



**REPORT**

# Cleanup Action Report

*Union Pacific Railroad, Aluminum Recycling Trentwood Site*

Submitted to:

**Washington Department of Ecology**

Eastern Regional Office  
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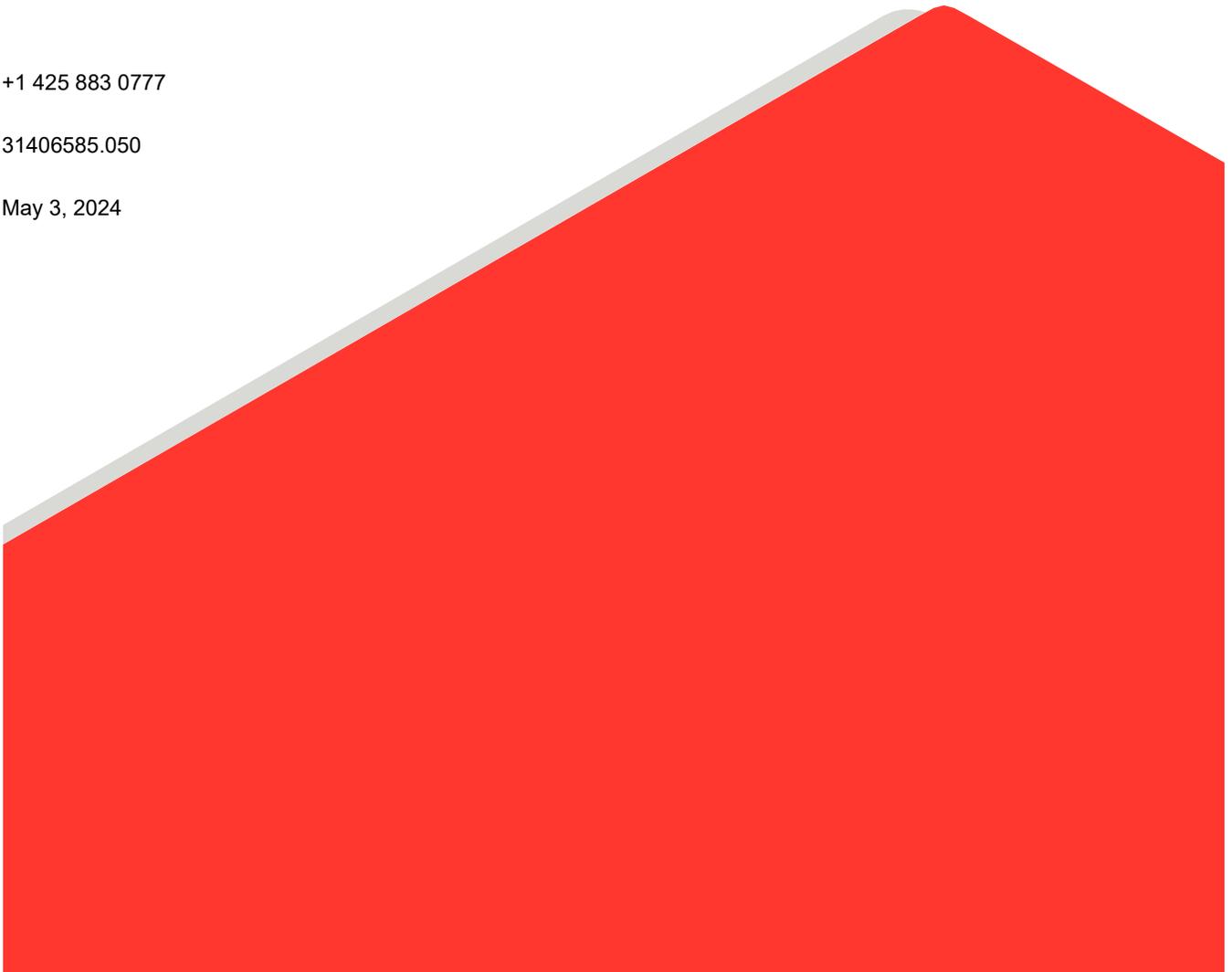
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## Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
Avista	Avista Utilities
bgs	below ground surface
BPA	Bonneville Power Administration
CAP	Cleanup Action Plan (of the EO)
CAR	Cleanup Action Report
CM	Construction Manager
CMP	Compliance Monitoring Plan (of the EDR)
CMR	Compliance Monitoring Report
COCs	constituents of concern
CQA	Construction Quality Assurance
CULs	cleanup levels
cy	cubic yards
DMP	Dust Monitoring Plan
DRG	Davey Resource Group Inc.
Ecology	Washington State Department of Ecology
ECN	Engineering Change Notice
EDR	Engineering Design Report
EO	Enforcement Order
FS	Feasibility Study
HASP	Health and Safety Plan (of the EDR)
I&M	inspection and maintenance
IWC	Imperial West Chemical Co.
Kemira	Kemiron Northwest, Inc. n/k/a Kemira Water Solutions, Inc.
MTCA	Model Toxics Control Act
OSHA	Occupational Safety and Health Administration
PAI	Plateau Archeological Investigations LLC.
Parks	Washington State Department of Parks and Recreation
Pentzer	Pentzer Venture Holdings, II, Inc.
PM	Project Manager
RAOs	Remedial Action Objectives

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RI	Remedial Investigation
ROW	right-of-way
Site	Aluminum Recycling Trentwood Site
SOI	Secretary of Interior
TWA	time weighted average
UPRR	Union Pacific Railroad Company
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation

## 1.0 INTRODUCTION

WSP USA Inc. (WSP), formerly known as Golder Associates Inc., under contract to Union Pacific Railroad Company (UPRR), performed construction management and construction quality assurance (CQA) services for the cleanup action of the Aluminum Recycling Trentwood Site (Site) located in Spokane Valley, Washington.

Submittal of this final Cleanup Action Report (CAR) satisfies the requirements of the Washington State Department of Ecology's (Ecology) Enforcement Order No. DE 20752, Exhibit B issued to Union Pacific Railroad Company (UPRR) on September 17, 2021, and provides a summary of:

- Construction activities associated with the Site cleanup action,
- Observations associated with excavation of soils with constituents of concern (COCs) and clean soil backfill of excavated areas,
- Observations associated with the construction of the ecological cap and related surface water management features.

### 1.1 Background

The Site is located in Spokane County, Washington in the Spokane Valley, within the incorporated limits of the City of Spokane Valley. The physical address of the Site is 2317 North Sullivan Road, Veradale, Washington. The Site is identified by the Ecology as Facility Site ID 628 and Cleanup Site ID 1081. The Site consists of properties (or portions thereof) owned by Union Pacific Railroad Company (UPRR), the Washington State Department of Transportation (WSDOT), and Pentzer Venture Holdings, II, Inc. (Pentzer). All three properties are zoned industrial. However, only the UPRR property qualifies as an industrial property under Washington Administrative Code (WAC) 173-340-745.

The Site is approximately 9 acres, approximately 4 acres of which were covered by a stockpile of mixed aluminum process materials (referred to as "dross") prior to implementation of the cleanup action. The dross stockpile varied in depth from about 5 to 30 feet and was located primarily on the UPRR property. The total volume of the stockpile was approximately 89,000 cubic yards (cy). The Spokane River is approximately 450 feet west of the Site.

Starting in approximately 1966, UPRR's predecessor leased its property to a number of industrial tenants who engaged in operations that generated aluminum dross which was stockpiled on the Site prior to implementation of the cleanup action. Industrial tenants include the following: The Hillyard Processing Co., Hillyard Aluminum Recovery Corporation, Imperial West Chemical Co. (IWC), Kemwater North America Company, and Kemiron Northwest, Inc. n/k/a Kemira Water Solutions, Inc. (Kemira), the current tenant.<sup>1</sup>

Various studies, including completion of a Model Toxics Control Act (MTCA) Remedial Investigation and Feasibility Study (RI/FS) (PBW 2012) and a Revised FS in 2021 (Golder 2021) were completed for the Site from 2010 to 2021. Excavation of surficial soils with COCs on portions of the WSDOT and Pentzer properties was completed during the 2020 independent soil removal action (Ecology 2021b).

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<sup>1</sup> New information has been obtained which supplements previously understood Site history reported by Golder in earlier reports.

In May 2022, UPRR submitted an Engineering Design Report (EDR) (Golder 2022). The EDR presented the detailed design and procedures for implementation of the cleanup action to ensure the cleanup action would be conducted in a manner that is consistent with:

- The requirements of the Enforcement Order (EO) DE 20752 (Ecology 2021a),
- The Cleanup Action Plan (CAP) (Exhibit C of the EO; Ecology 2021b),
- The requirements of WAC 173-340-400(4)(a).

## 1.2 Scope of Services

WSP provided construction management/CQA services and compliance monitoring services during the cleanup action at the Site. The WSP Project Manager (PM) oversaw all work performed by other WSP personnel, including engineering support during construction, sampling and analysis, safety, and CQA activities.

The WSP Construction Manager (CM) coordinated and observed construction activities. Construction documentation included photographs and daily field reports. Selected photographs are included in Appendix A and daily field reports are included in Appendix B.

The WSP Design Engineer worked with the WSP CM to help interpret the design drawings and specifications, incorporate new or changed requirements, and review contractor submittals. After completion of the cleanup action, the Design Engineer prepared as-built drawings for the project. As-built drawings are included in Appendix C, documentation of engineering design changes for the project is included in Appendix D, and contractor submittal data and review forms are included in Appendix E.

The WSP Sampling and Analysis Lead directed sampling and analysis of subgrade soils to determine if required cleanup criteria were achieved. Appendix F includes the Compliance Monitoring Report (CMR), which documents these activities.

GrayMar Environmental Services (GrayMar) of Moses Lake, Washington performed all major construction activities associated with the cleanup action, including clearing, excavating, backfilling, grading, ecological cap construction, and surface water management features construction. The following services were provided under subcontract to GrayMar:

- Surveying services, including documenting as-built conditions, were provided by Johnson Surveying NW (Johnson) of Coeur d'Alene, Idaho,
- Well decommissioning was performed by Northern Lights Drilling LLC of Priest River, Idaho,
- Fence installation was performed by All4Fencing of Spokane, Washington,
- Hydroseeding was performed by Blue Grass Hydroseeding LLC of Post Falls, Idaho.

Activities described in this report took place between October 3, 2022 and July 3, 2023.

## 1.3 Project Documents

The Site cleanup action was completed in accordance with the following documents, drawings, and specifications:

- *Aluminum Recycling Trentwood Site – Enforcement Order. No. DE 20752* (Ecology 2021a).

- *Aluminum Recycling Trentwood Site – Cleanup Action Plan* (Ecology 2021b).
- *Aluminum Recycling Trentwood Site Remedial Action – Dross Removal Project Design Drawings and Specifications, Revision 0 - Issued for Construction*, prepared by Golder, dated June 10, 2022. Included as Appendix A of the EDR (Golder 2022).
- *Aluminum Recycling Trentwood Site Remedial Action – Dross Removal Project Design Drawings and Specifications, Revision 1 – Issued for City of Spokane Valley Engineering Grading Permit No. EGR-2022-0081*, prepared by Golder, dated October 12, 2022. Included in Appendix G.
- *Aluminum Recycling Trentwood Site Remedial Action – Dross Removal Project Design Drawings and Specifications, Revision 1 – Kemira Berm Design*, prepared by WSP, dated March 7, 2023.
- *Aluminum Recycling Trentwood Site Remedial Action – Dross Removal Project Design Drawings and Specifications, Revision 2 – Containment Berm Redesign*, prepared by WSP, dated April 17, 2023.
- *Construction Quality Assurance Plan, Union Pacific Railroad, Aluminum Recycling Trentwood Site*, prepared by Golder, dated May 17, 2022. Included as Appendix B of the EDR (Golder 2022).
- *Site Specific Health and Safety Plan, Union Pacific Railroad, Trentwood Site Remedial Actions*, prepared by Golder, dated May 17, 2022. Included as Appendix D of the EDR (Golder 2022).
- *Compliance Monitoring Plan, Union Pacific Railroad, Aluminum Recycling Trentwood Site*; prepared by Golder, dated May 17, 2022. Included as Appendix E of the EDR (Golder 2022).

## 2.0 CONSTRUCTION ACTIVITIES

The major construction activities for the remedial action at the Site included the following, generally listed in chronological order:

- Site Preparation
  - Installed temporary erosion and sediment control measures,
  - Installed trackout pad,
  - Installed Site security measures,
  - Set up temporary facilities,
  - Improved existing gravel access roads,
  - Decommissioned monitoring wells.
- Soil Removal
  - Cleared and grubbed in removal areas,
  - Excavated dross stockpile material and transported it to the Graham Road Landfill for disposal,
  - Excavated soil with COC concentrations above cleanup levels (CULs) from WSDOT and Pentzer properties,

- Stockpiled soil excavated from WSDOT and Pentzer properties (soil with COC concentrations above CULs and below remediation levels; note all soil with COC concentrations above remediation levels were transported to the Graham Road Landfill for disposal) for use as backfill for the ecological cap subgrade,
- Following confirmation that COC concentrations met CULs, backfilled excavations on WSDOT and Pentzer properties with clean soil backfill.
- Ecological Cap
  - Placed material excavated from the WSDOT and Pentzer properties (with concentrations of one or more COCs greater than CULs and less than remediation levels) onto cap area.
  - Prepared ecological cap subgrade surface,
  - Installed ecological cap (as needed on UPRR property).
- Surface Water Management
  - Installed ecology block surface water feature south of the Kemira Facility (see Section 2.5.3),
  - Installed surface water design features on UPRR property, including containment berm, drainage ditches, and overflow discharge area,
  - Graded final grading surface on WSDOT and Pentzer properties to reestablish existing grades and overland flow pathways.
- Site Stabilization and Restoration
  - Installed security fencing around the ecological cap area,
  - Reestablished access roads,
  - Reseeded disturbed areas outside of ecological cap area, drainage ditches, and access roads.

The following sections summarize the major construction activities for this project. Additional detail is provided in the daily field reports, included in Appendix B.

## **2.1 Site Preparation**

### **2.1.1 Temporary Erosion and Sediment Control Measures**

#### ***Silt Fencing and Straw Bale Barriers***

Silt fencing and straw bale barriers were installed on the south and west sides of the Site to prevent migration of sediment from construction activities to the Spokane River. These temporary sediment and erosion control measures were maintained throughout construction activities.

#### ***Access Road Improvements***

Existing gravel roads were improved at the beginning of construction activities. Access road connections were developed to improve Site access for haul trucks. See the as-built drawings in Appendix C for locations of these access road connections. All access roads were maintained throughout construction activities. Access was also maintained to the railroad's right-of-way (ROW) and the utility company easements during construction activities.

## **Track Out Pad System**

Rather than a truck wash station, GrayMar requested to use a stabilized construction entrance/exit consisting of trackout mats/plates and a sediment trapping device, and then supplemented with street sweeping to minimize track-out of sediment onto Sullivan Road. This request was approved and documented in the Engineering Change Notice (ECN) 001 included in Appendix D.

## **Dust Control**

During periods without precipitation, a water truck was used for dust control to prevent airborne soil/sediment dispersion during construction activities. Air monitoring was performed to determine when the water truck needed to be employed. An air monitoring value of 1.0 mg/m<sup>3</sup> or higher, measured in accordance with the Dust Monitoring Plan (Appendix E of the Project Health and Safety Plan [Golder 2022]), indicated the need for water truck dust control (or stoppage of specific activity generating dust). See Appendix F for details regarding air monitoring.

### **2.1.2 Site Security Measures**

All temporary facilities, including the office trailer, sanitary facilities, and the storage connex, were locked and inaccessible to the public when unsupervised by Site personnel. Safety fencing, soil safety berms, and ecology block barricades were used to prevent inadvertent access by the public to the work area and to protect on-site personnel from unstable excavations and steep slopes while working. Equipment on-site was stored appropriately when not in use. A vehicle access gate was installed at the construction entrance for access control.

### **2.1.3 Monitoring Well Decommissioning**

Monitoring wells MW-1 through MW-3 and MWX-4 were decommissioned by Northern Lights Drilling LLC of Priest River, Idaho (Northern Lights) on October 25, 2022 in accordance with WAC 173-160-460 "*What is the decommissioning process for resource protection wells*". Well decommissioning logs are provided in Appendix H. MWX-4 required a variance from Ecology since the well log was not available. The variance approval communication from Ecology is provided in Appendix H. GrayMar removed decommissioned monitoring well casings that projected above the ground surface, as well as surface components such as concrete pads and bollards, and disposed of them at the Graham Road Landfill.

## **2.2 Soil and Dross Removal**

### **Clearing and Grubbing**

Davey Resource Group Inc. (DRG) prepared an Arborist Report (DRG 2022) for the Site (provided in Appendix I). This report addressed vegetation in the off-pile areas and informed which trees could be removed, which trees were invasive and should be removed, which trees should be preserved (as practicable along with the cleanup action), and the means and methods for how the trees and their root systems should be preserved.

Clearing of large trees and large brush was performed throughout the construction activities. Removed vegetation was loaded into a Volvo A45G off-road haul truck and hauled to a stockpile at the southwest corner of the dross stockpile area on the Pentzer property. The stockpiled vegetation was chipped and left on-site until all vegetation was removed.

No vegetation or topsoil was observed on the UPRR dross stockpile area, some vegetation and topsoil ranging from 0 to 1 foot in depth was encountered on the WSDOT property, and a significant amount of vegetation and topsoil ranging from 0 to 1 foot in depth was observed on the Pentzer property. In areas where topsoil was observed, the topsoil was stripped and loaded into an off-road haul truck, hauled to a stockpile at the southwest

corner of the dross stockpile area on the Pentzer property, and stockpiled with the chipped vegetation. This stockpile was left on-site until all vegetation and topsoil were removed. Because of concerns about the potential presence of COCs in these materials, the chipped vegetation and topsoil were hauled to the Graham Road Landfill before final grade was re-established. In total, 355 tons of combined vegetation and topsoil were hauled off-site.

### **Utility Locate and Requirements**

Power utilities and easements owned by three different power companies, the Bonneville Power Administration (BPA), Avista Utilities (Avista), and Inland Power and Light, were located within the off-pile excavation limits on the UPRR, Pentzer, and WSDOT properties. All utility companies were contacted, and construction activities were performed per the requirements of each utility company for working under and around their utilities.

Overhead powerlines, power poles with guy wires, and a grounding system owned by BPA were located within the project area. Work conducted within the BPA easement and setbacks was subject to the Land Use Agreement between BPA and UPRR executed on October 21, 2022. A BPA representative was on-site when construction activities occurred under and around BPA infrastructure, unless otherwise approved by BPA. The BPA representative worked with the WSP CM and GrayMar to implement the cleanup action while meeting BPA's requirements. Excavation that occurred under and around BPA overhead utility lines was performed using a mini excavator. Around BPA power poles, guy wires, and grounding system, material was excavated to 2 feet below ground surface (bgs). In areas where BPA utilities were present in excavations that extended deeper than 2 feet on the design drawings, a 5-foot buffer was put in place. A BPA underground conduit, part of the grounding system, was exposed during excavation on the Pentzer property under BPA supervision.

Overhead powerlines, power poles with guy wires, and underground powerlines owned by Avista were located within the project area. Boundaries were established with painted lines such that no excavation occurred within a 10-foot radius of the Avista power pole and its associated guy wire. Unused underground powerlines were uncovered during excavation and Avista allowed GrayMar to cut and dispose of the wires, as needed. All equipment used during excavation met the requirements of Avista for working under and around their above-ground utility lines and within their easements. All work done under and around infrastructure owned by Avista was communicated to and approved by the power company.

Overhead powerlines and power poles with guy wire owned by Inland Power and Light were located within the project area. All equipment used during excavation met the requirements of Inland Power and Light for working under and around their aboveground utility lines. Boundaries were established with painted lines such that only 2 feet of soil was removed within a 10-foot radius of the Inland power pole. All work done under and around utilities owned by Inland Power and Light was communicated to and approved by the power company.

### **Equipment**

The following equipment was used for excavation on the UPRR, WSDOT, and Pentzer properties:

- Sany 215C trackhoe – for excavating, loading, stockpiling, and moving material,
- Sany 365C LC trackhoe – for excavating, loading, stockpiling, and moving material,
- Case CX210D trackhoe – for excavating, loading, stockpiling, and moving material,
- LinkBelt 210x4 trackhoe – for excavating, loading, stockpiling, and moving material,

- CAS CX57C mini excavator – for excavating material around utilities, in the railroad ditch, and other areas where a large excavator wasn't appropriate,
- John Deere 624 front loader – for excavating, loading, stockpiling, and moving material,
- CAT D9T bulldozer – for excavating, stockpiling, and moving material,
- John Deere 700L bulldozer – for excavating, stockpiling, and moving material,
- Volvo A45G off-road haul truck – for hauling material around the Site.

Equipment used for tasks varied from day-to-day. Equipment was staged and stored appropriately in the contractor staging area when not in use.

## **2.2.1 UPRR Property**

### ***Dross Stockpile Area***

Excavation of the dross stockpile on the UPRR and Pentzer properties began on October 12, 2022. In total, 88,400 tons of dross material was removed from the UPRR and Pentzer properties and transported in dump trucks and truck and pup combinations to the Graham Road Landfill for disposal under profile number 117380WA. Manifests were not generated for this project because of the significant volume of dross involved, in addition to dross being characterized as Non-Hazardous. Waste Management provided a Non-Hazardous WAM Approval (WAM approval) for the project. The WAM approval is an acceptable shipping document for the Department of Transportation. Each load was recorded in a log supported by the specific weight tickets filed under the approved profile record. The WAM Approval form and landfill weight tickets are provided in Appendix J.

On the UPRR property, the dross stockpile material and underlying soil were excavated to approximately 1 foot below the existing ground surface elevation around the periphery of the stockpile. At this elevation, a minor amount of dross material was observed comingled with native ground material. Test pits of randomly chosen areas with visible dross were excavated to determine the depth extents of the dross stockpile. The results of these test pits indicated a uniform bottom of the dross stockpile was unable to be determined. However, sampling, testing, and analysis conducted in the dross stockpile area after stockpile removal confirmed that remediation levels were achieved (see CMR in Appendix F for details).

### ***Side Slope Area***

Dross material was observed on the side slope at the south edge of the pavement associated with the Kemira facility. This area was excavated to 2 feet below the pavement ground surface. To avoid undermining the pavement, no additional excavation was performed. This area was then regraded and prepared for the installation of the ecological cap and the ecology block surface water feature (referred to as the ecological block diversion wall in the original design drawings). Preparation for the ecology block surface water feature included excavation of dross material to CULs at the ecology block surface water feature armored termination and armor rock apron, which were constructed to discharge any water draining off the pavement onto clean native material (see as-built drawings in Appendix C for locations of these features and see the CMR in Appendix F for sampling and analysis details).

Buffers were excavated along the Pentzer property boundary to the west and the WSDOT property to the south to prevent soil above remediation levels from migrating onto adjacent properties. A 5-foot-wide clean (< CULs) soil buffer wedge was then placed at these locations.

## 2.2.2 WSDOT Property

Excavation of dross and dross-impacted material on the WSDOT property began on October 17, 2022. Excavation began on the east side of the WSDOT property with Excavation 9 (see drawings in Appendix C) and then continued west, in descending sequential order, ending with Excavation 3. Excavation on the WSDOT property continued until no visible dross was observed and the subgrade material met CULs. Subgrade material was sampled and tested in accordance with the Compliance Monitoring Plan (CMP) (Golder 2022, Appendix E). Test procedures and results are presented in the CMR in Appendix F of this report. Excavated material was stockpiled on the south end of the WSDOT property until it was hauled to the Pentzer property and stockpiled for use to build up the ecological cap subgrade on the UPRR property. Some excavated material was also stockpiled at the base of the UPRR side slope and used as backfill to re-grade the UPRR side slope to meet the design requirements.

During excavation, a significant number of boulders were encountered in the WSDOT property subgrade. Boulders were cleaned and stockpiled on-site prior to being put back in the excavations during backfill of the WSDOT property. See Appendix A for photographs of boulders observed in the WSDOT property subgrade.

During excavation on the WSDOT property, a damaged 55-gallon drum was uncovered on the east end of Excavation 9. WSDOT was informed and proceeded to conduct sampling, removal, and disposal of the drum and associated impacted soil. See daily field reports (including photographs) for October 18, November 17, and December 12, 2022 in Appendix B and Appendix F Section 3.1.4.3 for additional details.

Approximately 15,561 cy of dross and dross-impacted material were removed from the WSDOT property.

## 2.2.3 Pentzer Property

### *Dross Stockpile Area*

Excavation of the dross stockpile on the Pentzer property began on October 12, 2022. On the Pentzer property, the dross stockpile material and underlying soil were excavated to approximately 1 foot below the existing ground surface elevation around the periphery of the stockpile. At this elevation, this area was used for stockpiling material excavated from the WSDOT and Pentzer properties to be placed in the ecological cap subgrade. Once all stockpiled material was placed in the ecological cap subgrade, the area on Pentzer property where the dross stockpile had been located was excavated down to a depth at which sample results from the excavation surface indicated that the material met CULs (see Appendix F).

### *Off-Pile Area*

Excavation of topsoil and dross material in the off-stockpile area on the Pentzer property began on January 23, 2023. Excavations 1 and 2 were simultaneously excavated. Excavation on the Pentzer property continued until no visible dross was observed and the remaining-in-place soil in excavations met CULs. In-place soils at the limits of the excavations were sampled and tested in accordance with the CMP (Golder 2022, Appendix D). Test procedures and results are detailed in the CMR in Appendix F of this report.

Approximately 9,984 cy of dross and dross-impacted material were removed from off-pile areas on the Pentzer property.

## 2.2.4 Washington State Department of Parks and Recreation Property

Areas of the Washington State Parks and Recreation (WA Parks) property that were within the 2-foot-deep excavation boundary were excavated under the supervision of a Secretary of Interior (SOI) qualified archeologist

from Plateau Archeological Investigations LLC (PAI). Approximately 170 cy of dross and dross-impacted material were removed from the WA Parks property.

GrayMar excavated the delineated areas on the WA Parks property and periodically stopped at the direction of the archeologist if they saw an object of interest with potential archaeological significance. Buckets of soil from the excavation were obtained when requested by the archeologists for screening the soil. No objects with archaeological significance were observed during excavation on the Parks property. The PAI report is included in Appendix I.

## 2.3 Backfill of Excavation Areas

### Material Sourcing

All imported backfill material was required to meet the specifications as listed on the design drawings and in the CQA Plan (Golder 2022, Appendix B) and environmental requirements as outlined in the CMP (Golder 2022, Appendix D), as well as perform appropriately in the field. All material brought to the Site was sampled and tested in accordance with the Sampling and Analysis Plan presented in the CMP (Golder 2022, Appendix D). See Table 1 for a summary of materials sampled and tested during construction activities. For a complete description of the sampling, testing, and analysis of material brought to the Site, see the CMR in Appendix F of this report.

**Table 1: Material Source Summary Table**

Material	Source	Engineer Approved (Yes or No)	Comments	Approved for Use (Yes or No)
Backfill #1	Central Premix	Yes	Barium detected > CULs (Ecology approved use, see Section 7.1.1 of CMR) Material was not used for near surface applications due to lack of fines for supporting topsoil.	Yes
Backfill #2	Residential Development	N/A	Source became unavailable	N/A
Backfill #3	Interstate (Post Falls)/Seed Rock	Yes	Arsenic detected > CULs (Ecology approved use, see Section 7.1.1 of CMR)	Yes
Backfill #4	Pro Recycle	Yes	Carcinogenic polyaromatic hydrocarbons and petroleum hydrocarbons detected	No
Backfill #5	Corridor Contractors	Yes	Barium detected > CULs (Ecology approved use, see Section 7.1.1 of CMR)	Yes
Ballast	Interstate (Airway Heights)	Yes	N/A	Yes
Quarry Spall	Interstate (Airway Heights)	Yes	N/A	Yes
Topsoil #1	Allwest/Peck and Peck	Yes	Barium detected > CULs	No

Material	Source	Engineer Approved (Yes or No)	Comments	Approved for Use (Yes or No)
Topsoil #2	Corridor Contractors	Yes	Barium detected > CULs (Ecology approved use based on background evaluation, see Section 7.1.1 of CMR)	Yes

### Utility Requirements

Backfilling activities performed under and around utilities owned by BPA, Avista, and Inland Power and Light were communicated to and approved by the power companies. Hand shovels were used to place material immediately around the power company infrastructure, and then the material was compacted. The water truck was used in the working areas to moisture condition the soil for the compaction efforts and to suppress fugitive dust. BPA personnel at the Site approved the use of imported backfill material to be placed up to final grade around their infrastructure. See Appendix C for imported backfill extents.

### Equipment

The following equipment was used for placement of backfill on the UPRR, WSDOT, and Pentzer properties:

- Case CX210D trackhoe – used to load off-road haul truck, place backfill material, and compact as needed,
- LinkBelt 210x4 trackhoe – used to load off-road haul truck, place backfill material, and compact as needed,
- CAS CX57C mini excavator – used to construct surface water features and for detail work around utilities,
- John Deere 624 front loader – used to transport and place material and compact as needed,
- CAT D9T bulldozer – used to spread backfill material and compact as needed,
- John Deere 700L bulldozer – used to spread backfill material and compact as needed,
- DYNAPAC CA2500D roller – used to compact material,
- SANY SMG 200 C-8 motor grader – used to grade subsurface,
- CAT 259D with compactor – used to compact backfill material on UPRR side slope and surface water features,
- Off-Road Haul Truck Volvo A45G – used to haul backfill material around the Site.

Equipment used for tasks varied from day-to-day. Equipment was staged and stored appropriately in the contractor staging area when not in use.

### 2.3.1 UPRR Property

Following removal of the dross stockpile and underlying soil on the UPRR property excavated areas were backfilled to bring the ecological cap subgrade surface up to elevations comparable to the adjacent properties or higher to create a flat surface with a uniform grade toward the west (see ECN 002 in Appendix D).

Backfill material placed on the UPRR property consisted of excavated material from the WSDOT, Pentzer, and WA Parks properties. All material placed on the UPRR property as backfill had COC concentrations less than remediation levels. Backfill material was placed in 12-inch-thick loose lifts and compacted with at least four passes of the roller and the surface was unyielding (Golder 2022). Backfill material placed to create the subgrade surface of the ecological cap was built up to 1 to 2 feet above the original design subgrade elevation (Golder 2022) (see Appendix C for final subgrade surface). Backfill material was also placed on the side slope area to create a 3H:1V slope.

Side slope areas, the area consisting of the ecology block surface water feature, and the area consisting of the containment berm were compacted using a vibratory compacting roller attachment.

In areas where the ecological cap was approaching areas not owned by UPRR, a 5-foot-wide and 1-foot-deep (minimum) trench along the property boundary was backfilled with clean soil to prevent any soils above the CULs from moving into neighboring properties through seepage.

### 2.3.2 WSDOT Property

Backfilling of the WSDOT excavations began on January 18, 2023. Backfill was placed in 12-inch-thick loose lifts and compacted with at least four passes of the roller. Boulders encountered during excavation were reburied in these excavations during backfilling of the WSDOT property. In areas where boulders were placed as backfill, it was unsafe or unfeasible to place backfill as specified. Consequently, in these areas, backfill material was placed in 2- to 3-foot-thick lifts or until the boulders were fully buried and then compacted with the back of an excavator bucket or at least four passes of the roller. Backfill #1 was placed around boulders using an excavator bucket and in a manner that minimized void spaces.

Backfill #1 was approved for use, since it met the engineering specifications and had COC concentrations below CULs. However, during placement and compaction of Backfill #1, the material did not perform as intended, so backfill from sources Backfill #3 and Backfill #5 were used to amend and meet the engineering specifications and created a firm and unyielding surface when placed and compacted. Concentrations of arsenic and barium measured in Backfills #3 and #5, respectively, were elevated slightly above Site CULs, but were interpreted to be regional background levels, and were approved for on-site use by Ecology. See Appendix F for additional information regarding the sampling, testing, analysis, and approval for use of backfill materials.

Imported backfill material was placed 6 inches below the final grading surface. An additional 6 inches comprised of topsoil sourced from Topsoil #2 was placed to bring the surface to the final grade.

### 2.3.3 Pentzer Property

Backfilling of the Pentzer property excavations began on March 28, 2023. Backfill was placed in 12-inch-thick loose lifts and compacted with at least four passes of the roller. To aid in compaction efforts and to suppress fugitive dust, the water truck sprayed water in the backfill areas, as well as the areas where equipment was mobilizing. The few boulders encountered during excavation of these areas were reburied in the excavations during backfilling.

Imported backfill material was placed 6 inches below the final grading surface. An additional 6 inches comprised of topsoil sourced from Topsoil #2 was placed to bring the surface to the final grade.

### **2.3.4 Washington State Department of Parks and Recreation Property**

Backfilling of the WA Parks property excavation began on March 28, 2023. Backfill operations for the WA Parks property were completed in conjunction with those for the Pentzer property; see Section 2.3.3 for additional details.

## **2.4 Ecological Cap**

Installation of the ecological cap began on May 17, 2023. The purpose of the ecological cap is to cover the areas where soil COC concentrations may exceed CULs (but are less than remediation levels) to prevent exposure to ecological receptors and prevent off-property migration of impacted material from the UPRR property. The ecological cap consists of a geotextile layer overlain by a minimum of 6 inches of gravel. See Appendix C for as-built drawings of the ecological cap extents and details.

The ecological cap geotextile material was placed on backfilled surfaces that were rolled smooth, free of ruts or protrusions greater than 0.5 inches to prevent rips or tears in the geotextile material and to allow for proper drainage of surface water. A minimum 6 inches of overlap between geotextile panels was used to prevent gaps in between geotextile panels as the overlying gravel was placed. Geotextile panels were seamed using a geomembrane welding gun and a handheld roller. Rolls of geotextile material were placed in the north-south direction so on the sloped areas the geotextile material was parallel to the direction of the slope (i.e., up and down the slope).

A minimum 6-inch-thick layer of 1- to 2-inch clean crushed gravel was placed above the geotextile using a rock slinger. Areas were spot-checked by the WSP CM to ensure that the 6-inch minimum thickness was achieved.

## **2.5 Surface Water Management**

### **2.5.1 UPRR Property – Railroad Ditch**

The drainage ditch on the north side of the UPRR property (the railroad ditch) was re-established to collect water draining onto the Site from the east and water draining from the ecological cap overflow at the northwest corner of the platform area. The ditch was configured to have a minimum 1-foot depth, 6-foot bottom width, and 2H:1V side slopes.

During construction, a culvert outlet was observed at the eastern end of the railroad ditch which had not been observed during previous Site visits because this area was not accessible. The railroad ditch was constructed to continue to allow any water from the culvert outlet to drain into the railroad ditch.

After the railroad ditch subgrade was reestablished, geotextile was placed on the subgrade in all areas where excavation and backfill occurred. Geotextile was placed on the final subgrade surface using a Mini Excavator to hoist the geotextile material as it was unrolled and placed by hand. A 6-inch overlap was applied to the geotextile panels, which were seamed using a geomembrane welding gun and a handheld roller. A minimum 6-inch-thick layer of 1- to 2-inch clean crushed permeable ballast was placed above the geotextile using a rock slinger. Areas were spot-checked by the WSP CM to ensure that the 6-inch minimum thickness was achieved.

## 2.5.2 UPRR Property – Containment Berm and Overflow Outlet

UPRR requested a design change to the containment berm (the berm) design shown in the original design included in Appendix A of the EDR (Golder 2022). This request was to use fill material excavated from off-pile areas with COC concentrations below remediation levels to construct the berm in the ecological cap area on the UPRR property. The berm was originally designed as a surface water feature to be constructed on top of the ecological cap. However, the berm design was revised to incorporate the main fill section of the berm below the ecological cap per the as-built drawings in Appendix C of this report. This request was approved and documented in ECN 002 included in Appendix D.

The berm was constructed to have a minimum 14-foot base width, 4-foot top width, 2.5-foot height, and 2H:1V side slopes. The berm material was placed with a trackhoe and compacted with a skid steer with a vibratory roller attachment. The material that was used for the berm was previously excavated material from the Pentzer property with Site constituents below remediation levels. However, this material contained large rocks as well as finer sands. To make the berm surface sufficiently smooth for the geotextile, topsoil was placed and compacted on the surface of the berm in select areas to provide a smoother surface. After design grades were confirmed, geotextile was placed over the subgrade and up over the berms in the north-south direction. Geotextile panels were overlapped a minimum of 6 inches and were seamed using a geomembrane welding gun and a handheld roller. Two- to 4-inch quarry spalls were placed in an 8-inch lift over the faces and top of the berm using a loader. The WSP CM confirmed that no rips or tears in the geotextile resulted from placing the 2- to 4-inch quarry spalls on the berm and the geotextile was in good condition.

The overflow outlet was constructed to have a 4-foot channel width, 1-foot (minimum) channel depth, and 2H:1V side slopes. The area of the overflow outlet was excavated and backfilled using a mini excavator and compacted using a skid steer with a vibratory roller attachment. After design grades were confirmed and the subgrade surface had no protrusions exceeding 0.5 inches, geotextile was placed in the north-south direction, parallel to the slope of the overflow outlet. Geotextile panels were overlapped a minimum of 6 inches and seamed using a geomembrane welding gun and a handheld roller. Two- to 8-inch quarry spalls were placed in a 12-inch-thick layer in the overflow outlet using a loader.

## 2.5.3 Kemira Facility – Ecology Block Surface Water Feature

In the original design included in Appendix A of the EDR (Golder 2022), a “Berm to be Constructed by Others” was shown southeast of the Kemira Facility. For better integration of the surface water management for the Kemira facility into the remedial action, UPRR assumed design and construction responsibilities for the “berm” during remedial action construction. Per Ecology’s direction, potential surface water runoff from the Kemira facility would not be allowed to flow onto the south slope ecological cap. The revised design (Appendix D) was issued on March 7, 2023, to incorporate a surface water feature into the overall cleanup action. This feature was designed to direct surface water draining off the pavement away from the ecological cap slope to an armor rock apron. This design was selected due to the limited space for Kemira Facility operations between the facility and the top of the south slope. Construction of this surface water feature included the following activities:

1. Subgrade surface preparation began on April 27, 2023. This included grading the area to drain at a 1% minimum slope to the east and surveying to check the grade. The subgrade surface had a minimum horizontal width of 4 feet. A 1-foot- (minimum) wide and 6-inch-deep vertical cut was made in the Kemira Facility’s existing pavement across to the north-facing side of each ecology block to form a channel for surface water drainage.

2. Geotextile material was placed by hand over the prepared subgrade surface. Geotextile panels were overlapped a minimum of 6 inches and seamed using a geomembrane welding gun and a handheld roller. Placement of geotextile material on the subgrade area began on May 19, 2023.
3. Ecology blocks for the 360-ft-long wall were placed on the geotextile. Blocks were placed with a minimum offset distance of 1 foot from the edge of the existing pavement on one side and a minimum distance of 1 foot from the top of the UPRR sloped area on the other side. Blocks located at the western end of the wall were placed to key-in to the containment berm. Ecology block placement began on May 24, 2023.
4. Vertical gaps between ecology blocks and gaps between the base of the blocks and the geotextile material were sealed with mortar on the north-facing side of the wall.
5. One- to 2-inch clean crushed gavel was placed in a 6-inch-thick layer in all areas adjacent to the ecology block wall using a rock slinger. The thickness in areas covered with the ballast was spot-checked by the WSP CM to ensure that the 6-inch minimum thickness was achieved.
6. The armored termination and armor rock apron were constructed on May 24, 2023. The armor rock apron channel inlet was approximately 5 feet wide, while the channel outlet was approximately 14 feet wide. Side slopes for the armor rock apron were 2H:1V, with a flat 1-foot (minimum) width at the top of both side slopes.
7. After the subgrade compaction, elevations and smoothness were confirmed, geotextile material was placed by hand in all areas proposed for and surrounding the armor rock apron. Geotextile was placed parallel to the UPRR side slope, covering all areas from the toe of the UPRR side slope up to the Kemira Facility's existing pavement. Geotextile panels were overlapped a minimum of 6 inches and seamed using a geomembrane welding gun and a handheld roller. Placement of geotextile material in the armor rock apron concluded May 21, 2023.
8. A 1-foot-thick layer of 2- to 4-inch quarry spalls was placed using a loader on May 24, 2023. Areas within the armor rock apron were spot-checked by the WSP CM to confirm the 1-foot minimum layer thickness had been achieved.

See Appendix C, as-built drawings for plan and details of the ecology block surface water feature.

## **2.6 Site Stabilization and Restoration**

### **2.6.1 Security Fence**

After completion of the ecological cap subgrade surface and before installation of the ecological cap, a permanent security fence was installed around the ecological cap area using a handheld post hole digger for post holes and shovels for placing concrete backfill. The fence and appurtenances were installed in accordance with the design specifications.

### **2.6.2 Access Road Re-establishment**

Roads were scraped to remove surface soils prior to demobilizing off-site. Scraped material was transported to the Graham Road Landfill for disposal. In areas that could be more susceptible to erosion, an additional thickness of Backfill #1, a uniform gravel, was placed. Access roads were left in the same as or better condition than the state they were in prior to construction activities.

### 2.6.3 Seeding of Disturbed Areas

Disturbed areas, outside of the ecological cap area, drainage ditches, and access roads, were reseeded on June 26 and July 7, 2023. The seed mix for the project was provided by Pineview Horticultural Services, Inc. of Hayden Lake, Idaho, and is described in Appendix E. Hydroseeding was performed by Blue Grass Hydroseeding LLC of Post Falls, Idaho, at an application rate of at least 19 pounds of seed per acre. Seed mix and seeding methods were selected in accordance with the *Department of Ecology Stormwater Management Manual for Eastern Washington* (SMMEW, Ecology 2019). Due to the delayed construction completion date, hydroseeding was performed between June 25 and July 7, outside the SMMEW recommended seeding window (September 1 through April 30). Inspection of the Site will occur three months after the time of germination, and at that time, if any seeding areas failed to establish greater than 50% cover, as determined by visual inspection by the Owner, then reseeded during the appropriate seeding time window will be implemented.

## 3.0 AS-BUILT DRAWINGS

As-built drawings are provided in Appendix C. These drawings reflect the Site conditions at the completion of the construction activities, including an as-built orthophoto and topographic survey, acquired by Johnson Surveying NW in July 2023.

The as-built drawings contain red revision clouds with corresponding revision numbers in triangles adjacent to the clouds to indicate aspects of the design that have changed since the final approved design drawings and subsequent drawing revisions during construction. This approach was used, per the project CQA process, to document that the project was constructed in accordance with the approved design and approved changes that occurred during construction.

## 4.0 CONCLUSION

Construction activities for the Site began on October 3, 2022, and were completed on July 3, 2023 (with the exception of reseeded performed on July 7, 2023 and potential future reseeded activities). Based on field observations and laboratory test results, the construction activities for this project were completed in substantial conformance with the approved plans and specifications.

Submittal of this final CAR satisfies the requirements of the Ecology EO, Exhibit B. Ecology reviewed the Agency Review draft of the CAR and provided comments. UPRR has responded to Ecology comments and produced a final CAR, which completes the scope of work outlined in EO Exhibit B with the following exceptions:

- Recordation of the Site Environmental Covenant, which will be submitted no later than 30 days after Ecology approval of the final CAR and will be in accordance with the Ecology EO, and
- Performance of the annual ecological cap/remedial actions inspections and maintenance.

Inspections will be performed in accordance with the project Inspection and Maintenance Plan, provided as Appendix F of the EDR. Ecology will conduct five-year periodic reviews to ensure the remedial actions remain protective of human health and the environment.

**WSP USA Inc.**



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VMN/KD/TN/ks

[https://golderassociates.sharepoint.com/sites/116727/project files/5 technical work/2023 cleanup action report/final car/31406585.050-r-rev0-trentwood cleanupactionreport-050324.docx](https://golderassociates.sharepoint.com/sites/116727/project%20files/5%20technical%20work/2023%20cleanup%20action%20report/final%20car/31406585.050-r-rev0-trentwood%20cleanupactionreport-050324.docx)

## 5.0 REFERENCES

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**APPENDIX A**

**Photographs**

**PHOTOGRAPH 1**

October 7, 2022

Silt and construction fence installed on west edge of Site, parallel to the Spokane River. View looking south.



**PHOTOGRAPH 2**

October 10, 2022

Trackout pad installed at construction exit. View looking east towards Site entrance/exit.



**PHOTOGRAPH 3**

October 11, 2022

Temporary drainage ditch and ecology blocks installed to direct potential stormwater runoff from the dross stockpile away from the direction of the river. View looking west.



**PHOTOGRAPH 4**

October 14, 2022

Excavation of dross stockpile material from the Pentzer property for transport to the Graham Road Landfill. View looking north.



**PHOTOGRAPH 5**

October 20, 2022

Beginning excavation on the WSDOT property with Excavations #8 & #9. Large boulders observed. View looking west.



**PHOTOGRAPH 6**

October 24, 2022

Security fence installed around WSDOT Excavation #5, which was excavated 10/21/22. View looking south.



**PHOTOGRAPH 7**

October 24, 2022

WSDOT Excavation #7, excavated 10/21/22. View looking northwest.



**PHOTOGRAPH 8**

October 21, 2022

Contractor adjusted the inbound haul road to avoid WSDOT Excavation #7. View looking west.



**PHOTOGRAPH 9**

October 31, 2022

Street sweeping material from Sullivan Road. View looking north.



**PHOTOGRAPH 10**

December 29, 2022

WSDOT Excavations #5 through #9 with stockpiled material staged for loading and transport to Pentzer property. Material to eventually be placed on the UPRR property. View looking southeast.



**PHOTOGRAPH 11**

January 12, 2023

Dross stockpile removal progress on UPRR property, approaching final grade. View looking east



**PHOTOGRAPH 12**

January 18, 2023

Backfilling of Excavation #7 in 1-foot-thick loose lifts (or as able around boulders) and compaction with back of excavator bucket. View looking east.



**PHOTOGRAPH 13**

January 19, 2023

Straw wattles and straw bale barrier installed on west side of Parks property to prevent potential transportation of sediment off Site. View looking south.



**PHOTOGRAPH 14**

January 20, 2023

Dross stockpile final excavation surface after confirmation sampling met remediation levels. View looking east.



**PHOTOGRAPH 15**

February 7, 2023

Wood chip pile and trailer-mounted woodchipper near the junction of the Pentzer, WSDOT, and UPRR properties. View looking southeast.



**PHOTOGRAPH 16**

February 17, 2023

Excavation #2 on Pentzer property excavated to approximately a 4-foot depth. View looking southeast.



**PHOTOGRAPH 17**

February 17, 2023

Excavation #1 on Pentzer property excavated to approximately a 2-foot depth. View looking northwest.



**PHOTOGRAPH 18**

February 21, 2023

Compaction of excavated material placed in UPRR cap area in 1-foot-thick loose lifts. View looking southeast.



**PHOTOGRAPH 19**

February 24, 2023

Excavation #4 on WSDOT property with soil safety berm around edge. View looking southwest.



**PHOTOGRAPH 20**

March 1, 2023

Exposed underground utility line. View looking east.



**PHOTOGRAPH 21**

March 3, 2023

Excavation and loading of Excavation #3 material to be hauled to the UPRR cap area. View looking west.



**PHOTOGRAPH 22**

March 9, 2023

Excavation around BPA infrastructure on the Pentzer property to a depth of approximately 2 feet. Hand digging around ground wire conduit. View looking east.



**PHOTOGRAPH 23**

March 16, 2023

Archeologist with Plateau Archeological Investigations LLC (PAI). PAI used a screen to analyze soil removed from the southern lobe of the 2-foot excavation area that falls onto Parks property. View looking northwest.



**PHOTOGRAPH 24**

March 20, 2023

SANY SMG 200 C-8 motor grader grading the southern and eastern portions of the WSDOT property that was previously backfilled. View looking west.



**PHOTOGRAPH 25**

March 22, 2023

CAT D6 dozer spreading and grading backfill placed in Excavation #1 on the Pentzer property. View looking northwest.



**PHOTOGRAPH 26**

March 22, 2023

DYNAPAC CA2500D roller compacting backfill material placed within Excavation #3 on the WSDOT property. View looking west.



**PHOTOGRAPH 27**

March 23, 2023

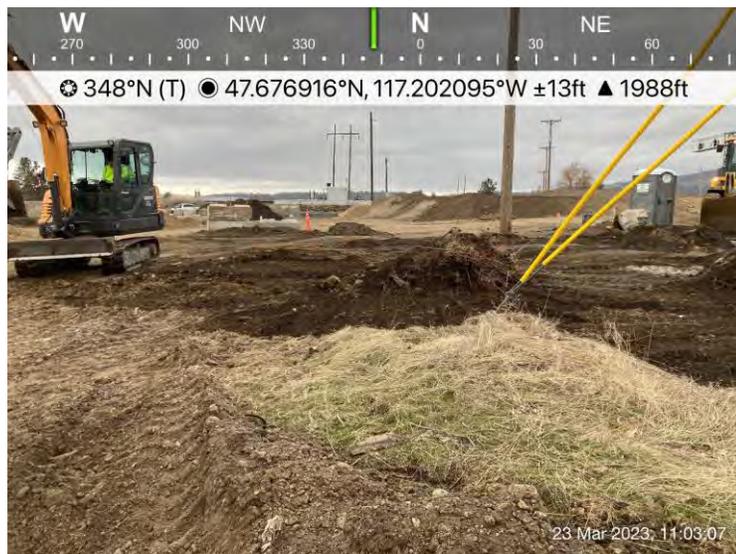
Water truck spraying haul route used by backfill haul trucks for dust suppression during dry Site conditions. View looking west.



**PHOTOGRAPH 28**

March 23, 2023

Mini excavator clearing vegetation around the Inland Power and Light and Avista power poles located near and within the eastern portion of Excavation #2. View looking north.



**PHOTOGRAPH 29**

March 23, 2023

Off-road haul truck placing excavated materials directly onto the UPRR side slope. View looking east.



**PHOTOGRAPH 30**

March 27, 2023

CAT D6 dozer grading excavated materials placed on the UPRR side slope. View looking west.



**PHOTOGRAPH 31**

March 28, 2023

Front-end loader transferring excavated materials from the stockpile located on the Pentzer property to the UPRR cap area. View looking north.



**PHOTOGRAPH 32**

March 29, 2023

CAT 259D compacting portions of the railroad ditch north of the UPRR cap area with the compactor attachment. View looking north.



**PHOTOGRAPH 33**

April 13, 2023

Imported backfill material was placed around BPA infrastructure up to final grade using the John Deere 624 loader and the CAT TR270B skid steer with bucket attachment. Hand shovels were used to place material immediately around the infrastructure. View looking northwest.



**PHOTOGRAPH 34**

April 25, 2023

A 6-inch layer of topsoil was placed on the WSDOT property. View looking southeast.



**PHOTOGRAPH 35**

April 25, 2023

Graded area of western slope on Pentzer / Parks properties. View looking south.



**PHOTOGRAPH 36**

April 26, 2023

A steep portion on the UPRR side slope was graded to a shallower angle. View looking east.



**PHOTOGRAPH 37**

April 26, 2023

A steep portion on the UPRR side slope was graded to a shallower angle. View looking west.



**PHOTOGRAPH 38**

April 27, 2023

The subgrade for the diversion berm at top of slope on UPRR property adjacent to Kemira facility was graded to drain 1% to the west. View looking west.



**PHOTOGRAPH 39**

May 4, 2023

CAT 259D compacting the UPRR side slope subgrade with the compactor attachment. View looking northwest.



**PHOTOGRAPH 40**

May 8, 2023

Placement and compaction of the containment berm on the ecological cap area. View looking north.



**PHOTOGRAPH 41**

May 10, 2023

A 5-ft buffer on the UPRR property was excavated along the Pentzer property. View looking north.



**PHOTOGRAPH 42**

May 15, 2023

Compaction of eastern UPRR containment berm complete. View looking north.



**PHOTOGRAPH 43**

May 15, 2023

Installation of fence on northern portion of UPRR property. View looking east.



**PHOTOGRAPH 44**

May 16, 2023

Backfill and compaction of north-eastern wedge portion on Pentzer Property. View looking southwest.



**PHOTOGRAPH 45**

May 17, 2023

Topsoil being placed in southern portion of Parks property. View looking northwest.



**PHOTOGRAPH 46**

May 18, 2023

Geotextile installed on center portion of UPRR side slope. View looking north.



**PHOTOGRAPH 47**

May 18, 2023

Geotextile placement on northeastern portion of UPRR pad and berm. 2- to 4-inch quarry spalls placed on berm. View looking west.



**PHOTOGRAPH 48**

May 22, 2023

Geotextile placement on eastern portion of UPRR side slope. View looking west.



**PHOTOGRAPH 49**

May 22, 2023

1- to 2-inch clean crushed ballast placed in a 6-inch lift on eastern portion of UPRR side slope. View looking west.



**PHOTOGRAPH 50**

May 24, 2023

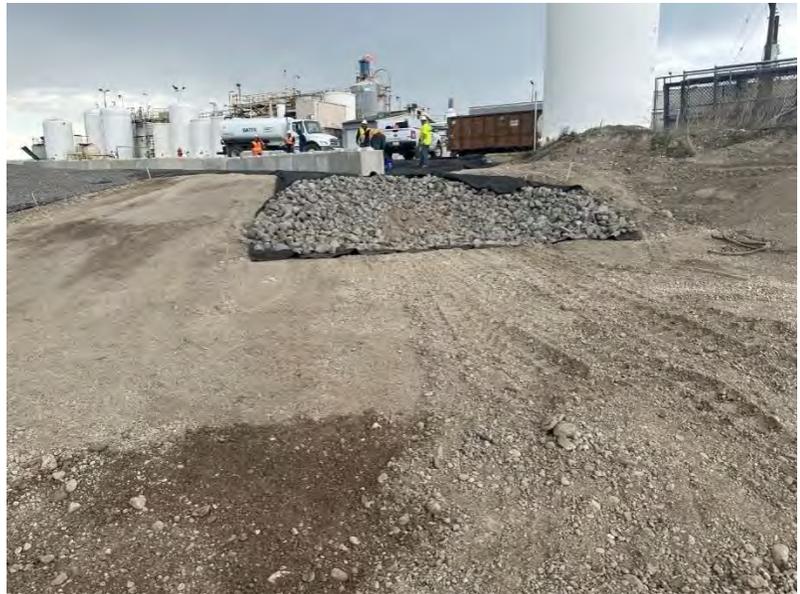
Ecology block surface water feature. Gaps sealed with mortar. View looking west.



**PHOTOGRAPH 51**

May 24, 2023

Construction of ecology block surface water feature armored termination and armor rock apron. 2- to 8-inch quarry spalls used as armor rock. View looking northwest.



**PHOTOGRAPH 52**

May 26, 2023

1- to 2-inch clean crushed ballast placement in a 6-inch lift in the north railroad ditch using a CAS AT7 Rock Slinger. View looking east.



**PHOTOGRAPH 53**

June 1, 2023

1- to 2-inch clean crushed ballast placement in a 6-inch lift in the central area of the UPRR pad. View looking northwest.



**PHOTOGRAPH 54**

June 1, 2023

Completed north railroad ditch with permanent fence, a 6-inch lift of 1- to 2-inch clean crushed ballast throughout the channel and side slopes, and 6-inch lift of 2- to 4-inch quarry spalls on containment berm. View looking west.



**PHOTOGRAPH 55**

June 2, 2023

Containment berm located in the northeastern corner of the UPRR pad property, completed with an 8-inch lift of 2- to 4-inch quarry spalls. 6-inch lift of 1- to 2-inch clean crushed ballast on the UPRR pad. View looking southeast.



**PHOTOGRAPH 56**

June 2, 2023

1- to 2-inch clean crushed ballast placed in a 6-inch lift in the central area of the UPRR pad. View looking east.



**PHOTOGRAPH 57**

June 5, 2023

Completed overflow channel with 2- to 8-inch quarry spalls in armor rock apron. View looking south.



**PHOTOGRAPH 58**

June 5, 2023

Pre-existing culvert outlet located at the inlet of the completed railroad ditch, situated on the furthest north-east corner of the UPRR pad property. 6-inch lift of clean crushed 1- to 2-inch ballast within the railroad ditch. View looking east.



**PHOTOGRAPH 59**

June 5, 2023

6-inch lift of clean crushed 1- to 2-inch ballast overlying geotextile on UPRR side slope enclosed with permanent fence. UPRR pad containment berm with 2- to 4-inch quarry spalls at right. View looking west.



**PHOTOGRAPH 60**

June 5, 2023

Western portion of UPRR pad and containment berm. 2- to 4-inch quarry spalls on containment berm. Permanent fence on UPRR/Pentzer property line at left. View looking north.



**PHOTOGRAPH 61**

June 5, 2023

Ecology block surface water feature with a 6-inch lift of 1- to 2-inch clean crushed ballast. View looking east.



**PHOTOGRAPH 62**

June 5, 2023

Ecology block surface water feature armored termination and armor rock apron. Completed with a 1-foot lift of 2- to 8-inch quarry spalls. View looking west.



**PHOTOGRAPH 63**

June 5, 2023

UPRR property access gate situated on the southwest corner of the UPRR pad area, neighboring property owned by Pentzer. View looking east.

