK (~EL +1312 FT).

N

0 50 100

SCALE IN FEET

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXISTING CONDITIONS SITE PLAN AND HAUL ROUTE

PAUL T. McCULLOCH — STATE OF WASHINGTON — 8-27-10 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY:	PTM
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 5
DATE:	8/27/10

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SHEET 1 OF 8

DRAWING NO. 1

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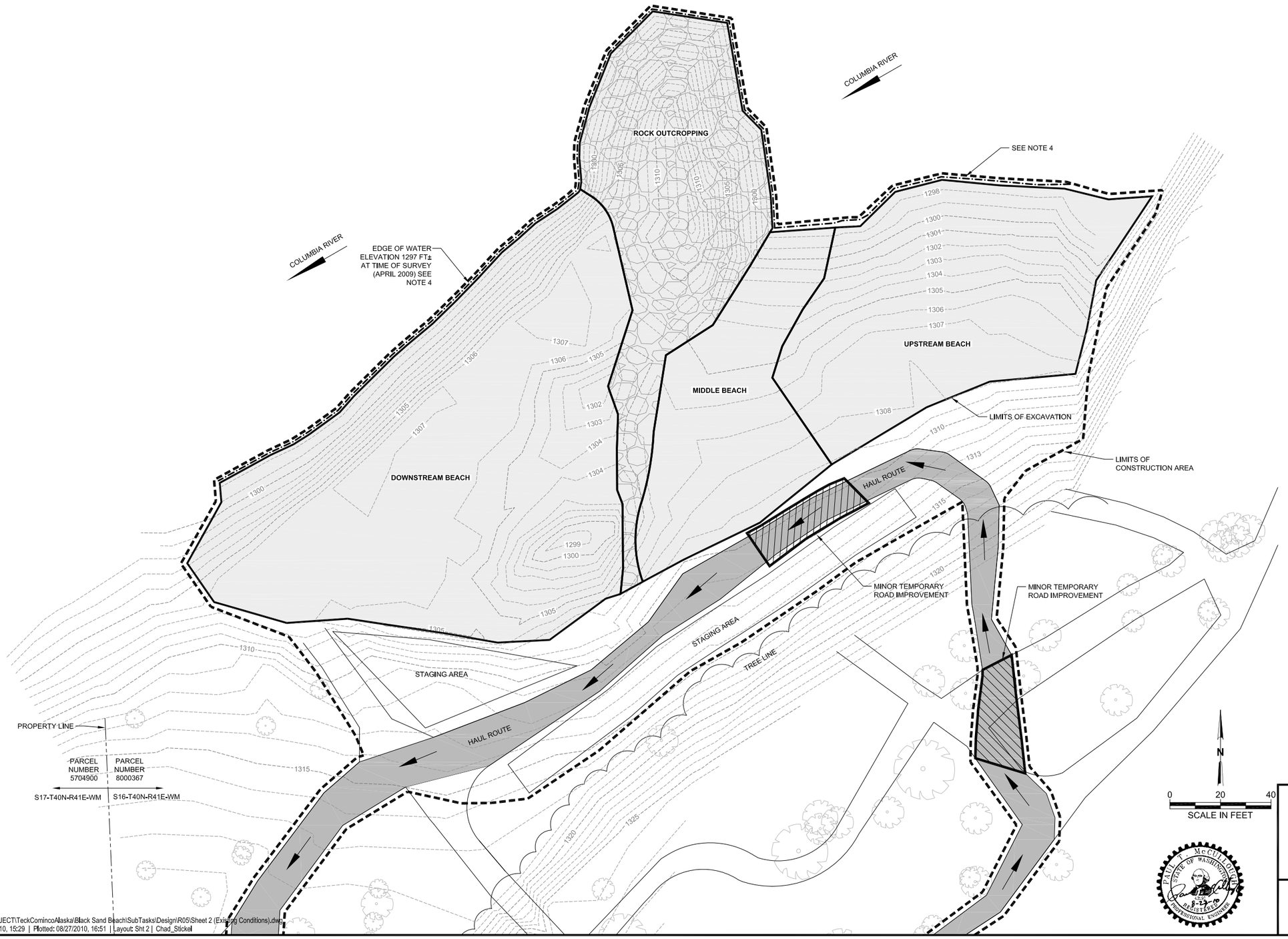
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- OVERHEAD POWER LINE
- EDGE OF WATER
- HAUL ROUTE
- TEMPORARY MINOR ROAD IMPROVEMENT
- AREA OF EXCAVATION

SURVEYOR'S NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2009.
2. TOPOGRAPHIC SURVEY WAS PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429,512 FT. EAST, ELEV. 1,457.071 FT.
4. EDGE OF WATER ELEVATION DEPICTED ON DRAWING MAY VARY AT TIME OF CONSTRUCTION.
5. PROPERTY LINE ENDS AT HIGH WATER MARK (~EL +1312 FT).

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXISTING CONDITIONS

DESIGNED BY:	PTM
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 5
DATE:	8/27/10

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SHEET 2 OF 8
DRAWING NO. 2

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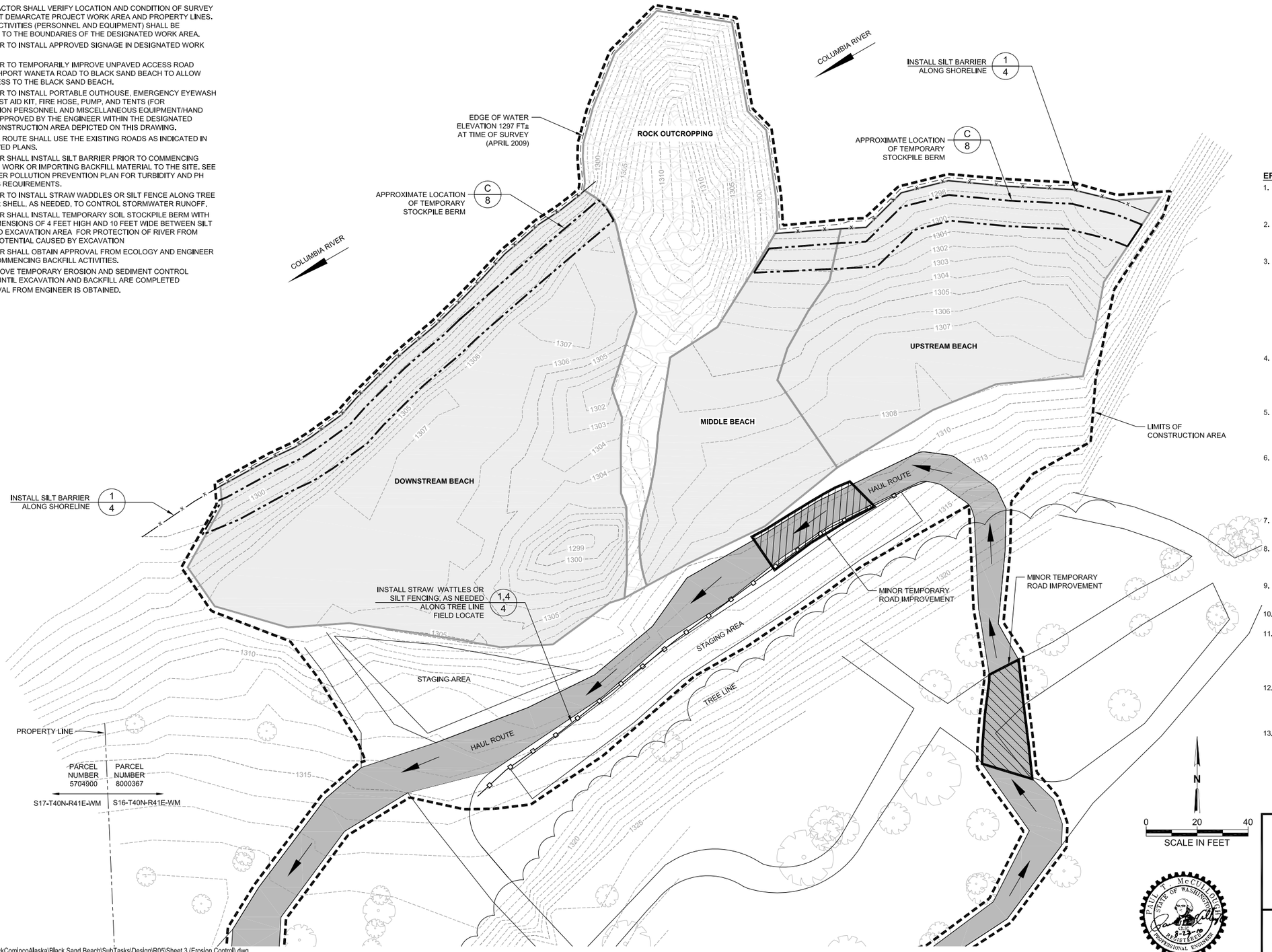
CONSTRUCTION SEQUENCE

1. OBTAIN OR VERIFY ACCESS PERMIT FROM BNSF FOR PRIVATE RAILROAD CROSSING AND SITE ACCESS PERMISSION FROM SITE ACCESS OWNERS. REFER TO VICINITY MAP ON SHEET 1.
2. CONTRACTOR SHALL PERFORM PRE-CONSTRUCTION SURVEY TO STAKE-OUT BOUNDARIES OF PROJECT WORK AREA AND TO IDENTIFY PROPERTY LINES AND/OR EASEMENTS IN THE VICINITY OF THE PROJECT WORK AREA.
3. PRE-CONSTRUCTION MEETING TO BE HELD WITH THE CLIENT, ENGINEER, CONTRACTOR, ECOLOGY, REPRESENTATIVE ACCESS OWNERS AND ARCHAEOLOGICAL MONITOR.
4. THE CONTRACTOR SHALL VERIFY LOCATION AND CONDITION OF SURVEY STAKES THAT DEMARCATE PROJECT WORK AREA AND PROPERTY LINES. ALL WORK ACTIVITIES (PERSONNEL AND EQUIPMENT) SHALL BE RESTRICTED TO THE BOUNDARIES OF THE DESIGNATED WORK AREA.
5. CONTRACTOR TO INSTALL APPROVED SIGNAGE IN DESIGNATED WORK AREA.
6. CONTRACTOR TO TEMPORARILY IMPROVE UNPAVED ACCESS ROAD FROM NORTHPORT WANETA ROAD TO BLACK SAND BEACH TO ALLOW TRUCK ACCESS TO THE BLACK SAND BEACH.
7. CONTRACTOR TO INSTALL PORTABLE OUTHOUSE, EMERGENCY EYEWASH STATION/FIRST AID KIT, FIRE HOSE, PUMP, AND TENTS (FOR CONSTRUCTION PERSONNEL AND MISCELLANEOUS EQUIPMENT/HAND TOOLS) AS APPROVED BY THE ENGINEER WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION AREA DEPICTED ON THIS DRAWING.
8. TRUCK HAUL ROUTE SHALL USE THE EXISTING ROADS AS INDICATED IN THE APPROVED PLANS.
9. CONTRACTOR SHALL INSTALL SILT BARRIER PRIOR TO COMMENCING EXCAVATION WORK OR IMPORTING BACKFILL MATERIAL TO THE SITE. SEE STORM WATER POLLUTION PREVENTION PLAN FOR TURBIDITY AND PH MONITORING REQUIREMENTS.
10. CONTRACTOR TO INSTALL STRAW WADDLES OR SILT FENCE ALONG TREE LINE BUFFER SHELL, AS NEEDED, TO CONTROL STORMWATER RUNOFF.
11. CONTRACTOR SHALL INSTALL TEMPORARY SOIL STOCKPILE BERM WITH MINIMUM DIMENSIONS OF 4 FEET HIGH AND 10 FEET WIDE BETWEEN SILT BARRIER AND EXCAVATION AREA FOR PROTECTION OF RIVER FROM TURBIDITY POTENTIAL CAUSED BY EXCAVATION
12. CONTRACTOR SHALL OBTAIN APPROVAL FROM ECOLOGY AND ENGINEER PRIOR TO COMMENCING BACKFILL ACTIVITIES.
13. DO NOT REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES UNTIL EXCAVATION AND BACKFILL ARE COMPLETED AND APPROVAL FROM ENGINEER IS OBTAINED.



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LEGEND

- TEMPORARY STOCKPILE
- STRAW WATTLE OR SILT FENCE
- SILT BARRIER
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT
- AREA OF EXCAVATION

EROSION AND SEDIMENTATION CONTROL

1. THE IMPLEMENTATION OF THESE EROSION SEDIMENTATION CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE COLUMBIA RIVER.
3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOLLOWING INSPECTION AFTER STORM EVENTS OR INSPECTION WHILE NEAR THE RIVER. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED FOR SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS/HER ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.
4. THE ESC FACILITIES SHALL BE INSPECTED IN THE MORNING FOLLOWING AN OVERNIGHT (NON-WORKING HOUR) RAINFALL EVENT BY THE CONTRACTOR AND MAINTAINED AS NECESSARY. IN ADDITION, ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CONSTRUCTION IS COMPLETED.
5. ANY AREAS NEEDING ESC MEASURES AS DETERMINED BY CONTRACTOR, OR CERTIFIED EROSION AND SEDIMENT CONTROL LEAD BUT NOT REQUIRING IMMEDIATE ATTENTION, SHALL BE ADDRESSED WITHIN TWO (2) DAYS. WORK TO BE CONDUCTED MONDAY-SATURDAY AND OR SUNDAY WITH APPROVAL OF THE ENGINEER.
6. STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. CONTRACTOR SHALL INSPECT NORTHPORT-WANETA ROAD NEAR CONSTRUCTION ENTRANCE AT LEAST AT THE END OF EACH SHIFT, OR AS OTHERWISE REQUESTED BY THE ENGINEER, AND CLEAN THE ROAD USING SWEEPING OR OTHER APPROVED MEANS IF THERE IS VISUAL EVIDENCE OF DIRT TRACKED ONTO THE ROADWAY.
7. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS OR AS APPROVED BY THE ENGINEER. ENGINEER SHALL COORDINATE WITH ECOLOGY.
8. EROSION/SEDIMENTATION CONTROLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS IN THE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL, UNLESS APPROVED OTHERWISE BY ECOLOGY.
9. A COPY OF THE APPROVED EROSION CONTROL PLANS AND STORMWATER POLLUTION PREVENTION PLAN MUST BE ON THE JOBSITE AT ALL TIMES THROUGH OUT THE CONSTRUCTION PERIOD.
10. TEMPORARY EROSION/SEDIMENTATION CONTROLS SHALL BE INSTALLED AND OPERATED PRIOR TO ANY GRADING OR LAND CLEARING ACTIVITIES.
11. ALL CUT AND FILL SLOPES 5:1 (5 FEET HORIZONTAL TO 1 FOOT VERTICAL) OR STEEPER THAT WILL BE LEFT EXPOSED FOR MORE THAN 7 DAYS SHALL BE PROTECTED BY JUTE MATTING, PLASTIC SHEETING, OR OTHER APPROVED STABILIZATION METHODS, PROVIDE ADEQUATE OFFSITE RUNOFF CONTROL BY INSTALLING SILT FENCING OR STRAW WADDLES ALONG TREE LINE BUFFER ZONE, AS NEEDED.
12. OFF-SITE STREETS MUST BE CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET, THE STREET SHALL BE CLEANED BY THE CONTRACTOR. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION VEHICLE ENTRANCES AND SHALL BE CLEANED OF MUD PRIOR TO EXITING ONTO THE STREET.
13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, BRUSH OR ANY OTHER DEPOSITS REMAIN. MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN

PAUL T. McCULLOUGH — STATE OF WASHINGTON — 8-27-10 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY:	PTM
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 5
DATE:	8/27/10

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SEATTLE, WA 98101-1616
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SHEET 3 OF 8
DRAWING NO. 3

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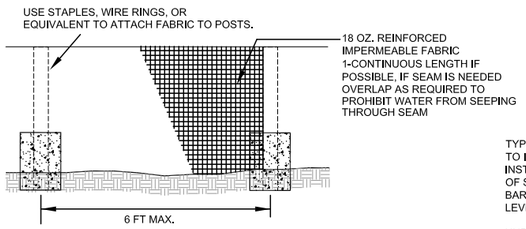
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION



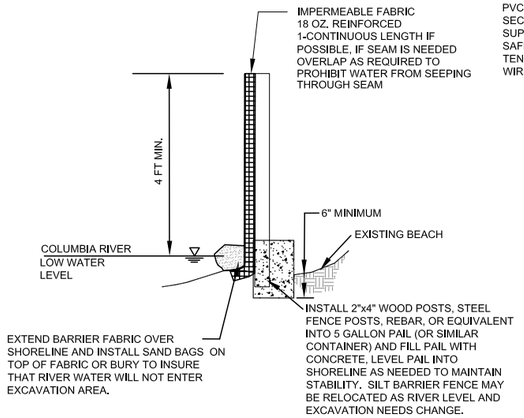
NOTE: SILT BARRIER SHALL BE INSTALLED ALONG SHORELINE CONTOUR WHENEVER POSSIBLE

TYPICAL INSTALLATION
TO INSTALL THIS BEST MANAGEMENT PRACTICE (BMP), INSTALL 2" x 4" WOOD POSTS, STEEL FENCE POSTS (RE-BAR OF SIMILAR SIZE) ON 6 FT CENTERS MAXIMUM. THE SILT BARRIER SHALL PROTRUDE 4 FT ABOVE THE RIVER WATER LEVEL.

UNROLL THE SILT BARRIER AND FASTEN TO STAKES WITH TIES ATTACHED TO STAKES, LEAVING ENOUGH FABRIC OVER PAIL TO ENABLE PLACEMENT OF SAND BAGS OR SIMILAR WEIGHT OVER FABRIC ALONG THE SIDE OF THE RIVER (HEMMED EDGE IS TOP). ONCE ENTIRE RUN IS IN PLACE AND DESIRED PATH IS IN PLACE THEN USE SAND BAGS OR SIMILAR TO CREATE A BOTTOM SEAL.

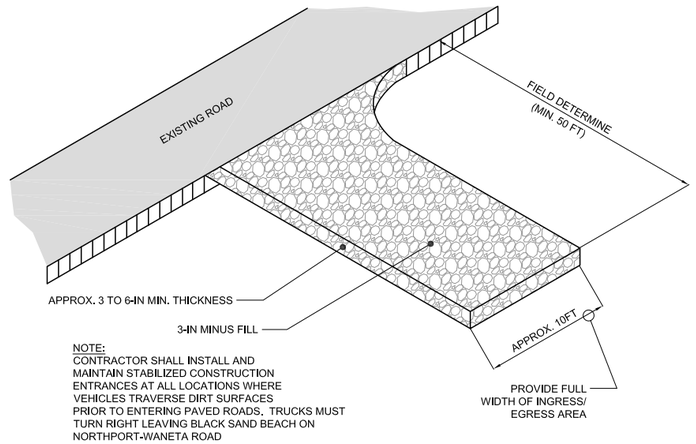
SPECIFICATION -
FABRIC SHALL CONSIST OF 18 OZ REINFORCED IMPERMEABLE PVC FABRIC - STANDARD LENGTH IS 100 FT (1500'/PALLET) - SECTION AND STAKE CONNECTIONS ARE NYLON TIES WHICH ARE SUPPLIED 50 EACH/100 FT ROLL - SIZE IS 48"- 60" WIDE - COLOR SAFETY YELLOW - LOAD CARRYING COMPONENTS ARE 350 LBS TENSILE FABRIC AND STAKES - ALTERNATE FASTENERS ARE WIRE, HOG RINGS, STAPLES OR SIMILAR.

ELEVATION



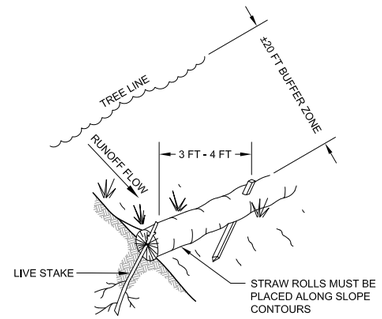
SECTION

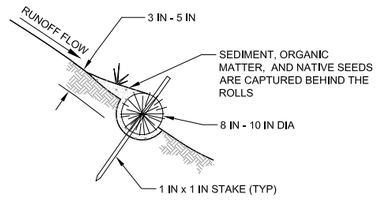
TEMPORARY SILT BARRIER INSTALLATION DETAIL 1
SCALE: NTS 3



NOTE:
CONTRACTOR SHALL INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE VEHICLES TRAVERSE DIRT SURFACES PRIOR TO ENTERING PAVED ROADS. TRUCKS MUST TURN RIGHT LEAVING BLACK SAND BEACH ON NORTHPORT-WANETA ROAD

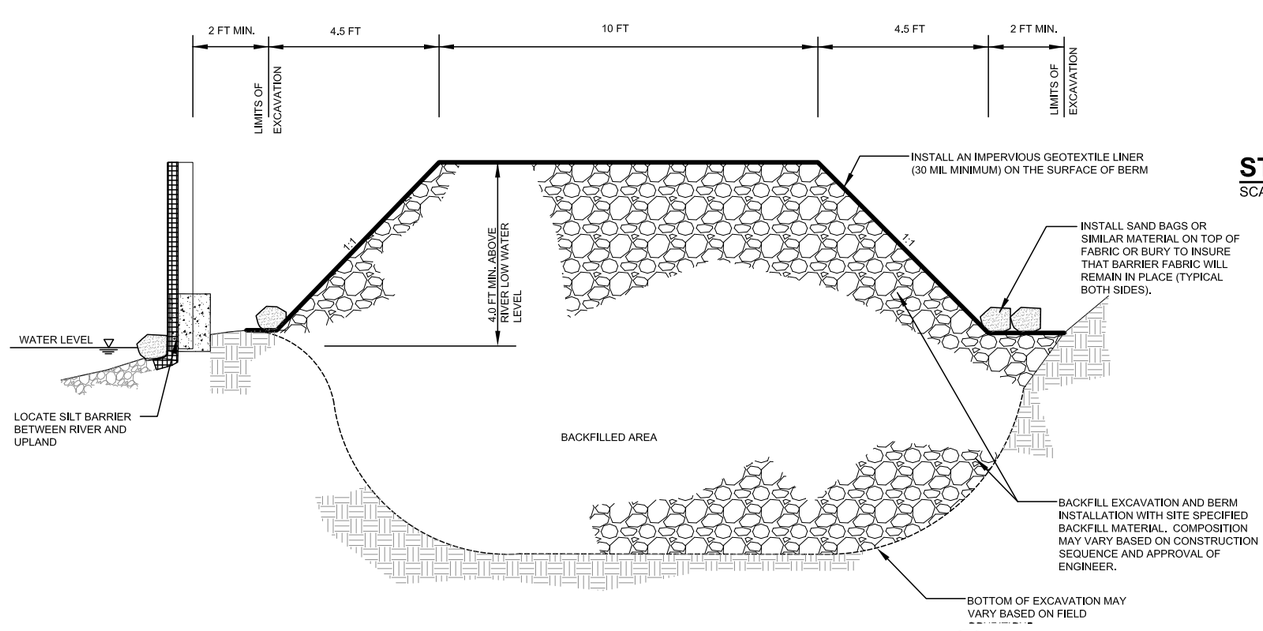
STABILIZED TEMPORARY CONSTRUCTION ENTRANCE DETAIL 2
SCALE: NTS 1





NOTE:
STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3 IN x 5 IN DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL. INSTALL ONLY AS NEEDED FOR RUNOFF PROTECTION.

STRAW WATTLES DETAIL 4
SCALE: NTS 3



TEMPORARY BERM DETAIL 3
SCALE: NTS 1

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EROSION CONTROL DETAILS

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 5
DATE: 8/27/10

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SHEET 4 OF 8
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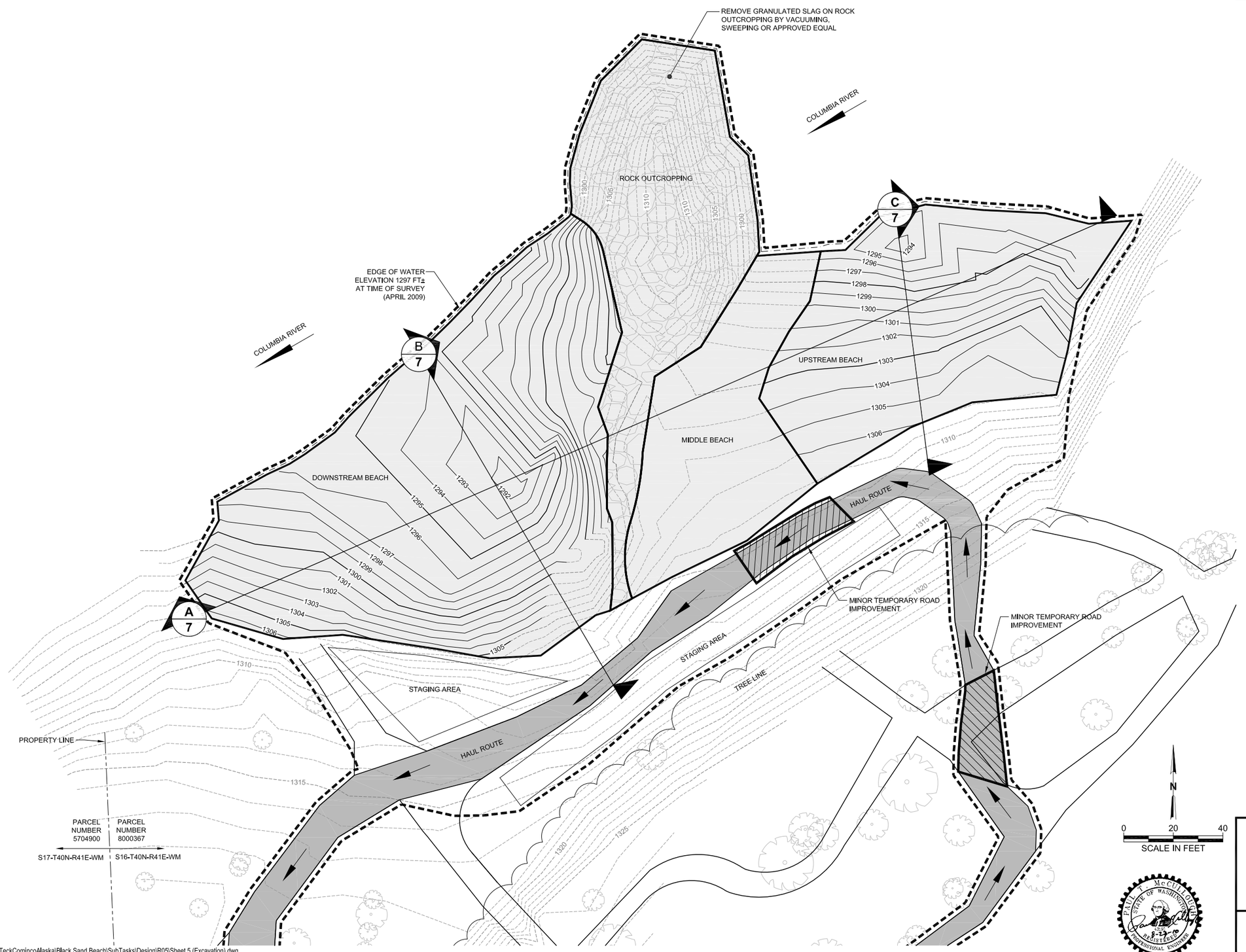

LEGEND

- LIMITS OF EXCAVATION
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT

EXCAVATION VOLUMES (ESTIMATED)

UPSTREAM BEACH	400 C.Y
MIDDLE BEACH	150 C.Y
DOWNSTREAM BEACH	4,100 C.Y.
ROCK OUTCROPPING	10 C.Y.

C.Y. = CUBIC YARDS (IN-PLACE VOLUME)

SEE SHEET 6, SITE GRADING PLAN FOR ESTIMATED FILL VOLUMES

NOTE:
HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE. VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.

N

0 20 40
SCALE IN FEET

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXCAVATION PLAN

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 5
DATE: 8/27/10

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SHEET 5 OF 8
DRAWING NO. 5

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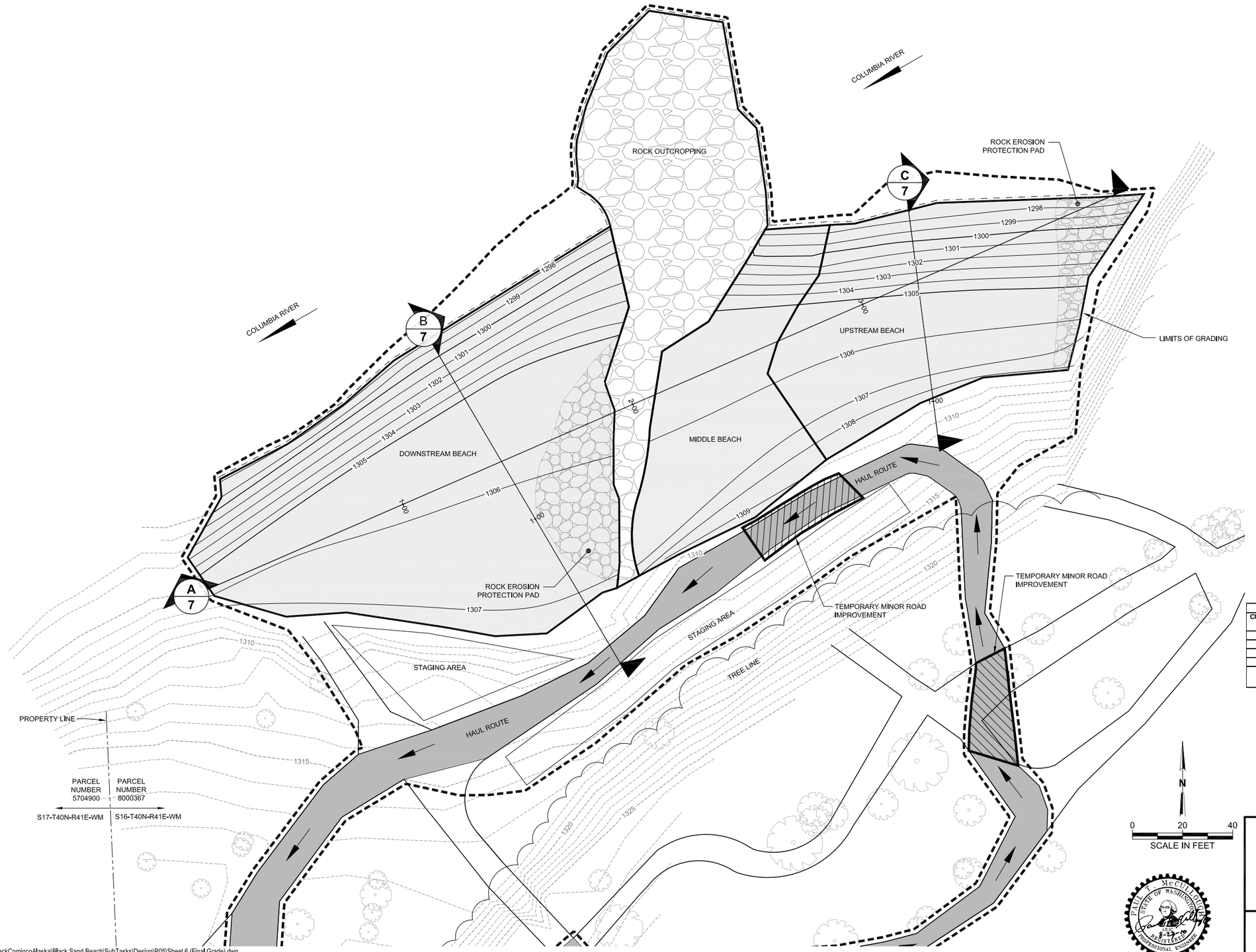

LEGEND

- AREA OF FORMER EXCAVATION
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- TEMPORARY MINOR ROAD IMPROVEMENT

NOTES:

1. BACKFILL MATERIALS SHALL BE DETERMINED IN CONSULTATION WITH ECOLOGY AND SHALL BE APPROVED BY ECOLOGY PRIOR TO BEING TRANSPORTED TO SITE.
2. COARSE SAND/FINE GRAVEL BORROW SOURCE MATERIALS SHALL BE TESTED FOR METALS IN ACCORDANCE WITH TABLE 1 BELOW. METALS (EXCLUDING MERCURY) SHALL BE ANALYZED USING ICP-MS METHODS (EPA 200.8 OR APPROVED EQUAL). MERCURY SHALL BE ANALYZED USING EPA METHOD 7471A OR APPROVED EQUAL. RESULTS OF ANALYSIS SHALL BE PROVIDED TO ECOLOGY FOR REVIEW. SAMPLE RESULTS SHALL MEET APPLICABLE MTCA STANDARDS AS DEFINED IN WAC 173-340 SUBJECT TO AREA SPECIFIC BACKGROUND LEVELS.
3. THE BORROW SOURCE MATERIAL SHALL BE REVIEWED BY A REGISTERED PROFESSIONAL GEOLOGIST. IF THE BORROW MATERIAL IS SUSPECTED TO CONTAIN SERPENTINE MATERIALS, THEN AT LEAST TWO SAMPLES SHALL BE TESTED FOR ASBESTOS USING CALIFORNIA AIR RESOURCES BOARD METHOD (CARB) 435 OR OTHER APPROVED METHOD. IF BORROW MATERIAL IS OBTAINED FROM MULTIPLE SOURCES, THEN TWO ADDITIONAL SAMPLES SHALL BE COLLECTED AND TESTED FOR ASBESTOS FOR EACH ADDITIONAL BORROW SOURCE.
4. BACKFILL MATERIALS SHALL NOT CONTAIN INVASIVE PLANT SPECIES AS DOCUMENTED BY THE BACKFILL SUPPLIER.
5. EDGE OF WATER ELEVATION DEPICTED ON DRAWING WILL VARY AT THE TIME OF CONSTRUCTION.

TABLE 1

ANALYTICAL FREQUENCY	
CUBIC YARDS OF FILL	MINIMUM # OF SAMPLES
0-100	3
101-500	5
501-1000	7
1001-2000	10
>2000	10+1 FOR EACH ADDITIONAL 500 C.Y.

TABLE 2

LIST OF ANALYTES FOR BACKFILL CERTIFICATION TESTING	
ANTIMONY	MERCURY
ARSENIC	NICKEL
BERYLLIUM	SELENIUM
CADMIUM	SILVER
CHROMIUM	THALLIUM
COPPER	ZINC
LEAD	

FILL VOLUMES (ESTIMATED)

UPSTREAM BEACH	250 C.Y.
MIDDLE BEACH	200 C.Y.
DOWNSTREAM BEACH	4,000 C.Y.
ROCK OUTCROPPING	0 C.Y.

C.Y. = CUBIC YARDS (IN-PLACE VOLUME)

N

0 20 40

SCALE IN FEET

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

SITE GRADING PLAN

DESIGNED BY:	PTM
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 5
DATE:	8/27/10

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(206) 438-2700

SHEET 6 OF 8

DRAWING NO. 6

P:\ACAD\PROJECT\TeckCominco\Alaska\Black Sand Beach\SubTasks\Design\R05\Sheet 6 (Final Grade).dwg
Mod: 08/27/2010, 15:28 | Plotted: 08/27/2010, 16:51 | Layout: Sht 6 | Chad_Stickel

NO.	DATE	BY	REVISION DESCRIPTION
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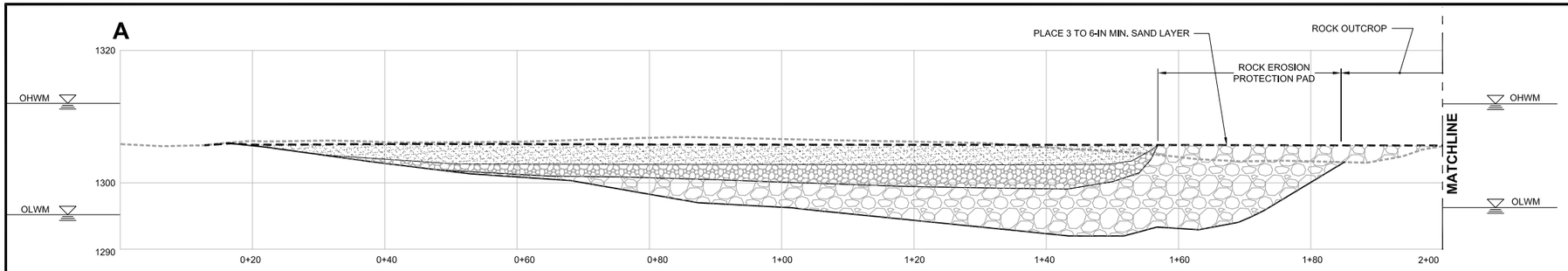
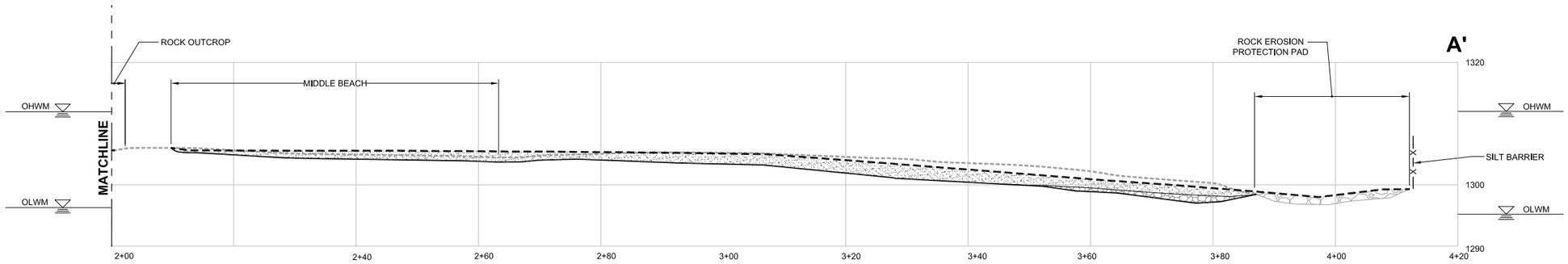
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION





SECTION A (5,6)
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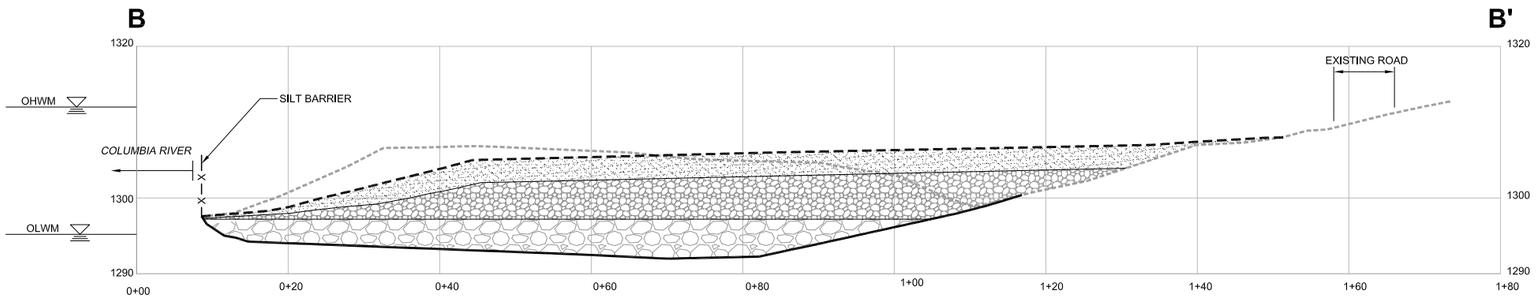

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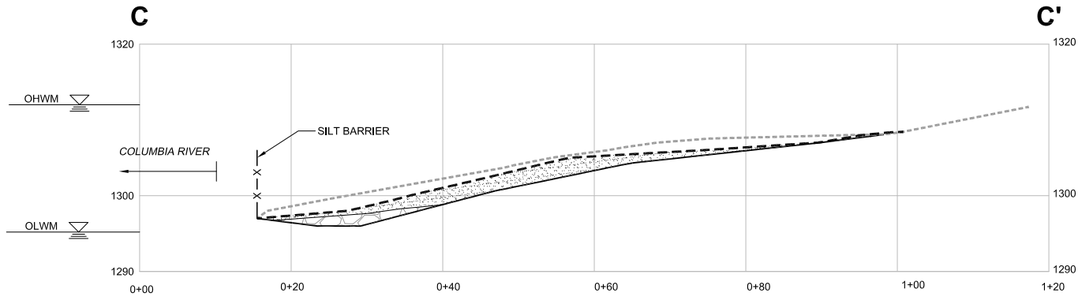
SCALE: NTS



SECTION C (5,6)
SCALE: NTS

SECTION LEGEND

- EXISTING GROUND LINE
- PROPOSED BOTTOM OF EXCAVATION
- PROPOSED FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER
- OHWM — APPROXIMATE ORDINARY HIGH WATER MARK
- OLWM — APPROXIMATE ORDINARY LOW WATER MARK

NOTE:
HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429,512 FT. EAST, ELEV. 1,457,071 FT.

FILL PLACEMENT NOTES:

1. A MINIMUM OF 2 TO 3 FEET OF SAND SHALL BE PLACED AT THE UPPERMOST SURFACE OF THE BEACH PROVIDING THAT THERE IS SUFFICIENT ROOM TO INSTALL A MINIMUM 1 FOOT THICK LAYER OF COBBLES AT THE BOTTOM OF THE EXCAVATION AND A 1 FOOT INTERMEDIATE LAYER OF GRAVEL.
2. IF THE EXCAVTION IS NOT SUFFIENTLY DEEP TO MEET THE MINIMUM TWO TO THREE FEET OF SAND REQUIREMENT, THEN PLACE EQUAL AMOUNTS OF SAND (TOP LAYER), GRAVEL (MIDDLE LAYER) AND COBBLE (BOTTOM LAYER) INTO THE EXCAVATION. CONSULT WITH ENGINEER PRIOR TO PLACEMENT OF FILL.
3. THE SAND SHALL EXTEND TO THE EDGE OF THE RIVER.
4. A MAXIMUM OF 3 TO 6 INCHES OF TOP SAND SHALL BE PLACED OVER THE EROSION PROTECTION PADS. THE REMAINDER OF THE EROSION PROTECTION PADS SHALL CONSIST OF COBBLES AS SPECIFIED BELOW.

FILL SPECIFICATIONS:

TOP BEACH SAND LAYER: THE TOP LAYER SHALL CONSIST OF FINE TO COARSE SAND (SP) THAT IS ANGULAR TO SUBANGULAR. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
¼ - INCH	100
NO. 4	95 - 100
NO. 10	70 - 80
NO. 20	40 - 60
NO. 40	25 - 50
NO. 60	10-20
NO. 100	0 - 10
NO. 200	0-3

THE MATERIAL SHALL BE OBTAINED FROM COLVILLE VALLEY CONCRETE, 1175 E. THIRD AVENUE, COLVILLE, WA 99114. OTHER SUPPLIERS WILL REQUIRE APPROVAL OF ENGINEER AND ECOLOGY (SEE DRAWING 6).

MIDDLE BEACH GRAVEL LAYER: THE MIDDLE LAYER SHALL CONSIST OF A ROUNDED TO SUBANGULAR FINE TO COARSE GRAVEL. THE SELECT GRANULAR MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFIRM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
6 INCH	100
3 INCH	90 - 100
2 INCH	60 - 90
1 INCH	30 - 40
½ INCH	10-20
3/8-INCH	5-15
¼ INCH	0 - 10
NO. 4	0 - 5
NO. 200	0 - 2

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

BOTTOM BEACH COBBLE LAYER: THE BOTTOM LAYER SHALL CONSIST OF NATURALLY OCCURING ROUNDED TO SUBROUNDED COBBLE. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
6 - INCHES	90 - 100
4 - INCHES	60 - 90
3 - INCHES	50 - 80
2- INCHES	20 - 50
1 - INCH	10-20
3/4 - INCH	5-15
NO. 4	0 - 10
NO. 200	0 - 3

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

ROCK EROSIONAL PROTECTION PAD: THE ROCK EROSIONAL PROTECTION PAD SHALL CONSIST OF NATURALLY OCCURING ROUNDED TO SUBROUNDED COBBLE/ROCK. THE MATERIAL SHALL BE FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
8 - INCHES	100
6 - INCHES	60 - 100
4 - INCHES	40 - 60
3 - INCHES	20 - 50
2- INCHES	0 - 20
1 - INCH	0 - 10
NO. 4	0 - 5
NO. 200	0 - 3

THE MATERIAL SHALL BE IMPORTED FROM A COMMERCIAL SOURCE IN STEVENS COUNTY. THE SOURCE SHALL HAVE A CURRENT SURFACE MINING RECLAMATION PERMIT FROM WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES.

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

CROSS-SECTIONS

PAUL T. McCULLOCH — STATE OF WASHINGTON — 8-27-10 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: PTM
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 5
DATE: 8/27/10

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1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101-1616
(206) 438-2700

SHEET 7 OF 8
DRAWING NO. 7

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Mod: 08/27/2010, 16:48 | Plotted: 08/27/2010, 16:52 | Layout: Layout1 | Chad_Stickel

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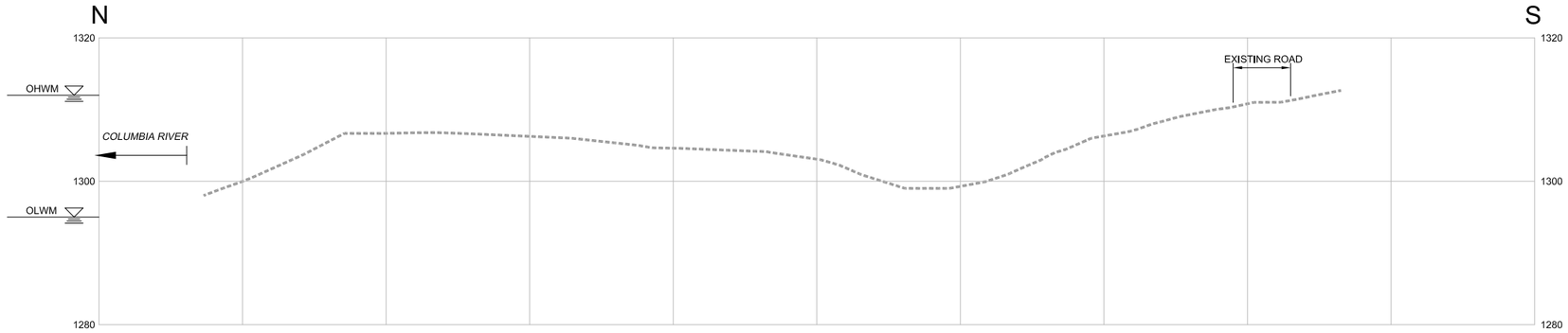
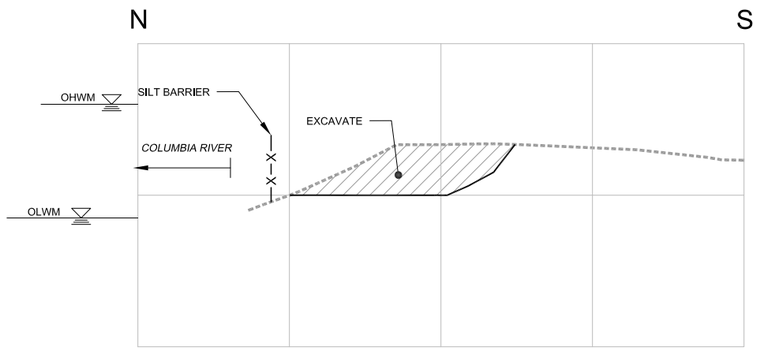
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION



TYPICAL SECTION THROUGH EXISTING DOWNSTREAM BEACH — A

SCALE: NTS

8



STAGE 1 SECTION — B

SCALE: NTS

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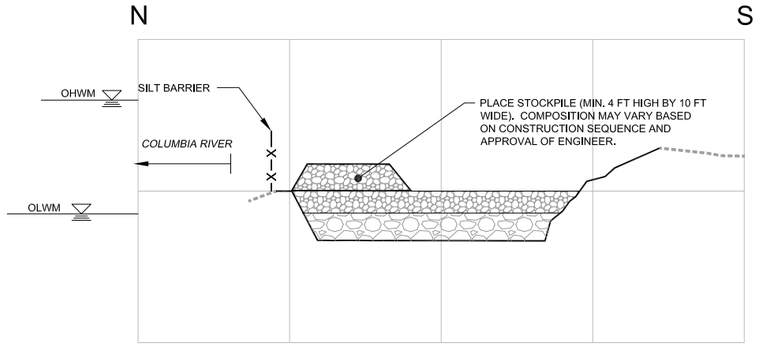

STAGE 3 SECTION — D

SCALE: NTS

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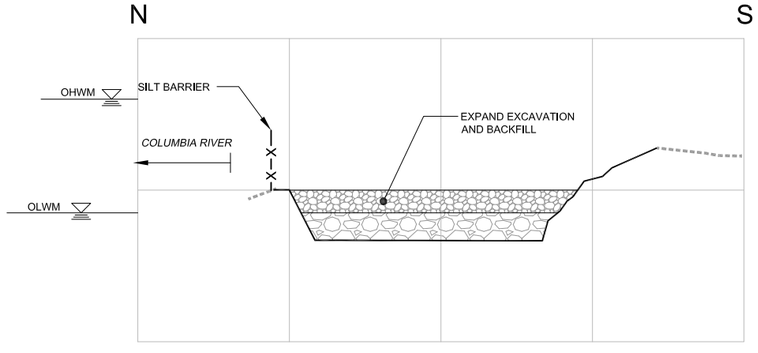

STAGE 2 SECTION — C

SCALE: NTS

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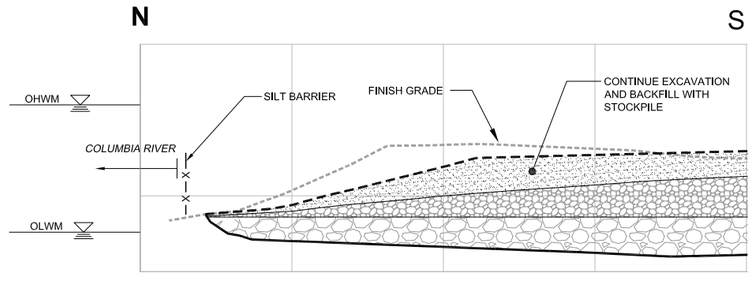

STAGE 4 SECTION — E

SCALE: NTS

8

SECTION LEGEND

- EXISTING GROUNDLINE
- PROPOSED BOTTOM OF EXCAVATION
- PROPOSED FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER
- OHWM — APPROXIMATE ORDINARY HIGH WATER MARK
- OLWM — APPROXIMATE ORDINARY LOW WATER MARK

NOTES:

1. ROCK COVER MATERIAL MAY BE REPLACED BY EROSION RESISTANT GRAVEL AND COBBLES IN AREAS ABOVE THE GROUND WATER TABLE WHEN INSPECTION INDICATES THAT SLAG HAS BEEN REMOVED SUFFICIENTLY.
2. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE. VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT. 745,055,705 FT. NORTH, 2,409,429,512 FT. EAST, ELEV. 1,457.071 FT.
3. CONSTRUCTION ACTIVITIES SHALL BE SEQUENCED TO MINIMIZE IMPACT TO ADJACENT RIVER. EXCAVATION SHALL BEGIN NEAR THE WATER'S EDGE AND PROCEED INLAND, UNLESS APPROVED OTHERWISE BY ENGINEER AND ECOLOGY. GRANULATED SLAG FROM ROCK OUTCROPPING SHALL BE REMOVED PRIOR TO REMOVAL OF SILT BARRIER.
4. EXCAVATION SEQUENCE SECTIONS ARE DIAGRAMMATIC ONLY AND NOT TO SCALE.
5. TEMPORARY STOCKPILE BERM AT EDGE OF RIVER SHALL BE A MINIMUM OF 4 FT HIGH AND 10 FT WIDE

90% SUBMITTAL
ISSUED FOR CONSTRUCTION

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

TYPICAL EXCAVATION SEQUENCE

PAUL T. McCULLOUGH — STATE OF WASHINGTON — 8-27-10 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY:	DJH
DRAWN BY:	JK
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 5
DATE:	8/27/10

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SEATTLE, WA 98101-1616
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SHEET 8 OF 8

DRAWING NO. 8

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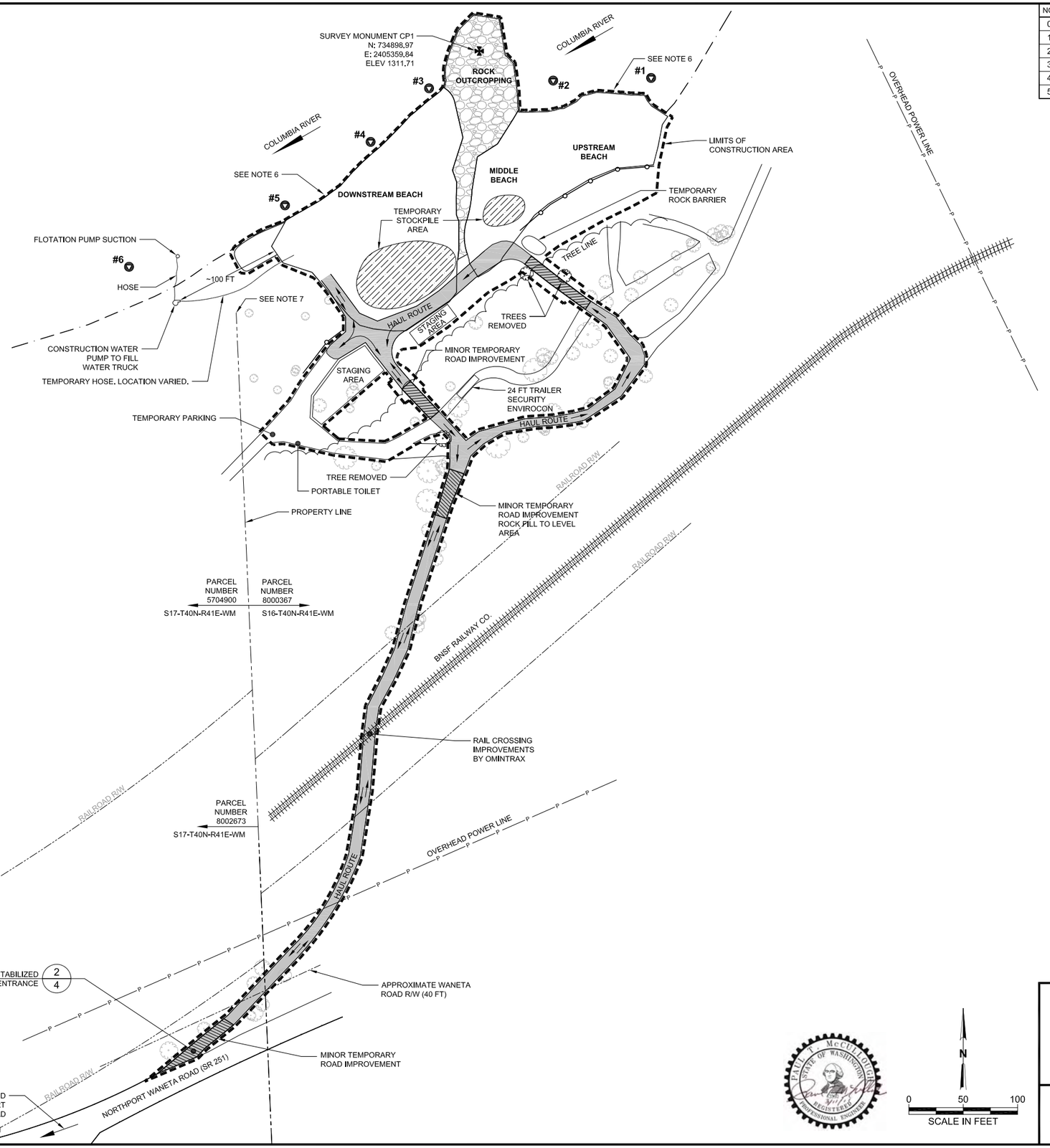
Mod: 08/27/2010, 16:47 | Plotted: 08/27/2010, 16:52 | Layout: Sht 8 | Chad_Stickel

APPENDIX D
100 PERCENT AS-BUILT PLANS

NO.	DATE	BY	REVISION DESCRIPTION
0	8/3/09	PTM	30% SUBMITTAL
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION
5	1/5/11	PTM	100% ASBUILT



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- OVERHEAD POWER LINE
- RAILROAD R/W
- RAILROAD
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT
- #1 WATER MONITORING STATION
- BARRIER FENCE

NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2009. ADDITIONAL SURVEY WAS PERFORMED OF ACCESS ROADS AND TRUCK TURN AROUND AREA IN NOVEMBER 2009 AND AS-BUILT AREAS IN NOVEMBER 2010.
2. SURVEYS WERE PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. THE PURPOSE OF THE SURVEYS WAS TO OBTAIN TOPOGRAPHIC DATA AND SITE FEATURES.
4. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.
5. ROAD IMPROVEMENTS WERE TEMPORARY. CONTRACTOR RESTORED ROADS TO PRE-CONSTRUCTION CONDITION TO EXTENT POSSIBLE UNDER THE DIRECTION OF WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES (WDNR).
6. EDGE OF WATER DEPICTED ON DRAWINGS IS APPROXIMATE. ACTUAL LOCATION OF EDGE OF WATER VARIED AT TIME OF CONSTRUCTION.
7. PROPERTY LINE ENDS AT HIGH WATER MARK (~EL +1312 FT).

RIVER ELEVATIONS DURING CONSTRUCTION PERIOD (20 SEPT 10 - 29 OCT 10)

	GAUGE HEIGHT (FEET)	ELEVATION (FT MSL, NAVD88)
MINIMUM	91.98	1294.94
AVERAGE	95.88	1298.81
MEDIAN	96.20	1299.13
MAXIMUM	97.79	1300.71

RIVER ELEVATION NOTE:
RIVER ELEVATION DATA WERE OBTAINED FROM USGS AUXILIARY GAUGE 12399500, AS REPORTED AT WEB SITE: HTTP://WATERDATA.USGS.GOV/USA/NWIS?SITE NO=12399500 FOR PERIOD 20 SEPT 10 TO 29 OCT 10. VALUES WERE CALCULATED FROM STREAM GAUGE MEASUREMENTS COLLECTED AT 15 MINUTE INTERVALS THROUGHOUT THIS PERIOD. AUXILIARY GAUGE READINGS WERE CONVERTED TO NAVD 88 UNITS (FEET ABOVE MEAN SEA LEVEL) USING THE FORMULA: NAVD88 (IN FEET ABOVE MSL) = 0.992 X GAUGE HEIGHT (IN FEET) + 1203.7. THIS FORMULA WAS DETERMINED BY LINEAR REGRESSION ANALYSIS OF SIMULTANEOUS RIVER ELEVATION (NAVD88) AND GAUGE HEIGHT MEASUREMENTS PERFORMED BY LICENSED SURVEYOR.

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

CONSTRUCTION CONDITIONS SITE PLAN AND ACCESS ROAD

PAUL T. McCULLOUGH — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

N

0 50 100
SCALE IN FEET

DESIGNED BY:	PTM/HDL
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 6
DATE:	1/5/2011

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SHEET 1 of 8
DRAWING NO. 1

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Mod: 03/10/2011, 14:20 | Plotted: 03/10/2011, 14:35 | Layout: Sht 1 | Chad_Sticke

NO.	DATE	BY	REVISION DESCRIPTION
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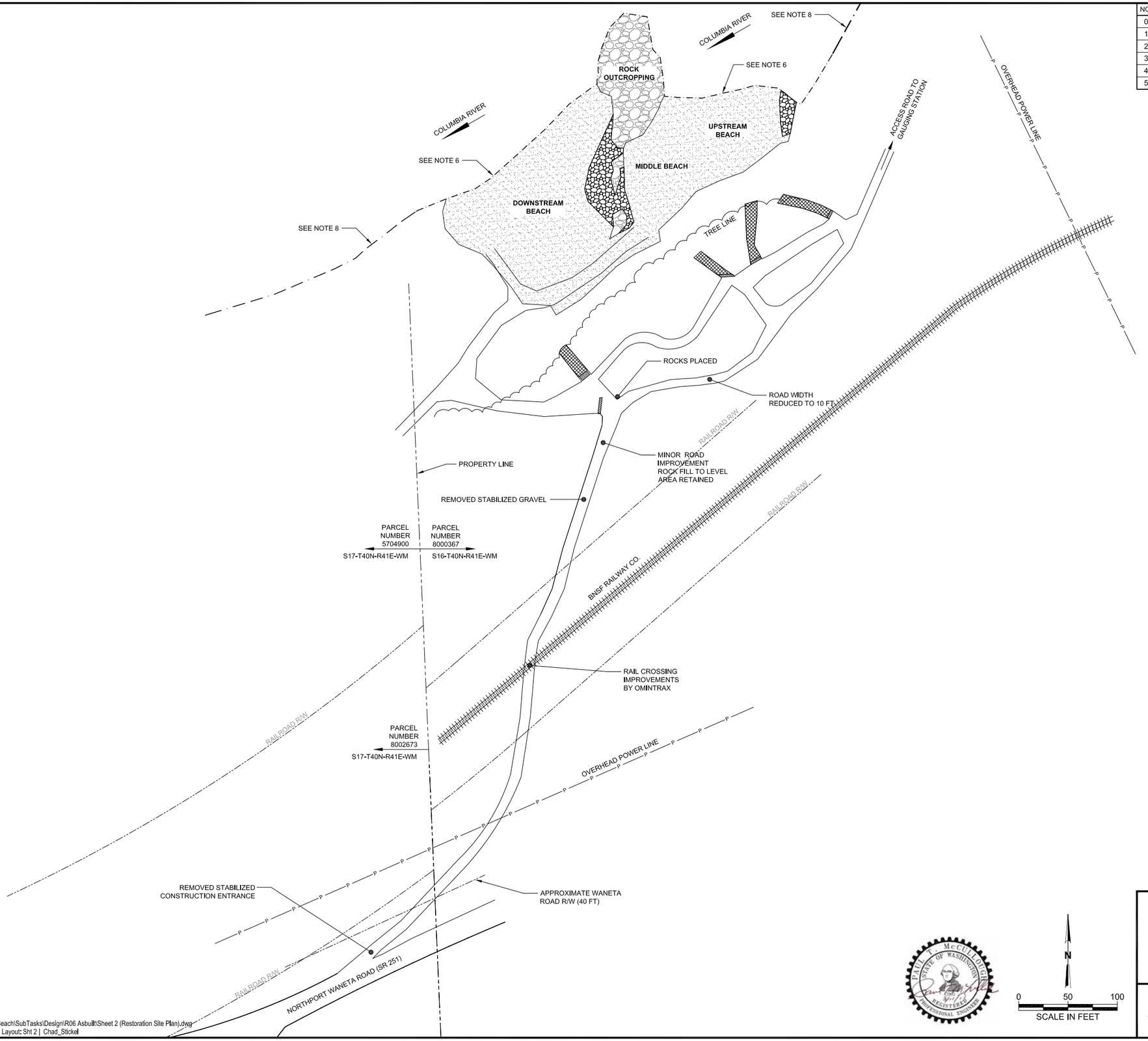
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION
5	1/5/11	PTM	100% ASBUILT



LEGEND

- PORTION OF UNUSED ACCESS ROAD LEADING TO BLACK SAND BEACH
- MATERIAL PLACED AT ACCESS ROAD PER WDNR (LARGE ROCKS AND ROOT BALLS)
- LIMITS OF REPLACEMENT BEACH SAND
- ROCK EROSION PROTECTION PAD
- ROCK OUTCROPPING
- PROPERTY LINE
- OVERHEAD POWER LINE
- RAILROAD R/W
- RAILROAD

NOTES:

1. ORIGINAL SURVEY CONDUCTED BY SURVEY SOLUTIONS, SPOKANE, WASHINGTON IN DECEMBER 2006 AND APRIL 2009. ADDITIONAL SURVEY WAS PERFORMED OF ACCESS ROADS AND TRUCK TURN AROUND AREA IN NOVEMBER 2009 AND AS-BUILT AREAS IN NOVEMBER 2010.
2. SURVEYS WERE PERFORMED WITH TRIMBLE R-8 GPS RECEIVERS WITH A TSC2 CONTROLLER USING REALTIME KINEMATIC SURVEY PROCEDURES.
3. THE PURPOSE OF THE SURVEYS WAS TO OBTAIN TOPOGRAPHIC DATA AND SITE FEATURES.
4. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.
5. CONTRACTOR RESTORED ROADS AS DIRECTED BY WDNR.
6. EDGE OF WATER AT TIME OF ASBUILT SURVEY WAS ELEVATION 1299.3 FT (NOVEMBER 2010).
7. PROPERTY LINE ENDS AT HIGH WATER MARK (~EL +1312 FT).
8. APPROXIMATE EDGE OF WATER.

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

SITE RESTORATION PLAN

PAUL T. McCULLOUGH — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

N

0 50 100
SCALE IN FEET

DESIGNED BY:	PTM/HDL
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 6
DATE:	1/5/2011

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1501 4TH AVENUE, SUITE 1400
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(206) 438-2700

SHEET 2 of 8
DRAWING NO. 2

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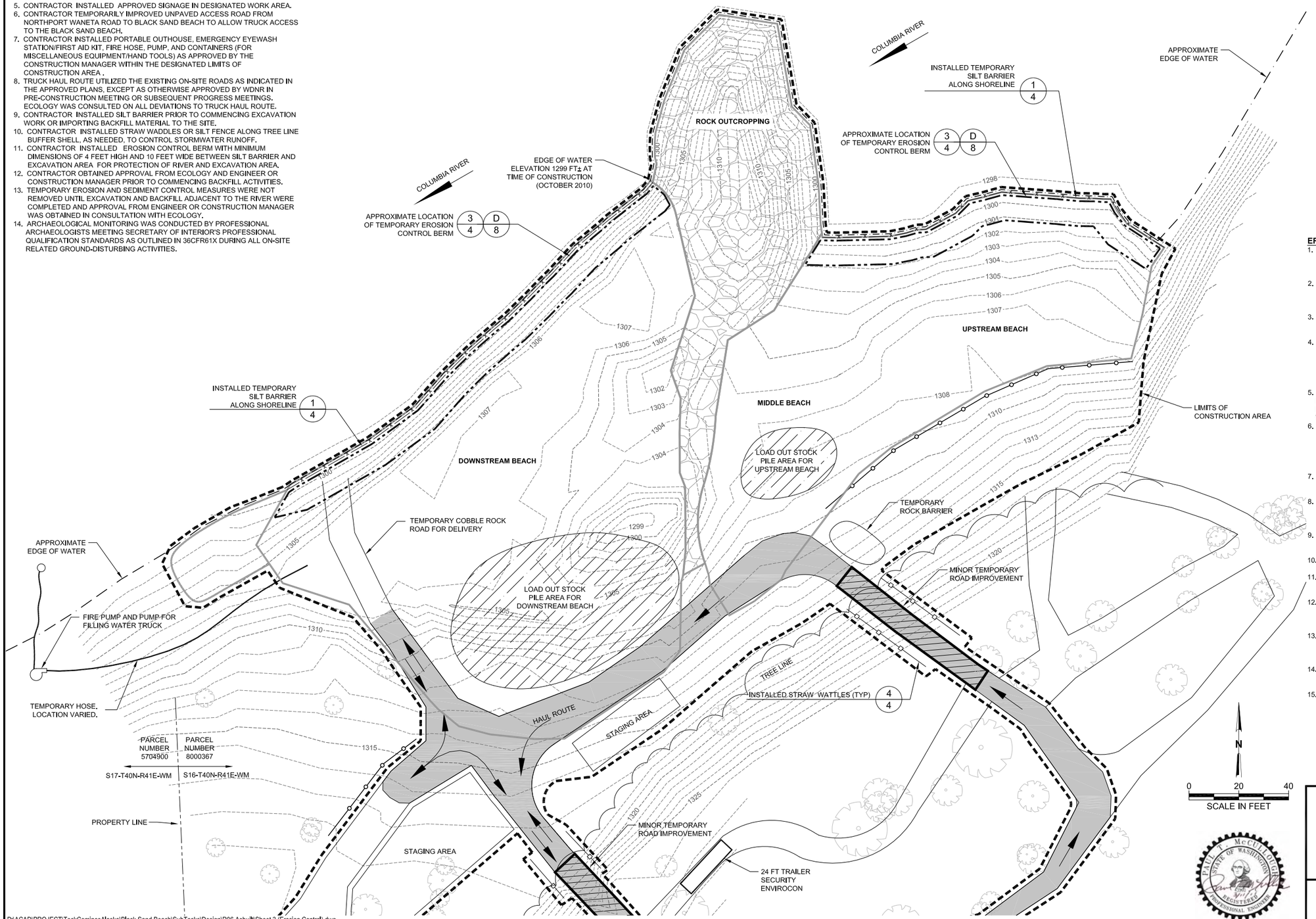
Mod: 03/10/2011, 14:20 | Plotted: 03/10/2011, 14:36 | Layout: Sht 2 | Chad_Stickel

CONSTRUCTION SEQUENCE

1. THE PRE-CONSTRUCTION MEETING WAS CONDUCTED ON SEPTEMBER 1, 2010 WITH ECOLOGY, ENVIROCON, OMNITRAX, TECK, URS AND WDNR.
2. VERIFIED PERMITS AND SITE ACCESS AUTHORIZATIONS/APPROVALS WERE IN PLACE PRIOR TO MOBILIZING TO SITE. OMNITRAX WAS PRESENT AT SITE TO DIRECT MOVEMENT OF CONSTRUCTION EQUIPMENT ACROSS RAILROAD TRACKS.
3. CONSTRUCTION MANAGER STAKED-OUT BOUNDARIES OF PROJECT WORK AREA AND IDENTIFIED PROPERTY LINES AND/OR EASEMENTS IN THE VICINITY OF THE PROJECT WORK AREA.
4. THE CONTRACTOR VERIFIED LOCATION AND CONDITION OF FENCES AND FLAGS THAT DEMARCATED PROJECT WORK AREA AND PROPERTY LINES. ALL WORK ACTIVITIES (PERSONNEL AND EQUIPMENT) WERE RESTRICTED TO THE BOUNDARIES OF THE DESIGNATED WORK AREA.
5. CONTRACTOR INSTALLED APPROVED SIGNAGE IN DESIGNATED WORK AREA.
6. CONTRACTOR TEMPORARILY IMPROVED UNPAVED ACCESS ROAD FROM NORTHPORT WANETA ROAD TO BLACK SAND BEACH TO ALLOW TRUCK ACCESS TO THE BLACK SAND BEACH.
7. CONTRACTOR INSTALLED PORTABLE OUTHOUSE, EMERGENCY EYEWASH STATION/FIRST AID KIT, FIRE HOSE, PUMP, AND CONTAINERS (FOR MISCELLANEOUS EQUIPMENT/HAND TOOLS) AS APPROVED BY THE CONSTRUCTION MANAGER WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION AREA .
8. TRUCK HAUL ROUTE UTILIZED THE EXISTING ON-SITE ROADS AS INDICATED IN THE APPROVED PLANS, EXCEPT AS OTHERWISE APPROVED BY WDNR IN PRE-CONSTRUCTION MEETING OR SUBSEQUENT PROGRESS MEETINGS. ECOLOGY WAS CONSULTED ON ALL DEVIATIONS TO TRUCK HAUL ROUTE.
9. CONTRACTOR INSTALLED SILT BARRIER PRIOR TO COMMENCING EXCAVATION WORK OR IMPORTING BACKFILL MATERIAL TO THE SITE.
10. CONTRACTOR INSTALLED STRAW WADDLES OR SILT FENCE ALONG TREE LINE BUFFER SHELL, AS NEEDED, TO CONTROL STORMWATER RUNOFF.
11. CONTRACTOR INSTALLED EROSION CONTROL BERM WITH MINIMUM DIMENSIONS OF 4 FEET HIGH AND 10 FEET WIDE BETWEEN SILT BARRIER AND EXCAVATION AREA FOR PROTECTION OF RIVER AND EXCAVATION AREA.
12. CONTRACTOR OBTAINED APPROVAL FROM ECOLOGY AND ENGINEER OR CONSTRUCTION MANAGER PRIOR TO COMMENCING BACKFILL ACTIVITIES.
13. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WERE NOT REMOVED UNTIL EXCAVATION AND BACKFILL ADJACENT TO THE RIVER WERE COMPLETED AND APPROVAL FROM ENGINEER OR CONSTRUCTION MANAGER WAS OBTAINED IN CONSULTATION WITH ECOLOGY.
14. ARCHAEOLOGICAL MONITORING WAS CONDUCTED BY PROFESSIONAL ARCHAEOLOGISTS MEETING SECRETARY OF INTERIOR'S PROFESSIONAL QUALIFICATION STANDARDS AS OUTLINED IN 36CFR61X DURING ALL ON-SITE RELATED GROUND-DISTURBING ACTIVITIES.

NO.	DATE	BY	REVISION DESCRIPTION
0	8/3/09	PTM	30% SUBMITTAL
1	12/18/09	PTM	60% SUBMITTAL
2	6/28/10	PTM	90% SUBMITTAL
3	7/16/10	PTM	90% ISSUE TO ECOLOGY
4	8/27/10	PTM	90% ISSUED FOR CONSTRUCTION
5	1/5/11	PTM	100% ASBUILT



LEGEND

- TEMPORARY BERM
- STRAW WATTLE OR SILT FENCE
- SILT BARRIER
- BARRIER FENCE
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- MINOR TEMPORARY ROAD IMPROVEMENT
- AREA OF EXCAVATION
- TEMPORARY STOCK PILE AREAS

EROSION AND SEDIMENTATION CONTROL

1. THE IMPLEMENTATION OF THESE EROSION SEDIMENTATION CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES WERE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ESC FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER TO LIMIT SEDIMENT-LADEN WATER FROM ENTERING THE COLUMBIA RIVER.
3. THE ESC FACILITIES SHOWN ON THIS PLAN WERE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE ESC MEASURES.
4. THE ESC FACILITIES WERE INSPECTED IN THE MORNING FOLLOWING AN OVERNIGHT (NON-WORKING HOUR) RAINFALL EVENT BY THE CONTRACTOR AND MAINTAINED AS NECESSARY. IN ADDITION, ALL TEMPORARY SILTATION CONTROLS WERE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CONSTRUCTION WAS COMPLETED AND REMOVAL WAS APPROVED BY WDNR.
5. AREAS NEEDING ESC MEASURES AS DETERMINED BY CONTRACTOR, ENGINEER, CONSTRUCTION MANAGER, OR ECOLOGY, BUT NOT REQUIRING IMMEDIATE ATTENTION, WERE ADDRESSED WITHIN TWO (2) DAYS. WORK WAS CONDUCTED MONDAY-SUNDAY AS APPROVED BY THE ENGINEER.
6. STABILIZED CONSTRUCTION ENTRANCE WAS INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. CONTRACTOR INSPECTED NORTHPORT-WANETA ROAD NEAR CONSTRUCTION ENTRANCE AT LEAST AT THE END OF EACH SHIFT, OR AS OTHERWISE REQUESTED BY THE ENGINEER OR CONSTRUCTION MANAGER, AND CLEANED THE ROAD BY WASHING USING A WATER TRUCK.
7. WORK AND MATERIALS WERE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS OR AS APPROVED BY THE ENGINEER OR CONSTRUCTION MANAGER IN COORDINATION WITH ECOLOGY.
8. EROSION/SEDIMENTATION CONTROLS WERE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS IN THE DEPARTMENT OF ECOLOGY S STORMWATER MANAGEMENT MANUAL, UNLESS APPROVED OTHERWISE BY ENGINEER IN CONSULTATION WITH ECOLOGY.
9. A COPY OF THE APPROVED EROSION CONTROL PLANS AND STORMWATER POLLUTION PREVENTION PLAN WERE KEPT AT THE JOBSITE AT ALL TIMES THROUGH OUT THE CONSTRUCTION PERIOD.
10. TEMPORARY EROSION/SEDIMENTATION CONTROLS WERE INSTALLED AND OPERATED PRIOR TO ANY GRADING OR LAND CLEARING ACTIVITIES.
11. ADEQUATE RUNOFF CONTROL WAS PROVIDED FOR CUT AND FILL SLOPES AS DETERMINED BY ENGINEER OR CONSTRUCTION MANAGER IN CONSULTATION WITH ECOLOGY.
12. OFF-SITE STREETS WERE KEPT CLEAN DURING THE COURSE OF CONSTRUCTION. IF DIRT WAS DEPOSITED ON THE PUBLIC STREET, THE STREET WAS CLEANED BY THE CONTRACTOR. ALL VEHICLES DEPARTED FROM THE SITE BY WAY OF THE CONSTRUCTION VEHICLE ENTRANCES.
13. AFTER CONSTRUCTION WAS COMPLETED, THE CONTRACTOR REMOVED ANY CONSTRUCTION-RELATED TRASH, DEBRIS, OR UNUSED MATERIALS FROM THE DEFINED LIMITS OF CONSTRUCTION CONSISTENT WITH BMP ELEMENT #9.
14. TURBIDITY AND PH MONITORING WAS PERFORMED IN ACCORDANCE WITH THE SWPP BY THE CONSTRUCTION MANAGER EACH DAY WORK WAS IN PROGRESS. ALL MONITORING RESULTS WERE WITHIN PROJECT LIMITS.
15. STORMWATER EROSION CONTROL INSPECTIONS WERE PERFORMED WEEKLY AND AFTER EACH STORM EVENT BY THE CONSTRUCTION MANAGER. NO CONSTRUCTION STORMWATER RELATED PROBLEMS WERE ENCOUNTERED DURING THE PROJECT.

N

0 20 40
SCALE IN FEET

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN

DESIGNED BY: PTM/HDL
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 6
DATE: 1/5/2011

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(206) 438-2700

SHEET 3 OF 8
DRAWING NO. 3

P:\ACAD\PROJECT\TeckCominoAlaska\Black Sand Beach\SubTasks\Design\R06 Asbuilt\Sheet 3 (Erosion Control).dwg
Mod: 03/10/2011, 14:20 | Plotted: 03/10/2011, 14:36 | Layout: Sht 3 | Chad_Stickel

NO.	DATE	BY	REVISION DESCRIPTION
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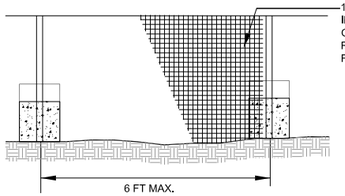
5	1/5/11	PTM	100% ASBUILT



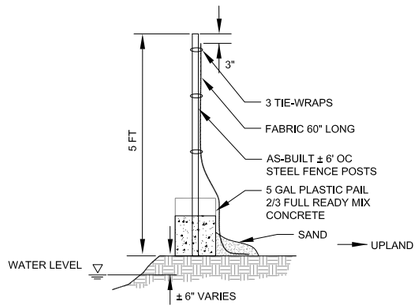
NOTE:
SILT BARRIER WAS INSTALLED ALONG SHORELINE CONTOUR WHENEVER POSSIBLE.

ELEVATION

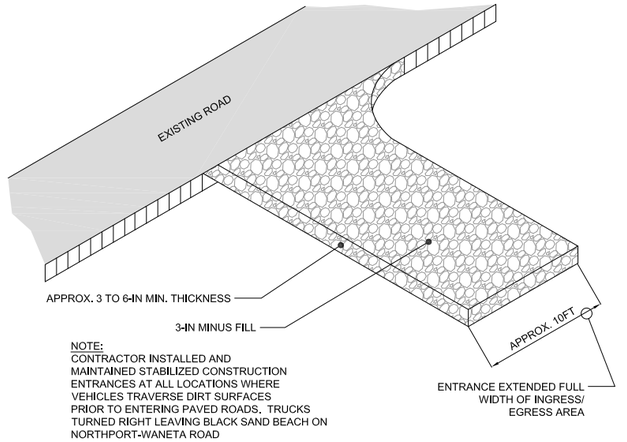
INSTALLATION
INSTALLED THIS BEST MANAGEMENT PRACTICE (BMP), INSTALLED 2" x 4" WOOD POSTS, STEEL FENCE POSTS (RE-BAR OF SIMILAR SIZE) ON 6 FT CENTERS MAXIMUM. THE SILT BARRIER PROTRUDED 4 FT ABOVE THE RIVER WATER LEVEL.

UNROLLED THE SILT BARRIER AND FASTENED TO STAKES WITH TIES ATTACHED TO STAKES, LEAVING ENOUGH FABRIC OVER PAIL TO ENABLE PLACEMENT OF SAND WEIGHT OVER FABRIC ALONG THE UPLAND SIDE (HEMMED EDGE IS TOP). ONCE ENTIRE RUN WAS IN PLACE AND DESIRED PATH WAS IN PLACE THEN NATIVE MATERIALS WERE USED TO CREATE A BOTTOM SEAL.

SPECIFICATION -
FABRIC CONSISTED OF 18 OZ REINFORCED IMPERMEABLE PLASTIC FABRIC - STANDARD LENGTH IS 100 FT (1500'/PALLET) - SECTION AND STAKE CONNECTIONS ARE NYLON TIES WHICH ARE SUPPLIED 50 EACH/100 FT ROLL - SIZE IS 48"- 60" WIDE - COLOR SAFETY YELLOW - LOAD CARRYING COMPONENTS ARE 350 LBS TENSILE FABRIC AND STAKES.

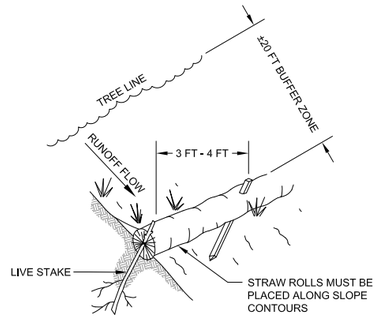


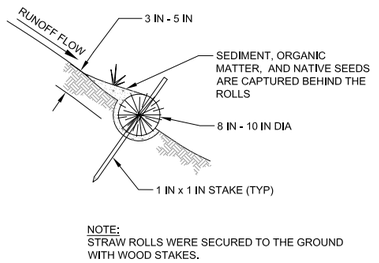
TEMPORARY SILT BARRIER INSTALLATION DETAIL 1/3
SCALE: NTS



NOTE:
CONTRACTOR INSTALLED AND MAINTAINED STABILIZED CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE VEHICLES TRAVERSE DIRT SURFACES PRIOR TO ENTERING PAVED ROADS. TRUCKS TURNED RIGHT LEAVING BLACK SAND BEACH ON NORTHPORT-WANETA ROAD

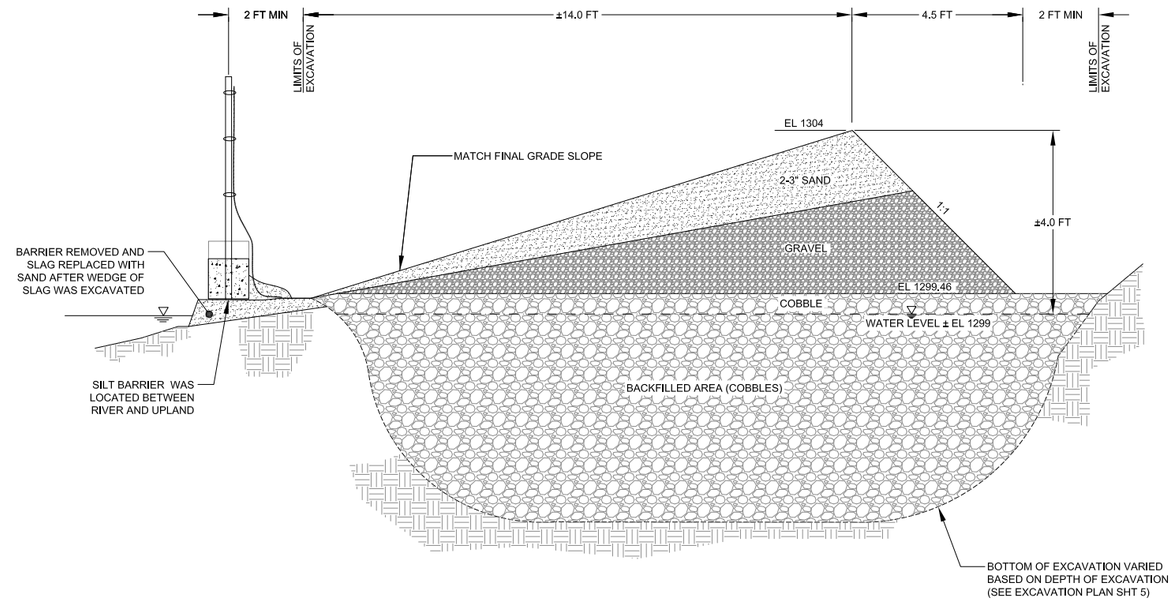
STABILIZED TEMPORARY CONSTRUCTION ENTRANCE DETAIL 2/1
SCALE: NTS





NOTE:
STRAW ROLLS WERE SECURED TO THE GROUND WITH WOOD STAKES.

STRAW WATTLES DETAIL 4/3
SCALE: NTS



TEMPORARY BERM DETAIL 3/3
SCALE: NTS

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EROSION CONTROL DETAILS

DESIGNED BY: PTM/HDL
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 6
DATE: 1/5/2011

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SHEET 4 OF 8
DRAWING NO. 4

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Mod: 03/10/2011, 14:20 | Plotted: 03/10/2011, 14:36 | Layout: Sht 4 | Chad_Stickel

NO.	DATE	BY	REVISION DESCRIPTION
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5	1/5/11	PTM	100% ASBUILT

LEGEND

- LIMITS OF EXCAVATION/VACUUM TRUCK
- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EDGE OF WATER
- HAUL ROUTE
- TEST PIT
- 1297 CONTOUR - EXCAVATION ELEVATION (BOTTOM OF GRANULATED SLAG)

EXCAVATION VOLUMES

UPSTREAM BEACH AND MIDDLE BEACH	1,395 C.Y
DOWNSTREAM BEACH	5,100 C.Y.
ROCK OUTCROPPING	5 C.Y.
TOTAL:	6,500 C.Y.

C.Y. = CUBIC YARDS (IN-PLACE VOLUME)

NOTE:
HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055,705 FT. NORTH, 2,409,429,512 FT. EAST, ELEV. 1,457,071 FT.

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

ASBUILT EXCAVATION

DESIGNED BY:	PTM/HDL
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 6
DATE:	1/5/2011

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SHEET 5 OF 8
DRAWING NO. 5

P:\ACAD\PROJECT\TeckCominco\Alaska\Black Sand Beach\SubTasks\Design\R06 Asbuilt\Sheet 5 (Excavation).dwg
Mod: 03/10/2011, 14:20 | Plotted: 03/10/2011, 14:36 | Layout: Sht 5 | Chad_Stickel

NO.	DATE	BY	REVISION DESCRIPTION
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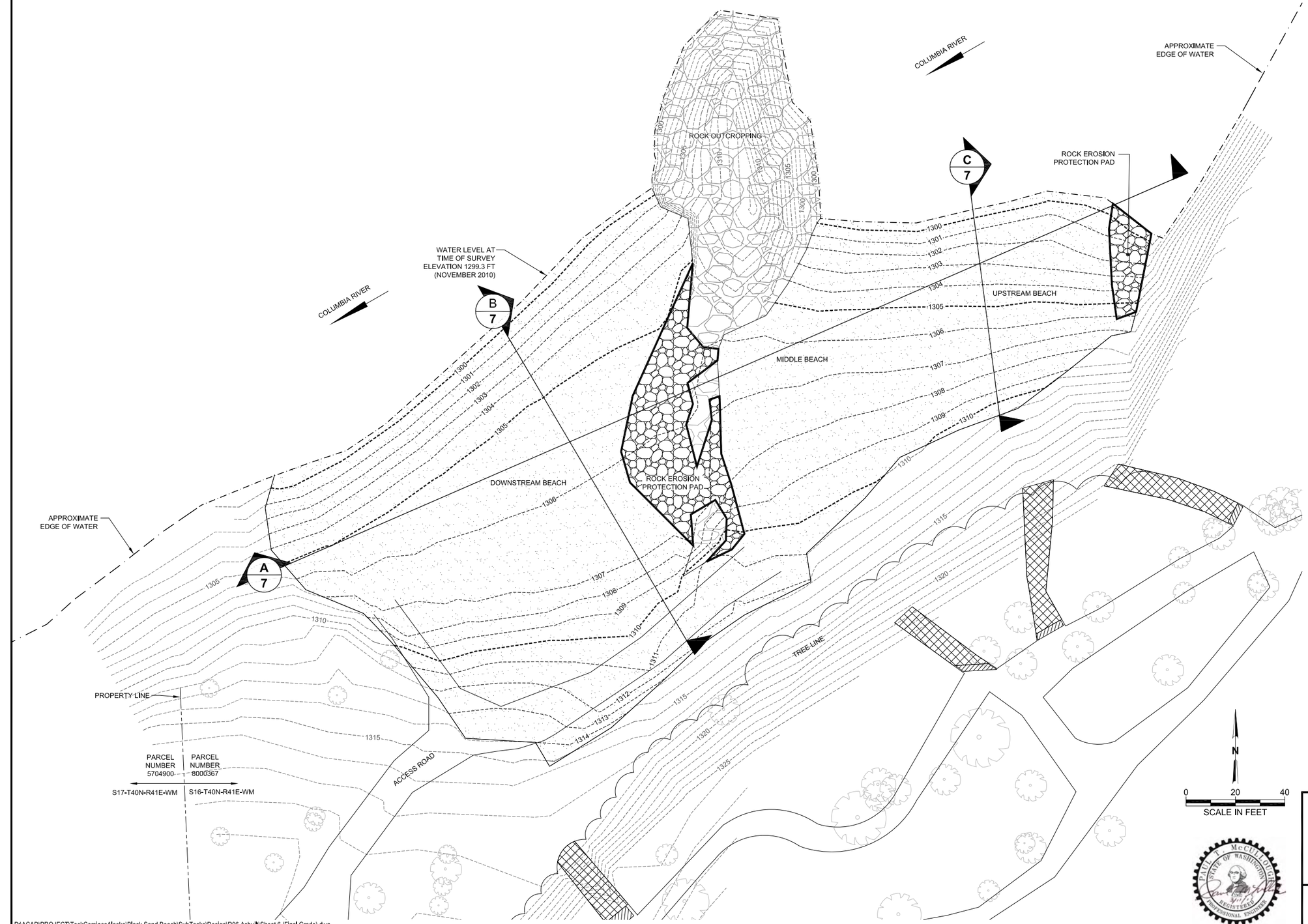
5	1/5/11	PTM	100% ASBUILT



LEGEND

- PROPERTY LINE
- EDGE OF WATER
- PORTION OF UNUSED ACCESS ROAD LEADING TO BLACK SAND BEACH
- MATERIAL PLACED TO BLOCK ROAD ACCESS PER WDNR (LARGE ROCKS AND ROOT BALLS)
- LIMITS OF REPLACED BEACH SAND
- ROCK EROSION PROTECTION PAD WITH SMALL COBBLE TOPPING
- ROCK OUTCROPPING

FILL VOLUMES

UPSTREAM BEACH AND MIDDLE BEACH	1,764 C.Y.
DOWNSTREAM BEACH	5,150 C.Y.
ROCK OUTCROPPING	0 C.Y.

C.Y. = CUBIC YARDS (DELIVERED VOLUME)

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

ASBUILT TOPOGRAPHIC SURVEY MAP

DESIGNED BY:	PTM/HDL
DRAWN BY:	CFS
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 6
DATE:	1/5/2011

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SHEET 6 OF 8

DRAWING NO. 6

P:\ACAD\PROJECT\TeckCominco\Alaska\Black Sand Beach\SubTasks\Design\R06 Asbuilt\Sheet 6 (Final Grade).dwg
Mod: 03/10/2011, 14:19 | Plotted: 03/10/2011, 14:36 | Layout: Sht 6 | Chad_Stickel

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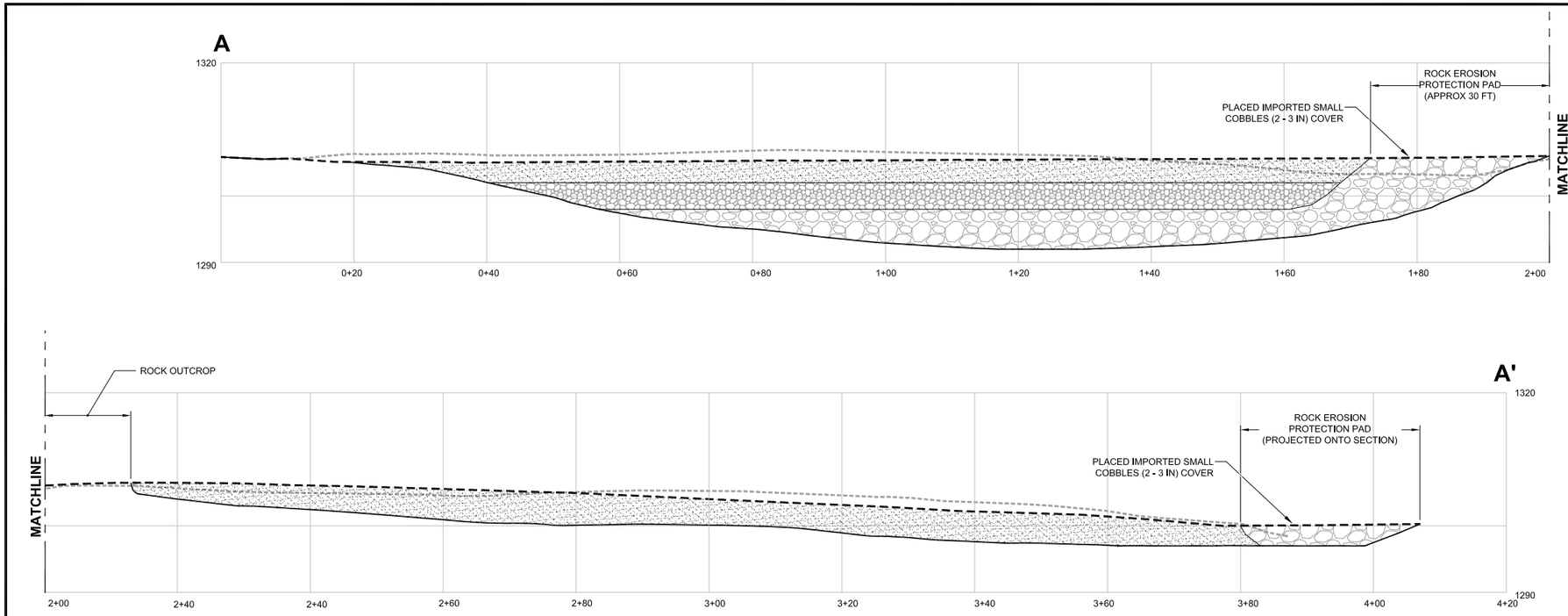

SECTION A
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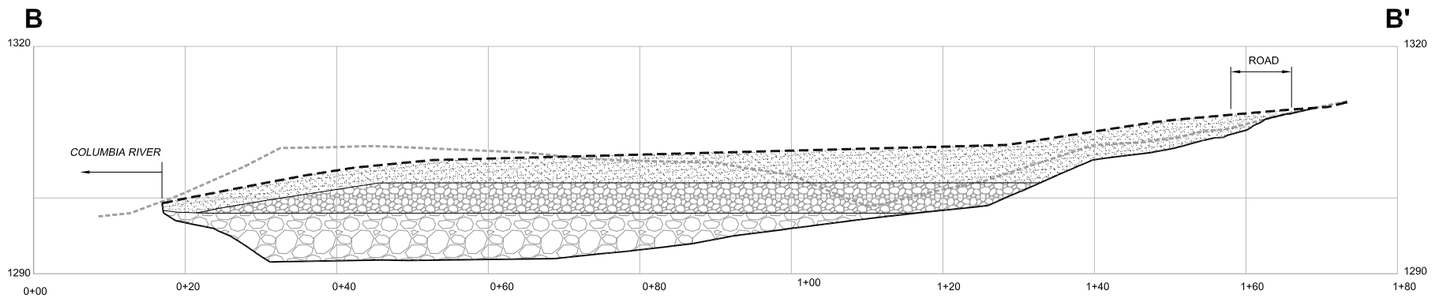
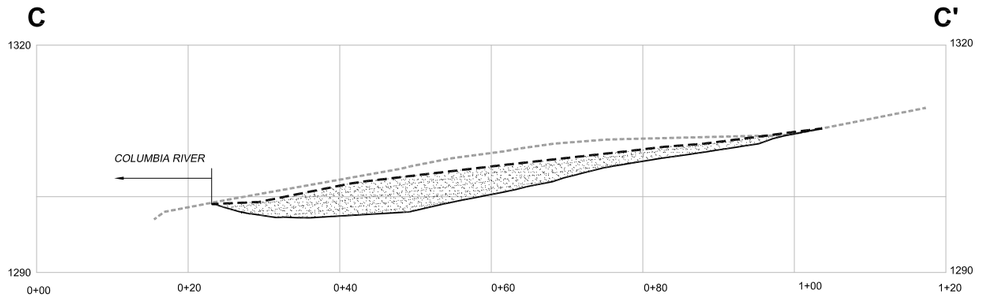
5,6



SECTION B
SCALE: NTS
5,6



SECTION C
SCALE: NTS
5,6

SECTION LEGEND

- ORIGINAL GROUND LINE ELEVATION
- AS-BUILT GROUND LINE ELEVATION
- BOTTOM OF EXCAVATION
- BEACH SAND
- EROSION RESISTANT GRAVEL
- COBBLES

NOTES:

1. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE. VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD. 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.

2. RIVER ELEVATION DATA WERE OBTAINED FROM USGS AUXILIARY GAUGE 12399500, AS REPORTED AT WEB SITE: HTTP://WATERDATA.USGS.GOV/USA/NWIS?SITE NO=12399500 FOR PERIOD 20 SEPT 10 TO 29 OCT 10. VALUES WERE CALCULATED FROM STREAM GAUGE MEASUREMENTS COLLECTED AT 15 MINUTE INTERVALS THROUGHOUT THIS PERIOD. AUXILIARY GAUGE READINGS WERE CONVERTED TO NAVD 88 UNITS (FEET ABOVE MEAN SEA LEVEL) USING THE FORMULA: NAVD88 (IN FEET ABOVE MSL) = 0.992 X GAUGE HEIGHT (IN FEET) + 1203.7. THIS FORMULA WAS DETERMINED BY LINEAR REGRESSION ANALYSIS OF SIMULTANEOUS RIVER ELEVATION (NAVD88) AND GAUGE HEIGHT MEASUREMENTS PERFORMED BY LICENSED SURVEYOR.

3. SEE TABLE ON SHEET 1 FOR RIVER ELEVATIONS DURING CONSTRUCTION PERIOD (20 SEPT 10 - 29 OCT 10).

FILL PLACEMENT NOTES:

1. A MINIMUM OF 2 TO 3 FEET OF SAND WAS PLACED AT THE UPPERMOST SURFACE OF THE BEACH PROVIDING THAT THERE WAS SUFFICIENT ROOM IN THE EXCAVATION
2. THE SAND EXTENDED TO THE EDGE OF THE RIVER.
3. A TOPPING OF IMPORTED SMALL COBBLES (2 - 3 IN) FROM AUBERT ROCK PRODUCTS, 1310 WILLIAMS LAKE ROAD, EVANS WA WAS PLACED OVER THE EROSION PROTECTION PADS. THE REMAINDER OF THE EROSION PROTECTION PADS CONSISTED OF COBBLES AS SPECIFIED BELOW.

FILL SPECIFICATIONS:

TOP BEACH SAND LAYER: THE TOP LAYER CONSISTED OF FINE TO COARSE SAND (SP). THE MATERIAL WAS FREE FROM DELETERIOUS MATTER AND CONFORMED TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
¼ - INCH	100
No. 4	99
No. 10	76
No. 20	49
No. 40	30
No. 60	16
No. 100	7
No. 200	2

THE MATERIAL WAS OBTAINED FROM COLVILLE VALLEY CONCRETE, 1175 E. THIRD AVENUE, COLVILLE, WA 99114.

MIDDLE BEACH GRAVEL LAYER: THE MIDDLE LAYER CONSISTED OF A ROUNDED TO SUBANGULAR FINE TO COARSE GRAVEL. THE SELECT GRANULAR MATERIAL WAS FREE FROM DELETERIOUS MATTER AND CONFORM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
2 - INCH	100
1 - INCH	99
¾ - INCH	77
½ - INCH	38
3/8 - INCH	19
No. 4	4
No. 8	2
No. 16	2
No. 30	2
No. 50	1

THE MATERIAL WAS OBTAINED FROM COLVILLE VALLEY CONCRETE, 1175 E. THIRD AVENUE, COLVILLE, WA 99114.

BOTTOM BEACH COBBLE LAYER: THE BOTTOM LAYER CONSISTED OF NATURALLY OCCURRING ROUNDED TO SUBROUNDED COBBLE. THE MATERIAL WAS FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
24 - INCH	100
18 - INCH	95 -100
16 - INCH	95 -100
10 - INCH	40 - 60
8 - INCH	10-40
6 - INCH	5-10
3 - INCH	0 - 5
1 - INCH	0 - 1

THE LARGER COBBLE MATERIAL WAS IMPORTED FROM COLUMBIA RIVER ROCK, 4765 B. MITCHEL ROAD, NORTH PORT, WA, AFTER APPROVAL FROM ECOLOGY AND NOTIFICATION OF CULTURAL RESOURCE STAKE HOLDERS.

ROCK EROSIONAL PROTECTION PAD: THE ROCK EROSIONAL PROTECTION PAD CONSISTED OF NATURALLY OCCURRING ROUNDED TO SUBROUNDED COBBLE/ROCK. THE MATERIAL WAS FREE FROM DELETERIOUS MATTER AND CONFORM TO FOLLOWING GRADATION.

SIZE	PERCENT BY WEIGHT PASSING
24 - INCH	100
18 - INCH	95 -100
16 - INCH	95 -100
10 - INCH	40 - 60
8 - INCH	10-40
6 - INCH	5-10
3 - INCH	0 - 5
1 - INCH	0 - 1

THE LARGER COBBLE MATERIAL WAS IMPORTED FROM COLUMBIA RIVER ROCK, 4765 B. MITCHEL ROAD, NORTH PORT, WA, AFTER APPROVAL FROM ECOLOGY AND NOTIFICATION OF CULTURAL RESOURCE STAKE HOLDERS.

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

CROSS-SECTIONS

STATE OF WASHINGTON — PAUL T. McCULLOUGH — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY: PTM/HDL
DRAWN BY: CFS
CHECKED BY: RDE
APPROVED BY: PTM
REVISION: REV 6
DATE: 1/5/2011

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SHEET 7 OF 8
DRAWING NO. 7

P:\ACAD\PROJECT\TeckCominco\Alaska\Black Sand Beach\SubTasks\Design\R06 Asbuilt\Sheet 7 (Sections).dwg
Mod: 03/10/2011, 14:19 | Plotted: 03/10/2011, 14:36 | Layout: Layout1 | Chad_Stickel

NO.	DATE	BY	REVISION DESCRIPTION
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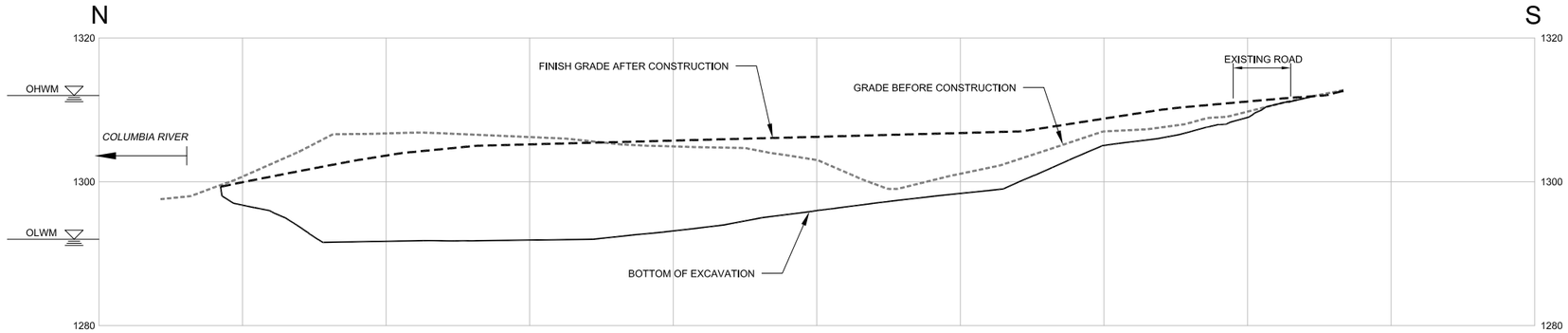
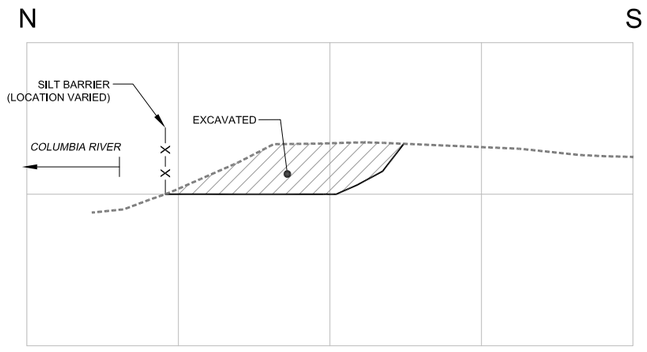


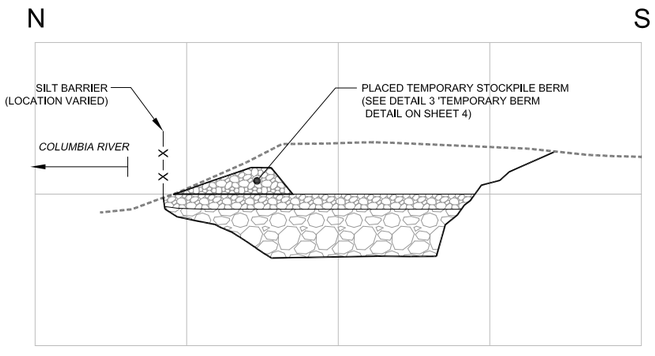
SECTION THROUGH DOWNSTREAM BEACH — B

SCALE: NTS — 5,6



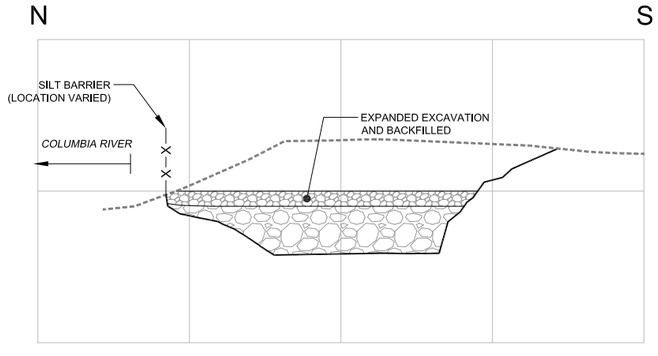
STAGE 1 SECTION — 1

SCALE: NTS — 8



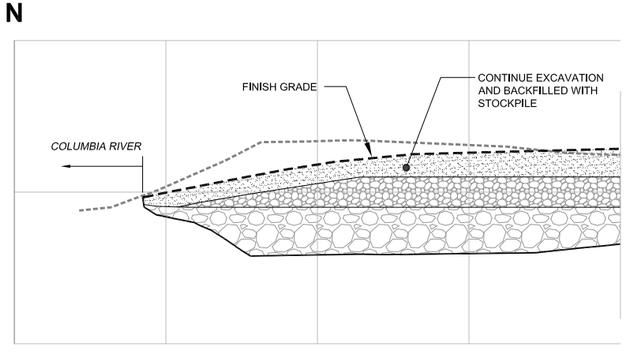
STAGE 3 SECTION — 3

SCALE: NTS — 8



STAGE 2 SECTION — 2

SCALE: NTS — 8



STAGE 4 SECTION — 4

SCALE: NTS — 8

CONSTRUCTION NOTES:

1. ROCK COVER MATERIAL WAS REPLACED BY EROSION RESISTANT GRAVEL AND COBBLES IN AREAS ABOVE THE GROUND WATER TABLE WHEN INSPECTION INDICATED THAT SLAG HAD BEEN REMOVED SUFFICIENTLY.
2. HORIZONTAL DATUM, WASHINGTON STATE PLANE, NORTH ZONE, VERTICAL DATUM, NAVD 88, BASED ON WSDOT STATION "YONDER", LOCATED 0.25 MILES SOUTH OF WANETA BORDER CROSSING AND 52 FT. WEST OF THE CENTERLINE OF THE WANETA CUSTOMS ROAD, 3 IN. BRASS CAP IN CEMENT, 745,055.705 FT. NORTH, 2,409,429.512 FT. EAST, ELEV. 1,457.071 FT.
3. CONSTRUCTION ACTIVITIES WERE SEQUENCED TO MINIMIZE IMPACT TO ADJACENT RIVER. EXCAVATION BEGAN NEAR THE WATER'S EDGE AND PROCEED INLAND. GRANULATED SLAG FROM ROCK OUTCROPPING WAS REMOVED PRIOR TO REMOVAL OF SILT BARRIER.
4. EXCAVATION SEQUENCE SECTIONS ARE DIAGRAMMATIC ONLY AND NOT TO SCALE.
5. TEMPORARY STOCKPILE BERM AT EDGE OF RIVER WAS A MINIMUM OF 4 FT HIGH AND 10 FT WIDE

CONSTRUCTION SEQUENCE- AS BUILT

1. INSTALLED SILT BARRIER ON THE UPSTREAM AND DOWNSTREAM BEACH APPROX 1 FOOT UPLAND FROM THE RIVER
2. REGRADED BEACH NEAR SHORELINE TO ACCOMMODATE PLACEMENT OF SILT BARRIER.
3. INSTALLED COBBLES TO RIVER LEVEL ELEVATION AS EXCAVATION PROCEEDED ON DOWNSTREAM BEACH FROM WEST TO EAST
4. WHEN DOWNSTREAM BEACH EXCAVATION AND COBBLE BASE ROAD WAS COMPLETED, TRUCKED IN AND PLACED GRAVEL ±2 FT THICK. TOPPED WITH SAND TO MATCH FINAL CONTOUR ±30 FT WIDE TO CREATE A BERM.
5. REPEATED SAME PROCEDURE FOR UPSTREAM BEACH EXCEPT COBBLES LIMITED TO NORTH 80 FT. TO FILL TO RIVER LEVEL.
6. CONTINUED STEP 3 AND 4 FOR DOWNSTREAM BEACH AND HAULED OUT SLAG FROM STOCK PILE AS TRUCKING WAS AVAILABLE.
7. CONTINUED STEP 3 AND 4 FOR UPSTREAM BEACH EXCEPT ONLY SAND PLACED (NO GRAVEL).
8. PERFORMED ROUGH GRADING AS SAND WAS PLACED ON BEACHES.
9. PLACED COBBLES FOR EROSION PROTECTION PADS TOPPED WITH 2-6 IN OF SMALL COBBLES FROM AUBERT ROCK PRODUCTS, 1310 WILLIAMS LAKE ROAD, EVANS WA.
10. PERFORMED FINAL GRADING AND TRACK WALKED SURFACE WITH DOZER.
11. RESTORED ACCESS ROAD AS DIRECTED BY WDNR.

GENERAL NOTE
SECTIONS ARE DIAGRAMMATIC AND NOT TO SCALE.

SECTION LEGEND

- EXISTING GROUNDLINE
- BOTTOM OF EXCAVATION
- FINAL GRADE
- BEACH SAND
- EROSION RESISTANT GRAVEL & COBBLES
- ROCK COVER

100% ASBUILT

BLACK SAND BEACH PROJECT
STEVENS COUNTY, WASHINGTON

EXCAVATION SEQUENCE

PAUL T. McCULLOUGH — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY:	PTM/HDL
DRAWN BY:	JK
CHECKED BY:	RDE
APPROVED BY:	PTM
REVISION:	REV 6
DATE:	1/5/2011

URS
1501 4TH AVENUE, SUITE 1400
SEATTLE, WA 98101-1616
(206) 438-2700

SHEET 8 OF 8
DRAWING NO. 8

P:\ACAD\PROJECT\TeckCominco\Alaska\Black Sand Beach\SubTasks\Design\R06 Asbuilt\Sheet 8 (Excavation Sequence).dwg
Mod: 03/10/2011, 14:19 | Plotted: 03/10/2011, 14:36 | Layout: Sht 8 | Chad_Stickel

APPENDIX E
PHOTOGRAPH RECORDS

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **1**	
Photo Taken: **09/21/10** **Direction Taken:** **North**	
Description: Preconstruction photograph showing rock outcropping, middle beach, and downstream beach.	

Photo No. **2**	
Photo Taken: **9/21/10** **Direction Taken:** **Northwest**	
Description: Preconstruction photograph of downstream beach taken from the access road.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
3

Photo Taken:
09/21/10

Direction Taken:
Northwest

Description:

Preconstruction photograph showing portion of access road to Black Sand Beach.

Photo No.
4

Photo Taken:
09/21/10

Direction Taken:
Northwest

Description:

Preconstruction photograph showing access road leading to downstream beach.

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **5**	
Photo Taken: **09/21/10** **Direction Taken:** **North**	
Description: Preconstruction photograph of downstream beach.	

Photo No. **6**	
Photo Taken: **09/21/10** **Direction Taken:** **North**	
Description: Preconstruction photograph of downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **7**	
Photo Taken: **09/21/10** **Direction Taken:** **North**	
Description: Preconstruction photograph of rock outcropping, downstream beach (left) and middle beach (right).	

Photo No. **8**	
Photo Taken: **09/21/10** **Direction Taken:** **Northeast**	
Description: Preconstruction photograph of middle and upstream beaches.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **9**	
Photo Taken: **09/21/10** **Direction Taken:** **Northwest**	
Description: Preconstruction photograph of downstream beach.	

Photo No. **10**	
Photo Taken: **9/21/10** **Direction Taken:** **North**	
Description: Preconstruction photograph of rock outcropping	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **11**	
Photo Taken: **09/21/10** **Direction Taken:** **Northwest**	
Description: Preconstruction photograph of upstream beach.	

Photo No. **12**	
Photo Taken: **09/21/10** **Direction Taken:** **East**	
Description: Preconstruction photograph of middle and downstream beach near shoreline. Note: USGS International Boundary Auxillary Gauge Station in background.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **13**	
Photo Taken: **09/22/10** **Direction Taken:** **Southeast**	
Description: Upstream beach test pit excavation	

Photo No. **14**	
Photo Taken: **09/22/10** **Direction Taken:** **Southeast**	
Description: Test pit excavation at upstream beach. View of upland sidewall.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **15**	
Photo Taken: **09/22/10** **Direction Taken:** **West**	
Description: Test pit at upstream beach.	

Photo No. **16**	
Photo Taken: **09/21/10** **Direction Taken:** **Southeast**	
Description: Test pit excavation at upstream beach. View of sidewall.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **17**	
Photo Taken: **0922/10** **Direction Taken:** **Southeast**	
Description: Beginning of test pit at downstream beach.	

Photo No. **18**	
Photo Taken: **9/22/10** **Direction Taken:** **Southeast**	
Description: Downstream beach test pit excavation.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **19**	
Photo Taken: **09/23/10** **Direction Taken:** **Northwest**	
Description: Downstream beach test pit.	

Photo No. **20**	
Photo Taken: **09/23/10** **Direction Taken:** **Southwest**	
Description: Middle beach test pit sidewall.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **21**	
Photo Taken: **09/23/10** **Direction Taken:** **South**	
Description: Middle beach test pit.	

Photo No. **22**	
Photo Taken: **09/23/10** **Direction Taken:** **West**	
Description: Installation of silt barrier at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. 23	
Photo Taken: 09/23/10 **Direction Taken:** Northwest	
Description: Installation of silt barrier at upstream beach	

Photo No. 24	
Photo Taken: 09/24/10 **Direction Taken:** Northeast	
Description: Excavation at downstream beach following installation of silt barrier.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **25**	
Photo Taken: **09/24/10** **Direction Taken:** **West**	
Description: Excavation of downstream beach near rock outcropping.	

Photo No. **26**	
Photo Taken: **9/24/10** **Direction Taken:** **East**	
Description: Excavation of downstream beach near rock outcropping.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. 27	
Photo Taken: 09/27/10 **Direction Taken:** East	
Description: Excavation of downstream beach and placement of cobbles below water.	

Photo No. 28	
Photo Taken: 09/27/10 **Direction Taken:** West	
Description: Placement of basal cobble layer on west end of downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **29**	
Photo Taken: **09/27/10** **Direction Taken:** **Southeast**	
Description: Excavation of upland area of downstream beach below water.	

Photo No. **30**	
Photo Taken: **09/28/10** **Direction Taken:** **North**	
Description: Excavation of central portion of downstream beach below water.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. 31	
Photo Taken: 09/28/10 **Direction Taken:** Northeast	
Description: Placement of sand on top of middle gravel layer at downstream beach.	

Photo No. 32	
Photo Taken: 09/28/10 **Direction Taken:** Northeast	
Description: Placement of sand on top of middle gravel layer at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **33**	
Photo Taken: **09/28/10** **Direction Taken:** **Norhtwest**	
Description: Excavation of upstream beach.	

Photo No. **34**	
Photo Taken: **9/29/10** **Direction Taken** **Northeast**	
Description: Excavation of downstream beach and placement of basal cobble layer	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **35**	
Photo Taken: **09/29/10** **Direction Taken:** **Northeast**	
Description: Excavation of downstream beach and placement of cobbles for basal layer.	

Photo No. **36**	
Photo Taken: **09/30/10** **Direction Taken:** **East**	
Description: Excavation of middle and downstream beaches.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **37**	
Photo Taken: **09/30/10** **Direction Taken:** **East**	
Description: Excavation of downstream beach.	

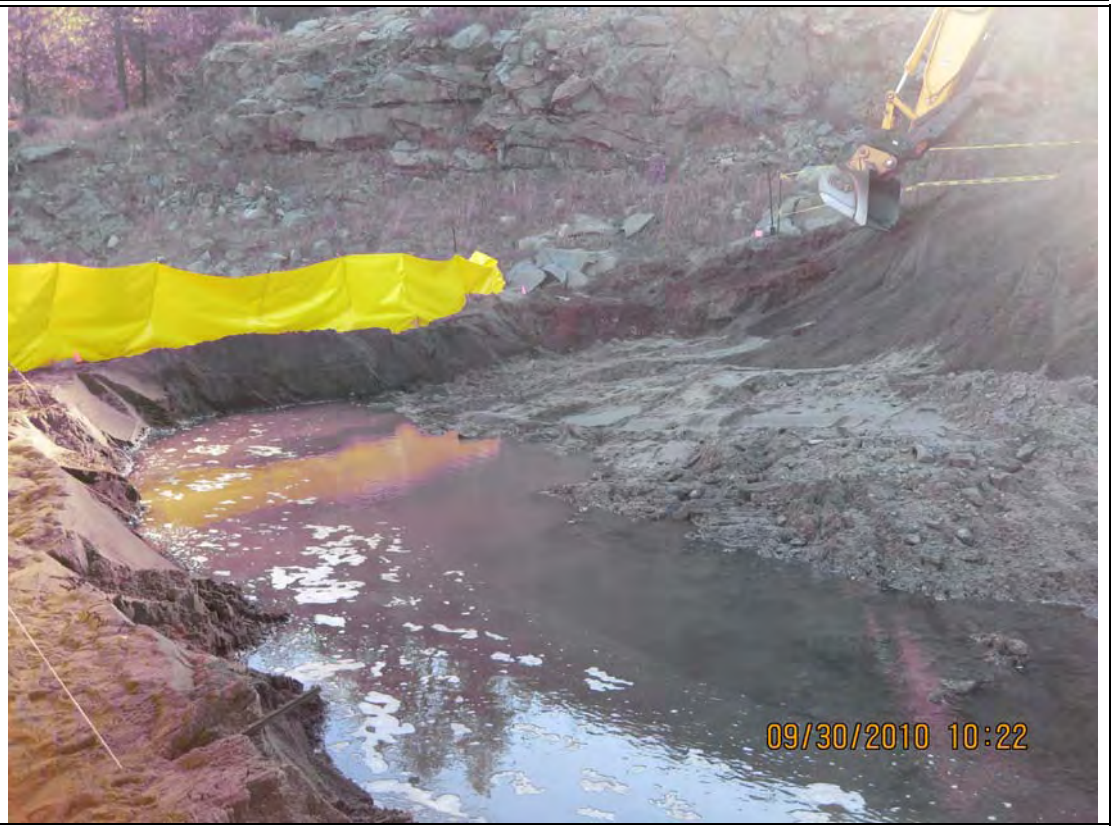


Photo No. **38**	
Photo Taken: **10/05/10** **Direction Taken:** **Northeast**	
Description: Completed berm at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **39**	
Photo Taken: **10/06/10** **Direction Taken:** **North**	
Description: Vacuuming of rock outcropping.	

Photo No. **40**	
Photo Taken: **10/06/10** **Direction Taken:** **North**	
Description: View of rock outcropping after vacuuming.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **41**	
Photo Taken: **10/06/10** **Direction Taken:** **Northwest**	
Description: Stockpiling of materials removed from rock outcropping by the vacuum truck.	

Photo No. **42**	
Photo Taken: **10/06/10** **Direction Taken:** **Southwest**	
Description: Vacuuming of materials from rock outcropping	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **43**	
Photo Taken: **10/07/10** **Direction Taken:** **Northeast**	
Description: Vacuuming of granulated slag containing materials from cobble area west of downstream beach.	

Photo No. **44**	
Photo Taken: **10/08/10** **Direction Taken:** **Northeast**	
Description: Cleaning Northport-Waneta Road.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **45**	
Photo Taken: **10/09/10** **Direction Taken:** **Northwest**	
Description: View of completed berm at upstream/middle beaches.	

Photo No. **46**	
Photo Taken: **10/10/10** **Direction Taken:** **North**	
Description: Load-out of materials from the middle and upstream beaches.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **47**	
Photo Taken: **10/14/10** **Direction Taken:** **Northeast**	
Description: View of middle beach following removal of granulated slag.	

Photo No. **48**	
Photo Taken: **10/17/10**	
Description: Unloading excavated materials from Black Sand Beach at Trimac facility in Trail, BC.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **49**	
Photo Taken: **10/17/10**	
Description: Removing truck bed cover at Trimac facility, Trail, BC.	

Photo No. **50**	
Photo Taken: **10/17/10**	
Description: Stockpiling of excavated materials from Black Sand Beach at Trimac facility in Trail, BC.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **51**	
Photo Taken: **10/19/10** **Direction Taken:** **Southwest**	
Description: Excavation of downstream beach and placement of basal cobble layer.	

Photo No. **52**	
Photo Taken: **10/19/10** **Direction Taken:** **Southeast**	
Description: Excavation of downstream beach below water.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
53

Photo Taken:
10/19/10

Direction Taken:
West

Description:

Placement of bottom cobble layer at downstream beach.

Photo No.
54

Photo Taken:
10/19/10

Direction Taken:
North

Description:

Excavation of downstream beach adjacent to rock outcropping.

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **55**	
Photo Taken: **10/19/10** **Direction Taken:** **Northwest**	
Description: Excavation of downstream beach below water.	

Photo No. **56**	
Photo Taken: **10/21/10** **Direction Taken:** **Northeast**	
Description: View of layered backfill at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **57**	
Photo Taken: **10/22/10** **Direction Taken:** **South**	
Description: Excavation of upland portion of downstream beach.	

Photo No. **58**	
Photo Taken: **10/22/10** **Direction Taken:** **Northeast**	
Description: Upland portion of excavation at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
59

Photo Taken:
10/23/10

Description:

Screening of excavated materials removed from Black Sand Beach at Trimac facility in Trail, BC.

Photo No.
60

Photo Taken:
10/23/10

Description:

Stockpile of large screened materials at Trimac facility in Trail, BC.

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **61**	
Photo Taken: **10/23/10** **Direction Taken:** **North**	
Description: Stockpile of sand sized materials screened at Trimac facility in Trail BC.	

Photo No. **62**	
Photo Taken: **10/25/10** **Direction Taken:** **Northeast**	
Description: Placement of middle gravel layer at downstream beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **63**

Photo Taken: **10/25/10**

Direction Taken: **Southwest**

Description:

Placement of middle gravel layer at downstream beach. Erosional rock pad is adjacent to rock outcropping.

Photo No. **64**

Photo Taken: **10/26/10**

Direction Taken: **North**

Description:

Construction of the erosion rock pad at downstream beach.

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **65**	
Photo Taken: **10/27/10** **Direction Taken:** **Southeast**	
Description: Restoration of access road entrance to middle beach.	

Photo No. **66**	
Photo Taken: **10/29/10** **Direction Taken:** **Northeast**	
Description: Railroad crossing at end of construction.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **67**	
Photo Taken: **10/29/10** **Direction Taken:** **Southwest**	
Description: Entrance to Northport-Waneta Road from Black Sand Beach access road with stabilized construction entrance removed.	

Photo No. **68**	
Photo Taken: **10/29/10** **Direction Taken:** **Northeast**	
Description: Access road to Black Sand Beach north of railroad tracks following restoration.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **69**	
Photo Taken: **10/29/10** **Direction Taken:** **Northwest**	
Description: Large rocks placed at location of the removed tree.	

Photo No. **70**	
Photo Taken: **10/29/10** **Direction Taken:** **Southeast**	
Description: Rocks and tree limbs placed at access road entrance to middle beach.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. 71	
Photo Taken: 10/29/10 **Direction Taken:** North	
Description: Final conditions of access road at end of construction.	

Photo No. 72	
Photo Taken: 10/29/10 **Direction Taken:** Northeast	
Description: Final conditions of access road at end of construction.	

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
73

Photo Taken:
10/28/10

Direction Taken:
Northeast

Description:

Photo Station No. 1 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734678.06
E. 2405180.90

Photo No.
74

Photo Taken:
10/28/10

Direction Taken:
Northeast

Description:

Photo Station No. 2 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734744.33
E. 2405174.42

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
75

Photo Taken:
10/28/10

Direction Taken:
Northwest

Description:

Photo Station No. 3 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734733.88
E. 2405527.09

Photo No.
76

Photo Taken:
10/28/10

Direction Taken:
Southwest

Description:

Photo Station No. 4 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone, NAD 83, US Ft

N. 734878.14
E. 2405345.23

URS

APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **77**

Photo Taken: **10/28/10**

Direction Taken: **Northeast**

Description:

Photo Station No. 5 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone, NAD 83, US Ft

N. 734867.28
E. 2405375.81

Photo No. **78**

Photo Taken: **10/28/10**

Direction Taken: **West**

Photo Station No. 6 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone, NAD 83, US Ft

N. 734842.12
E. 2405571.21

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No. **79**

Photo Taken: **10/28/10**

Direction Taken: **Northwest**

Description:
Photo Station No. 7 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone, NAD 83, US Ft

N. 734705.11
E. 2405437.47

Photo No. **80**

Photo Taken: **10/28/10**

Direction Taken: **Northwest**

Description:

Photo Station No. 8 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734709.15
E. 2405349.41

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
81

Direction Photo Taken: 10/28/10

North

Description:

Photo Station No. 9 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734626.25
E. 2405285.80

Photo No.
82

Direction Photo Taken: 10/28/10

Northeast

Description:

Photo Station No. 10 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734590.89
E. 2405236.06

URS	APPENDIX E: PHOTOGRAPHIC LOG

Teck American Incorporated	**Black Sand Beach Project** Stevens County, Washington	**URS Project No.:** 36310019

Photo No.
83

Direction Photo Taken: 10/28/10

Northeast

Description:

Photo Station No. 11 (Completion Report and Performance Monitoring Plan, December 2010)

Washington State Plane, North Zone NAD 83, US Ft

N. 734633.06
E. 2405219.44

Photo No.
84

Direction Photo Taken: 11/01/10

Northeast

Description:

Completed downstream beach.

APPENDIX F
ANALYTICAL REPORTS
FOR IMPORTED FILL MATERIALS

URS

MEMORANDUM

Date: August 12, 2010

To: Paul McCullough, Project Manager

From: Christine Gebel, Chemist
Jennifer Garner, Chemist

Subject: Summary Data Quality Review
Fill Material Data, July 2010
Black Sand Beach
Job No. 36310019

The summary data quality review of 15 soil samples collected on July 8, 2010 has been completed. The samples were analyzed at the Test America (TA) laboratory in Spokane, Washington for total antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc by EPA Methods 6010C and/or 7471A. The analyses were performed in general accordance with methods specified in EPA's *Test Methods for Evaluating Solid Waste, SW-846*, June 2005. The laboratory provided a summary report containing sample results and associated QA/QC data. The following sample is associated with laboratory sample delivery group STG0055:

Sample ID	Laboratory ID
C-33-1	STG0055-01
C-33-2	STG0055-02
C-33-3	STG0055-03
C-33-4	STG0055-04
C-33-5	STG0055-05
C-33-6	STG0055-06
C-33-7	STG0055-07
C-33-8	STG0055-08
C-33-9	STG0055-09
C-33-10	STG0055-10
C-33-11	----
C-33-12	----
C-33-13	----
C-33-14	----
C-33-15	----

The data were reviewed for adherence to method guidance and TA control limits regarding hold times, method blanks, blank spike recoveries (laboratory control samples), and laboratory duplicate results. If data qualification was required, data were qualified based on the definition and use of qualifying flags outlined in the EPA document USEPA *Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review*, January 2010.

URS Corporation
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Seattle, WA 98101-1616
Tel: 206.438.2700
Fax: 206.438.2699

URS

Samples were hand-delivered to the laboratory. Upon receipt by the laboratory, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperature was recorded. No discrepancies relating to sample identification were noted by the laboratory. The cooler temperature was above the EPA-recommended limits of 4°C±2°C at 32.5°C. The sampler noted that the air temperature was over 32°C when the samples were collected. The samples were delivered to the laboratory within four hours of collection without icing. As the elevated air temperature is representative of site conditions when the fill material was collected, results for mercury were not rejected; however the results for mercury in all samples are qualified as estimated and flagged 'J' or 'UJ' based on the elevated cooler temperature.

Samples C-33-11 to C-33-15 were placed on hold at the request of URS Corporation and are not discussed in this report.

A summary of qualifiers assigned to results in these SDGs is included in Table 1. Qualifiers that may be assigned to results include:

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. A '+' or '-' qualifier may be added to the J-flag to indicate high or low bias, respectively.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

A matrix spike/matrix spike duplicate (MS/MSD) was performed on sample C-33-1. The percent recoveries for zinc in the MS (68.2%) and MSD (72.2%) were below the control limits of 75-125%. The result for zinc in sample C-33-1 is qualified as estimated and flagged 'J' based on the MS/MSD results.

A laboratory duplicate was performed on sample C-33-1. The relative percent difference (RPD) for copper in the laboratory duplicate (38.1%) exceeded the control limits of 20%. The result for copper in sample C-33-1 is qualified as estimated and flagged 'J' based on the laboratory duplicate results.

The data reported in this SDG, as qualified, are considered to be usable for meeting project objectives. The completeness for SDG STG0055 is 100%.

Table 1 Summary of Qualified Data

Sample ID	Laboratory ID	Analyte	Laboratory Result	Units	Final Result
CC-33-1	STG0055-01	Copper Mercury Zinc	20.2 0.0500 U 69.2	mg/Kg mg/Kg mg/Kg	20.2 J 0.0500 UJ 69.2 J
CC-33-2	STG0055-02	Mercury	0.0503	mg/Kg	0.0503 J
CC-33-3	STG0055-03	Mercury	0.0537	mg/Kg	0.0537 J
CC-33-4	STG0055-04	Mercury	0.0937	mg/Kg	0.0937 J
CC-33-5	STG0055-05	Mercury	0.0617	mg/Kg	0.0617 J
CC-33-6	STG0055-06	Mercury	0.0500 U	mg/Kg	0.0500 UJ
CC-33-7	STG0055-07	Mercury	0.0500 U	mg/Kg	0.0500 UJ
CC-33-8	STG0055-08	Mercury	0.0500 U	mg/Kg	0.0500 UJ
CC-33-9	STG0055-09	Mercury	0.0570	mg/Kg	0.0570 J
CC-33-10	STG0055-10	Mercury	0.0500 U	mg/Kg	0.0500 UJ

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Black Sand Beach
Analytical Results of Fill Material - July 2010

Sample ID	Sample Date	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium*	Silver	Thallium	Zinc
C-33-1	7/8/2010	2.64 U	5.36	0.492	0.789	7.70	20.2 J	6.68	0.0500 UJ	16.0	2.64 U	0.528 U	2.64 U	69.2 J
C-33-2	7/8/2010	2.70 U	5.50	0.339	0.626	7.35	14.5	5.52	0.0503 J	15.8	2.70 U	0.541 U	2.70 U	60.4
C-33-3	7/8/2010	2.63 U	3.88	0.296	0.656	6.74	15.2	6.41	0.0537 J	16.1	2.63 U	0.526 U	2.63 U	64.7
C-33-4	7/8/2010	2.65 U	3.93	0.256	0.653	6.11	14.8	4.89	0.0937 J	14.8	2.65 U	0.530 U	2.65 U	60.8
C-33-5	7/8/2010	2.67 U	7.08	0.322	0.717	7.55	16.2	6.16	0.0617 J	16.9	2.67 U	0.535 U	2.67 U	62.4
C-33-6	7/8/2010	2.65 U	3.82	0.299	0.594	6.25	14.1	5.05	0.0500 UJ	15.8	2.65 U	0.530 U	2.65 U	63.1
C-33-7	7/8/2010	2.63 U	4.39	0.290	0.835	6.93	15.9	6.47	0.0500 UJ	18.2	2.63 U	0.526 U	2.63 U	81.3
C-33-8	7/8/2010	2.64 U	2.98	0.200	0.425	4.15	9.60	3.85	0.0500 UJ	10.8	2.64 U	0.527 U	2.64 U	44.4
C-33-9	7/8/2010	2.62 U	3.71	0.310	0.648	6.42	12.8	5.04	0.0570 J	13.5	2.62 U	0.524 U	2.62 U	56.8
C-33-10	7/8/2010	2.52 U	3.34	0.294	0.499	7.41	13.5	4.98	0.0500 UJ	16.0	2.52 U	0.504 U	2.52 U	59.0
Benchmark**		NE	20 (As^{+3}) / 95 (As^{+5})	25	25	42	100	220	9	100	0.8	NE	NE	270

Notes:

* The laboratory reporting limit for selenium exceeds the benchmark value.

** Benchmark levels are based on MTCA Table 749-2, Prioity Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure, unrestriced land use (February 12, 2001).

Bold font indicates the result met or exceeded the benchmark value.

U - Compound was analyzed for but was not detected above the reporting limit shown.

J - Estimated concentration

NE - Not established

Values in mg/Kg

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories Inc.
TestAmerica Spokane
11922 East 1st. Avenue
Spokane, WA 99206
Tel: (509)924-9200

TestAmerica Job ID: STG0055
TestAmerica Sample Delivery Group: STG0055
Client Project/Site: [none]
Client Project Description: Black Sand Beach

For:
URS Corp.
920 N. Argonne Road Suite 300
Spokane, WA 99212

Attn: Gary Panther

Authorized for release by:
7/21/2010 1:00 PM

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

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Qualifier Definition/Glossary

Client: URS Corp.
Project/Site: [none]

TestAmerica Job ID: STG0055
SDG: STG0055

Qualifiers

Metals

Qualifier	Qualifier Description
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
R	The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R2	The RPD exceeded the acceptance limit.

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

Client: URS Corp.
Project/Site: [none]

TestAmerica Job ID: STG0055
SDG: STG0055

Client Sample ID: C-33-1

Lab Sample ID: STG0055-01

Date Collected: 07/08/10 11:45
Matrix: Soil
Date Received: 07/08/10 15:20
Percent Solids: 94.7

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Arsenic	**5.36**		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Beryllium	**0.492**		0.158		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Cadmium	**0.789**		0.211		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Chromium	**7.70**		0.528		mg/kg dry	☼	07/16/10 09:08	07/19/10 09:59	1
Copper	**20.2**		0.528		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Lead	**6.68**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Nickel	**16.0**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Selenium	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1
Silver	ND		0.528		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:28	1
Thallium	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/19/10 09:59	1
Zinc	**69.2**		0.528		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:02	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:31	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**94.7**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-2

Lab Sample ID: STG0055-02

Date Collected: 07/08/10 11:47
Matrix: Soil
Date Received: 07/08/10 15:20
Percent Solids: 92.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.70		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Arsenic	**5.50**		2.70		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Beryllium	**0.339**		0.162		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Cadmium	**0.626**		0.216		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Chromium	**7.35**		0.541		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:05	1
Copper	**14.5**		0.541		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Lead	**5.52**		1.62		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Nickel	**15.8**		1.62		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Selenium	ND		2.70		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1
Silver	ND		0.541		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:31	1
Thallium	ND		2.70		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:05	1
Zinc	**60.4**		0.541		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:08	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**50.3**		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:33	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**92.5**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-3

Lab Sample ID: STG0055-03

Date Collected: 07/08/10 11:45

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 95.1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Arsenic	**3.88**		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Beryllium	**0.296**		0.158		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Cadmium	**0.656**		0.210		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Chromium	**6.74**		0.526		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:10	1
Copper	**15.2**		0.526		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Lead	**6.41**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Nickel	**16.1**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Selenium	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1
Silver	ND		0.526		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:34	1
Thallium	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:10	1
Zinc	**64.7**		0.526		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:13	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**53.7**		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:36	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**95.1**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-4

Lab Sample ID: STG0055-04

Date Collected: 07/08/10 11:57

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 94.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Arsenic	**3.93**		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Beryllium	**0.256**		0.159		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Cadmium	**0.653**		0.212		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Chromium	**6.11**		0.530		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:16	1
Copper	**14.8**		0.530		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Lead	**4.89**		1.59		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Nickel	**14.8**		1.59		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Selenium	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1
Silver	ND		0.530		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:37	1
Thallium	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:16	1
Zinc	**60.8**		0.530		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:19	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**93.7**		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:38	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**94.3**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-5

Lab Sample ID: STG0055-05
Date Collected: 07/08/10 11:53
Matrix: Soil
Date Received: 07/08/10 15:20
Percent Solids: 93.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.67		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Arsenic	**7.08**		2.67		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Beryllium	**0.322**		0.160		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Cadmium	**0.717**		0.214		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Chromium	**7.55**		0.535		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:22	1
Copper	**16.2**		0.535		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Lead	**6.16**		1.60		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Nickel	**16.9**		1.60		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Selenium	ND		2.67		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1
Silver	ND		0.535		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:40	1
Thallium	ND		2.67		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:22	1
Zinc	**62.4**		0.535		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:25	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**61.7**		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:40	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**93.5**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-6

Lab Sample ID: STG0055-06
Date Collected: 07/08/10 11:55
Matrix: Soil
Date Received: 07/08/10 15:20
Percent Solids: 94.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Arsenic	**3.82**		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Beryllium	**0.299**		0.159		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Cadmium	**0.594**		0.212		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Chromium	**6.25**		0.530		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:27	1
Copper	**14.1**		0.530		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Lead	**5.05**		1.59		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Nickel	**15.8**		1.59		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Selenium	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1
Silver	ND		0.530		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:43	1
Thallium	ND		2.65		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:27	1
Zinc	**63.1**		0.530		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:30	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:43	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**94.3**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-7

Lab Sample ID: STG0055-07

Date Collected: 07/08/10 11:57

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 95.1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Arsenic	**4.39**		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Beryllium	**0.290**		0.158		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Cadmium	**0.835**		0.210		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Chromium	**6.93**		0.526		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:33	1
Copper	**15.9**		0.526		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Lead	**6.47**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Nickel	**18.2**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Selenium	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1
Silver	ND		0.526		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:46	1
Thallium	ND		2.63		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:33	1
Zinc	**81.3**		0.526		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:36	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:49	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**95.1**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-8

Lab Sample ID: STG0055-08

Date Collected: 07/08/10 11:59

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 94.8

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Arsenic	**2.98**		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Beryllium	**0.200**		0.158		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Cadmium	**0.425**		0.211		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Chromium	**4.15**		0.527		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:38	1
Copper	**9.60**		0.527		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Lead	**3.85**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Nickel	**10.8**		1.58		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Selenium	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1
Silver	ND		0.527		mg/kg dry	☼	07/16/10 09:08	07/19/10 12:49	1
Thallium	ND		2.64		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:38	1
Zinc	**44.4**		0.527		mg/kg dry	☼	07/16/10 09:08	07/16/10 17:42	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:52	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**94.8**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-9

Lab Sample ID: STG0055-09

Date Collected: 07/08/10 12:01

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 95.4

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.62		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Arsenic	**3.71**		2.62		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Beryllium	**0.310**		0.157		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Cadmium	**0.648**		0.210		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Chromium	**6.42**		0.524		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:58	1
Copper	**12.8**		0.524		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Lead	**5.04**		1.57		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Nickel	**13.5**		1.57		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Selenium	ND		2.62		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1
Silver	ND		0.524		mg/kg dry	☼	07/16/10 09:08	07/19/10 13:00	1
Thallium	ND		2.62		mg/kg dry	☼	07/16/10 09:08	07/19/10 10:58	1
Zinc	**56.8**		0.524		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:02	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**57.0**		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:54	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**95.4**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Client Sample ID: C-33-10

Lab Sample ID: STG0055-10

Date Collected: 07/08/10 12:03

Matrix: Soil

Date Received: 07/08/10 15:20

Percent Solids: 99.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.52		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Arsenic	**3.34**		2.52		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Beryllium	**0.294**		0.151		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Cadmium	**0.499**		0.201		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Chromium	**7.41**		0.504		mg/kg dry	☼	07/16/10 09:08	07/19/10 11:04	1
Copper	**13.5**		0.504		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Lead	**4.98**		1.51		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Nickel	**16.0**		1.51		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Selenium	ND		2.52		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1
Silver	ND		0.504		mg/kg dry	☼	07/16/10 09:08	07/19/10 13:03	1
Thallium	ND		2.52		mg/kg dry	☼	07/16/10 09:08	07/19/10 11:04	1
Zinc	**59.0**		0.504		mg/kg dry	☼	07/16/10 09:08	07/16/10 18:08	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg dry	☼	07/15/10 08:48	07/15/10 14:56	1

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
% Solids	**99.3**		0.0100		% by Weight		07/16/10 15:40	07/19/10 10:00	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10G0094-BLK1 — **Client Sample ID: 10G0094-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		2.50		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Arsenic	ND		2.50		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Beryllium	ND		0.150		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Cadmium	ND		0.200		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Copper	ND		0.500		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Lead	ND		1.50		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Nickel	ND		1.50		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Selenium	ND		2.50		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1
Zinc	ND		0.500		mg/kg wet	☼	07/16/10 09:08	07/16/10 16:57	1

Lab Sample ID: 10G0094-BLK1 — **Client Sample ID: 10G0094-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.500		mg/kg wet	☼	07/16/10 09:08	07/19/10 09:54	1
Thallium	ND		2.50		mg/kg wet	☼	07/16/10 09:08	07/19/10 09:54	1

Lab Sample ID: 10G0094-BLK1 — **Client Sample ID: 10G0094-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.500		mg/kg wet	☼	07/16/10 09:08	07/19/10 12:25	1

Lab Sample ID: 10G0094-BS1 — **Client Sample ID: 10G0094-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	% Rec. Limits
Antimony	50.0	50.6		mg/kg wet	101	80 - 120
Arsenic	50.0	51.2		mg/kg wet	102	80 - 120
Beryllium	50.0	51.9		mg/kg wet	104	80 - 120
Cadmium	50.0	52.5		mg/kg wet	105	80 - 120
Copper	50.0	50.1		mg/kg wet	100	80 - 120
Lead	50.0	54.1		mg/kg wet	108	80 - 120
Nickel	50.0	55.4		mg/kg wet	111	80 - 120
Selenium	50.0	49.5		mg/kg wet	99.0	80 - 120
Zinc	50.0	54.5		mg/kg wet	109	80 - 120

Lab Sample ID: 10G0094-BS1 — **Client Sample ID: 10G0094-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	% Rec. Limits
Chromium	50.0	53.4		mg/kg wet	107	80 - 120
Thallium	50.0	58.3		mg/kg wet	117	80 - 120

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10G0094-BS1 — **Client Sample ID: 10G0094-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	% Rec. Limits
Silver	50.0	50.1		mg/kg wet	100	80 - 120

Lab Sample ID: 10G0094-MS1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits
Antimony	ND		52.8	41.9		mg/kg dry	76.8	75 - 125
Arsenic	5.36		52.8	54.8		mg/kg dry	93.7	75 - 125
Beryllium	0.492		52.8	53.7		mg/kg dry	101	75 - 125
Cadmium	0.789		52.8	52.7		mg/kg dry	98.4	75 - 125
Copper	20.2		52.8	66.9		mg/kg dry	88.4	75 - 125
Lead	6.68		52.8	69.2		mg/kg dry	118	75 - 125
Nickel	16.0		52.8	62.1		mg/kg dry	87.3	75 - 125
Selenium	ND		52.8	47.6		mg/kg dry	90.1	75 - 125
Zinc	69.2		52.8	105	M8	mg/kg dry	68.2	75 - 125

Lab Sample ID: 10G0094-MS1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits
Chromium	7.70		52.8	56.3		mg/kg dry	92.0	75 - 125
Thallium	ND		52.8	47.4		mg/kg dry	89.7	75 - 125

Lab Sample ID: 10G0094-MS1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits
Silver	ND		52.8	48.8		mg/kg dry	92.3	75 - 125

Lab Sample ID: 10G0094-MSD1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits	RPD	RPD Limit
Antimony	ND		52.8	41.9		mg/kg dry	76.9	75 - 125	0.0242	20
Arsenic	5.36		52.8	54.4		mg/kg dry	92.9	75 - 125	0.794	20
Beryllium	0.492		52.8	54.0		mg/kg dry	101	75 - 125	0.524	20
Cadmium	0.789		52.8	52.6		mg/kg dry	98.1	75 - 125	0.316	20
Copper	20.2		52.8	67.9		mg/kg dry	90.3	75 - 125	1.48	20
Lead	6.68		52.8	56.0	R	mg/kg dry	93.4	75 - 125	21.1	20
Nickel	16.0		52.8	64.5		mg/kg dry	91.9	75 - 125	3.78	20
Selenium	ND		52.8	46.9		mg/kg dry	88.9	75 - 125	1.31	20
Zinc	69.2		52.8	107	M8	mg/kg dry	72.2	75 - 125	1.97	20

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10G0094-MSD1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits	RPD	RPD Limit
Chromium	7.70		52.8	55.8		mg/kg dry	91.0	75 - 125	0.920	20
Thallium	ND		52.8	48.8		mg/kg dry	92.5	75 - 125	3.07	20

Lab Sample ID: 10G0094-MSD1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits	RPD	RPD Limit
Silver	ND		52.8	53.3		mg/kg dry	101	75 - 125	8.87	20

Lab Sample ID: 10G0094-DUP1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	RPD	RPD Limit
Antimony	ND		0.907	R2	mg/kg dry	39.9	20
Arsenic	5.36		4.25	R2	mg/kg dry	23.2	20
Beryllium	0.492		0.316	R2	mg/kg dry	43.6	20
Cadmium	0.789		0.869		mg/kg dry	9.70	20
Copper	20.2		13.7	R2	mg/kg dry	38.1	20
Lead	6.68		5.25	R2	mg/kg dry	24.0	20
Nickel	16.0		16.4		mg/kg dry	2.39	20
Selenium	ND		ND		mg/kg dry		20
Zinc	69.2		71.6		mg/kg dry	3.41	20

Lab Sample ID: 10G0094-DUP1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	RPD	RPD Limit
Chromium	7.70		6.57		mg/kg dry	15.9	20
Thallium	ND		ND		mg/kg dry		20

Lab Sample ID: 10G0094-DUP1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0094 — **Prep Batch: 10G0094_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	RPD	RPD Limit
Silver	ND		ND		mg/kg dry		20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10G0083-BLK1 — **Client Sample ID: 10G0083-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0083 — **Prep Batch: 10G0083_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg wet	☼	07/15/10 08:48	07/15/10 14:29	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10G0083-BS1 — **Client Sample ID: 10G0083-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0083 — **Prep Batch: 10G0083_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	% Rec.	% Rec. Limits
Mercury	100	101		ug/kg wet	101	80 - 120

Lab Sample ID: 10G0083-MS1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0083 — **Prep Batch: 10G0083_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits
Mercury	ND		106	162		ug/kg dry	112	80 - 120

Lab Sample ID: 10G0083-MSD1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0083 — **Prep Batch: 10G0083_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spik Qualifier	Unit	% Rec.	% Rec. Limits	RPD	RPD Limit
Mercury	ND		106	154		ug/kg dry	105	80 - 120	4.68	20

Lab Sample ID: 10G0083-DUP1 — **Client Sample ID: C-33-1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0083 — **Prep Batch: 10G0083_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	RPD	RPD Limit
Mercury	ND		58.9		ug/kg dry	30.6	40

Method: TA SOP - Conventional Chemistry Parameters by APHA/EPA Methods

Lab Sample ID: 10G0104-DUP1 — **Client Sample ID: C-33-10**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10G0104 — **Prep Batch: 10G0104_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	RPD	RPD Limit
% Solids	99.3		99.7		% by Weight	0.402	5

Certification Summary

Client: URS Corp.
Project/Site: [none]

TestAmerica Job ID: _SPK_STG0055
SDG: STG0055

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	State Program	10	UST-071	10/31/10
TestAmerica Spokane	Washington	State Program	10	C569	01/06/11

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: URS Corp.
Project/Site: [none]

TestAmerica Job ID: STG0055
SDG: STG0055

Lab Sample ID	Client Sample ID	Matrix	Sampled	Received
STG0055-01	C-33-1	Soil	07/08/10 11:45	07/08/10 15:20
STG0055-02	C-33-2	Soil	07/08/10 11:47	07/08/10 15:20
STG0055-03	C-33-3	Soil	07/08/10 11:45	07/08/10 15:20
STG0055-04	C-33-4	Soil	07/08/10 11:57	07/08/10 15:20
STG0055-05	C-33-5	Soil	07/08/10 11:53	07/08/10 15:20
STG0055-06	C-33-6	Soil	07/08/10 11:55	07/08/10 15:20
STG0055-07	C-33-7	Soil	07/08/10 11:57	07/08/10 15:20
STG0055-08	C-33-8	Soil	07/08/10 11:59	07/08/10 15:20
STG0055-09	C-33-9	Soil	07/08/10 12:01	07/08/10 15:20
STG0055-10	C-33-10	Soil	07/08/10 12:03	07/08/10 15:20

TestAmerica Spokane
Sample Receipt Form

Work Order #: STG0055	Client: URS	Project: Black Sand Beach
Date/Time Received: 7-8-10 15:20	By: Catharine Stapleton	

Samples Delivered By: ☐Shipping Service ☐Courier ☒Client ☐Other:

List Air Bill Number(s) or Attach a photocopy of the Air Bill:

Receipt Phase	Yes	No	NA	Comments
Were samples received in a cooler:	X			
Custody Seals are present and intact:			X	
Are CoC documents present:	X			
Necessary signatures:	X			

Thermal Preservation Type: ☐Blue Ice ☐Gel Ice ☐Real Ice ☐Dry Ice ☒None ☐Other:

Temperature by IR Gun: 32.5 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☐Not enough ice ☐Ice melted ☒Within 4hrs of collection ☐NA ☐Other:

Log-in Phase Date/Time: 7-8-10 16:19 By: CA	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	X			
Samples containers were received intact:	X			
Do sample IDs match the CoC	X			
Appropriate sample containers were received for tests requested	X			
Are sample volumes adequate for tests requested	X			
Appropriate preservatives were used for the tests requested	X			
pH of inorganic samples checked and is within method specification			X	
Are VOC samples free of bubbles >6mm (1/4" diameter)			X	
Are dissolved parameters field filtered			X	
Do any samples need to be filtered or preserved by the lab		X		
Does this project require quick turnaround analysis		X		
Are there any short hold time tests (see chart below)		X		
Are any samples within 2 days of or past expiration		X		
Was the CoC scanned	X			
Were there Non-conformance issues at login		X		
If yes, was a CAR generated #			X	

24 hours or less	48 hours	7 days
Coliform Bacteria	BOD, Color, MBAS	TDS, TSS, VDS, FDS
Chromium +6	Nitrate/Nitrite	Sulfide
	Orthophosphate	Aqueous Organic Prep

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: JTG0055

CLIENT: USS

INVOICE TO: USS

REPORT TO: Gary Pawlicki

ADDRESS:

PHONE: 509 954-5090 FAX:

P.O. NUMBER:

PROJECT NAME: Black Sand Beach

PROJECT NUMBER:

SAMPLED BY: GP

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [10] STD. [7] [5] [4] [3] [2] [1] [<1]

Petroleum Hydrocarbon Analyses: [5] STD. [4] [3] [2] [1] [<1]

[OTHER] Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES: Antimony, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Thallium, Zinc

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	C-33-11	7-8-10 12:05	S	1	hold	
2	C-33-12	12:07			hold	
3	C-33-13	12:09			hold	
4	C-33-14	12:11			hold	
5	C-33-15	12:15			hold	
6						
7						
8						
9						
10						

RELEASED BY: Gary D Pawlicki PRINT NAME: FIRM: USS DATE: 7-8-10 TIME: 15:25

RECEIVED BY: Catherine Stapleton PRINT NAME: Catherine Stapleton FIRM: Test America DATE: 7-8-10 TIME: 15:25

RELEASED BY: PRINT NAME: FIRM: DATE: TIME:

RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:

TEMP: 32.5 PAGE OF

TAL-1000(0408)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
11922 E. First Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave,Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: STG0055

CLIENT: URS

INVOICE TO: URS Corp

REPORT TO: Gary Panther

ADDRESS:

PHONE: 509 954-5050 FAX:

P.O. NUMBER:

PROJECT NAME: Blue Sand Beach

PROJECT NUMBER:

SAMPLED BY: GDP

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] STD. [7] [5] [4] [3] [2] [1] [<1]

Petroleum Hydrocarbon Analyses: [5] STD. [4] [3] [2] [1] [<1]

[OTHER] Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: Antimony, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Thallium, Zinc	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	C-33-1	070810 11:45			S	1		
2	C-33-2	11:47						
3	C-33-3	11:49						
4	C-33-4	11:51						
5	C-33-5	11:53						
6	C-33-6	11:55						
7	C-33-7	11:57						
8	C-33-8	11:59						
9	C-33-9	12:01						
10	C-33-10	12:03						

RELEASED BY: Gary Panther PRINT NAME: Gary Panther FIRM: URS DATE: 7-8-10 TIME: 15:20

RECEIVED BY: Catherine Stapleton PRINT NAME: Catherine Stapleton FIRM: Test America DATE: 7-8-10 TIME: 15:20

RELEASED BY: PRINT NAME: FIRM: DATE: TIME:

RECEIVED BY: PRINT NAME: FIRM: DATE: TIME:

ADDITIONAL REMARKS:

TEMP: 32.5 PAGE OF

TAL-1000(0408)

EMLab P&K

Report for:

Mr. Randee Decker
TestAmerica Spokane
11922 East 1st Avenue
Spokane, WA 99206

Regarding: Project: STG0054; Black Sand Beach
EML ID: 677468

Approved by:

Lab Manager
Dr. Kamashwaran Ramanathan

Dates of Analysis:
Asbestos-CARB 435: 07-20-2010

Service SOPs: Asbestos-CARB 435 (01265)

For clarity, we report the number of significant digits as calculated; but, due to the nature of this type of biological data, the number of significant digits that is used for interpretation should generally be one or two. All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank corrections of results is not a standard practice. The results relate only to the items tested.

Document Number: 200091 - Revision Number: 5

EMLab P&K
1150 Bayhill Drive, Suite 100, San Bruno, CA 94066
(866) 888-6653 Fax (650) 829-5852 www.emlab.com

Client: TestAmerica Spokane
C/O: Mr. Randee Decker
Re: STG0054; Black Sand Beach

Date of Sampling: 07-08-2010
Date of Receipt: 07-09-2010
Date of Report: 07-20-2010

ASBESTOS POINT COUNT REPORT: CARB METHOD 435

Location:	STG0054-01		
Total Points Counted:	400		
Lab ID-Version‡:	3005103-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	STG0054-02		
Total Points Counted:	400		
Lab ID-Version‡:	3005104-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".