Materials Management Completion Report

City of Port Angeles Combined Sewer Overflow
Phase 1 Upgrade Project
Port Angeles Rayonier Mill Site
Port Angeles, Washington

for
Rayonier, Inc.

September 6, 2013

GeoEngineers
Earth Science + Technology

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City of Port Angeles Combined Sewer Overflow Phase 1 Upgrade Project Port Angeles Rayonier Mill Site Port Angeles, Washington

File No. 0137-015-03

September 6, 2013

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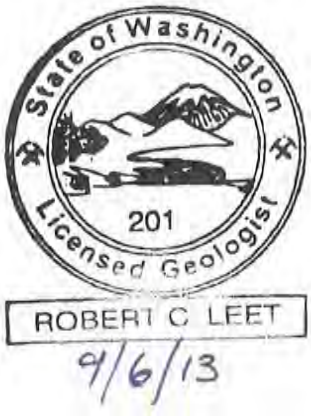

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1.0 INTRODUCTION

1.1. Background

This Materials Management Completion Report describes the management and disposition of materials excavated at the former Port Angeles Rayonier Mill property in Port Angeles, Washington (the mill property) in 2012 and 2013, during the City of Port Angeles' (City's) Combined Sewer Overflow (CSO) Phase 1 Upgrade Project (CSO project). The general purpose and scope of the CSO project is described in the Final Materials Management Plan (MMP) (GeoEngineers, 2012a). The City's CSO project construction includes areas of the mill property owned by Rayonier, Inc. (Rayonier) and the City, as well as City-owned property adjacent to the mill property. This report covers construction activities completed on the mill property.

The City's construction contractor for the CSO project (IMCO General Construction) began preliminary excavation work on the mill property in September 2012; the majority of the excavation work was conducted in October and November 2012. Mr. Theo Leonard of GeoEngineers was Rayonier's field representative during this two-month period, and was on-site to observe all significant excavation activities during the period. Excavation on the mill property slowed significantly, in both frequency and volume, beginning in early December 2012. Mr. Randy Boston was Rayonier's field representative from December 10, 2012 through July 2013. The CSO project is still in progress as of the date of this report. However, almost all excavation work on the mill property has been completed.

The results of previous environmental investigations conducted at the mill property identified dioxins/furans, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), and metals in soil at concentrations exceeding conservative regulatory screening levels. Collectively, these constituents are hereafter referred to in this document as constituents of potential concern (COPCs). The City's CSO project plans included the excavation of soil and the installation of piping and other equipment in areas of the mill property that were likely to contain one or more of these COPCs. Consequently, Rayonier developed the MMP and provided field oversight and construction support (soil stockpile construction and management) for the CSO excavation activities, to guide the appropriate management of the excavated materials.

1.2. Purpose and Scope of this Report

The MMP (GeoEngineers, 2012a), and a subsequent MMP Addendum (GeoEngineers, 2012b), described Rayonier's plan for managing excavated material during the CSO project construction. Rayonier's field activities supporting the CSO project were performed in general accordance with the MMP and MMP Addendum. The purpose of this Materials Management Completion Report is to document these field activities and to provide a summary of the quantities, classification, and disposition of the excavated soil. Topics discussed in this report are listed below:

- Historical activities at the mill property and the anticipated pre-construction soil conditions along the CSO pipeline alignment.

- Field activities during CSO excavation, including:
  - Roles and responsibilities.
  - General sequence/schedule of CSO excavation.
  - Construction of stockpile storage areas.
  - Field screening and segregation of excavated materials.
  - Overexcavation and disposal of visibly contaminated (Type 3) soil.
  - Construction and maintenance of soil stockpiles.
- Addendum to the Materials Management Plan.
- Quantities of soil excavated and disposition of excavated materials.
- Sampling and long-term soil stockpile maintenance and monitoring.

2.0 MILL PROPERTY HISTORICAL ACTIVITIES AND ANTICIPATED PRE-CONSTRUCTION SOIL CONDITIONS ALONG CSO PIPELINE ALIGNMENT

2.1. Historical Activities

The location of the former Port Angeles Rayonier Mill is shown in Figure 1. Rayonier operated the pulp mill for 63 years, from 1935 until 1998. The mill produced acetate, specialty paper, fluff, and viscose-grade pulps for industrial use. Soil and groundwater at the mill property became contaminated by releases of various hazardous substances during the course of the mill's operations. The scope and results of previous investigations to characterize the nature and extent of contamination on the mill property are detailed in the Public Review Draft Interim Action Report Volume I: Upland Data Summary Report for the Study Area (the Volume I Report) (GeoEngineers, 2012c).

2.2. Anticipated Pre-Construction Soil Conditions Along CSO Pipeline Alignment

Based on previous investigations, Rayonier, the City, and the Washington Department of Ecology (Ecology) anticipated that some of the soil the City was planning to excavate along the CSO pipeline alignment was likely to contain COPCs. Accordingly, prior to the start of CSO project construction, Rayonier used soil chemical analytical data from previous investigations to classify soil along the CSO alignment based on the anticipated COPC concentrations within the various pipeline segments identified in the City's project plans. This pre-construction soil evaluation (contained in Appendix A of the MMP; GeoEngineers, 2012a) was used by Rayonier's field representative to advise the City's contractor regarding the proper segregation and stockpiling of excavated soil during construction, in accordance with the MMP.

The pre-construction soil evaluation classified soil along the CSO pipeline alignment into four different soil types based on the anticipated COPC concentrations in the soil. These soil types are defined below. The anticipated spatial distribution of the soil types along the CSO pipeline alignment, developed prior to CSO construction, is shown in Figure 2.

- Type 1 Soil: soil with no visible contamination, and with COPC concentrations below the screening levels, published in the Volume I Report, that are protective of the primary exposure

pathways of potential concern for excavated CSO soil (i.e., the human health direct-contact and terrestrial ecological pathways).

- Type 2A Soil: soil with no visible contamination, and with COPC concentrations greater than the screening levels protective of the primary pathways of potential concern for excavated CSO soil, but less than ten times the screening levels.
- Type 2B Soil: soil with no visible contamination, and with COPC concentrations equal to or greater than ten times the screening levels protective of the primary pathways of potential concern for excavated CSO soil.
- Type 3 Soil: visibly contaminated soil (i.e., soil containing visible staining/discoloration, separate-phase hydrocarbons, significant quantities of boiler ash, etc.).

3.0 FIELD ACTIVITIES

3.1. Roles and Responsibilities

The City's construction contractor for the CSO project was IMCO General Construction; the City also contracted with Vanir Construction Management for construction management services. The City and its contractors were responsible for the following during construction:

- Excavating, segregating, and delivering soil, concrete, wood, and other debris to stockpile areas designated by Rayonier.
- Excavation dewatering as needed, including treatment and disposal of dewatering water.
- Archaeological monitoring, notifications, and permits.
- Backfilling and compacting all excavated areas.
- Preparing and executing a Health and Safety Plan (HASP) covering the City contractors' activities, including on-site safety meetings.

Rayonier and its construction contractor (Bruch & Bruch Construction) and consultants (GeoEngineers and Landau Associates) were responsible for the following during CSO project construction:

- Field screening excavated soils and advising the City's construction contractor regarding the appropriate stockpile areas for the soils, based on the anticipated soil types (i.e., Type 1, Type 2A, Type 2B, and Type 3).
- Advising the City's construction contractor regarding the appropriate stockpile area for concrete, wood, scrap metal, and other construction debris excavated during the CSO project.
- Collecting verification soil samples at the limits of overexcavation in areas where Type 3 soil was encountered.
- Providing roll-off containers for secure containment of Type 3 soil.
- Constructing, managing, and maintaining the soil stockpiles generated from CSO excavation activities on the mill property.

3.2. General Sequence/Schedule of CSO Excavation

CSO project construction began in early September 2012. The excavation activities began at the southernmost bridge that crosses Ennis Creek (Figure 2). The CSO project plans included installation of a new bridge over Ennis Creek, so the initial excavation activities included removing soil for the new piles and bridge abutments, as well as clearing an area directly east of the bridge for the staging of equipment and materials. Per the MMP, the soil in this area was anticipated to be Type 2A; no Type 3 (visibly contaminated) soil was encountered. Excavation activities throughout September 2012 were intermittent because the City's contractors were still in the process of procuring piping and other materials that would be needed for construction. Excavation activities in the vicinity of the southernmost bridge were mostly completed by the end of September.

No excavation occurred during the first few weeks of October 2012, as the City's contractors were still procuring piping and other construction materials. Excavation activities resumed on October 15, beginning at the western end of the westernmost pipeline segment on the mill property (segment 300-C-004; Figure 2). Trenching continued eastward along the pipeline alignment through October 18, when the trench reached a point just west of the former mill truck scales (Figure 2). Excavated soil up to this point primarily consisted of presumed Type 2A and Type 2B, although soil managed as Type 3 soil was encountered in three localized areas (Figure 2). Section 3.5 describes the overexcavation of Type 3 soil.

No excavation occurred through the remainder of October 2012, as the City's contractor was awaiting Ecology approval of the imported fill material proposed to be used as trench backfill. The contractor requested approval to use fill from a local sand and gravel pit (the D. Holcomb & Company Black Diamond Quarry in Port Angeles), but initial analytical testing of two samples of the proposed fill indicated that it contained concentrations of three metals (cobalt, copper, and silver) that exceeded the respective conservative soil screening levels published in the Volume I Report. On Rayonier's behalf, GeoEngineers provided assistance to the City and its contractor in obtaining Ecology's approval to use the fill material, and Ecology approved the material on October 30, 2012. Copies of pertinent correspondence between Ecology, the City, and GeoEngineers are included in Appendix A. (Note: in March 2013, Ecology requested that the City's contractor also analyze samples of imported topsoil and compost that the contractor was proposing to place over the top of some portions of the backfilled pipeline trench, to document that these materials did not contain COPC concentrations exceeding screening levels published in the Volume I Report. No COPCs were detected above screening levels in the topsoil sample. The final results of the compost sample analyses were not available as of the date of this report.)

Excavation activities resumed on November 6, 2012, beginning just west of the former mill truck scales, where trenching had stopped on October 18. Trenching continued eastward until the southernmost bridge over Ennis Creek was reached on November 8 (Figure 2). Excavated soil during this period mainly consisted of presumed Type 2A soil, with a small amount of presumed Type 2B soil. No Type 3 soil was encountered during this period.

Excavation activities resumed on November 12, 2012 near the southeastern end of pipeline segment 400-C-004 (Figure 2). Trenching proceeded to the northwest. The City's contractor performed excavation work several days each week through the remainder of November. During

this period, the eastern and central portions of segment 700-C-001 were excavated, as were segments 400-C-005 and 400-C-006 (Figure 2). (Note that segments 700-C-002 and 500-C-001 shown in Figure 2 cover the same portion of the pipeline alignment as segments 400-C-005 and 400-C-006; for field documentation purposes, GeoEngineers identified this portion of the pipeline alignment using the 400-C-005/400-C-006 designations.) The final day of excavation in November occurred on November 29, and consisted of removing soil for the influent diversion structure at the southern end of segment 400-C-006 (Figure 2). The soil excavated in November consisted of presumed Type 1, Type 2A, and Type 2B soil. No Type 3 soil was encountered during this period.

Excavation resumed on December 3, 2012 in the southwestern and western portions of pipeline segment 700-C-001. Excavation in this area continued through December 5. Additional excavation at the southern end of segment 400-C-006 (in the area of the influent diversion structure) also was performed during this period.

The last significant trench excavation on the mill property was completed on December 10, 2012 in the northern portion of segment 400-C-004. Between December 10, 2012 and January 4, 2013 excavation activities occurred in localized areas for items such as the storage tank stair tower, influent diversion structure, effluent diversion structure, and CSO return pump station.

On January 4, 2013, the City's engineer (James Burke) notified Rayonier that the total volume of soil remaining to be excavated on the mill property was approximately 15 to 20 truckloads (i.e., up to approximately 220 cubic yards), and that the soil would be generated sporadically from January through May 2013. This volume represented a small fraction of the total excavation volume on the mill property, and was to be excavated in areas where anticipated soil types had already been identified in the MMP. Consequently, in a conference call on January 4, Ecology, the City, and Rayonier agreed that it was no longer necessary for Rayonier to perform on-site monitoring and field screening of soil during excavation activities. Ecology, the City, and Rayonier agreed to the following modified approach to managing the excavated soil for the remainder of the CSO project:

- Rayonier would no longer provide monitoring and field screening of soil during excavation activities. Instead, for those excavations requiring stockpiling on Rayonier property, the City was authorized to have its contractor haul soil to Bin #1-9 in Stockpile Area 1 without a Rayonier representative on site.
- During excavation activity, a Rayonier representative would inspect the new soil placed in Bin #1-9 once per week for evidence of visible contamination (Type 3 soil). If Type 3 soil was observed, Rayonier's contractor would remove the Type 3 soil and place it in temporary storage (on plastic sheeting) in another storage bin until it could be hauled off-site for disposal. The remaining soil to be excavated was expected to be Type 2A soil, and would be managed as such unless it originated from a known Type 1 soil area, or was determined upon inspection to be Type 3 soil.
- Although Rayonier would no longer be providing real-time field screening of excavated soil, Rayonier was still required to maintain the stockpile areas on those days when excavated soil was delivered to the stockpile areas. Accordingly, the City agreed to contact Rayonier each day that excavation occurred, so that Rayonier could arrange to cover newly stockpiled soil at the end of each day.

- Although it was not discussed during the January 4, 2013 conference call, Rayonier also requested (via email) that if the City anticipated excavating four or more truckloads of soil on any given day, the City would notify Rayonier 48 hours in advance so that Rayonier could make arrangements to perform excavation monitoring and field screening on that day.

From January 4 through May 2013, the City's contractor performed sporadic, low-volume excavation activities in various areas along the CSO pipeline alignment on the mill property. These activities generated relatively small volumes of soil that were ultimately stockpiled in Bin #1-9 as planned. No Type 3 soil was observed by Rayonier's representative during inspections of the soil stored in Bin #1-9.

3.3. Construction of Stockpile Areas

In accordance with the MMP, Rayonier's contractor (Bruch & Bruch Construction) constructed three primary stockpile areas (Stockpile Areas 1, 2, and 3) prior to the start of CSO excavation activities. The stockpile areas were used to store and manage the soil (Areas 1 and 2) and debris (Area 3) excavated on the mill property during the CSO project. In addition, two roll-off containers used for temporary secure storage of Type 3 soil were staged in a separate area of the property, and a fourth "contingency" soil stockpile area was later constructed west of Stockpile Area 1, after Stockpile Areas 1 and 2 had become filled nearly to capacity. The locations of the stockpile areas and the roll-off container staging area are shown in Figure 3.

Stockpile Areas 1 and 2 were constructed to store excavated soil, while Stockpile Area 3 was constructed to store excavated concrete rubble, asphalt, wood and metal debris, and other construction debris encountered during excavation. In Stockpile Areas 1 and 2, separate storage bins were constructed to manage and segregate the various soil types. The bins were constructed using graded/compacted concrete rubble, imported clean fill (as needed to fill void spaces in the concrete rubble), geotextile fabric, silt fencing, and earthen berms and/or concrete ecology blocks. Drainage ditches were constructed between the bins to convey stormwater runoff from the stockpiles to designated runoff collection/infiltration areas.

Stockpile Area 1 was initially constructed with a total of eight storage bins and two stormwater collection and infiltration areas. With Ecology's approval, the southern stormwater infiltration area was later converted to a soil storage bin (Bin #1-9) to provide additional storage capacity. In addition, a temporary bin was constructed approximately 200 feet northwest of Stockpile Area 1 in January 2013 (Figure 3), to provide additional storage capacity should it be needed. As of the date of this report, the additional storage bin northwest of Stockpile Area 1 has not been utilized.

Stockpile Area 2 was initially constructed with a total of four storage bins and one stormwater collection and infiltration area. During the later phases of CSO excavation, wet soil was removed from some of the excavations. Because of the inherent challenges in handling and stockpiling wet soil, an additional storage bin (Bin #2-0) was constructed in Area 2, within the footprint of the mill's former primary wastewater clarifier (Figure 3). A water collection sump was built at the low point of this bin. Bin #2-0 was used for temporary storage of wet soil, to allow water to drain from the soil. After the soil was dewatered, it was transferred to Bin #1-9 in Stockpile Area 1 and managed as presumed Type 2A soil. Water in the sump was transferred to the City's temporary water treatment system used to store and treat excavation dewatering water.

3.4. Field Screening and Segregation of Excavated Materials

During CSO excavation activities, Rayonier's field representative performed field screening of excavated soil and advised the City's contractor regarding the appropriate stockpile area/storage bin for each truckload of excavated material. The main purpose of the field screening was to identify visibly contaminated (Type 3) soil. Between early September 2012 and January 4, 2013, a Rayonier representative was generally on-site to perform excavation monitoring and field screening every day that excavation occurred. Excavated soil was field-screened approximately every 15 to 20 minutes during excavation activities. As noted above, a modified approach to excavation monitoring and field screening was used after January 4, 2013. Field screening of soil consisted of sheen pan testing (water sheen test), visual inspection for discoloration/staining, and headspace vapor screening using a photoionization detector (PID).

As described above in Section 2.2, excavated soil was generally classified and segregated based on the anticipated soil type (Type 1, Type 2A, or Type 2B) defined in the MMP for each segment of the CSO pipeline alignment. Soil meeting Type 3 criteria (i.e., soil with apparent visible contamination) was encountered at three locations and was segregated and managed in accordance with the MMP – see Section 3.5 for additional discussion. Wood, concrete, and other debris encountered during excavation was segregated and placed in Stockpile Area 3 (Figure 3). The City was responsible for disposing of materials placed in Stockpile Area 3.

Soil presumed to be Type 1 based on the soil evaluation presented in the MMP was placed in three bins in Stockpile Area 1 (Bins #1-1, #1-6, and #1-8). Presumed Type 2A soil was placed in three bins in Stockpile Area 1 (Bins #1-4, #1-5, and #1-7) and four bins in Stockpile Area 2 (Bins #2-1, #2-2, #2-3, and #2-4). Presumed Type 2B soil was stored in two bins in Stockpile Area 1 (Bins #1-2 and #1-3). Type 3 soil was temporarily stored in the roll-off containers pending disposal. A small quantity of Type 3 soil was also temporarily stored in Bin #1-1 after the two roll-off containers became full, before presumed Type 1 soil was placed in Bin #1-1. The Type 3 soil in Bin #1-1 was placed on and covered by plastic sheeting. After the Type 3 soil was hauled off-site for disposal, Bin #1-1 was used to store presumed Type 1 soil as noted above.

3.5. Overexcavation and Disposal of Type 3 (Visibly Contaminated) Soil

Type 3 (visibly contaminated) soil impacted by petroleum staining was encountered during CSO excavation on October 16, 2012. On this date, dark gray soil staining was observed at the base of the pipeline trench near the western end of segment 400-C-001 (Figure 2). Water sheen testing of this soil yielded a heavy petroleum-like sheen, and petroleum-like odors were noted by Rayonier's field representative.

The petroleum-stained soil was overexcavated beyond the original design limits of the pipeline trench. The Rayonier field representative used visual observation and water sheen testing to estimate the lateral and vertical extent of soil staining, and advised the City's contractor accordingly during overexcavation. Field screening indicated that the soil staining extended to the groundwater table, which was encountered approximately 2 feet below the base of the 6-foot deep pipeline trench (i.e., 8 feet below ground surface [bgs]). The final volume of the overexcavated area below the original design elevation of the trench base was approximately 24 feet long, 12 feet wide, and 2 feet deep.

Exposed soil on the west, north, and east sidewalls of the overexcavated area did not exhibit a sheen when field-screened using the water sheen test. Soil at a depth of approximately 6 to 8 feet bgs on the south sidewall exhibited a moderate to heavy sheen. However, the south sidewall could not be excavated further without creating a vertical, unsupported sidewall along the City-defined "Area of Potential Effects" (APE) boundary. The APE is the area along the CSO pipeline alignment within which the City anticipated that soils may be disturbed by CSO excavation activities. The City defined the APE during project design to help the Lower Elwha Klallam Tribe anticipate impacts of the project on potential archaeological sites or artifacts of cultural significance. In accordance with the MMP, plastic sheeting was draped over the south sidewall of the overexcavated area to reduce the potential for recontamination of the imported fill material used to backfill the trench. A total of approximately 38 cubic yards (roughly 61 tons) of soil was excavated to remove the petroleum-stained soil. This soil was temporarily stored in the two roll-off containers and on plastic sheeting in Bin #1-1, and was later transported off-site and disposed of at Waste Management's Columbia Ridge Landfill in Arlington, Oregon. Disposal documents for soil disposed of at the Columbia Ridge Landfill are contained in Appendix B.

Five verification soil samples (four sidewall samples and one base sample) were obtained from the limits of the overexcavated area. The sidewall samples were collected just above the groundwater table at a depth of approximately 7.75 feet bgs; the base sample was collected just below the groundwater table at a depth of approximately 8 feet bgs. The soil samples were delivered on ice to Onsite Environmental Inc. of Redmond, Washington (Onsite). Onsite analyzed the samples for diesel- and lube oil-range TPH by Northwest Method NWTPH-Dx and lead by EPA Method 6010C.

Table 1 presents the analytical results for the verification soil samples. Copies of the laboratory analytical reports are included in Appendix C. Appendix D contains a copy of the City contractor's Contaminated Soils Removal Log dated October 16, 2012.

In addition to the petroleum-stained soil discussed above, approximately 4.5 cubic yards (roughly 7 tons) of soil was overexcavated near the middle of pipeline segment 400-C-001 on October 17, 2012 (Figure 2). An existing pressurized, 4-inch diameter water pipe was accidentally ruptured during excavation of the pipeline trench on October 17. Water discharged from the pipe into the trench. The water came into contact with a treated-wood pile exposed at the base of the trench, which created a petroleum-like sheen on the water surface. The sheen covered an area approximately 20 feet long and 12 feet wide at the base of the excavation. Prior to the water pipe rupture, no field screening evidence of soil contamination was observed in this portion of the trench. Rayonier's field representative requested that the City's contractor overexcavate soil to a depth of approximately 6 inches below the original design elevation of the trench base in the area where the sheen was observed. The soil excavated in this area was temporarily stored on plastic sheeting in Bin #1-1, and later transported off-site for disposal at Waste Management's Columbia Ridge Landfill in Arlington, Oregon. The soil remaining at the limits of the small overexcavated area showed no field screening evidence of contamination. Because visual inspection indicated that all soil affected by the transient sheen had been removed, no soil samples were submitted for analysis from the overexcavated area. Appendix D contains a copy of the City contractor's Contaminated Soils Removal Log dated October 17, 2012.

On October 18, 2012, a yellow, powder-like substance was observed in trench soils near the eastern end of pipeline segment 400-C-001 (Figure 2). This material did not produce a sheen or measurable readings on the PID, and no distinctive odors were noted. A total of approximately 26 cubic yards (roughly 42 tons) of soil was excavated to remove the soil containing the yellow substance. The soil was temporarily stored on plastic sheeting in Bin #1-1, and later transported off-site for disposal at Waste Management's Columbia Ridge Landfill in Arlington, Oregon. Appendix D contains a copy of the City contractor's Contaminated Soils Removal Log dated October 18, 2012. Soon after this soil was excavated, Rayonier determined that the yellow powder-like substance was most likely residual sulfur from historical mill operations (sulfur was one of the raw materials used in the pulping process). Because visual inspection indicated that all soil containing the yellow substance had been removed, no soil samples were submitted for analysis.

3.6. Construction and Maintenance of Stockpiles

Rayonier and its contractors were responsible for construction and maintenance of the soil stockpiles in Stockpile Areas 1 and 2. The City and its contractors were responsible for construction and maintenance of the debris piles in Stockpile Area 3, with one exception: if visible contamination was evident in the construction debris, Rayonier was responsible for covering the debris piles with plastic sheeting. No visual evidence of contamination was observed in the debris, so the debris piles were not covered with plastic.

The MMP specified that the soil stockpiles would contain no more than approximately 2,000 cubic yards of soil and would be roughly 8 feet or less in height. However, to accommodate the larger than anticipated soil volumes excavated during the CSO project, it was necessary to construct larger stockpiles in some of the storage bins. The estimated soil volumes stockpiled in the storage bins in Stockpile Areas 1 and 2 as of June 2013 are presented in Table 2.

All soil stockpiles in Stockpile Areas 1 and 2 were covered at the end of each work day with plastic sheeting held in place with sand bags and rope. The plastic sheeting, silt fencing, drainage ditches, earthen and ecology block berms, and other stormwater best management practices (BMPs) utilized in the stockpile areas were routinely monitored and repaired as needed to ensure their continued effectiveness. The stockpiles and BMPs were inspected daily while excavation and placement of soils in the stockpile areas was occurring. When excavation activities were not occurring, inspections were conducted weekly at a minimum, and also following significant storm events. Summary documentation of the inspections and corrective actions taken, including representative photographs of the stockpiles, were prepared by Rayonier's consultant (Landau Associates) and provided to Ecology monthly.

4.0 ADDENDUM TO THE MATERIALS MANAGEMENT PLAN

Rayonier submitted an addendum to the MMP to Ecology in November 2012 (GeoEngineers, 2012b). This addendum provided clarification of certain sections of the MMP based on: 1) Ecology's review of public comments received during the August 3 to September 5, 2012 MMP public comment period, and 2) communications between Rayonier and

Ecology regarding the details of MMP implementation. The addendum was signed by Rayonier and Ecology on December 3, 2012; a copy of the addendum is included in Appendix E.

5.0 STOCKPILE SAMPLING AND LONG-TERM MANAGEMENT

Rayonier submitted a "Proposed Approach for "Pilot" Soil Stockpile Sampling Event and Conceptual Soil Management Plan" to Ecology in March 2013 (GeoEngineers, 2012d; Appendix F). This document described Rayonier's proposed preliminary ("pilot") sampling event to assess COPC concentrations in the stockpiled soils, as well as Rayonier's conceptual plan for long-term management of the stockpiles until interim actions for the Port Angeles Rayonier Mill Study Area are selected and implemented. The stockpile sampling was completed in April 2013, and the analytical results were submitted to Ecology in June 2013 (Appendix F). Copies of the laboratory analytical reports are included in Appendix C.

Based on the sampling results and the soil-type definitions presented in Section 2.2, Rayonier classified the stockpiled soil in 12 of the 14 storage bins (all but Bins #1-9 and #2-0) as Type 1, Type 2A, or Type 2B soil. The stockpile in Bin #1-9 was not sampled because it was anticipated that the City's contractor would likely be excavating and adding additional soil (presumed Type 2A) to this stockpile. As noted previously, Bin #2-0 was used to temporarily store wet soil; after soil in this bin was dry enough for stockpiling, it was transferred to Bin #1-9. With the exception of the presumed Type 2A soil in Bin #1-9, the soil types shown in Figure 3 for each storage bin are based on the April 2013 sampling results.

Rayonier submitted an amendment to the "Proposed Approach for "Pilot" Soil Stockpile Sampling Event and Conceptual Soil Management Plan" (Amendment 1) to Ecology on August 9, 2013 (GeoEngineers, 2012e; Appendix F). This amendment provided further details regarding Rayonier's plan for long-term management of the stockpiles, including specific plans for regrading and hydroseeding the piles. The stockpile regrading and hydroseeding work described in Amendment 1 was completed during the last two weeks of August 2013.

6.0 SUMMARY

A total of approximately 28,200 cubic yards of soil was excavated within the Port Angeles Rayonier Mill Study Area as part of the City of Port Angeles' CSO project. The excavation activities occurred between September 2012 and June 2013. The excavated materials were managed in general accordance with the MMP (GeoEngineers, 2012a). Table 2 summarizes the types and estimated volumes of excavated soil that were stockpiled in each of the 14 storage bins in Stockpile Areas 1 and 2; the layout of the stockpile areas is shown in Figure 3. The soil stockpiles were originally covered with plastic sheeting and sand bags. In August 2013, Rayonier's contractor removed the plastic and sand bags, regraded the stockpiles, and applied hydroseed for protection against erosion. The stockpiles will remain on-site and will be maintained as needed until the future interim action for the Study Area is selected and implemented. The final disposition of the stockpiles will be determined during development, evaluation, and design of the future interim action.

7.0 REFERENCES

GeoEngineers, 2012a, "Final Materials Management Plan, City of Port Angeles CSO Construction Project, Port Angeles Rayonier Mill Site, Port Angeles, Washington." GEI File No. 0137-015-03, July 17, 2012.

GeoEngineers, 2012b, "Addendum to the Final Materials Management Plan, City of Port Angeles CSO Construction Project, Port Angeles Rayonier Mill Site, Port Angeles, Washington." GEI File No. 0137-015-03, November 2012.

GeoEngineers, 2012c, "Interim Action Report Volume I: Upland Data Summary Report for the Study Area, Port Angeles Rayonier Mill Site, Port Angeles, Washington" (Public Review Draft). GEI File No. 0137-015-03, April 30, 2012.

GeoEngineers, 2012d, "Proposed Approach for 'Pilot' Soil Stockpile Sampling Event and Conceptual Soil Management Plan, Port Angeles Rayonier Mill Site." GEI File No. 0137-015-03, March 2013.

GeoEngineers, 2012e, "Amendment 1 to: Proposed Approach for "Pilot" Soil Stockpile Sampling Event and Conceptual Soil Management Plan, Port Angeles Rayonier Mill Site, March 2013." GEI File No. 0137-015-03, August 9, 2013.

TABLES

GeoEngineers

Table 1

Chemical Analytical Results for Verification Soil Samples

Port Angeles Rayonier Mill Study Area

Port Angeles, Washington

Sample ID	Location	Approximate Depth (feet bgs)	Diesel-Range TPH (mg/kg)	Lube Oil-Range TPH (mg/kg)	Lead (mg/kg)
EX 1–1–7.75	North Sidewall	7.75	27 U	120	10
EX 1–2–7.75	East Sidewall	7.75	28 U	130	22
EX 1–3–7.75	West Sidewall	7.75	28 U	57 U	5.7 U
EX 1–4–8.0	Base	8	32 U	63 U	6.9
EX 1–5–7.75	South Sidewall	7.75	1,100	2,500	11

Notes:

bgs = below ground surface

TPH = Total Petroleum Hydrocarbons, analyzed by Northwest Method NWTPH-Dx

mg/kg = milligrams per kilogram

U = analyte not detected above the listed method reporting limit

Table 2

Estimated Soil Quantities in Stockpile Storage Bins (as of June 2013)

Port Angeles Rayonier Mill Study Area

Port Angeles, Washington

Storage Bin #	Soil Type[1]	Estimated Volume (cubic yards)
1-1	2A	3,105
1-2	2A	2,498
1-3	2A	2,498
1-4	2A	2,225
1-5	2B	2,225
1-6	1	3,105
1-7	1	2,225
1-8	2A	3,106
1-9	2A[2]	450
2-0[3]	--	0
2-1	2A	1,580
2-2	2A	1,580
2-3	2A	1,580
2-4	2A	2,000
	Total (cubic yards) =	**28,177**
	Total Type 1 (cubic yards) =	5,330
	Total Type 2A (cubic yards) =	20,622
	Total Type 2B (cubic yards) =	2,225

Notes:

[1] Soil types are based on results of April 2013 pilot stockpile sampling event (except Bin #1-9 - see note 2).

[2] Soil type for Bin #1-9 is based on pre-construction soil evaluation contained in Appendix A of Final MMP.

[3] Bin #2-0 was used only for temporary storage and drainage of wet soil. After drainage, the soil was transferred to Bin #1-9.

See text for definitions of soil types.

FIGURES

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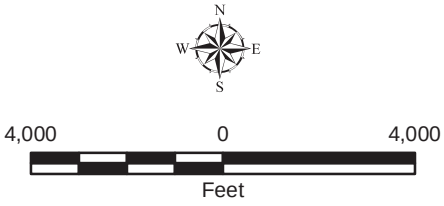

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. and Windward can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and Windward, and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Vicinity Map

Port Angeles Rayonier Mill Study Area
Port Angeles, Washington

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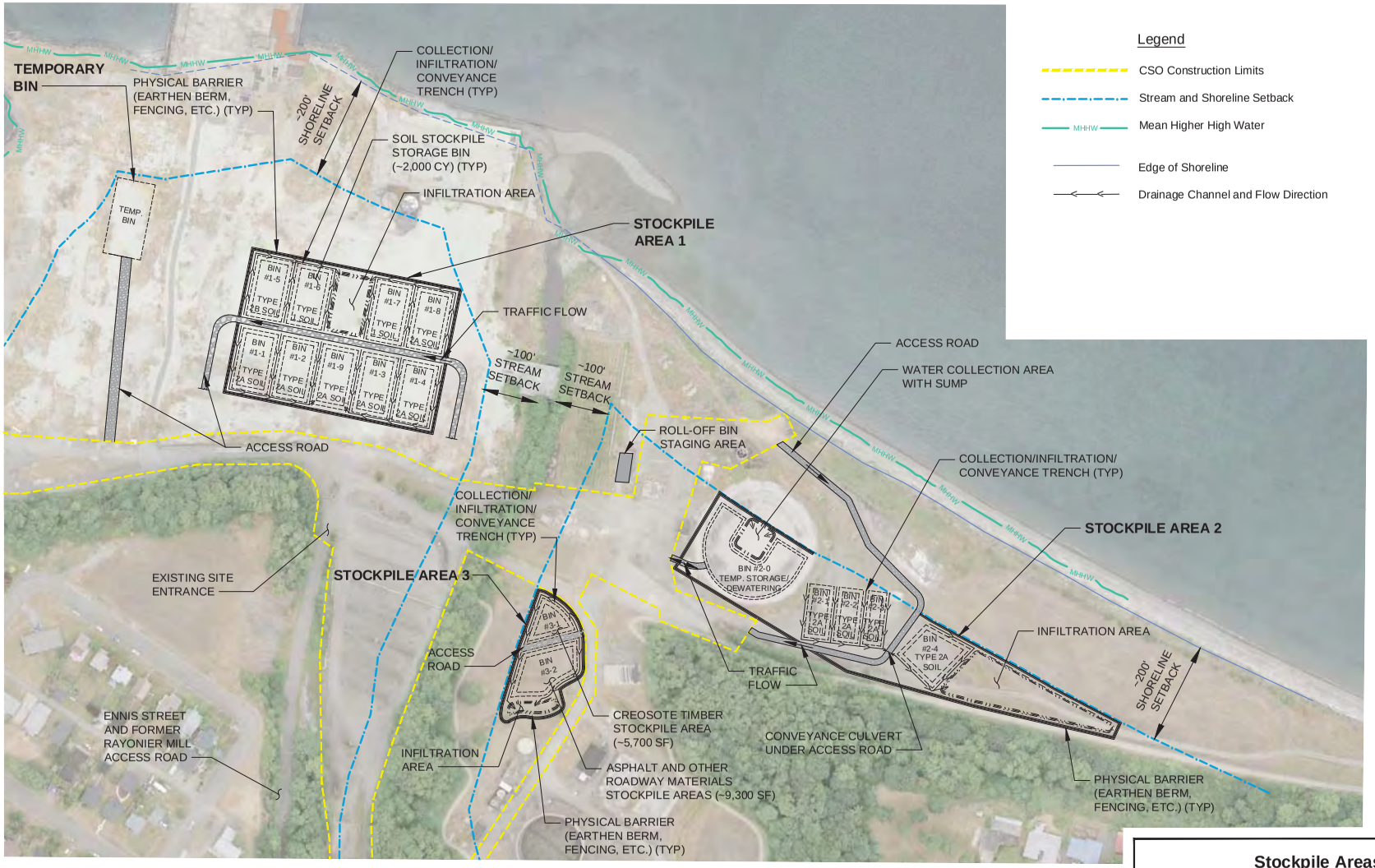
Figure 1

Office: SEA Path: \\sealprojects\12\12439003\GIS\013701503_Upland_VicinityMap_rev.mxd Map Revised: 27 August 2013 maugust


PORT ANGELES HARBOR
Main Process Area
Approximate Limits of 10/16/12 Type 3 Soil Excavation. (See inset for verification soil sampling locations.)
300-C-003
200-C-004
Log Yard
700-C-003
300-C-004
300-C-007
35-18 October 2012 Trenching Area
400-C-001
400-C-002
6-8 November 2012 Trenching Area
BLUFF
Approximate Limits of 10/17/12 Type 3 Soil Excavation
Approximate Limits of 10/18/12 Type 3 Soil Excavation
Approximate Location of New Bridge Constructed as part of CSO Project
400-C-003
Chlorine Dioxide Generator
Primary Clarifier
5 and 10 September 2012 Trenching Area
10 December 2012 Trenching Area
Ennis Creek
Pre-Fab Area
19-21 November 2012 Trenching Area
400-C-004
300-C-001
Drainage Ditch
12-15 November 2012 Trenching Area
BLUFF
3-5 December 2012 Excavation Area
26-29 November 2012 Excavation Area
Secondary Treatment
400-C-005
700-C-001
19-21 November 2012 Trenching Area
400-C-006
300-C-001
26-29 November 2012 Trenching Area
3-5 December 2012 Excavation Area
10/16/12 Verifcation Soil Sampling Locations
Ex 1-4 - 8.0
Ex 1-1 - 7.75
Ex 1-3 - 7.75
Ex 1-2 - 7.75
Limits of overexcavation
Ex 1-5 - 7.75 (Exceeded Screening Level)
Anticipated Soil Types Along CSO Alignment
Type 1 Soil: 0-2'
Type 1 Soil
Type 2A Soil
Type 2B Soil
Abandoned Rayonier Pipe
CSO Project Pipe
CSO Construction Easement
CSO Structures
300-C-004
City CSO Project Drawing / Pipeline Segment Number
City Purchase - Lots 1 and 2
City Easements - Existing and New
100 0 100
Feet
N
W
E
S
Notes:
1. After December 10, 2012 excavation activities occurred in localized areas for items such as the Storage Tank Stair Tower, Influent Diversion Structure, Effluent Diversion Structure, and CSO Return Pump Station.
2. The color-coded soil types shown along the CSO alignment were the soil types anticipated prior to construction, based on the soil evaluation contained in Appendix A of the Final Materials Management Plan dated July 17, 2012.
3. The locations of all features shown are approximate. Stockpile storage areas are shown in Figure 3.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
Anticipated Soil Types Along CSO Alignment and Locations of Weekly Excavation Activity
Port Angeles Rayonier Mill Study Area
Port Angeles, Washington
GeoEngineers
Figure 2
Modified: August 26, 2013 MSA
Path: \\Seaprojects\0013701503\GIS\0013701503_F1_CSOProjectArea_areas.mxd
Office: Seattle



Notes

1. Soil types shown for each bin except Bin #1-9 are based on chemical analytical results from the pilot stockpile sampling event (April 2013). Soil type shown for Bin #1-9 is based on pre-construction soil evaluation contained in the Final Materials Management Plan; see report text. No soil was stored in Stockpile Area 3.
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base Map Source: Google Earth. Layout of Storage Bins and Associated Notes Provided by Landua Associates, Figure 3, Non-Surveyed As-Built Conditions Product Staging/Storage Areas.

Stockpile Areas

Port Angeles Rayonier Mill Study Area
Port Angeles, Washington

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Figure 3

APPENDICES

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