ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

Stimson Lumber Company

Removal Action Report
Josephine Mill No. 1

CERCLIS ID No. WAN001002401
Pend Oreille County, Washington

February 23, 2012

ARCADIS

Paula A. Lyon, LG
Senior Geologist

Trent A. Weise, P.E.
Principal Engineer

Removal Action Report

Josephine Mill No. 1
Pend Oreille County, Washington

Prepared for:
Stimson Lumber Company

Prepared by:
ARCADIS U.S., Inc.
2310 North Molter Road
Suite 101
Liberty Lake
Washington 99019
Tel 509.535.7225
Fax 509.535.7361

Our Ref.:
SK030179.0002

Date:
February 23, 2012

ARCADIS

Table of Contents

Tables

Figures

Appendices

1. Introduction

On behalf of Stimson Lumber Company (Stimson), ARCADIS U.S., Inc. (ARCADIS) has prepared this *Removal Action Report* (Final Report). This Final report has been prepared in accordance with the Administrative Settlement Agreement and Order on Consent Docket No. CERCLA-10-2010-0180 (ASAOC) between the U.S. Environmental Protection Agency (EPA) and Stimson for the Josephine Mill No. 1 in Pend Oreille County, Washington (the "Site," see Figure 1). Remedial activities performed at the Site were performed in general accordance with the EPA-approved "Removal Action Work Plan" (RAWP; ARCADIS, 2010 [approved August 25, 2010 by EPA]).

The completion of the Non-Time Critical Removal Action (RA) described in this Final Report was conducted pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. This Final Report has been prepared in accordance with and in a manner consistent with the National Contingency Plan (NCP) and EPA's *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (EPA, 1993).

The RAWP was prepared to mitigate mine waste encountered at various locations at the Site found to contain elevated concentrations of heavy metals including arsenic, cadmium, lead, mercury, and zinc. Reducing the potential for exposure to these constituents to protect human health and the environment was the focus of the RAWP. The activities presented in this Final Report document the implementation of the RAWP. This Final Report addresses mine waste contamination on the Site through the consolidation and capping of the mine waste on a portion of the Site.

1.1 Site Location

The former Josephine Mill No. 1 is located in northeast Washington, approximately 1.5 miles northwest of the city of Metaline Falls (Figure 1) in the southwest half (SW½) of Section 16, Township 39N, Range 43 W, Willamette Meridian, Pend Oreille County, Washington. The Site's approximate geographic coordinates are Latitude 48°52' 29.99" North, Longitude 117°22' 50.77" West. The Site is accessed by Pend Oreille County Highway 2975 (also referred to as the Boundary Dam Road) and the unpaved Old Pend Oreille Mine Road. Site access to the public is limited by a locked gate. The Old Pend Oreille Mine Road divides the Site into the upper portion and lower portion of the Site (Appendix A Sheet C-01). The Site is bounded to the southeast by Flume Creek, which flows to the north-northeast and discharges into the Pend Oreille River.

1.2 Background

The Site is one of three properties associated with the Josephine Mine; the other two, the Josephine Mine and Josephine Mill No. 2, are located nearby on property not owned by Stimson. The Josephine Mine has also been historically referred to as the "Clark Mine" or "Hortense Mine." The Josephine Mine was a cadmium, lead, silver, and zinc mine that reportedly operated from approximately 1909 to 1955. The Josephine Mill No. 1 reportedly began operations in about 1907 and was one of two mills supporting operation of the mine. Operations at the Josephine Mill No. 1 were curtailed sometime around 1935 when milling operations were conducted at the newly constructed Josephine Mill No. 2.

1.3 Performance Standards and Objectives

The RAWP identified the following removal action objectives (RAOs) based on the potential human health and ecological risks identified at the Site and included:

Human Receptors

- Prevent human exposure to contaminated soil containing hazardous substances at concentrations that exceed the 250 milligrams per kilogram (mg/kg) action level for lead established by EPA for the Site.

- Reduce runoff of hazardous substances to surface water so that loadings do not cause exceedances of Applicable or Relevant and Appropriate Requirements (ARARs).

Ecological Receptors

- Reduce ecological exposures to contaminated soil containing hazardous substances at concentrations that exceed the 250 mg/kg action level for lead established by EPA for the Site.

- Reduce runoff of hazardous substances to sediment and surface water, so that loadings do not cause exceedances of ARARs.

2. Closure Activities

The closure activities performed were originally described and presented in the EPA-approved RAWP. In general, the remedial activities included excavating materials containing contaminants above action levels, and consolidating the material in an on-site mine waste repository beneath a protective cover. The closure activities are described in further detail below.

2.1 Chronology of Closure Activities

Following approval of the ASAOC on September 3, 2010, RA activities began at the Site with the mobilization of equipment and materials on September 13, 2010. During the first four days of activities, site vegetation within the area of removal was cleared to facilitate the movement of soils and construction of the repository area. Wood and metal debris was moved to the edges of the site and stockpiled. After the Site had been cleared, mine waste consolidation activities progressed starting at the eastern portion of the site with a bulldozer pushing the impacted surficial soils towards the repository. Meanwhile an excavator and a compactor began preparing the footprint of the repository for the first lift of soil.

Initial screening samples were taken at the perimeter of the removal area. These samples are designated as "IS" in Table 1; locations are shown on Figure 3. Prior to the first lift being placed in the repository, an area of saturated soil within the repository was scarified and removed to be mixed with other on-site material to promote proper compaction. Geotechnical enhancement fabric (geogrid) was placed to cover the area of the removal of saturated soil, and layers of drier soils and stone were subsequently placed on top of the geogrid in support of repository construction.

On September 25, 2010 compaction efforts and construction of the repository halted when soft soils and groundwater flowing into the repository area from the bedrock were encountered. ARCADIS designed a groundwater interception trench to route groundwater around the repository area. ARCADIS also modified the compaction procedure which included collecting additional soil samples to obtain a Standard Proctor representative of the materials encountered. Work continued during this time on the tailings removal with work progressing from the eastern portion to the western portion of the Site.

Construction of the repository resumed on October 7, 2010. Construction of the interception trenches began on October 15, 2010. During repository construction, Portland cement was used as a binder to dry the materials and increase stability. Figure 2 presents approximate mine waste removal depths outside of the repository limits.

Confirmation sampling was conducted on October 19, 26, and 27, 2010, to verify removal of impacted material surrounding the repository area. These samples are designated with “CS” in Table 1; locations are shown on Figure 4. Soil samples were collected and analyzed as described in Section 2.9.

Initial confirmation sampling at locations JM-CS-03 and JM-CS-06 yielded results above the RAO guidelines as discussed in Section 2.9. In these areas, additional material was removed. Confirmation resampling was then conducted on October 27, 2010. The final confirmation sample ID’s for these locations are JM-CS-03A and JM-CS-06A. Final confirmation sample results, as listed in Table 1, were below the RAO guidelines set forth in the RAWP. Backfilling was then conducted following confirmation sampling.

Final subgrade preparation of the repository was completed on November 11, 2011, at which time Northwest Linings & Geotextile Products, Inc. (Northwest Linings) of Kent, Washington (under contract to ARCADIS), began installing the geosynthetic cover system. During installation of the cover system, restoration of the removal area occurred by placing 18 inches of clean fill over the removal area and grading the area as needed to drain. After the geosynthetic layer was installed, clean fill was added to the repository to complete the cover system.

Final grading of the cover system was completed on November 21, 2010. Demobilization of the construction equipment was conducted on November 22, 2010. Completion of the diversion ditch on the eastern edge of the repository and burying of the metal and wood debris was completed on September 13, 2012.

2.2 In-Scope Activities

In-scope activities are summarized in the list below and generally consisted of:

- Site mobilization and site preparation activities, including the implementation of Best Management Practices (BMPs)
- The removal of mine-waste material (i.e., rock, soil, and tailings) from the areas above and below the Old Pend Oreille Mine Road
- Confirmation soil sampling
- The consolidation of the mine-waste material in a repository located below the Old Pend Oreille Mine Road that overlaps the western extent of existing mine-waste materials
- The construction of an on-site, low-permeable capping system
- Restoration of the disturbed areas where mine waste was removed (final restoration wascompleted during the 2011 construction season)

2.3 Closure Design Refinements

During the construction process, observed field conditions deviated to some extent from the anticipated conditions based on preliminary investigations. Specifically, the repository size was reduced slightly to reflect the actual amount of impacted material removed from the eastern portion of the Site and to account for changes in site topography from the initial survey. In addition, to ensure the stability and long-term performance of the repository, groundwater interception trenches were installed to divert groundwater

around the repository area. Detail of these refinements are provided in the attached Record Drawings, Attachment A.

2.4 Mine Waste Removals

Waste removal activities began on the eastern portion of the Site, above the existing access road. ARCADIS utilized a hydraulic excavator, wheel loader and dozers to move material from above the road to the repository area located below the road. For stability purposes, ARCADIS utilized compaction equipment during waste consolidation activities. ARCADIS also utilized a loader to transport material from isolated areas of the excavation area to the repository area and if needed a water truck to suppress dust generated from the excavation activities.

Based on the preliminary removal design, approximately 7,000 cubic yards of material were anticipated to be placed within the proposed repository area at the Site. As such, the current location of the repository area slightly overlaps the location of the existing site material such that approximately 6,300 cubic yards of material were estimated to be relocated from across the site. The material within the overlap area was regraded and compacted to meet design grades and specifications within the repository area.

Following the completion of removal activities, the repository area was graded to meet design subgrade elevations in preparation for installation of the geosynthetic cover system.

2.5 Mine Waste Repository

Following the completion of grading activities within the repository area, the geosynthetic installer, Northwest Linings, began installation of the geosynthetic cover system. The profile of the geosynthetic cover system included a non-woven geotextile installed directly over the consolidated material, overlain by a 40-mil textured Linear-Low Density Polyethylene (LLDPE) geomembrane, overlain by a geocomposite drainage layer. Following the completion of geosynthetics installation, ARCADIS, placed and graded a minimum of 18 inches of cover soil over the geosynthetics to achieve the design grades of the cover system. The anchor trench was then backfilled and imported stone and rip/rap material was used to construct the perimeter drainage system around the repository area.

To meet the design requirements set forth in the RAWP and removal action design (RAD), compaction testing was conducted on each individual lift placed in the repository area prior to placement of the subsequent lift. Results of the compaction testing conducted are presented in Appendix C. If compaction testing showed results below the RAD requirements, additional compaction efforts were conducted prior to retesting. Results of the compaction testing throughout the project passed the requirements set forth in the RAD and ranged from 90 to 100 percent compaction on the material tested.

2.6 Site Access Road

Following removal of mine-waste materials within the access road, the access road was restored and graded where needed. BMPs referenced in Section 5 of the RAWP were utilized to minimize erosion and prevent sediment migration to Flume Creek as a result of storm water events.

2.7 Revegetation

During the course of the RA activities, efforts to preserve existing vegetation were taken to minimize the amount of exposed disturbed soils at any given time. Due to weather constraints, revegetation of the removal area was not completed during the fall 2010 construction efforts. Additional BMP's were placed horizontally across the slope of the hillside to reduce the potential for erosion during the spring thaw. BMPs used included straw waddles and silt fencing. Revegetation of the removal area was completed in September 2011. At the time of revegetation activities, the disturbed areas had a vegetative cover. A slight deviation to the design exists in that additional soil cover was not necessary as the existing soil cover supported vegetative growth. A grass seed mixture was broadcast across the formerly disturbed areas which already colonized with a variety of vegetation.

3. Analytical Data Summary

This Section presents the sampling performed, both screening and confirmatory, to define the limits of waste and ensure that the COC concentrations outside the mine waste repository were below the cleanup levels set forth in the RAWP.

3.1 Initial Soil Screening

In addition to visual identification of mine-waste materials, a field portable X-ray fluorescence (FPXRF) was used to identify mine-waste materials throughout the removal area. Following FPXRF screening, confirmation soil sample results were also collected as described in Section 2.9. FPXRF results were compared to Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A or Method B soil cleanup levels for arsenic, cadmium, lead, mercury, and zinc, as appropriate. EPA-approved soil cleanup levels for Unrestricted Land Uses for these analytes are as follows:

- Arsenic 20 mg/kg (MTCA Method A soil cleanup level)

- Cadmium 80 mg/kg (MTCA Method B soil cleanup level)[1]
- Lead 250 mg/kg (MTCA Method A soil cleanup level)
- Mercury 2 mg/kg (MTCA Method A soil cleanup level)
- Zinc 24,000 mg/kg (MTCA Method B soil cleanup level)

During the first week of construction, after FPXRF screening, 10 soil samples were collected for laboratory analysis for arsenic, cadmium, lead, mercury, and zinc. These samples were analyzed with a rush turn-around-time to verify that soil cleanup levels had been met and that the FPXRF was a reliable tool for field screening during excavation activities.

The subsequent frequency of field screening was dependent on the visual observations of mine-waste materials and the locations where removal activities were occurring. The FPXRF samples were collected from locations selected to assist in excavation efforts, as directed by ARCADIS' appointed on-site manager. A summary of the results is shown in Table 1, Table 2, and in Appendix A sheet C-03 and C-04.

3.2 Confirmation Sampling

Upon reaching the limits and depths of the excavation areas as determined upon indication from the FPXRF field screening tool that the appropriate soil cleanup levels have been achieved for the COCs, confirmation samples of the subgrade were collected. One sample was collected for every 2,500 square feet of excavation area as measured in the field by measuring off a 50-foot grid pattern, in accordance with the RAWP. Samples were collected using disposable nitrile gloves to collect the required 8 ounces (oz) of material and place in a laboratory supplied jar for chemical analysis. Samples were analyzed for arsenic, cadmium, lead and zinc by EPA Method 6010C and mercury by EPA Method 7471. Each sample was representative of materials exposed at the surface of the excavation prior to any backfilling. Sampling was conducted in accordance with the protocols presented in the SAP and embedded Quality Assurance Project Plan (QAPP) provided in the RAWP. A summary of the results is shown in Table 1, Table 2, and in Figures 4 and 5.

3.2.1 Sample Collection and Analysis

ARCADIS performed three soil sampling events, in accordance with the objectives and specifications in the EPA-approved Site Investigation Work Plan (LFR, 2008) which includes the Field Sampling Plan (FSP) and

[1] EPA confirmed that the MTCA Method B soil cleanup level for cadmium is applicable in an email dated April 6, 2011; "the alternate 80 mg/kg cleanup level was selected because the cleanup was focused on source control verses protection of groundwater used for drinking water use".

embedded QQAPP provided in Appendix B of the RAWP. Collected soil samples from the three events were transported to TestAmerica Laboratories, Inc. (TestAmerica) located in Spokane Valley, Washington for analysis and reported with the following Lab Job IDs:

- Lab Job ID STI0115 for samples collected on September 17, 2010
- Lab Job ID STJ0111 for samples collected on October 19, 2010
- Lab Job ID STJ0169 for samples collected on October 26 and 27, 2010

TestAmerica is a multi-state certified laboratory. Copies of the analytical reports are included in Appendix B. The samples were analyzed for the following analytes using the methods noted below:

- Arsenic, Method: EPA 6010C
- Cadmium, Method: EPA 6010C
- Lead, Method: EPA 6010C
- Zinc, Method: EPA 6010C
- Mercury, Method: EPA 7471

A total of 34 samples were submitted to TestAmerica for laboratory analysis.

3.2.2 Initial Screening Results

The initial screening sample results were used in the evaluation of the reliability and accuracy of the FPXRF. Samples were obtained from areas that had soils removed and others that still had suspect impacted material present. The laboratory analytical results (Table 1) were found to be comparable with the field data received from the FPXRF field screening tool (Table 2).

3.2.3 Confirmation Sampling Results

Confirmation sample results were below the cleanup levels set forth in the RAWP with the exception of JM-CS-03 and JM-CS-06. At these locations, sampling results showed additional material needed to be removed. After additional material was removed, confirmation sampling at those two locations was conducted and labeled JM-CS-03A and JM-CS-06A, which yielded COC concentrations below the cleanup levels set forth in the RAWP. Confirmation sample analytical results are presented in Table 1 and the associated FPXRF screening data for the confirmation sampling is presented in Table 2.

3.3 Quality Assurance/Quality Control

Field quality assurance/quality control (QA/QC) is designed to document protocol used during the collection of samples for laboratory analyses. Field QA/QC samples collected, as part of the soils sampling, consisted of trip blanks and replicates. These field QC samples are described below.

Trip Blanks – One sample bottle was filled with deionized water. The sample was transported to the Site, handled like a sample, and sent to the laboratory. One trip blank was included in each cooler of samples shipped to the laboratory. These samples were placed on hold.

Replicates - Replicates were prepared by splitting a soil sample into two aliquots. The aliquots were then sent to the lab in two separate containers. Each replicate was analyzed for the same chemical parameters. Two replicates were taken during the sampling activities which was consistent with the 1 in every 20 samples as prescribed in the original SAP.

During sampling activities, only disposable sampling devices were used and, thus, no equipment blanks were necessary.

4. Post-Removal Action Site Conditions

On September 13, 2011, construction of the mine waste repository was completed. The soil samples collected indicate that the removal action was completed in accordance with the prescribed RAOs in the EPA approved RAWP.

4.1 Institutional Controls

Institutional Controls (IC), such as administrative and/or legal controls that minimize the potential for human exposure to contamination, will used in conjunction with the removal action. Land-use restrictions in accordance with the Washington State Uniform Environmental Covenants Act (UECA) will be implemented at the Site as a means to further isolate areas containing suspected contaminants either left in place after a removal or in areas where natural vegetation is established. These restrictions would extend into perpetuity, particularly in the event that the Site, either partially or wholly, is sold.

Restrictions will include the following:

- No residential use will be permitted unless the Site is remediated to allow such use.
- Prior to any surface disturbance associated with commercial or industrial development, soil samples will be required in accordance with a soils management plan.

- For areas in which soil sample analyses indicate exceedances of threshold metals concentrations, excavation and/or capping, as deemed appropriate, will be required.

- A separate RA plan will be submitted to the appropriate regulatory authority.

- Any future landowner will be obligated to ensure compliance with the established land-use restrictions.

4.2 Informational Devices

Informational devices (signage) such as advisories or warnings have been strategically posted at the Site to provide information or notification that residual or capped contamination remains on-site and to warn of other physical hazards. Specific devices and locations are identified in the Post-Removal Site Control Plan included at Appendix E.

4.3 Long Term Maintenance and Monitoring

The long- term maintenance and monitoring of the mine waste repository is covered by the Post-Removal Site Control Plan included in Appendix E and generally includes semiannual site inspections performed during the first two years followed by annual inspections thereafter. Additionally, inspections will be performed following significant natural events that have the potential for disturbing the mine waste repository.

.

5. Health and Safety

Work activities referenced in this Final Report were conducted in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations, as well as those procedures specifically established in the Environmental Health and Safety Plan (RAWP, Appendix C, ARCADIS July, 2010). Personnel involved in the work were current with respect to required OSHA training and refresher courses for work at hazardous waste sites, in accordance with the requirements of 29 CFR Part 1920.120. The work was conducted by workers in Level D personal protective equipment.

5.1 Air Monitoring

Air monitoring during the activities was conducted using two Thermo PDR-1000 dust monitoring instruments. At the beginning of the day, a dust monitoring station was set up along the road on the eastern and western portions of the work area and the system data logging was enabled. Monitors were checked every 1 to 2 hours and readings were recorded in the field notebook. Airborne dust levels during

the activities did not exceed levels considered to be safe due in part to the soil type encountered and the wet weather conditions during construction. After sufficient startup, air monitoring was conducted, the results were reviewed and air monitoring was reduced to an as-needed basis based on field conditions. High precipitation weather persisted throughout the project and dust was not observed for the remainder of the activities. The results of the air monitoring are outlined in Table 3.

5.2 Decontamination Procedures

Potentially contaminated vehicles, equipment, and personnel were decontaminated prior to leaving the Site, and also upon final demobilization. Caked or loose materials on vehicles and equipment was removed, to the extent practicable, by scraping or dry-brushing at temporary decontamination stations set up close to where the work occurred. Decontamination stations consisted of gravel aprons in which potentially contaminated materials were removed from vehicles and equipment

6. References

ARCADIS U.S. Inc. (ARCADIS), 2010, Removal Action Work Plan, Josephine Mill No. 1, Metaline Falls, Washington, July.

LFR Inc. (LFR), 2008. Revised Site Investigation Work Plan, Josephine Mill No. 1, Metaline Falls, Washington, October 3.

LFR, 2010a, Final Site Investigation Report, Josephine Mill No. 1, Metaline Falls, Washington. January 15.

LFR, 2010b, Final Engineering Evaluation / Cost Analysis (EE/CA), Josephine Mill No. 1, Metaline Falls, Washington. May 27.

U.S. Environmental Protection Agency (EPA), 1994. Methods for Determination of Metals in Environmental Samples, Supplement 1. EPA/600-R-94/111, May 1994.

U.S. Environmental Protection Agency (EPA), 1993. Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA. EPA/540-R-93-057. USEPA Office of Solid Waste and Emergency Response, Washington, D.C. 57 pages.

U.S. Environmental Protection Agency (EPA), 1986. Test Methods for Evaluating Solid Waste. SW-846.

U.S. Environmental Protection Agency (EPA), 1998. Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses. Hazardous Site Evaluation Division, USEPA, 19 pages.

U.S. Environmental Protection Agency (EPA), 2010. Action Memorandum for the Josephine Mill No. 1 located near Metaline Falls, Pend Oreille County, Washington, August 25.

ARCADIS

Tables

Table 1
Summary of Analytical Data - Metals
Josephine Mill No.1
Metaline, Washington

Sample Identification	Sample Date	Sample Location (See Appendix A Sheet #)	Total Metals [1] Arsenic (As)	Cadmium (Cd)	Lead (Pb)	Zinc (Zn)	Mercury (Hg)
Initial Screening Samples							
JM - IS - 01	9/17/2010	C-03	5.70	3.86	161	873	0.102
JM - IS - 02	9/17/2010	C-03	6.06	7.13	103	2,340	0.236
JM - IS - 03	9/17/2010	C-03	4.64	0.938	128	599	0.0590
JM - IS - 04	9/17/2010	C-03	4.81	28.4	353	8,460	1.950
JM - IS - 05	9/17/2010	C-03	4.29	0.750	10.6	120	ND
JM - IS - 06	9/17/2010	C-03	5.66	4.34	103	1,270	0.217
JM - IS - 07	9/17/2010	C-03	4.73	4.89	103	1,860	0.215
JM - IS - 08	9/17/2010	C-03	7.74	76.2	1280	30,900	2.220
JM - IS - 09	9/17/2010	C-03	6.60	12.2	559	3,130	0.369
JM - IS - 10	9/17/2010	C-03	5.99	7.82	35.1	3,930	ND
Initial Confirmation Samples Indicating Further Excavation Required							
JM - CS - 03	10/19/2010	C-04	ND	11.4	261	2,490	1.36
JM - CS - 06	10/19/2010	C-04	3.44	55.2	294	16,300	2.99
Confirmation Samples							
Road - CS - West	10/26/2010	C-04	ND	ND	8.23	59	ND
Road - CS - East	10/26/2010	C-04	ND	1.13	12.0	135	0.126
Road - CS - Center	10/27/2010	C-04	ND	0.450	9.41	45	ND
Road - CS - Rockface	10/27/2010	C-04	ND	8.55	7.81	1,430	0.0977
JM - CS - 01	10/19/2010	C-04	ND	0.837	18.5	290	0.111
JM - CS - 02	10/19/2010	C-04	ND	6.20	58.0	1,200	0.317
[2] JM - CS - 03A	10/27/2010	C-04	ND	9.54	20.9	451	0.177
JM - CS - 04	10/19/2010	C-04	5.18	1.31	8.60	260	ND
JM - CS - 05	10/19/2010	C-04	4.26	3.24	34.1	1,890	0.0914
JM - CS - 05 Dup - 1	10/19/2010	C-04	4.62	4.13	33.1	1,790	0.0764
[2] JM - CS - 06A	10/27/2010	C-04	ND	4.38	20.4	1,560	0.473
JM - CS - 07	10/19/2010	C-04	3.66	6.80	43.1	1,650	0.459
JM - CS - 08	10/19/2010	C-04	6.58	6.8	58.3	2,600	0.229
JM - CS - 09	10/19/2010	C-04	3.37	39.7	21.7	6,370	0.0755
JM - CS - 10	10/19/2010	C-04	3.08	2.87	25.2	1,250	0.0912
JM - CS - 11	10/19/2010	C-04	3.22	2.78	26.4	574	0.0786
JM - CS - 12	10/19/2010	C-04	ND	1.01	8.77	633	0.0525
JM - CS - 12 Dup - 2	10/19/2010	C-04	ND	1.61	8.59	675	0.0598
JM - CS - 13	10/19/2010	C-04	2.75	55.7	108	11,500	0.274
MTCA - Soil, Method A, Unrestricted Land Use			**20**	**NA**	**250**	**NS**	**2**
MTCA - Soil, Method B, Unrestricted Land Use [Non-carcinogen-Direct Contact - ingestion only]			**NA**	**80**	**NS**	**24,000**	**NA**
Washington State Natural Background Soil Metals Concentrations (Ecology, 1994)			**5.76**	**0.81**	**9.85**	**67.47**	**0.02**

Notes:
(1) Total Metals = Mercury analyzed using EPA Method 7471, other metals Metals analyzed using EPA Method 6010C,
(2) Confirmation Samples following additional excavation

ND not detected above laboratory method reporting limit
NA Not Applicable to this report
NS No Standard available
All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)

Prepared by: GEP
Checked by: PAL
January 2010

Table 2
Summary of XRF Analysis Data - Metals
Josephine Mill No.1
Metaline, Washington

Sample Identification	Sample Date	Sample Location (See Appendix A Sheet #)	Total Metals [1] Arsenic (As)	Cadmium (Cd)	Lead (Pb)	Zinc (Zn)	Mercury (Hg)
Initial Screening Samples							
JM - IS - 01	9/17/2010	C-03	ND	ND	172.53	903	ND
JM - IS - 02	9/17/2010	C-03	ND	ND	84.42	2,014	ND
JM - IS - 03	9/17/2010	C-03	ND	ND	97.88	539	ND
JM - IS - 04	9/17/2010	C-03	ND	21.06	264.17	7,180	ND
JM - IS - 05	9/17/2010	C-03	ND	ND	ND	168	ND
JM - IS - 06	9/17/2010	C-03	ND	ND	45.2	1,115	ND
JM - IS - 07	9/17/2010	C-03	ND	ND	124.39	2,728	ND
JM - IS - 08	9/17/2010	C-03	ND	234.94	795.32	33,347	ND
JM - IS - 09	9/17/2010	C-03	ND	ND	613.68	3,874	ND
JM - IS - 10	9/17/2010	C-03	ND	ND	27.4	2,742	ND
Initial Confirmation Samples Indicating Further Excavation Required							
JM - CS - 03	10/19/2010	C-04	ND	ND	125.13	2,575	ND
JM - CS - 06	10/19/2010	C-04	ND	39.74	235.54	11,295	ND
Confirmation Samples							
Road-CS-West	10/26/2010	C-04	ND	ND	18.97	153	ND
Road-CS-East	10/26/2010	C-04	ND	ND	10.23	212	ND
Road-CS-Center	10/27/2010	C-04	ND	ND	25.06	1,133	ND
Road-CS-Rockface	10/27/2010	C-04	ND	ND	13.27	1,221	ND
JM - CS - 01	10/19/2010	C-04	ND	ND	ND	274	ND
JM - CS - 02	10/19/2010	C-04	ND	ND	15.09	281	ND
[2] JM - CS - 03A	10/27/2010	C-04	ND	ND	15.29	2,123	ND
JM - CS - 04	10/19/2010	C-04	ND	ND	ND	303	ND
JM - CS - 05	10/19/2010	C-04	ND	ND	45.33	3,163	ND
[2] JM - CS - 06A	10/27/2010	C-04	ND	ND	11.47	287	ND
JM - CS - 07	10/19/2010	C-04	14.08	ND	62.93	1,495	ND
JM - CS - 08	10/19/2010	C-04	ND	ND	61.93	2,669	ND
JM - CS - 09	10/19/2010	C-04	ND	27.31	15.81	6,609	ND
JM - CS - 10	10/19/2010	C-04	ND	ND	11.21	1,428	ND
JM - CS - 11	10/19/2010	C-04	13.52	ND	22.46	649	ND
JM - CS - 12	10/19/2010	C-04	ND	ND	18.87	850	ND
JM - CS - 13	10/19/2010	C-04	ND	ND	51.69	8,658	ND
MTCA - Soil, Method A, Unrestricted Land Use			**20**	**NA**	**250**	**NS**	**2**
MTCA - Soil, Method B, Unrestricted Land Use [Non-carcinogen-Direct Contact - ingestion only]			**NA**	**80**	**NS**	**24,000**	**NA**
Washington State Natural Background Soil Metals Concentrations (Ecology, 1994)			**5.76**	**0.81**	**9.85**	**67.47**	**0.02**

Notes:
(1) Total Metals = Mercury analyzed using EPA Method 7471, other metals Metals analyzed using EPA Method 6010C,
(2) Confirmation Samples following additional excavation

Sample locations are shown in Appendix A on sheets C-03 and C-04
ND not detected above laboratory method reporting limit
NA Not Applicable to this report
NS No Standard available
All concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm)

Prepared by: GEP
Checked by: PAL
January 2010

Table 3
Summary of Dust Monitoring Data
Josephine Mill No.1
Metaline, Washington

Date	Average TWA mg/m^3	Maximum reading mg/m^3	Number of readings mg/m^3
9/15/2010	0.007	0.567	937
9/23/2010	0.001	0.060	695

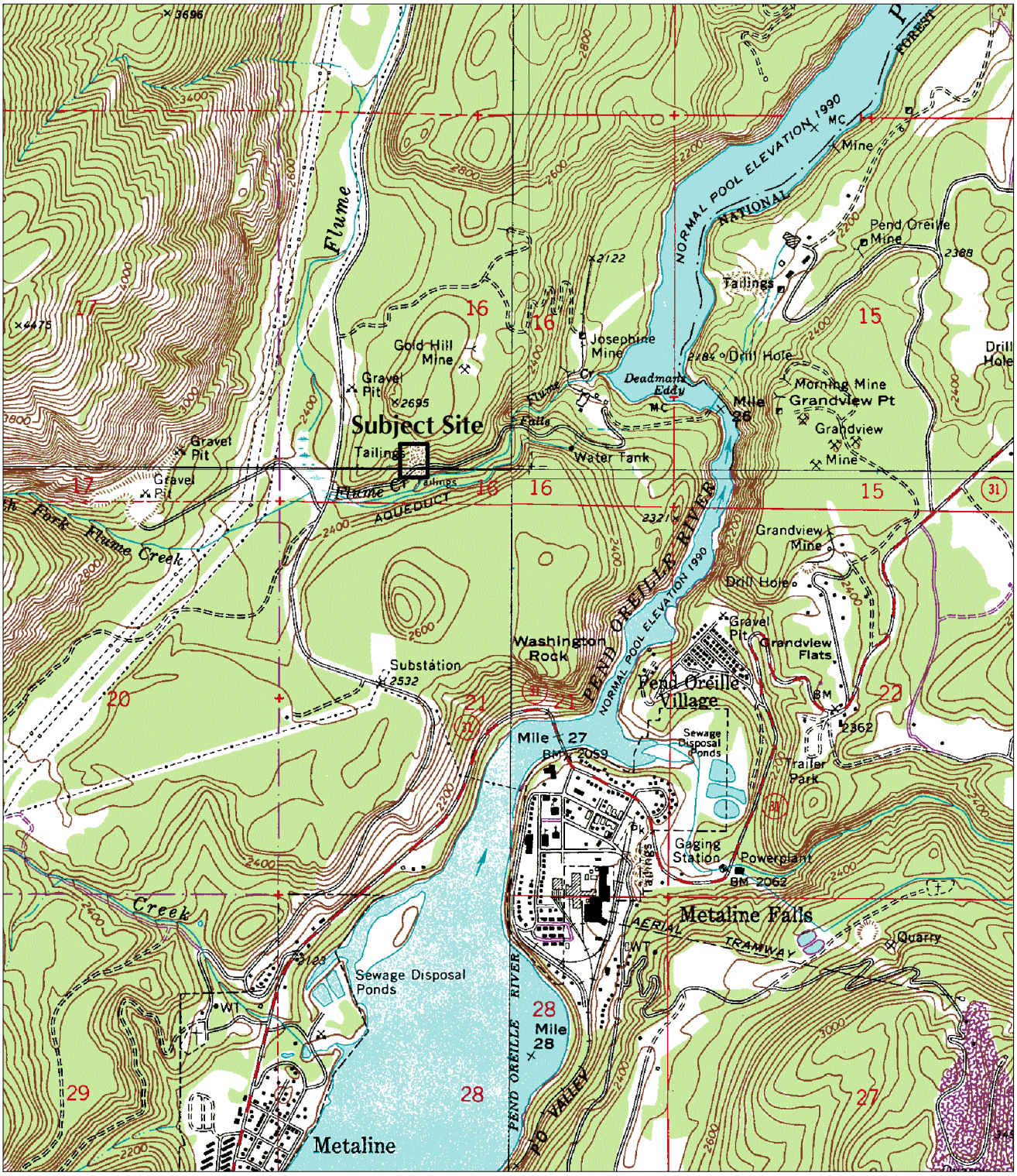
Notes:

TWA = Time-Weighted Average

mg/m^3 = milligram per cubic meter

ARCADIS

Figures



Map Source: USGS 7.5 Topographic Maps: Abercrombie Mountain, Boundary Dam, Metaline Falls, and Metaline, Washington (1986)

0 1000' 2000'

GRAPHIC SCALE

STIMSON LUMBER COMPANY
JOSEPHINE MILL NO. 1
METALINE FALLS, WASHINGTON

SITE VICINITY MAP

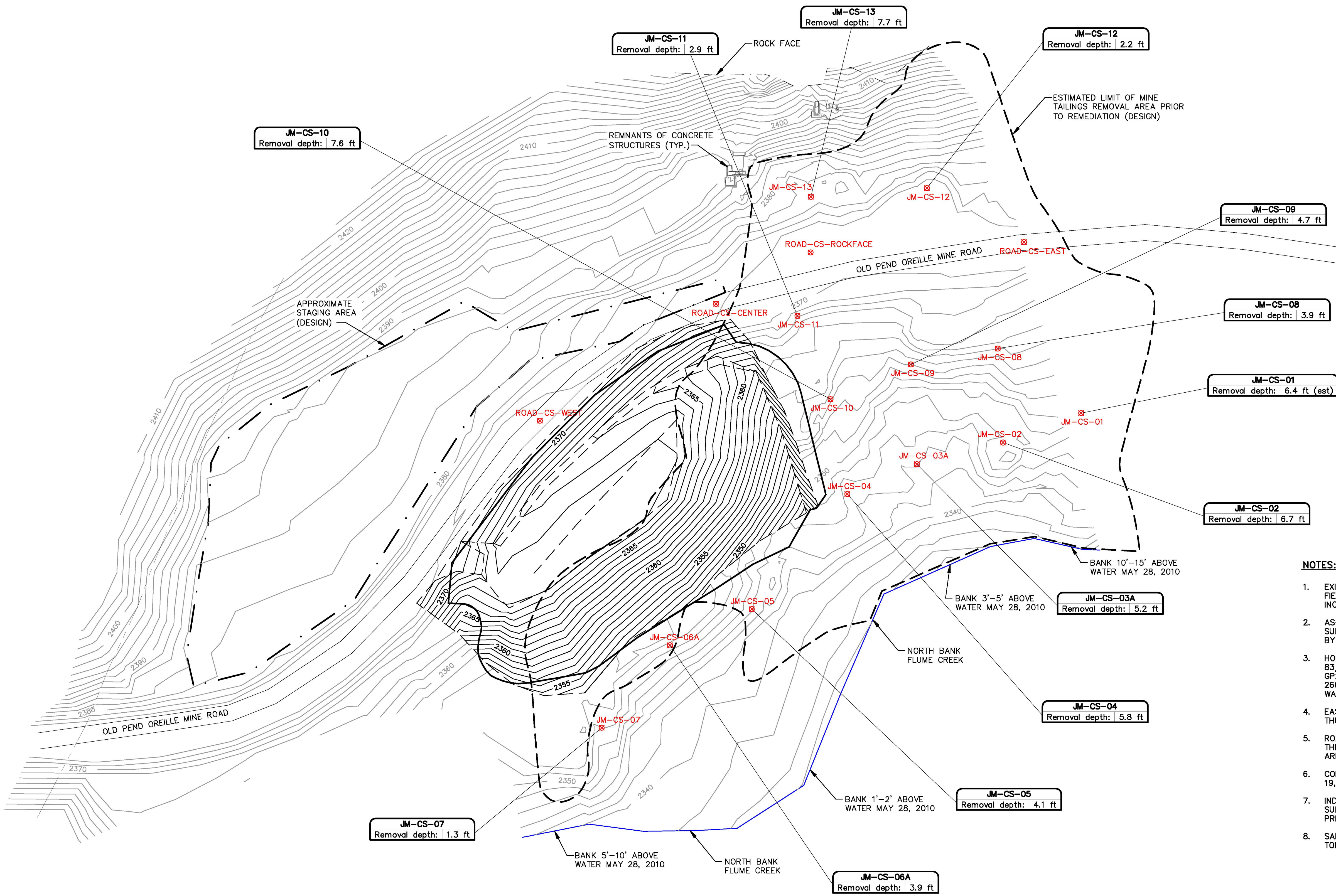
ARCADIS

FIGURE 1

DATE: 7/7/2010

PROJECT NAME: JOSEPHINE MILL RAWP

\\Wa3pi1\Data\PROJECT\SK03017_0001\Josephine\Mill_RAWP\Figures_070710.pdf



LEGEND:

Symbol	Description
—2370—	EXISTING CONTOUR (2 FOOT INTERVAL) PRIOR TO REMEDIATION
—2355—	AS-BUILT TOP OF WASTE CONTOUR WITHIN REPOSITORY FOLLOWING REMEDIATION (1 FOOT INTERVAL)
— · —	PROPERTY LINE (APPROXIMATE)
———	WASTE LIMIT WITHIN REPOSITORY FOLLOWING REMEDIATION (DESIGN)
— —	ESTIMATED LIMIT OF WASTE PRIOR TO REMEDIATION (DESIGN)
— · —	APPROXIMATE STAGING AREA (DESIGN)
— — —	AS-BUILT REPOSITORY GRADE BREAK/LIMIT OF WASTE WITHIN REPOSITORY FOLLOWING REMEDIATION
⊠ JM-CS-01	CONFIRMATION SOIL SAMPLE LOCATION (SEE NOTE 6)

NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES WERE OBTAINED FROM A FIELD SURVEY PERFORMED ON MAY 28, 2010 BY RFK LAND SURVEYING, INC. OF SPOKANE, WASHINGTON.
2. AS-BUILT REPOSITORY WASTE TOPOGRAPHY OBTAINED FROM FIELD SURVEYS PERFORMED ON NOVEMBER 8, 2010 AND NOVEMBER 10, 2010 BY ARCADIS.
3. HORIZONTAL COORDINATE SYSTEM IS WASHINGTON STATE PLANE (NAD 83/91) ESTABLISHED FROM GPS OBSERVATIONS OF WADOT MONUMENTS GP26031-25, GP26031-22, F483, AND 2516 22 26 (MONUMENT GP 26031-25 WAS HELD). VERTICAL DATUM IS NAVD88 ESTABLISHED FROM WADOT MONUMENT GP26031-25 (EL. 2519.68 FT).
4. EASTERN PORTION OF REMOVAL AREA WAS NOT INCLUDED IN SURVEY, THUS NO EXISTING TOPOGRAPHY IS SHOWN.
5. ROAD SAMPLE LOCATIONS WERE NOT SURVEYED. LOCATIONS ARE THEREFORE APPROXIMATE AND ELEVATIONS FOLLOWING WASTE REMOVAL ARE NOT KNOWN.
6. CONFIRMATION SOIL SAMPLES WERE OBTAINED BY ARCADIS ON OCTOBER 19, 2010.
7. INDICATED REMOVAL DEPTHS ARE CALCULATED BY SUBTRACTING SURVEYED SPOT ELEVATION FOLLOWING WASTE REMOVAL FROM PREVIOUSLY EXISTING GRADE AT SAME LOCATION.
8. SAMPLE LOCATION JM-CS-01 IS LOCATED OUTSIDE EXISTING TOPOGRAPHY SURVEY, THUS REMOVAL DEPTH IS ESTIMATED.

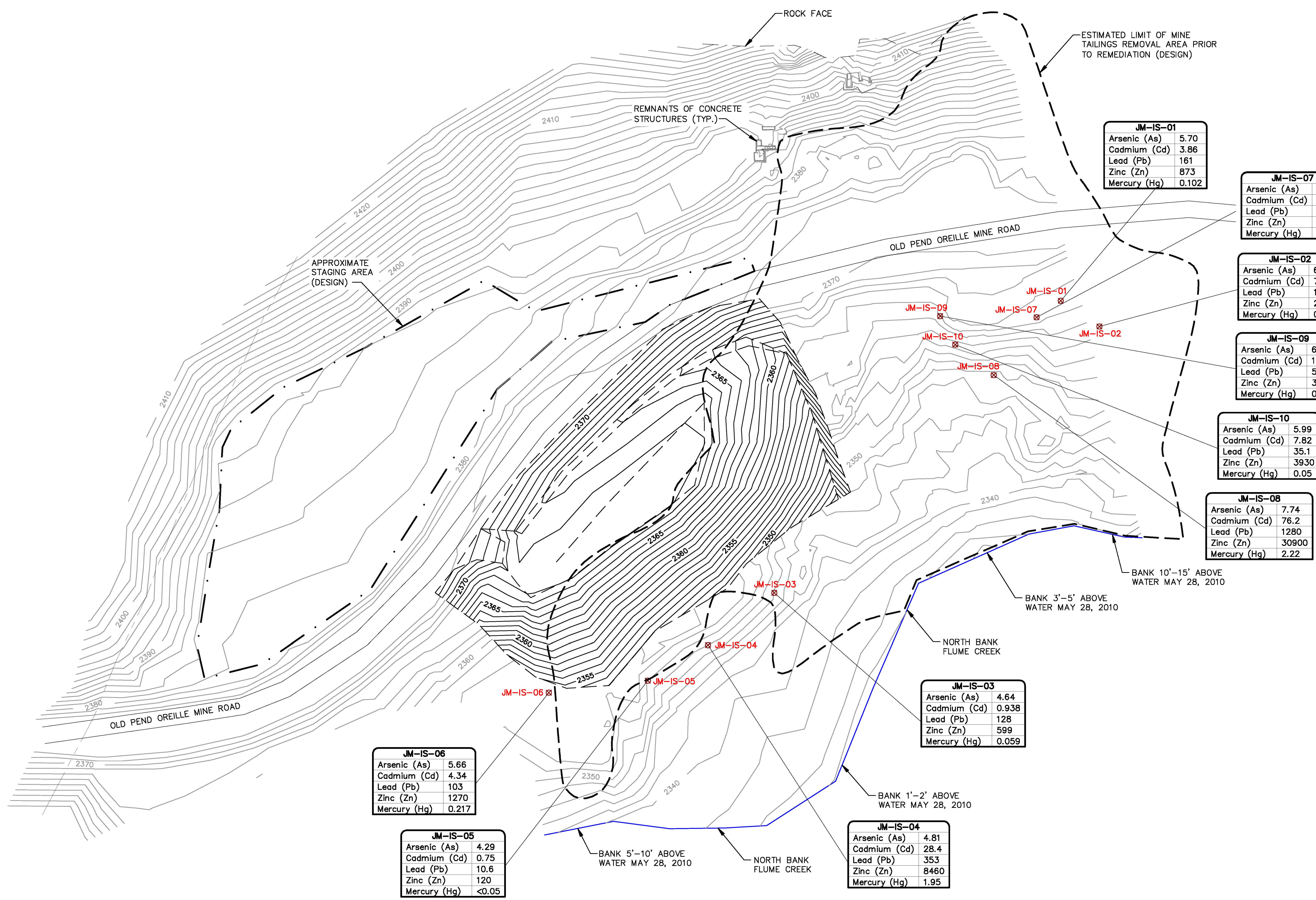
0 30' 60'
GRAPHIC SCALE

STIMSON LUMBER COMPANY
METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

AS-BUILT REPOSITORY WASTE GRADING

ARCADIS

FIGURE
2



JM-IS-01	
Arsenic (As)	5.70
Cadmium (Cd)	3.86
Lead (Pb)	161
Zinc (Zn)	873
Mercury (Hg)	0.102

JM-IS-07	
Arsenic (As)	4.73
Cadmium (Cd)	4.89
Lead (Pb)	103
Zinc (Zn)	1860
Mercury (Hg)	0.215

JM-IS-02	
Arsenic (As)	6.06
Cadmium (Cd)	7.13
Lead (Pb)	103
Zinc (Zn)	2340
Mercury (Hg)	0.236

JM-IS-09	
Arsenic (As)	6.60
Cadmium (Cd)	12.2
Lead (Pb)	559
Zinc (Zn)	3130
Mercury (Hg)	0.369

JM-IS-10	
Arsenic (As)	5.99
Cadmium (Cd)	7.82
Lead (Pb)	35.1
Zinc (Zn)	3930
Mercury (Hg)	0.05

JM-IS-08	
Arsenic (As)	7.74
Cadmium (Cd)	76.2
Lead (Pb)	1280
Zinc (Zn)	30900
Mercury (Hg)	2.22

JM-IS-03	
Arsenic (As)	4.64
Cadmium (Cd)	0.938
Lead (Pb)	128
Zinc (Zn)	599
Mercury (Hg)	0.059

JM-IS-06	
Arsenic (As)	5.66
Cadmium (Cd)	4.34
Lead (Pb)	103
Zinc (Zn)	1270
Mercury (Hg)	0.217

JM-IS-05	
Arsenic (As)	4.29
Cadmium (Cd)	0.75
Lead (Pb)	10.6
Zinc (Zn)	120
Mercury (Hg)	<0.05

JM-IS-04	
Arsenic (As)	4.81
Cadmium (Cd)	28.4
Lead (Pb)	353
Zinc (Zn)	8460
Mercury (Hg)	1.95

LEGEND:

- 2370 — EXISTING CONTOUR (2 FOOT INTERVAL) PRIOR TO REMEDIATION
- 2355 — AS-BUILT TOP OF WASTE CONTOUR WITHIN REPOSITORY FOLLOWING REMEDIATION (1 FOOT INTERVAL)
- PROPERTY LINE (APPROXIMATE)
- ESTIMATED LIMIT OF WASTE PRIOR TO REMEDIATION (DESIGN)
- APPROXIMATE STAGING AREA (DESIGN)
- AS-BUILT REPOSITORY GRADE BREAK/LIMIT OF WASTE WITHIN REPOSITORY FOLLOWING REMEDIATION
- JM-IS-08 — INITIAL SCREENING SOIL SAMPLE LOCATION (SEE NOTE 5)

NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES WERE OBTAINED FROM A FIELD SURVEY PERFORMED ON MAY 28, 2010 BY RFK LAND SURVEYING, INC. OF SPOKANE, WASHINGTON.
2. AS-BUILT REPOSITORY WASTE TOPOGRAPHY OBTAINED FROM FIELD SURVEYS PERFORMED ON NOVEMBER 8, 2010 AND NOVEMBER 10, 2010 BY ARCADIS.
3. HORIZONTAL COORDINATE SYSTEM IS WASHINGTON STATE PLANE (NAD 83/91) ESTABLISHED FROM GPS OBSERVATIONS OF WADOT MONUMENTS GP26031-25, GP26031-22, F483, AND 2516 22 26 (MONUMENT GP 26031-25 WAS HELD). VERTICAL DATUM IS NAVD88 ESTABLISHED FROM WADOT MONUMENT GP26031-25 (EL. 2519.68 FT).
4. EASTERN PORTION OF REMOVAL AREA WAS NOT INCLUDED IN SURVEY, THUS NO EXISTING TOPOGRAPHY IS SHOWN.
5. INITIAL SCREENING SOIL SAMPLES WERE OBTAINED BY ARCADIS ON SEPTEMBER 17, 2010. SAMPLES WERE COLLECTED FROM THE EXISTING GROUND SURFACE PRIOR TO REMEDIATION. RESULTS REPORTED IN PPM (MG/KG).
6.

ALLOWABLE CONCENTRATIONS	
ARSENIC	20 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)
CADMIUM	80 MG/KG (MTCA METHOD B SOIL CLEANUP LEVEL)
LEAD	250 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)
ZINC	24,000 MG/KG (MTCA METHOD B SOIL CLEANUP LEVEL)
MERCURY	2 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)

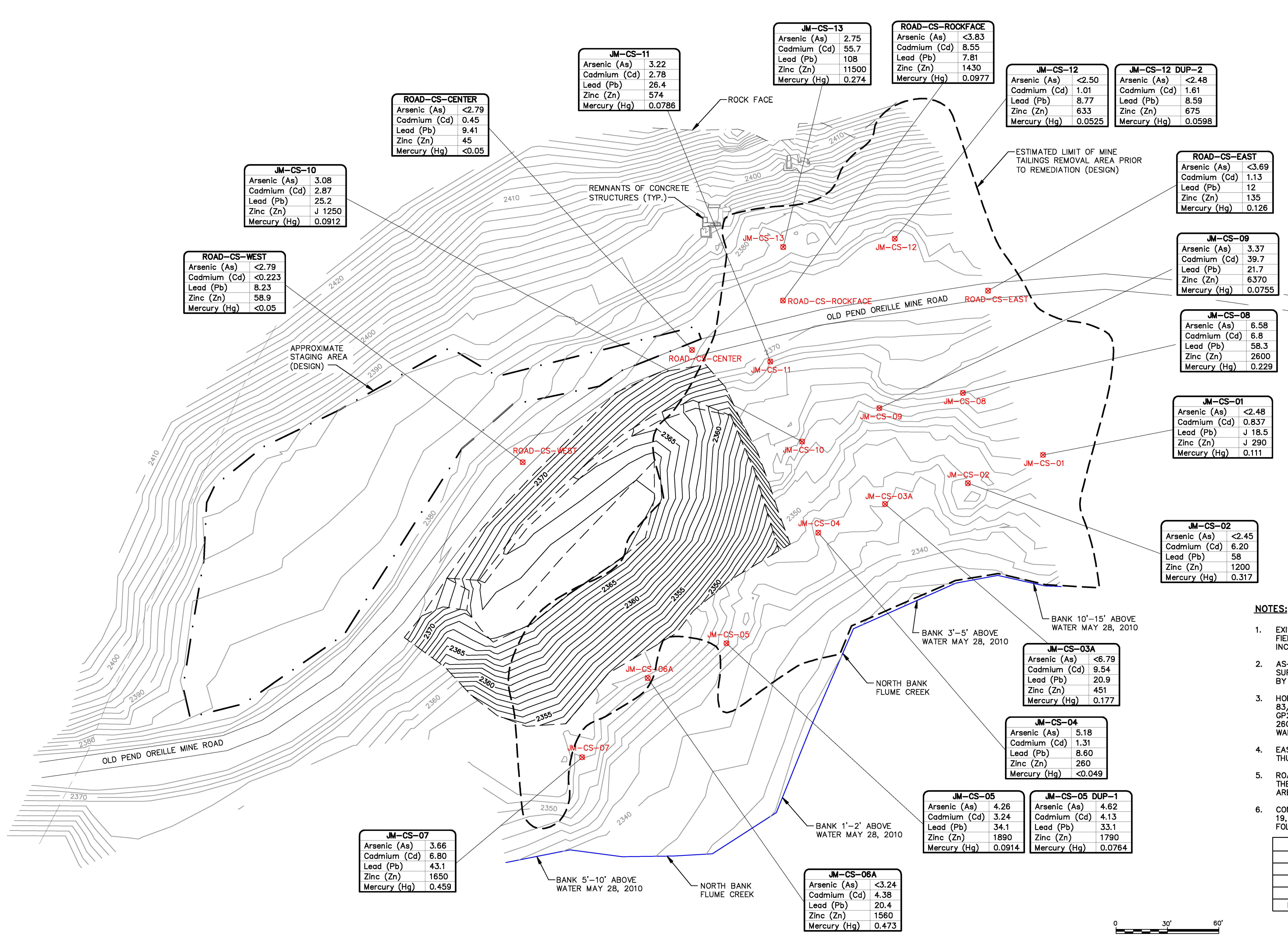
0 30' 60'
GRAPHIC SCALE

STIMSON LUMBER COMPANY
METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

INITIAL SCREENING SAMPLE LOCATIONS

ARCADIS

FIGURE
3



JM-CS-11	
Arsenic (As)	3.22
Cadmium (Cd)	2.78
Lead (Pb)	26.4
Zinc (Zn)	574
Mercury (Hg)	0.0786

JM-CS-13	
Arsenic (As)	2.75
Cadmium (Cd)	55.7
Lead (Pb)	108
Zinc (Zn)	11500
Mercury (Hg)	0.274

ROAD-CS-ROCKFACE	
Arsenic (As)	<3.83
Cadmium (Cd)	8.55
Lead (Pb)	7.81
Zinc (Zn)	1430
Mercury (Hg)	0.0977

JM-CS-12	
Arsenic (As)	<2.50
Cadmium (Cd)	1.01
Lead (Pb)	8.77
Zinc (Zn)	633
Mercury (Hg)	0.0525

JM-CS-12 DUP-2	
Arsenic (As)	<2.48
Cadmium (Cd)	1.61
Lead (Pb)	8.59
Zinc (Zn)	675
Mercury (Hg)	0.0598

ROAD-CS-CENTER	
Arsenic (As)	<2.79
Cadmium (Cd)	0.45
Lead (Pb)	9.41
Zinc (Zn)	45
Mercury (Hg)	<0.05

JM-CS-10	
Arsenic (As)	3.08
Cadmium (Cd)	2.87
Lead (Pb)	25.2
Zinc (Zn)	J 1250
Mercury (Hg)	0.0912

ROAD-CS-WEST	
Arsenic (As)	<2.79
Cadmium (Cd)	<0.223
Lead (Pb)	8.23
Zinc (Zn)	58.9
Mercury (Hg)	<0.05

ROAD-CS-EAST	
Arsenic (As)	<3.69
Cadmium (Cd)	1.13
Lead (Pb)	12
Zinc (Zn)	135
Mercury (Hg)	0.126

JM-CS-09	
Arsenic (As)	3.37
Cadmium (Cd)	39.7
Lead (Pb)	21.7
Zinc (Zn)	6370
Mercury (Hg)	0.0755

JM-CS-08	
Arsenic (As)	6.58
Cadmium (Cd)	6.8
Lead (Pb)	58.3
Zinc (Zn)	2600
Mercury (Hg)	0.229

JM-CS-01	
Arsenic (As)	<2.48
Cadmium (Cd)	0.837
Lead (Pb)	J 18.5
Zinc (Zn)	J 290
Mercury (Hg)	0.111

JM-CS-02	
Arsenic (As)	<2.45
Cadmium (Cd)	6.20
Lead (Pb)	58
Zinc (Zn)	1200
Mercury (Hg)	0.317

JM-CS-03A	
Arsenic (As)	<6.79
Cadmium (Cd)	9.54
Lead (Pb)	20.9
Zinc (Zn)	451
Mercury (Hg)	0.177

JM-CS-04	
Arsenic (As)	5.18
Cadmium (Cd)	1.31
Lead (Pb)	8.60
Zinc (Zn)	260
Mercury (Hg)	<0.049

JM-CS-05	
Arsenic (As)	4.26
Cadmium (Cd)	3.24
Lead (Pb)	34.1
Zinc (Zn)	1890
Mercury (Hg)	0.0914

JM-CS-05 DUP-1	
Arsenic (As)	4.62
Cadmium (Cd)	4.13
Lead (Pb)	33.1
Zinc (Zn)	1790
Mercury (Hg)	0.0764

JM-CS-07	
Arsenic (As)	3.66
Cadmium (Cd)	6.80
Lead (Pb)	43.1
Zinc (Zn)	1650
Mercury (Hg)	0.459

JM-CS-06A	
Arsenic (As)	<3.24
Cadmium (Cd)	4.38
Lead (Pb)	20.4
Zinc (Zn)	1560
Mercury (Hg)	0.473

LEGEND:

- 2370 — EXISTING CONTOUR (2 FOOT INTERVAL) PRIOR TO REMEDIATION
- 2355 — AS-BUILT TOP OF WASTE CONTOUR WITHIN REPOSITORY FOLLOWING REMEDIATION (1 FOOT INTERVAL)
- PROPERTY LINE (APPROXIMATE)
- ESTIMATED LIMIT OF WASTE PRIOR TO REMEDIATION (DESIGN)
- APPROXIMATE STAGING AREA (DESIGN)
- AS-BUILT REPOSITORY GRADE BREAK/LIMIT OF WASTE WITHIN REPOSITORY FOLLOWING REMEDIATION
- JM-CS-08 ⊠ CONFIRMATION SOIL SAMPLE LOCATION (SEE NOTE 6)

NOTES:

1. EXISTING TOPOGRAPHY AND SITE FEATURES WERE OBTAINED FROM A FIELD SURVEY PERFORMED ON MAY 28, 2010 BY RFK LAND SURVEYING, INC. OF SPOKANE, WASHINGTON.
2. AS-BUILT REPOSITORY WASTE TOPOGRAPHY OBTAINED FROM FIELD SURVEYS PERFORMED ON NOVEMBER 8, 2010 AND NOVEMBER 10, 2010 BY ARCADIS.
3. HORIZONTAL COORDINATE SYSTEM IS WASHINGTON STATE PLANE (NAD 83/91) ESTABLISHED FROM GPS OBSERVATIONS OF WADOT MONUMENTS GP26031-25, GP26031-22, F483, AND 2516 22 26 (MONUMENT GP 26031-25 WAS HELD). VERTICAL DATUM IS NAVD88 ESTABLISHED FROM WADOT MONUMENT GP26031-25 (EL. 2519.68 FT).
4. EASTERN PORTION OF REMOVAL AREA WAS NOT INCLUDED IN SURVEY, THUS NO EXISTING TOPOGRAPHY IS SHOWN.
5. ROAD SAMPLE LOCATIONS WERE NOT SURVEYED. LOCATIONS ARE THEREFORE APPROXIMATE AND ELEVATIONS FOLLOWING WASTE REMOVAL ARE NOT KNOWN.
6. CONFIRMATION SOIL SAMPLES WERE OBTAINED BY ARCADIS ON OCTOBER 19, 2010. SAMPLES WERE COLLECTED FROM THE GROUND SURFACE FOLLOWING REMEDIATION. RESULTS REPORTED IN PPM (MG/KG).

ALLOWABLE CONCENTRATIONS	
ARSENIC	20 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)
CADMIUM	80 MG/KG (MTCA METHOD B SOIL CLEANUP LEVEL)
LEAD	250 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)
ZINC	24,000 MG/KG (MTCA METHOD B SOIL CLEANUP LEVEL)
MERCURY	2 MG/KG (MTCA METHOD A SOIL CLEANUP LEVEL)

STIMSON LUMBER COMPANY
METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

CONFIRMATION SAMPLE LOCATIONS

ARCADIS

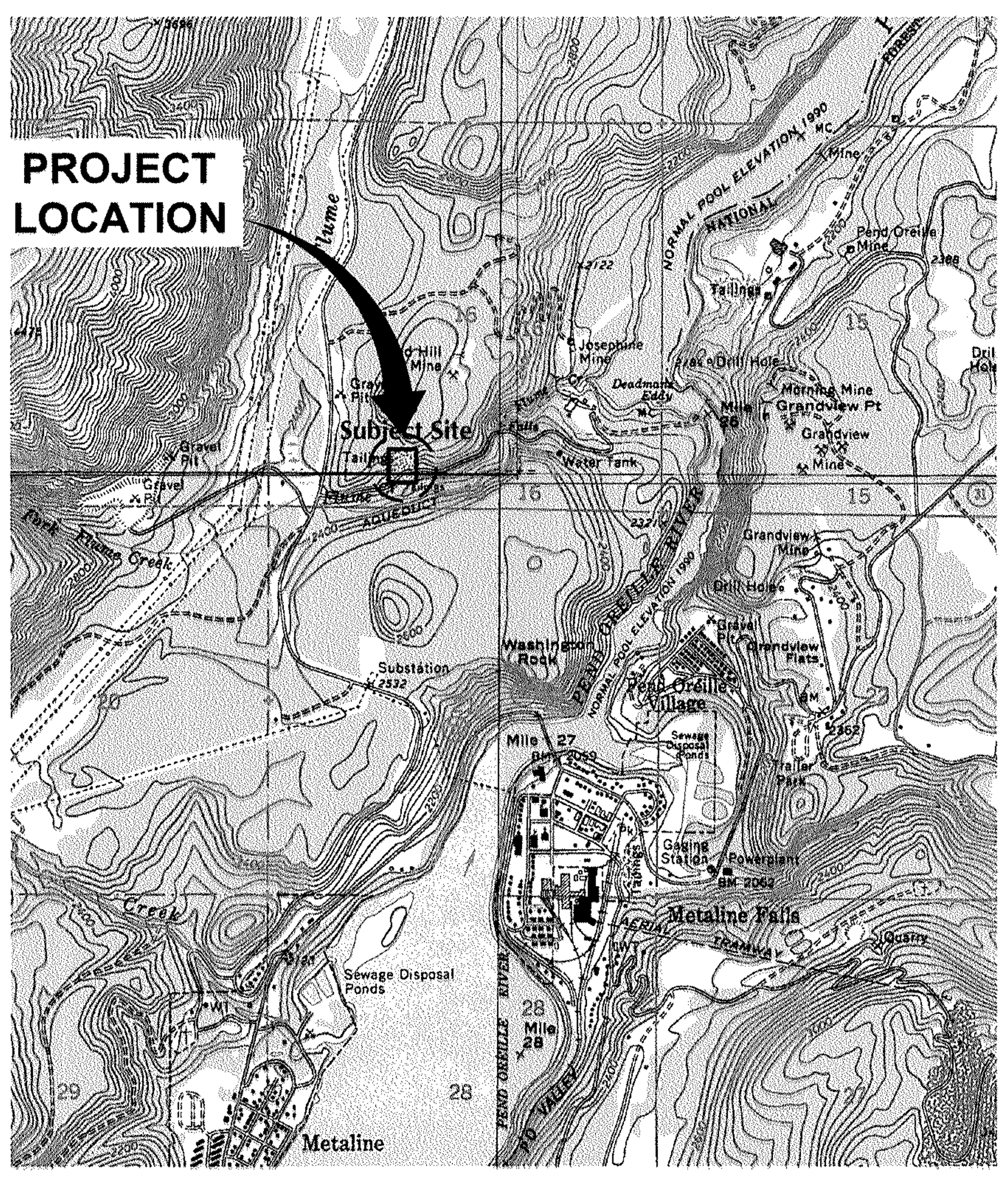
FIGURE
4

Appendix A

Record Drawings

RECORD DRAWINGS

JOSEPHINE MILL NO. 1
REMOVAL ACTION DESIGN

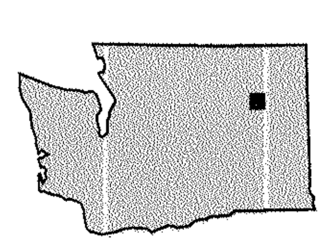


REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE., ABERCROMBIE MTN, WA 1992, METALINE, WA 1992, BOUNDARY DAM, WA 1992, METALINE FALLS, WA 1886

LOCATION MAP

0 2000' 4000'

GRAPHIC SCALE



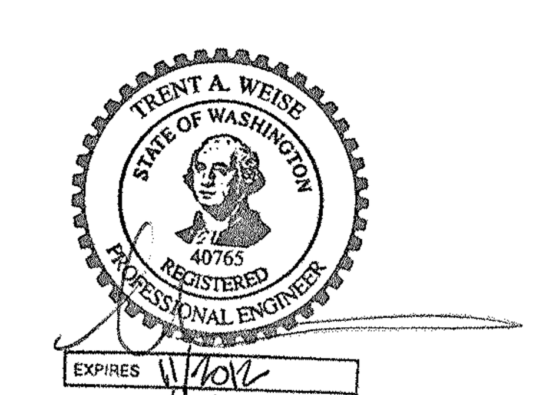
AREA LOCATION

DATE ISSUED / DATE REVISED
FEBRUARY 2012

STIMSON LUMBER COMPANY
METALINE FALLS, WASHINGTON

ARCADIS

ARCADIS U.S., INC.



KEY CONTACTS:

PROJECT SITE:
STIMSON LUMBER CO.
ON OLD PEND OREILLE MINE RD
NEAR BOUNDARY DAM RD.
METALINE FALLS, WA 99153
TELEPHONE: 503.357.2131
CONTACT: STEVEN PETRIN

OWNER:
STIMSON LUMBER CO.
CORPORATE ENVIRONMENTAL MANAGER
520 SW YAMHILL STREET, STE 700
PORTLAND, OR 97204
CONTACT: STEVEN PETRIN

ENGINEER:
ARCADIS
2310 N. MOLTER RD., STE. 101
LIBERTY LAKE, WA 99019
TELEPHONE: 315.671.9445
CONTACT: BRIAN M. STONE

SURVEYOR:
RFK LAND SURVEYING INC.
1420 WEST GARLAND AVE.
SPOKANE, WA 99205
TELEPHONE: 509.324.7861
CONTACT: RUDY F. KITZAN, PLS

INDEX TO DRAWINGS

CITY:DETROIT DIV/GROUP:WR DB: LD: PIC: PM: TM: LYR:ON=*;OFF=*REF* G:\PROJECT_Project Stuff\CLAIR\SK030179.0001 (STIMSON LUMBER)\Drawing\AS-BUILT 1-2012\COVER-AB.dwg LAYOUT: LAYOUT1 SAVED: 2/22/2012 1:22 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ACS-MONO-IMPERIAL-STB.STB PLOTTED: 2/22/2012 1:36 PM BY: DAVIS, GLENN II

CITY: SYRACUSE, NY DIV/GROUP: ENVCAD DB: N SMITHGALL LD: N SMITHGALL PIC: PM: TM: LYR:ON=*;OFF=*REF, |TEXT, |GRID, |WATER-EDGE, |WATER-HATCH, |BORING, |P-OU-ACEL-SUBV4A, |SUB-P-CONTOUR, |SUB-P-GRADEBREAK
SAVED: 2/22/2012 1:17 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/22/2012 1:26 PM BY: DAVIS, GLENN II

XREFS: IMAGES: PROJECTNAME:
30179X02
30179X01
BDR-C-LD
Existing contours-RE
Existing repository grading-RE
AS-BUILT SECTION TRACE

LEGEND:

2370 (thin line)	PREVIOUSLY EXISTING CONTOUR (2 FOOT INTERVAL) PRIOR TO REMEDIATION
2355 (heavy line)	AS-BUILT TOP OF WASTE CONTOUR WITHIN REPOSITORY FOLLOWING REMEDIATION (1 FOOT INTERVAL)
— - - —	PROPERTY LINE (APPROXIMATE)
— — —	AS-BUILT REPOSITORY GRADE BREAK/LIMIT OF WASTE WITHIN REPOSITORY FOLLOWING REMEDIATION

NOTES:

1. PREVIOUSLY EXISTING TOPOGRAPHY AND SITE FEATURES WERE OBTAINED FROM A FIELD SURVEY PERFORMED ON MAY 28, 2010 BY RFK LAND SURVEYING, INC. OF SPOKANE, WASHINGTON.
2. AS-BUILT REPOSITORY WASTE TOPOGRAPHY OBTAINED FROM FIELD SURVEYS PERFORMED ON NOVEMBER 8, 2010 AND NOVEMBER 10, 2010 BY ARCADIS.
3. HORIZONTAL COORDINATE SYSTEM IS WASHINGTON STATE PLANE (NAD 83/91) ESTABLISHED FROM GPS OBSERVATIONS OF WADOT MONUMENTS GP26031-25, GP26031-22, F483, AND 2516 22 26 (MONUMENT GP 26031-25 WAS HELD). VERTICAL DATUM IS NAVD88 ESTABLISHED FROM WADOT MONUMENT GP26031-25 (EL. 2519.68 FT).

0 30' 60'
GRAPHIC SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE
Professional Engineer's No.: WA 40765

State	Date Signed	Project Mgr.
WA	2/13/12	PAL
Designed by	Drawn by	Checked by
BMS	GAD	BMS

TRENT A. WEISE — STATE OF WASHINGTON — 40765 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/4/12

ARCADIS
ARCADIS U.S., INC.

STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

CONSOLIDATION GRADING PLAN

CIVIL

ARCADIS Project No.
SK030179.0001

Date
FEBRUARY 2012

ARCADIS
2310 N. MOLTER RD., STE 101
LIBERTY LAKE, WA 99019
TEL. 509.535.7225

C-01

LEGEND:

- 2370 — PREVIOUSLY EXISTING CONTOUR (2 FOOT INTERVAL)
- 2355 — POST-REMEDIATION AS-BUILT CONTOUR (1 FOOT INTERVAL)
- PROPERTY LINE (APPROXIMATE)
- MILL STRUCTURE REMNANTS
- RENO MATTRESS OVERLAID WITH MACMAT R6 AND STRAW MESH FABRIC
- 10"-12"x30' LONG LOGS (EROSION CONTROL/SECURITY BARRIERS)
- PERMANENT TURF REINFORCEMENT MAT
- ROCK RIP RAP, 8" SIZE AND LARGER
- ROCK RIP RAP, 3"-6" SIZE
- SLASH PILE (EROSION CONTROL MEASURES)
- APPROXIMATE TREE LINE
- CO — 6" CORRUGATED PLASTIC CLEAN OUT PIPE WITH COVER
- OF — 6" CORRUGATED PLASTIC OUTFALL PIPE NO COVER
- LARGE BOULDER
- NT — NO TRESPASSING SIGN

NOTES:

1. PREVIOUSLY EXISTING TOPOGRAPHY AND SITE FEATURES OUTSIDE LIMIT OF POST-REMEDIATION AS-BUILT SURVEY WERE OBTAINED FROM A FIELD SURVEY PERFORMED ON MAY 28, 2010 BY RFK LAND SURVEYING, INC. OF SPOKANE, WASHINGTON.
2. POST-REMEDIATION AS-BUILT TOPOGRAPHY AND SITE FEATURES OBTAINED FROM A FIELD SURVEY PERFORMED IN OCTOBER 2011 BY RFK LAND SURVEYING, INC. OF SPOKANE WASHINGTON.
3. HORIZONTAL COORDINATE SYSTEM IS WASHINGTON STATE PLANE (NAD 83/91) ESTABLISHED FROM GPS OBSERVATIONS OF WADOT MONUMENTS GP26031-25, GP26031-22, F483, AND 2516 22 26 (MONUMENT GP 26031-25 WAS HELD). VERTICAL DATUM IS NAVD88 ESTABLISHED FROM WADOT MONUMENT GP26031-25 (EL. 2519.68 FT).
4. TOPSOIL WAS INSTALLED ACROSS THE REPOSITORY AND REMOVAL AREAS THAT WERE BEYOND LIMITS OF REPOSITORY.
5. ROAD WAS RECONSTRUCTED BY PLACING ROAD BASE MATERIAL TO THE APPROXIMATE EXTENTS OF THE PRE-EXISTING ROAD. ROAD BASE THICKNESS VARIED DEPENDING ON LOCATION.
6. STAGING AREA WAS STABILIZED BY FINE-GRADING TOPSOIL ACROSS DISTURBED PORTIONS AND SEEDING.
7. ALL TOPSOILED AREAS AND OTHER PREVIOUSLY VEGETATED AREAS THAT WERE DISTURBED BY CONSTRUCTION ACTIVITIES WERE SEEDED WITH NATIVE GRASS.

0 30' 60'
GRAPHIC SCALE

XREFS: BDR-C-LD 30179X01 AS-BUILT SECTION TRACE
IMAGES:
PROJECTNAME:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name		
TRENT A. WEISE		
Professional Engineer's No.		
WA 40765		
State: WA	Date Signed: 2/23/12	Project Mgr.: PAL
Designed by: BMS	Drawn by: GAD	Checked by: BMS

TRENT A. WEISE · STATE OF WASHINGTON · 40765 · REGISTERED PROFESSIONAL ENGINEER
EXPIRES 11/4/2012

ARCADIS
ARCADIS U.S., INC.

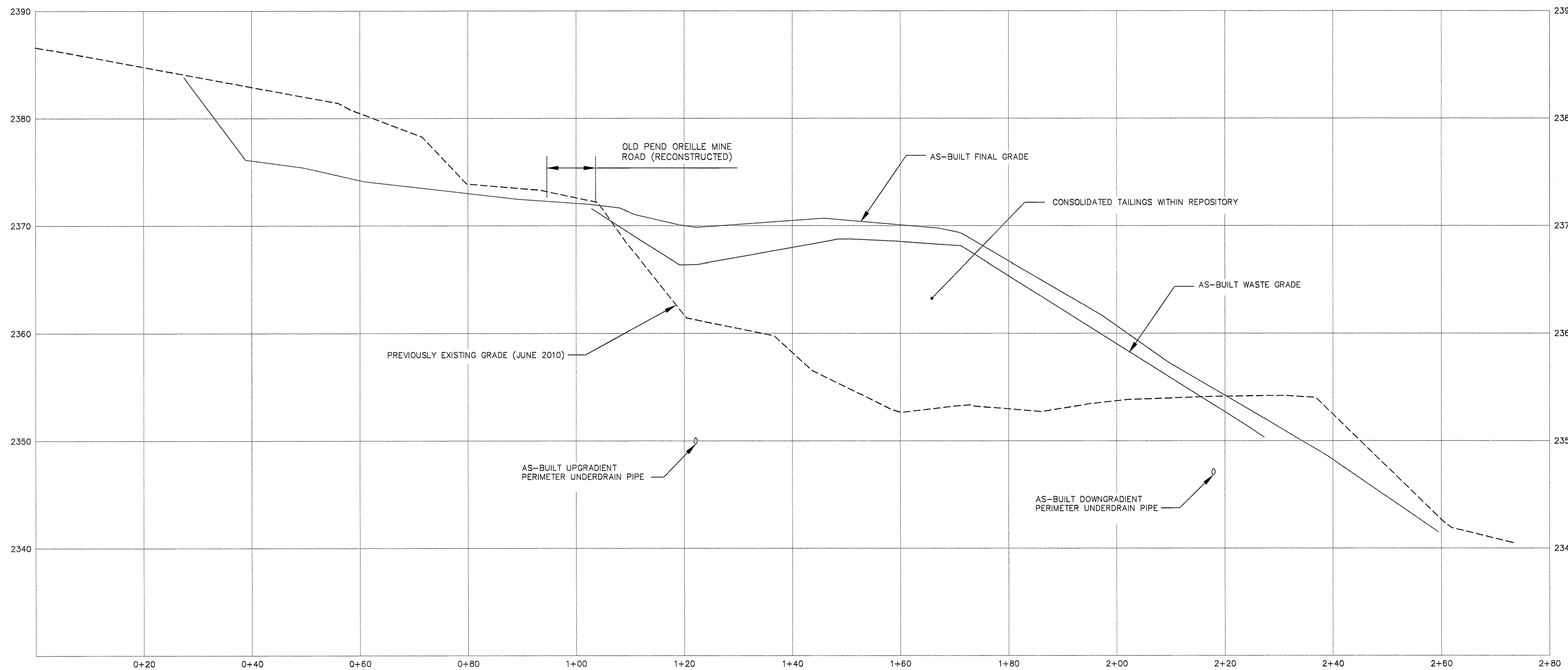
STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

AS-BUILT FINAL GRADING PLAN

CIVIL

ARCADIS Project No. SK030179.0001
Date FEBRUARY 2012
ARCADIS 2310 N. MOLTER RD., STE 101 LIBERTY LAKE, WA 99019 TEL. 509.535.7225

C-02



1 / C-03 SECTION

0 10' 20' HORIZONTAL GRAPHIC SCALE

0 5' 10' VERTICAL GRAPHIC SCALE

XREFS: BDR-C-LD IMAGES: PROJECTNAME:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE
Professional Engineer's No.: WA 40765

State	Date Signed	Project Mgr.
WA	2/13/12	PAL
Designed by	Drawn by	Checked by
BMS	GAD	BMS

TRENT A. WEISE STATE OF WASHINGTON 40765 REGISTERED PROFESSIONAL ENGINEER EXPIRES 1/4/12

ARCADIS

ARCADIS U.S., INC.

STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

CROSS SECTION

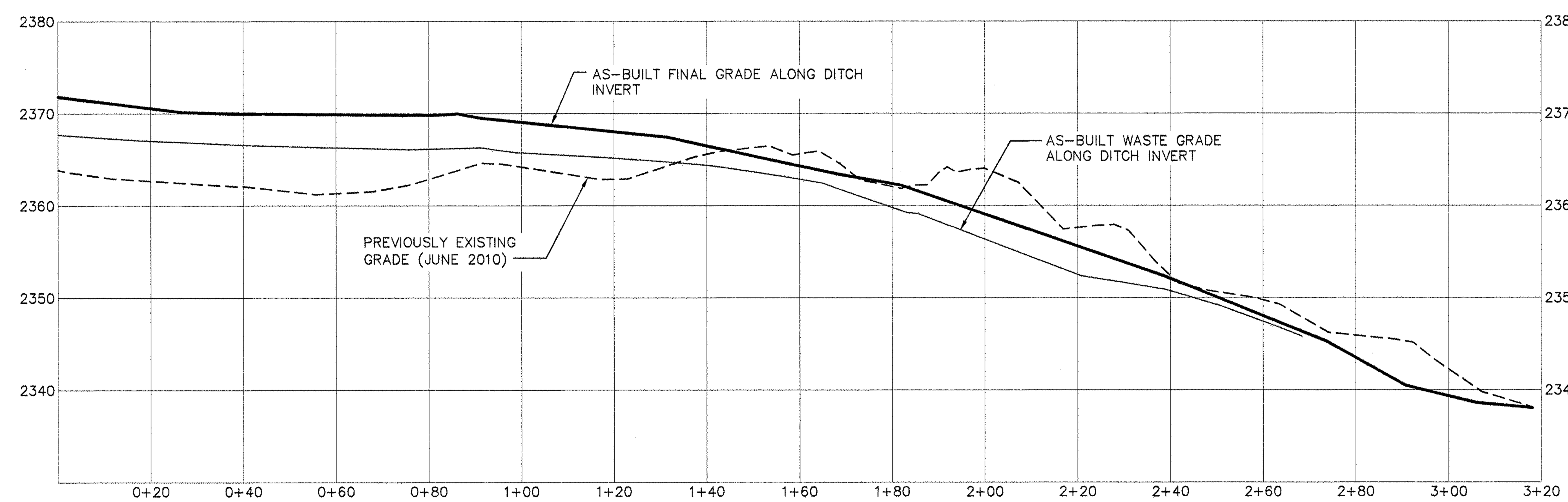
CIVIL

ARCADIS Project No. SK030179.0001

Date FEBRUARY 2012

ARCADIS
2310 N. MOLTER RD., STE 101
LIBERTY LAKE, WA 99019
TEL. 509.535.7225

C-03



1 / C-02 **DITCH PROFILE**

XREFS: BDR-C-LD IMAGES: PROJECTNAME:

0 20' 40' HORIZONTAL GRAPHIC SCALE

0 10' 20' VERTICAL GRAPHIC SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE
Professional Engineer's No.: WA 40765
State: WA | Date Signed: 2/23/12 | Project Mgr.: PAL
Designed by: BMS | Drawn by: GAD | Checked by: BMS

TRENT A. WEISE STATE OF WASHINGTON 40765 REGISTERED PROFESSIONAL ENGINEER EXPIRES 11/2012

ARCADIS
ARCADIS U.S., INC.

STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

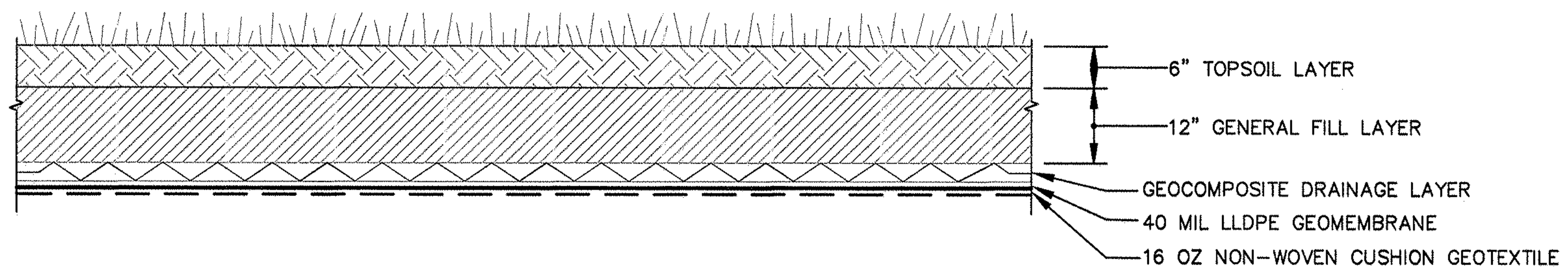
DITCH PROFILE

CIVIL

ARCADIS Project No. SK030179.0001
Date FEBRUARY 2012

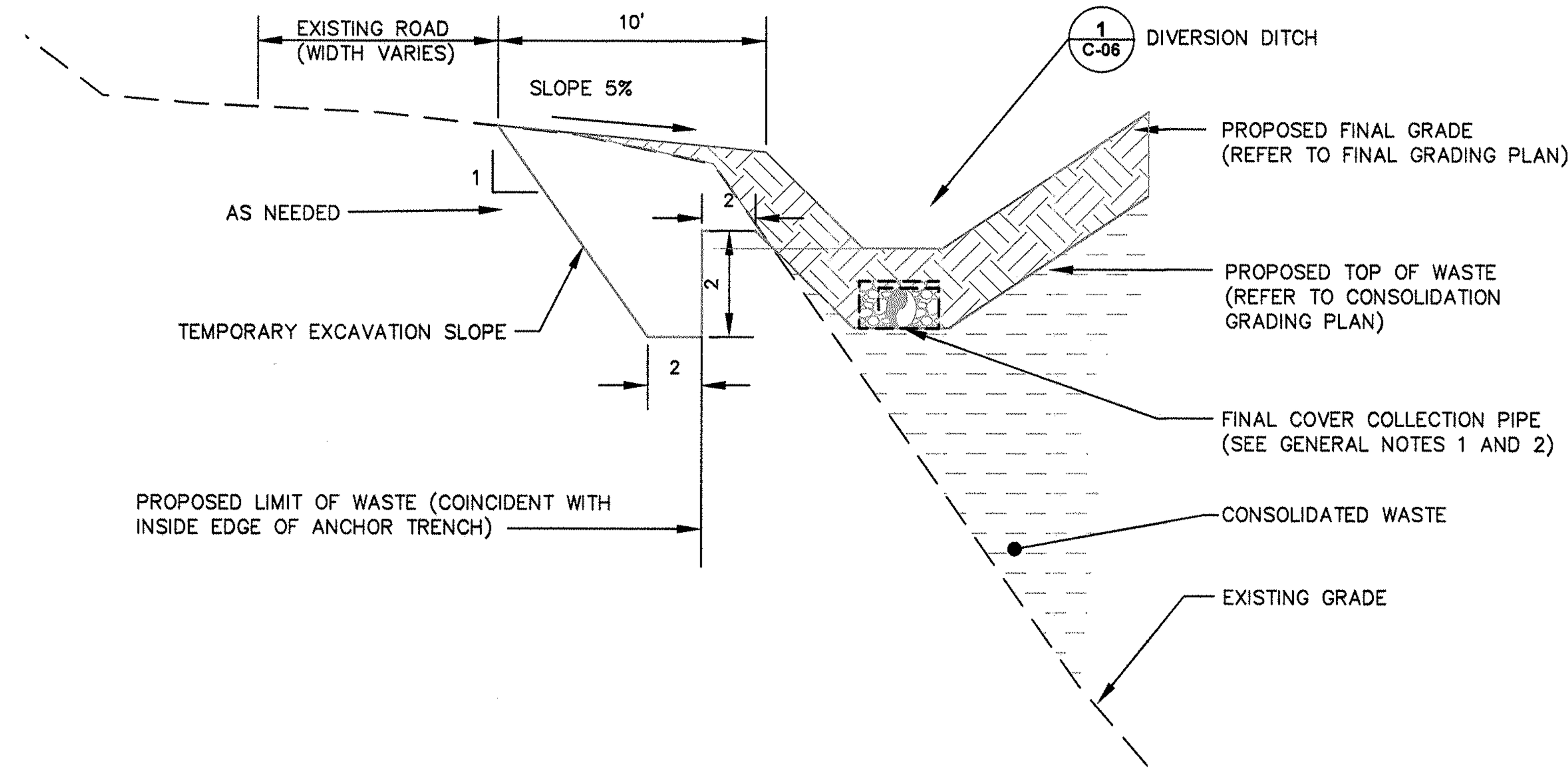
ARCADIS
2310 N. MOLTER RD., STE 101
LIBERTY LAKE, WA 99019
TEL. 509.535.7225

C-04



FINAL COVER SYSTEM (1)

NOT TO SCALE



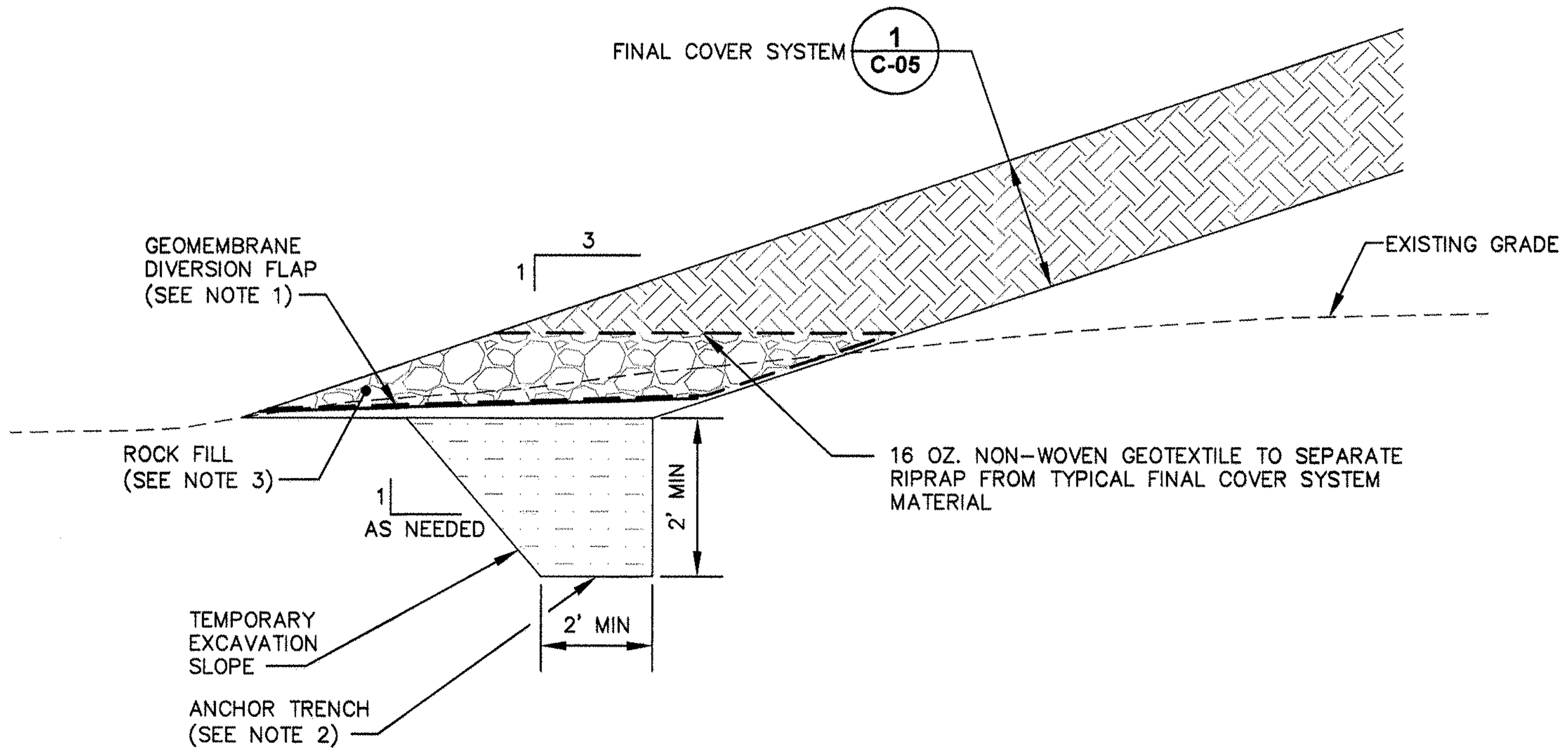
FINAL COVER TERMINATION (ROAD EDGE) (2)

0 5' 10' HORIZONTAL GRAPHIC SCALE

0 2.5 5' VERTICAL GRAPHIC SCALE

GENERAL NOTES:

1. FINAL COVER COLLECTION PIPE SHALL BE INSTALLED WHEREVER FINAL COVER SYSTEM TERMINATES ADJACENT TO PERIMETER DITCH.
2. FINAL COVER COLLECTION PIPE SHALL CONSIST OF 6" DIA PERFORATED CORRUGATED SMOOTH-BORE HDPE. PIPE SHALL BE N-12 AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS OR EQUAL. PIPE SHALL BE SURROUNDED WITH PEA STONE AND WRAPPED WITH 8 OZ. NON-WOVEN GEOTEXTILE.
3. ANCHOR TRENCH SHALL RECEIVE NON-WOVEN CUSHION GEOTEXTILE, GEOMEMBRANE, AND GEOCOMPOSITE DRAINAGE LAYER.

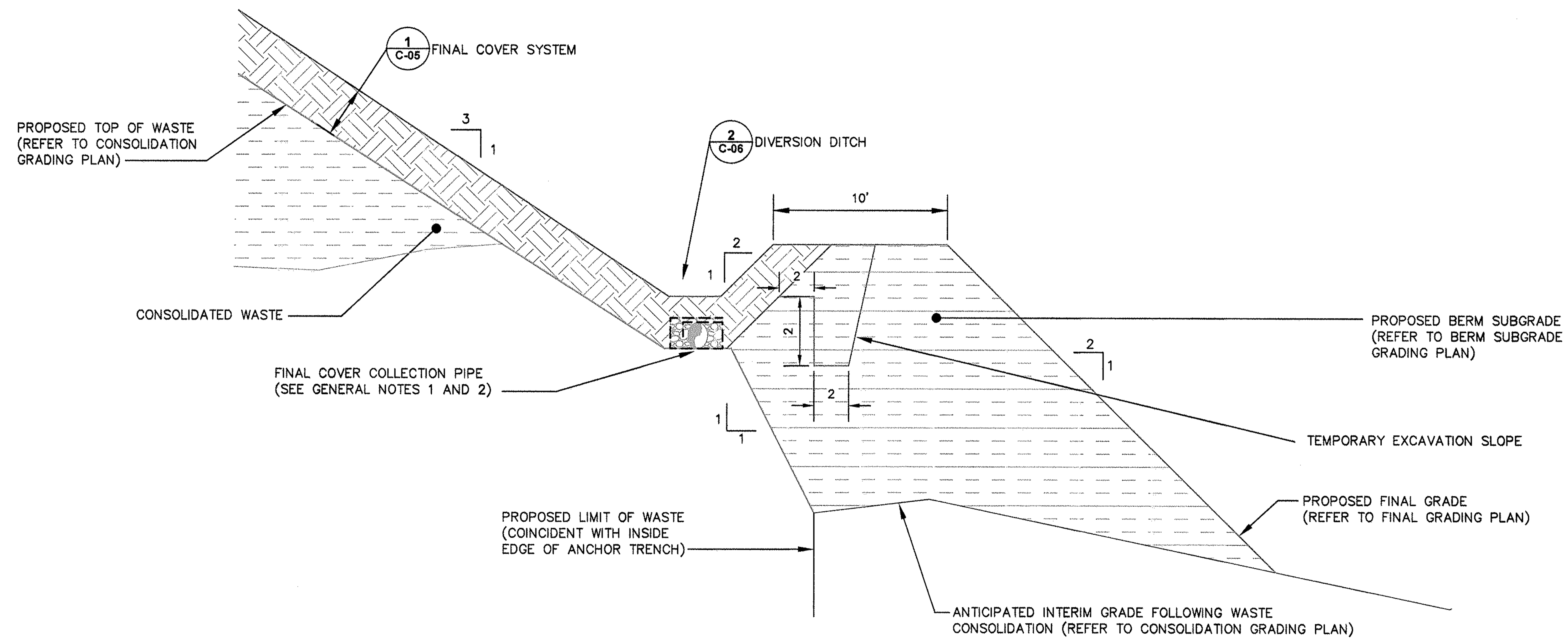


NOTES:

1. GEOMEMBRANE DIVERSION FLAP SHALL BE WELDED TO GEOMEMBRANE OF FINAL COVER SYSTEM AND WILL DIVERT SUBSURFACE DRAINAGE AWAY FROM ANCHOR TRENCH AND OUT TO TOE OF FINAL COVER SYSTEM. GEOCOMPOSITE SHALL LAY ON TOP OF DIVERSION FLAP AND DAYLIGHT AT TOE OF FINAL COVER SLOPE.
2. ANCHOR TRENCH SHALL RECEIVE NON-WOVEN CUSHION GEOTEXTILE AND GEOMEMBRANE. GEOCOMPOSITE SHALL EXTEND ACROSS ANCHOR TRENCH AND DAYLIGHT AT TOE OF FINAL COVER SLOPE. GOECOMPOSITE WILL THEREFORE NOT TERMINATE IN ANCHOR TRENCH WHERE DIVERSION FLAP IS TO BE INSTALLED.
3. ROCK FILL SHALL BE 3 TO 5 INCHES IN SIZE.

FINAL COVER SYSTEM TERMINATION (DOWNGRADIENT EDGE) (3)

NOT TO SCALE



NOTES:

1. TOP AND SIDE SLOPES OF BERM SHALL BE COVERED WITH 6 INCHES OF TOPSOIL.
2. ANCHOR TRENCH SHALL RECEIVE NON-WOVEN CUSHION GEOTEXTILE, GEOMEMBRANE, AND GEOCOMPOSITE DRAINAGE LAYER.

FINAL COVER TERMINATION (WITH BERM) (4)

0 5' 10' HORIZONTAL GRAPHIC SCALE

0 2.5 5' VERTICAL GRAPHIC SCALE

XREFS: BDR-C-LD IMAGES: PROJECTNAME:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE
Professional Engineer's No.: WA 40765

State	Date Signed	Project Mgr.
WA	2/13/12	PAL
Designed by	Drawn by	Checked by
BMS	GAD	BMS

TRENT A. WEISE — STATE OF WASHINGTON — 40765 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/1/12

ARCADIS
ARCADIS U.S., INC.

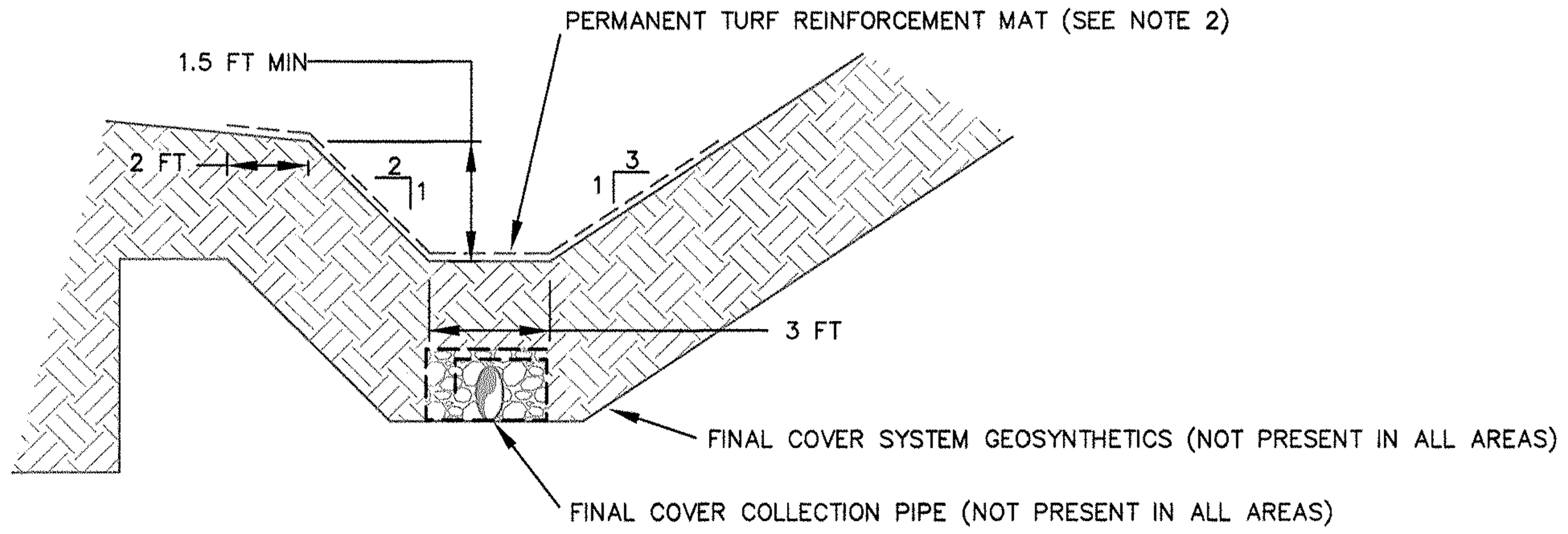
STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

DETAILS

CIVIL

ARCADIS Project No. SK030179.0001
Date FEBRUARY 2012
ARCADIS
2310 N. MOLTER RD., STE 101
LIBERTY LAKE, WA 99019
TEL. 509.535.7225

C-05



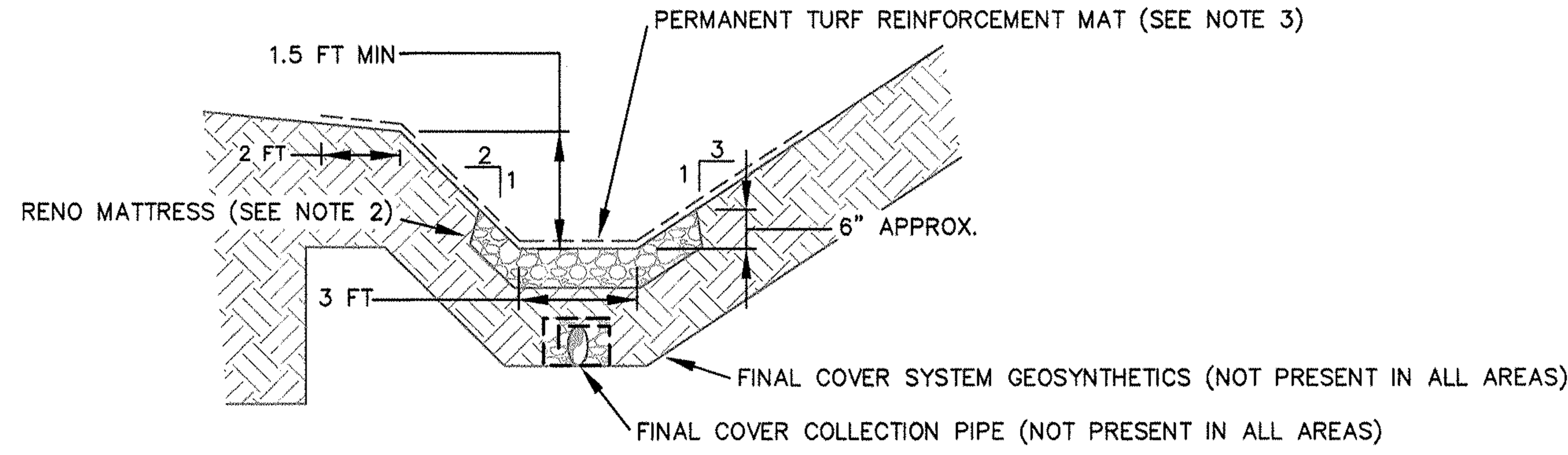
NOTES:

1. THIS DETAIL APPLIES TO ALL PORTIONS OF DIVERSION DITCHES HAVING BED SLOPES LESS THAN OR EQUAL TO 2%.
2. PERMANENT TURF REINFORCEMENT MAT SHALL BE SC250 AS MANUFACTURED BY NORTH AMERICAN GREEN. MAT SHALL BE INSTALLED WITH STAPLES NOT EXCEEDING 12 INCHES IN LENGTH AND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. MAT SHALL EXTEND TO TOP OF DITCH BANK ELEVATION ON REPOSITORY SIDE OF DITCH.

DIVERSION DITCH (TYPICAL, BED SLOPE 2% OR LESS) 1

0 3' 6' 12' HORIZONTAL GRAPHIC SCALE

0 6' 12' 24' VERTICAL GRAPHIC SCALE



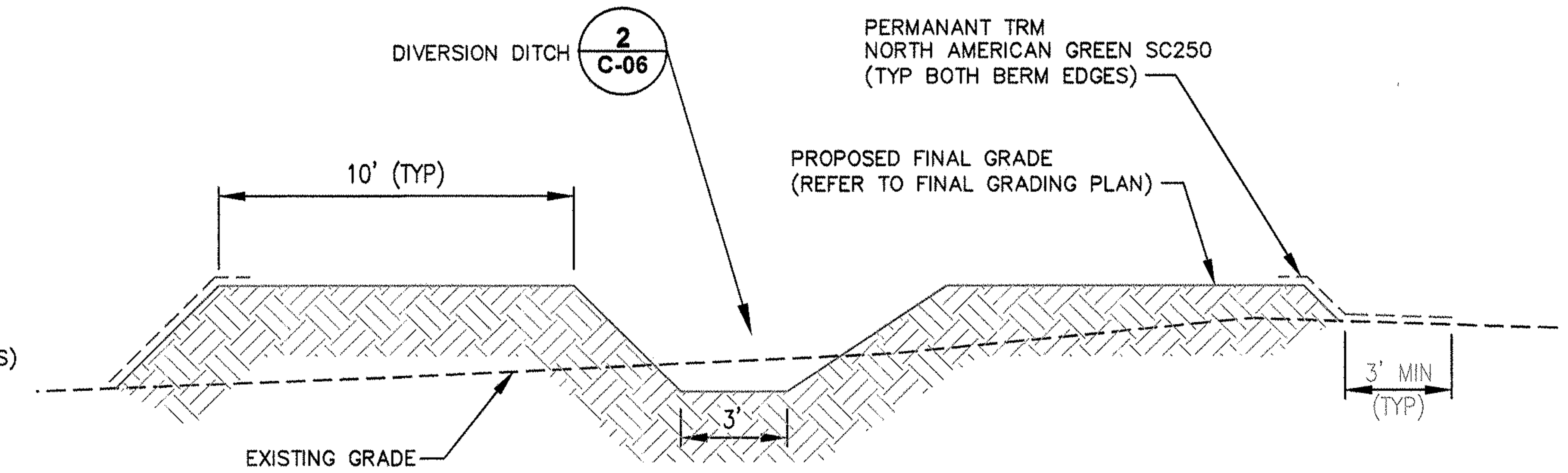
NOTES:

1. THIS DETAIL APPLIES TO ALL PORTIONS OF DIVERSION DITCHES HAVING BED SLOPES GREATER THAN 2%.
2. RENO MATTRESS SHALL BE 6-INCHES-THICK BY 6-FEET-WIDE AND INSTALLED WITH THE LONG AXIS PARALLEL TO THE DITCH FLOW. RENO MATTRESS SHALL BE MANUFACTURED BY MACCAFERRI, INC. MATTRESS SHALL BE UNDERLAIN WITH 16 OZ NON-WOVEN GEOTEXTILE. ROCK FILL SHALL BE 3 TO 5 INCHES AND CONFORM TO ASTM D6711. MATTRESS INSTALLATION SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS.
3. PERMANENT TURF REINFORCEMENT MAT SHALL BE MACMAT R6 AS MANUFACTURED BY MACCAFERRI, INC. MAT SHALL BE INSTALLED CONTINUOUSLY ACROSS RENO MATTRESS AND BE ANCHORED USING 12-INCH-LONG STAPLES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. MAT SHALL EXTEND TO TOP OF DITCH BANK ELEVATION ON REPOSITORY SIDE OF DITCH.

DIVERSION DITCH (TYPICAL, BED SLOPE > 2%) 2

0 3' 6' 12' HORIZONTAL GRAPHIC SCALE

0 6' 12' 24' VERTICAL GRAPHIC SCALE



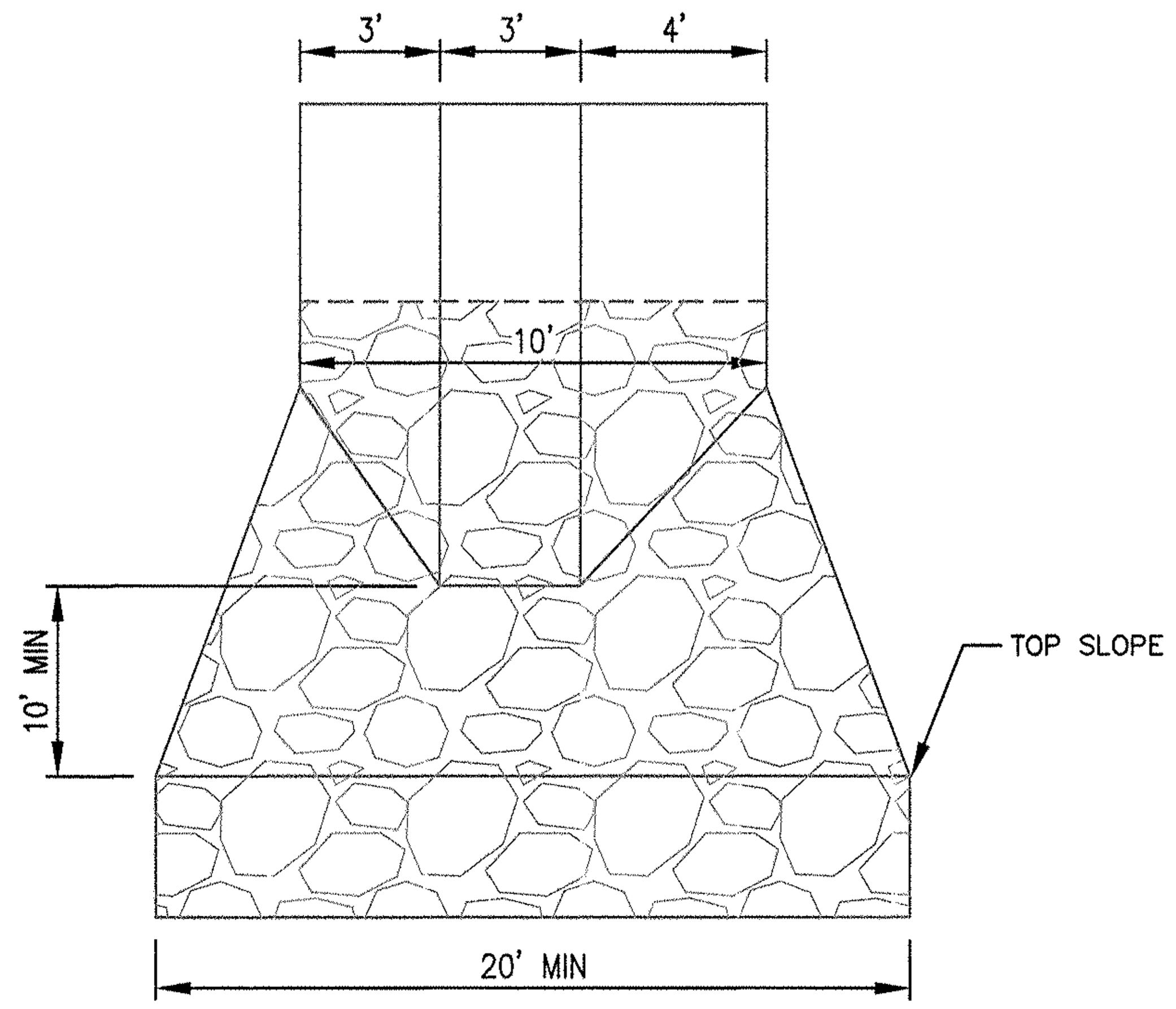
NOTES:

1. THIS DETAIL APPLIES TO PORTIONS OF DIVERSION DITCH BEYOND THE REPOSITORY LIMIT OF WASTE AND WHERE THE DITCH PROFILE REQUIRES FILLING ABOVE EXISTING GRADE.
2. REFER TO TYPICAL DIVERSION DITCH DETAIL ON THIS SHEET FOR DITCH LINING REQUIREMENTS.

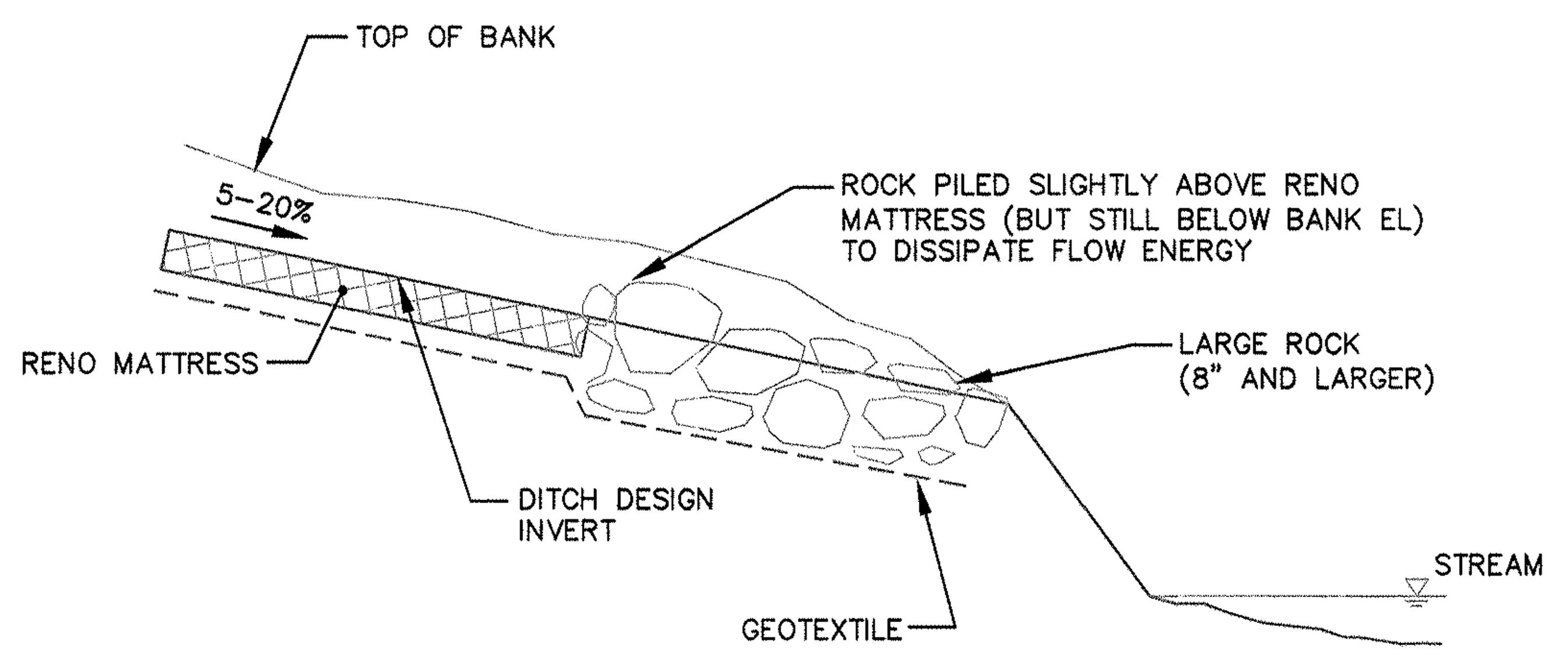
DIVERSION DITCH (FILL AREAS) 3

0 3' 6' 12' HORIZONTAL GRAPHIC SCALE

0 6' 12' 24' VERTICAL GRAPHIC SCALE

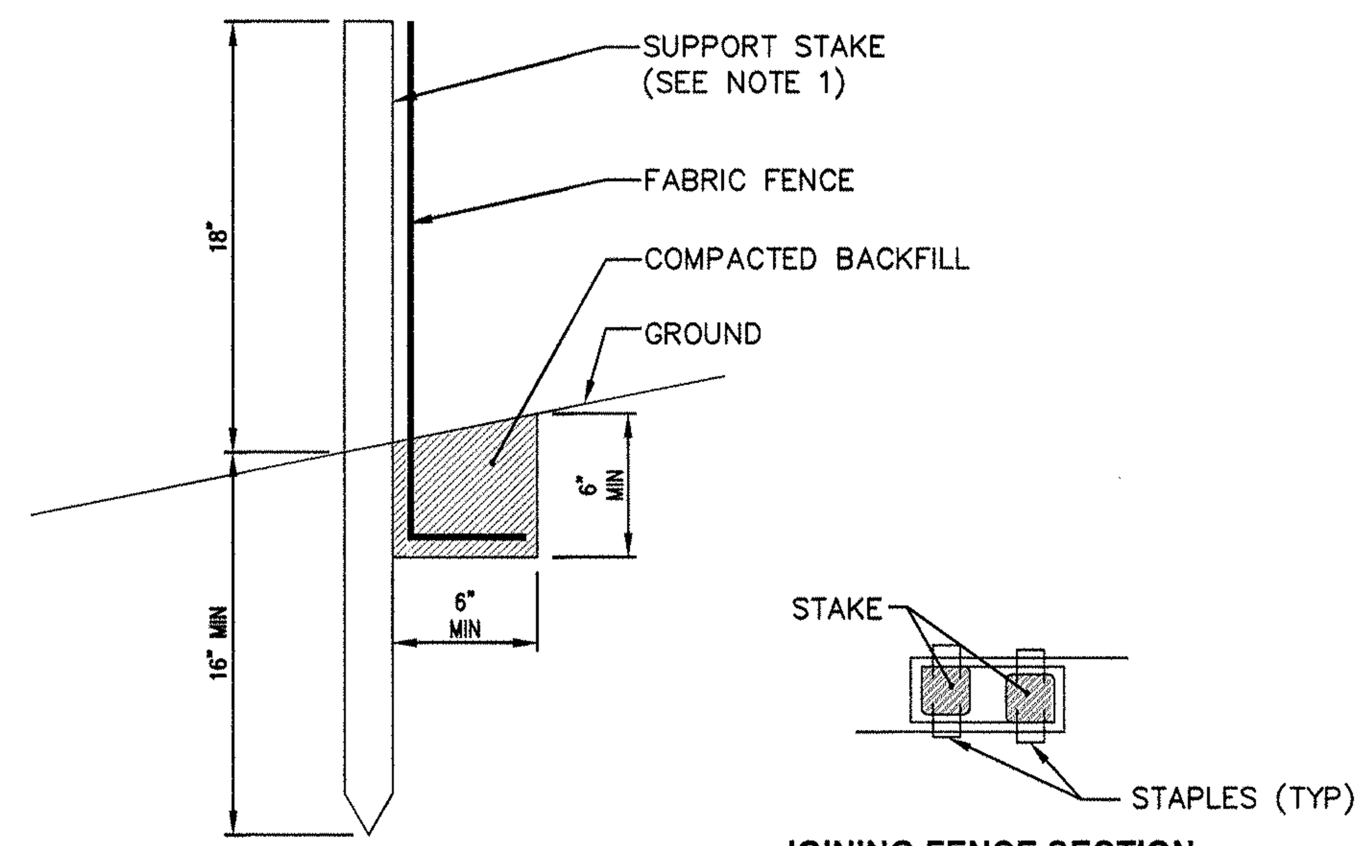


PLAN VIEW



DITCH OUTLET 4

NOT TO SCALE



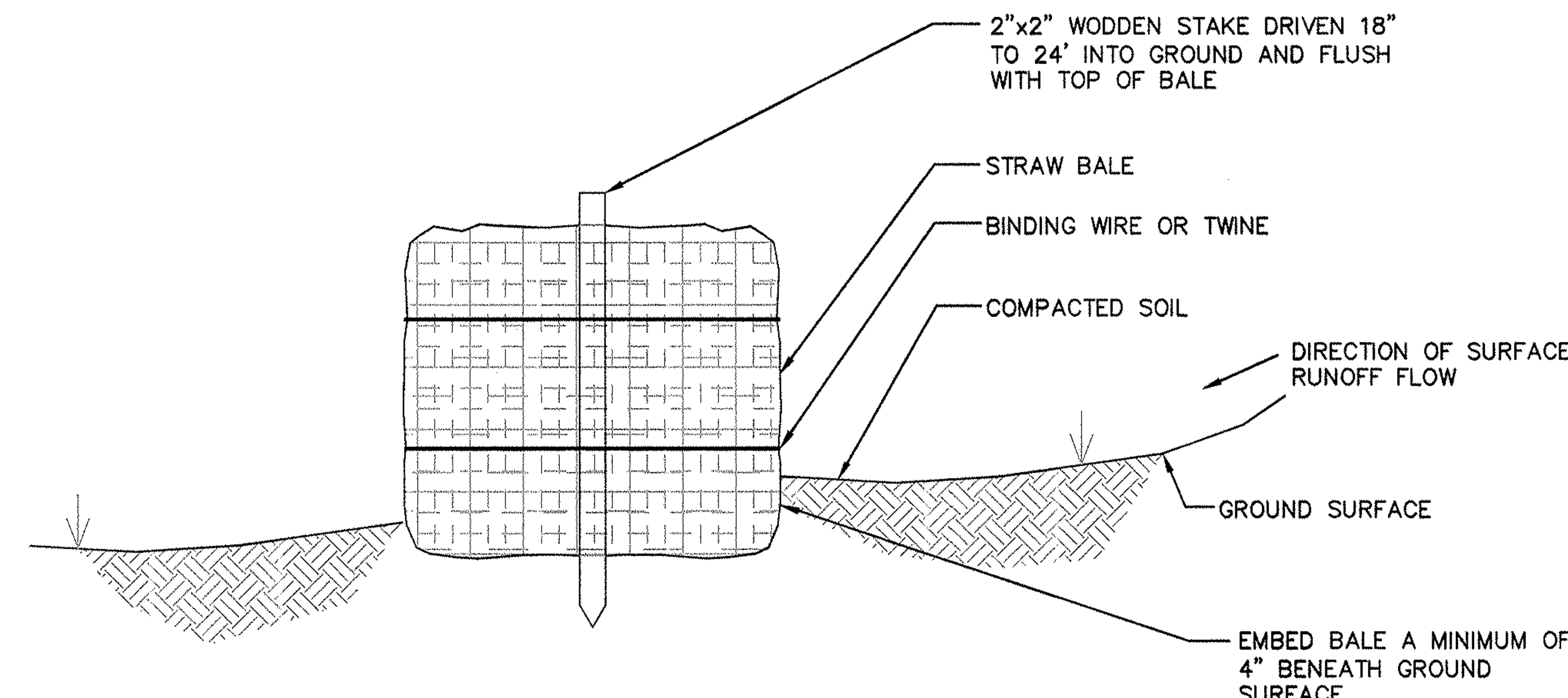
JOINING FENCE SECTION

NOTES:

1. STAKES SPACED AT A MAXIMUM OF 8' APART. USE 2"x2" HARDWOOD STAKES OR EQUIVALENT STEEL STAKES.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT RELATIVELY CONSTANT ELEVATION (I.E., ALONG THE CONTOUR). BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO AVOID FLOW AROUND THE ENDS OF THE BARRIER.
3. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
4. ANY SECTION OF FILTER FABRIC FENCE THAT HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH NEW SILT FENCE OR A ROCK FILTER OUTLET.

TEMPORARY SILT FENCE 5

NOT TO SCALE



STRAW BALE 6

NOT TO SCALE

XREFS: BDR-C-LD IMAGES: PROJECTNAME:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE
Professional Engineer's No.: WA 40765
State: WA | Date Signed: 2/13/12 | Project Mgr.: PAL
Designed by: BMS | Drawn by: GAD | Checked by: BMS

TRENT A. WEISE — STATE OF WASHINGTON — 40765 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/4/2012

ARCADIS
ARCADIS U.S., INC.

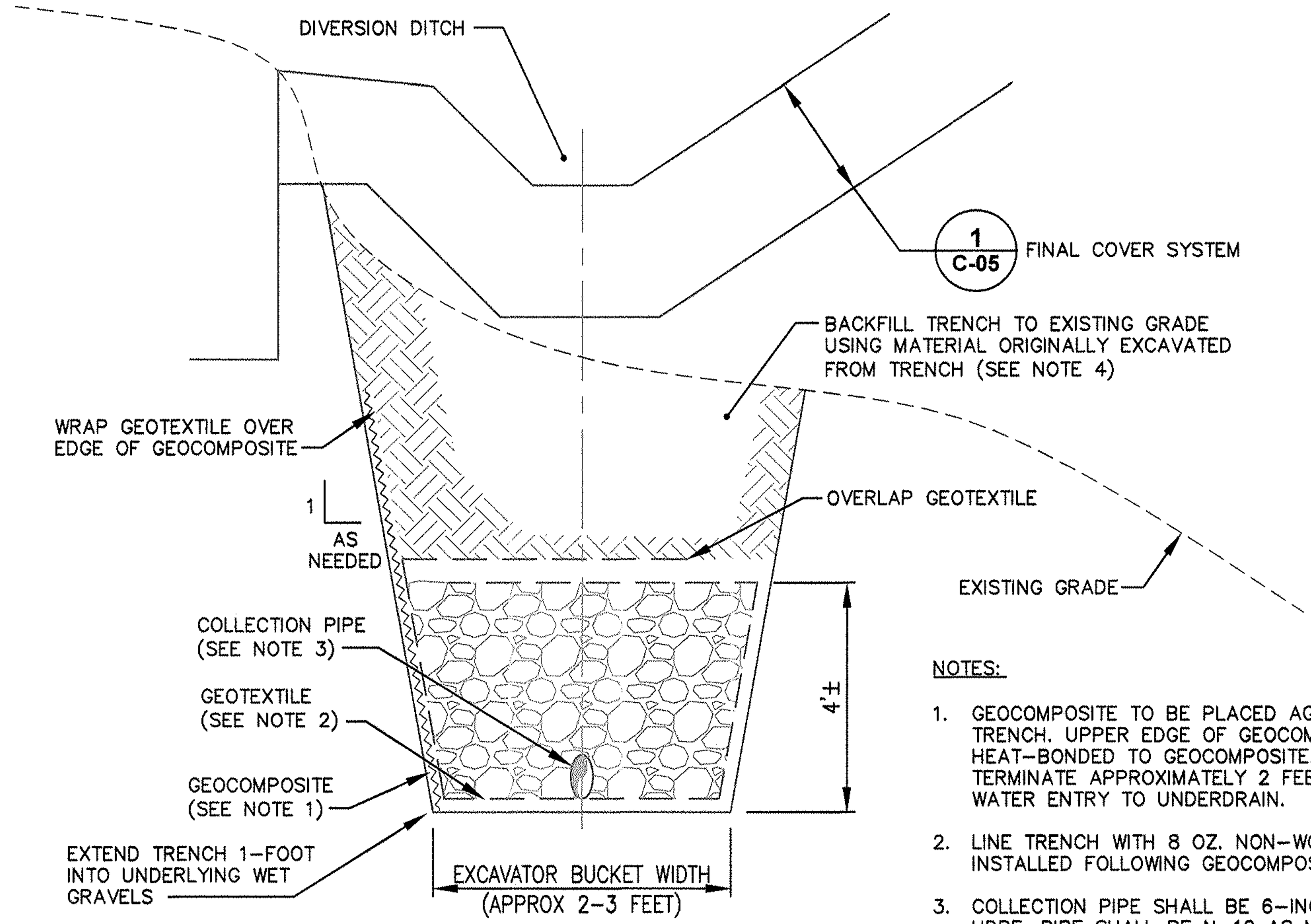
STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

DETAILS

CIVIL

ARCADIS Project No. SK030179.0001
Date FEBRUARY 2012
ARCADIS
2310 N. MOLTER RD., STE 101
LIBERTY LAKE, WA 99019
TEL. 509.535.7225

C-06

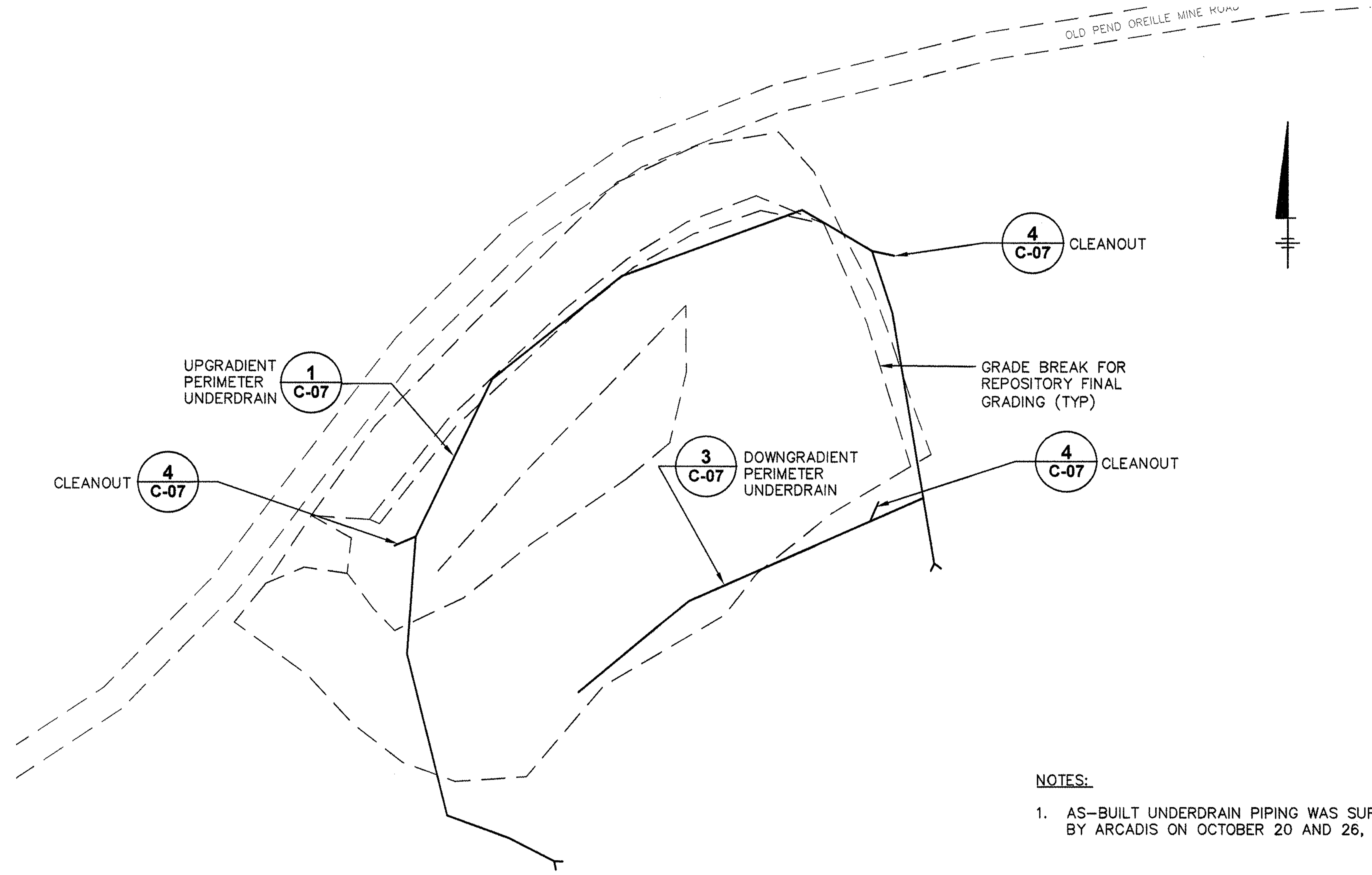


NOTES:

1. GEOCOMPOSITE TO BE PLACED AGAINST UPGRADIENT (OUTSIDE) EDGE OF TRENCH. UPPER EDGE OF GEOCOMPOSITE SHALL BE SEALED WITH GEOTEXTILE HEAT–BONDED TO GEOCOMPOSITE. UPPER EDGE OF GEOCOMPOSITE SHALL TERMINATE APPROXIMATELY 2 FEET BELOW EXISTING GRADE TO REDUCE SURFACE WATER ENTRY TO UNDERDRAIN.
2. LINE TRENCH WITH 8 OZ. NON–WOVEN GEOTEXTILE. GEOTEXTILE SHALL BE INSTALLED FOLLOWING GEOCOMPOSITE INSTALLATION.
3. COLLECTION PIPE SHALL BE 6–INCH–DIAMETER CORRUGATED SMOOTH–BORE HDPE. PIPE SHALL BE N–12 AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL. PIPE SEGMENTS SHALL BE MECHANICALLY JOINED TO RESTRAIN JOINTS FROM PULLING APART DURING INSTALLATION.
4. TRENCH BACKFILL SHALL BE PLACED IN APPROXIMATELY 1–FOOT–THICK LIFTS AND COMPACTED BY EITHER TAMPING WITH EXCAVATOR BUCKET OR RUNNING AN EXCAVATOR–MOUNTED ROLLER OVER THE FILL.

UPGRADIENT PERIMETER UNDERDRAIN (1)

NOT TO SCALE

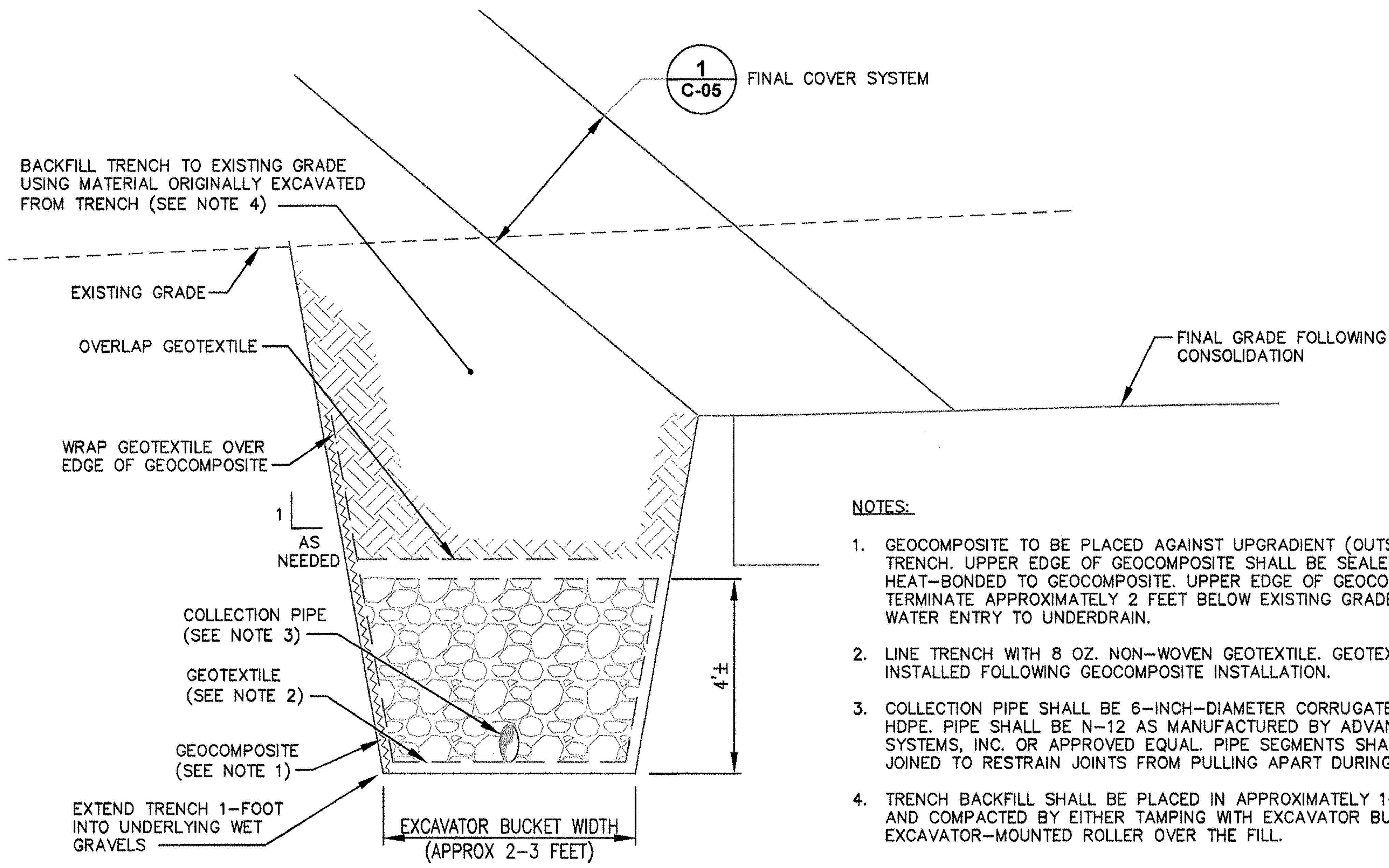


NOTES:

1. AS–BUILT UNDERDRAIN PIPING WAS SURVEYED BY ARCADIS ON OCTOBER 20 AND 26, 2010.

AS-BUILT UNDERDRAIN LAYOUT (2)

0 30' 60'
HORIZONTAL GRAPHIC SCALE

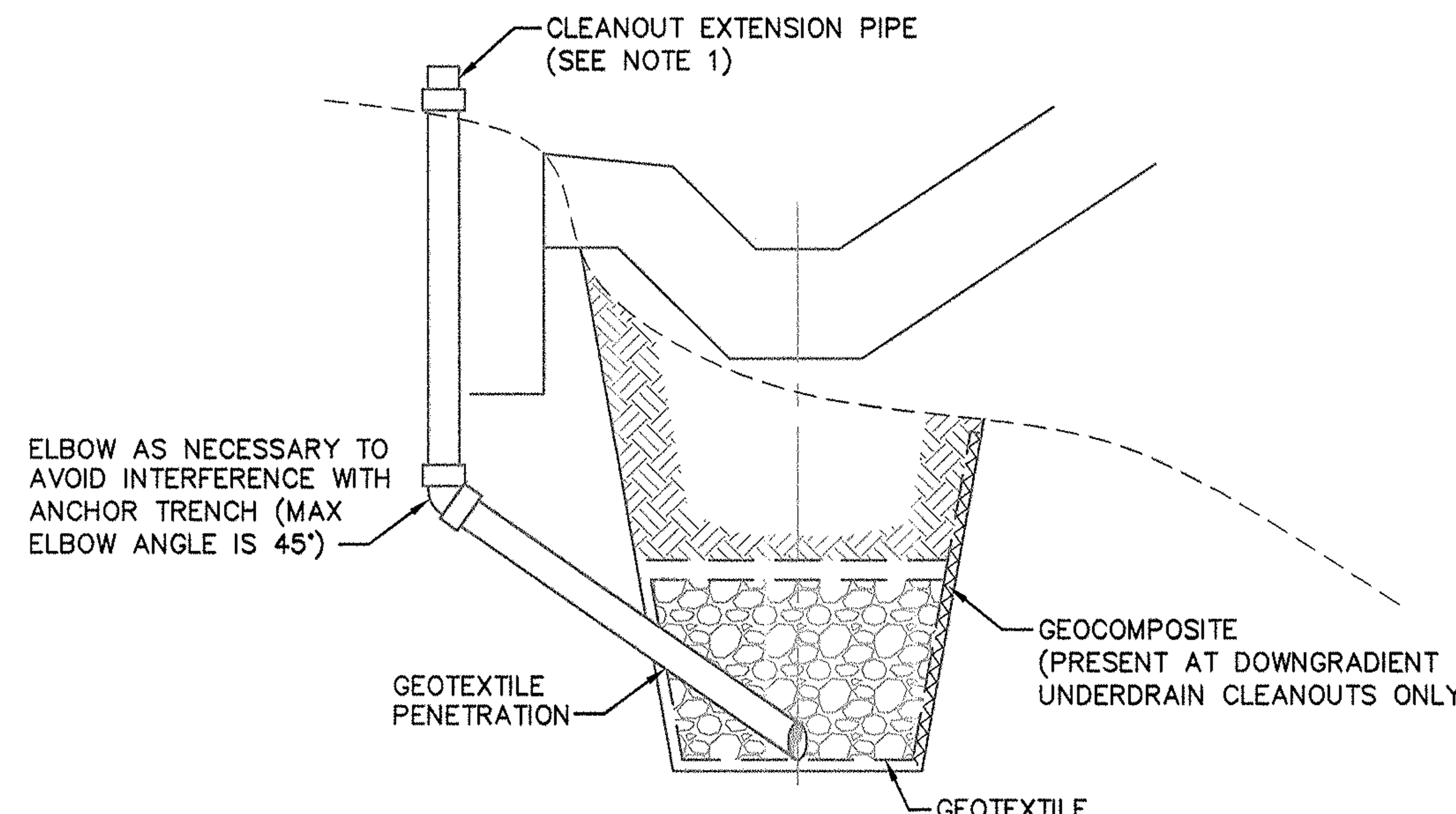


NOTES:

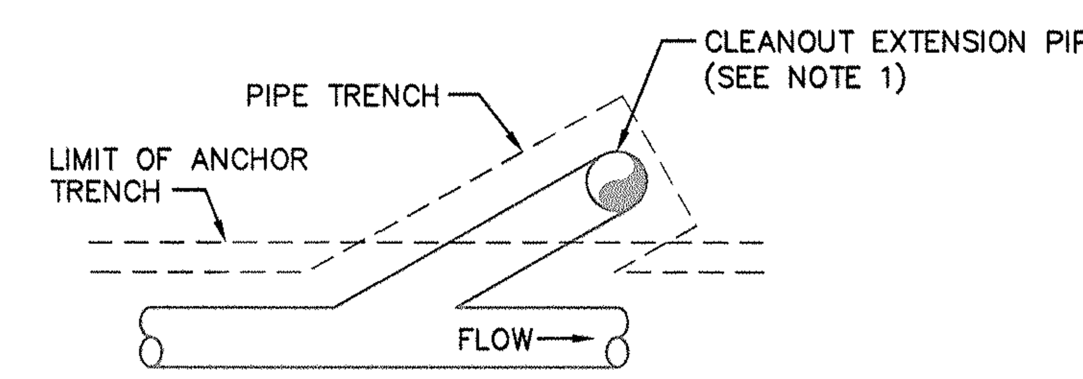
1. GEOCOMPOSITE TO BE PLACED AGAINST UPGRADIENT (OUTSIDE) EDGE OF TRENCH. UPPER EDGE OF GEOCOMPOSITE SHALL BE SEALED WITH GEOTEXTILE HEAT–BONDED TO GEOCOMPOSITE. UPPER EDGE OF GEOCOMPOSITE SHALL TERMINATE APPROXIMATELY 2 FEET BELOW EXISTING GRADE TO REDUCE SURFACE WATER ENTRY TO UNDERDRAIN.
2. LINE TRENCH WITH 8 OZ. NON–WOVEN GEOTEXTILE. GEOTEXTILE SHALL BE INSTALLED FOLLOWING GEOCOMPOSITE INSTALLATION.
3. COLLECTION PIPE SHALL BE 6–INCH–DIAMETER CORRUGATED SMOOTH–BORE HDPE. PIPE SHALL BE N–12 AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL. PIPE SEGMENTS SHALL BE MECHANICALLY JOINED TO RESTRAIN JOINTS FROM PULLING APART DURING INSTALLATION.
4. TRENCH BACKFILL SHALL BE PLACED IN APPROXIMATELY 1–FOOT–THICK LIFTS AND COMPACTED BY EITHER TAMPING WITH EXCAVATOR BUCKET OR RUNNING AN EXCAVATOR–MOUNTED ROLLER OVER THE FILL.

DOWNGRADIENT PERIMETER UNDERDRAIN (3)

NOT TO SCALE



SECTION



PLAN

NOTES:

1. CLEANOUT EXTENSION PIPE SHALL CONSIST OF 6" CORRUGATED, SMOOTH BORE HDPE PIPE (ADS N–12 OR APPROVED EQUAL). CLEANOUT EXTENSION PIPE SHALL NOT BE PERFORATED.
2. REFER TO DETAIL 2 FOR CLEANOUT LOCATIONS.
3. GEOTEXTILE TRENCH LINING SHALL REMAIN CONTINOUS ACROSS CLEANOUT LOCATION. SUGGESTED INSTALLATION TECHNIQUE INCLUDES MECHANICALLY FASTENING A GEOTEXTILE PANEL TO THE CLEANOUT EXTENSION AND OVERLAPPING THE FLAP A MINIMUM OF 1–FOOT OVER THE ADJACENT GEOTEXTILE PANELS IN THE TRENCH.

CLEANOUT DETAIL (4)

NOT TO SCALE

XREFS: BDR-C-LD IMAGES: PROJECTNAME:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: TRENT A. WEISE		
Professional Engineer's No.: WA 40765		
State: WA	Date Signed: 2/23/12	Project Mgr.: PAL
Designed by: BMS	Drawn by: GAD	Checked by: BMS

TRENT A. WEISE · STATE OF WASHINGTON · 40765 · REGISTERED PROFESSIONAL ENGINEER · EXPIRES 11/2012

ARCADIS
ARCADIS U.S., INC.

STIMSON LUMBER COMPANY • METALINE FALLS, WASHINGTON
JOSEPHINE MILL NO. 1 - RECORD DRAWINGS

PERIMETER UNDERDRAIN DETAILS

CIVIL

ARCADIS Project No. SK030179.0001
Date FEBRUARY 2012
ARCADIS 2310 N. MOLTER RD., STE 101 LIBERTY LAKE, WA 99019 TEL. 509.535.7225

C-07

ARCADIS

Appendix B

Sampling Analytical Results

Data Validation Summary
September, October 2010 Soil Monitoring Event
Josephine Mill No. 1 Property
Metaline Falls, Washington

ARCADIS performed a data validation evaluation of the analytical data collected during the Josephine Mill No. 1 Property (the "Site") soil sampling events conducted on September 17, October 19, October 26 and October 27. The data validation evaluation was conducted in accordance with the objectives and specifications in the USEPA approved Site Investigation Work Plan which includes the Field Sampling Plan (FSP) and project Quality Assurance Project Plan (QAPP). Collected soil samples were transported to TestAmerica located in Spokane Valley, Washington in three separate batches on three separate dates as follows:

1. Lab Job ID STI0115 for samples collected on September 17, 2010
2. Lab Job ID STJ0111 for samples collected on October 19, 2010
3. Lab Job ID STJ0169 for samples collected on October 26 and 27, 2010

TestAmerica is a multi-state certified laboratory. The samples were analyzed for the following analytes and methods:

- Arsenic (EPA 6010C)
- Cadmium (EPA 6010C)
- Lead (EPA 6010C)
- Zinc (EPA 6010C)
- Mercury (EPA 7471)

CHAIN OF CUSTODY

Thirty four (34) samples were submitted to TestAmerica for laboratory analysis. Three of those were trip blanks, and two were duplicates. Samples were received by TestAmerica intact and with the proper labeling and chain-of-custody.

The field documentation was complete and chain-of-custody sample transfers were conducted in accordance with the procedures outlined in the QAPP.

HOLDING TIMES

Samples were in compliance with their hold times between sampling, extraction, and analysis. None of the sample results were flagged with qualifiers due to hold time exceedances.

LABORATORY CONTROL

Laboratory control measures (e.g., lab surrogate recovery, duplicate precision, and method blank analysis) were analyzed for all the analytical batches where all the samples were included. All laboratory data are useable for the purpose of this project.

As discussed in the lab reports, zinc was detected in a method blank associated with samples JM-CS-01 through JM-CS-13 inclusive, and corresponding duplicates. However the analyte concentration in each of the samples is greater than ten (10) times the concentration in the method blank. Subsequently the reporting limits and results were not affected.

Several analytical results were J flagged due to non-compliant laboratory control measures as follows:

- Lead and Zinc in JM-CS-01 because the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were above the acceptance limits due to sample matrix interference. Also, the Relative Percent Difference (RPD) for lead in JM-CS-01 laboratory duplicate, exceeded the acceptance limit.

- Zinc in JM-CS-10 because the laboratory replicate analysis yielded an RPD which exceeded the acceptance limit.

FIELD ACCURACY

A total of three trip blanks were included with the two confirmation sample batches. The analytes of interest were not detected in any of the trip blanks.

Duplicate samples were taken and analyzed for each of JM-CS-05 and JM-CS-12. The RPDs for each analyte for each pair of samples were less than 50%. No data was qualified as a result of the duplicate samples.

SUMMARY

A review of the laboratory QC results revealed a few issues which caused the analytical data to be qualified.

Although the temperatures of the coolers exceeded 6°C, the methods for the selected analytes are not affected by temperature. The holding times in 40 CFR § 136.3 Table IIB do not specify a maximum temperature for preservation of samples for these analytes. No samples were J flagged as a result of the elevated temperatures of the samples upon receipt.

Three analytical results were J qualified due to non-compliant duplicate and/or matrix spike percent recoveries

In conclusion, based upon a data validation evaluation, the project data are valid and acceptable for use.

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: STI0115
TestAmerica Sample Delivery Group: STI0115
Client Project/Site: SK030179
Client Project Description: Stimson- Josephine Mill #1

For:
ARCADIS U.S., Inc. - Liberty Lake
2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Attn: Paula Lyon

Authorized for release by:
9/21/2010 1:42 PM

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Table of Contents

Sample Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179

TestAmerica Job ID: STI0115
SDG: STI0115

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
STI0115-01	JM-IS-01	Soil	09/17/10 09:45	09/17/10 16:25
STI0115-02	JM-IS-02	Soil	09/17/10 10:10	09/17/10 16:25
STI0115-03	JM-IS-03	Soil	09/17/10 10:40	09/17/10 16:25
STI0115-04	JM-IS-04	Soil	09/17/10 11:00	09/17/10 16:25
STI0115-05	JM-IS-05	Soil	09/17/10 11:15	09/17/10 16:25
STI0115-06	JM-IS-06	Soil	09/17/10 11:30	09/17/10 16:25
STI0115-07	JM-IS-07	Soil	09/17/10 11:50	09/17/10 16:25
STI0115-08	JM-IS-08	Soil	09/17/10 12:00	09/17/10 16:25
STI0115-09	JM-IS-09	Soil	09/17/10 12:15	09/17/10 16:25
STI0115-10	JM-IS-10	Soil	09/17/10 12:40	09/17/10 16:25

Qualifier Definition/Glossary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179

TestAmerica Job ID: STI0115
SDG: STI0115

Qualifiers

Metals

Qualifier	Qualifier Description
R2	The RPD exceeded the acceptance limit.
R4	Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

Client Sample ID: JM-IS-01

Lab Sample ID: STI0115-01
Date Collected: 09/17/10 09:45
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 91.7

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.70		2.73		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:41	1
Cadmium	3.86		0.218		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:41	1
Lead	161		1.64		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:41	1
Zinc	873		0.545		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:30	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	102		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:34	1

Client Sample ID: JM-IS-02

Lab Sample ID: STI0115-02
Date Collected: 09/17/10 10:10
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 79.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.06		3.15		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:46	1
Cadmium	7.13		0.252		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:46	1
Lead	103		1.89		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:46	1
Zinc	2340		0.631		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:34	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	236		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:36	1

Client Sample ID: JM-IS-03

Lab Sample ID: STI0115-03
Date Collected: 09/17/10 10:40
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 85.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.64		2.91		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:52	1
Cadmium	0.938		0.233		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:52	1
Lead	128		1.75		mg/kg dry	☼	09/20/10 07:43	09/20/10 17:52	1
Zinc	599		0.582		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:39	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	59.0		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:38	1

Client Sample ID: JM-IS-04

Lab Sample ID: STI0115-04
Date Collected: 09/17/10 11:00
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 73.4

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.81		3.41		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:13	1
Cadmium	28.4		0.272		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:13	1
Lead	353		2.04		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:13	1
Zinc	8460		6.81		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:44	10

Client Sample ID: JM-IS-04

Lab Sample ID: STI0115-04
Date Collected: 09/17/10 11:00
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 73.4

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1950		250		ug/kg dry	☼	09/21/10 06:43	09/21/10 12:32	5

Client Sample ID: JM-IS-05

Lab Sample ID: STI0115-05
Date Collected: 09/17/10 11:15
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 78.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.29		3.18		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:18	1
Cadmium	0.750		0.254		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:18	1
Lead	10.6		1.91		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:18	1
Zinc	120		0.636		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:48	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	☼	09/21/10 06:43	09/21/10 11:48	1

Client Sample ID: JM-IS-06

Lab Sample ID: STI0115-06
Date Collected: 09/17/10 11:30
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 78.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.66		3.17		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:24	1
Cadmium	4.34		0.253		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:24	1
Lead	103		1.90		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:24	1
Zinc	1270		0.634		mg/kg dry	☼	09/20/10 07:43	09/21/10 08:53	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	217		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:51	1

Client Sample ID: JM-IS-07

Lab Sample ID: STI0115-07
Date Collected: 09/17/10 11:50
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 86.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.73		2.89		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:30	1
Cadmium	4.89		0.231		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:30	1
Lead	103		1.73		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:30	1
Zinc	1860		0.577		mg/kg dry	☼	09/20/10 07:43	09/21/10 09:11	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	215		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:53	1

Client Sample ID: JM-IS-08

Lab Sample ID: STI0115-08
Date Collected: 09/17/10 12:00
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 84.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.74		2.97		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:35	1
Cadmium	76.2		0.238		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:35	1
Lead	1280		1.78		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:35	1
Zinc	30900		29.7		mg/kg dry	☼	09/20/10 07:43	09/21/10 09:16	50

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2220		500		ug/kg dry	☼	09/21/10 06:43	09/21/10 12:34	10

Client Sample ID: JM-IS-09

Lab Sample ID: STI0115-09
Date Collected: 09/17/10 12:15
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 87.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.60		2.86		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:41	1
Cadmium	12.2		0.229		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:41	1
Lead	559		1.72		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:41	1
Zinc	3130		5.73		mg/kg dry	☼	09/20/10 07:43	09/21/10 09:19	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	369		50.0		ug/kg dry	☼	09/21/10 06:43	09/21/10 11:59	1

Client Sample ID: JM-IS-10

Lab Sample ID: STI0115-10
Date Collected: 09/17/10 12:40
Matrix: Soil
Date Received: 09/17/10 16:25
Percent Solids: 75.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.99		3.31		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:47	1
Cadmium	7.82		0.265		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:47	1
Lead	35.1		1.98		mg/kg dry	☼	09/20/10 07:43	09/20/10 18:47	1
Zinc	3930		6.61		mg/kg dry	☼	09/20/10 07:43	09/21/10 09:23	10

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	☼	09/21/10 06:43	09/21/10 12:02	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10I0128-BLK1 — **Client Sample ID: 10I0128-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.50		mg/kg wet		09/20/10 07:43	09/20/10 17:08	1
Cadmium	ND		0.200		mg/kg wet		09/20/10 07:43	09/20/10 17:08	1
Lead	ND		1.50		mg/kg wet		09/20/10 07:43	09/20/10 17:08	1

Lab Sample ID: 10I0128-BLK1 — **Client Sample ID: 10I0128-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		0.500		mg/kg wet		09/20/10 07:43	09/21/10 08:16	1

Lab Sample ID: 10I0128-BS1 — **Client Sample ID: 10I0128-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	42.0	43.8		mg/kg wet		104	80 - 120
Cadmium	42.0	43.5		mg/kg wet		104	80 - 120
Lead	42.0	45.4		mg/kg wet		108	80 - 120

Lab Sample ID: 10I0128-BS1 — **Client Sample ID: 10I0128-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Zinc	42.0	45.2		mg/kg wet		108	80 - 120

Lab Sample ID: 10I0128-MS1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	4.84		45.9	49.0		mg/kg dry	☼	96.4	75 - 125
Cadmium	0.139		45.9	45.6		mg/kg dry	☼	99.1	75 - 125
Lead	7.68		45.9	49.7		mg/kg dry	☼	91.7	75 - 125

Lab Sample ID: 10I0128-MS1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Zinc	39.5		45.9	83.2		mg/kg dry	☼	95.4	75 - 125

Lab Sample ID: 10I0128-MSD1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	4.84		45.9	48.5		mg/kg dry	☼	95.2	75 - 125	1.08	20
Cadmium	0.139		45.9	45.2		mg/kg dry	☼	98.2	75 - 125	0.975	20

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10I0128-MSD1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Lead	7.68		45.9	49.3		mg/kg dry	☼	90.7	75 - 125	0.847	20

Lab Sample ID: 10I0128-MSD1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Zinc	39.5		45.9	82.9		mg/kg dry	☼	94.7	75 - 125	0.366	20

Lab Sample ID: 10I0128-DUP1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Arsenic	4.84		4.81		mg/kg dry	☼	0.620	20
Cadmium	0.139		0.170	R4	mg/kg dry	☼	20.2	20
Lead	7.68		8.40		mg/kg dry	☼	9.07	20

Lab Sample ID: 10I0128-DUP1 — **Client Sample ID: STI0098-01**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0128 — **Prep Batch: 10I0128_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Zinc	39.5		37.6		mg/kg dry	☼	4.79	20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10I0135-BLK1 — **Client Sample ID: 10I0135-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0135 — **Prep Batch: 10I0135_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg wet		09/21/10 06:43	09/21/10 11:20	1

Lab Sample ID: 10I0135-BS1 — **Client Sample ID: 10I0135-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0135 — **Prep Batch: 10I0135_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Mercury	100	104		ug/kg wet		104	80 - 120

Lab Sample ID: 10I0135-MS1 — **Client Sample ID: JM-IS-10**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0135 — **Prep Batch: 10I0135_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Mercury	ND		132	167		ug/kg dry	☼	95.4	80 - 120

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10I0135-MSD1 — **Client Sample ID: JM-IS-10**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0135 — **Prep Batch: 10I0135_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	ND		132	176		ug/kg dry	☼	102	80 - 120	5.41	20

Lab Sample ID: 10I0135-DUP1 — **Client Sample ID: JM-IS-10**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10I0135 — **Prep Batch: 10I0135_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			82.9	R2	ug/kg dry	☼			68.8	40

Certification Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179

TestAmerica Job ID: STI0115
SDG: STI0115

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	Alaska UST	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.

TestAmerica Spokane
Sample Receipt Form

Work Order #: STI0115	Client: Aradis	Project: Stimson - Josephine Mill #1
Date/Time Received: 9-17-10 16:25	By: CS	
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: 22.7 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☐Not enough ice ☐Ice melted ☐w/in 4hrs of collection ☐NA ☐Other:

Log-in Phase Date/Time: 9-17-10 16:41 By: CS	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			2 day
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 #: STI0015

CLIENT:

INVOICE TO: Arcadis

REPORT TO: Arcadis Paula Lyons
ADDRESS: 2310 N. Molter Rd Suite 101
Liberty Lake WA 99019
PHONE: 509-535-7275 FAX:

P.O. NUMBER:

PROJECT NAME: Stimson - Josephine Mill #1
PROJECT NUMBER: 5K030179
SAMPLED BY: John DeJong

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: 48hrs
* Turnaround Requests less than standard may incur Rush Charges

PRESERVATIVE: NP

REQUESTED ANALYSES: As 6010 | Ba 6010 | Pb 6010 | Hg 7471 | Zn 6010

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	As	Ba	Pb	Hg	Zn	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	JM-IS-01	9-17-10 0945	X	X	X	X	X	S	1		
2	JM-IS-02	1010	X	X	X	X	X	S	1		
3	JM-IS-03	1040	X	X	X	X	X	S	1		
4	JM-IS-04	1100	X	X	X	X	X	S	1		
5	JM-IS-05	1115	X	X	X	X	X	S	1		
6	JM-IS-06	1130	X	X	X	X	X	S	1		
7	JM-IS-07	1150	X	X	X	X	X	S	1		
8	JM-IS-08	1200	X	X	X	X	X	S	1		
9	JM-IS-09	1215	X	X	X	X	X	S	1		
10	JM-IS-10	1240	X	X	X	X	X	S	1		

RELEASED BY: Dori DeJong — DATE: 9-17-10
PRINT NAME: — FIRM: Arcadis — TIME: 1625

RECEIVED BY: Cat Stapleton — DATE: 9-17-10
PRINT NAME: Cat Stapleton — FIRM: Test America — TIME: 16:25

RELEASED BY: — DATE:
PRINT NAME: — FIRM: — TIME:

RECEIVED BY: — DATE:
PRINT NAME: — FIRM: — TIME:

ADDITIONAL REMARKS:

TEMP: 22.7 — PAGE OF

TAL-1000(0408)

TB - 9-17-10 on hold

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: STJ0111
TestAmerica Sample Delivery Group: STJ0111
Client Project/Site: SK030179.0002 Task 002
Client Project Description: Josephine Mill

For:
ARCADIS U.S., Inc. - Liberty Lake
2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Attn: Paula Lyon

Authorized for release by:
10/26/2010 3:42 PM

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

Table of Contents

Sample Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002 Task 002

TestAmerica Job ID: STJ0111
SDG: STJ0111

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
STJ0111-01	JM-CS-01	Soil	10/19/10 10:15	10/20/10 11:55
STJ0111-02	JM-CS-02	Soil	10/19/10 10:45	10/20/10 11:55
STJ0111-03	JM-CS-03	Soil	10/19/10 11:00	10/20/10 11:55
STJ0111-04	JM-CS-04	Soil	10/19/10 11:15	10/20/10 11:55
STJ0111-05	JM-CS-05	Soil	10/19/10 11:20	10/20/10 11:55
STJ0111-06	JM-CS-06	Soil	10/19/10 11:30	10/20/10 11:55
STJ0111-07	JM-CS-07	Soil	10/19/10 11:40	10/20/10 11:55
STJ0111-08	JM-CS-08	Soil	10/19/10 12:05	10/20/10 11:55
STJ0111-09	JM-CS-09	Soil	10/19/10 12:15	10/20/10 11:55
STJ0111-10	JM-CS-10	Soil	10/19/10 12:35	10/20/10 11:55
STJ0111-11	JM-CS-11	Soil	10/19/10 12:45	10/20/10 11:55
STJ0111-12	JM-CS-12	Soil	10/19/10 13:10	10/20/10 11:55
STJ0111-13	JM-CS-13	Soil	10/19/10 13:25	10/20/10 11:55
STJ0111-14	Dup-1	Soil	10/19/10 13:10	10/20/10 11:55
STJ0111-15	Dup-2	Soil	10/19/10 13:10	10/20/10 11:55
STJ0111-16	Trip Blank	Water	10/19/10 00:00	10/20/10 11:55

Qualifier Definition/Glossary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002 Task 002

TestAmerica Job ID: STJ0111
SDG: STJ0111

Qualifiers

Metals

Qualifier	Qualifier Description
B1	Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
M1	The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
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 Sample ID: JM-CS-01

Lab Sample ID: STJ0111-01
Date Collected: 10/19/10 10:15
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 62.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.48		mg/kg		10/21/10 09:15	10/22/10 16:46	1
Cadmium	**0.837**		0.198		mg/kg		10/21/10 09:15	10/22/10 16:46	1
Lead	**18.5**		1.49		mg/kg		10/21/10 09:15	10/22/10 16:46	1
Zinc	**290**	**B1**	0.495		mg/kg		10/21/10 09:15	10/22/10 16:46	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**111**		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:37	1

Client Sample ID: JM-CS-02

Lab Sample ID: STJ0111-02
Date Collected: 10/19/10 10:45
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 30.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.45		mg/kg		10/21/10 09:15	10/22/10 16:51	1
Cadmium	**6.20**		0.196		mg/kg		10/21/10 09:15	10/22/10 16:51	1
Lead	**58.0**		1.47		mg/kg		10/21/10 09:15	10/22/10 16:51	1
Zinc	**1200**	**B1**	4.90		mg/kg		10/21/10 09:15	10/25/10 22:50	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**317**		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:39	1

Client Sample ID: JM-CS-03

Lab Sample ID: STJ0111-03
Date Collected: 10/19/10 11:00
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 32.6

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.43		mg/kg		10/21/10 09:15	10/22/10 16:57	1
Cadmium	**11.4**		0.194		mg/kg		10/21/10 09:15	10/22/10 16:57	1
Lead	**261**		1.46		mg/kg		10/21/10 09:15	10/22/10 16:57	1
Zinc	**2490**	**B1**	4.85		mg/kg		10/21/10 09:15	10/25/10 22:52	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1360**		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:41	1

Client Sample ID: JM-CS-04

Lab Sample ID: STJ0111-04
Date Collected: 10/19/10 11:15
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 77.1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**5.18**		2.50		mg/kg		10/21/10 09:15	10/22/10 17:02	1
Cadmium	**1.31**		0.200		mg/kg		10/21/10 09:15	10/22/10 17:02	1
Lead	**8.60**		1.50		mg/kg		10/21/10 09:15	10/22/10 17:02	1
Zinc	**260**	**B1**	0.500		mg/kg		10/21/10 09:15	10/22/10 17:02	1

Client Sample ID: JM-CS-04

Lab Sample ID: STJ0111-04
Date Collected: 10/19/10 11:15
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 77.1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:44	1

Client Sample ID: JM-CS-05

Lab Sample ID: STJ0111-05
Date Collected: 10/19/10 11:20
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 79.8

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.26		2.48		mg/kg		10/21/10 09:15	10/22/10 17:08	1
Cadmium	3.24		0.198		mg/kg		10/21/10 09:15	10/22/10 17:08	1
Lead	34.1		1.49		mg/kg		10/21/10 09:15	10/22/10 17:08	1
Zinc	1890	B1	4.95		mg/kg		10/21/10 09:15	10/25/10 22:55	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	91.4		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:46	1

Client Sample ID: JM-CS-06

Lab Sample ID: STJ0111-06
Date Collected: 10/19/10 11:30
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 76.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.44		2.50		mg/kg		10/21/10 09:15	10/22/10 17:13	1
Cadmium	55.2		0.200		mg/kg		10/21/10 09:15	10/22/10 17:13	1
Lead	294		1.50		mg/kg		10/21/10 09:15	10/22/10 17:13	1
Zinc	16300	B1	50.0		mg/kg		10/21/10 09:15	10/25/10 23:00	100

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2990		250		ug/kg dry	☼	10/21/10 09:19	10/22/10 15:03	5

Client Sample ID: JM-CS-07

Lab Sample ID: STJ0111-07
Date Collected: 10/19/10 11:40
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 84.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.66		2.50		mg/kg		10/21/10 09:15	10/22/10 17:19	1
Cadmium	6.80		0.200		mg/kg		10/21/10 09:15	10/22/10 17:19	1
Lead	43.1		1.50		mg/kg		10/21/10 09:15	10/22/10 17:19	1
Zinc	1650	B1	5.00		mg/kg		10/21/10 09:15	10/25/10 23:03	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	459		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:52	1

Client Sample ID: JM-CS-08

Lab Sample ID: STJ0111-08
Date Collected: 10/19/10 12:05
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 85.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.58		2.50		mg/kg		10/21/10 09:15	10/22/10 17:25	1
Cadmium	6.80		0.200		mg/kg		10/21/10 09:15	10/22/10 17:25	1
Lead	58.3		1.50		mg/kg		10/21/10 09:15	10/22/10 17:25	1
Zinc	2600	B1	5.00		mg/kg		10/21/10 09:15	10/25/10 23:08	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	229		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 13:59	1

Client Sample ID: JM-CS-09

Lab Sample ID: STJ0111-09
Date Collected: 10/19/10 12:15
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 70.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.37		2.50		mg/kg		10/21/10 09:15	10/22/10 17:30	1
Cadmium	39.7		0.200		mg/kg		10/21/10 09:15	10/22/10 17:30	1
Lead	21.7		1.50		mg/kg		10/21/10 09:15	10/22/10 17:30	1
Zinc	6370	B1	25.0		mg/kg		10/21/10 09:15	10/25/10 23:12	50

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	75.5		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:01	1

Client Sample ID: JM-CS-10

Lab Sample ID: STJ0111-10
Date Collected: 10/19/10 12:35
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 77

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.08		2.48		mg/kg		10/21/10 09:15	10/22/10 17:59	1
Cadmium	2.87		0.198		mg/kg		10/21/10 09:15	10/22/10 17:59	1
Lead	25.2		1.49		mg/kg		10/21/10 09:15	10/22/10 17:59	1
Zinc	1250	B1	4.95		mg/kg		10/21/10 09:15	10/25/10 23:15	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	91.2		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:03	1

Client Sample ID: JM-CS-11

Lab Sample ID: STJ0111-11
Date Collected: 10/19/10 12:45
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 83.7

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.22		2.48		mg/kg		10/21/10 09:15	10/22/10 18:05	1
Cadmium	2.78		0.198		mg/kg		10/21/10 09:15	10/22/10 18:05	1
Lead	26.4		1.49		mg/kg		10/21/10 09:15	10/22/10 18:05	1
Zinc	574	B1	4.95		mg/kg		10/21/10 09:15	10/25/10 23:20	10

Client Sample ID: JM-CS-11

Lab Sample ID: STJ0111-11
Date Collected: 10/19/10 12:45
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 83.7

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	78.6		49.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:05	1

Client Sample ID: JM-CS-12

Lab Sample ID: STJ0111-12
Date Collected: 10/19/10 13:10
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 65.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.50		mg/kg		10/21/10 09:15	10/22/10 15:43	1
Cadmium	1.01		0.200		mg/kg		10/21/10 09:15	10/22/10 15:43	1
Lead	8.77		1.50		mg/kg		10/21/10 09:15	10/22/10 15:43	1
Zinc	633	B1	25.0		mg/kg		10/21/10 09:15	10/25/10 23:38	50

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	52.5		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:08	1

Client Sample ID: JM-CS-13

Lab Sample ID: STJ0111-13
Date Collected: 10/19/10 13:25
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 67.5

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.75		2.50		mg/kg		10/21/10 09:15	10/22/10 15:48	1
Cadmium	55.7		0.200		mg/kg		10/21/10 09:15	10/22/10 15:48	1
Lead	108		1.50		mg/kg		10/21/10 09:15	10/22/10 15:48	1
Zinc	11500	B1	25.0		mg/kg		10/21/10 09:15	10/25/10 23:42	50

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	274		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:10	1

Client Sample ID: Dup-1

Lab Sample ID: STJ0111-14
Date Collected: 10/19/10 13:10
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 81.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.62		2.48		mg/kg		10/21/10 09:15	10/22/10 18:10	1
Cadmium	4.13		0.198		mg/kg		10/21/10 09:15	10/22/10 18:10	1
Lead	33.1		1.49		mg/kg		10/21/10 09:15	10/22/10 18:10	1
Zinc	1790	B1	4.95		mg/kg		10/21/10 09:15	10/25/10 23:45	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	76.4		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:12	1

Client Sample ID: Dup-2

Lab Sample ID: STJ0111-15
Date Collected: 10/19/10 13:10
Matrix: Soil
Date Received: 10/20/10 11:55
Percent Solids: 64.9

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.48		mg/kg		10/21/10 09:15	10/22/10 18:16	1
Cadmium	**1.61**		0.198		mg/kg		10/21/10 09:15	10/22/10 18:16	1
Lead	**8.59**		1.49		mg/kg		10/21/10 09:15	10/22/10 18:16	1
Zinc	**675**	**B1**	4.95		mg/kg		10/21/10 09:15	10/25/10 23:50	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**59.8**		50.0		ug/kg dry	☼	10/21/10 09:19	10/22/10 14:15	1

Client Sample ID: Trip Blank

Lab Sample ID: STJ0111-16
Date Collected: 10/19/10 00:00
Matrix: Water
Date Received: 10/20/10 11:55

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0200		mg/l		10/25/10 15:23	10/26/10 13:40	1
Cadmium	ND		0.00200		mg/l		10/25/10 15:23	10/26/10 13:40	1
Lead	ND		0.0300		mg/l		10/25/10 15:23	10/26/10 13:40	1
Zinc	ND		0.0100		mg/l		10/25/10 15:23	10/26/10 13:40	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		0.200		ug/l		10/25/10 15:28	10/26/10 11:19	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0106-BLK1 — **Client Sample ID: 10J0106-BLK1**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.50		mg/kg		10/21/10 09:15	10/22/10 15:54	1
Cadmium	ND		0.200		mg/kg		10/21/10 09:15	10/22/10 15:54	1
Lead	ND		1.50		mg/kg		10/21/10 09:15	10/22/10 15:54	1

Lab Sample ID: 10J0106-BLK1 — **Client Sample ID: 10J0106-BLK1**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.684	B1	0.500		mg/kg		10/21/10 09:15	10/25/10 22:45	1

Lab Sample ID: 10J0106-BS1 — **Client Sample ID: 10J0106-BS1**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	50.0	49.7		mg/kg		99.5	80 - 120
Cadmium	50.0	51.2		mg/kg		102	80 - 120
Lead	50.0	52.8		mg/kg		106	80 - 120
Zinc	50.0	52.7		mg/kg		105	80 - 120

Lab Sample ID: 10J0106-MS1 — **Client Sample ID: JM-CS-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	ND		50.0	51.7		mg/kg		101	75 - 125
Cadmium	0.837		50.0	52.8		mg/kg		104	75 - 125
Lead	18.5		50.0	94.0	M1	mg/kg		151	75 - 125
Zinc	290	B1	50.0	482	M1	mg/kg		384	75 - 125

Lab Sample ID: 10J0106-MSD1 — **Client Sample ID: JM-CS-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	ND		49.0	48.0		mg/kg		94.9	75 - 125	7.49	20
Cadmium	0.837		49.0	49.1		mg/kg		98.5	75 - 125	7.17	20
Lead	18.5		49.0	72.8	R2	mg/kg		111	75 - 125	25.4	20
Zinc	290	B1	49.0	363	M1	mg/kg		149	75 - 125	28.1	20

Lab Sample ID: 10J0106-DUP1 — **Client Sample ID: JM-CS-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0106 — **Prep Batch: 10J0106_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Arsenic	ND		1.76		mg/kg		17.7	20
Cadmium	0.837		0.979		mg/kg		15.6	20
Lead	18.5		26.7	R2	mg/kg		36.6	20
Zinc	290	B1	310		mg/kg		6.67	20

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0128-BLK1 — **Client Sample ID: 10J0128-BLK1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0128 — **Prep Batch: 10J0128_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0200		mg/l		10/25/10 15:23	10/26/10 13:35	1
Cadmium	ND		0.00200		mg/l		10/25/10 15:23	10/26/10 13:35	1
Lead	ND		0.0300		mg/l		10/25/10 15:23	10/26/10 13:35	1
Zinc	ND		0.0100		mg/l		10/25/10 15:23	10/26/10 13:35	1

Lab Sample ID: 10J0128-BS1 — **Client Sample ID: 10J0128-BS1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0128 — **Prep Batch: 10J0128_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Arsenic			1.00	1.10		mg/l		110	80 - 120		
Cadmium			1.00	1.11		mg/l		111	80 - 120		
Lead			1.00	1.13		mg/l		113	80 - 120		
Zinc			1.00	1.14		mg/l		114	80 - 120		

Lab Sample ID: 10J0128-MS1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0128 — **Prep Batch: 10J0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Arsenic	ND		1.00	1.09		mg/l		109	75 - 125		
Cadmium	ND		1.00	1.10		mg/l		110	75 - 125		
Lead	ND		1.00	1.13		mg/l		113	75 - 125		
Zinc	ND		1.00	1.14		mg/l		114	75 - 125		

Lab Sample ID: 10J0128-MSD1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0128 — **Prep Batch: 10J0128_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	ND		1.00	1.08		mg/l		108	75 - 125	0.713	20
Cadmium	ND		1.00	1.09		mg/l		109	75 - 125	0.455	20
Lead	ND		1.00	1.12		mg/l		112	75 - 125	1.36	20
Zinc	ND		1.00	1.13		mg/l		113	75 - 125	1.11	20

Lab Sample ID: 10J0128-DUP1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0128 — **Prep Batch: 10J0128_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/l					20
Cadmium	ND			ND		mg/l					20
Lead	ND			ND		mg/l					20
Zinc	ND			ND		mg/l					20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0107-BLK1 — **Client Sample ID: 10J0107-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0107 — **Prep Batch: 10J0107_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg wet		10/21/10 09:19	10/22/10 13:35	1

Lab Sample ID: 10J0107-BS1 — **Client Sample ID: 10J0107-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0107 — **Prep Batch: 10J0107_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury			100	100		ug/kg wet		100	80 - 120		

Lab Sample ID: 10J0107-MS1 — **Client Sample ID: Dup-2**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0107 — **Prep Batch: 10J0107_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury	59.8		154	223		ug/kg dry	☼	106	80 - 120		

Lab Sample ID: 10J0107-MSD1 — **Client Sample ID: Dup-2**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0107 — **Prep Batch: 10J0107_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	59.8		154	245		ug/kg dry	☼	120	80 - 120	9.21	20

Lab Sample ID: 10J0107-DUP1 — **Client Sample ID: Dup-2**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0107 — **Prep Batch: 10J0107_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Mercury	59.8			ND		ug/kg dry	☼				40

Lab Sample ID: 10J0129-BLK1 — **Client Sample ID: 10J0129-BLK1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0129 — **Prep Batch: 10J0129_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200		ug/l		10/25/10 15:28	10/26/10 11:17	1

Lab Sample ID: 10J0129-BS1 — **Client Sample ID: 10J0129-BS1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0129 — **Prep Batch: 10J0129_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury			1.00	1.07		ug/l		107	80 - 120		

Lab Sample ID: 10J0129-MS1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0129 — **Prep Batch: 10J0129_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury	ND		1.00	1.04		ug/l		104	80 - 120		

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0129-MSD1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0129 — **Prep Batch: 10J0129_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	1.04		ug/l		104	80 - 120	0.00	20

Lab Sample ID: 10J0129-DUP1 — **Client Sample ID: Trip Blank**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0129 — **Prep Batch: 10J0129_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		ug/l					20

Certification Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002 Task 002

TestAmerica Job ID: STJ0111
SDG: STJ0111

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	Alaska UST	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.

TestAmerica Spokane
Sample Receipt Form

Work Order #: STJ01.11	Client: Arcadis	Project: Josephine Mill No1
Date/Time Received: 10-20-10 11:45	By: CS	
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:	✓			
Custody Seals are present and intact:			✓	
Are CoC documents present:	✓			
Necessary signatures:	✓			

Thermal Preservation Type: ☐Blue Ice ☐Gel Ice ☐Real Ice ☐Dry Ice ☑None ☐Other:

Temperature by IR Gun: 9.1 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☐Not enough ice ☐Ice melted ☐w/in 4hrs of collection ☐NA ☐Other:

Log-in Phase Date/Time: 10-20-10 12:42 By: CL	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	✓			
Samples containers were received intact:	✓			
Do sample IDs match the CoC	✓			
Appropriate sample containers were received for tests requested	✓			
Are sample volumes adequate for tests requested	✓			
Appropriate preservatives were used for the tests requested			✓	
pH of inorganic samples checked and is within method specification			✓	
Are VOC samples free of bubbles >6mm (1/4" diameter)			✓	
Are dissolved parameters field filtered			✓	
Do any samples need to be filtered or preserved by the lab		✓		
Does this project require quick turnaround analysis		✓		
Are there any short hold time tests (see chart below)		✓		
Are any samples within 2 days of or past expiration		✓		
Was the CoC scanned	✓			
Were there Non-conformance issues at login		✓		
If yes, was a CAR generated #			✓	

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

Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Paula A. Lyon	Site Contact:Paula A. Lyon	Date:10/20/2010	COC No:
ARCADIS	Tel/Fax:208.819.1266	Lab Contact:	Carrier:	1 of 2 COCs
2310 N. Molter Road, Suite 101	Analysis Turnaround Time			Job No. STJ0111
Liberty Lake, WA 99019	Calendar (C) or Work Days (W)			SDG No.
(509)535-7225 Phone	TAT if different from Below			
(509) 535-7361 FAX	☐ 2 weeks			
Project Name: Josephine Mill No.. 1 Removal Action	☐ 1 week			
Site:Josephine Mill NO.1	☐ 2 days			
P O # SK030179.0002 Task 002	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	As Cd Pb Zn EPA Method 6010	Hg EPA Method 7471	Sample Specific Notes:
JM-CS-01	10/19/2010	10:15	8 oz	S	1				
JM-CS-02	10/19/2010	10:45	8oz	S	1				
JM-CS-03	10/19/2010	11:00	8 oz	S	1				
JM-CS-04	10/19/2010	11:15	8 oz	S	1				
JM-CS-05	10/19/2010	11:20	8 oz	S	1				
JM-CS-06	10/19/2010	11:30	8 oz	S	1				
JM-CS-07	10/19/2010	11:40	8 oz	S	1				
JM-CS-08	10/19/2010	12:05	8 oz	S	1				
JM-CS-09	10/19/2010	12:15	8 oz	S	1				
JM-CS-10	10/19/2010	12;35	8 oz	S	1				
JM-CS-11	10/19/2010	12:45	8 oz	S	1				
JM-CS-12	10/19/2010	13:10	8 oz	S	1				

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☑ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

9.1°C

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by: Paula A. Lyon	ARCADIS US	10/20/10 1130	Received by:	Arcadis-US	10/20/10 11:30
Relinquished by:	ARCADIS-US	10/20/10 11:55	Received by:	Test America	10-20-10 11:55
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

10/26/2010

Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Paula A. Lyon	Site Contact:Paula A. Lyon	Date:10/20/2010	COC No:
ARCADIS	Tel/Fax:208.819.1266	Lab Contact:	Carrier:	2 of 2 COCs
2310 N. Molter Road, Suite 101	Analysis Turnaround Time			Job No. SIJ0111
Liberty Lake, WA 99019	Calendar (C) or Work Days (W) _____			SDG No.
(509)535-7225 Phone	TAT if different from Below _____			
(509) 535-7361 FAX	☐ 2 weeks			
Project Name: Josephine Mill No.. 1 Removal Action	☐ 1 week			
Site:Josephine Mill NO.1	☐ 2 days			
P O # SK030179.0002 Task 002	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	As Cd Pb Zn EPA Method 6010	Hg EPA Method 7471	Sample Specific Notes:
JM-CS-13	10/19/2010	13:25	8 oz	S	1				
Dup-1	10/19/2010	13:10	8oz	S	1				
Dup-2	10/19/2010	13:10	8 oz	S	1				
				S					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Paula A Lyon	ARCADIS-US	10/20/10 1130		ARCADIS-US	10/20/10 11:30
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	ARCADIS-US	10/20/10 11:55	Lori Stapleton	Test America	10-20-10 11:55
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

10/26/2010

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: STJ0169
TestAmerica Sample Delivery Group: STJ0169
Client Project/Site: SK030179.0002.001
Client Project Description: Josephine Mill

For:
ARCADIS U.S., Inc. - Liberty Lake
2310 N. Molter Rd. Suite 101
Liberty Lake, WA 99019

Attn: Paula Lyon

Authorized for release by:
11/16/2010 1:56 PM

Randee Decker
Project Manager
Randee.Decker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Table of Contents

Notes

Receipt
All samples were received in good condition within temperature requirements.

Metals, Method 7471
The mercury data in analytical batch 10J0158 was not dry-weight corrected in the initial report issued on 11/01/10. The data has now been corrected and is reflected in the amended report. This final report replaces the final report generated on 11/01/10.

No other analytical or quality issues noted.

Sample Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002.001

TestAmerica Job ID: STJ0169
SDG: STJ0169

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
STJ0169-01	Road -CS-West	Soil	10/26/10 13:30	10/28/10 09:00
STJ0169-02	Road -CS-East	Soil	10/26/10 13:45	10/28/10 09:00
STJ0169-03	Road -CS-Center	Soil	10/27/10 10:00	10/28/10 09:00
STJ0169-04	Road -CS-Rockface	Soil	10/27/10 10:30	10/28/10 09:00
STJ0169-05	JM-CS-03A	Soil	10/27/10 10:45	10/28/10 09:00
STJ0169-06	JM-CS-06A	Soil	10/27/10 11:45	10/28/10 09:00
STJ0169-07	Trip Blank 3	Water	10/27/10 00:00	10/28/10 09:00
STJ0169-08	Trip Blank 4	Water	10/27/10 00:00	10/28/10 09:00

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002.001

TestAmerica Job ID: STJ0169
SDG: STJ0169

Glossary

Glossary	Glossary Description
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis.

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002.001

TestAmerica Job ID: STJ0169
SDG: STJ0169

Client Sample ID: Road -CS-West

Lab Sample ID: STJ0169-01
Date Collected: 10/26/10 13:30
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 89.7

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.79		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:23	1
Cadmium	ND		0.223		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:23	1
Lead	**8.23**		1.67		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:23	1
Zinc	**58.9**		1.11		mg/kg dry	☼	10/28/10 09:30	11/01/10 11:45	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	☼	10/28/10 10:27	10/28/10 14:47	1

Client Sample ID: Road -CS-East

Lab Sample ID: STJ0169-02
Date Collected: 10/26/10 13:45
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 67.8

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.69		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:28	1
Cadmium	**1.13**		0.295		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:28	1
Lead	**12.0**		2.21		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:28	1
Zinc	**135**		1.47		mg/kg dry	☼	10/28/10 09:30	11/01/10 11:48	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**126**		50.0		ug/kg dry	☼	10/28/10 10:27	10/28/10 14:49	1

Client Sample ID: Road -CS-Center

Lab Sample ID: STJ0169-03
Date Collected: 10/27/10 10:00
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 89.7

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.79		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:43	1
Cadmium	**0.450**		0.223		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:43	1
Lead	**9.41**		1.67		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:43	1
Zinc	**45.0**		1.11		mg/kg dry	☼	10/28/10 09:30	11/01/10 12:02	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	☼	10/28/10 10:27	10/28/10 14:51	1

Client Sample ID: Road -CS-Rockface

Lab Sample ID: STJ0169-04
Date Collected: 10/27/10 10:30
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 65.3

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.83		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:47	1
Cadmium	**8.55**		0.306		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:47	1
Lead	**7.81**		2.30		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:47	1
Zinc	**1430**		15.3		mg/kg dry	☼	10/28/10 09:30	11/01/10 12:05	10

Client Sample ID: Road -CS-Rockface

Lab Sample ID: STJ0169-04
Date Collected: 10/27/10 10:30
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 65.3

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**97.7**		50.0		ug/kg dry	☼	10/28/10 10:27	10/28/10 14:54	1

Client Sample ID: JM-CS-03A

Lab Sample ID: STJ0169-05
Date Collected: 10/27/10 10:45
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 36.8

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		6.79		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:52	1
Cadmium	**9.54**		0.543		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:52	1
Lead	**20.9**		4.08		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:52	1
Zinc	**451**		2.72		mg/kg dry	☼	10/28/10 09:30	11/01/10 12:07	1

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**177**		50.0		ug/kg dry	☼	10/28/10 10:27	10/28/10 14:56	1

Client Sample ID: JM-CS-06A

Lab Sample ID: STJ0169-06
Date Collected: 10/27/10 11:45
Matrix: Soil
Date Received: 10/28/10 09:00
Percent Solids: 77.2

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.24		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:56	1
Cadmium	**4.38**		0.259		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:56	1
Lead	**20.4**		1.94		mg/kg dry	☼	10/28/10 09:30	10/29/10 17:56	1
Zinc	**1560**		13.0		mg/kg dry	☼	10/28/10 09:30	11/01/10 12:10	10

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**473**		50.0		ug/kg dry	☼	10/28/10 10:27	10/28/10 15:03	1

Client Sample ID: Trip Blank 3

Lab Sample ID: STJ0169-07
Date Collected: 10/27/10 00:00
Matrix: Water
Date Received: 10/28/10 09:00

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0200		mg/l		10/29/10 11:26	10/29/10 18:51	1
Cadmium	ND		0.00200		mg/l		10/29/10 11:26	10/29/10 18:51	1
Lead	ND		0.0300		mg/l		10/29/10 11:26	10/29/10 18:51	1
Zinc	ND		0.0100		mg/l		10/29/10 11:26	11/01/10 12:17	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		0.200		ug/l		10/28/10 10:29	10/28/10 18:12	1

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002.001

TestAmerica Job ID: STJ0169
SDG: STJ0169

Client Sample ID: Trip Blank 4
Date Collected: 10/27/10 00:00
Date Received: 10/28/10 09:00

Lab Sample ID: STJ0169-08
Matrix: Water

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0200		mg/l		10/29/10 11:26	10/29/10 18:55	1
Cadmium	ND		0.00200		mg/l		10/29/10 11:26	10/29/10 18:55	1
Lead	ND		0.0300		mg/l		10/29/10 11:26	10/29/10 18:55	1
Zinc	ND		0.0100		mg/l		10/29/10 11:26	11/01/10 12:21	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		0.200		ug/l		10/28/10 10:29	10/28/10 18:19	1

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0157-BLK1 — **Client Sample ID: 10J0157-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.50		mg/kg wet		10/28/10 08:57	10/29/10 16:55	1
Cadmium	ND		0.200		mg/kg wet		10/28/10 08:57	10/29/10 16:55	1
Lead	ND		1.50		mg/kg wet		10/28/10 08:57	10/29/10 16:55	1

Lab Sample ID: 10J0157-BLK1 — **Client Sample ID: 10J0157-BLK1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		1.00		mg/kg wet		10/28/10 08:57	11/01/10 11:22	1

Lab Sample ID: 10J0157-BS1 — **Client Sample ID: 10J0157-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	50.0	51.5		mg/kg wet		103	80 - 120
Cadmium	50.0	53.4		mg/kg wet		107	80 - 120
Lead	50.0	54.6		mg/kg wet		109	80 - 120

Lab Sample ID: 10J0157-BS1 — **Client Sample ID: 10J0157-BS1**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Zinc	50.0	57.0		mg/kg wet		114	80 - 120

Lab Sample ID: 10J0157-MS1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Arsenic	ND		50.0	49.9		mg/kg wet		99.9	75 - 125
Cadmium	0.0197		50.0	53.7		mg/kg wet		107	75 - 125
Lead	ND		50.0	54.2		mg/kg wet		108	75 - 125

Lab Sample ID: 10J0157-MS1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits
Zinc	5.25		50.0	56.5		mg/kg wet		102	75 - 125

Lab Sample ID: 10J0157-MSD1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	ND		49.5	49.6		mg/kg wet		100	75 - 125	0.718	20
Cadmium	0.0197		49.5	52.9		mg/kg wet		107	75 - 125	1.48	20

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0157-MSD1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Lead	ND		49.5	53.4		mg/kg wet		108	75 - 125	1.43	20

Lab Sample ID: 10J0157-MSD1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Zinc	5.25		49.5	61.2		mg/kg wet		113	75 - 125	8.10	20

Lab Sample ID: 10J0157-DUP1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Arsenic	ND			ND		mg/kg wet					20
Cadmium	0.0197			ND		mg/kg wet					20
Lead	ND			ND		mg/kg wet					20

Lab Sample ID: 10J0157-DUP1 — **Client Sample ID: STJ0151-02**
Matrix: Soil — **Prep Type: total**
Analysis Batch: 10J0157 — **Prep Batch: 10J0157_P**

Analyte	Sample Result	Sample Qualifier		Duplicate Result	Duplicate Qualifier	Unit	D			RPD	RPD Limit
Zinc	5.25			4.58		mg/kg wet				13.7	20

Lab Sample ID: 10J0172-BLK1 — **Client Sample ID: 10J0172-BLK1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0200		mg/l		10/29/10 11:26	10/29/10 18:04	1
Cadmium	ND		0.00200		mg/l		10/29/10 11:26	10/29/10 18:04	1
Lead	ND		0.0300		mg/l		10/29/10 11:26	10/29/10 18:04	1

Lab Sample ID: 10J0172-BLK1 — **Client Sample ID: 10J0172-BLK1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		0.0100		mg/l		10/29/10 11:26	11/01/10 12:11	1

Lab Sample ID: 10J0172-BS1 — **Client Sample ID: 10J0172-BS1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Arsenic			1.00	1.05		mg/l		105	80 - 120		
Cadmium			1.00	1.09		mg/l		109	80 - 120		
Lead			1.00	1.10		mg/l		110	80 - 120		

Method: EPA 6010C - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0172-BS1 — **Client Sample ID: 10J0172-BS1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Zinc			1.00	1.12		mg/l		112	80 - 120		

Lab Sample ID: 10J0172-MS1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Arsenic	0.00395		1.00	1.08		mg/l		108	75 - 125		
Cadmium	ND		1.00	1.12		mg/l		112	75 - 125		
Lead	ND		1.00	1.14		mg/l		114	75 - 125		

Lab Sample ID: 10J0172-MS1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Zinc	ND		1.00	1.09		mg/l		109	75 - 125		

Lab Sample ID: 10J0172-MSD1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Arsenic	0.00395		1.00	1.05		mg/l		105	75 - 125	2.64	20
Cadmium	ND		1.00	1.10		mg/l		110	75 - 125	2.64	20
Lead	ND		1.00	1.12		mg/l		112	75 - 125	2.27	20

Lab Sample ID: 10J0172-MSD1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Zinc	ND		1.00	1.11		mg/l		111	75 - 125	1.28	20

Lab Sample ID: 10J0172-DUP1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00395		ND		mg/l			20
Cadmium	ND		ND		mg/l			20
Lead	ND		ND		mg/l			20

Lab Sample ID: 10J0172-DUP1 — **Client Sample ID: Trip Blank 4**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0172 — **Prep Batch: 10J0172_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Zinc	ND		ND		mg/l			20

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods

Lab Sample ID: 10J0158-BLK1 — **Client Sample ID: 10J0158-BLK1**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0158 — **Prep Batch: 10J0158_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		50.0		ug/kg wet		10/28/10 10:27	10/28/10 14:38	1

Lab Sample ID: 10J0158-BS1 — **Client Sample ID: 10J0158-BS1**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0158 — **Prep Batch: 10J0158_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury			100	99.2		ug/kg wet		99.2	80 - 120		

Lab Sample ID: 10J0158-MS1 — **Client Sample ID: STJ0151-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0158 — **Prep Batch: 10J0158_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury	ND		100	89.4		ug/kg wet		89.4	80 - 120		

Lab Sample ID: 10J0158-MSD1 — **Client Sample ID: STJ0151-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0158 — **Prep Batch: 10J0158_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	ND		100	85.7		ug/kg wet		85.7	80 - 120	4.23	20

Lab Sample ID: 10J0158-DUP1 — **Client Sample ID: STJ0151-01**
Matrix: Other (S) — **Prep Type: total**
Analysis Batch: 10J0158 — **Prep Batch: 10J0158_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/kg wet			40

Lab Sample ID: 10J0159-BLK1 — **Client Sample ID: 10J0159-BLK1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0159 — **Prep Batch: 10J0159_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.200		ug/l		10/28/10 10:29	10/28/10 17:54	1

Lab Sample ID: 10J0159-BS1 — **Client Sample ID: 10J0159-BS1**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0159 — **Prep Batch: 10J0159_P**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury			1.00	0.931		ug/l		93.1	80 - 120		

Lab Sample ID: 10J0159-MS1 — **Client Sample ID: STJ0145-06**
Matrix: Water — **Prep Type: total**
Analysis Batch: 10J0159 — **Prep Batch: 10J0159_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	% Rec	% Rec. Limits		
Mercury	ND		1.00	0.962		ug/l		96.2	80 - 120		

Method: EPA 7471 - Total Metals by EPA 6010/7000 Series Methods (Continued)

Lab Sample ID: 10J0159-MSD1 | **Client Sample ID: STJ0145-06**
Matrix: Water | **Prep Type: total**
Analysis Batch: 10J0159 | **Prep Batch: 10J0159_P**

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Mercury	ND		1.00	0.964		ug/l		96.4	80 - 120	0.208	20

Lab Sample ID: 10J0159-DUP1 | **Client Sample ID: STJ0145-06**
Matrix: Water | **Prep Type: total**
Analysis Batch: 10J0159 | **Prep Batch: 10J0159_P**

Analyte	Sample Result	Sample Qualifier	Duplicate Result	Duplicate Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/l			20

Certification Summary

Client: ARCADIS U.S., Inc. - Liberty Lake
Project/Site: SK030179.0002.001

TestAmerica Job ID: STJ0169
SDG: STJ0169

Laboratory	Authority	Program	EPA Region	Certification ID	Expiration Date
TestAmerica Spokane	Alaska	Alaska UST	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.

TestAmerica Spokane
Sample Receipt Form

Work Order #: STJ0-1169	Client: Arcadis	Project: Josephine Mill No. 1
Date/Time Received: 10/28/10 9:00	By: CW	
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: 6.9 °C Thermometer Serial #81500 (acceptance criteria 0-6 °C)

Temperature out of range: ☒Not enough ice ☐Ice melted ☐w/in 4hrs of collection ☐NA ☐Other:_____

Log-in Phase Date/Time: 10-28-10 11.00 By: CJ	Yes	No	NA	Comments
Are sample labels affixed and completed for each container	Y			
Samples containers were received intact:	Y			
Do sample IDs match the CoC	Y			
Appropriate sample containers were received for tests requested	Y			
Are sample volumes adequate for tests requested	Y			
Appropriate preservatives were used for the tests requested	Y			
pH of inorganic samples checked and is within method specification	Y			
Are VOC samples free of bubbles >6mm (1/4" diameter)			Y	
Are dissolved parameters field filtered			Y	
Do any samples need to be filtered or preserved by the lab			Y	
Does this project require quick turnaround analysis	Y			2day
Are there any short hold time tests (see chart below)		Y		
Are any samples within 2 days of or past expiration		Y		
Was the CoC scanned	Y			
Were there Non-conformance issues at login		N		
If yes, was a CAR generated #			Y	

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

Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

11/16/2010

Client Contact	Project Manager: Paula A. Lyon	Site Contact:Paula A. Lyon	Date:10/20/2010	COC No:
ARCADIS	Tel/Fax:208.819.1266	Lab Contact:	Carrier:	2 of 2 COCs
2310 N. Molter Road, Suite 101	**Analysis Turnaround Time**			SK030179.0002.001
Liberty Lake, WA 99019	Calendar (C) or Work Days (W)			SJJ0169
(509)535-7225 Phone	TAT if different from Below			SDG No.
(509) 535-7361 FAX	☐ 2 weeks			
Project Name: Josephine Mill No.. 1 Removal Action	☐ 1 week			
Site:Josephine Mill NO.1	☒ 2 days			
P O # SK030179.0002 Task 001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	As Cd Pb Zn EPA Method 6010	Hg EPA Method 7471	Sample Specific Notes:
Road -CS-West	10/26/2010	13:30	8 oz	S	1		X	X	
Road-CS-East	10/26/2010	13:45	8oz	S	1		X	X	
Road-CS-Center	10/27/2010	10:00	8 oz	S	1		X	X	
Road-CS-Rockface	10/27/2010	10:30	8 oz	S	1		X	X	
JM-CS-03A	10/27/2010	10:45	8 oz	S	1		X	X	
JM-CS-06A	10/27/2010	11:45	8 oz	S	1		X	X	
				S					

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

6.9°C

Relinquished by: Paula A Lyon	Company: ARCADIS-US	Date/Time: 900 10/28/10	Received by:	Company: TestAmerica	Date/Time: 10/28/10 9:50
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

ARCADIS

Appendix C

Compaction Testing Results

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: September 17, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density	6:30	2:30	8	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
____ Concrete ____ Cubes ____ Mortar ____ Grout ____ Prisms ____ Asphalt
____ Aggregate ____ Soil ____ CMU ____ SAFRM ____ Other: ____

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:

Name	Position	Company
Andrew Roberts	Supervisor	Arcadis

Narrative:

STRATA arrived on-site at the request of Tom Mullen with Arcadis to conduct compaction testing on the tailings at the mill site. STRATA remained on-site from approximately 9:00am to 11:45am. Arcadis was not ready for compaction testing at that time. They rescheduled STRATA's services for Monday (9-20-10) and the remainder of that week.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ Signature _____ Name/Company (print)

Strata Representative: _____ Signature JP Cardin Name (print)

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: September 21, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density	6:30	6:00	11.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
____ Concrete ____ Cubes ____ Mortar ____ Grout ____ Prisms ____ Asphalt
____ Aggregate ____ Soil ____ CMU ____ SAFRM ____ Other: ____

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:
Andrew Roberts (Name) | Supervisor (Position) | Arcadis (Company)
____ (Name) | ____ (Position) | ____ (Company)

Narrative:

STRATA arrived on-site at the request of Tom Mullen with Arcadis to perform compaction testing on the fill material on-site. STRATA performed multiple tests on each lift of the fill. Arcadis placed lifts in 12-inch loose (10-inch compacted) thickness. The fill material consisted of gravel with sand and organics and silty sand. All test results from today met project specifications of 90 percent maximum density. Results were reported to Andy on-site. See attached in-place density tests sheet for locations and results.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (Inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) JP Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity From the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 21984
Client: Arcadis
Date: 09/21/10
Client No.: ARCADI
Project: Josphine Mill No. 1
Project No.: S10103A

Test Method: (N) Nuclear Densometer X ASTM D2922/D3017 AASHTO T238/T239
(S) Sand Cone ASTM D1556/D2216 AASHTO T191
Gauge Make/Model: Troxler 3430 Serial No.: M37037496
Std Count - Density N_1: Density N_4 Moist N_1 Moist N_4

Test Location Selected By: Strata Rep.: JP Cardin Your Personnel:
Contractor: Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	133.5	9.5	**RC**-Gravel with Sand and Organics (TP-5) #3
2)	106.0	16.0	Silty Sand (TP-7) #4
3)			
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	Lift 1 - NW quandrant of pad	SG	136.8 / 15.8	13.1	120.9	1	91
2	Lift 1 - SW quandrant of pad	SG	136.9 / 12.6	10.1	124.4	1	93
3	Lift 1 - SE quandrant of pad	SG	137.3 / 14.2	17.1	120.2	1	90
4	Lift 1 - NE quandrant of pad	SG	142.7 / 14.0	10.6	131.7	1	99
5	Lift 2 - NE quadrant of pad	SG	136.1 / 15.1	12.5	121.0	1	91
6	Lift 2 - NW quadrant of pad	SG	138.0 / 16.8	13.9	121.2	1	91
7	Lift 2 - SW quadrant of pad	SG	116.6 / 9.6	8.9	107.0	2	100+
8	Lift 2 - SE quadrant of pad	SG	115.4 / 17.1	17.4	98.3	2	93
9	Lift 1 - Far SE corner	SG	127.3 / 18.5	17.1	108.7	2	100+
10	Lfit 1 - Far S central section	SG	126.4 / 19.7	18.5	106.6	2	100+

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity From the Ground Up

IN-PLACE DENSITY TESTS

Client: Arcadis

Project: Josephine Mill No. 1

Report No.: 21984
Date: 9/21/2010
Client No.: ARCADI
Project No.: S10103A

TEST RESULTS

Field No. Lab No.	Location:	Elevation	Field Wet Density, pcf	Field Moist., %	Field Dry Density, pcf	MD No.	% of Max Density
11	Lift 1 - Far SW corner	SG	125.9 18.5	17.2	107.4	2	100+
12	Lift 3 - NE section of pad	SG	117.1 9.8	9.5	107.3	2	100+
13	Lift 3 - NW section of pad	SG	136.1 14.1	11.6	121.9	1	91
14	Lift 3 - S central sectin of pad	SG	140.7 11.6	9.0	129.1	1	97

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4' BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: September 22, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density	6:30	6:00	11.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:

Name	Position	Company
Andrew Roberts	Supervisor	Arcadis

Narrative:

STRATA arrived on-site at the request of Tom Mullen with Arcadis to conduct compaction testing. STRATA performed several nuclear density tests on each lift of the fill area. Arcadis placed each lift in approximate 12-inch loose (10-inch compacted) thickness. The fill material consisted of gravel with sand and organics and silty sand. All test results from today met project specifications of 90 percent maximum density. Results were reported to Andy on-site. See attached in-place density tests sheet for results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ Signature _____ Name/Company (print)

Strata Representative: _____ Signature JP Cardin Name (print)

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity From the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22118
Client: Arcadis — Date: 09/22/10
Client No.: ARCADI
Project: Josphine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: CPN — Serial No.: M37037496
Std Count - Density N_1: — Density N_4: — Moist N_1: — Moist N_4:

Test Location Selected By: Strata Rep.: JP Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	133.5	9.5	RC-Gravel with Sand and Organics (TP-5) #3
2)	106.0	16.0	Silty Sand (TP-7) #4
3)			
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. / Lab No.	Location	Elevation	Field Wet Density, pcf / Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	Lift 4 - NE section of pad	SG	140.9 / 10.8	8.3	130.0	1	97
2	Lift 4 - NW section of pad	SG	133.5 / 10.9	8.9	122.6	1	92
3	Lift 4 - SW section of pad	SG	134.4 / 13.0	10.7	121.4	1	91
4	Lift 4 - SE section of pad	SG	114.8 / 18.2	18.8	96.6	2	91
5	Lift 5 - NE corner of pad	SG	/	15.2	106.0	2	100
6	Lift 5 - N central section of pad	SG	126.3 / 21.6	20.6	104.7	2	99
7	Lift 5 - NW corner of pad	SG	126.9 / 17.8	18.5	107.0	2	100+
8	Lift 5 - SE corner of pad	SG	121.5 / 22.4	22.6	99.1	2	94
			/				
			/				

Elevations: FB = Finished Base; SB = Subbase; SG = Subgrade; FTG = Footing Grade
EG = Existing Grade; AC = Asphalt Concrete; B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number: N/A
Date: Thursday September 23, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			11.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents: N/A

Reported To:
Andrew Roberts (Name) | Supervisor (Position) | Arcadis (Company)
John (Name) | Supervisor (Position) | Arcadis (Company)

Narrative:

STRATA arrived on-site as requested by Tom Mullen with Arcadis to conduct in-place density testing of fill material. STRATA performed 2 density tests on the remainder of the 5th lift and 6 tests on the 6th lift. The fill material consisted of gravel with sand and organics and silty sand. All test results me project specifications of 90% maximum density. Results were reported to John on-site. See the attached density sheet for test results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ Signature / _____ Name/Company (print)

Strata Representative: _____ Signature / Jon-Paul Cardin Name (print)

Reviewed: Angela Lemmeman

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22157
Client: Arcadis
Date: 09/23/10
Client No.: ARCADI
Project: Josephine Mill No. 1
Project No.: S10103A

Test Method: (N) Nuclear Densometer X ASTM D2922/D3017 AASHTO T238/T239
(S) Sand Cone ASTM D1556/D2216 AASHTO T191
Gauge Make/Model: CPN Serial No.: M37037496
Std Count - Density N_1: Density N_4 Moist N_1 Moist N_4

Test Location Selected By: Strata Rep.: Jon-Paul Cardin Your Personnel:
Contractor: Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	133.5	9.5	GRAVEL with Sand and Organics (TP-5 #3)
2)	106.0	16.0	Silty SAND (TP-7 #4)
3)	103.5	18.5	Sandy SILT with Trace Organics (TP-9 SL081610-1)
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	Lift 6 - NW section of pad	SG		14.4	120.4	1	90
2	Lift 5 - SW section of pad	SG		23.1	105.7	2	100
3	Lift 5 - Center of pad	SG		11.0	121.9	1	91
4	Lift 6 - N. central section of pad	SG		15.7	104.8	2	99
5	Lift 6 - NE section of pad	SG		25.0	100.2	2	95
6	Lift 6 - SE section of pad	SG		17.7	97.0	2	92
7	Lift 6 - S. central section of pad	SG		17.5	101.7	2	96
8	Lift 6 - SE section of pad	SG		15.5	104.7	2	99

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number: N/A
Date: Friday September 24, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			12.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other:

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents: N/A

Reported To:
Andrew Roberts (Name) | Supervisor (Position) | Arcadis (Company)
John (Name) | Supervisor (Position) | Arcadis (Company)

Narrative:

STRATA arrived on-site as requested by Tom Mullen with Arcadis to conduct in-place density testing of fill material. STRATA performed several density tests on each lift of the fill area. Due to heavy rain, the central area of the fill pad experienced pumping. Arcadis removed the problem area and replaced with dryer material. The fill material consisted of gravel with sand and organics and silty sand. At the end of the day, Arcadis was removing pumping areas to replace with dryer material. Arcadis requested STRATA's services for tomorrow Saturday September 25th, 2010 to continue to test the fill.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) Jon-Paul Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22155
Client: Arcadis
Date: 09/24/10
Client No.: ARCADI
Project: Josephine Mill No. 1
Project No.: S10103A

Test Method: (N) Nuclear Densometer X ASTM D2922/D3017 ____ AASHTO T238/T239 ____
(S) Sand Cone ____ ASTM D1556/D2216 ____ AASHTO T191 ____
Gauge Make/Model: CPN Serial No.: M37037496
Std Count - Density N_1: ____ Density N_4 ____ Moist N_1 ____ Moist N_4 ____

Test Location Selected By: Strata Rep.: Jon-Paul Cardin Your Personnel: ____
Contractor: ____ Other: ____

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	133.5	9.5	GRAVEL with Sand and Organics (TP-5 #3)
2)	106.0	16.0	Silty SAND (TP-7 #4)
3)	103.5	18.5	Sandy SILT with Trace Organics (TP-9 SL081610-1)
4)			

ASTM D698 X
ASTM D1557 ____
AASHTO T99 ____
AASHTO T180 ____

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	Lift 7 - N. central section of pad	SG		12.5	121.2	1	91
2	Lift 7 - SE section of pad	SG		13.8	121.2	1	91

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number: N/A
Date: Saturday September 25, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			7	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents: N/A

Reported To:

Name	Position	Company
Andrew Roberts	Supervisor	Arcadis
John	Supervisor	Arcadis

Narrative:

STRATA arrived on-site and the contractor was not ready. The contractor cancelled the compaction testing for next week as well. STRATA returned to the office.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ Signature _____ Name/Company (print)

Strata Representative: _____ Signature Shawn Swearingen Name (print)

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Tuesday September 28, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SOS	Obtain Sample			4.5	195

Equipment
☐ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate X Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:
Andrew Roberts (Name) — Supervisor (Position) — Arcadis (Company)
___ (Name) — ___ (Position) — ___ (Company)

Narrative:

STRATA arrived on-site as requested by Andrew Roberts with Arcadis to obtain a sample of the fill material being used at the site. STRATA collected a representative sample and transported it to the laboratory for testing.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) Jon-Paul Cardin (Name (print))

Reviewed: Angela Lemmeman

MOISTURE-DENSITY RELATIONSHIP CURVE

ASTM D 698
Method C

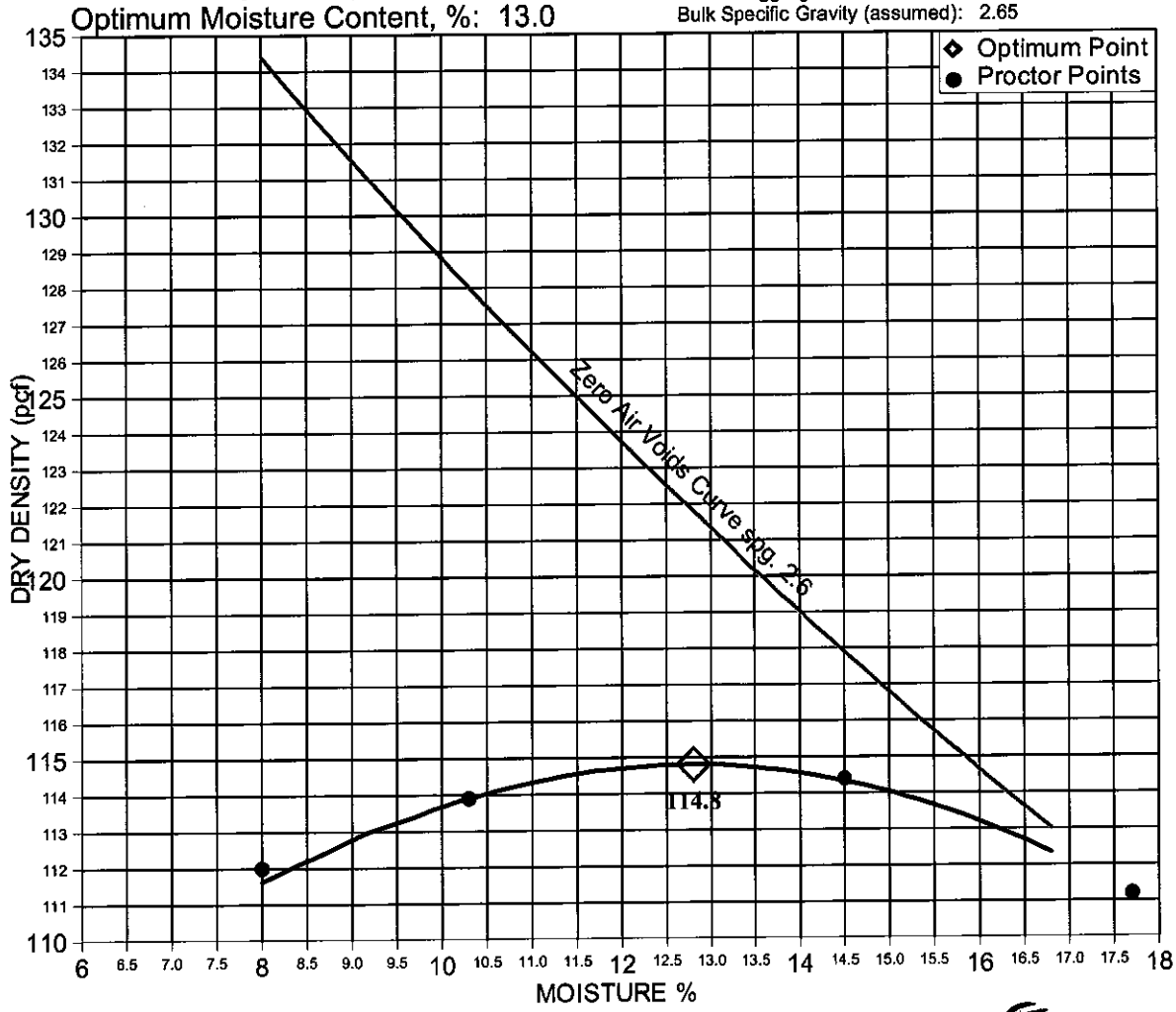
Project: Josephine Mill No. 1
Client: Arcadis
File Name: ARCADI S10103A
Date Tested: September 29, 2010
Tested By: JP. Cardin
Sample Number: SL92810-2
Sample Location: Fill Pad
Sample Description: Silty SAND with Gravel and Cobbles

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
4 inch		
2 inch	100	
3/4 inch	88	100
3/8 inch		
#4 screen		
#200 screen		

Corrected Dry Density, pcf: 119.5
Corrected Moisture Content, %: 11.5
Coarse Aggregate Correction, %: 12
Bulk Specific Gravity (assumed): 2.65

Maximum Dry Density, pcf : 115.0
Optimum Moisture Content, %: 13.0



Reviewed By Cole W. Wright

STRATA
A PROFESSIONAL SERVICES CORPORATION
Empowered From the Ground Up

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Friday October 1, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			7.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:

Name	Position	Company
Andrew Roberts	Supervisor	Arcadis

Narrative:

STRATA arrived on-site as requested by Andrew Roberts with Arcadis to conduct in-place density testing on the fill area. STRATA performed 6 nuclear density tests throughout the fill area. All tests met project specifications of 90% maximum density. Results were reported to Andrew on-site. See the attached density sheet for test results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ Signature _____ Name/Company (print)

Strata Representative: _____ Signature Jon-Paul Cardin Name (print)

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22192
Client: Arcadis — Date: 10/01/10
Client No.: ARCADI
Project: Josephine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: CPN — Serial No.: M37037496
Std Count - Density N_1: — Density N_4: — Moist N_1: — Moist N_4:

Test Location Selected By: Strata Rep.: Jon-Paul Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	119.5	11.5	**RC**-Silty SAND with Gravel and Cobbles (SL92810-2)
2)			
3)			
4)			

ASTM D698: X
ASTM D1557:
AASHTO T99:
AASHTO T180:

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	NE section of pad	SG		18.5	109.0	1	91
2	N. central section of pad	SG		11.6	121.6	1	100+
3	NW section of pad	SG		13.3	119.1	1	100
4	SW section of pad	SG		9.0	120.9	1	100+
5	S. central section of pad	SG		13.7	109.7	1	92
6	SE section of pad	SG		16.2	115.1	1	96

Elevations: FB = Finished Base; SB = Subbase; SG = Subgrade; FTG = Footing Grade
EG = Existing Grade; AC = Asphalt Concrete; B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Thursday October 7, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			10.5	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
____ Concrete ____ Cubes ____ Mortar ____ Grout ____ Prisms ____ Asphalt
____ Aggregate ____ Soil ____ CMU ____ SAFRM ____ Other: ____

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:
Dave Frost (Name) | Supervisor (Position) | Arcadis (Company)
____ (Name) | ____ (Position) | ____ (Company)

Narrative:

STRATA arrived on-site as requested by Andrew Roberts with Arcadis to conduct in-place density testing on the fill area. STRATA performed 12 nuclear density tests throughout the area on each lift. All tests met project specifications of 90% maximum density. Results were reported to Dave on-site. See the attached density sheet for test results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) Jon-Paul Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22194
Client: Arcadis — Date: 10-710
Client No.: ARCADI
Project: Josephine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: CPN — Serial No.: M37037496
Std Count - Density N_1: — Density N_4 — Moist N_1 — Moist N_4

Test Location Selected By: Strata Rep.: Jon-Paul Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	119.5	11.5	RC-Silty SAND with Gravel and Cobbles (SL92810-2)
2)			
3)			
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1 Lift 1	NE section of pad	SG		13.9	119.5	1	100+
2 Lift 1	N. central section of pad	SG		11.9	115.3	1	97
3 Lift 1	NW section of pad	SG		10.5	111.6	1	93
4 Lift 2	SW section of pad	SG		14.4	119.6	1	100
5 Lift 1	S. central section of pad	SG		18.1	115.7	1	97
6 Lift 1	SE section of pad	SG		20.0	110.1	1	92
7 Lift 2	NE section of pad	SG		13.5	117.1	1	98
8 Lift 2	N. central section of pad	SG		13.7	116.1	1	97
9 Lift 2	NW section of pad	SG		14.5	112.8	1	94
10 Lift 2	SW section of pad	SG		16.9	110.1	1	92

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

IN-PLACE DENSITY TESTS

Client: Arcadis

Project: Josephine Mill No. 1

Report No.: 22194
Date: 10/7/2010
Client No.: ARCADI
Project No.: S10103A

TEST RESULTS

Field No. Lab No.	Location:	Elevation	Field Wet Density, pcf	Field Moist., %	Field Dry Density, pcf	MD No.	% of Max Density
11 Lift 2	S. central section of pad	SG		17.8	107.9	1	90
12 Lift 2	SE section of pad	SG		17.8	108.9	1	91

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4' BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Friday October 8, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			12	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other: ___

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:
Dave Frost (Name) | Supervisor (Position) | Arcadis (Company)
(Name) | (Position) | (Company)

Narrative:

STRATA arrived on-site as requested by Andrew Roberts with Arcadis to conduct in-place density testing on the fill area. STRATA performed 12 nuclear density tests throughout the fill area. All tests met project specifications of 90% maximum density. Results were reported to Dave on-site. See the attached density sheet for test results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) Jon-Paul Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22247
Client: Arcadis — Date: 10/08/10
Client No.: ARCADI
Project: Josephine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: CPN — Serial No.: M37037496
Std Count - Density N_1: — Density N_4: — Moist N_1: — Moist N_4:

Test Location Selected By: Strata Rep.: Jon-Paul Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	119.5	11.5	RC-Silty SAND with Gravel and Cobbles (SL92810-2)
2)			
3)			
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1 Lift 1	NE section of pad	SG		8.6	125.9	1	100+
2 Lift 1	N. central section of pad	SG		8.2	117.9	1	99
3 Lift 1	NW section of pad	SG		9.3	116.9	1	98
4 Lift 1	SW section of pad	SG		14.7	111.8	1	94
5 Lift 1	S. central section of pad	SG		13.2	116.2	1	97
6 Lift 1	SE section of pad	SG		14.9	113.3	1	95
7 Lift 2	NE section of pad	SG		15.3	109.0	1	91
8 Lift 2	N. central section of pad	SG		17.0	110.1	1	92
9 Lift 2	NW section of pad	SG		14.5	109.4	1	92
10 Lift 2	SW section of pad	SG		15.7	110.1	1	92

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4'BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From The Ground Up

IN-PLACE DENSITY TESTS

Client: Arcadis

Project: Josephine Mill No. 1

Report No.: 22247
Date: 10/8/2010
Client No.: ARCADI
Project No.: S10103A

TEST RESULTS

Field No. Lab No.	Location:	Elevation	Field Wet Density, pcf	Field Moist., %	Field Dry Density, pcf	MD No.	% of Max Density
11 Lift 2	S. central section of pad	SG		12.7	107.7	1	90
12 Lift 2	SE section of pad	SG		13.5	118.0	1	99

Elevations: FB = Finished Base SB = Subbase SG = Subgrade FTG = Footing Grade
EG = Existing Grade AC = Asphalt Concrete B preceding elevation designates below (i.e. 4' BSG)

Remarks:

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Monday October 11, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density			6	195

Equipment
☑ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
___ Concrete ___ Cubes ___ Mortar ___ Grout ___ Prisms ___ Asphalt
___ Aggregate ___ Soil ___ CMU ___ SAFRM ___ Other:

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents:

Reported To:
Andrew Roberts (Name) | Supervisor (Position) | Arcadis (Company)
(Name) | (Position) | (Company)

Narrative:

STRATA arrived on-site as requested by Andrew Roberts with Arcadis to conduct in-place density testing on the fill material. STRATA performed 6 nuclear density tests throughout the lift of the fill area. All tests met project specifications of 90% maximum density. Results were reported to Andrew on-site. See the attached density sheet for test results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) Jon-Paul Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity from the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22249
Client: Arcadis — Date: 10/11/10
Client No.: ARCADI
Project: Josephine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: CPN — Serial No.: M37037496
Std Count - Density N_1: — Density N_4: — Moist N_1: — Moist N_4:

Test Location Selected By: Strata Rep.: Jon-Paul Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	119.5	11.5	**RC**-Silty SAND with Gravel and Cobbles (SL92810-2)
2)			
3)			
4)			

ASTM D698 X
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1	NE section of pad	SG		16.6	107.8	1	90
2	SE section of pad	SG		17.4	111.4	1	93
3	S. central section of pad	SG		18.1	111.8	1	94
4	SW section of pad	SG		17.7	111.7	1	94
5	NW section of pad	SG		17.8	109.6	1	92
6	N. central section of pad	SG		18.5	108.1	1	91

Elevations: FB = Finished Base; SB = Subbase; SG = Subgrade; FTG = Footing Grade
EG = Existing Grade; AC = Asphalt Concrete; B preceding elevation designates below (i.e. 4'BSG)

Remarks:

MOISTURE-DENSITY RELATIONSHIP CURVE

ASTM D 698
Method B

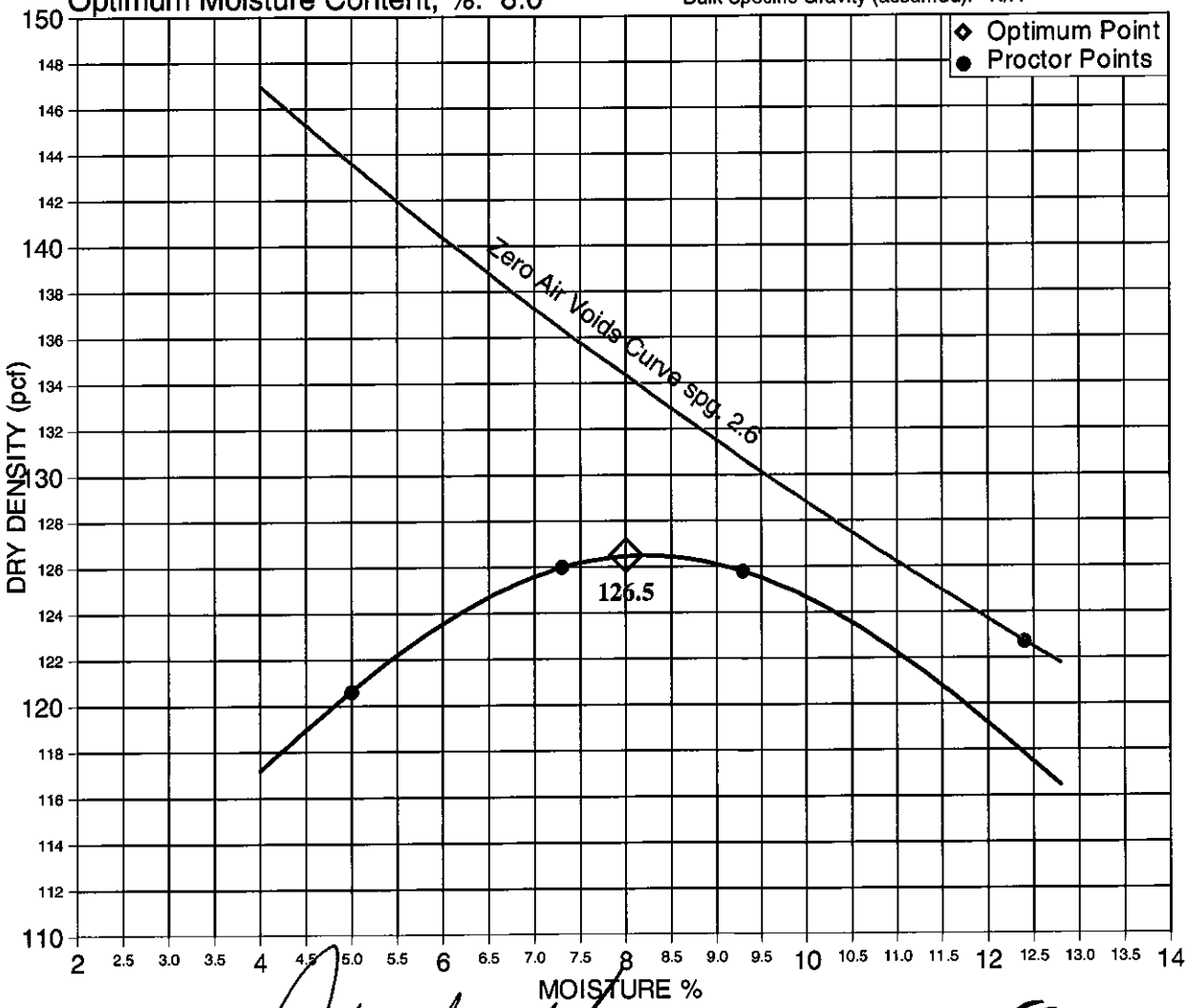
Project: Josephine Mill
Client: Arcadis
File Name: ARCADI C10050A
Date Tested: September 16, 2010
Tested By: R. Matteson
Sample Number: SL091010-1
Sample Location: Not Provided
Sample Description: 3/8-inch Minus Topping Material

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
4 inch		
2 inch		
3/4 inch		
3/8 inch	100	100
#4 screen		
#200 screen		

Corrected Dry Density, pcf: N/A
Corrected Moisture Content, %: N/A
Coarse Aggregate Correction, %: N/A
Bulk Specific Gravity (assumed): N/A

Maximum Dry Density, pcf : 126.5
Optimum Moisture Content, %: 8.0



Reviewed By _____

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity From the Ground Up

MOISTURE-DENSITY RELATIONSHIP CURVE

ASTM D 698
Method C

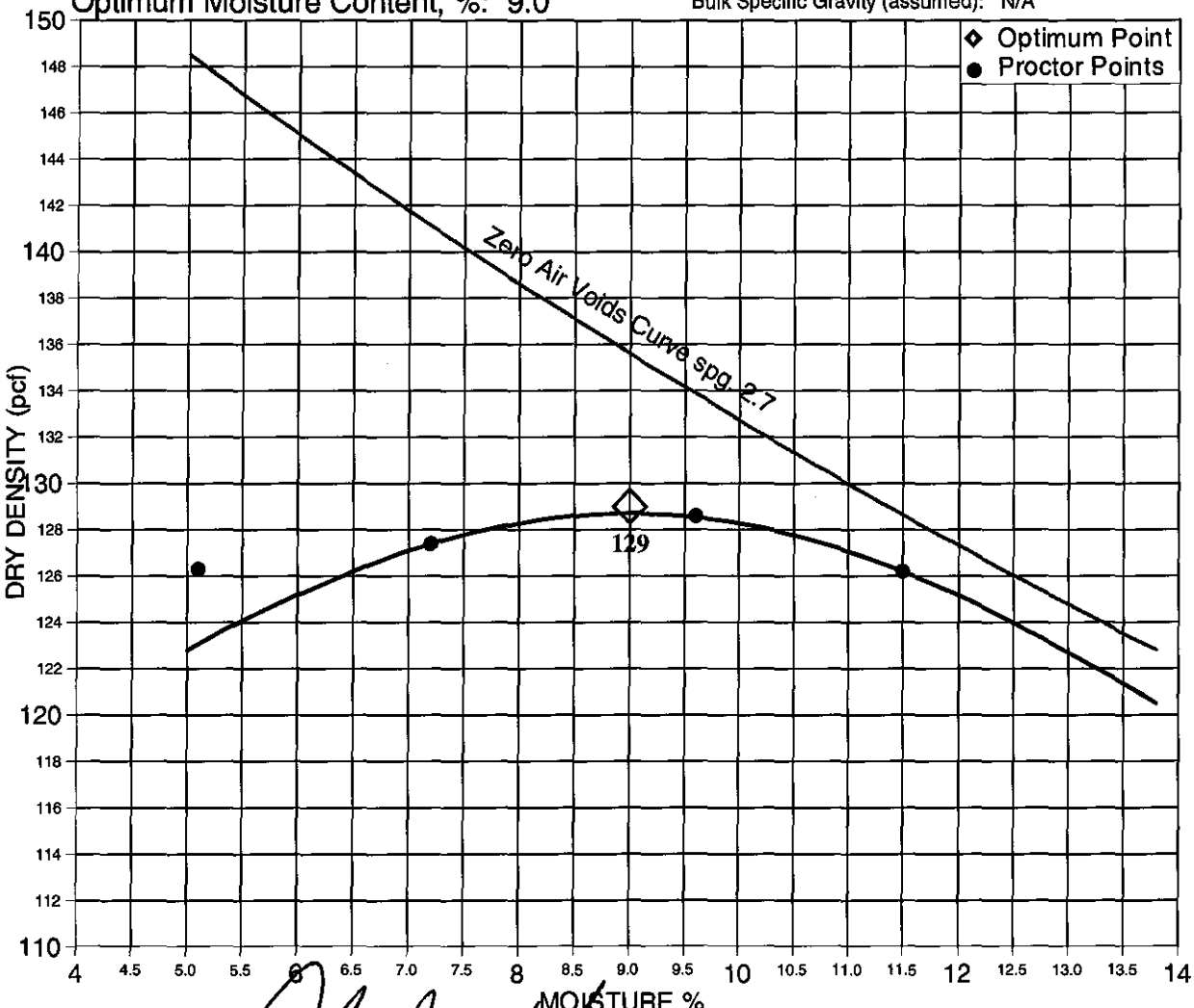
Project: Josephine Mill No. 1
Client: Arcadis
File Name: ARCADI S10103A
Date Tested: October 8, 2010
Tested By: C. Warrick
Sample Number: SL10710-1
Sample Location: On-site Stockpile - Ione Pit
Sample Description: Silty SAND

GRADING ANALYSIS

SCREEN SIZE	% PASSING	AS TESTED
6 inch		
4 inch		
2 inch		
3/4 inch	100	100
3/8 inch		
#4 screen		
#200 screen		

Corrected Dry Density, pcf: N/A
Corrected Moisture Content, %: N/A
Coarse Aggregate Correction, %: N/A
Bulk Specific Gravity (assumed): N/A

Maximum Dry Density, pcf : 129.0
Optimum Moisture Content, %: 9.0



Reviewed By:

STRATA
A PROFESSIONAL SERVICES CORPORATION
Integrity From the Ground Up

STRATA
A Professional Services Corporation
Integrity From the Ground Up

DAILY FIELD REPORT

Project Name: Josephine Mill No. 1
Project Address: Old Pend Oreille Mines Rd, Metaline Falls, WA
Permit Number:
Date: Tuesday October 13, 2010
Client No.: ARCADI
Project No.: S10103A

Activity Code	Description	From	To	Hours	Miles
SFD	Field Density	6:30	5:30	11	195

Equipment
☐ Densometer ☐ Mobile Laboratory ☐ Torque Wrench ☐ Floor Flatness ☐ Core Barrel
☐ Coring Equipment ☐ Rebar Locator ☐ Skidmore ☐ NDT Equipment ☐ Core Diameter

Samples
____ Concrete ____ Cubes ____ Mortar ____ Grout ____ Prisms ____ Asphalt
____ Aggregate ____ Soil ____ CMU ____ SAFRM ____ Other: ____

Distribution:
Mr. Tom Mullen – Arcadis
Ms. Paula Lyon – Arcadis
Mr. Andrew Roberts - Arcadis

Reference Documents: N/A

Reported To:
Andrew Roberts (Name) | Supervisor (Position) | Arcadis (Company)
____ (Name) | ____ (Position) | ____ (Company)

Narrative:

STRATA arrived on-site at the request of Andy with Arcadis to perform compaction testing on the fill material. STRATA conducted 10 nuclear density tests throughout the fill pad. Test results indicate compaction meets or exceeds the project specification of 90 percent for areas tested. Results were reported to Dave on-site. See attached in-place density tests sheet for results and locations.

SAMPLE SUMMARY

Set No.	Mix No.	Supplier	Ticket No.	Truck No.	Slump (inches)	Air Temp. (°F)	Mix Temp. (°F)	Air Content (%)	Unit Weight (PCF)	Material	Total (Yd^3)

Sample Locations:

Weather: ☐ Sunny ☐ Cloudy ☐ Rainy ☐ Windy

Project Representative: _____ (Signature) _____ (Name/Company (print))

Strata Representative: _____ (Signature) JP Cardin (Name (print))

Reviewed: Angela Lemmeman

STRATA
A Professional Services Corporation
Integrity From the Ground Up

IN-PLACE DENSITY TESTS

Report No.: 22275
Client: Arcadis — Date: 10/13/10
Client No.: ARCADI
Project: Josephine Mill No. 1 — Project No.: S10103A

Test Method: (N) Nuclear Densometer X — ASTM D2922/D3017 — AASHTO T238/T239
(S) Sand Cone — ASTM D1556/D2216 — AASHTO T191
Gauge Make/Model: Troxler 3430 — Serial No.:
Std Count - Density N_1: — Density N_4: — Moist N_1: — Moist N_4:

Test Location Selected By: Strata Rep.: JP Cardin — Your Personnel:
Contractor: — Other:

Project Specifications: Minimum Percent Compaction: 90%

	Max. Density, pcf:	Opt. Moist.	Visual Description of Soil
1)	119.5	11.5	**RC**-Silty SAND with Gravel and Cobbles (SL92810-2)
2)			
3)			
4)			

ASTM D698
ASTM D1557
AASHTO T99
AASHTO T180

Test Results which do not meet the minimum requirements are underlined. "RP" after underlined tests results indicates that additional compactive effort has been applied and has been retested with results meeting the minimum requirements.

TEST RESULTS

Field No. Lab No.	Location	Elevation	Field Wet Density, pcf Moist, pcf	Field Moist, %	Fld. Dry Density, pcf	MD No.	% of Max. Density Obtained
1 - lift 1	NW quadrant of pad	SG	141.6 / 16.7	13.4	124.9	1	100+
2 - lift 1	NE quadrant of pad	SG	128.9 / 18.5	16.8	110.4	1	92
3 - lift 1	SE quadrant of pad	SG	129.2 / 18.7	16.9	110.4	1	92
4 - lift 1	SW quadrant of pad	SG	140.7 / 18.9	15.5	121.8	1	100+
5 - lift 1	Central area of pad	SG	134.6 / 16.7	14.2	117.9	1	99
6 - lift 2	NE quadrant of pad	SG	123.0 / 17.2	16.3	105.8	2	100
7 - lift 2	NW quadrant of pad	SG	120.6 / 18.9	18.6	101.7	2	96
8 - lift 2	SW quadrant of pad	SG	121.0 / 21.5	21.6	99.5	2	94
9 - lift 2	SE quadrant of pad	SG	121.3 / 24.1	24.8	97.2	2	92
10 - lift 2	Central area of pad	SG	119.0 / 19.1	19.1	99.9	2	94

Elevations: FB = Finished Base; SB = Subbase; SG = Subgrade; FTG = Footing Grade
EG = Existing Grade; AC = Asphalt Concrete; B preceding elevation designates below (i.e. 4'BSG)

Remarks:

Appendix D

Site Photographs

1. Mobilization to site and initial site clearing

2. Installation of BMP prior to soil movement

3. Example of some wood debris encountered

4. Metal debris consolidation.

5. Cleared base of the repository area

6. Repository area geogrid base

7. Compaction of repository lift

8. Removal of soils near foundations of Mill.

9. Staging of soils to be compacted in repository

10. Repository waste area

11. Compaction testing

12. Repository prior to membrane installation

13. Membrane installation

14. Confirmation Sample location

15. Cover soil being applied on repository

16. Removal area graded and backfilled

17. Repository cover soils in place

ARCADIS

Appendix E

Post Closure Maintenance and Monitoring Plan

ARCADIS
Infrastructure · Water · Environment · Buildings

Imagine the result

Stimson Lumber Company

Post-Removal Site Control Plan
Josephine Mill No. 1

CERCLIS ID No. WAN001002401
Pend Oreille County, Washington

February 23, 2012

ARCADIS

Trent A. Weise, P.E.
Principal Engineer

Post Removal Site Control Plan

Josephine Mill No. 1
Pend Oreille County, Washington

Prepared for:
Stimson Lumber Company

Prepared by:
ARCADIS U.S., Inc.
2310 North Molter Road
Suite 101
Liberty Lake
Washington 99019
Tel 509.535.7225
Fax 509.535.7361

Our Ref.:
SK030179.0002

Date:
February 23, 2012

ARCADIS

Table of Contents

1. Introduction

On behalf of Stimson Lumber Company (Stimson), ARCADIS U.S. Inc. (ARCADIS) has prepared this "Post Removal Site Control Plan" to outline the requirements of long- term maintenance and monitoring necessary to ensure the protection and long- term stability of the mine waste repository constructed at the former Josephine Mill No. 1 in Pend Oreille County, Washington (the "Site"). The repository was constructed as part of the Administrative Settlement Agreement and Order on Consent Docket No. CERCLA-10-2010-0180 (ASAOC) between the United States Environmental Protection Agency (EPA) and Stimson for the former Josephine Mill No. 1 and in accordance with the EPA-approved "Removal Action Work Plan" (RAWP). This document is submitted as an Appendix E to the Removal Action Report. Record drawings of the completed mine waste repository can be found in Appendix A of the Removal Action Report.

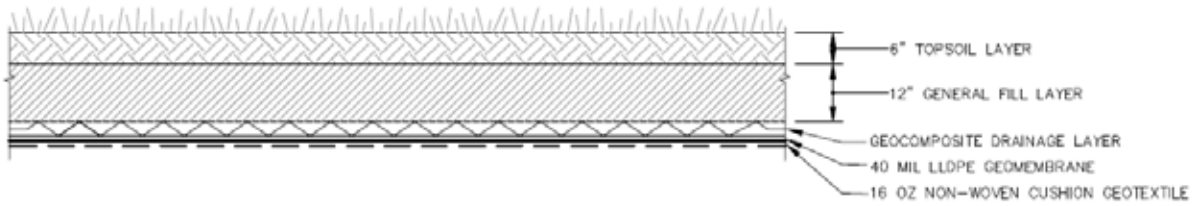
1.1 Site Location

The former Josephine Mill No. 1 is located in northeast Washington, approximately 1.5 miles northwest of the city of Metaline Falls in the southwest half (SW½) of Section 16, Township 39N, Range 43 W, Willamette Meridian, Pend Oreille County, Washington. The Site's approximate geographic coordinates are Latitude 48°52' 29.99" North, Longitude 117°22' 50.77" West. The Site is accessed by Pend Oreille County Highway 2975 (also referred to as the Boundary Dam Road) and the unpaved Old Pend Oreille Mine Road. Site access to the public is limited by a locked gate. The Site is bounded to the southeast by Flume Creek, which flows to the north-northeast and discharges into the Pend Oreille River.

2. Mine Waste Repository

On September 13, 2012, construction of the mine waste repository was completed. The mine waste repository consists of consolidated mine tailings from across the site. The consolidated mine waste was compacted, graded and capped with a low-permeability cover system. The cover system consists of a 16-ounce non-woven geotextile placed on the mine waste followed by a layer of 40-mil low-density polyethylene liner (LLDPE) that is protected by a geocomposite drainage layer and 18 inches of soil cover. Figure A presents a cross section of the cover system.

Figure A: Cover System Cross-Section



Perimeter under-drains were installed to route groundwater around the repository to help maintain stability of the mine waste. The surface of the repository is graded to shed stormwater towards the stormwater collection ditch located on the eastern side of the repository.

3. Protection of the Repository

The mine waste repository was constructed at the Site to limit exposure of the mine waste to humans and the environment. The primary risk to the repository is willing or unwilling vandalism by unauthorized trespassers that may damage the integrity of the cover system. There is a lesser risk of damage to the cover system by animals. Large woody debris and large boulders were placed to discourage human use and potential for damage of Site structures.

"No Trespassing" signage is posted at the locked gate to the access road and at the eastern property boundary to warn and discourage trespassers from entering onto the property.

3.1 Long Term Maintenance and Monitoring

The long- term protection of the mine waste repository will be ensured by the periodic inspection of the repository to ensure that the required control measures are in-place and that the repository has not been damaged. This section describes the inspection protocol and schedule.

3.1.1 Periodic Monitoring Protocol

Site inspections will be performed at the monitoring schedule discussed under Section 3.3.2. Each Site inspection will include the following:

- Confirm presence and condition of warning signage
- Confirm presence and operation of site controls including access gates
- Observe the condition of the repository cover and identifying areas of movement, erosion or exposed liner
- Observe operation of the underdrain system and cleanout as necessary
- Observe the condition of stormwater management structures
- Visual evidence or indications of mine waste release

Any sign or potential sign of damage will be photo-documented and marked as appropriate.

Following each site inspection the observations will be documented, areas requiring repair will be photographed and repairs recommended. Minor repairs that can be performed immediately will be

completed. If significant damage is observed requiring repair, the inspection report will recommend repair plan. Completed inspection reports will be submitted to the EPA 45 days following each inspection.

3.1.2 Monitoring Schedule

Mine waste repository inspections will be performed under the following schedule:

- annually , once in the Spring following peak runoff and/or within 5 days of a 100-year storm event the first two years;
- Annually thereafter

After the first five years of monitoring it is appropriate to assess the monitoring schedule based upon the results of the periodic inspections and effectiveness of the protective measures.

4. Potential Singularly Damaging Events

This section describes potential events that may damage the cap structure and risk endangering the public health or environment. The appropriate responses to assess the damage and associated risks are further described in Section 5.

4.1 Earthquake

The project site is located in a seismically active area and there is the potential for significant seismic events. Seismic events were considered in the design of the repository; however it is possible that a seismic event could exceed the design assumptions or cause land movement around the repository.

4.2 Extreme Weather Event

The Site grading, cover system, and stormwater management structures were sized for the 100-year 24-hour storm event. It is not inconceivable that a higher storm event can occur, causing higher runoff volumes (e.g. rapid spring runoff from snow melt coinciding with a heavy precipitation event). Other extreme weather events include extreme wind, extreme heat, etc.

Runoff in excess of the design runoff volumes can cause 1) damage to the stormwater conveyance system such as the stormwater collection ditch,2) excessive erosion of the cover soils, 3) regional flooding raising groundwater elevations and the elevation of Flume Creek that may cause erosion, and/or 4) other issues not conceived here.

4.3 Forest Fire

The former Josephine Mill No. 1 and the mine waste repository is located with a heavily forested area; therefore it is conceivable that a forest fire could occur in the immediate vicinity of the repository. Significant fire damage is mitigated by the 18-inch soil layer protecting the LLDPE liner. However, a fire can cause significant damage, or even total destruction of the above-described structures.

5. Potential Significant Post-Events Responses

This section describes post-event inspections and schedule to develop and implement appropriate repairs.

5.1 Post-Event Inspection

Following a significant event such as an earthquake, extreme rain event, or forest fire a post-event inspection is required. Stimson personnel (or their contractor) with appropriate knowledge and experience will conduct inspection of the mine waste repository. The inspection will focus on the following main items:

- Signs of waste release
- Damage to soil cover
- Damage to rip-rap in the stormwater management area
- Damage to liners
- Damage to access roads
- Damage to stormwater management structures

Any sign or potential sign of damage will be photo-documented and marked as appropriate.

The inspection will be repeated periodically to ascertain whether additional signs of damage develop over time at the discretion of the inspector. This could indicate ongoing deformation, leading to larger cumulative failure.

A list of the inspected areas will be compiled for future evaluation.

5.2 Post-Event Damage Assessment and Repair Planning

During the initial inspection Stimson personnel (or contractor) will render an immediate opinion, if a sign of damage would require immediate attention. Immediate attention is required if release of contaminated soil, sediment or water is suspected. In case of such an occurrence, the immediate action needs to be taken that may include the following:

- Use of absorbent materials to capture liquid waste
- Use of clean soil to cover any crack, fissure that have showed release
- Additional BMP and/or stormwater controls to prevent or mitigate a potential release to Flume Creek;

Irrespective of the immediate repair of areas exhibiting potential release , all inspected items/areas (compiled as discussed above) will require a detailed assessment of the damage and recommended repairs.

The damage assessment will include the following main elements:

- Exact location of the damage
- Damage description
- Extent, area, volume of the damage
- Number and pieces of equipment, appurtenance, structure, fixture damaged
- Proposed repair action with appropriate sketches
- Recommended timeframe of repair

5.3 Post-Event Reporting

Stimson will submit an initial inspection report to the EPA 72 hours after the inspection is completed. Based on the damage assessment a Repair Plan will be prepared and will be submitted to the EPA as soon as practicable. Upon EPA's review and approval of the Repair Plan, a timeframe for the implementation of the repair actions will be established.