Jordan Cove Energy Project, LP

Solid Waste Operations Plan – Revision 3

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| Page No. | Section | Change Description |
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| | Appendix 1 | Added appendix for figures |
| | Appendix 2 | Added appendix for basin capacity calculations |
| | Appendix 6 | Revised schedule and drawings |
| | Appendix 7 | Revised specifications |
| | | Made multiple spacing corrections throughout the document |
| 1 | 1.0 | First sentence removed " and Ingram Yard." |
| 15 | 4.0 | Last paragraph, 4 th sentence removed " in the cell, thus the proposed final grades shown in the 2012 PES Conceptual Closure and Post Closure Plan cannot be achieved". |
| 16 | 4.0 | Made revisions to 3 rd sentence of 1 st paragraph. |
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| 16 | 4.0 | Deleted bulleted list from 5 th paragraph. |
| 17 | 4.0 | Added paragraphs for Weighing, Waste Acceptability Procedures, Liquid Wastes, Salvage, Litter Control, and Vector Control |
| 18 | 4.1 | Last sentence of the 1 st paragraph deleted the word "This" and revised test to read "The NPDES" |
| 19 | 4.3 | 2 nd sentence of the 1 st paragraph changed "closed" to "inactive" |
| 19 | 4.3 | Added a 3 rd paragraph |
| 20 | 5.0 | 2 nd sentence of the 5 th paragraph deleted "trench" |
| 21 | 5.0 | Rain Season Preparation 1^{st} sentence of the 1^{st} paragraph changed " in 2018 cannot be completed" to "will occur" |

Revision Modification Log, Continued

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| 21 | 7.0 | Recycling Added a sentence to the end of the 1 st paragraph. |
| 24 | 9.0 | Edits to bulleted list. |
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Solid Waste Operations Plan-Revision 3

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Acronyms and Abbreviations

cy cubic yards

ASB Aeration Stabilization Basin

CBNBWB Coos Bay-North Bend Water Board
DEQ Department of Environmental Quality

DMR Discharge Monitoring Report

DOGAMI Department of Geology and Mineral Industries

EMP Environmental Monitoring Plan
ISWL Industrial Solid Waste Landfill
JCEP Jordan Cove Energy Project, LP

NPDES National Pollutant Discharge Elimination System

OCC Old Corrugated Cardboard

SHN Consulting Engineers & Geologists, Inc.

WWTF Wastewater Treatment Facility
WWTS Wastewater Treatment System

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1.0 Introduction

This Operations Plan addresses landfill operations at South Dunes (that is the former Weyerhaeuser NR Company facility) in North Bend, Oregon (Figures 1 and 2). Weyerhaeuser formerly operated the North Bend Containerboard Packaging Division Mill (mill) at the site. Fort Chicago Holdings U.S. LLC acquired the property in 2012.

Manufacturing operations ceased at the mill on June 30, 2003 and the mill was closed by Weyerhaeuser on August 15, 2003. Weyerhaeuser demolished the mill between August and December 2005. When in operation, the mill facilities included the North Spit (also known as South Dunes) Industrial Solid Waste Landfill (ISWL) and associated wastewater treatment system (WWTS). The ISWL at the now-closed mill operates under Oregon Department of Environmental Quality (DEQ) Solid Waste Permit Number 1142 and the WWTS operated under National Pollutant Discharge Elimination System (NPDES) Permit 101499. The NPDES permit was updated on January 11, 2013, documenting the change in ownership of the ISWL from Weyerhaeuser to Fort Chicago Holdings II, U.S. LLC, c/o Jordan Cove Energy, L.P. The current NPDES expiration date is August 31, 2021. Copies of the ISWL and NPDES permits are included in Appendices A and B, respectively. The Solid Waste and NPDES Permits remain active. Environmental monitoring required under the Solid Waste permit is detailed in the facility Environmental Monitoring Plan (EMP; PES, 2012b). The EMP monitoring results are reported annually. NDPES monitoring is reported monthly in a Discharge Monitoring Report (DMR) for ocean outfall and the deflation plain.

This Operations Plan has been prepared consistent with the Solid Waste Permit (Section 7.1) and replaces the existing Operations Plans (Weyerhaeuser, 1997 and PES, 2012). In addition, per Section 10.2 of the permit, the Site Development Plan is incorporated as a section of the Operations Plan. If site conditions, operating status, or site development plans change, the Operations Plan will be updated as needed to address the change(s).

Currently operations are limited to inspections and maintenance of an existing leachate system, stormwater infrastructure, landfill cells, industrial waste pipeline, and Aeration Stabilization Basin (ASB) discharge equipment. Proposed activities are the removal of unsaturated waste, installation of dewatering trenches and drain piping, installation of a well point system, and reestablishing a landfill cover during wet weather months. After wintering, Cell 3 will be clean closed under the terms of a closure permit submitted to DEQ April 20, 2018.

2.0 Site Development

Fort Chicago Holdings II U.S. LLC and its operator Jordan Cove Energy Project L.P. (JCEP) have plans to close the ISWL at the South Dunes site (the former mill areas). Site development for the closure of the ISWL is addressed in the site Conceptual Closure and Post-Closure Plan (submitted under separate cover). This Operations Plan and the facility's EMP (PES 2012b) will be revised as warranted upon implementation of Cell 3 closure activities. No new wastes are proposed to be placed in any of the landfill cells.



3.0 General Operations

The South Dunes ISWL has not accepted wastes since December 2005 (except as noted below). The ISWL consists of three landfill Cells (Cells 1, 2, and 3; Figure 2). Cell 1 was capped and closed in 1988 (Tuppan, 2005). Cells 2 and 3 received permitted industrial wastes through the closure of the mill in August 2003. The mill was demolished during August to December 2005. During demolition, Cell 2 received asbestoscontaining debris (transite siding demolition) and Cell 3 received approximately 9,820 tons of general demolition debris. Although unused since 2005, Cells 2 and 3 have not been administratively closed. No wastes have been disposed of at the facility since the completion of demolition activities in December 2005, except where ash amended soils from a pipeline project along the Transpacific Parkway and drill cuttings from on Fort Chicago Holdings II U.S. LLC properties were placed in Cell 3, with pre-approval from DEQ. Figure 3 shows the layout of the current ISWL and associated infrastructure. Figure 4 shows the location of ISWL and NPDES Permit related facilities.

3.1 Security

Access to Cell 3is restricted by fencing and locked gates. Public access is prohibited and monitored a minimum of three times per week by JCEP personnel. Security will be maintained, as needed, during closure operations. Whenever there are no personnel performing work, the gates are locked.

3.2 Signs

Signs identifying the facility as private property with no unauthorized access allowed are posted and maintained at appropriate gates and access points to the property.

3.3 Access Hours and Controls

The facility is inactive. No routine access to the facility is allowed. Access to the site must be arranged through JCEP. During closure operations of Cell 3, JCEP will control access and work hours.

3.4 Aesthetics

The site is in a remote location with limited visibility of populated or well-traveled areas. No specific aesthetic requirements are warranted. JCEP arranges for annual vegetation control to maintain access within the facility and to control the spread of noxious weeds.

3.5 Access Roads

On-site access roads are maintained as needed to allow JCEP personnel access to the landfill cells, north and south settling basins, JCEP maintained aeration stabilization basin (Figure 4) the industrial waste pipeline route and related ISWL infrastructure. Additional access points may be used during Cell 3 closure activities, as needed for truck routing.



3.6 Open Burning

No open burning is allowed at the site.

3.7 Endangered Species

No known endangered species have been identified that are indigenous to the area of the south dunes or ASB. A survey of the South Dunes site for threatened or endangered species has been conducted by JCEP.

3.8 Floodplain Integrity

No landfill areas are in an Oregon Special Flood Hazard area (DOGAMI, 2017).

3.9 Sewage Disposal

The site no longer has onsite facilities. Portable sanitary facilities will be provided when closure activities require such provisions.

4.0 Disposal Operations – Waste Handling

The South Dunes ISWL has not accepted wastes since December 2005 except in 2013 where ash amended soils from a pipeline project along the Transpacific Parkway and drilling mud and boiler ash from geotechnical borings on Fort Chicago Holdings II U.S. LLC properties were placed in Cell 3. The ISWL consists of three landfill Cells (Cell 1, Cell 2, and Cell 3; Figure 2). Cell 1 was capped and closed in 1988 (Tuppan, 2005). Cell 2 and Cell 3 received permitted industrial wastes until the closure of the mill in August 2003. The mill was demolished during August 2005 to December 2005. During demolition, Cell 2 received asbestoscontaining transite siding demolition debris and Cell 3 received approximately 9,820 tons of general demolition debris. Although unused since 2005, Cell 2 and Cell 3 have not been administratively closed, but both cells are maintained in vegetative cover.

The mill facilities included the ISWL and a wastewater treatment system (WWTS). Continued operation of the ISWL has been guided by the DEQ approved *Conceptual Closure Plan and Post Closure Plan* prepared by PES Environmental, Inc., dated October 26, 2012. Some of the information used in the Conceptual Closure Plan was taken from a report prepared by Thiel Engineering, *Technical and Cost Evaluation, Elements of Environmental Closure for the Weyerhaeuser Containerboard Packaging Facility*, prepared for the three landfill cells, dated April 2004.

The following is a brief description of wastes stored in each cell of the ISWL:

Cell 1 – This cell was constructed in 1971 and originally received paper, log deck cleanup, salt cake, wire, plastic, and styrofoam. By 1983, salt cake had been eliminated from the waste stream, and paper and other putrescible solids had been reduced. Closure and capping of Cell 1 was performed in 1988 to reduce leachate.



- Landfill Cell 2 was constructed in 1988 and is authorized to receive old corrugated containers (OCC) waste, wire, plastic, fiber, sand, dirt, settling basins solids, construction and demolition debris generated at the site, and miscellaneous cleanup wastes of similar nature. Cell 2 also received asbestos waste from the demolition waste created during mill closure. Cell 2 is still considered open and has some remaining capacity for additional waste before reaching the authorized final grades, although no new waste materials are proposed to be added to Cell 2.
- Cell 3—Cell 3 was constructed in 1997. Cell 3 is the only cell completed with a leachate collection system and 60-mil HDPE liner. Leachate from Cell 3 is collected and piped by gravity drain to the Settling Basins (Figure 3). Cell 3 received the same waste stream described above for Cell 2, sludge from the primary clarifier and ash from the dual-fuel boiler. Approximately 9,820 tons of mill demolition debris generated during 2005was placed in landfill Cell 3 and covered with sand. Cell 3 also received approximately 40 cubic yards (cy) of construction soils during work on a water line extension performed in 2013 and in March of 2017, approximately 17 cy of drilling mud and boiler ash, along with 22 crushed steel 55-gallon drums were added to Cell 3.

Landfill Cell 3 surface area covers approximately 5.8-acres (330 feet by 750 feet), and is defined by a perimeter berm that extends to a height of approximately 5 feet above the existing ground surface. The lined landfill is underlain by a leachate collection system that consists of perforated pipe set in gravel. Leachate collected within the cell drains to the Settling Basins to the east of the landfill. Solid waste in Cell 3 ISWL is estimated to be approximately 40 to 45 feet in thickness at its deepest location. The current appearance of Cell 3 is an elevated area on the eastern portion with varying slope gradients covered in vegetation consisting of low-lying grasses.

The estimated volume of solid waste in Cell 3 is approximately 176,000 cy. The estimated percentage of each waste stream total volume is presented in Table 1. The volume estimates have been updated from an earlier Cell 3 report (Thiel, 2004), to reflect the addition of construction debris from building demolition in 2005 and waste materials from 2014 and 2017.

Table 1
Waste Streams Estimate Percentage, North Spit Landfill Cell 3, North Bend, Oregon

| Waste | Estimated % of Total Volume | Comments |
|--------------------------------|--------------------------------|-----------------------------------------------------------|
| OCC ¹ Waste | 56% | Includes "lights", "heavies", and raggertail ² |
| Effluent Treatment Solids | 24% | As received from clarifier and screw press |
| Boiler Ash | 8% | Includes bottom ash and cyclone catch |
| Construction/Demolition Debris | 10% | Non-routine |
| Miscellaneous Mill Cleanup | <1% | Non-routine |
| Asbestos | <1% | Non-routine |

1. OCC: old corrugated containers

2. Ragger-Tail: Recovered fibers from OCC processing, consisting of shredded plastic trimmings, wire, and staples.

Landfill Cell 3 was considered the landfill expansion area and was designated primarily for the disposal of OCC waste, effluent treatment solids, boiler ash, and the 2005 demolition material from the former Weyerhaeuser mill structures. An interim covering consisting of onsite sand was placed over the waste after placement of the demolition debris in 2005.

Cell 3 is underlain by a leachate collection system that consists of a network of perforated pipes surrounded by porous gravel underlain by an impermeable geosynthetic liner. The leachate from Cell 3 drains to two (2) settling basins located just east of the landfill cell. Leachate flows have ranged from approximately 4,300 to 260,000 gallons per day during summer and winter. In recent years, leachate flows have diminished. The wastewater in the settling basins is then pumped to a lagoon and eventually discharged through the permitted ocean outfall. The WWTS discharge is regulated under the NPDES Permit Number 101499.

In the fall of 2014, JCEP and SHN, in cooperation with the DEQ, conducted a pilot waste removal and trucking project to determine if excavation, demolition debris recycling, and off-site disposal of the waste in Cell 3 was feasible. This pilot project excavated, processed and hauled approximately 2,300 tons of waste. The disturbed areas were subsequently covered with at least 12-inch of on-site soils. A summary report of the pilot project results was provided to the DEQ in a letter dated January 9, 2015.

On September 12 and 13th of 2017, a test haul from the North Spit Landfill Cell 3 was performed through a partnership of K&E Excavating and Republic Service's Coffin Butte Landfill located in Corvallis, Oregon on JCEP's behalf. The purpose of the test haul was to provide the contractor a hands-on opportunity to excavate, load, and transport the waste from Cell 3 to Coffin Butte Landfill. The waste was excavated from two test pits immediately south of the loading platform. The excavated waste consisted primarily of boiler ash, sand, wire, plastic, and ragger tail. No concrete or steel was encountered or excavated. Free water was observed near the bottom of the test pits at a depth of approximately 12-14 feet from the surface. No wet waste was excavated or loaded. A total of nine truck and trailer loads (252.86 tons) of unsaturated waste were removed from Cell 3. Following the excavation, the area disturbed was capped with an approximate 1 foot of clean sand taken from the borrow area just south of Cell 3. On September 22, 2017, following the placement of the cap, the disturbed areas of Cell 3 and the borrow area were reseeded.

Cell 3 is estimated to contain approximately 176,000 cubic yards (cy) of material, 167,000 cy of waste and 9,000 cy of cover material. However, Cell 3 is only partially filled and includes grades that would not be conducive to a final cover. No substantial quantity of additional waste is expected to be deposited. Without being able to achieve proper final closure grades, and as part of Fort Chicago Holdings II U.S. LLC's site management strategy to reduce the long-term environmental risks at the site, Fort Chicago Holdings II U.S. LLC has elected to remove the existing waste from Cell 3 under the waste handling provisions of the existing solid waste permit, and to then remove the entire leachate collection system and liner under the provisions of a DEQ approved Final Closure Plan. A proposed schedule is included in Appendix 6.

Under the Solid Waste Operation Plan, Cell 3 will begin to de-inventory to the proposed grades shown on Sheet C-3, Appendix 6. After the dry waste has been removed, dewatering of the saturated waste in the lower portion of the landfill will be initiated and continue over-winter while the landfill is covered during the



wet season. See Appendix 6, Sheet C-4 and C-5 for the dewatering and the temporary cover plans. The remainder of the waste in the cell and the cell floor liner will be removed once clean closure of Cell 3 is initiated, which is anticipated to be permitted for the subsequent year(s). To establish final grades that prevent ponding, an estimated 6,400 cy of fill material will need to be placed in the landfill floor area after the liner is removed. Fill material used to adjust final grades will consist of onsite native soil. Project specifications are included in Appendix 7.

The inventory reduction will be conducted in accordance with a prepared Site-Specific Health and Safety Plan for on-site worker protection that includes monitoring and procedures for unanticipated and/or potentially hazardous material encountered during the waste excavation and processing. An additional Health and Safety Transportation plan for loading, handling, and transportation of the waste will also be implemented. This plan will include procedures for accidental spill, containment during on-site loading and tarping of the trucks, and during transport to the final destination.

The waste removal project is proposed for summer/fall of 2018, and will have a duration of approximately 5-months. Saturated waste, the liner system and leachate collection layer will be left in place as the dry portion of the Cell 3 contents are removed. Once the waste pile is lowered to Elevation 36 (NAVD) or by October 1, whichever comes first, a dewatering system will be installed and an interim cover placed over the landfill. The remaining waste, interim cover, liner system, and leachate collection layer will then be removed during the Final Closure. The two settling basins will be operated pursuant to the NPDES permit.

Because the facility is closed, does not accept wastes, and the existing landfill cells inactive, the following subsections of the Disposal Operations – Waste Handling section are applicable only to the deinventory of waste:

Weighing

Waste loaded on to trucks at the loading station will be weighed at the loading scale. The truck weight and driver data will be recorded and any testing of the waste performed.

Waste Acceptability Procedures

Waste loaded from Cell 3 will need to pass a painter filter test to demonstrate that the waste is suitable for disposal at the landfill. No other criteria are applicable to the removal of waste materials. Any restrictions on load sizes will be the responsibility of the contractor and receiving landfill.

Liquid Wastes

Waste loads not passing the paint filter test will be segregated for further processing on the west section of Cell 3 not in use.



Salvage

As currently envisioned, the waste will be loaded onto trucks and hauled to a DEQ approved landfill or moved onsite to a processing area or a recycle area. As excavation of Cell 3 contents proceeds, demolition debris will be sorted. Concrete larger than 6-inch size pieces will be rubblized and the and reinforcing steel removed for recycle. Large metal pieces will be set aside for inspection and recycle or disposed depending on condition. Inspection will be performed by an environmental engineer or environmental geologist. The contractor will process and haul the recycled steel off site in 30 days. The concrete rubble will be stockpiled and left onsite for future use. The concrete stock pile will be retained on site for up to a period of one year. All other waste will be handled as industrial wastes pursuant to the terms of the permit. A conceptual plan showing Cell 3 work areas is included as Figure 3. Salvaged metals will be inspected by the Engineer before being sent to metal recycling yard. Metal will be allowed to accumulate on site for up to 90 days before the recycled material must be removed. The Contractor performing salvage will be required to weigh recycled loads on site and to match the load with the receipt ticket from the recycle yard.

Litter Control

Windblown litter will be controlled by using a small working face when waste removal operations are occurring. The working face will be covered if removal activities cease for more than a 48-hour period.

Vector Control

During the deinventory operations phase waste removal will be controlled by JCEP's contractor. Removed waste from Cell 3 will be truck loaded, weighed, load balanced, tarped, and inspected prior to leaving the site. Exposure to rodents or birds will be minimized and routinely controlled if required. Wind born material will be controlled by limiting open area. Monitoring of dust will also be required by the site safety plan.

4.1 Leachate System

Cell 3 (Figure 3) has a passive (gravity drain) leachate collection system. No pumps or other mechanical systems are required for operations or maintenance of the leachate collection system. Pumps are required to convey leachate and stormwater from the settling basins through the NPDES permitted discharge systems. The NPDES system has excess capacity and can convey and treat the dewatering liquid sent to the ASB without overflow or upset.

The primary operation and maintenance activities associated with the leachate system are limited to observation of the leachate collection system's discharge, and include inspecting the system for blockages by observing the discharge into Settling Basin 1. Pumps in the Settling Basin 2 convey accumulated stormwater and leachate to the facility's ASB (Figure 4). The settling basin discharge to the ASB is located at the northwest corner of the ASB. A second discharge point to the ASB is available in the northeast corner of the basin, which can be used to increase residence time if additional treatment is necessary. In its current configuration, the ASB provides some treatment of the water from the settling basins but primarily it is configured to hold water to maintain flow through the outfall diffusers. During the late summer, the ASB can accumulate a large algae population, which can increase the pH of the effluent. A secondary raw water source has been added to the ASB to add well water from the Coos Bay-North Bend Water Board (CBNBWD) North Spit Well



Field. The well water helps to buffer the ASB liquid and maintain the pH within permit limits. The need to supplement the ASB with well water occurs during the warmer weather of late summer. During the late summer, JCEP increases ASB monitoring activities to daily inspections. Water from the ASB discharges by gravity to the facility's ocean outfall.

The settling basin pumps are checked for proper operation as described in Section 8.0. Discharge from the ASB to the ocean outfall is monitored as a routine inspection. A valve at the ASB outfall connection is adjusted to maintain the ASB level and flow through the ocean outfall to prevent diffuser clogging (Section 8.0). The discharge to the ocean outfall is recorded electronically by a flow meter and water quality tests are performed on ASB samples and reported per the facility's NPDES Discharge Permit. The ASB outfall is also the NPDES designated water quality sampling point.

4.2 Landfill Gas Control

Landfill gas was monitored from 1998 to 2001 and discontinued with the concurrence of DEQ. No landfill gas monitoring or controls are warranted.

4.3 Surface Water Control

Surface and stormwater management at the facility are covered under Fort Chicago Holdings II U.S. LLC's NPDES Permit. Because the facility is inactive, no additional surface or stormwater management or control is warranted.

Precipitation impacting the landfill surface infiltrates through the landfill waste and is collected on the leachate collection layer as contaminated water. This leachate is discharged into the settling basins located just to the east of Cell 3. Precipitation and the resulting Surface water runoff from the areas surrounding the landfill cell infiltrates into the sandy soils. Subsurface seepage from the settling ponds and from surface water infiltrating into the sandy soils is monitored in accordance with the Environmental Monitoring Plan (EMP). The groundwater quality from this seepage is monitored by the several monitoring wells in the area (LF-02R, LF-04A, MW-16B). Samples of the ground water from these monitoring wells is collected and analyzed for the constituents of concern as described in the EMP.

Immediately following the de-inventory phase, a temporary cover will be placed over the landfill. The cover will require storm water management which will involve directing surface run off to a 400,000 gallon infiltration basin. The basin has been sized to handle a 10-year storm. Calculations for determining the basin capacity are attached in Appendix 2.

4.4 Groundwater Control

There are no groundwater controls at Cell 1 or Cell 2, and only Cell 3 is lined. Groundwater monitoring is conducted under the facility's EMP (PES, 2012b). Annual reports are provided by JCEP (SHN¹).

STA

¹ 2017 Annual Groundwater Monitoring Report, SHN Consulting Engineers & Geologists, Inc., February 2017

5.0 Disposal Operations – Management of Working Areas

The ISWL consists of three landfill cells. Cell 1 was capped and closed in 1988 (Tuppan, 2005). Cell 2 and Cell 3 have soil caps but have not been administratively closed. Because the South Dunes facility does not accept wastes, and the existing landfill cells are capped with soil, the Disposal Operations — Management of Working Areas section of this report addresses the plan to de-inventory the waste prior to commencing clean closure. Maintenance of the facility's closed (Cell 1) and inactive landfill cells (Cell 2 and Cell 3) and facility infrastructure that remained after demolition of the mill is discussed in Section 8.0. During the de-inventory phase, the working face for waste removal will be covered when waste is not being removed.

Operations at Cell 3 will include the excavation of dry waste materials, loading of the material into trucks, and disposal of the removed waste at a DEQ permitted landfill installing a saturated waste dewatering system and installing a temporary cover. Waste removal operations are tentatively scheduled to begin in June of 2018, and will continue through October 2018. Regardless of the volume of dry waste layer, dewatering will be implemented and the remaining Cell 3 material will be covered with interim temporary cover for the ensuing rainy season.

The first phase of the de-inventory of Cell 3 will be to remove, segregate, and recycle the landfilled construction debris; remove and transport the waste located in the upper layers of Cell 3to a permitted landfill; and install trench pits and a well point system into the lower layers of the landfill where saturated waste is anticipated to be encountered. If saturated waste is encountered during upper landfill removal activities, work will cease in that area until the leachate has a chance to drain to the leachate collection system. The second phase will be to remove and dispose of the remaining waste, liner, and the leachate collection system as part of the clean closure of Cell 3.

In the event construction stops for greater than a 48-hour period, a daily cover of 6 inches of native sandy material from the borrow area or plastic sheeting will be placed over the working face in general accordance with the solid waste permit.

The lower portion of Cell 3 is anticipated to contain saturated waste. Therefore, Cell 3 will be de-watered through a series of pits and well points installed in the lower portion of the landfill where saturated waste is likely to be encountered. After the first phase of the de-inventory operation, the trenches and well points will be installed to allow the landfill to drain. After the de-watering system is constructed, Cell 3 will be graded to promote positive drainage off of the cell. An interim cover will be placed over Cell 3. The interim cover will be comprised of 8 mil LLDPE tarps and a grid of sand bags placed over Cell 3 to prevent further precipitation from infiltrating into the cell and to further promote de-watering of waste in the Cell 3. Cover material will be taken from the borrow area shown on Figure 3.

Rain Season Preparation

The operations phase of waste removal from Cell 3 will be hauled by October 1, 2018 or sooner if saturated waste is encountered. In order to complete dewatering over the winter, it will be necessary for Cell 3 to be



covered to prevent precipitation from impacting the dewatering process. Therefore, the following steps will be taken to ensure Cell 3 is prepared for the ensuing rainy season.

During the de-inventory process, JCEP's contractor will assist SHN engineers with conducting exploratory excavations into the lower layers of Cell 3 to determine dewatering properties and finalize the dewatering system design. Beginning October 1, the contractor will install the dewatering system in the saturated waste. The dewatering system will include well point sumps. Some will be excavated and, if possible, extend into the sand layer above the liner. Preparation for the rainy season will also involve grading waste to slope from the center of the landfill to the stormwater management basin cell. The remaining waste will also be covered with 6-inches of native sandy material followed by an interim cover comprised of an 8 mil LLDPE liner. The liner will be secured using a wind guard cover and a perimeter anchor trench. The cover will prevent precipitation from infiltrating in the landfill while the dewatering system removes excess water.

Long-term post-closure maintenance will include periodic inspections, repair of vegetation and stormwater controls, and groundwater monitoring.

6.0 Special Waste Management Plan

JCEP does not plan on re-opening any of the landfill cells for future waste disposal. Based upon these current site operation conditions, a Special Waste Management Plan (SWMP) is not warranted for future special waste handling and disposal.

Asbestos-containing wastes are present in Cell 2. These wastes are managed and protected from exposure and release through inspections and maintenance of the Cell 2 cap as specified in Section 8.0. Proposed activities include clean closure of Cell 3. Therefore, no additional special waste management is warranted.

7.0 Ancillary Operations

As explained in Section 4.0, wastes have not been accepted for disposal at the ISWL since December 2005 (except as discussed in Section 3.0) and JCEP does not plan on accepting any wastes at the site.

7.1 Recycling

During removal of Cell 3 waste, the construction debris will be segregated and recycled as appropriate. Concrete will be segregated, crushed, and stockpiled for beneficial reuse at the facility. Steel debris will be stockpiled for recycling. All other waste materials will be transported to a DEQ approved landfill. Stockpiles will be left on site for a period no longer than one year.

7.2 Truck Washing

Tire washing facilities will be implemented during Cell 3 dewatering operations. Wash water will be directed to the existing leachate settling basins.



7.3 Operations Equipment (rolling stock)

All rolling stock used during operations will be properly maintained by the contractor performing the work at the contractor's designated maintenance yard. Only minor equipment maintenance activities will be performed at the construction staging areas as required.

The remaining subsection of this section is Electrical Distribution Systems. Electricity is available at the site and provides power to the Settling Basin pumps that convey water to the facility's ASB. The ASB discharges under gravity to the ocean outfall. The northwest corner of the ASB has power to the area, but no equipment or power is used. JCEP personnel inspect and maintain the settling basin pumps on a routine basis and during storm events to address electric power outage emergencies and ensure pump operation and prevent overtopping. The inspection and maintenance schedule is outlined in Section 8.0. The facility maintenance checklist is provided in Appendix 5.

8.0 Inspection and Maintenance

The following are general descriptions of the intended maintenance items. General items to be inspected and maintained include:

- Personal Safety Equipment
- Operating Equipment (maintained in designated area only).
- Environmental Control Systems (landfill covers, vegetation, leachate/stormwater controls, settling basins and pumps, ASB, IWP, and ocean outfall)
- Environmental Monitoring (groundwater monitoring wells, NPDES monitoring)
- Transportation System (site roads, access points, and existing infrastructure maintenance)
- Inspections during Cell 3 waste removal
- Routine inspections for Cells 1 and 2 for erosion issues.

A checklist for routine site inspections, maintenance, and operating activities is provided in Appendix 5.

9.0 Operating Records

Historical operating records for the ISWL are maintained by JCEP and are available upon request. These documents include: inspection records, training procedures, training records, waste volumes and types accepted, financial assurance documents (submitted annually), historical environmental monitoring reports (submitted annually), and, copies of the facility's permit and plans.

Activities at the ISWL include inspections required by this Operations Plan, waste removal, environmental monitoring and sampling per the EMP and NPDES permit. Records and record keeping requirements for environmental monitoring are described in the EMP and the NPDES permit. Routine inspection records required by this Operations Plan are limited to the checklist described in Section 8.0. These checklists will be maintained by JCEP and will be available for review upon request.



Inspections during Cell 3 removal activities will include documentation of the following

- Start up and shut down times
- Load counts and tonnage for each load, including:
 - Outgoing waste load tickets
 - o Recycle load tickets
- Personnel and equipment on-site
- Appropriate waste manifests for outgoing loads matched to receiving loads
- Visual inspections for general waste types encountered,
- Periodic paint filter tests, and
- Other noteworthy items
- Dewatering characteristics
 - o Dry weight
 - o In-place weight
 - o Grain size distribution

10.0 Contingency

The following sections describe actions to be taken at the facility in the event of emergencies.

10.1 On Site Personnel Injuries

There are no permanent, on site personnel stationed at the facility. JCEP personnel and guests are responsible for their personal safety when visiting the site. JCEP personnel will conduct site activities in accordance with standard company safety procedures. JCEP personnel will provide a site-specific safety briefing to visitors brought to the site. Unauthorized personnel are not allowed on site. In the event of a medical emergency, dial 911.

10.2 Fires and Explosions

The facility has been closed since 2005, therefore, emissions of explosive gas from the landfill is not anticipated. There is, however, a potential for surface fires or explosions from operations. If a fire is observed in the area, emergency services will be notified. The nearest fire station is the North Bay Rural Fire Department fire station located at 67577E Bay Rd, North Bend, OR 97459.

10.3 Fire Prevention

Smoking is prohibited at the site except in designated areas.

10.4 Liner Leak (Cell 3)

A leak in the liner of Cell 3 may not be visually identifiable. Groundwater monitoring at the site is prescribed in the facility's EMP. Any changes in groundwater quality that may indicate a liner leak or changed site



conditions are reportable to DEQ as specified in the EMP. Following removal of waste from Cell 3, the liner will be removed and properly disposed.

10.5 Leachate Spills

The Cell 3 leachate collection system is designed to gravity-drain to the north settling basin then flow to the south basin or effluent pump station. The discharge from the leachate collection system is routinely inspected, including the settling basins, the landfill perimeter and neighboring ditches. All Cell 3 leachate related and accessible facilities, such as the discharge weir, exposed pipe, and sampling areas are maintained to prevent blockages of the leachate flow. Based upon the leachate collection and conveyance design, a leachate spill is unlikely.

If a leachate pipe breaks or the leachate drainage ditch/weir is clogged and results in a release of leachate to the ground surface, JCEP will repair the infrastructure that caused the release and attempt to contain and recover the spilled leachate.

10.6 Storms and Inclement Weather

In the event of large, high intensity storms, JCEP personnel perform additional inspection and maintenance site visits to ensure proper operation of the settling basin pumps. After significant storms, an additional inspection is performed to evaluate the condition of the cell caps, leachate conveyance system pumps, and ASB. Any maintenance and repair is performed promptly, as needed, to repair storm-related damage.

10.7 Notification

The Jordan Cove Energy Project L.P. site contact is:

Mr. Bruce Moore, Supervisor, Construction Mr. Wes Hill, Environmental Compliance 125 W. Central Avenue Coos Bay, OR 97420

Phone: 541-266-7510

11.0 Incremental Post-Closure Operations

Landfill Cell 2 and Cell 3 are capped but are not administratively closed. Cell 1 is administratively closed. This Operations Plan has been revised to address site activities related to the currently ISWL. Proposed activities include waste removal from Cell 3. Details of closure and post-closure plans are presented in separate documents.

12.0 Personnel

Site personnel are limited to the JCEP staff or designated representatives, a site inspection/maintenance



worker, and consultants from SHN who also provide monitoring services related to the EMP, NPDES Permit, and Solid Waste Permit. The JCEP personnel are trained in accordance with company policies for compliance with Occupation Safety and Health regulations and reporting requirements, emergency procedures, regulatory compliance, and record keeping for the facility based upon the current closed status of the ISWL and the associated continuing inspection and maintenance requirements of the closed facility. All activities related to Cell 3 closure will be overseen by JCEP personnel or designated representatives.

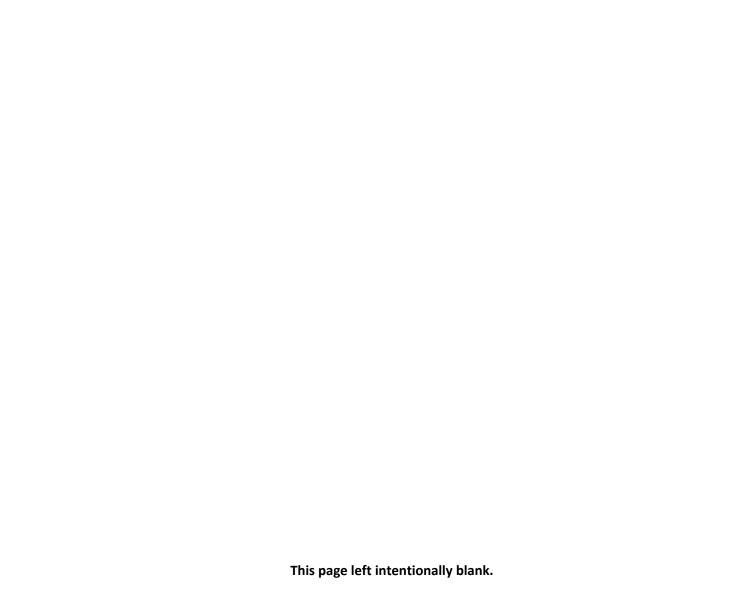
13.0 References

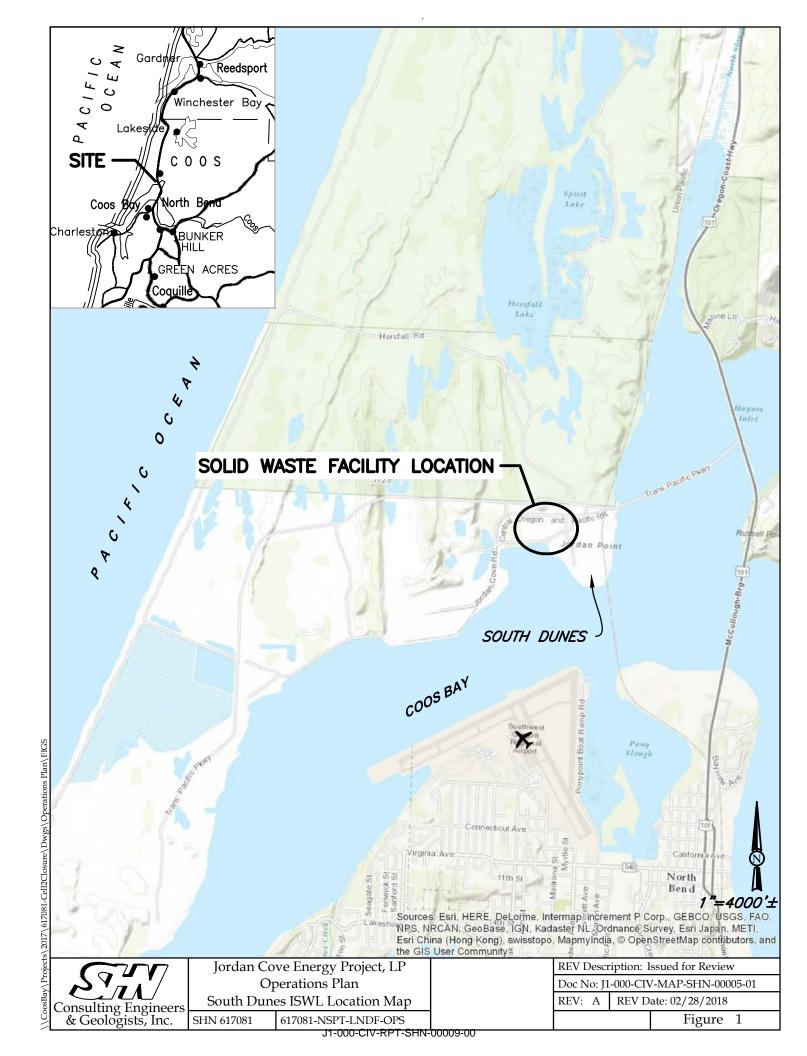
- DOGAMI, 2017 Oregon Special Flood Hazard Area Maphttp://www.arcgis.com/home/webmap/viewer.html?webmap=0e94686f18c94fe8b26bd36f876df7 66&extent=-126.1565,40.5802,-112.5555,46.7094
- PES Environmental, Inc., 2012a, 2011 Environmental Monitoring Report North Spit Landfill and Wastewater Treatment System Weyerhaeuser NR Company Containerboard Packaging Division, North Bend, Oregon. February 8, 2012.
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- Thiel, 2004. Technical and Cost Evaluation Elements of Environmental Closure for the Weyerhaeuser Containerboard Packaging Facility, North Bend, Coos County, Oregon. Thiel Engineering, April, 2004.
- Tuppan, 2005. Closure Plan Weyerhaeuser North Bend Containerboard Facility, Coos County, Oregon. Tuppan Consultants, LLC, June 17, 2005.

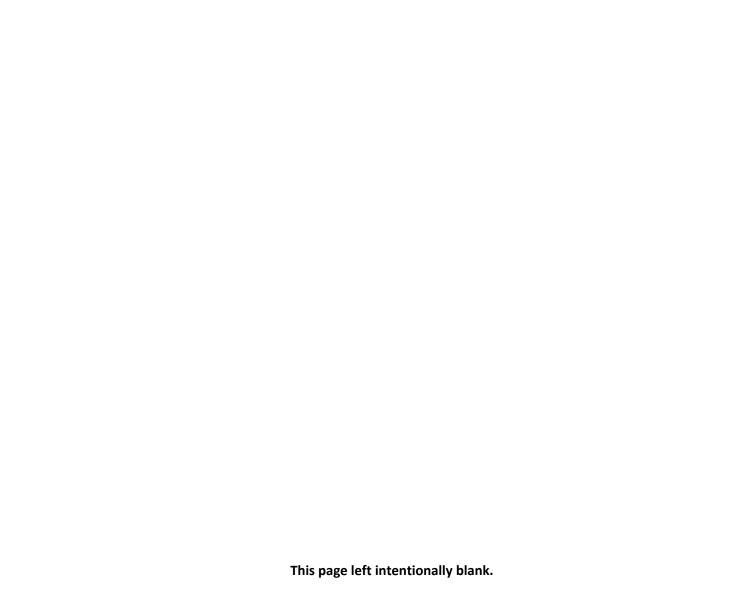
Weyerhaeuser, 1997. North Spit Landfill Operations Plan. March 18, 1997.



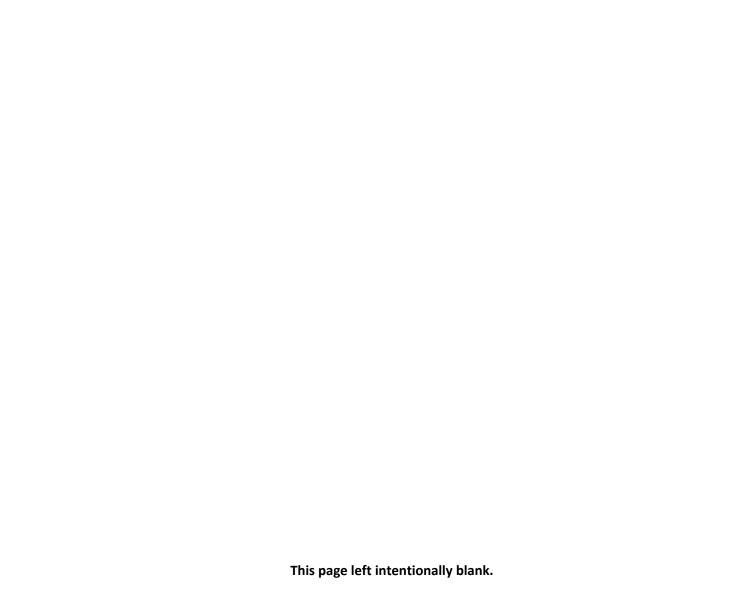
Figures 1

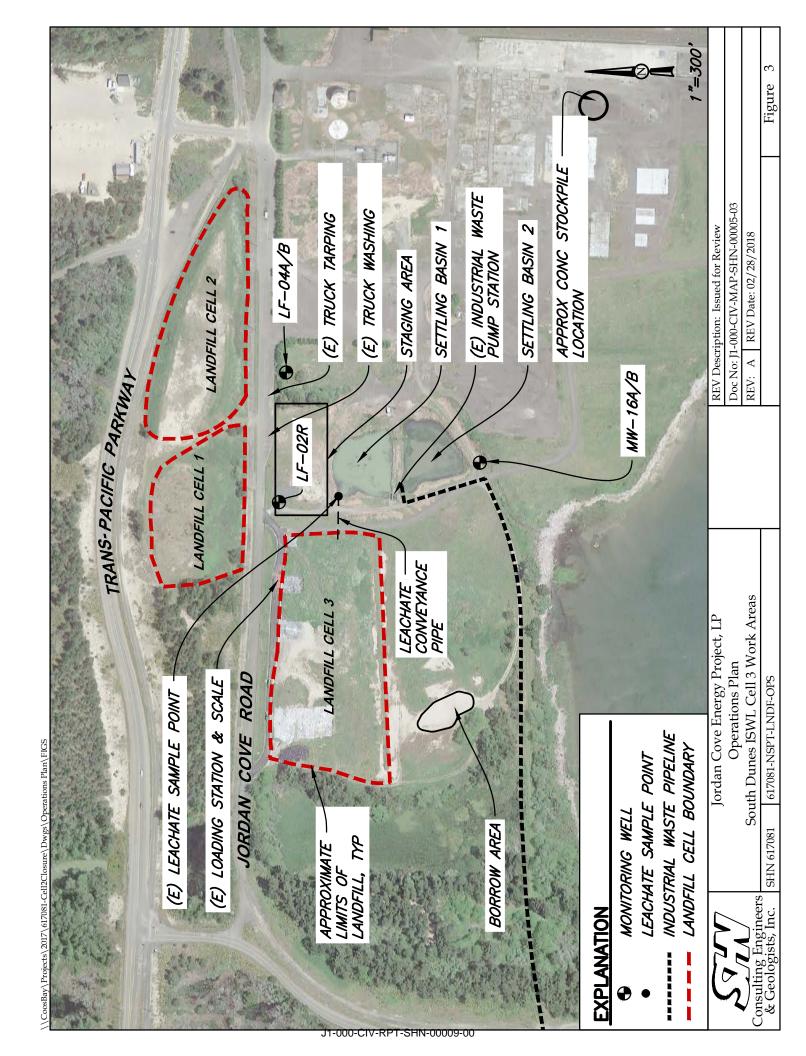


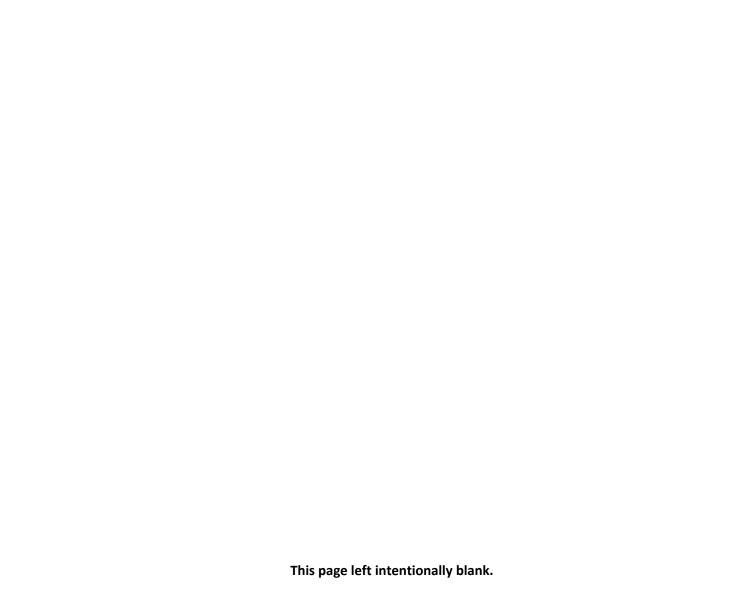


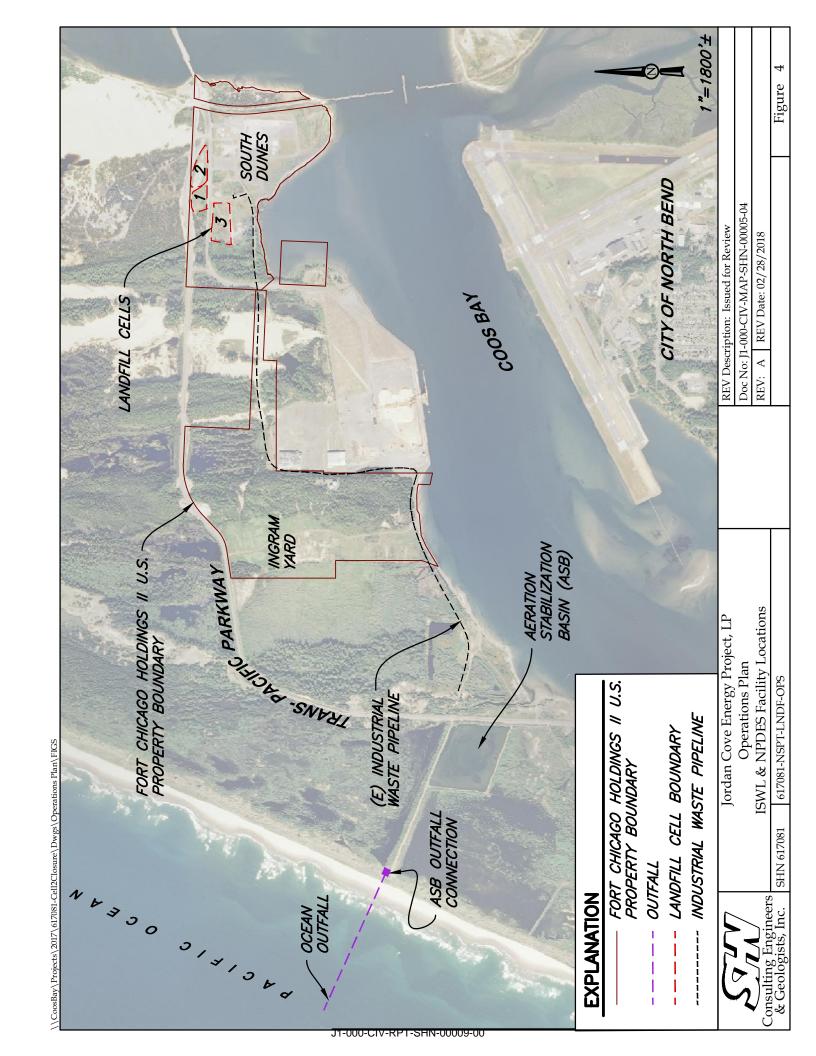


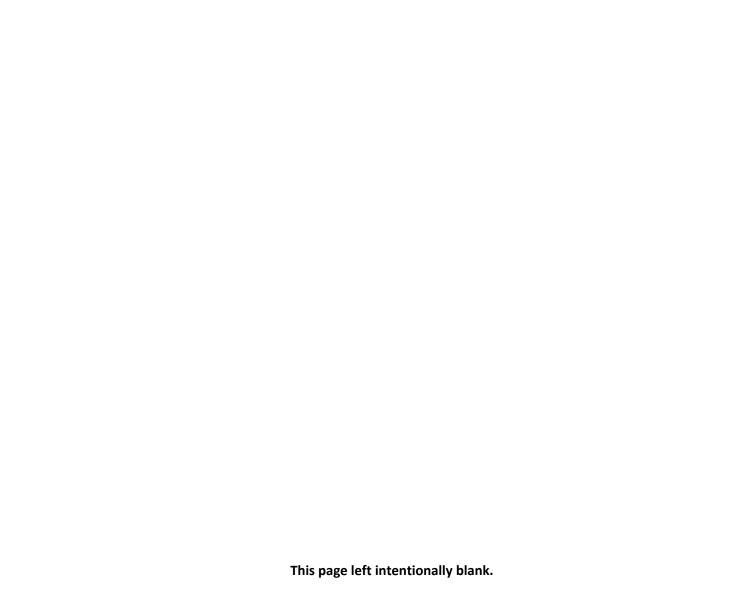




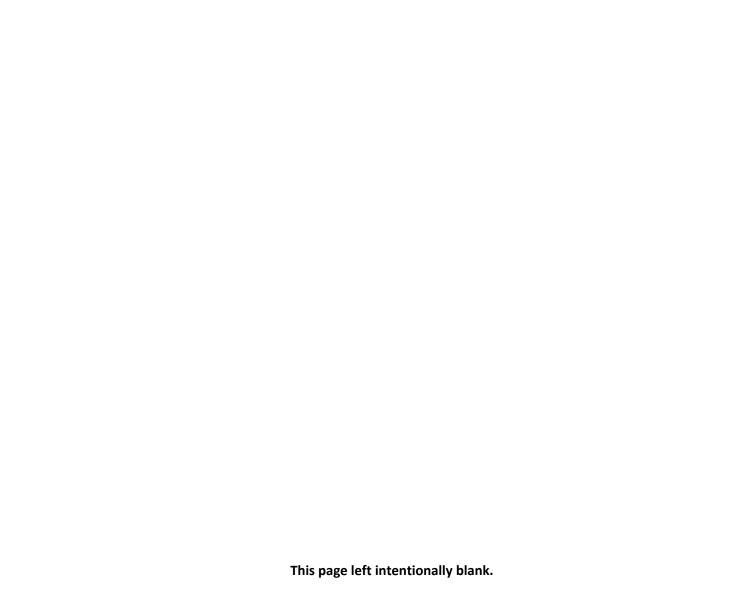








Basin Capacity Calculations



Cell 3 Closure, Covered Area Runoff

TOTAL RUNOFF CALCULATION

(Cubic Feet of runoff over a 24 hour period, 10 year storm event)

Method: NRCS TR-55

Q =

Total runoff over event

4.76 in 88181 ft³

$$Q(ft) = \frac{(P-0.2S)^2}{P + 0.8S} \qquad S = \frac{1000}{CN^*} \quad -10 \qquad Soil \ Group - A$$

$$P = \qquad 5.0 \quad inch, 10 \ year/24 \ hr \ storm \qquad (NOAA \ Atlas 2, Volume X, Isopluvials)$$

$$Q = \qquad runoff \ depth, (ft)$$
* USDA-NRCS Runoff Curve Number, Technical Release 55
$$CN^* \ for \ asphalt/roofs/cover = 98$$

$$CN^* \ for \ asphalt/roofs/cover = 98$$

$$CN^* \ for \ Lawn = 39$$

$$CN^* \ for \ Lawn Area = 30$$

$$A_{tarp/cover} = \qquad 222156 \ sq. \ ft. \qquad A_{gravel} = \qquad 0 \ sq. \ ft. \qquad A_{lawn} = \qquad 0 \ sq. \ ft.$$

$$P = \qquad 5.00 \ in \qquad P = \qquad 5.00 \ in \qquad P = \qquad 5.00 \ in \qquad P = \qquad 5.00 \ in \qquad S = \qquad 15.64$$

Total runoff over event

Q =

2.54 in

0 ft3

O =

Total runoff over event

0.20 in

0 ft3

Cell 3 Closure Infiltration Pond Volume Calculations

Infiltration Ponds
Length of Pond Bottom (ft)
Area of Bottom of Pond (acres) Pond Side Slopes (3:1 typical)

| (£) | | |
|-------|-----|------|
| otton | | |
| d B | | |
| Pon | | |
| thof | | |
| Wid | | |
| | | |
| | | |
| | | |
| | | THE. |
| 0 | 4 | Ø |
| 150 | 0.3 | 3 |

| fion fume ad | | 3) | | 31,912 | 52,579 | 75,285 | 100,122 | 127,183 | 156,561 |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------|-----------|---|--------|--------|--------|---------|---------|---------|
| Infiltration plus Volume Stored | | (ft^3) | | | 0.00 | tach: | | • | 1 |
| Infiltration | | (cf/day) | | 16,144 | 19,471 | 23,193 | 27,330 | 31,903 | 36,933 |
| Pond Volume | converts in/hr Calculated (or to cfs from CAICE) | (ft^3) | | 15,768 | 33,108 | 52,092 | 72,792 | 95,280 | 119,628 |
| Infiltration | | (cfs) | | 0.187 | 0.225 | 0.268 | 0.316 | 0.369 | 0.427 |
| Adjusted Infiltration Rate, f _{corr} | See Table 4-9 Equation 4-18 | (in/hr) | | 0.49 | 0.53 | 0.58 | 0.63 | 0.68 | 0.73 |
| CFsilvbio | | | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| CF _{aspect} | Equation 4-17 (1.4 max | 200000000 | | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| Width of Pond | | (#) | | 106 | 112 | 118 | 124 | 130 | 136 |
| Length of Pond | | (¥) | | 156 | 162 | 168 | 174 | 180 | 186 |
| Infiltration Rate, f | Equation 4-16 | (in/hr) | | 0.53 | 0.59 | 0.64 | 0.70 | 0.75 | 0.80 |
| CF _{ske} | Equation 4-15 (1.0 max | 150000000 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hydraulic Gradient, i | Equation 4-14 | | | 0.05 | 90.0 | 90.0 | 0.07 | 0.07 | 80.0 |
| Hydraulic Area of Pond Conductivity, Bottom, K _{equiv} A _{pond} | Determined by designer | (Acres) | | 0.34 | 0.38 | 0.42 | 0.46 | 0.50 | 0.54 |
| | Determined Determined by Lab Tests | (in/hr) | | 10 | 10 | 10 | 10 | 10 | 10 |
| | Determined by Lab Tests | (£) | | 6 | 6 | 6 | 0 | 6 | 6 |
| Depth of Pond, D _{pond} | Varies 1' to 6' | (| 0 | | 2 | 3 | 4 | 5 | 9 |

| where: $K = \text{saturated hydraulic conductivity, in feet/day}$ |
|-------------------------------------------------------------------|
| EQUATIONS |

 $= i \approx \frac{D_{wt} + D_{pond}}{138.62(K^{0.1})}$

gradient

Eq. 4-20

Eq. 4-16

foor=(Chilbio)(Chaped) Eq. 4-18

where:

f = specific discharge or infiltration rate of water through a unit cross-section of the infiltration facility

 $D_{\rm wr}$ = depth from the base of the infiltration trench to the water table or to the first low-permeability layer, in feet

D_{pond} = depth of water in the pond, in feet

K = hydraulic conductivity, in feet/day

i =gradient for ponds and trenches at sites with shallow water tables, or a value of approximately 1 for ponds and trenches at sites with deep water tables)

where:

OF_{sitrobio} = correction factor for siltation and biofouling OF_{aspect} = correction factor for aspect ratio f = "uncorrected" infiltration rate

Cell 3 Closure Run-off Calculations

Method: Rational Method for determining storm water runoff

Q = CIA

Q - Peak discharge in cubic feet per second.

C - Runoff coefficient which represents the ratio of runoff to rainfall for the drainage area considered.

I - The average rainfall intensity in inches per hour for a period of time equal to the time of concentration (Tc) for the drainage area under consideration.

A - The drainage area, in acres, contributing runoff to the point of consideration.

$$T_{cn} = \frac{0.93 \times L^{0.6} \times N^{0.6}}{I^{0.4} \times S^{0.3}}$$

N = Surface roughness coefficient (manning's N)

S = Slope

L = Distance in feet from the low point to the upper reach of the drainage area

| Duration | | Ten | |
|-----------|------|------------|---------|
| see curve | 1 | Calculated | 1 |
| 10.7 | 2.55 | 73.9 | Grass |
| 5 | 3.00 | 8.4 | Asphalt |
| 10 | 2.32 | 9.4 | Asphalt |
| 20 | 1.70 | 10.6 | Asphalt |
| 30 | 1.37 | 11.6 | Asphalt |
| 50 | 0.95 | 13.4 | Asphalt |

| N = | 0.3 | Ave. Grass Cover of Existing Area |
|-----|-------|-----------------------------------|
| N = | 0.009 | tarp |
| S = | 0.003 | 3004 |
| L = | 500 | |

Manning's "N"

Asphalt 0.016 Concrete 0.014

Bare Packed Soil (free of stone) 0.1

Poor Grass Cover or Moderately rough Bare Soil 0.3

Average Grass Cover 0.4 0.8

Dense Grass Cover

Before

1 cfs = 448 gpm

Grassy Area

A = 5.10acre C = 0.35

222156 sq. ft.

1 = 2.55in./hr.

Q = 4.55cfs

2039 gpm

After

Hardscape area drained directly to infiltration pond

Max Flow @ 5 min Duration

A = 5.10acre C = 0.951 = 3 in./hr.

Q = 14.54cfs

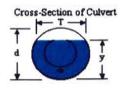
Runoff Coefficient - lawn =

6512 gpm

Runoff Coefficient - hardscape =

0.35 0.95

Cell 3 Deinventory Pipe Capacity Analyses for Relocation of 12" Overflow Line





| k= | 1.49 | english units |
|-----|-------------|---------------------------|
| d = | 12 | in 1 ft |
| S = | 0.04 | |
| n = | 0.01 | ADS - Smooth WII Interior |
| | (full pipe) | |
| P = | 3.14 | ft |

$$Q=VA \qquad V = \frac{k}{n}R^{2/3}S^{1/2} \qquad R = \frac{A}{P} \qquad A = \frac{d^2}{8}(\theta - \sin(\theta))$$

$$P = \frac{\theta d}{2} \quad y = \frac{d}{2}\left[1 - \cos\left(\frac{\theta}{2}\right)\right] \quad T = 2\sqrt{y(d-y)} \qquad P = V\sqrt{\frac{T}{gA\cos(Tan^4S)}}$$

| Q = | 9.29 | cfs | Existing Pipe |
|------------|-------|-----|---------------|
| | 4,169 | gpm | |
| V = | 11.83 | fps | |

Where

Q = Flow Rate, (ft^3/s) v = Velocity, (ft/s)

 $A = Flow Area, (ft^2)$

n = Manning's Roughness Coefficient

R = Hydraulic Radius, (ft)

S = Channel Slope, (ft/ft)

Manning's Equation:

$$Q = VA = \left(\frac{1.49}{n}\right)AR^{\frac{2}{3}}\sqrt{S} \quad [U.S.]$$

$$Q = VA = \left(\frac{1.00}{n}\right)AR^{\frac{2}{3}}\sqrt{S} \quad [SI]$$

Introduction

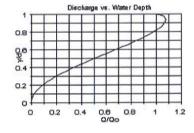
The equation beginning V=... is called the Manning Equation. It is a semi-empirical equation and is the most commonly used equation for uniform steady state flow of water in open channels (see Discussion and References for Open Channel Flow for further discussion). Because it is empirical, the Manning equation has inconsistent units which are handled through the conversion factor k. Uniform means that the water surface has the same slope as the channel bottom. Uniform flow is actually only achieved in channels that are long and have an unchanging cross-section. However, the Manning equation is used in other situations despite not strictly achieving these conditions.

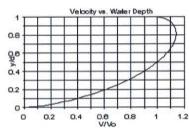
In our calculation, most of the combinations of inputs have analytic (closed form) solutions to compute the unknown variables; however, some two require numerical solutions ("Enter Q, n, S, d" and "Enter V, n, S, d"). Our numerical solutions utilize a cubic solver that finds roots of the equations with the result accurate to at least 8 significant digits. All of our calculations utilize double precision.

It is possible to get two answers using "Enter Q,n,S,d" or "Enter V,n,S,d". This is because maximum Q and V do not occur when the pipe is full. Qmax occurs when y/d=0.938. If y/d is more than that, Q actually decreases due to friction. Given a pipe with diameter d, roughness n, and slope S, let Qo be the discharge when the pipe is flowing full (y/d=1). As seen on the graph below, discharge is also equal to Qo when y/d=0.82. If the entered Q is greater than Qo (but less than Qmax), there will be two solution values of y/d, one between 0.82 and 0.938, and the other between 0.938 and 1. The same argument applies to V, except that Vo occurs at y/d=0.5, and Vmax occurs at y/d=0.81. If the entered V is greater than Vo (but less than Vmax), there will be two solution values of y/d, one between 0.5 and 0.81, and the other between 0.81 and 1. For further information, see Chow (1959, p. 134).

The following graphs are valid for any roughness (n) and slope (S):

Qo=full pipe discharge; Vo=full pipe velocity:





Variables To top of page

A = Flow cross-sectional area, determined normal (perpendicular) to the bottom surface [L²].

d = Culvert diameter [L].

F = Froude number. F is a non-dimensional parameter indicating the relative effect of inertial effects to gravity effects. Flow with F<1 are low velocity flows called subcritical. F>1 are high velocity flows called supercritical. Subcritical flows are controlled by downstream obstructions while supercritical flows are affected by upstream controls. F=1 flows are called critical.

g = acceleration due to gravity = 32.174 ft/s² = 9.8066 m/s². g is used in the equation for Froude number.

k = unit conversion factor = 1.49 if English units = 1.0 if metric units. Our software converts all inputs to SI units (meters and seconds), performs the computations using k=1.0, then converts the computed quantities to units specified by the user. Required since the Manning equation is empirical and its units are inconsistent.

n = Manning coefficient. n is a function of the culvert material, such as plastic, concrete, brick, etc. Values for n can be found in the table below of Manning's n coefficients.

P = Wetted perimeter [L]. P is the contact length (in the cross-section) between the water and the culvert.

Q = Discharge or flowrate $[L^3/T]$.

R = Hydraulic radius of the flow cross-section [L]

- S = Slope of channel bottom or water surface [L/L]. Vertical distance divided by horizontal distance.
- T = Top width of the flowing water [L].
- V = Average velocity of the water [L/T].
- y = Water depth measured normal (perpendicular) to the bottom of the culvert [L]. If the culvert has a small slope (S), then entering the vertical depth introduces only minimal error.
- Ø = Angle representing how full the culvert is [radians]. A culvert with Ø=0 radians (0°) contains no water, a culvert with Ø=pi radians (180°) is half full, and a culvert with Ø=2 pi radians (360°) is completely full.

Manning's n Coefficients To top of page
The table shows the Manning n values for materials most commonly used for culverts. These values were compiled from the references listed under Discussion and References and in the references at the bottom of this web page (note the footnotes which refer to specific references). A more complete table of Manning n values can be found on our Manning n page.

| Material | Manning n | Material | Manning n |
|----------------------------|--------------------------------------------------|------------------------|-------------|
| Metals: | | 00001 - 20 | |
| Brass | 0.011 | Smooth Steel | 0.012 |
| Cast Iron | 0.013 | Corrugated Metal | 0.022 |
| Non-Meta | | | |
| Corrugate inner walls | d Polyethylene (PE s ^{a,b} |) with smooth | 0.009-0.015 |
| | d Polyethylene (PE d inner walls ^c |) with | 0.018-0.025 |
| Polyvinyl (inner walls | Chloride (PVC) with | smooth | 0.009-0.011 |
| Glass | | Finished Concrete | 0.012 |
| Clay Tile | 0.014 | Unfinished Concrete | 0.014 |
| Brickwork | 0.015 | Gravel | 0.029 |
| Asphalt | 0.016 | Earth | 0.025 |
| Masonry | 0.025 | Planed Wood | 0.012 |
| | | Unplaned Wood | 0.013 |

References (footnotes refer back to Manning n table)

To top of page

Chow, V. T. 1959. Open-Channel Hydraulics. McGraw-Hill, Inc.

Barfuss, Steven and J. Paul Tullis. Friction factor test on high density polyethylene pipe. Hydraulics Report No. 208. Utah Water Research Laboratory, Utah State University. Logan, Utah. 1988.

e Barfuss, Steven and J. Paul Tullis. Friction factor test on high density polyethylene pipe. Hydraulics Report No. 208. Utah Water Research Laboratory, Utah State University. Logan, Utah. 1994.

^{*} Bishop, R.R. and R.W. Jeppson. Hydraulic characteristics of PVC sewer pipe in sanitary sewers. Utah State University. Logan, Utah. September 1975.

d Neale, L.C. and R.E. Price. Flow characteristics of PVC sewer pipe. Journal of the Sanitary Engineering Division, Div. Proc 90SA3, ASCE. pp. 109-129. 1964.

b Tullis, J. Paul, R.K. Watkins, and S. L. Barfuss. Innovative new drainage pipe. Proceedings of the International Conference on Pipeline Design and Installation, ASCE. March 25-27, 1990.



J1-000-CIV-RPT-SHN-00009-00

Solid Waste Permit



J1-000-CIV-RPT-SHN-00009-00



Department of Environmental Quality

Western Region Eugene Office 165 East 7th Avenue, Suite 100 Eugene, OR 97401-3049 (541) 686-7838 FAX (541) 686-7551 TTY (541) 687-5603

March 10, 2014

SENT VIA CERTIFIED MAIL RRR70130600000040577811

Mr. Robert L. Braddock Vice-President-Project Manager Jordan Cove Energy Project L.P. 125 Central Avenue, Suite 380 Coos Bay, OR 97420

RE: Permit

Permit Modification-Addendum No. 2

North Spit Landfill

SW Permit No. 1142, Coos County

DEQ SW Project No. 6656

Dear Mr. Braddock:

The Oregon Department of Environmental Quality (DEQ) in reviewing our files saw that Addendum No. 1 to the Solid Waste Disposal Site Permit (No. 1142) for the North Spit Landfill contained an error. Addendum No. 1 erroneously identified the permit as a "closure" permit. The solid waste permit for your site is for an "operating" industrial waste landfill, which has been specifically noted in Addendum No. 2.

With Addendum No. 2, DEQ has also modified the solid waste permit by changing the due date for the Annual Financial Assurance (FA) Recertification Report from March 31st to May 16th. This modification will put the FA annual submittal due date in line with the date of the initial certification of financial assurance provided by the permittee and subsequently approved by DEQ.

A copy of the Solid Waste Disposal Site Permit No. 1142 and the Permit Addendum No. 2 is enclosed with this letter. The addendum is effective upon receipt.

If you have any questions about this letter, please contact me at (541) 687-7438, or e-mail wong.gene@deq.state.or.us.

Sincerely,

Gene Wong, P.E., Environmental Engineer Western Region Hazardous and Solid Waste Permitting and Compliance

Encls: SW Permit No. 1142, Permit Addendum No. 2

Fran Holman. SW-Salem (w/ encl)

file

Cc:

x: Solid Waste\SW WR PermitFiles\1142NorthSpitLF\PermitAddendCvrLtr(3-14)





Permit Number: 1142 Expiration Date: August 31, 2021

Page 1 of 1

SOLID WASTE DISPOSAL SITE PERMIT: INDUSTRIAL WASTE LANDFILL

Oregon Department of Environmental Quality 750 Front Street NE, Suite 120 Salem, OR 97301 (503) 378-5047

Issued in accordance with the provisions of ORS Chapter 459.

ISSUED TO:

Jordan Cove Energy Project L.P. 125 Central Avenue, Suite No. 380 Coos Bay, OR 97420 541-266-7510

OWNER:

Fort Chicago Holdings II U.S. LLC c/o Jordan Cove Energy 125 Central Avenue, Suite No. 380 Coos Bay, OR 97420

ISSUED IN RESPONSE TO:

FACILITY NAME AND LOCATION:

North Spit Landfill 92730 Trans-Pacific Lane North Bend, OR 97459 Section 4, T25S, R13W, W.M. Coos County

OPERATOR:

Jordan Cove Energy Project L.P. 125 Central Avenue, Suite No. 380 Coos Bay, OR 97420 541-266-7510 Robert Braddock (541) 266-7510

Correct of erroneous information shown on Addendum No. 1 (dated January 11, 2013);
 Financial Assurance Annual Recertification Report due date has been modified.

ISSUED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Brian Fuller, Manager, Hazardous and Solid Waste

Permitting and Compliance

Western Region

03/06/2014

ADDENDUM NO. 2

In accordance with Oregon Administrative Rules 340-093-0113, Solid Waste Permit No. 1142, is hereby amended as follows:

- Addendum No. 1 (dated January 11, 2013) erroneously identified Solid Waste Permit No. 1142 to be a "closure" permit. Addendum No. 2 confirms that North Spit Landfill has an "operating" industrial waste landfill permit and not a "closure" permit.
- The due date for the submittal of the Annual Financial Assurance Recertification Report has been modified from March 31st of each year to May 16th of each year.

This addendum must be attached to and made part of Solid Waste Disposal Site Permit No. 1142, which has a permit expiration date of August 31, 2021. The addendum is effective upon receipt.



SOLID WASTE DISPOSAL SITE PERMIT:

Oregon Department of Environmental Quality 750 Front Street NE, Suite 120 Salem, OR 97301 Telephone: (503) 378-5047

Issued in accordance with the provisions of ORS Chapter 459 and subject to the land use compatibility statement referenced below.

ISSUED TO:

Weyerhaeuser NR Company 33663 Weyerhaeuser Way S Federal Way, WA 98003

OWNER:

Weyerhaeuser NR Company 33663 Weyerhaeuser Way S Federal Way, WA 98003

FACILITY NAME AND LOCATION:

North Spit Landfill Industrial Waste Landfill Horsfall Beach Road North Bend, OR 97459 Section 4, T25S, R13W, W.M. Coos County

OPERATOR:

Weyerhaeuser NR Company 3401 Industrial Way Longview, WA 98632 Carol Wiseman (360) 414-3911

ISSUED IN RESPONSE TO:

A solid waste permit application received October 16, 2007;

A Land Use Compatibility Statement from Coos County Planning Department dated January 21, 1997.
 The determination to issue this permit is based on findings and technical information included in the permit record.

ISSUED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Brian Fuller, Manger, Hazardous and Solid Waste

Permitting and Compliance

Western Region

November 2, 2011

Permitted Activities

Until this permit expires or is modified or revoked, the permittee is authorized to establish, operate, and maintain a solid waste land disposal site in conformance with the requirements, limitations, and conditions set forth in this document, including all attachments.

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PERMIT ADMINISTRATION

| 1.0 | PERMIT ISS | JANCE | Tuesties | |
|-----|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--|
| 1.1 | Permittee | This permit is issued to Weyerhaeuser NR. | | |
| 1.2 | Permit number | This permit will be referred to as Solid \ | Waste Permit Number 1142. | |
| 1.3 | Permit term | The permit is issued on the date it is sig | gned. | |
| | * | The permit's expiration date is August 3 | 31, 2021. | |
| 1.4 | Facility type | The facility is permitted as an industrial | landfill. | |
| 1.5 | Facility owner/ operator | The owner of this facility is: Weyerhaeuser NR Company 33663 Weyerhaeuser Way S Federal Way, WA 98003 | The operator of this facility is: Weyerhaeuser NR Company 3401 Industrial Way Longview, WA 98632 Carol Wiseman (360) 414-3911 | |
| 1.6 | Basis for permit issuance | Colld waste normit application rece | ollowing documents submitted by the permittee: eived October 16, 2007; and; s from Coos County Planning Department dated | |
| 1.7 | Definitions | Unless otherwise specified, all terms a | re as defined in OAR 340-093-0030. | |
| 1,8 | Legal control of property | The permittee shall at all times maintai including maintaining a current permit, of the facility if the site is not owned by | in legal control of the disposal site property; contract or agreement that allows the operation the permittee. | |
| 2.0 | DISCLAIME | RS | ÷ c | |
| 2.1 | Property rights | The issuance of this permit does not or personal property, or any exclusive priprivate property or any invasion of personal property or any invasion of persona | onvey any property rights in either real or vileges, nor does it authorize any injury to sonal rights. | |
| 2,2 | DEQ liability | The DEQ, its officers, agents, or employence the issuance of this permit or on accourance of facilities pursuant to this permit or the permit of the permit | oyees do not sustain any liability on account of unt of the construction, maintenance, or permit. | |

| 3.0 | AUTHORITY | |
|-----|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 | Ten year permit | This permit is issued for a maximum of ten (10) years as authorized by Oregon Revised Statutes 459.245 (2). |
| 3.2 | Documents superseded | This document is the primary solid waste permit for the facility, superseding all other solid waste permits issued for Weyerhaeuser NR by DEQ. |
| 3.3 | Permittee responsibility and liability | Conditions of this permit are binding upon the permittee. The permittee must conduct all facility activities in compliance with the provisions of this permit. The permittee is liable for all acts and omissions of the permittee's contractors and agents in carrying out the operations and other responsibilities pursuant to this permit. |
| 3.4 | Other compliance | This permit's issuance does not relieve the permittee from the responsibility to comply with all other applicable federal, state, or local laws or regulations, including the following solid waste requirements, and any future updates or additions to these requirements: Solid waste permit application received; Oregon Revised Statutes, Chapters 459 and 459A; Oregon Administrative Rules Chapter 340; and Any documents submitted by the permittee and approved by DEQ. |
| 3.5 | DEQ access to disposal site | The permittee shall allow representatives of DEQ access to the disposal facility at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data and carrying out other necessary functions related to this permit. Reference: OAR 340-093-0050(6). |
| 3.6 | Penalties | Violation of permit conditions will subject the permittee to civil penalties of up to \$25,000 for each day of each violation. |
| 4.0 | PERMIT MOD | DIFICATION |
| 4.1 | Five year review | In the permit's 4th to 6th year, DEQ may review the permit and amend it if necessary. DEQ will consider the following factors in making this determination: Compliance history of the facility; Changes in volume, waste composition, or operations at the facility; Changes in state or federal rules which should be incorporated into the permit; A significant release of leachate or landfill gas to the environment from the facility; Significant changes to a DEQ-approved site development plan, and/or conceptual design; and Other significant information or events. |
| 4.2 | Permit modification | DEQ or the permittee may, at any time during the permit's term, propose to change the permit. |

| Modification and revocation by DEQ | The Director may, at any time before the expiration date, modify, suspend, or revoke this permit in whole or in part, in accordance with Oregon Revised Statutes 459.255, for reasons including but not limited to the following: Violation of any terms or conditions of this permit or any applicable statute, rule, standard, or order of the Commission; Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or A significant change in the quantity or character of solid waste received or in the operation of the disposal site. |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modification by permittee | The permittee must apply for a modification to this permit if there is a significant change in facility operations or a deviation from permitted activities. |
| Public participation | DEQ will issue a public notice to inform the public of any significant changes to the permit. |
| Changes in ownership or address | At least ten (10) days in advance, the permittee must report to DEQ any change in the facility's ownership or the permittee's or operator's name and/or address. |
| | and revocation by DEQ Modification by permittee Public participation Changes in ownership or |

ALLOWABLE ACTIVITIES

| 5.1 | Wastes authorized for receipt | This permit authorizes the facility to accept the following wastes: Settling basin solids, construction/demolition/mill clean-up waste generated on-site and dredged sediments may be disposed in the active lined cell, Cell 3. Asbestos may be disposed of in accordance with an approved asbestos management plan. |
|-----|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | Special wastes may be disposed of in accordance with Condition 5.3 Additional non-hazardous wastes may be disposed of upon receipt of approval of DEQ and permit addendum, if needed. |
| 5.2 | Authorization of other wastes | DEQ may authorize the permittee to accept other wastes if: The permittee develops a Special Waste Management Plan (SWMP) and submits it to DEQ for review and approval; DEQ approves the Special Waste Management Plan (SWMP); and The permittee can demonstrate that the materials are not hazardous waste, as defined by state and federal regulations, or otherwise a threat to human health or waters of the state. |
| 5,3 | Salvaging and recycling | This permit authorizes the permittee to conduct salvaging and recycling in a controlled and orderly manner. The permittee must notify DEQ prior to changing salvaging and recycling operations. |

| 6.0 | PROHIBITIONS | | |
|------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 6.1 | Hazardous waste disposal | The permittee must not accept any regulated hazardous wastes. Reference: 40 CFR 258.20 (b). In the event discovered wastes are hazardous or suspected to be hazardous, the permittee must, within twenty-four (24) hours, notify DEQ and initiate procedures to identify and remove the waste. Hazardous wastes must be removed within ninety (90) days, unless DEQ approves otherwise. The permittee's temporary storage and transportation practices must comply with DEQ rules. | |
| 6.2 | Liquid waste disposal | The permittee must not accept liquid waste for disposal. <u>Definition</u> : Liquid wastes are wastes that do not pass the paint filter test performed in accordance with EPA Method 9095B. | |
| 6.3 | Vehicle disposal | The permittee must not accept discarded or abandoned motor vehicles, including trailers and mobile homes, for disposal. | |
| 6.4 | Used oil disposal | The permittee must not accept used oil for disposal. | |
| 6.5 | Battery disposal | The permittee must not accept lead-acid batteries for disposal. | |
| 6.6 | Tire disposal | The permittee must not accept waste tires for disposal. | |
| 6.7 | Recyclable material disposal | The permittee must not landfill or dispose of any source-separated recyclable material brought to the disposal site. Exception: If the source-separated material is unusable or not recyclable it may be landfilled. DEQ must agree to such disposal and pre-approve the identified sources of unusable source-separated material prior to its disposal. | |
| 6.8 | Open burning | The permittee must not conduct any open burning at the site. | |
| 6,9 | Putrescible waste | The permittee must not accept putrescible waste for disposal. | |
| 6.10 | Electronic waste disposal | The permittee must not knowingly accept the following covered electronic devices for disposal: Computer monitors having a viewable area greater than four (4) inches diagonally; Televisions having a viewable area greater than four (4) inches diagonally; Desktop computers; or Portable computers. Reference: Oregon Revised Statutes 459.247 and 459A.300-365. | |

OPERATIONS AND DESIGN

7.0 OPERATIONS PLAN

7.1 Operations plan submittal

Within twelve months (12) of the permit issue date, the permittee must submit an updated Operations Plan (North Spit Landfill Operations Plan dated April 10, 1997 and revised October 1998) to reflect current maintenance and landfill operating status for DEQ approval. Upon approval, this plan is incorporated into this permit by reference.

Permit Number: 1142 Expiration Date: August 31, 2021 Page 7 of 21

7.2 Plan content

The Operations Plan must describe facility operations, including the applicable elements listed below, and demonstrate how the facility will comply with all regulatory and permit requirements:

| and permit req | Swedtic Operating Procedures: |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Topics General operations | Screening procedures for detection of unauthorized wastes, Handling and removal of unauthorized wastes discovered at the facility; Management of landfill leachate; Designing surface water and erosion control structures; and Responding to non-compliance events or situations. |
| Disposal operations | Placement of daily and intermediate cover; Detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyl wastes, and any other DEQ-prohibited wastes; Disposal of cleanup materials contaminated with hazardous substances; and Fill progression and phasing. |
| Special Waste Management Plan (SWMP) | Identifying and characterizing special wastes (i.e., wastes and require special management or waste streams not otherwise authorized by the permit); Identifying the source of all special wastes; Determining appropriate handling procedures; and Documenting plan implementation, including waste characterization. References: OAR 340-093-0190, OAR 340-095-0020[3][j] |
| Ancillary operations | Waste unloading and handling; Handling and removal of waste tires; and Management of transfer containers. |
| Inspection and maintenance | Detailed inspection and maintenance procedures and an associated schedule for all facility components that require periodic inspection. Specific procedures for routine preventative maintenance and repairs and for response to emergency situations. The preventative inspection and maintenance program should address the following equipment and facilities: personnel safety equipment, operating equipment, support facilities, environmental control systems, environmental monitoring systems, and the transportation system. Maintaining leachate and gas collection systems; and |
| Operating record | - Establishing and maintaining the operating record. |
| Contingency | Providing fire protection equipment; and Notifying DEQ about emergencies and fires. |

Reference: OAR 340-095-0020 describes requirements for preparing an Operations Plan.

7.3 Plan and manual updates

The permittee must update and revise the Operations Plan as necessary to reflect current facility conditions and procedures.

The permittee must submit any associated revisions or updates to DEQ for review and approval.

Permit Number: 1142 Expiration Date: August 31, 2021 Page 8 of 21

7.4 Plan and manual compliance

The permittee must operate the facility in accordance with the approved Operations Plan and any amendments to these documents.

7.5 Submittal address

Send required submittals to:

Oregon Department of Environmental Quality
Manager, Solid Waste Program
750 Front Street NE, Suite 120
Salem, OR 97301
Telephone: (503) 378-5047

8.0 RECORDKEEPING AND REPORTING - OPERATIONS

8.1 Noncompliance reporting The permittee must take immediate corrective action for any violations of permit conditions or DEQ rules and notify DEQ at:

(503) 378-5047

<u>DEQ response</u>: DEQ may investigate the nature and extent of the compliance problem and evaluate the adequacy of the permittee's corrective action plans.

8.2 Permit display

The permittee must display this permit where operating personnel can easily find it.

8.3 Access to records

DEQ must have access, when requested, to all records and reports related to the permitted facility.

8.4 Procedure

The permittee's record keeping and reporting procedures are as follows:

| Step | Action |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Keep the Operating Record at the facility or at another DEQ-approved location. |
| 2 | Place Information required by 40 CFR 258.29 in the Operating Record. |
| 3 | During daily facility operations, record the amount of each waste type received. Record zero (0) if the waste is not received. |
| | Identify the following waste types and categorize them as either in-state or out- of-state wastes: Industrial solid waste; DEQ approved cover materials. |
| 4 | Submit the information collected in Step 3 above on the Solid Waste Disposal Report/Fee Calculation form provided by DEQ. |
| | Pay solid waste fees as required by OAR 340-097. |
| | Date due: the last day of the month following the end of the calendar quarter. |
| 5 | Retain copies of all records and reports for ten (10) years after their creation. |
| 6 . | Update all records to reflect current conditions at the facility. |

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Submittal 8.5 address

Send required submittals to:

Oregon Department of Environmental Quality Land Quality Solid Waste Program 750 Front Street NE, Suite 120 Salem, OR 97301 503-378-5047

SPECIFIC OPERATING CONDITIONS 9.0

Discovery of 9.1 prohibited waste

If the permittee discovers prohibited wastes, the permittee must notify DEQ within twenty-four (24) hours and begin to isolate or remove the waste. In addition, the permittee must take digital photos of the prohibited waste to document its quantity, nature, identity and source.

Within sixty (60) days, the permittee must transport non-putrescible, non-hazardous prohibited waste to a disposal or recycling facility authorized to accept such waste, unless otherwise approved or restricted by DEQ. The permittee must obtain DEQ's written approval to store putrescible, non-hazardous, prohibited wastes.

Spills 9.2 notification Oregon Revised Statue 466,635 and Oil and Hazardous Material Emergency Response Requirements, Chapter 340, Division 142 require immediate notification to Oregon Emergency Response System (OERS) after taking any required emergency actions to protect human health and the environment when oil or hazardous materials are spilled. The spill must be immediately reported to OERS at 1-800-452-0311 if the spill is of a reportable quantity. Reportable quantities include:

Any amount of oil spilled to waters of the state;

Oil spills on land in excess of forty-two (42) gallons;

Two hundred (200) pounds (twenty-five (25) gallons) or more of spilled pesticide

Spills of hazardous materials that are equal to, or greater than, the quantity listed in the Code of Federal Regulations, 40 CFR Part 302 (List of Hazardous Substances and Reportable Quantities), and amendments adopted before July 1, 2002.

For a complete list of hazardous materials required to be reported, please refer to OAR 340-142-0050.

Unloading area 9,3

The area(s) for unloading incoming waste must be clearly defined by signs, fences, barriers or other devices. The width of the unloading area must not exceed two hundred (200) feet at any time.

Daily and 9.4 interim cover If applicable, daily cover must be maintained as specified in DEQ-approved design and operations plans.

Interim cover 9.5

The permittee must place and maintain interim cover over fill areas that will not receive additional waste for an extended period of time [i.e., greater than onehundred and eighty (180) days].

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| 9.6 | Soil erosion | The permittee must minimize and control soil erosion to prevent damage to the intermediate or final cover and sediment transport into off-site surface waters or off-site properties. | |
|------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 9.7 | Surface water structures | The permittee must maintain all stormwater drainage structures in good functional condition, report to DEQ any significant malfunctions or damage and complete repairs within sixty (60) days of discovering the problem. | |
| 9.8 | Leachate management systems | The permittee must operate the disposal site in a manner that deters leachate production to the maximum extent practicable, and construct, operate and maintain in good functional condition all DEQ-approved leachate containment, collection, detection, removal, storage and treatment systems. The permittee must remove leachate continuously from all landfill leachate collection systems, to minimize fluid buildup on the bottom liner and prevent hydraulic head. | |
| 9.9 | Leachate surface impoundments | The permittee must: 1) completely contain leachate stored within surface impoundments; 2) maintain a minimum dike freeboard of three (3) feet above the maximum leachate level in those impoundments unless otherwise approved by DEQ; 3) fence the impoundments to control public access; and 4) lock all gates when no attendant is on duty. In addition, the permittee must post clearly legible, visible signs that describe the surface impoundment's contents and display the words "no trespassing." | |
| 9.10 | Litter control | The permittee must at all times minimize windblown litter and collect it quickly and effectively to prevent scattering, nuisance conditions and unsightliness. | |
| 9.11 | Vector control | The permittee must minimize vectors in the active disposal area, including insects, rodents, and birds. | |
| 9.12 | Air emissions | The permittee must control air emissions, including dust, malodors, air toxics, etc related to disposal site construction, operation, and other activities, and comply with DEQ air quality standards. | |
| 9,13 | Public access/ access control | The permittee must control public access to the landfill as necessary to prevent unauthorized entry and dumping. The permittee shall insure that the industrial land disposal site has a perimeter barrier or topographic constraints adequate to restrict unauthorized entry. | |
| 9.14 | Site screening | To the extent practical, the permittee shall screen the active non-municipal land disposal site area from public view by trees, shrubbery, fence, stockpiled cover material, earthen berm, or other appropriate means. | |
| 9.15 | Fire prevention | The permittee shall make arrangements with the local fire control agency to immediately acquire their services when needed and shall provide adequate on-site fire protection as determined by the local fire control agency. | |
| | | Fires must be immediately and thoroughly extinguished. The permittee shall be responsible for initiating and continuing appropriate fire-fighting methods until all smoldering, smoking and burning ceases. | |
| | | Fires shall be reported to DEQ within twenty-four (24) hours at: | |
| | | 503-378-5047 | |
| 9.16 | Water supply | The permittee must provide water in sufficient quantities for fire protection, dust suppression, establishment of vegetation, and other site operations requiring water. | |
| | | | |

9.17 Signs

The permittee shall post a clearly visible and legible sign(s) at the entrance to the disposal site specifying:

- Emergency phone number; and
- Site operator's name and contact information.

SITE DEVELOPMENT AND DESIGN

10.1 In this section

This section describes site development and design requirements for continued use of the landfill, or any landfill expansion or new facility construction, including:

- Site development plan
- Design plans
- Construction requirements
- Construction documents
- Construction report submittal
- Approval to use, and
- Submittal address

10.2 Site Development Plan

Within twelve months (12) months of the permit issue date, the permittee must submit an updated site development plan (Site Master Plan dated April 10, 1997, revised October, 1998) to reflect current landfill operating status for DEQ approval. This plan can be submitted as a section in the Operations Plan referenced in Section 7.1 of this permit. Upon approval, this plan is incorporated into this permit by reference.

Reference: The Solid Waste Landfill Guidance, September 1996, provides information on applicable elements of a Site Development Plan.

Design plans 10.3

The permittee must submit engineering design plans for new disposal units, closure of existing units, or other ancillary facilities for DEQ review and approval at least six (6) months prior to the anticipated construction date. If the continued operation includes disposal of ash and cinders, a new lined disposal unit may be required including engineering design plans.

The engineering design plans must:

- specify applicable performance criteria, construction material properties and characteristics, dimensions, and slopes, and
- provide all relevant engineering analyses and calculations as a basis for the design

Construction 10.4 requirements

The permittee must perform all construction in accordance with approved plans and specifications, including all conditions of approval, and any amendments to those plans and specifications approved in writing by DEQ.

Construction 10.5 documents

Prior to construction of the final landfill cover, a new landfill unit disposal unit, or other waste containment unit at the site, the permittee must submit and receive written DEQ approval of complete construction documents for the project to be constructed. The construction documents submitted must:

- define the construction project team
- include construction contract documents specifying material and workmanship requirements to guide how the Constructor is to furnish products and execute work, and
- include a Construction Quality Assurance (CQA) plan, describing the measures taken to monitor that the quality of materials and the work performed by the Constructor complies with project specifications and contract requirements

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Within 90 days of completing construction of a landfill disposal unit, a final cover system 10.6 Construction over an existing or new unit, or a major appurtenant facility, the permittee must submit to report DEQ a Construction Certification Report, prepared by a qualified independent party, to submittal document and certify that all required components and structures have been constructed in compliance with the permit requirements and approved design specifications. The permittee must not dispose of solid waste in newly constructed disposal units until Approval to 10.7 DEQ has accepted the Construction Certification. If DEQ does not respond to the use Construction Certification Report within 30 days of its receipt, the permittee may place waste in the unit. All submittals to DEQ under this section must be sent to: Submittal 10.8 Oregon Department of Environmental Quality address Manager, Solid Waste Program 750 Front Street NE, Suite 120 Salem, OR 97301 Telephone: (503) 378-5047

SITE CLOSURE

11.0 CLOSURE CONSTRUCTION AND MAINTENANCE

| 11.1 | In this section | This section describes requirements for closure construction and maintenance at the facility, including: | |
|------|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | | Closure permit | |
| | | Closure plan approval | |
| | | Closure schedule | |
| | | Final cover | |
| | | Vegetation | |
| | | Surface contour maintenance | |
| | | Deed record and | |
| | | Submittal address | |
| 11.2 | Worst-case closure plan development | Within twelve (12) months of permit issuance, the permittee must develop and submit for DEQ review and approval a conceptual "worst-case" closure plan and a conceptual post-closure plan and maintain up-to-date copies of these plans in the facility file. | |
| | | Reference: The plans must comply with OAR 340-095-0060 and OAR 340-095-0065. | |
| 11.3 | Closure permit | In accordance with OAR 340-095-0050, the permittee must apply for a closure permit at least five (5) years prior to the landfill's anticipated final closure. | |
| 11.4 | Notification of plan | The permittee must notify DEQ and receive DEQ approval for any changes or updates to the conceptual "worst-case" closure and conceptual post-closure care plans. | |

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| 11.5 | Closure plan approval | At least 6 months prior to final closure of any portion of the landfill, the permittee must submit for approval detailed engineering plans, specifications, and a schedule for closure. Reference: The Solid Waste Landfill Guidance, September 1996, provides information on applicable elements of a Closure Plan. Following the organizational format provided in the Guidance will expedite DEQ review of the plan | |
|-------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 11.6 | Closure schedule | The permittee must close each area of the landfill on the schedule approved by DEQ. | |
| 11.7 | the supposed by DEO, the final landfill cover must be either: | | |
| 11.8 | Vegetation | The permittee must establish and maintain a dense, healthy growth of native vegetation over the closed areas of the landfill consistent with the proposed final use. | 2 |
| 11.9 | Surface contour maintenance | The permittee must maintain the final surface contours of the landfill cover so that erosion and ponding of water is prevented to the maximum extent practicable. Erosion damage (cuts) must be repaired and seeded so that all waste remains covered. The permittee must refill with soil, grade, and seed all areas that have settled or where water ponds and all areas where the cover soil has been damaged by cracking or erosion. Areas where vegetation has not been fully established must be fertilized, re-seeded, and maintained. | |
| 11.10 | Deed record | Within 30 days after final closure of the disposal site, the permittee must record the presence of the waste in the property deed record on file with the county. | _ |
| 11.11 | Submittal address | All submittals to DEQ under this section must be sent to: Oregon Department of Environmental Quality Manager, Solid Waste Program 750 Front Street NE, Suite 120 Salem, OR 97301 Telephone: (503) 378-5047 | |

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12.0 FINANCIAL ASSURANCE

12.1 Financial assurance plan

To confirm that there is adequate financial assurance to provide for the costs of site closure and post-closure care, the permittee must provide the following evidence to DEQ:

- · A copy of the financial assurance mechanism; and
- A written certification that the financial assurance meets all state requirements.

Reference: The plan must be prepared in accordance with OAR 340-094-0140. Acceptable mechanisms are described in OAR 340-094-0145.

Note: The permittee must review and update financial assurance annually in accordance with OAR 340-094-0140(6)(e). In addition, the permittee must maintain the plan in the facility file.

12.2 Recertification of financial assurance Prior to March 31st of each year, the permittee must submit to DEQ one (1) copy of the Annual Financial Assurance Recertification Report, signed by:

- A permittee representative who possesses the requisite authority to commit the permittee to the certification; and
- A Professional Engineer, with current Oregon registration (both stamp and signature).
- 12.3 Use of financial assurance

The permittee must not use the financial assurance for any purpose other than to finance the permitted facility's approved closure, post-closure, and corrective action activities or to guarantee that those activities will be completed.

12.4 Long-term financial responsibility

The permittee must continuously maintain financial assurance for the facility until the permittee or other person owning or controlling the site is no longer required by DEQ to demonstrate financial responsibility for closure, post-closure care, or corrective action.

12.5 Submittal address

Send all required submittals to:

Oregon Department of Environmental Quality
Manager, Solid Waste Program
750 Front Street NE, Suite 120
Salem, OR 97301
Telephone: (503) 378-5047

ENVIRONMENTAL MONITORING

13.0 ENVIRONMENTAL MONITORING PLAN (EMP)

13.1 EMP submittal

Within twelve months (12) of the permit issue date, the permittee must submit an updated Environmental Monitoring Plan (EMP) to DEQ for review and approval. The plan should reflect the streamlined monitoring that has been approved by DEQ over the term of the previous permit. The updated EMP must be prepared and stamped by a Geologist or a Certified Engineering Geologist, with current Oregon registration. Once approved, this EMP will become an integral part of the permit.

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| 13.2 | EMP contents | The EMP must contain an environmental monitoring program that will characterize any potential facility impacts on the environment. The EMP may consist of the previous approved plan with any subsequent changes or additions (i.e., approved concentration limits, revised parameter lists, revised schedules, new wells, etc). | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| revisions and updates environmental conditions, facility development and regulators and updates environmental conditions, facility development and regulators and updates Geologist or Certified Engineering Geologist, with current Oregon registrations are property and stamp the EMP revisions and submit two (2) copies (one parameters). | | The permittee must revise the current EMP as necessary to reflect current and future environmental conditions, facility development and regulatory requirements. A Geologist or Certified Engineering Geologist, with current Oregon registration, must prepare and stamp the EMP revisions and submit two (2) copies (one paper copy, one electronic) to DEQ for review and approval. | |
| 13.4 | EMP public EMP changes may require a public comment period. | | |
| 13.5 | Long-term monitoring plan | | |
| 13.6 | Additional monitoring points | The permittee must incorporate any new or replacement monitoring point or device into the Environmental Monitoring Plan (EMP) and submit the updated EMP to DEQ for review and approval. | |
| 13.7 | Submittal address | Send all required submittals to: Oregon Department of Environmental Quality Manager, Solid Waste Program 750 Front Street NE, Suite 120 Salem, OR 97301 Telephone: (503) 378-5047 | |

14.0 ENVIRONMENTAL SAMPLING REQUIREMENTS

14.1 Notification of sampling events

The permittee must notify DEQ, in writing, at least ten (10) working days prior to a scheduled sampling event. The notification may be made via email. Send sampling notifications to:

Oregon Department of Environmental Quality
Manager, Solid Waste Program
750 Front Street NE, Suite 120
Salem, OR 97301
Telephone: (503) 378-5047

14.2 Split sampling events

The permittee must split samples with DEQ at its request, and schedule split-sampling events with DEQ's laboratory at least forty-five (45) days ahead of time.

Oregon Department of Environmental Quality Laboratory, Groundwater Monitoring Section 3150 NW 229th, Suite 150 Hillsboro, OR 97124 Phone: (503) 693-5700

Fax: (503) 693-4999

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| 14.3 | Monitoring The permittee must refer to the approved EMP for environmental monitorin schedule procedures. | |
|------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14.4 | Monitoring after EMP approval | The permittee must monitor the facility in accordance with: 1) the approved EMP; 2) any conditions of DEQ's approval; and 3) any DEQ-approved amendments and updates. |
| 14.5 | Changes in sampling or split sampling | The permittee must submit a written request and obtain DEQ's written approval before changing the sampling program, including sampling frequency, parameters, or locations. Approved changes will become an integral part of the EMP. |
| | | DEQ reserves the right to add to or delete from the list of scheduled sampling events, sampling locations, and sampling parameters, and to conduct unscheduled sampling or split sampling events. |

| 15.0 | LOIMBLIO | IING CONCENTRATION LIMITS | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 15.1 | The permittee must monitor the designated background wells in accordance wi approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Monitoring Plan or propose an alternative intrawell approved Environmental Action Concentration Limits (RACLs), and/or Site Specific Limits (SSLs) are proposed each non-hazardous parameter of concentration Limits (SSLs) ar | | |
| 15.2 | Future disposal units or cells | Before using a new landfill unit or cell for waste disposal, the permittee must collect enough samples to determine background groundwater quality. | |
| 15.3 | Proposing PSCLs, RACLs, and/or SSLs | At DEQ's request, the permittee must propose for DEQ's review and approval, a PSCL, RACL, or SSL pursuant to the guidelines specified in OAR 340-040. The proposal must address all required parameters of interest. Once a statistically valid data set (at least nine (9) acceptable data points) are established from the appropriate background well(s), the permittee may generate a PSCL, RACL, or SSL for each designated, long-term monitoring parameter. | |
| 15.4 | Changing PSCLs, RACLs, and/or SSLs | If the permittee demonstrates to DEQ's satisfaction that background groundwater quality has significantly changed since the PSCL, RACL, or SSL was established, and if the change is unrelated to the permitted facility's influence, the permittee can propose to DEQ, a revised level for the affected PSCL(s), RACL(s), or SSL(s). | |
| | | This does not apply to intrawell comparisons, only to interwell methods. | |
| 15.5 | Establishing and changing CLVs | The permittee should refer to the State's Groundwater Quality Protection Rules [OAR 340-040-0030(4)] for guidance in establishing and changing Concentration Limit Variances (CLVs). | |

ENVIRONMENTAL MONITORING STANDARDS 16.0 The permittee must not allow the release of any substance from the landfill into Applicable 16.1 groundwater, surface water, or any other media which will result in a violation of any regulatory applicable federal or state air or water limit, drinking water rules, or regulations, beyond standard the solid waste boundary of the disposal site or an alternative boundary specified by DEQ. Reference: OAR 340-094-0080. The permittee must review the analytical results after each monitoring event according Review of 16.2 to the protocols established in the most currently approved site-specific Environmental results Monitoring Plan. Note: Established Remedial Action Concentration Limits and Permit-Specific Concentration Limits are listed in Attachment 1 of this permit. Upon receipt of data from resampling, the permittee must review the analytical results Resampling 16.3 according to the protocols established in the most currently approved site-specific results Environmental Monitoring Plan. To assure the best possible data quality, DEQ suggests that the permittee contract Certified 16.4 with environmental labs certified under the Oregon Laboratory Accredited Program environment-(ORLAP) or the National Environmental Laboratory Accreditation Program (NELAP). al laboratory The permittee should include a copy of the lab's certification with every data submittal. data Use of an ORLAP or NELAP approved lab will facilitate DEQ's future review of Environmental Monitoring Plan (EMP) or associated updates, the Annual Environmental Monitoring Reports (AEMRs), and any required RI/FS documents. If the permittee chooses to use a non-ORLAP or non-NELAP laboratory, then that lab must provide their Quality Assurance and Control plan to the DEQ laboratory for review and approval. Any analyses from this non-accredited laboratory will need to conform to the conditions of DEQ's approval. RECORD KEEPING AND REPORTING 17.0 Prior to March 1 of each year, the permittee must submit to DEQ one (1) hard copy and one (1) electronic copy of an annual monitoring report for the past year's Annual 17.1 monitoring period. The report must conform to the approved EMP format and be Environmenta prepared and stamped by a Geologist or a Certified Engineering Geologist, with I Monitoring Report current Oregon registration. (AEMR) Note: Whenever possible, the permittee must submit two-sided copies of all reports and may submit electronic submittals of reports. The AEMR must include a brief (approximately one-page) cover letter that: Statement of 17.2 Compares the analytical results with the relevant monitoring standards (RBCs, compliance PSCLs, CLVs, ALs, or SSLs);

methane levels in monitored media.

Documents any exceedances of federal or state standards for relevant media;

Documents any significant change in water quality, land quality, air quality or

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17.3 Annual
Environmental
Monitoring
Report
(AEMR)
contents

The AEMR must reflect the facility's current conditions, present accurate data that corresponds with the original field and lab data, and include the reporting elements as described in the EMP.

17.4 Submittal address

Send all required submittals to:

Oregon Department of Environmental Quality
Manager, Solid Waste Program
750 Front Street NE, Suite 120
Salem, OR 97301
Telephone: (503) 378-5047

17.5 Split sampling submittal

Within ninety (90) days of any split sampling event, the permittee must submit the following information to DEQ's laboratory:

- A copy of all information pertinent to the sample collection handling, transport and storage, including field notes;
- Copies of all laboratory analytical reports;
- Copies of all laboratory QA/QC reports;
- A copy of the lab certification (ORLAP or NELAP, see Certified Environmental Lab Data condition above);
- Any other data or reports requested by DEQ.

17.6 Lab address

Report all required split sampling information to:

Oregon Department of Environmental Quality Laboratory, Groundwater Monitoring Section 3150 NW 229th, Suite 150 Hillsboro, OR 97124 Phone: (503) 693-5700 Fax: (503) 693-4999

17.7 DEQ response to split samples

If the permittee submits all required split sampling data and requests DEQ's results, DEQ's lab may provide, to the permittee, copies of the following information:

- DEQ's analysis of the split sample;
- The QA/QC report;
- The analytical report; and/or
- · The field data sheets.

18.0 ENVIRONMENTAL MONITORING NETWORK For future disposal units or cells, the permittee must install DEQ-approved background Monitoring 18.1 and detection and/or compliance wells at least twelve (12) months before refuse device disposal occurs in the new cells. A Site Characterization Report (SCR) may also be installation required for any proposed new cell. DEQ may waive or modify this requirement if the permittee provides adequate justification for an alternative approach. To ensure that every sample is representative of the site's environmental conditions, 18.2 Monitoring the permittee must protect, operate, and maintain all environmental monitoring stations stations and and equipment in accordance with DEQ's requirements. equipment To facilitate sample collection and/or inspection and maintenance activities, the 18.3 Access to permittee must maintain reasonable all-weather access to all monitoring stations and monitoring associated equipment. stations and equipment Within fourteen (14) days of discovering any damaged monitoring equipment or 18.4 Reporting station, the permittee must submit to DEQ a report describing the damage, the equipment proposed repair or replacement measures, and the schedule to complete this work. damage Example: a well's impaired function or altered position/location. The permittee must complete any monitoring well abandonment (decommissioning), 18.5 Monitoring replacement, repair, or installation in a manner that complies with the Water Resources well Rules, OAR 690-240. construction The permittee must document all monitoring well repair or gas monitoring probe repair Reporting 18.6 and construction activities, including driller's logs, well location information, and well construction information in a report prepared and stamped by a Geologist or Certified construction Engineering Geologist, with current Oregon registration. The permittee must submit the and repairs report to DEQ within thirty (30) days of the action and include this documentation in the next Annual Environmental Monitoring Report (AEMR). The permittee must submit a written recommendation to DEQ prior to Well or gas 18.7 decommissioning or replacing any well or gas monitoring probe in the monitoring probe network. After receiving DEQ's approval, the permittee must decommission or replace decommissiany well that meets the following criteria: oning or The well was installed in a borehole that hydraulically intersects two saturated replacement The permittee lacks supporting documentation demonstrating that the well was properly installed and constructed; The well was damaged beyond repair or destroyed; or Other reasons as determined by either the permittee or DEQ. Send all required submittals to: Submittal 18.8 Oregon Department of Environmental Quality address Manager, Solid Waste Program 750 Front Street NE, Suite 120 Salem, OR 97301 Telephone: (503) 378-5047

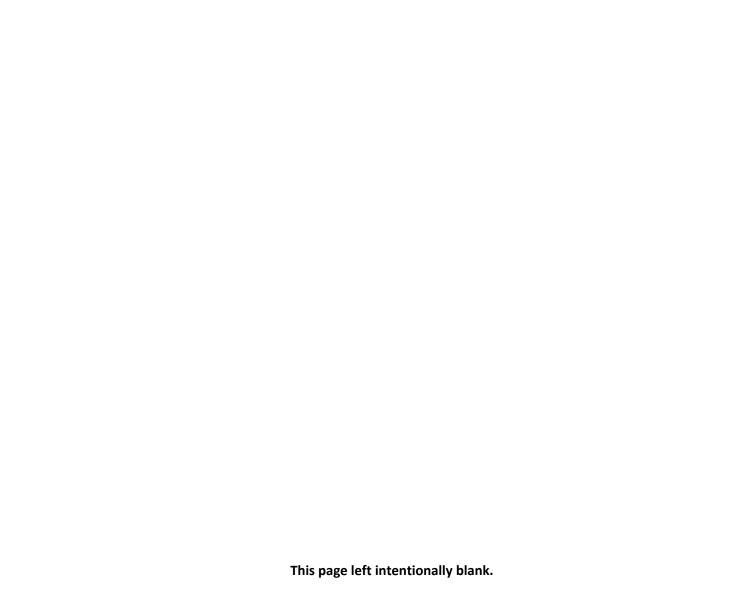
COMPLIANCE SCHEDULE

19.0 SUMMARY OF DUE DATES -

The permittee must comply with the event-driven schedule shown below. This compliance schedule does not apply to many of the routine reporting requirements specified in other sections of the permit.

| Due Date | Activity | See section |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------|
| Within 12 months of permit issuance | Submit updated Operations Plan | 7.1 Operations plan submittal |
| Within 12 months of permit issuance | Submit updated site development plan | 10.2 Site development plan |
| Within 12 months of permit issuance | Submit conceptual "worst-case" closure and post-closure plans | 11.2 Worst-case closure plan development |
| Within 12 months of permit issuance | Submit updated Environmental Monitoring Plan (EMP) | 13.1 EMP submittal |
| EMERGENCY: | | |
| Immediately | OERS notification of reportable spill | 9.2 Spills notification |
| Within 24 hours of fire | Notify DEQ, immediately and thoroughly extinguish fire | 9.15 Fire protection and reporting |
| Within 24 hours of discovery of hazardous or suspected hazardous waste | Notify DEQ, initiate procedures to identify and remove the hazardous waste | 6.1 Hazardous waste disposal |
| Within 24 hours of discovery of prohibited waste | Notify DEQ of prohibited waste, begin to isolate and remove, take digital photos | 9.1 Discovery of prohibited waste |
| Within 14 days of discovery of monitoring equipment or station damage | Submit report to DEQ | 18.4 Reporting equipment damage |
| Within 60 days of discovery of prohibited waste | Transport prohibited waste to authorized facility | 9.1 Discovery of prohibited waste |
| Within 60 days of discovery of surface water structural damage/malfunction | Notify DEQ and complete repairs | 9.7 Surface water structures |

NPDES Permit 4



Expiration Date: 06/30/2020 Permit Number: 101499 File Number: 96255 Page 1 of 18 Pages



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM WASTE DISCHARGE PERMIT

Department of Environmental Quality
Western Region – Salem Office
750 Front Street NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

Fort Chicago Holdings II U.S. LLC c/o Veresen Inc., Suite 900 Livingston Place, South Tower 222 3rd Avenue SW Calgary, AB Canada T2P 0B4

SOURCES COVERED BY THIS PERMIT:

| Type of Waste | Outfall Number | Outfall Location |
|--------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Landfill leachate, storm | 001(a) | Pacific Ocean |
| water, residual paper | | |
| mill waste, Miscellane- | | THE LAXAGE AND ADDRESS OF THE LAXAGE AND ADD |
| ous wash water | | |
| Deflation plain storm | 001(b) | Pacific Ocean |
| water | | |
| Former Aerated | 002 | Pacific Ocean and Coos |
| Stabilisation | | Bay |
| Basin/Deflation plain | | |
| seepage | | |
| North and South Pond | 003 | Coos Bay |
| seepage | | |

FACILITY TYPE AND LOCATION:

Permanently closed non-bleach corrugated paper mill Jordan Cove Energy Project 92770 Trans Pacific Lane North Bend, Oregon

RECEIVING STREAM INFORMATION:

Basin: South Coast Sub-Basin: Coos

Receiving Stream: Pacific Ocean (primary)

Coos Bay (secondary)

LLID: 1240637462558

County: Coos

EPA REFERENCE NO: OR-000211-9

| issued in response to Application No. 972559 recei | ved November 21, 2008. | This permit is issued based on the failu |
|----------------------------------------------------|------------------------|------------------------------------------|
| use findings in the permit record. | | |
| | | |
| Rana Nomma | 07/06/2015 | 07/26/2015 |
| Ranei Nomura, Water Quality Manager | Signature Date | Effective Date |
| Western Region | | |

Iggued in regnerge to Application No. 072220 received Nevember 21, 2009. This permit is iggived based on the land

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorised to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system and discharge to public waters adequately treated wastewaters only from the authorised discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows.

Unless specifically authorised by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge to waters of the state is prohibited.

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Note: This permit does not contain a Schedule C or Schedule E.

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SCHEDULE A: WASTE DISCHARGE LIMITS

1. Outfall 001(a) – discharge of process water

a. Effluent Limitations

The following effluent limit must be met when discharging through Outfall 001(a):

| Parameter | Limitation |
|-----------|-------------------------------------------|
| pH | Must be within the range of 6.0-10.0 S.U. |

2. Outfall 001(b) - discharge from deflation plain

a. Effluent Limitations

The following effluent limits must be met when discharging through Outfall 001(b):

| Parameter | Limitation |
|----------------|-----------------------------------------------------------------|
| Oil and Grease | Must not exceed 10 mg/l |
| Visible Solids | No visible discharge allowed |
| Debris | No material discharged that will be retained by a 5 mesh screen |
| рН | Must be within the range of 6.0-9.0 S.U. |

3. Outfall 002 and Outfall 003

a. Groundwater

All wastewater and process related residuals must be managed and disposed of iu a manner that prevents:

- i. A violation of the Department's Groundwater Quality Protection Rules (OAR 340-040);
- ii. A violation of any permit-specific groundwater concentration limit, established pursuant to OAR 340-040-0030, which may be subsequently incorporated into this permit.

4. Regulatory Mixing Zone

No wastes may be discharged or activities conducted that cause or contribute to a violation of water quality standards in OAR 340-041 applicable to the South Coast basin except as provided for in OAR 340-045-0080 and the following regulatory mixing zone:

The mixing zone consists of that portion of the Pacific Ocean extending from the ocean floor to the surface and 500 feet laterally in all directions from the diffuser outfall.

5. Groundwater Protection

No activities may be conducted that could cause an adverse impact on existing or potential beneficial uses of groundwater. All wastewater and process related residuals must be managed and disposed in a manner that will prevent a violation of the Groundwater Quality Protection Rules (OAR 340-040).

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6. Re-opener

The Department may reopen this permit, if necessary, to include groundwater parameters, concentration limits, and compliance points based on investigations conducted by the Department's Cleanup Programme.

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SCHEDULE B: MINIMUM MONITORING AND REPORTING REQUIREMENTS

| | REPOR' | FING SUMMARY | |
|-----------------------------|-----------|----------------------------------|------------|
| Item | Frequency | Due date | Section(s) |
| Discharge Monitoring Report | Monthly | By 15 th of following | 2 |
| | | month | 1 |

1. Monitoring and Reporting Protocols

a. Test Methods

Test Methods – monitoring must be conducted according to test procedures in 40 CFR Part 136 and 40 CFR 503 for bio-solids or other approved procedures as per Schedule F.

b. Detection and Quantitation Limits

- i. Detection Level (DL) The DL is defined as the minimum measured concentration of a substance that can be distinguished from method blank results with 99% confidence. The DL is derived using the procedure in 40 CFR Part 136 Appendix B and evaluated for reasonableness relative to method blank concentrations to ensure results reported above the DL are not a result of routine background contamination. The DL is also known as the Method Detection Limit (MDL) or Limit of Detection (LOD).
- ii. Quantitation Limits (QLs) The QL is the minimum level, concentration or quantity of a target analyte that can be reported with a specified degree of confidence. It is the lowest level at which the entire analytical system gives a recognisable signal and acceptable calibration for the analyte. It is normally equivalent to the concentration of the lowest calibration standard adjusted for sample weights, volumes, preparation and cleanup procedures employed. The QL as reported by a laboratory is also sometimes referred to as the Method Reporting Limit (MRL) or Limit of Quantitation (LOQ).

c. Quality Assurance and Quality Control (QA/QC)

The permittee must develop and implement a written QA/QC programme to verify the accuracy of sample analysis as specified in 40 CFR Part 136. The QA/QC programme must conform to the requirements of 40 CFR Part 136.7. For additional requirements on proper sampling techniques, test methods and QA/QC procedures, see Schedule F, Sections B.1 and C.

d. Re-analysis, Re-sampling and Reporting of Data if QA/QC Requirements Not Met

If QA/QC requirements are not met for any analysis, the permittee must have the sample reanalysed. If the sample cannot be re-analysed, the permittee must re-sample as soon as possible. If a sample result does not meet QA/QC requirements, the result must be included in the DMR along with a notation explaining how it does not meet QA/QC requirements, but must not be used in any calculation required by the permit.

e. Reporting Sample Results

The permittee must follow the procedures listed below when reporting sampling results.

i. The permittee must report the laboratory DL and QL as defined above for each analyte, with the following exceptions: temperature, BOD, CBOD, TSS, O&G, hardness, alkalimity,

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fecal coliform, nitrate-nitrite, total phenols and pH. For these parameters, the permittee is only required to report the QL.

- ii. The permittee must report the same number of significant digits as the permit limit for a given parameter.
- iii. <u>CAS Numbers</u>. CAS numbers (where available) must be reported along with monitoring results.
- iv. If a sample result is above the DL but below the QL, the permittee must report the result as the DL preceded by DEQ's data code "e". For example, if the DL is 1.0 μ g/l, the QL is 3.0 μ g/L and the result is estimated to be between the DL and QL, the permittee must report "e1.0 μ g/L" on the DMR. This requirement does not apply in the case of parameters for which the DL does not have to be reported.
- v. If the sample result is below the DL, the permittee must report the result as less than the specified DL. For example, if the DL is 1.0 μg/L and the result is ND, report "<1.0" on the discharge monitoring report (DMR). This requirement does not apply in the case of parameters for which the DL does not have to be reported.

2. Effluent Monitoring and Reporting Requirements: Outfall 001(a) – process wastewater

The following monitoring is required when discharging through Outfall 001(a). The sample location for pH is the discharge control gate of the ASB. The sample location for the composite samples is the sample building housing the effluent flow meter.

| Parameter | Minimum Frequency | Type of Sample | Report (See Note B.2) |
|-------------------------------|------------------------------------------|-------------------|-----------------------|
| Flow | Daily (See Note B.1) | Measurement | Daily values |
| | | | Maximum daily value |
| | | | Minimum daily value |
| | | | Monthly average |
| Biochemical Oxygen | 1/Month | 24-hour composite | Daily value(s) |
| Demand (BOD ₅) | | | Maximum daily value |
| | | | Minimum daily value |
| | | | Monthly Average |
| Total Suspended Solids | 1/Month | 24-hour composite | Daily value(s) |
| (TSS) | 15 15 15 15 15 15 15 15 15 15 15 15 15 1 | | Maximum daily value |
| | | | Minimum daily value |
| | | | Monthly average |
| pН | 2/Month | Grab | Daily values |
| | | | Maximum daily value |
| | | | Minimum daily value |

3. Effluent Monitoring and Reporting Requirements: Outfall 001(b) – deflation plain

The following monitoring is required when discharging through Outfall 001(b):

| Parameter | Minimum Frequency | Type of Sample | Report (See Note B.2) |
|--------------|-------------------|----------------|-----------------------|
| Oil & Grease | Weekly (when | Grab | Daily value(s) |
| | discharging) | | Maximum daily value |
| | | | Minimum daily value |
| | | | Monthly average |

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| Parameter | Minimum Frequency | Type of Sample | Report (See Note B.2) |
|--------------------------------------------------|---------------------------|--------------------|------------------------------------------------------------------------|
| Visible Solids | Weekly (when discharging) | Visual Observation | Observe and record |
| Debris | Weekly (when discharging) | Visual Observation | Observe and record |
| Biochemical Oxygen Demand (BOD ₅) | Weekly (when discharging) | Grab | Daily value(s) Maximum daily value Minimum daily value Monthly Average |
| Total Suspended Solids (TSS) | Weekly (when discharging) | Grab | Daily value(s) Maximum daily value Minimum daily value Monthly average |
| pН | Weekly (when discharging) | Grab | Daily value(s) Maximum daily value Minimum daily value |

4. Effluent Monitoring and Reporting Requirements: Outfall 002 and 003 (Seepage from former Aerated Stabilisation Basin and North and South ponds)

Monitoring for these outfalls is covered under the existing site groundwater monitoring plan, and will be updated as necessary by the Department's Cleanup section. Discharges from these outfall are regulated as state-only discharges under Oregon's groundwater protection rules and ORS 468B.050, not the Federal Clean Water Act.

5. Reporting Requirements

The permittee must meet the following conditions:

- a. The permittee must report the results of monitoring required for Outfall 001(a) and Outfall 001(b) on Department-approved Discharge Monitoring Report (DMR) forms. The reporting period is the calendar month. DMRs must be submitted to the appropriate Department office by the 15th day of the following month.
- b. The permittee must report the results of monitoring required for Outfall 002 and Outfall 003 as specified in the groundwater monitoring plan approved by the Department's Cleanup section.
- c. Monitoring reports shall be complete and include the name of the facility, file number, and all monitoring results. Monitoring reports must have copies of the lab data sheets attached.

Schedule B Notes:

- B.1 In the event that the flow measurement system fails, permittee must notify the Department within 48 hours of discovery. Flow must then be estimated daily based on leachate flow, pond levels and rainfall records until the system has been repaired. The flow measurement system must be fixed within 30 days of the failure being discovered.
- B.2 For Oil & Grease, BOD₅, TSS and pH reporting, if only one sample is taken in a given month, then that single value is reported for the daily value, maximum daily value, minimum daily value and monthly average.

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SCHEDULE D: SPECIAL CONDITIONS

1. Emergency Response and Public Notification Plan

The permittee must develop and maintain an Emergency Response and Public Notification Plan (the Plan) per Schedule F, Section B. The permit holder must develop the plan within six months of permit issuance and update the Plan annually to ensure that telephone and email contact information for applicable public agencies are current and accurate. An updated copy of the plan must be kept on file at the facility for Department review. The latest plan revision date must be listed on the Plan cover along with the reviewer's initials or signature.

2. Spill/Emergency Response Plan

The permittee must have an up-to-date spill response plan available for review during inspection, for prevention and handling of spills and unplanned discharges. The spill response plan must include all of the following:

- a. A description of the reporting system that will be used to alert responsible managers and legal authorities in the event of a spill.
- b. A description of preventive measures and facilities (including an overall facility plot showing drainage patterns) to prevent, contain, or treat spills of these materials.
- c. A description of the permittee's training program to ensure that employees are properly trained at all times to respond to unplanned and emergency incidents.
- d. A description of the applicable reporting requirements. These must be consistent with the reporting requirements found in Schedule F, condition D.5.

3. Sanitary Wastes

Sanitary wastes must be disposed of to a septic tank and subsurface disposal system (or by other approved means) which is installed, operated and maintained in accordance with the requirements of the Department and the local health department. Wastes must be managed in a manner that will prevent sanitary wastewater from entering any waters of the state or from becoming a nuisance or health hazard.

4. Malfunction notification

The permittee must notify the Department of any plant malfunctions that may cause environmental or health impacts so corrective action(s) can be coordinated between the permittee and the Department. Notification must be to the DEQ Coos Bay office (541-269-2721) during regular office hours and OERS (800-452-0311) at other times.

5. Environmental Supervisor

An environmental supervisor must be designated to co-ordinate and carry out all necessary functions related to maintenance and operation of waste collection, treatment, and disposal facilities. This person must have access to all information pertaining to the generation of wastes in the various process areas.

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6. Management and Maintenance of Groundwater Monitoring Wells

The permittee must protect and maintain each groundwater monitoring well so that samples collected are representative of actual conditions. Groundwater monitoring wells must be managed in accordance with the requirements of the groundwater monitoring plan developed for the site.

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SCHEDULE F: NPDES GENERAL CONDITIONS - INDUSTRIAL FACILITIES

July 1, 2015 version

SECTION A. STANDARD CONDITIONS

A1. Duty to Comply with Permit

The permittee must comply with all conditions of this permit. Failure to comply with any permit condition is a violation of Oregon Revised Statutes (ORS) 468B.025 and the federal Clean Water Act and is grounds for an enforcement action. Failure to comply is also grounds for DEQ to terminate, modify and reissue, revoke, or deny renewal of a permit.

A2. Penalties for Water Pollution and Permit Condition Violations

The permit is enforceable by DEQ or EPA, and in some circumstances also by third-parties under the citizen suit provisions of 33 USC § 1365. DEQ enforcement is generally based on provisions of state statutes and Environmental Quality Commission (EQC) rules, and EPA enforcement is generally based on provisions of federal statutes and EPA regulations.

ORS 468.140 allows DEQ to impose civil penalties up to \$25,000 per day for violation of a term, condition, or requirement of a permit. The federal Clean Water Act provides for civil penalties not to exceed \$37,500 and administrative penalties not to exceed \$16,000 per day for each violation of any condition or limitation of this permit.

Under ORS 468.943, unlawful water pollution in the second degree, is a Class A misdemeanor and is punishable by a fine of up to \$25,000, imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense. The federal Clean Water Act provides for criminal penalties of not more than \$50,000 per day of violation, or imprisonment of not more than 2 years, or both for second or subsequent negligent violations of this permit.

Under ORS 468.946, unlawful water pollution in the first degree is a Class B felony and is punishable by a fine up to \$250,000, imprisonment for not more than 10 years or both. The federal Clean Water Act provides for criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment of not more than 3 years, or both for knowing violations of the permit. In the case of a second or subsequent conviction for knowing violation, a person is subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both.

A3. Duty to Mitigate

The permittee must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit. In addition, upon request of DEQ, the permittee must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

A4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit.

DEQ may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

A5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

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- a. Violation of any term, condition, or requirement of this permit, a rule, or a statute.
- b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts.
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- d. The permittee is identified as a Designated Management Agency or allocated a wasteload under a total maximum daily load (TMDL).
- e. New information or regulations.
- f. Modification of compliance schedules.
- g. Requirements of permit reopener conditions.
- h. Correction of technical mistakes made in determining permit conditions.
- i. Determination that the permitted activity endangers human health or the environment.
- j. Other causes as specified in 40 CFR §§ 122.62, 122.64, and 124.5.

The filing of a request by the permittee for a permit modification, revocation or reissuance, termination, or a notification of plauned changes or anticipated noncompliance does not stay any permit condition.

A6. Toxic Pollutants

The permittee must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rules (OAR) 340-041-0033 and 307(a) of the federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

A7. Property Rights and Other Legal Requirements

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, or authorize any injury to persons or property or invasion of any other private rights, or any infringement of federal, tribal, state, or local laws or regulations.

A8. Permit References

Except for effluent standards or prohibitions established under section 307(a) of the federal Clean Water Act and OAR 340-041-0033 for toxic pollutants, and standards for sewage sludge use or disposal established under section 405(d) of the federal Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

A9. Permit Fees

The permittee must pay the fees required by OAR.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

B1. Proper Operation and Maintenance

The permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

B2. Need to Halt or Reduce Activity Not a Defense

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a J1-000-CIV-RPT-SHN-00009-00

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defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

B3. Bypass of Treatment Facilities

- a. Definitions
 - (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs b and c of this section.
 - (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Prohibition of bypass.
 - (1) Bypass is prohibited and DEQ may take enforcement action against a permittee for bypass unless:
 - i. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. The permittee submitted notices and requests as required under General Condition B3.c.
 - (2) DEQ may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when DEQ determines that it will meet the three conditions listed above in General Condition B3.b(1).
- c. Notice and request for bypass.
 - (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, a written notice must be submitted to DEQ at least ten days before the date of the bypass.
 - (2) Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required in General Condition D5.

B4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that the permittee can identify the causes(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) The permittee submitted notice of the upset as required in General Condition D5, hereof (24-hour notice); and
 - (4) The permittee complied with any remedial measures required under General Condition A3 hereof.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

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B5. Treatment of Single Operational Upset

For purposes of this permit, a single operational upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one federal Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include federal Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

B6. Public Notification of Effluent Violation

If effluent limitations specified in this permit are exceeded or an overflow occurs that threatens public health, the permittee must take such steps as are necessary to alert the public, health agencies and other affected entities (for example, public water systems) about the extent and nature of the discharge in accordance with the notification procedures developed under General Condition B7. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

B7. Emergency Response and Public Notification Plan

The permittee must develop and implement an emergency response and public notification plan that identifies measures to protect public health from bypasses or upsets that may endanger public health. At a minimum the plan must include mechanisms to:

- a. Ensure that the permittee is aware (to the greatest extent possible) of such events;
- b. Ensure notification of appropriate personnel and ensure that they are immediately dispatched for investigation and response;
- c. Ensure immediate notification to the public, health agencies, and other affected entities (including public water systems). The response plan must identify the public health and other officials who will receive immediate notification;
- d. Ensure that appropriate personnel are aware of and follow the plan and are appropriately trained;
- e. Provide emergency operations; and
- f. Ensure that DEQ is notified of the public notification steps taken.

B8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

C1. Representative Sampling

Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and must be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points must not be changed without notification to and the approval of DEQ. Samples must be collected in accordance with requirements in 40 CFR part 122.21 and 40 CFR part 403 Appendix E.

C2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be

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capable of measuring flows with a maximum deviation of less than \pm 10 percent from true discharge rates throughout the range of expected discharge volumes.

C3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503 unless other test procedures have been specified in this permit.

For monitoring of recycled water with no discharge to waters of the state, monitoring must be conducted according to test procedures approved under 40 CFR part 136 or as specified in the most recent edition of Standard Methods for the Examination of Water and Wastewater unless other test procedures have been specified in this permit or approved in writing by the Department.

C4. Penalties of Tampering

The federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction, be punished by a fine of not more than \$10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or both.

C5. Reporting of Monitoring Results

Monitoring results must be summarized each month on a discharge monitoring report form approved by DEQ. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

C6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR part 136 or, in the case of sludge (biosolids) use and disposal, approved under 40 CFR part 503 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the discharge monitoring report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (for example, total residual chlorine), only the average daily value must be recorded unless otherwise specified in this permit.

C7. Averaging of Measurements

Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which must be averaged as specified in this permit.

C8. Retention of Records

Records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities must be retained for a period of at least 5 years (or longer as required by 40 CFR part 503). Records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit must be retained for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of DEQ at any time.

C9. Records Contents

Records of monitoring information must include:

- a. The date, exact place, time, and methods of sampling or measurements;
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) analyses were performed;

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d. The individual(s) who performed the analyses;

- e. The analytical techniques or methods used; and
- f. The results of such analyses.

C10. Inspection and Entry

The permittee must allow DEQ or EPA upon the presentation of credentials to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept noder the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

C11.Confidentiality of Information

Any information relating to this permit that is submitted to or obtained by DEQ is available to the public unless classified as confidential by the Director of DEQ under ORS 468.095. The permittee may request that information be classified as confidential if it is a trade secret as defined by that statute. The name and address of the permittee, permit applications, permits, effluent data, and information required by NPDES application forms under 40 CFR § 122.21 are not classified as confidential [40 CFR § 122.7(b)].

SECTION D. REPORTING REQUIREMENTS

D1. Planned Changes

The permittee must comply with OAR 340-052, "Review of Plans and Specifications" and 40 CFR § 122.41(l)(1). Except where exempted under OAR 340-052, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by DEQ. The permittee must give notice to DEQ as soon as possible of any planned physical alternations or additions to the permitted facility.

D2. Anticipated Noncompliance

The permittee must give advance notice to DEQ of any planned changes in the permitted facility or activity that/may result in noncompliance with permit requirements.

D3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and EQC rules. No permit may be transferred to a third party without prior written approval from DEQ. DEQ may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under 40 CFR § 122.61. The permittee must notify DEQ when a transfer of property interest takes place.

D4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

D5. Twenty-Four Hour Reporting

The permittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours from the time the permittee becomes aware of the J1-000-CIV-RPT-SHN-00009-00

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circumstances, unless a shorter time is specified in the permit. During normal business hours, the DEQ regional office must be called. Outside of normal business hours, DEQ must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

The following must be included as information that must be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass that exceeds any effluent limitation in this permit;
- b. Any upset that exceeds any effluent limitation in this permit;
- c. Violation of maximum daily discharge limitation for any of the pollutants listed by DEQ in this permit; and
- d. Any noncompliance that may endanger human health or the environment.

A written submission must also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission must contain:

- e. A description of noncompliance and its cause;
- f. The period of noncompliance, including exact dates and times;
- g. The estimated time noncompliance is expected to continue if it has not been corrected;
- h. Steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and
- i. Public notification steps taken, pursuant to General Condition B7.

DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

D6. Other Noncompliance

The permittee must report all instances of noncompliance not reported under General Condition D4 or D5, at the time monitoring reports are submitted. The reports must contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

D7. Duty to Provide Information

The permittee must furnish to DEQ within a reasonable time any information that DEQ may request to determine compliance with the permit or to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit. The permittee must also furnish to DEQ, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it has failed to submit any relevant facts or has submitted incorrect information in a permit application or any report to DEQ, it must promptly submit such facts or information.

D8. Signatory Requirements

All applications, reports or information submitted to DEQ must be signed and certified in accordance with 40 CFR § 122.22.

D9. Falsification of Information

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$125,000 per violation and up to 5 years in prison per ORS chapter 161. Additionally, according to 40 CFR § 122.41(k)(2), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or non-compliance will, upon conviction, be punished by a federal civil

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penalty not to exceed \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

Changes to Discharges of Toxic Pollutant D10.

The permittee must notify DEQ as soon as it knows or has reason to believe the following:

- That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:
 - (1) One hundred micrograms per liter (100 μg/l);
 - (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - (4) The level established by DEQ in accordance with 40 CFR § 122.44(f).
- That any activity has occurred or will occur that would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 μg/l);
 - (2) One milligram per liter (1 mg/l) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
 - The level established by DEQ in accordance with 40 CFR § 122.44(f).

SECTION E. DEFINITIONS

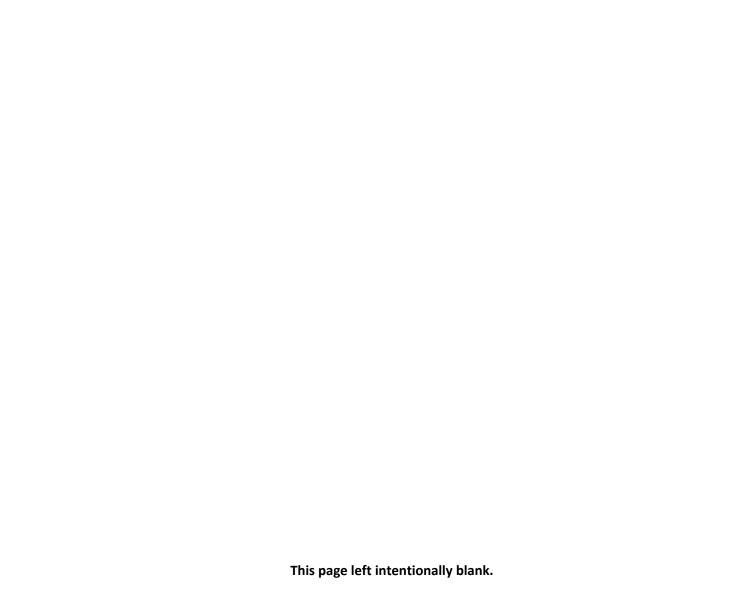
- E1. BOD or BOD₅ means five-day biochemical oxygen demand.
- E2. CBOD or CBOD₅ means five-day carbonaceous biochemical oxygen demand.
- E3. TSS means total suspended solids.
- E4. Bacteria means but is not limited to fecal coliform bacteria, total coliform bacteria, Escherichia coli (E. coli) bacteria, and Enterococcus bacteria.
- E5. FC means fecal coliform bacteria.
- E6. Total residual chlorine means combined chlorine forms plus free residual chlorine
- E7. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR § 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-041.
- E8. mg/l means milligrams per liter.
- E9. μg/l means microgram per liter.
- E10.kg means kilograms.
- $E11.m^3/d$ means cubic meters per day.
- E12. MGD means million gallons per day.
- E13. Average monthly effluent limitation as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
- E14. Average weekly effluent limitation as defined at 40 CFR § 122.2 means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.
- E15. Daily discharge as defined at 40 CFR § 122.2 means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge must be calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge must be calculated as the average measurement of the pollutant over the day.

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- E16.24-hour composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
- E17. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
- E18. Quarter means January through March, April through June, July through September, or October through December.
- E19. Month means calendar month.
- E20. Week means a calendar week of Sunday through Saturday.

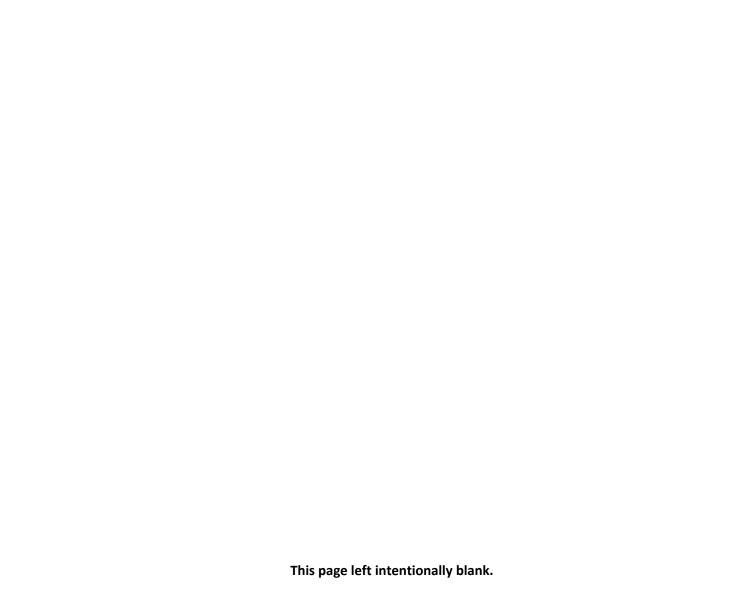
Facility Maintenance Checklist



NORTH SPIT LANDFILL - FACILITY INSPECTION FORM

Inspector Name:

| Area/Item | Checked (Y/N) | Maintenance Needed (Y/N) | Provide Brief Description |
|------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| | Envir | onmental Co | ontrols -Stormwater |
| Exposed soil surfaces and landfill cell covers | | | |
| Culvert inlets and outlets | | | |
| Stormwater channels & ditches | | de la companya de la | |
| Tide Gate at RR Bridge | | | |
| Environmental Controls | s – Leacha | ite System/Se | ettling Ponds/Wastewater Pumps/Flow Controls |
| Leachate collection system, weir, flowmeter | | | |
| Settling Ponds | | | |
| Wastewater Pumps, intakes, & screens | | | |
| Electrical system & control panels | | | |
| Sump pump | | | |
| WP from Settling Ponds to Lagoon | | | |
| Raw water feed to Lagoon | | | |
| Flow meter from Lagoon to Ocean Outfall | | | |
| Lagoon Dike | | | |
| | | Access | & Security |
| Access Roads | | | |
| Gates | | | |
| Signs | | | |



Schedule and Design Drawings

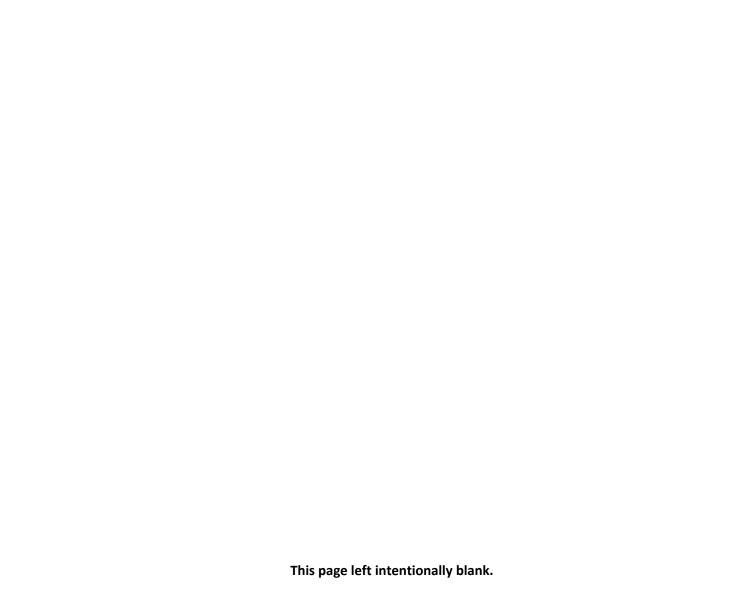


Table 3 Proposed Closure Schedule Jordan Cove Energy Project, LP, North Spit Industrial Landfill

| Deliverables to DEQ | Due Date | Comments |
|---------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------|
| Fort Chicago Holdings U.S. LLC submits Operations Plan | 6/1/2018 | Includes plans and specification to remove waste from Cell 3 |
| Fort Chicago Holdings U.S. LLC submits Conceptual C&PCC Plans | 6/1/2018 | Includes requested changes from DEQ |
| DEQ approval of Operations and Conceptual C&PCC Plans | 7/1/2018 | Waste removal can begin to the 30- foot elevation level for demolition debris and unsaturated wastes for Cell 3 |
| Plans, Specs, QA/QC Manual, Final Cell 3 Clsore Plan | 7/1/2018 | |
| Fort Chical Holdings U.S. LLC submits Final Engineer Closure Plan for Cell 2 | 11/30/2018 | Plans for Cell 2 |
| Fort Chicago Holdings U.S. LLC submits Final Post Closure Care Plan Cells 1, 2, and 3 | 12/30/2018 | Projected date for Final Engineered Post Closure Care Plan for Cells 1, 2, and 3 |
| DEQ final closure permit | 2/28/2019 | Includes public comment period estimated to be Sept./Oct. 2018 DEQ issues a permit. |
| Fort Chicago Holdings U.S. LLC implements closure permit | 4/20/2019 | Proposed late, 2018 for 2019 construction season |
| DEQ receives the Construction QA/QC for Cell 3 | 12/30/2019 | Likely mid 2020 with completion of Cell 3 clean closure likely 2019 |
| DEQ receives the Construction QA/QC for Cell 2 | 12/30/2019 | DEQ approval begins the Post Closure Care period likely mid-2020 with completion of closure at Cell 2 likely late 2020 |

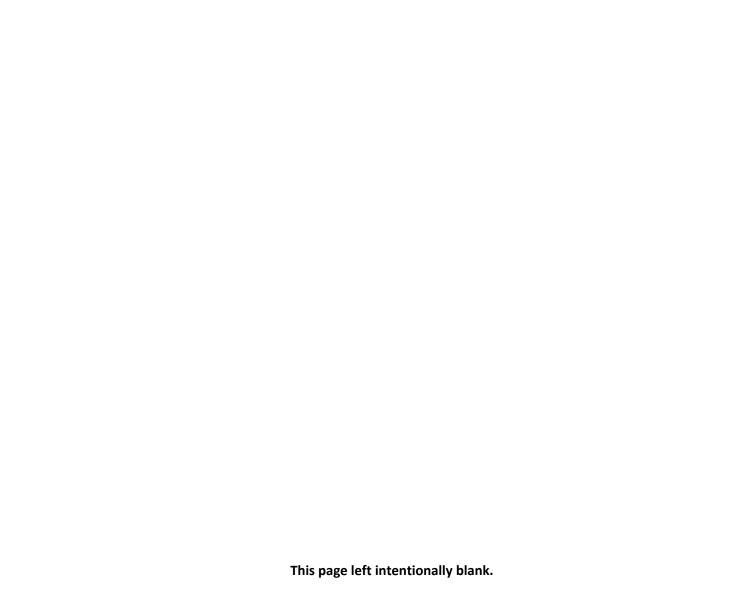
Abbreviations

C&PCC = Closure and Post Closure Care

CQA = Construction Quality Assurance

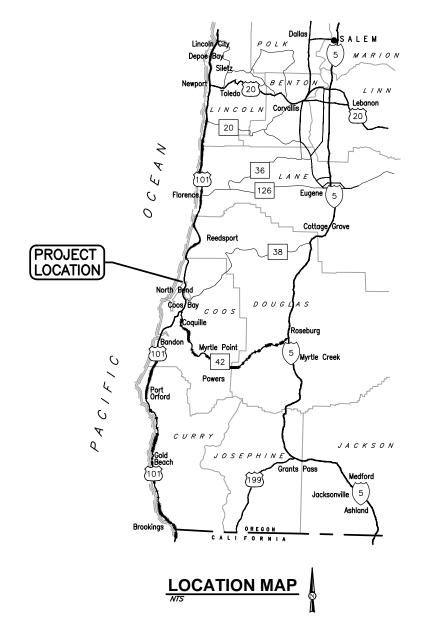
DEQ = Department of Environmental Quality

QA/QC = Quality Assurance / Quality Control



JORDAN COVE ENERGY PROJECT PHASE 1 OPERATIONS

COOS COUNTY, OREGON





| APP | ROVALS |
|-------|--------|
| JCEP: | |
| DEQ: | DATE |
| DEQ: | DATE |

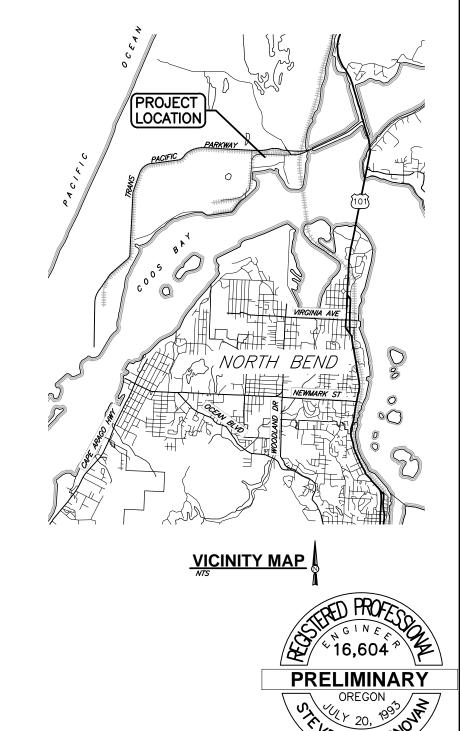
- 2. THE PROJECT WILL BE PERFORMED THROUGH AN INITIAL REMOVAL (PHASE 1, DE-INVENTORY) TO AN ELEVATION OF WHAT IS ESTIMATED TO BE DRY MATERIALS,
- DE-INVENTORY) TO AN ELEVATION OF WHAT IS ESTIMATED TO BE DRY MATERIALS, (SHEET C-3).

 3. AFTER PHASE 1, DEI-INVENTORY, REMAINING WASTE MATERIALS SHALL BE CHARACTERIZED AND DEPTH OF CELL VERIFIED THROUGH CONTRACTOR SUPPLIED "POT-HOLING" AT A MAXIMUM OF 12 LOCATIONS.

 4. IF DETERMINED NECESSARY, INSTALLATION OF DEWATERING TRENCHES, A WELL POINT DEWATERING SYSTEM, AND AN IMPERMEABLE CAP SHALL BE INSTALLED, (SHEET C-4), ALLOWING THE LOWER SECTION TO DEWATER OVER THE WET WEATHER PERIOD

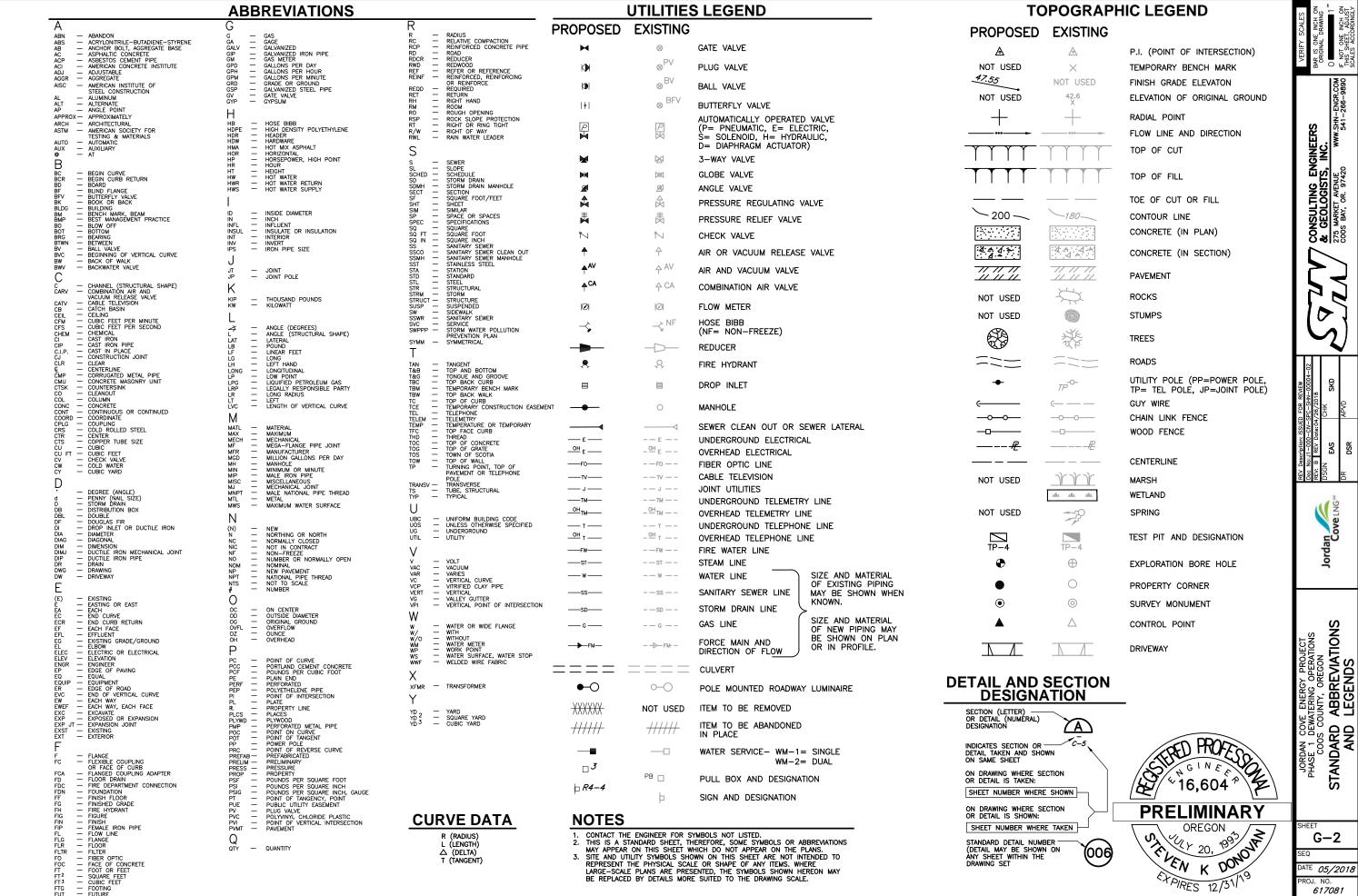
INDEX OF SHEETS

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| 2 | G-2 | STANDARD ABBREVIATIONS AND LEGENDS |
| 3 | C-1 | OVERALL SITE & TRAFFIC PLAN |
| 4 | C-2 | EXISTING TOPOGRAPHY |
| 5 | C-3 | PHASE 1 OPERATIONS CONTOURS |
| 6 | C-4 | LEACHATE DEWATERING PLAN |
| 7 | C-5 | TEMPORARY COVER PLAN |
| 8 | C-6 | SECTIONS |
| 9 | C-7 | EROSION CONTROL PLAN AND DETAIL |
| 10 | C-8 | BASIN OVERFLOW PLAN AND PROFILE |
| 11 | C-9 | LINER DRAINAGE PLAN AND PROFILE |
| 12 | D-1 | DETAILS |
| 13 | D-2 | DETAILS, STORMWATER BMPS |

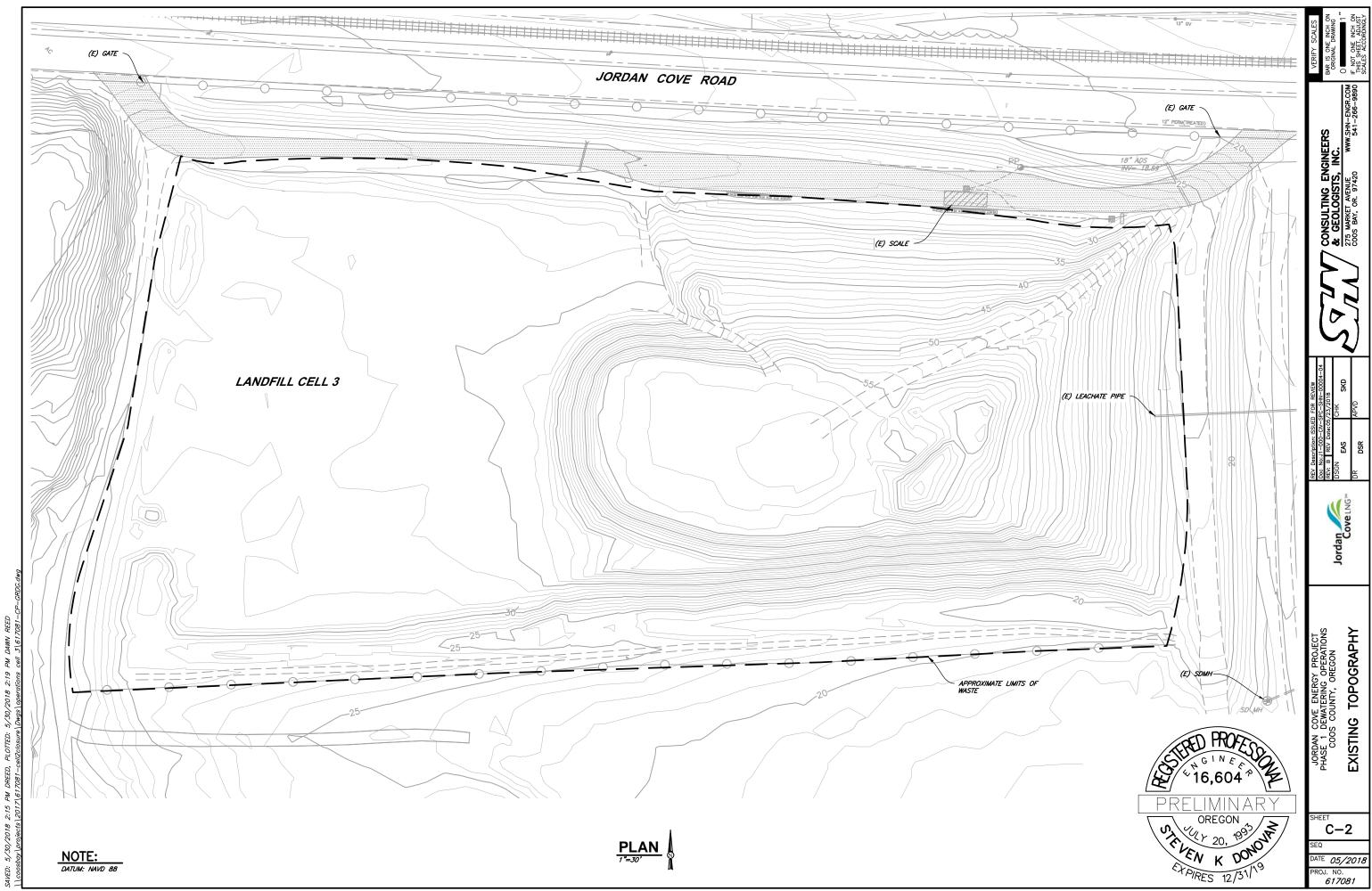


G-1

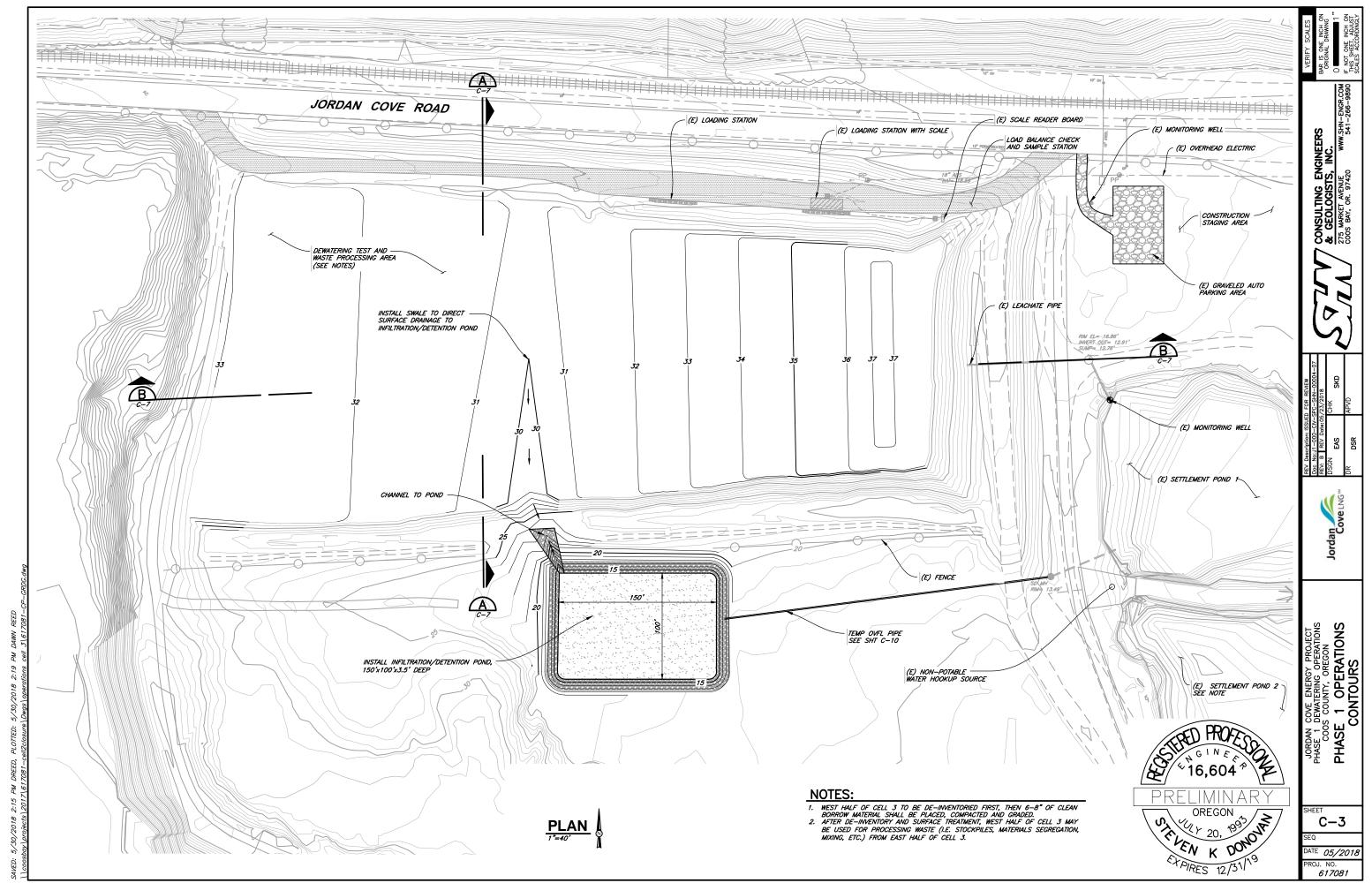
OATE 05/2018

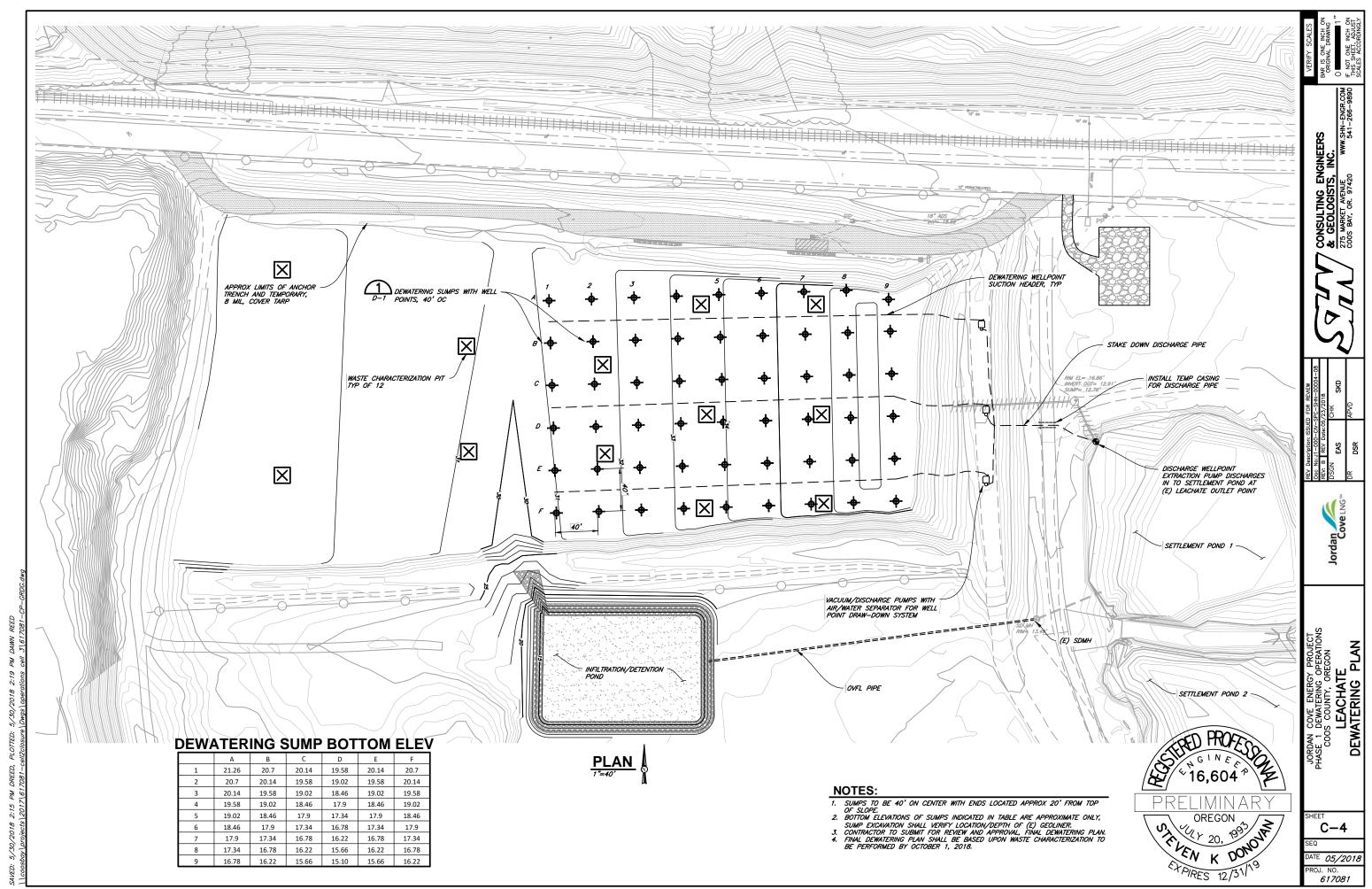


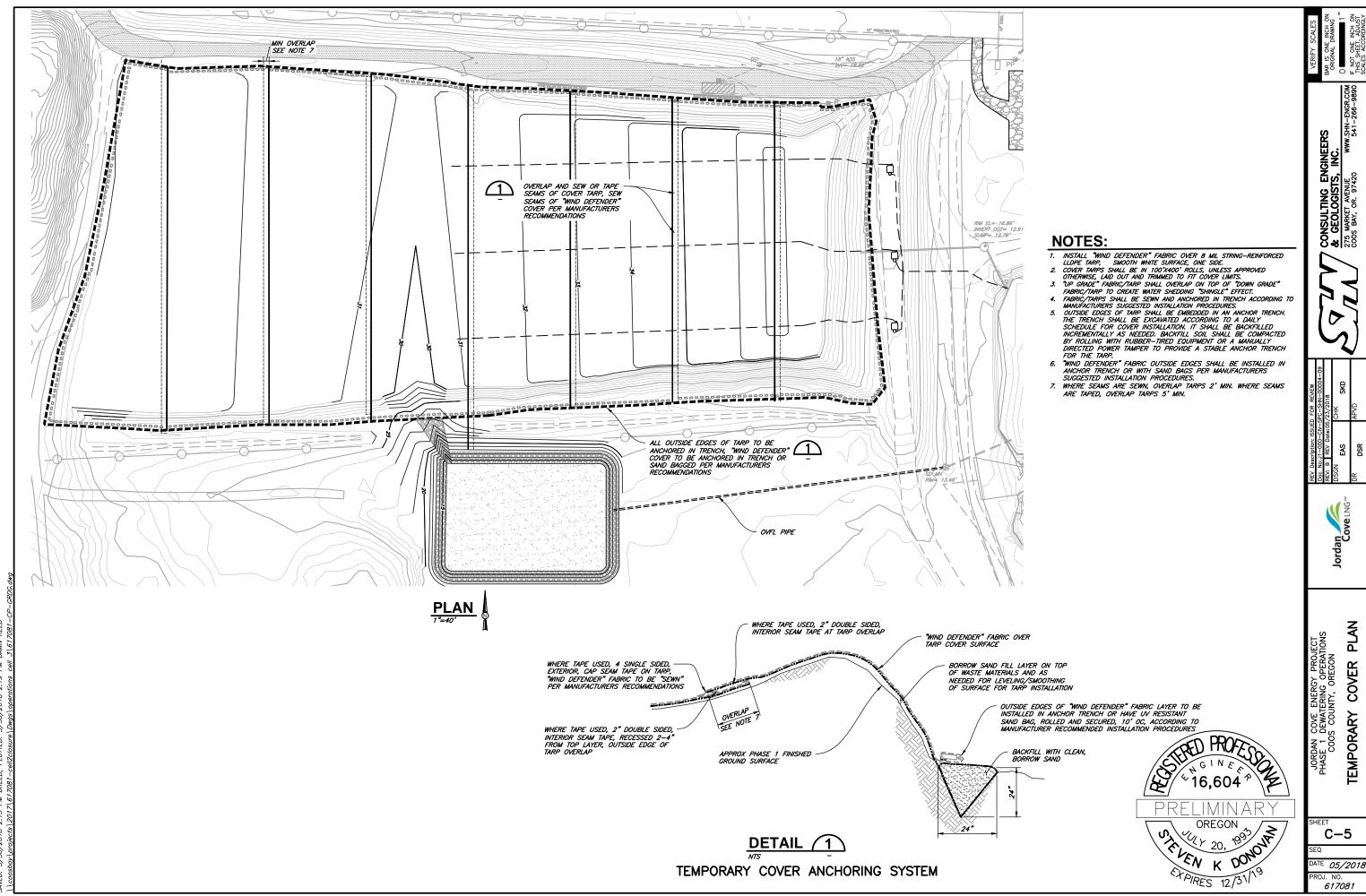




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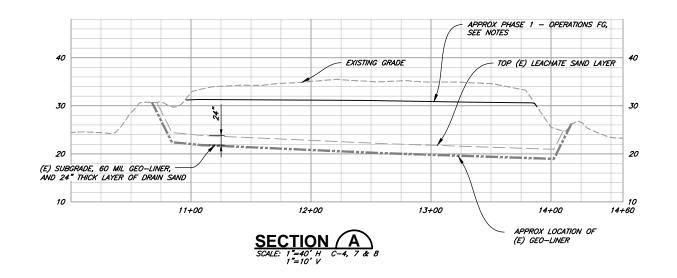


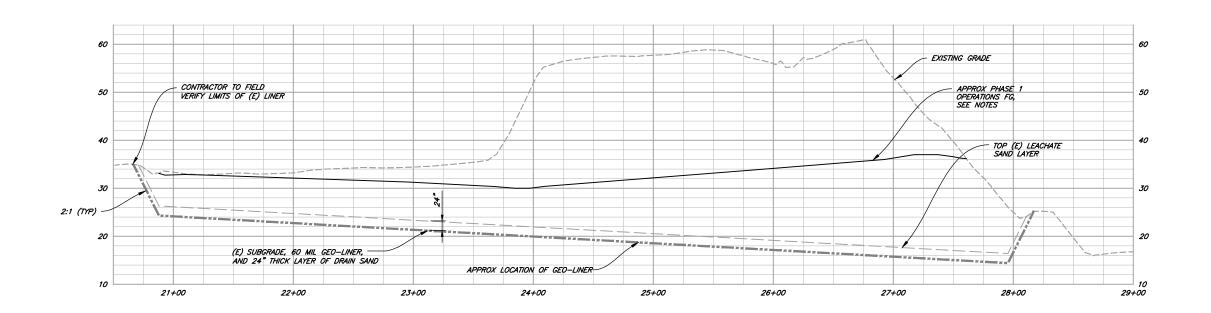


PLAN

COVER

TEMPORARY





NOTES:

- 1. IT INTENDED TO REMOVE AS MUCH DRY WASTE MATERIALS AS POSSIBLE DURING PHASE I OPERATIONS PRIOR TO WEATHER OR SATURATED WASTE STOPPAGE.

 2. REMOVAL LIMITS PRESENTED FOR PHASE I ARE APPROXIMATE, ENGINEER/GEOLOGIST TO DETERMINE FINAL LIMITS, ON-SITE, DURING CONSTRUCTION.

 3. INTEGRITY OF EXISTING 60 MIL GEO-LINER, AT BASE OF LANDFILL, SHALL BE MAINTAINED AT ALL TIMES DURING REMOVAL OPERATIONS. GEO-LINER SHALL BE REMOVED UPON COMPLETION WASTE REMOVAL.

 4. PHASE 1 IS "OPERATIONS" WORK, PHASE 2 IS "CLEAN CLOSURE" WORK.

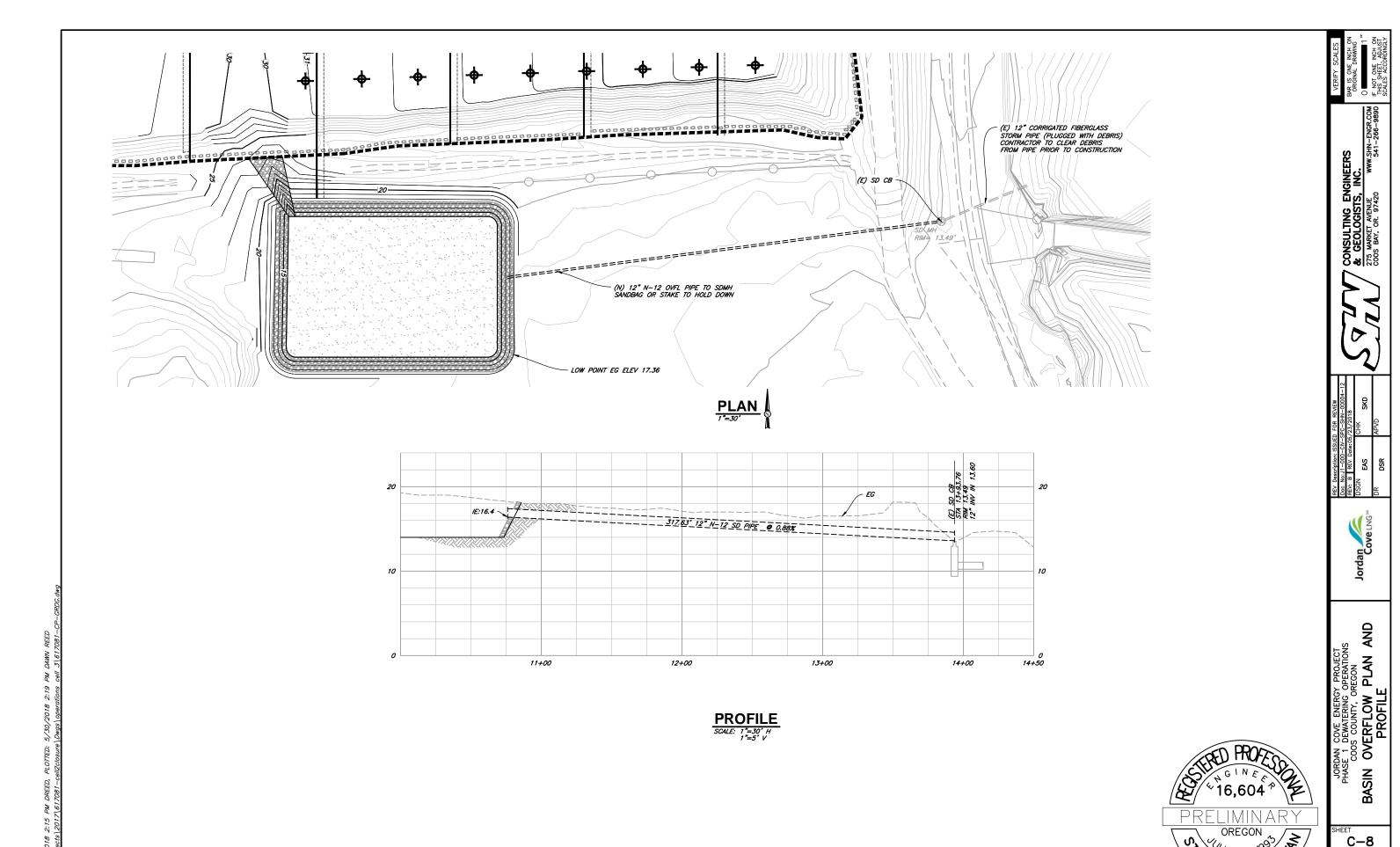


SECTIONS

C-6

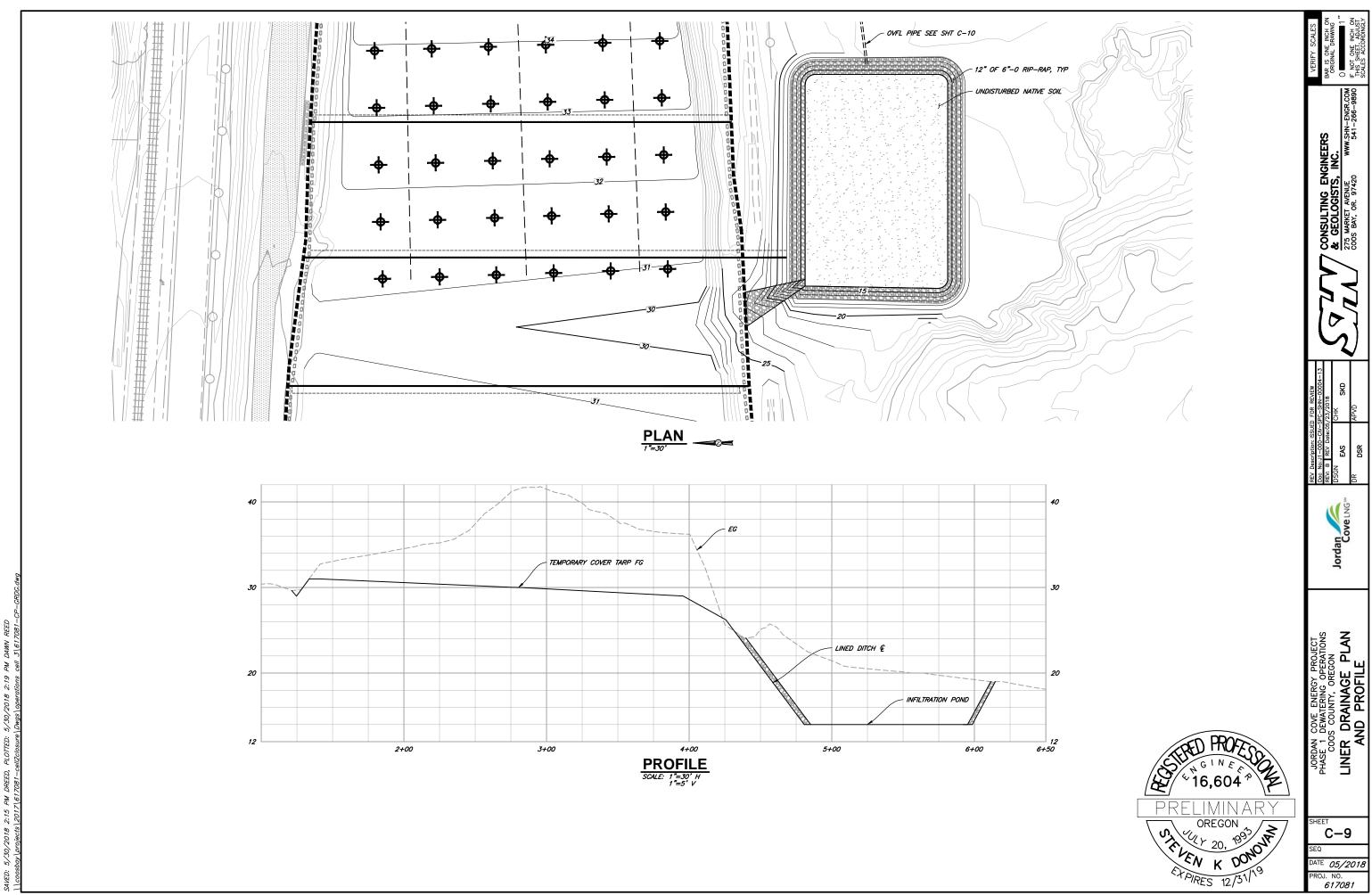
DATE *05/2018* 617081



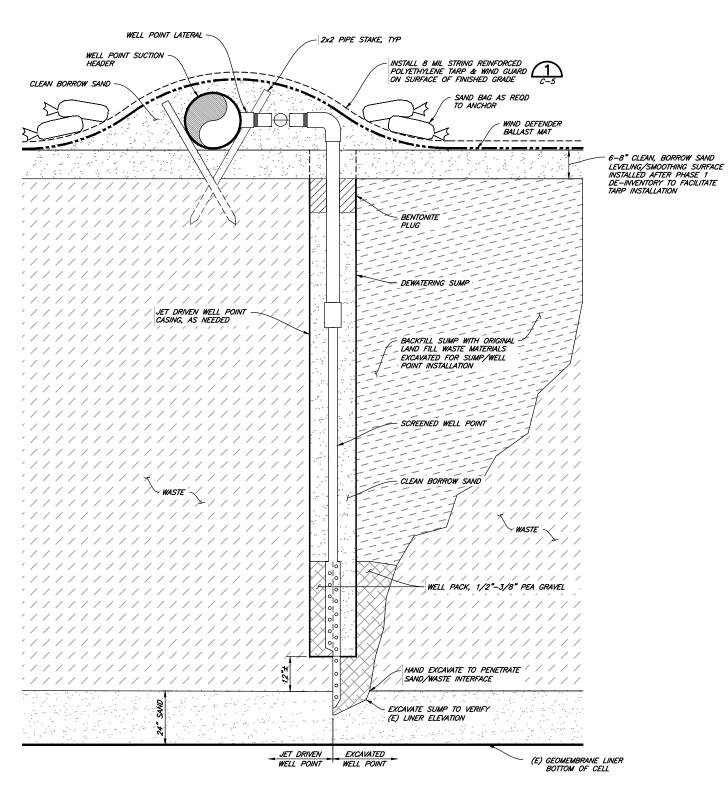


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DATE *05/2018* PROJ. NO. *617081*



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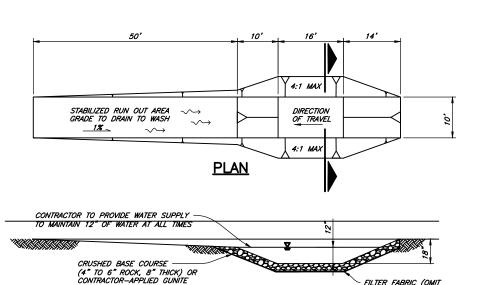
NOTES:

- 1. DEWATERING SUMPS TO BE LOCATE IN GRID PATTERN AS DEPICTED ON DRAWING SHEETS.
 2. WELL POINTS IN SUMPS PENETRATE THE EXISTING LEACHATE DRAIN SYSTEM SAND LAYER
- APPROXIMATELY 6-10".

 3. JET DRIVEN OR OTHER NON SUMP WELL POINTS SHALL HAVE SEMI-BLUNT POINTS AND SHALL NOT PENETRATE EXISTING GEOMEMBRANE, LOCATED AT BOTTOM OF LAND FILL.



(TYPICAL DEWATERING SUMP/WELL POINT)



FILTER FABRIC

SECTION
(EXAGGERATED VERTICALLY)

FILTER FABRIC

SECTION
(EXAGGERATED VERTICALLY)

NOTES:

1. CONTRACTOR TO REMOVE ACCUMULATED SEDMENT FROM WHEEL MASH: MAY BE PIPED TO AN APPROVED SEDMENT TRAP.
2. USE GEOTEXTILE FABRIC WITH ACCREGATE FOR A TEMPORARY TIME WASH.

- FILTER FABRIC (OMIT W/GUNITE OPTION)

DETAIL 2 MTS (WHEEL WASH)

PRELIMINARY

OREGON

OREGON

FARES 12/31/19

SONG ONE INCH ON ORIGINAL DRAWING OF OTHER OF THIS SHEET, ADJUST SCALES ACCORDINGLY

WWW.SHN-ENGR.COM

7 CONSULTING ENGINEERS
& GEOLOGISTS, INC.

Z75 MARKET AVENUE
C005 BAY, OR. 97420

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& GEOLOGIST AND COOK BLY, OR OFFICE AND COOK BLY, OR O

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NS Order: 05/23/2018
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ENERGY PROJECT ATERING OPERATIONS

JORDAN COVE ENE PHASE 1 DEWATERIN COOS COUNTY,

SHEET D-1

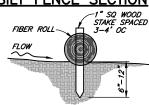
DATE 05/2018 PROJ. NO. 617081

NOTES FOR SILT FENCE:

THE FILTER FABRIC SHALL BE PURCHASED IN A
CONTINUOUS ROLL CUT TO THE LENGTH OF THE
BARRIER TO AVOID USE OF JOINTS. WHEN
JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE
SPLICED TOGETHER ONLY AT A SUPPORT POST,
WITH A MINIMM 6-INCH OVERLAP, AND BOTH
FINDS SPCIJEBLY FASTSHED TO THE POST ENDS SECURELY FASTENED TO THE POST.

THE FILTER FABRIC SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES.
STANDARD OR HEAVY DUTY FILTER FABRIC FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2 INCH X 2 INCH POST INSTALLATIONS.
STITCHED LOOPS SHALL BE INSTALLED ON THE ING BUT AREA. UP HILL SIDE OF THE SLOPED AREA.

SILT FENCE SECTION FENCES SHALL BE REMOVED AND PROPERLY DISPOSED OF.



NOTES FOR FIBER ROLL:

THE FIBER ROLL SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FIBER ROLL SHALL BE OVERLAPPED A MINIMUM 6-INCH OVERLAP, AND BOTH ENDS SECURELY STAKED.

UNLESS DIRECTED OTHERWISE FIBER ROLLS SHALL BE SEATED IN A TRENCH 2-3 INCHES DEEP TO ENSURE DIRECT CONTACT OF THE FIBER ROLL WITH THE SOIL.

(WADDLE)

FIBER ROLL SECTION STAKES SHALL BEGIN NO MORE THAN 6" FROM ENDS OF FIBER ROLL AND SPACED NO MORE THAN 4" FROM EACH OTHER.

WHEN NO LONGER REQUIRED, SLIT FIBER ROLLS DOWN THE LENGTH OF THE NETTING, AND BROADCAST THE STRAW. GATHER NETTING AND PROPERLY DISPOSE OF.

GENERAL NOTES

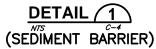
THE FILTER FABRIC FENCE AND FIBER ROLLS SHALL BE INSTALLED TO FOLLOW THE CONTOURS WHERE FEASIBLE.

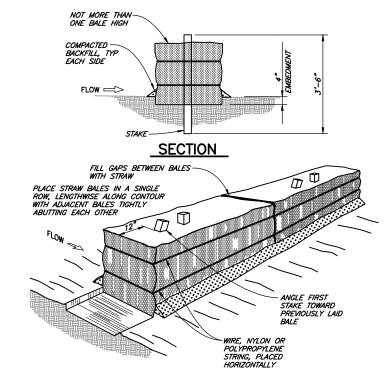
CONTOURS WHERE EASIBLE.

2. ALL EXCAVATED MATERIAL FROM FILTER FABRIC FENCE INSTALLATION SHALL BE BACK FILLED AND COMPACTED, ALONG THE ENTIRE DISTURBED AREA.

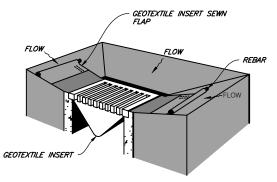
3. BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND

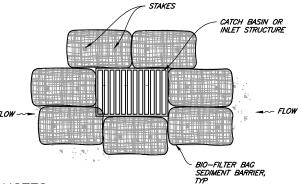
4. SEDIMENT SHALL BE REMOVED WHEN IT BUILDS UP TO 1/3 OF THE BARRIER HEIGHT.





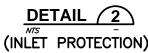
DETAIL (STRAW BALE BARRIER)

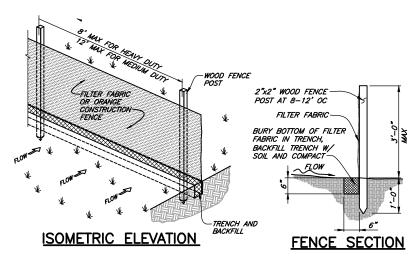




NOTES:

REMOVE SEDIMENT FROM INSERT BEFORE IT REACHES 50% CAPACITY. BOTH GEOTEXTILE INSERT AND BIO-FILTER BAG SEDIMENT BARRIER TO BE USED ON ALL DESIGNATED INLETS.





NOTES FOR SILT FENCE:

- 1. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND BOTH ENDS SECURELY
- 2. THE FILTER FABRIC SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES.
- 3. STANDARD OR HEAVY DUTY FILTER FABRIC FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2-INCH x 2-INCH POST INSTALLATIONS. STITCHED LOOPS SHALL BE INSTALLED ON THE UP HILL SIDE
- 4. WHEN NO LONGER REQUIRED, FILTER FABRIC FENCES SHALL BE REMOVED AND PROPERLY DISPOSED OF.



(SILT FENCE OR ORANGE CONSTRUCTION FENCE)

ESCP DRAWING STANDARD NOTES:

- HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL
- MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT.
 RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ,
- AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMISTIAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS.

- SPECIFIC CONDITIONS.

 5. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION.

 7. IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS). CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS.

 8. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION.

 9. EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURRATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH EASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS.
- NON-STURMMATER POLLUTION CONTROLS.

 10. ESTABLISH TRUCK AND OTHER EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK.

 11. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS.

 12. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS.

 13. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: GRAVELED (OR
- PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES.

 14. 14. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS
- ON SITE. (SCHEDULE A.7.D.II. (30NCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN
- SEVEN (7) CONSECUTIVE CALENDAR DAYS.

 15. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLITINTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY; AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS.

 16. WATER OR USE A SOIL—BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND—BILD ONLY SOIL
- TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE.
- 18. IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDIAN) KEMOVAL IS EMPLUTED, SUBMIT AN OVERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

 19. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL THESE OF THE YEAR.
- TIMES OF THE YEAR.

 20. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER.
- 21. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL.

- FENCE HEIGHT AND BEFORE FENCE REMOVAL.

 2. OTHER SEDIMENT BARRIERS (SLUCH AS BIOBASS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT. AND BEFORE BMP REMOVAL.

 23. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT.

 24. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED, INVESTIGATE THE CAUSE OF THE SEDIMENT TRELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS, ANY IN—STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME.

 25. THE INTENTIONAL MASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACULUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS.

 26. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE.

- MORE.
 27. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE
 FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN
 ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE.
 28. THE DESIGNATED EROSION AND SEDIMENT CONTROL INSPECTOR MUST PERFORM DAILY INSPECTIONS OF THE
 BMPS AND DISCHARGE OUTFALLS WHEN RAINFALL AND RUNOFF OCCUR. RECORD THE INSPECTIONS AND
- OBSERVATIONS IN A LOG THAT IS ON SITE. (SCHEDULE B.1.B(1))

 29. ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPS ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND
- MUST BE INSPECTED VISUALLY
- MUST BE INSPECTED VISUALLY
 30. IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS IN WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.
 31. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. IDENTIFY THE TYPE OF VEGETATIVE SED MIX USED.
 32. PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERTY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPS.

| INSPECTION FREQUENCY | | |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SITE CONDITION | MINIMUM FREQUENCY | |
| 1. ACTIVE PERIOD | DAILY WHEN STORMWATER RUNOFF IS OCCURING. AT LEAST ONCE EVERY TWO WEEKS REGARDLESS OF WHETHER OR NOT RUNOFF IS OCCURING | |
| 2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY | ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE | |
| 3. INACTIVE PERIODS GREATER THAN FOURTEEN CALENDAR DAYS | ONCE EVERY TWO WEEKS | |
| 4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER | IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION | |



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CONSULTING |
& GEOLOGIST
275 MARKET AVENUI
COOS BAY, OR. 974

B STORMWATER

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O5/2018 617081

Specifications



J1-000-CIV-RPT-SHN-00009-00





J1-000-CIV-RPT-SHN-00009-00

Technical Specifications

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DIVISION 01 00 00 GENERAL REQUIREMENTS



J1-000-CIV-RPT-SHN-00009-00

SECTION 01 00 00

DIVISION 1- GENERAL REQUIREMENTS

| SECTION | TITLE |
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| 01 08 00 | CONSTRUCTION FACILITIES |
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| 01 32 23 | LAYOUT OF WORK AND SURVEY |
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| 01 50 00 | TEMPORARY CONTROLS |
| 01 55 05 | TRAFFIC PLAN |
| 01 71 00 | MOBILIZATION |
| 01 71 14 | DEMOBILIZATION |
| 01 74 00 | CONSTRUCTION CLEANING |
| 01 77 00 | PROJECT CLOSEOUT |

SECTION 01 01 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Description

- 1. Mobilize onto site.
- 2. Excavate waste including the removal of HDPE liner, operations layer, non-woven geotextile, leachate collection layer sand, and leachate collection piping.
- Dewater waste
- 4. Separate recyclable metals and concrete from demolition debris.
- 5. Transport large concrete to onsite storage area.
- 6. Recycle reclaimed metal.
- 7. Load waste into transfer trucks.
- 8. Transport and disposal of waste.
- 9. Grout and abandon piping not removed with leachate liner.
- 10. Subgrade compaction.
- 11. Excavation and transporting of native material from onsite borrow area.
- 12. Placement of native earthfill material.
- 13. Final grading.
- 14. Hydroseed disturbed areas.
- 15. Clean up and demobilize from site.

B. Location of Work

The Work site is located in North Bend, Oregon on Jordan Cove Energy Project property, in the area known as the North Spit. The site is known as the Jordan Cove Landfill, Cell 3.



The Project locations are shown Project Drawings.

C. Contractor's Duties

- 1. Except as specifically noted, the Contractor shall provide and pay for:
 - a. Labor, materials, and equipment
 - b. Tools, construction equipment, and machinery
 - c. Power, water, sanitiation facilities, and temporary utilities required for construction
 - d. All other facilities and services necessary for proper execution and completion of Work
- 2. Pay legally required sales, consumer, and use taxes.
- 3. Obtain permits not provided by the Owner and conform to the requirements of all applicable permits to complete the Work.
- 4. Secure and pay for proper execution of the Work, and secure and pay for applicable permits and licenses, as necessary.
- 5. Give required notices to Owner and affected public agencies.
- 6. Comply with codes, ordinancs, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of the Work.
- 7. Promptly submit written notice to the Engineer of observed variance of Contract Documents from legal requirements.
- 8. Enforce strict discipline and good order of the employees. Do not employ on the Work:
 - a. Unfit persons
 - b. Persons not skilled in the assigned tasks

1.02 CONTRACTS

The Work shall be completed in its entirety within one (1) Contract.

1.03 WORK SEQUENCE

A. Prior to commencement of the Work, the contractor shall become familiar with the location and conditions of the work site, including existing utilities, hazards due to the solid waste being handled, and any other special issues that may bear upon the performance of the Work.



- B. After execution of the Contract and before the first progress payment is made, the Contractor shall provide a graphic and tabular construction schedule prepared by using the critical path method of analysis. The critical path schedule shall be prepared from estimates of the required duration and sequence of each item of Work and function to be performed, including equipment delivery dates.
- C. At or before the Notice to Proceed is given, the Contractor shall provide a copy of the construction schedule with notes thereon indicating the percentage of completion of each subdivision of the Work.

1.04 CONTRACTOR USE OF PREMISES

- A. Right-of-way easements, construction easements, and encroachment permits will be obtained by the Owner, and will be available for inspection at the office of the Engineer, upon request. The Contractor shall become familiar with, and abide by, any requirements of these documents.
- B. Construction corporation yards, storage areas, and disposal sites are the responsibility of the Contractor, subject to the approval of the Owner.
- C. Confine operations at site to areas permitted by:
 - 1. Permits and Easements
 - 2. Contract Documents
- D. Do not encumber the site with materials or equipment.
- E. Do not load structures or roadways with weight that will endanger or render unusable any structure or roadway.
- F. Assume full responsibility for protection and safe-keeping of products stored on the premises.
- G. Move any stored products that will interfere with the Owner's operations or operations of other contractors.
- H. Obtain and pay for use of additional storage or work area for operations.
- I. Observe and conduct operations of personell and equipment consistent with safe practices and the project Health and Safety Plan.

END OF SECTION





SECTION 01 07 00

QUALITY CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Quality assurance and control of work
 - 2. References
 - 3. Field Samples
 - 4. Inspection and testing laboratory services
 - 5. Manufacturers' field services and reports

1.02 REFERENCES

A. Operations Plan, Conceptual Closure Plan and Post Closure Plan, and Site Characterization Reports.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Enforce quality control over Suppliers, Manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.
- B. Comply fully with Manufacturers' instructions, including each step in sequence.
- C. Should Manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the work except when more stringent tolerance, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.

1.04 REFERENCE REQUIREMENTS

- A. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- B. The contractual relationship of the parties to the Contract shall not be altered from



the Contract Documents by mention or inference otherwise in any reference document.

1.05 INSPECTION AND TESTING

- A. The Engineer or other qualified personnel will perform inspections, tests, and other services specified in individual specification sections.
- B. Contractor shall cooperate with the Engineer and owner; furnish samples of materials, provide excavation equipment for explorations conducted by Engineer and provide assistance as requested.
- C. Tests will be performed to conform with the provisions of the Owner's Construction Quality Assurance Plan.
- D. Testing shall include excavation of up to ten (10) test pits up to twelve (12) feet in depth to sample waste bottom.
- E. Test pits will be excavated 30 days prior to the end of the operational phase of excavations, prior to dewatering system installation and tap cover placement.

END OF SECTION

SECTION 01 08 00

CONSTRUCTION FACILITIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes construction facilities (temporary facilities) required for the construction of the permanent facilities specified under the scope of work of this Contract.
- B. Construction facilities shall include furnishing all equipment, materials, tools, accessories, incidentals and labor, and performing all work for the installation of equipment and for construction of facilities, including their maintenance, operation, and removal, if required, at the completion of the work under the Contract.

1.02 DEFINITIONS

- A. Construction facilities shall include, but not be limited to, the following temporary offices, utilities, equipment, materials, facilities, and services:
 - 1. Contractor field office at Cell 3
 - 2. Parking areas at Cell 3
 - 3. Access roads and haul roads
 - 4. Storage of materials and equipment
 - 5. Construction equipment
 - 6. Sanitary facilities
 - 7. Electric power
 - 8. Water
 - 9. Portable, certified truck weight scales with weight printout per load at Cell 3
 - 10. First aid facilities
 - 11. Security

1.03 REFERENCES

A. Construction facilities shall be constructed, installed, maintained, and operated



consistent with the applicable federal, state, county, and utility laws, rules, permits, and regulations. Notwithstanding contrary provisions of General Conditions, Special Conditions, and Standard Specifications, nothing in the Construction Drawings and Specifications shall be construed to permit work not conforming to the above.

1.04 GENERAL REQUIREMENTS

- A. The Contractor shall be responsible for furnishing, installing, constructing, operating, maintaining, removing, and disposing of the facilities, as specified in these Specifications, and as required by the Resident Engineer for the completion of the work under the Contract.
- B. Construction facilities shall be located as approved and maintained in a clean, safe, and sanitary condition at all times until completion of the Contract.
- C. Upon completion of the Contract, the construction facilities shall be left in the status specified in Article 1.16 of this section.
- D. The requirements specified herein are in addition to any requirements specified elsewhere in the Contract Documents. Construction facilities shall meet the requirements for all-weather service.
- E. Land disturbances related to the construction facilities shall be minimized to the greatest extent possible and the land restored, to the extent reasonable and practical, to its original contours by grading to provide positive drainage and by seeding the area to match with existing vegetation.

1.05 FIELD OFFICE

- A. Contractor shall provide a field office at Cell 3 for use by his staff.
- B. The location of the field office shall be as approved by the Engineer.

1.06 PARKING AREAS

A. Contractor shall provide a parking area for employees, maintenance, and delivery vehicles, the Engineer's and Contractor's representatives, and for other authorized visitors. Parking for personal cars shall be limited to the office area.

1.07 TEMPORARY ROADS

A. Temporary roads, existing roads, or new roads to be constructed by the Contractor for the convenience of the Contractor in the performance of the work under the Contract shall be authorized by the Engineer. The Contractor shall be responsible for all traffic control measures and maintenance of the roadways. The contractor is to be aware some access roads are one-lane sections with opposing traffic. The use of pull off areas and shoulders may be used when safely passing another vehicle.



- B. Temporary road construction shall be coordinated with and approved by the Engineer.
- C. Erosion shall be kept to a minimum and to suitable grades, and radii of curves shall be maintained to facilitate ease of movement of vehicles and equipment.
- D. Longitudinal and cross drainage facilities including, but not limited to drainage swales, pipe, check dams, waddles and mulch shall be furnished and installed by the Contractor.
- E. Equipment shall be cleaned so that waste, mud, soil, or debris is not carried onto public roads. Contractor shall be responsible for cleaning up any waste, mud, soil, debris, or other objectionable matter that is transported by his equipment on to public roads.

1.08 STORAGE OF MATERIALS AND EQUIPMENT

- A. Contractor shall make arrangements for storage areas for materials, equipment, and debris. Locations and configurations of such facilities shall be subject to the approval of the Engineer.
- B. All operations of the Contractor, including storage of materials, shall be confined to approved areas. Contractor shall be liable for any and all damage caused by him during such use. Materials shall be stored consistent with Manufacturers' instructions as applicable.
- C. Contractor shall store construction materials and equipment within boundaries of designated areas. Storage of gasoline or similar fuels shall conform to the requirements specified in Temporary Controls Section 01 09 00 Article 1.05.

1.09 CONSTRUCTION EQUIPMENT

- A. Contractor shall erect, equip, and maintain all construction equipment consistent with all applicable statutes, laws, ordinances, rules, and regulations of Coos County or other authority having jurisdiction.
- B. Scaffolding, staging, runways, hoists, barricades, and similar equipment required for performance of the Contract shall be provided and maintained by the Contractor. Hoists or similar equipment shall be provided with operators and signals, as required.
- C. Contractor shall provide, maintain, and remove upon completion of the work all temporary rigging, scaffolding, hoisting equipment, debris boxes, ramps, barricades around openings and excavations, fences, ladders, and all other temporary work, as required for all work hereunder unless otherwise directed by the Engineer.
- D. Construction equipment and temporary work shall conform to all the requirements of state, County, and local authorities, Occupational Safety and Health



Administration, site's 1200-C, and underwriters, which pertain to operation, safety, and fire hazard. Contractor shall furnish and install all items necessary for conformity with such requirements, whether or not called for under separate sections of these Specifications.

1.10 TEMPORARY SANITARY FACILITIES

- A. Contractor shall provide separate male and female temporary sanitary facilities for use at Cell 3 by all employees and persons engaged in the work, including lower-tier subcontractors, their employees, and authorized visitors.
- B. Sanitary facilities include enclosed chemical toilets and washing facilities. These facilities shall meet the requirements of local public health standards. Open pit or trench latrines will not be permitted.
- C. Sanitary facilities shall be located as approved by the Engineer, and shall be maintained in a sanitary condition during the entire course of the work.

1.11 TEMPORARY ELECTRIC POWER

A. The Contractor shall provide and maintain, during the course and progress of the work, all electrical power and wiring requirements to facilitate the work of all trades and services associated with the work. The Contractor shall provide generators and or shall pay all charges for providing and maintaining electrical service at the site. All temporary wiring, feeders, and connections shall be furnished by the Contractor.

1.12 TEMPORARY WATER

- A. General: Construction non-potable water for use at Cell 3 is available on the Jordan Cove Site at no cost to the Contractor. The connection point is adjacent to settling ponds 1 and 2. The Contractor shall provide all hook-up connections and remove at end of project. The Contractor shall coordinate with Jordan Cove LNG to make sure construction water is available when needed.
- B. Potable Water: Contractor shall provide fresh drinking water for project personnel. Temporary water for potable use shall be provided by the Contractor at no additional cost to the Jordan Cove LNG.

1.13 FIRST AID FACILITIES

A. First aid equipment and supplies shall be provided at Cell 3 to serve all project personnel. The first aid facilities shall be equipped as required by authorities having jurisdiction.

1.14 SECURITY

A. The Contractor shall make all necessary provisions and be responsible for the



security of the work and the work areas until final inspection and acceptance of the work.

1.15 MAINTENANCE

A. Contractor shall maintain all construction facilities, utilities, scales, temporary roads, services to office, and the like in good working condition as required by the Engineer during the term of the contract.

1.16 STATUS AT COMPLETION

- A. Upon completion of the work, or prior thereto, when so required by the Engineer, the Contractor shall:
 - 1. Repair damage to the existing fences and access road caused or resulting from the Contractor's work.
 - 2. Remove and dispose of all construction facilities including field office, and other facilities and utilities including all concrete foundations. Similarly, all areas utilized for temporary facilities shall be returned to substantially their near original, natural state, or as otherwise indicated or directed.
 - 3. Remove temporary roads built for Contractor's convenience and restore the area to near original conditions to the satisfaction of the Engineer.

END OF SECTION





SECTION 01 22 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 DESCRIPTION

- A. Section includes general requirements for measurement and payment as they apply to this Contract.
- B. The work to be performed consists of all equipment, materials, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the Work in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Oregon Division of Industrial Safety and the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of work.
- C. Unless otherwise specified in other individual sections of these specifications, quantities of work shall be determined from measurements or dimensions in horizontal planes.
- D. Quantity of solid waste, concrete, recyclable metal, leachate collection system and liner system components shall be measured by tons. Weight of solid waste disposed of offsite shall be based upon the weight of the waste as measured at the Dry Creek Landfill scales. Weight of concrete and metal shall be based upon the weight as measured on the onsite, full-length, permanent scales.
- E. Units of measurement shall be in accordance with U.S. Standard Measures.
- F. Materials and unit price items of work that are to be paid for on the basis of measurement shall be measured in accordance with Part 2 of this section.

1.02 LUMP SUM PRICE BREAKDOWN

A. Immediately after award of the Contract and prior to approval of the initial payment request, the Contractor shall submit to the Engineer a schedule of prices providing a cost breakdown for lump sum bid items. This list shall consist of the major components of work that make up the bid items listed in the Agreement and shall be used for determining progress pay estimates. The progress schedule shall reflect the



same work items identified in the cost breakdown. The total of all components shall equal the total of the bid items. If the amount indicated in the Contract for any item on the list appears unbalanced, it may be revised as deemed necessary by the Engineer, unless the Contractor can substantiate the listed amount.

- B. Only work items of value to the Owner shall be included in the list. An item for cleanup, regrading and demobilization shall be listed in the breakdown, in the amount of at least 1 percent (1%) of the total bid item. If cleanup proceeds as the job progresses, then partial payments of this amount will be made accordingly.
- C. Only elements of work of value to the Owner shall be included in the list. An item for cleanup shall be listed in the breakdown, in the amount of at least one quarter of one percent (0.25%) of the total bid price. If cleanup proceeds as the job progresses, partial payments of these amounts will be made accordingly.

1.03 UNIT PRICE BREAKDOWN

- A. The number of units and quantities contained in the Bid Schedule listed in the Agreement are approximate only, and final payment will be made for the actual number of units and quantities incorporated in the Work or made necessary to complete the project. The Owner reserves the right to remove waste from Cell 3 prior to the start of the contract.
- B. In the event that Work and materials or equipment are required to be furnished to a greater or lesser extent that is indicated by the Contract Documents, such Work and materials or equipment shall be furnished in greater or lesser quantities.

1.04 INCIDENTIAL WORK

A. Only Work measured in the items listed below will be paid. Work required by the Contract Documents but not listed as a Pay Item shall be considered incidental to the Work and no costs associated with incidentals will be reimbursed or paid.

PART 2 PAYMENT

2.01 GENERAL

All work shall be installed and completed in compliance with the Drawings and Specifications, and as directed by the Engineer.

2.02 PROGRESS PAYMENT REQUIREMENTS

A. Payment for work performed shall be in accordance with the Contractor's Bid Schedule and as described in this Section. The Engineer will verify measurements and quantities.



- B. Payment for all lump sum and unit price cost and services on this Contract shall be based on the earned value of work accomplished during the reporting period. Earned value is determined by the completion percentage of each activity applied to the total value of the activity or the actual unit quantity completed of the bid item.
- C. The retainage specified in the General Conditions shall apply to all payments to the Contractor, including permits and mobilization.

2.03 APPLICATION FOR PAYMENTS

- A. Application for payment shall be on the Owner's form provided by the Engineer and certified by signature of an authorized officer of the Contractor. Three copies of the application for payment shall be submitted. Application shall be made monthly.
- B. The Application for Payment shall contain all necessary references and attachments that substantiate the invoice for progress payment, (e.g., materials on hand, labor reports, progress schedule data, and summary of earned values, all as applicable to the Contract). It must be accompanied by an updated progress schedule and status data.
- C. With each progress payment request, Contractor shall certify that disbursements to subcontractors, suppliers, and employees have been made from previous progress payments and accounts payable are current to date.
- D. The Applications for Payment are to be submitted according to the format and instructions provided by the Engineer and are to be based on Work completed through the last day of the previous month or through the date established by the Engineer.

PART 3 MEASUREMENT

3.01 GENERAL

- A. The Bid for the Work is intended to establish a total cost for the Work in its entirety.
- B. All work shall be installed and completed in compliance with the Drawings and Specifications, and as directed by the Engineer.

3.02 BID ITEMS

- A. Bid items are defined and measured as follows:
 - 1. Mobilization

Payment for Mobilization will be on the basis of the lump sum bid price and shall be considered as full compensation for furnishing all labor, equipment, materials necessary to mobilize onto the site and all the requirement as



described in Section 01 71 00 – Mobilization, Section 01 32 23 – Layout of Survey, Section 01 35 29 – Health and Safety, Section 01 33 00 – Submittals, Section 01 07 00 – Quality Control, Section 01 08 00 – Construction Facilities, Section 01 50 00 – Temporary Controls, Section 01 55 05 – Traffic Plan, Section 01 74 00 - Construction Cleaning, and Section 01 77 00 – Project Closeout. Work will include but is not necessarily limited to, obtaining bonds, permits not provided by the Owner, permit fees, preparing submittals, construction schedules, meetings and obtaining additional work areas and/or disposal areas as needed. Total compensation shall not exceed 15% of the total bid price.

2. Phase I Excavation and Loading - Solid Waste

Payment for Phase I Excavation and Loading will be on the basis of the bid price per ton as measured by the receiving landfill. Payment will be considered as full compensation for furnishing all labor, equipment, dewatering waste, temporary roads and ramps, decontamination of transport trucks, truck wash, and materials necessary to excavate dry wastes (operations layer) from the landfill and load the transfer trucks as described in Section 02 61 00 – Excavation and Loading Waste. Miscellaneous earthwork to create or remove temporary roads or ramps for the convenience of the contractor will not be paid by the owner.

3. Phase II Excavation and Loading - Solid Waste

Payment for Phase II Excavation and Loading will be on the basis of the bid price per ton as measured by the receiving landfill. Payment will be considered as full compensation for furnishing all labor, equipment, dewatering waste, temporary roads and ramps, decontamination of transport trucks, truck wash, and materials necessary to excavate dry wastes (operations layer) from the landfill and load the transfer trucks as described in Section 02 61 00 – Excavation and Loading Waste. Miscellaneous earthwork to create or remove temporary roads or ramps for the convenience of the contractor will not be paid by the owner.

4. Excavation and Processing - Demolition Debris Recycled or Left Onsite

Payment for Excavation and Processing will be on the basis of the bid price per ton as measured by the onsite, full-length scales shown on Construction Drawing. Payment will be considered as full compensation for furnishing all labor, equipment, decontamination of equipment, and materials necessary to separate the concrete and metal from the waste and transport the concrete to onsite, stockpile area as described in Section 02 60 00 –Excavation and Processing Demolition Debris.



5. Phase I Transport and Disposal - Solid Waste

Payment for Phase I Trucking and Disposal will be on the basis of the bid price per ton as measured by the landfill. Payment will be considered as full compensation for furnishing all labor, equipment, traffic control, testing, and materials necessary for the trucking and disposal of the solid waste as described in Section 02 50 05 – Transport and Disposal of Waste.

6. Phase II Transport and Disposal - Solid Waste

Payment for Phase II Trucking and Disposal will be on the basis of the bid price per ton as measured by the landfill. Payment will be considered as full compensation for furnishing all labor, equipment, traffic control, testing, and materials necessary for the trucking and disposal of the solid waste as described in Section 02 50 05 – Transport and Disposal of Waste.

7. Grout and Abandon Piping

Payment for Grout and Abandon Piping will be on the basis of the bid price per lump sum price and shall be considered as full compensation for all labor, equipment, and materials necessary for the grouting of the existing piping from Cell 3 to Settling Basin 1 as described in these specifications.

8. Earthwork

Payment for Earthwork will be on the basis of the bid price per cubic yard as material compacted in place measured by survey. Earthwork is to include excavation of material from borrow area, transport from borrow area to placement area in Cell 3, subgrade preparation and compaction, earth fill placement and compaction. Payment will be considered as full compensation for furnishing all labor, equipment, and materials necessary as described in Section 31 00 00 – Site Earthwork. Earthwork to create or remove temporary roads or ramps for the convenience of the contractor will not be paid for by the owner.

9. Dewatering

Payment for Dewatering will be on the basis of the bid price per lump sum price. Such payment will constitute full compensation for furnishing, installing, operating, and maintaining the necessary trenches, wells, wellpoints, drains, sumps, pumps, and piping and for all labor, equipment, tools, and all other items necessary and incidental to the completion of the work..



10. Dewatering System Operation

Payment for Dewatering System Operation will be on the basis of the bid price per each full month of operation. Payment will be considered as full compensation for furnishing all labor, equipment, and monitoring as necessary for the operation of the de-watering system as described in these specifications.

11. Temporary Tarp Cover

Payment for Temporary Cover will be on the basis of the bid price per lump sum price. Prices shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals. Prices also include doing all the work involved in performing Cover installation and removal completely as shown on the drawing, and as described in Section 33 47 13 Temporary Cover Tarp.

12. Hydroseed

Payment for Hydroseed will be on the basis of the bid price per acre as measured by survey. Payment will be considered as full compensation for furnishing all labor, equipment, and materials necessary for the hydroseeding disturbed areas designated by the Engineer as described in Section 32 92 19.16 – Hydroseeding.

13. Demobilization

Payment for demobilization from the site will be on the basis of the lump sum bid price and shall be considered as full compensation for furnishing all labor, equipment, and materials necessary for demobilizing from the site as described in Section 01 71 14 – Demobilization.



SECTION 01 32 23

LAYOUT OF WORK AND SURVEYS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section includes general requirements for survey work to be performed by the Contractor for layout of work features, for performance of work, and for field measurements of work quantities for payment.
- B. Before commencing any surveys, the Contractor shall give the Engineer written notice two (2) working days in advance so that the Engineer may witness such work.

PART 2 EXECUTION

2.01 DESCRIPTION

- A. All necessary points shall be established by Contractor.
- B. The Contractor shall furnish all necessary material and surveys for all lines, grades, and appropriate surveys as specifies. Surveys shall be performed under direction supervision of Oregon Professional Land Surveyor.
- C. The Engineer reserves the right to perform any desired checking and correction of the Contractor's survey but this shall not relieve the Contractor of the responsibility for adequate performance of the work. The Engineer will complete any checking with 10 working days of the Contractor's completed survey.
- D. Equipment and Personnel: The Contractor instruments and other survey shall be accurate, suitable for the surveys required, consistent with recognized professional standards, and in proper condition and adjustment at all times.
- E. Material: The Contractor shall furnish all field stakes, flagging, and material required to establish, maintain, and survey points.
- F. Field Notes and Records: The Contractor shall record surveys in field notebooks. The original pages of such records and associated electronic data shall be furnished to the Engineer at intervals required by the Engineer. The Engineer will have up to 10 working days to review the data and notify the Contractor of errors. A duplicate of each field notebook shall be furnished to the Engineer when filled or completed. Electronic notes may be used if printouts are furnished to the Engineer and the format of the printed information is approved by the Engineer.
- G. Use by the Engineer: The Engineer may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the



work and may be checked by the Engineer or representative of the Engineer at any time. The Contractor shall be responsible for: (1) any lines, grades, associated electronic data, or measurements that do not comply with specified or proper tolerances or that are otherwise defective and (2) any resultant defects in the work. The Contractor will be required to conduct resurveys or check surveys to correct errors indicated by review of the field notebooks or otherwise detected.

2.02 SURVEYS FOR LAYOUT AND PERFORMANCE OF WORK

A. The Contractor shall perform all surveys for layout and performance of the work, reduce the field notes, make necessary calculations, and prepare drawings necessary to carry out and verify such work.

2.03 SURVEYS FOR MEASUREMENT FOR PAYMENT

A. When the Specifications or the Engineer require Bid Schedule items of work to be measured by surveying methods, the Contractor shall perform the surveys. The Contractor will reduce the field notes and calculate final quantities for payment purposes. A duplicate of the note reductions and calculations will be given to the Engineer for review and approval.

2.04 SURVEY FOR TOPOGRAPHICAL AND SELECT CONSTRCTION SURFACES, AS-BUILT DRAWINGS AND LAND USE COVENT

- A. The Contractor shall perform topographic surveys (topos) at Cell 3 at the completion of the following:
 - 1. Borrow area prior to excavation of material and final grading.
 - 2. Limit of excavation of waste topography to subgrade surface below liner.
 - 3. Subgrade after compaction
 - 4. Final grading of all fill material within Cell 3 area.
 - 5. Final grading of Cell 3
 - 6. Limits of hydroseeding

As-builts will be submitted electronically and on drawings to the Engineer in a digital format acceptable to the Engineer indicating the location of survey points and settlement monuments (Le., northing, easting, and elevation). Survey coordinates shall be based on the 1988 North American Data (NAD-88), Oregon State Plane (South Zone). As-builts shall be stamped by an Oregon-Registered Professional Land Surveyor. The Engineer shall have up to 10 working days to review and approve the as-built surveys and settlement standpipe information. After final approval by the Engineer, the Contractor shall submit three sets of final drawings for each survey. Final drawings shall present elevations and 1-foot contour intervals for all graded surfaces.



B. The Contractor's Surveyor shall prepare and seal a letter certifying that surveying accuracy and tolerances were met, and the letter shall list and accompany the asbuilt drawing information submittals.

2.05 SURVEY ACCURACY AND TOLERANCE IN SETTING OF SURVEY STAKES

- A. Control traverse field surveys and computations shall be performed to an accuracy of at least 1:25,000.
- B. The tolerances generally applicable in setting survey stakes shall be as set forth below. Such tolerances shall not supersede stricter tolerances required by the Specifications or Construction Drawings, and shall not otherwise relieve the Contractor of responsibility for measurements in compliance therewith.

Type of Line or Mark Horizontal Position Elevation Permanent reference points 1 in 10,000 $\pm 0.01 \text{ foot}$ General excavation and earthwork 1 in 2,000 $\pm 0.1 \text{ foot}$

C. Tolerances for designed thicknesses shown on Construction Drawings and for elevations shown on the Construction Drawings shall be ±0.10 foot, unless otherwise stated in these Specifications or on the Construction Drawings.



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SECTION 01 33 00

SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide submittals consistent with the Contract documents. In addition, comply with the following requirements specified hereinafter.
- B. Submit shop drawings to the Engineer sufficiently in advance consistent with prearranged schedule to cause no delay in the Contractor's own work or in that of any other subcontractor and to afford ample time for consideration, checking, correcting, and rechecking. Show complete details of construction and methods of installation including sizes, dimensions, setting numbers, types of materials, provision of hardware, accessory items, build-ins, opening sizes, cut-outs, joints, required blocking, welds, anchorage to other construction, and other pertinent items.
- C. Verify dimensions on the job and correlate work with adjoining work.
- D. All shop drawings must be submitted in the same size sheets as the Engineer's drawings or on 8-1/2" x 11" size sheets.
- E. Four copies of approved shop drawings will be required for the Engineer's use unless otherwise indicated. Contractor shall determine the number of and furnish such additional copies as may be needed.
- F. The Engineer will return to Contractor two red-lined copies of any shop drawing that has been rejected or returned for revisions. Contractor shall make additional submittals as required. The Design Engineer's approval of such drawings or schedules shall not relieve Contractor from responsibility for any resulting deficiencies or related unapproved deviations from the Construction Drawings and Specifications.
- G. No shop drawings shall be distributed for field use without appropriate Engineer's approval.

1.02 RELATED SECTIONS

- A. 01 01 00 Summary of Work
- B. 01 32 23 Layout of Work and Surveys
- C. 01 35 29 Health and Safety
- D. 01 08 00 Construction Facilities



- E. 01 50 00 Temporary Controls
- F. 01 77 00 Project Record Documents
- G. 31 00 00 Site Earthwork
- H. 32 92 19.16 Hydroseeding

1.03 OTHER TYPES OF SUBMITTALS

- A. Other related drawings pertaining to drainage facilities and other fabricated materials.
- B. Survey Submittals: Consistent with Section 01 32 23 Layout of Work and Surveys final drawing for surveys performed by the Contractor shall be submitted.
- C. Health and Safety Plan: Consistent with Section 01 35 29 Health and Safety Plan shall be submitted that addresses Health and Safety issues and complies with OSHA and all other regulatory agency requirements. The Health and Safety Plan will need to identify ticks and rattle snakes as potential hazards at Cell 3.
- D. Project Record Documents: Consistent with Section 01 77 00 Project Closeout shall be submitted before submitting final invoice for payment.
- E. Traffic Plan: Consistent with Section 01 55 05, Traffic Plan shall be submitted that addresses traffic control measures to be implemented by the Contractor during the Contract work.
- F. Material and Equipment Submittals: Consistent with Sections 00 50 05, 02 60 00, 02 60 10, 02 61 00, and as stated in other specification sections. Information on the certified scale shall be submitted to the Engineer for approval.
- G. Material delivery tickets or bills of lading.
- H. Equipment Fueling Plan.
- I. Dust Control Plan in compliance with the requirements of the ODEQ.
- J. Storm Water Pollution Prevention Plan in compliance with the requirement of a 1200-C permit acquired by contracts from ODEQ.

PART 2 EXECUTION

2.01 EXECUTION

The following submittal log has been developed for the Contractor's convenience and general information and in no way limits the responsibility of the Contractor from



submitting all submittals required by these specifications or the standard specifications.

| Submittal Log | | |
|---------------------------------------------------------|----------------------------------|-------------------------------------------|
| Submittal | Specification Reference | Comment |
| Construction Schedule | Section 01 01 00 article 1.03 | At or before the notice to proceed |
| Topographic Surveys | Section 01 32 23 article 2.04 | Following Completion |
| Borrow area prior to excavation and final grading | | |
| Limit of waste to subgrade below liner | | |
| Subgrade after compaction | | |
| Final grading Cell 3 | | |
| Limits of Hydroseeding | | |
| Health and Safety Plan | Section 01 35 29 article 1.03 | Within 10 days after Notice to Proceed |
| Dust Control Plan | Section 01 55 00 article 1.04 | Prior to start of work |
| Spill Prevention Control and Countermeasure Plan | Section 01 55 00 article 1.05 | Prior to start of work |
| Traffic Plan (encroachment permit) | Section 01 55 00 article 1.03 | Prior to start of work |
| Record Documents | Section 01 77 00 article 2.01 | At completion and before final invoice |
| De-watering Plan | Section 31 32 19 article 2.02 | With bid |
| Decontamination Truck System | Section 02 61 00 article 2.03 | Prior to start of work |
| Scale | Section 02 61 00 article 2.03 | Prior to start of work |
| Grout | Section 02 60 10 article 1.02 | 14 days prior to placement |
| Hydroseed Mix | Section 32 92 19.16 article 1.02 | Within 30 days after Notice to Proceed |

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SECTION 01 35 29

HEALTH AND SAFETY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section includes general requirements for the following:
 - 1. Preparing project Site Specific Health & Safety Plan
 - 2. Implementing project Site Specific Health & Safety Plan

1.02 OTHER

- A. The exact nature of materials and wastes disposed of at the SWLs is unknown. The possibility exists of encountering burn debris, ash, dust and/or other substances during the Work that may be potentially hazardous to the safety and health of personnel, especially those working in the vicinity of open excavations.
- B. The burn debris contains metals such as antimony, arsenic, barium, beryllium, cadmium, copper, lead, mercury, molybdenum, silver, and zinc as well as Aroclor 1254 (a PCB), dioxins, and furans. Volatile organic compounds (VOCs), in particular trichloroethene (TCE), while not contaminants resulting from the burn dump operations, were detected in the groundwater beneath the site. The metals, PCBs, and dioxins/furans associated with the burn debris have a low mobility in soil and are present in the debris. Dispersal by wind is the primary means for migration of these chemicals.
- C. Personnel could be exposed to the noted chemicals in the debris and soil through incidental ingestion, skin contact, and particulate inhalation of wind- and mechanically-eroded dusts. Exposure to VOCs in soil gas is also a potential inhalation pathway. The Contractor is advised of the need for dust control during burn debris excavation, transport and compaction, and earthwork activities.

1.03 SUBMITTALS

- A. The Contractor shall submit within 10 days after Notice to Proceed a general Health and Safety Plan, for review and purposes only.
- B. Contractor shall submit, after Notice to Proceed, but prior to pre-construction meeting, a Site Specific Health & Safety Plan to be approved by the Engineer. Acceptance of the plan by Jordan Cove LNG does not release the contractor of liability in the event of an accident or injury, nor does it place any liability on the Engineer.



- C. Sludge has been observed in samples near the bottom of the landfill.
- D. Saturated waste may be encountered at any level in the landfill but more likely will be encountered above the leachate collection layers.

1.04 POTENTIAL FOR HAZARDS

- A. Possible caving of trenches and excavations may occur when working over or in burn debris.
- B. Possible hazards exist from the presence of ticks, on or around the site.

1.05 SAFTETY PRECAUTIONS

- A. In addition to conforming to the safety rules and regulations of the property owner (Jordan Cove LNG) and governmental authorities having jurisdiction, the Contractor's Site Specific Health & Safety Plan shall include the following measures:
 - 1. Shall comply with the requirements of Occupational Safety and Health Agency (OSHA), Oregon-OSHA, and all other regulatory agency requirements.
 - 2. Require Contractors and employees working within the area to complete Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with 29 CFR 1910.120, including current refresher training, on-site orientations, and additional supervisory training.
 - 3. Smoking shall be prohibited on the property.
 - 4. The use of explosives or firearms shall not be permitted on the site.
 - 5. Inhalation of landfill gases shall be avoided. Such gases or oxygen-deficient air may cause nausea and dizziness, which could lead to accidents. Work should proceed in a direction upwind of the excavation where possible, unless the excavation is constantly monitored and declared safe. Equipment and all laborers who are active on or adjacent to the pile shall be equipped with gas monitors.
 - 6. Workers shall avoid contact with exposed refuse, condensate, or leachate. Irritants or hazardous materials may be present. Contractor to provide wash stations to minimize exposure by contact.
 - 7. Minimize dust production through the use of water or other approved dust reducing agents.



- 8. Minimize the chance for ingestion of contaminated soils through the prevention of eating or drinking near contaminated work areas. Provide wash stations to ensure that employees wash their hands and face before eating, drinking, or using the restroom.
- 9. Fire extinguishers with a rating of at least 10A 80BC shall be available at all times on the Site. A fire safety plan shall be developed and submitted to the Engineer for review.
- 10. Start-up and shutdown of equipment shall be avoided in areas of exposed refuse.
- 11. A hot work (welding, cutting, or torching) plan shall be submitted to the Engineer for review. Hot work shall not be conducted in landfill unless approved by the Owner on a daily basis.

PART 2 PRODUCTS

2.01 PREPARATION OF A SITE-SPECIFIC HEALTH & SAFETY PLAN

- A. The Contractor shall develop a Site Specific Health & Safety Plan in accordance with all applicable OSHA regulations, 29 CFR 1910 and 29 CFR 1926, any other applicable federal, state, or local agency regulations or requirements, and property owner (Jordan Cove LNG) requirements. If any of these requirements are in conflict, the more stringent requirement shall apply. Contractor's failure to incorporate or be thoroughly familiarized with the aforementioned safety and health provisions shall not relieve the Contractor of responsibility for full compliance with the obligations and requirements set forth herein. The Contractor's Site Specific Health & Safety Plan shall include as appropriate, but shall not be limited to items required by Jordan Cove LNG, and the items required by OSHA 29 CFR 1910.120:
 - 1. Organizational structure
 - 2. Drug and alcohol program
 - 3. Comprehensive work plan
 - 4. Incident management plant
 - 5. Hazard analysis for each site task
 - 6. Employee training including site orientation
 - 7. Personal protective equipment to be used for each task



- 8. Medical surveillance
- 9. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used
- 10. Site control measures
- 11. Safety precautions noted in Item 1.05 of this Section
- 12. Decontamination procedures
- 13. Emergency response plan
- 14. Confined space entry procedures (if applicable)
- 15. Spill containment program
- B. The contractor shall submit the Site Specific Health & Safety Plan for review per Item 1.03B of this Section.

PART 3 EXECUTION

3.01 CONSTRUCTION

- A. Contractor shall be solely and completely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Take all necessary precautions for the safety of, and provide the necessary protection to prevent injury or loss to all Contractor employees.
- B. Contractor shall comply with all applicable OSHA regulations. The Contractor's Site Specific Health & Safety Plan does not supersede or in any way relieve the Contractor of obligations under any applicable OSHA regulations including, but not limited to, 29 CFR 1910: Occupational Safety and Health Standards and 29 CFR 1926: Health and Safety.
- C. Contractor shall be responsible for ensuring that all Subcontractors abide with the contents of this section.
- D. Contractor shall become familiar with the potential hazardous health and safety conditions and risks associated with working in or near the debris and ash at the SWLs and take the applicable precautions for work at the site.
- E. Contractor shall be solely responsible for determining and providing an appropriate health and safety program, including monitoring, equipment, plans in the event of problems and/or emergencies, and other related items as needed.



3.02 SITE RESTRICTIONS

A. Safety vests, safety goggles (ANSI Z87+), gloves, hardhats, full length pants and shirts (Level D), and steel-toed boots shall be worn by all personnel during work

3.03 IMPLEMENTATION OF SITE SPECIFIC HEALTH AND SAFETY PROGRAM

- A. Provide to the Resident Engineer, prior to the start of any field activities, certification that requirements of this Section have been met. This certification shall include:
 - 1. Documentation of the training required under OSHA 29 CFR 1910.120 for the site personnel and supervisors.
 - 2. Documentation of current first aid and CPR training for at least two employees per work shift.
 - 3. Documentation of participation of all site personnel in a medical surveillance program in accordance with OSHA 29 CFR 1910.120.
 - 4. Documentation that all site personnel expected to wear respiratory protection have been medically examined and approved for wearing such equipment and have been fit tested in accordance with OSHA regulations.
- B. The Contractor shall maintain a copy of the Site Specific Health & Safety Plan at the site for the duration of Work.
- C. If the Resident Engineer observes any of the Contractor's employees or Subcontractors engaging in an unsafe act or procedure that may result in serious injury or death to the person performing the act/procedure, or to any other person, the Engineer shall have the right, but not the duty, to stop the Work until the condition is corrected. The Contractor shall be held responsible for any increased costs that result from this work stoppage.
- D. The Contractor shall be responsible for holding mandatory weekly safety meetings on the site. The Engineer shall be notified of the time and place for the meetings. Meetings shall reiterate all safety measures to be taken and shall discuss any violations committed and preventative measures. The Contractor shall provide the Engineer with a copy of the minutes and the attendance upon request.
- E. The Contractor shall provide all personnel working on the project with required orientation and training on the potential hazards and the appropriate use of safety equipment.



F. The Contractor shall meet applicable OSHA health and safety requirements at all times. The Contractor shall secure all work areas and close any open holes or excavations when not working by marking with ribbon and cones, and posting of signs indicating to unauthorized personnel to stay away due to the existence of deep open excavations.

SECTION 01 50 00

TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes temporary controls required during the term of the Contract for the protection of the environment, and the health and safety of workers and general public.
- B. Temporary controls shall include furnishing all equipment, materials, tools, accessories, incidentals and labor, and performing all work for installation of equipment and construction of facilities, including their maintenance and operation during the term of the Contract.
- C. Temporary controls shall include, but not limited to, the following:
 - 1. Dust control
 - 2. Noise control
 - 3. Pollution and sediment control
 - 4. Traffic and safety controls
 - 5. Air pollution control
 - 6. Protection of existing monitoring systems
 - 7. Protection of existing roads and fences
- D. The work shall be performed as specified in this Specification, and as required by the Engineer. The equipment and accessories shall be maintained in clean, safe, and sanitary condition at all times until completion of the Contract.
- E. Upon completion of the Contract, the temporary controls shall be left in the status specified in Article 1.09 of this section.
- F. The requirements specified herein are in addition to requirements specified elsewhere in the Contract Documents. Temporary controls shall meet the requirements for all-weather service.
- G. All land disturbances related to the temporary controls shall be minimized to the greatest extent possible and the land restored, to the extent reasonable and practical, to its original contours by grading to provide positive drainage.



1.02 APPLICABLE PUBLICATIONS

A. All required facilities, equipment, and utilities shall also be constructed, installed, maintained, and operated consistent with applicable federal, state, county, and utility laws, rules, and regulations. Notwithstanding contrary provisions of General Conditions and Special Conditions, nothing in the Construction Drawings and Specifications shall be construed to permit work not conforming to such laws, rules, and regulations.

1.03 SUBMITTALS

- A. The Contractor shall submit to the Engineer, for review and acceptance, a Traffic Plan for truck traffic to access Trans Pacific Lane (see Section 01 10 00).
- B. The Contractor shall submit the Traffic Plan to the Coos County Department of Transportation for approval.

1.04 DUST CONTROL

- A. The Contractor shall be responsible for providing adequate dust control measures during the term of the Contract. Dust palliatives shall not be used without written authorization of the Engineer.
- B. Dust control shall consist of furnishing water supply, required equipment, additives, accessories, and incidentals, and carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust originating from construction operations; including the excavation, transport, and compaction of burn debris and ash during the duration of the Contract, as required by the Engineer.
- C. Contractor is responsible for compliance with Fugitive Dust Regulations issued by the ODEQ air quality and shall prepare and submit a Dust Control Plan prior to start of work.
- D. Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses with nozzles that will insure a uniform application of water.
- E. All equipment used for the application of water shall be equipped with a positive means of shut-off.
- F. Unless otherwise permitted by the Engineer, at least one mobile unit with a minimum capacity of 5,000 gallons shall be available at the site for applying water during construction activities.
- G. The Engineer may halt any or all operations if Dust Control is not sufficient in his opinion. Continuous dust monitors shall be required with weekly reporting of particulate log.



1.05 POLLUTANT CONTROL

- A. Pollution of Waterways: The Contractor's construction and related activities shall be performed by methods that prevent entrance or accidental spillage of solid or liquid matter, contaminants, debris, and other objectionable pollutants and wastes into streams, water courses (flowing or dry), and underground water sources. Such pollutants and wastes will include, but will not be restricted to refuse, earth and earth products, garbage, cement, concrete, sewage effluent, industrial waste, radioactive substances, hazardous chemicals, oil and other petroleum products, aggregate processing tailings, and mineral salts. Pollutants and wastes shall be disposed of consistent with applicable permit provisions or in a manner acceptable to and approved by the Resident Engineer.
- B. A 1200-C Construction Stormwater General Permit shall be prepared by the Contractor prior to the start of closure work that identifies potential pollution sources and measures that will be implemented to address these issues. The following information shall be utilized in the preparation of the 1200-C:
 - 1. Site plan including Erosion Control Plans and Final Closure and Operational Grading Plans.
- C. Storage and Disposal of Petroleum Products:
 - 1. Petroleum products covered by this section include gasoline, diesel fuel, lubricants, heating oils, and refined and used oil. During project construction, all petroleum products shall be handled in such a way as to prevent contamination of all ground and surface waters.
 - 2. Petroleum products may be brought into the project area in self-contained fuel/service trucks for servicing on-site equipment. If the total volume of stored petroleum products is greater than 1,000 gallons, then the Contractor shall comply with Oregon State Fire Code requirements for above ground storage tanks including submitting site plan design, secondary containment, and drainage control to Engineer for review. Submittal of plan to Engineer does not relieve contractor of requirement to have AST approval by Oregon State Fire Marshall.
 - 3. If the total volume of stored petroleum products is greater than 1,000 gallons stored aboveground, the Contractor shall prepare a Spill Prevention Control and Countermeasure Plan consistent with applicable EPA and Oregon State Fire Marshall regulations.
 - 4. Used lubricating oil shall be discharged into steel drums and shall be returned to the supplier for disposal.

1.06 TRAFFIC AND SAFETY CONTROLS

A. The Contractor shall post construction areas and roads with traffic control signs or



devices used for protection of workmen, the public, and equipment. The signs or devices shall conform to the American National Standards Institute Manual on Uniform Traffic Control Devices for Streets and Highways, and the Standard Construction Specifications.

- B. Signs or traffic control devices shall be removed or covered as soon as they have served their purpose. It is particularly important to remove any markings on road surfaces that under conditions of poor visibility could cause a driver to turn off the road or into traffic moving in the opposite direction.
- C. Barricades for protection of employees shall conform to the portions of the American National Standards Institute Manual on Uniform Traffic Control Devices for Streets and Highways relating to barricades.
- D. Material Haul on Public Roads: All requirements stated in the permits shall be followed for using public roads for hauling materials to the Site.
- E. Flag persons, properly equipped with appropriate high-visibility protective clothing and flags, shall be provided at all such times, as necessary, to direct or divert haul truck traffic.
- F. The Contractor shall construct and maintain fences, planking, barricades, lights, shoring, and warning signs as required by local authorities and federal and state safety ordinances, and as required, to protect the property from injury or loss and as necessary for the protection of the public, and provide walks around any obstructions made in a public place for carrying on the work covered in this section. All such protection shall be left in place and maintained until removal is authorized.
- G. In addition, the Contractor shall guard and protect all workers, pedestrians, and the public from excavations, construction equipment, all obstructions, and other dangerous items or areas by means of adequate railings, temporary walks, barricades, warning signs, sirens, directional signs, overhead protection, planking, decking, danger lights, etc.

1.07 PROTECTION OF BIOLOGICAL RESOURCES

A. The contractor shall at no time enter any wetland areas.

1.08 AIR POLLUTION CONTROL

The Contractor shall comply with all air pollution control rules, regulations, ordinances, and statutes that apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances, and statutes, specified in Section 11017 of the Government Code.

A. HEAVY EQUIPMENT EMISSIONS:

1. The Contractor is responsible for attaining any necessary permits from the



ODEQ air quality for any and all equipment used for the project as needed.

B. POWER GENERATOR EMISSIONS:

1. The Contractor is responsible for obtaining all permits, complying with regulations, and performing all monitoring and reporting required by the use of fossil fuel powered electricity generators on the project.

1.09 MAINTENANCE

A. Contractor shall maintain all temporary controls in good working condition during the term of the Contract for the safe and efficient transport of equipment and supplies, and for construction of permanent works, as required by the Engineer.

1.10 STATUS OF COMPLETION

A. Upon completion of the work, or prior thereto, when so required by the Engineer, Contractor shall remove controls, and restore disturbed areas as required.

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SECTION 01 55 05

TRAFFIC PLAN

PART 1 GENERAL

1.01 SUMMARY

A. Section includes requirements for construction traffic planning and control.

1.02 REFERENCES

- A. County of Coos Standard Construction Specifications
- B. Oregon Department of Transportation Standard Specifications
- C. Manual on Uniform Traffic Control Devices (MUTCD) (Federal Highway Administration 2009)

1.03 PERMITS

- A. Encroachment permits shall be acquired by the Contractor from the County of Coos for the crossing of Trans Pacific Lane per the access figures shown on Construction Drawing C-1.
- B. Permits shall be obtained prior to the start of work.

1.04 SIGNS

- A. Temporary traffic signs will be installed immediately before work commences and removed immediately when they are no longer needed.
- B. Signs will be installed along Trans Pacific Lane to warn traffic in both directions of trucks crossing the road.
- C. All signs will conform to MUTCD and all applicable permits.

1.05 CONSTRUCTION TRAFFIC CONSTRAINTS

- A. All vehicles shall not exceed a speed of 15 miles per hour (mph) while onsite.
- B. Arriving trucks shall access Cell 3 through the gate shown on the access map of Construction Drawing C-1.



1.06 SPILLAGE

A. Spillage resulting from operations onsite and transporting of waste on any public traveled way, and at any location outside of the clean closure areas shall be removed immediately by the Contractor at the Contractor's expense.

SECTION 01 71 13

MOBILIZATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section covers the work necessary to move in personnel and equipment, and related support facilities necessary to prepare the Work area for construction. Provide the necessary bonding and insurance certificates required by the Contract Documents. Mobilization items include, but are not necessarily limited to:
 - 1. Mobilize equipment onto the site.
 - 2. Improve, if necessary, employee parking and provide water and worker sanitary facilities.
 - 3. Secure necessary bonding and insurance certificates as requirements by the Contract Documents.

B. Related Work Described Elsewhere

- 1. General Requirements: General, Supplemental, and Supplementary Conditions
- 2. Section 01 01 00 Summary of Work
- 3. Section 01 04 00 Layout of Survey
- 4. Section 01 05 00 Health and Safety
- 5. Section 01 06 00 Submittals
- 6. Section 01 07 00 Quality Control
- 7. Section 01 08 00 Construction Facilities
- 8. Section 01 09 00 Temporary Controls
- 9. Section 01 10 00 Traffic Plan
- 10. Section 01 11 00 Construction Cleaning
- 11. Section 01 12 00 Project Closeout



1.02 PRODUCT HANDLING

Protection

- A. Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the Work.
- B. Where survey points established by Engineer are damaged or moved by Contractor, Contractor shall re-establish points at no additional cost to the Owner.
- C. Comply with requirements of set forth in the project Health and Safety Plan for worker protection.

1.03 MEETINGS

The contractor will be required to attend preconstruction kick off, weekly progress, and resolution meetings.

PART 2 PRODUCTS

2.01 UTILITIES

A. General

Provide and pay all costs for temporary water, electricity, and telephone required for the performance of the Work.

D. Water

1. All costs for water, both temporary and permanent, used during construction, testing, and up until the time of final acceptance by the Owner, shall be paid for by the Contractor. Coordination may be done through the Coos Bay-North Bend Water Board (541) 267-3128.

E. Temporary Electricity

- 1. Make all arrangements and pay all operating costs for electrical power used during construction, testing, and up to the time of final acceptance by the Owner.
- 2. Pay for all services associated with the temporary power.

2.02 SANITARY FACILITIES

The contractor will be required to furnish and install temporary toilet buildings with separate sanitary toilets for male and female workers; comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain a sanitary condition at all times.



2.03 MONUMENT PRESERVATION

Contractor is responsible for preservation and/or perpetuation of all existing monuments, which control subdivisions, tracts, boundaries, streets, highways, or other rights-of-way, easements, or provide survey control, which will be disturbed or removed due to Contractor's work. Contractor shall provide a minimum of 10 working days notice to Engineer prior to disturbance or removal of existing monuments and file the required documentation with the Coos County Surveyor.

PART 3 EXECUTION

3.01 REMOVAL

Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work; remove all such temporary facilities and controls as rapidly as progress of the Work will permit or as directed by the Engineer.



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SECTION 01 71 14

DEMOBILIZATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work required under this section includes site grading and demobilization from the site subjected to work under the terms of the Contract.
- B. At completion of all work, the Contractor shall remove all waste materials, tools, equipment, machinery, surplus materials and clean all exposed surfaces; leave property clean and ready for future work.

1.03 FINAL CLEANING AND DEMOBILIZATION

- A. Contractor shall leave the landfill cell area with a smooth sandy surface to grades and lines shown in Drawings.
- B. The Loading Stations shall be left in place including the stacked block walls, the axle scale, and the paved access road.
- C. The Contractor shall remove all surplus materials, rubbish, tools, equipment, machinery, truck wash, and clean all site exposed surfaces leaving the entire project area clean.
- D. Graveled covered roads and parking areas and culverts installed for this project shall be left in place.
- E. The Contractor shall remove all dust, mud spoils, and construction debris from all roadways, ditches and shoulders.
- F. If the Contractor does not properly clean up (in the opinion of the Engineer or the Owner), then upon forty-eight (48) hours notice to the Contractor, the Owner shall have the option of using other forces to perform the Work and the cost of such Work will be borne by the Contractor and will be withheld from the Contract Sum.



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SECTION 01 74 00

CONSTRUCTION CLEANING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Cleaning during construction.
 - 2. Final cleaning of site prior to acceptance of the project by the Engineer.
- B. The requirements specified in this section are supplemental to the requirements specified in the General Specifications.

1.02 GENERAL

- A. It is required that the entire project site be kept in a neat and orderly condition, and the Engineer may, at any time during construction, order a general cleanup of the Site as a part of the work under this section.
- B. Contractor shall dispose of waste, trash, and debris in a safe, acceptable manner, consistent with applicable laws and ordinances and as prescribed by authorities having jurisdiction. Non-hazardous municipal solid waste that is produced on site must be disposed of off-site on a weekly basis at a Class III landfill. Burning of cleared material and debris on the Site will not be permitted.

1.03 CLEAN UP DURING CONSTRUCTION

- A. Cleanup: The Contractor will be required to clean up construction work areas including all office facilities and dispose of waste material. Cleanup of construction work areas will be required on a daily basis. At the close of each day's work, all small quantities of waste and debris resulting from construction activities and from office facilities shall be gathered up and disposed of as designated in paragraph B below. Waste and debris shall not be allowed to accumulate in such quantities as to create an unsightly appearance, or safety or fire hazard, nor shall it interfere in any way with free access to, and operation of, existing facilities.
- B. Waste Disposal: The Contractor shall provide suitable receptacles for all construction and office waste material such as wrapping paper, discarded containers, scrap lumber, scrap metals, etc.

1.04 FINAL SITE CLEANUP

A. Prior to final inspection, the entire Site shall be thoroughly cleaned and shall be put



into a neat, acceptable condition. All construction waste and unused materials, and debris of any description resulting from the work shall be removed from the entire Site.

- B. All pavements and paved walks shall be swept clean and hosed down where necessary.
- C. All construction areas shall be thoroughly cleaned to the satisfaction of the Engineer.
- D. See Section 01 13 00 for additional final cleaning.



SECTION 01 77 00

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 GENERAL

- A. Comply with requirements stated in Contract Forms, Contract Requirements, and General Requirements, and in Specifications for administrative procedures in closing out the Work.
- B. The Engineer shall prepare a punch list when notified in writing by the Contractor that work is completed. (Note: Failure of Engineer to include any items on punch list does not alter the Contractor's responsibility to complete the work in accordance with the Contract Documents.) Deliver all items called for herein and under various Specifications sections to the Engineer at the completion of the work. Receipt of items is necessary to permit the release of the project completion notice.

1.02 FINAL INSPECTION

A. Prior to substantial completion and following receipt of written notice and final application for payment (but not retainable), the Engineer will make the inspection and issue a work list. Related agency representatives and Owner will be present at this inspection. When the final work list has been made and those items have been picked up, the Engineer will authorize the execution of the memorandum for acceptance.

1.03 FINAL APPLICATION FOR PAYMENT

B. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract. Contractor shall refer to General Conditions Section and as modified in the Supplemental General Conditions for requirements pertaining to affidavits required for final completion and acceptance by Owner.

PART 2 MATERIALS

2.01 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project record documents including the following:
 - 1. Topographic Surveys
 - 2. Drawings
 - 3. Specifications
 - 4. Addenda

- 5. Change Orders and other modifications to the Contract
- 6. Engineer's Field Orders or written instructions
- 7. Approved Shop Drawings and Product Data
- 8. All physical and electronic haul load weight tickets for waste, concrete, steel, etc.
- 9. Construction photographs
- B. Evidence of payment and release of liens: As specified in the General and Supplementary Conditions.

PART 3 EXECUTION

3.01 GENERAL

- A. At Contract closeout, deliver Record Documents to Engineer for Owner.
- B. Accompany submittal with transmittal letter in duplicate, containing:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor's name and address
 - 4. Title and number of each Record Document
 - 5. Signature of Contractor or his authorized representative

DIVISION 02 00 00

SITE CONDITIONS



J1-000-CIV-RPT-SHN-00009-00

SECTION 02 00 00

DIVISION 2 - SITE CONDITIONS

| <u>SECTION</u> | TITLE |
|----------------|---------------------------------------------|
| 02 60 00 | EXCAVATION AND PROCESSING DEMOLITION DEBRIS |
| 02 60 05 | TRANSPORT AND DISPOSAL OF WASTE |
| 02 60 10 | GROUTING AND ABANDON PIPING |
| 02 61 00 | EXCAVATION AND LOADING WASTE |

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SECTION 02 60 00

EXCAVATION AND PROCESSING DEMOLITION DEBRIS

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section covers the work necessary to excavate the demolition debris, process and segregate concrete and recyclable metal. Excavation and processing required for this Work include, but are not necessarily limited to:
 - 1. Excavate the demolition waste from the landfill.
 - 2. Separate the concrete, (plus 6-inch diameter size) and metal from the waste.
 - 3. Transport the concrete to an onsite stockpile area, weighing the material on the full-length scales, located on site, on the way to the stockpile area.
 - 4. Recycle the metal, weighing the material on the full-length scales located on site, prior to transporting to the recycler.
- B. Related Work Described Elsewhere
 - 1. General Requirements: General, Supplemental, and Supplementary Conditions
 - 2. Section 01 01 00: Summary of Work
 - 3. Section 01 35 29: Project Health and Safety Plan

1.02 PRODUCT HANDLING

Protection

A. The Contractor shall follow all the safety protocols in their accepted Site Safety Plan for excavating and handling the demolition debris. All employees shall be aware of the health and safety requirements, the site superintendent shall monitor that their employees follow safety requirements.

PART 2 EXECUTION

3.01 EXCAVATION

A. Contractor shall furnish all necessary equipment to excavate the demolition debris from the landfill.



- B. Unanticipated waste types, that may be potentially hazardous, should be set aside on the landfill footprint for further characterization by the Engineer. Such wastes may have unanticipated color, odor or other characteristics otherwise different than the characterized waste mound. If Engineer determines the waste are not hazardous, load and transport waste.
- C. Saturated waste see Section 02 60 00 Excavation Loading Waste
- D. Decontamination of transport trucks prior to leaving Cell 3 area see Section 02 60 00 Article 2.03.

2.02 PROCESSING AND RECYCLING

- A. Separate recyclable metals and concrete greater than generally 6-inch diameter size. Separated concrete and metal shall not be able pass through a 6-inch square screen.
- B. Steel rebar protruding from concrete must be cut to within 6-inches of the concrete.
- C. Load and transport concrete to an onsite stockpile shown on Drawings.
- D. Load and transport metal to an approved, off site recycling facility. Contractor may retain any revenue derived from the metal recycling.
- E. The Contractor shall produce weight tickets for all metal taken off site and all concrete transported to stockpile area. A digital and hard copy of the weight ticket shall be given to given to the Engineer, or their representative. Contractor shall provide an excel spreadsheet of weight tickets.

END OF SECTION



SECTION 02 60 05

TRANSPORT AND DISPOSAL OF WASTE

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section covers the work necessary to transport the waste from the Jordan Cove Landfill Cell 3 to a Municipal Solid Waste Class III Landfill in Oregon. Transporting required for this Work include, but are not necessarily limited to:
 - 1. Transport waste from waste from the Jordan Cove Landfill Cell 3, located on the North Spit in North Bend, Oregon to a DEQ permitted landfill located in Oregon.
 - 2. Unload waste at a Municipal Solid Waste Class III Landfill in Oregon.
- B. Related Work Described Elsewhere
 - 1. General Requirements: General, Supplemental, and Supplementary Conditions
 - 2. Section 01 01 00: Summary of Work

PART 2 EXECUTION

2.01 TRANSPORT

- A. Contractor shall furnish all necessary equipment to transport the waste to the Landfill. All loads must be covered with a tarp that shed water and prevent dust or debris from blowing out of the truck. No liquids may be leaking from the waste onto the road.
- B. All trucks shall be decontaminated prior to leaving the site.
- C. Each transfer truckload must have a waste manifest filled out upon loading to be matched with the weight ticket from the landfill.
- D. Transport waste to a Municipal Solid Waste Class III Landfill in Oregon.
- E. Weigh load and receive weight ticket from landfill to be attached to the waste manifest upon exiting the receiving landfill.
- F. Dispose of waste at a Municipal Solid Waste Class III Landfill in Oregon.



| G. | All waste manifests and landfill weight tickets must be provided to the Engineer, or their representative. Contractor shall also provide an excel spreadsheet of weight tickets. |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | ***END OF SECTION*** |
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SECTION 02 60 10

GROUT AND ABANDON PIPING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Section includes construction work necessary to abandon in place the leachate conveyance piping from Cell 3 to Settling Basin by filling the piping with grout.
 - 1. Based on record drawings, the existing pipe is 16 inches in diameter.
 - 2. The pipe shall be completely filled with grout the entire length.
- B. The work described in this section consist of furnishing all equipment, materials, tools, accessories, incidentals and labor necessary to abandon an existing pipe by pumping full of grout.

1.02 SUBMITTALS

- A. The Contractor shall submit material to be used to grout the leachate conveyance piping from Cell 3 to Settling Basin 1 to the Engineer for approval at least 14 days before Contractor intends to place this material. Section includes construction work necessary to abandon in place the leachate conveyance.
 - 1. Product Data Sheet for the cement bentonite grout.

PART 2 PRODUCTS

1.01 MATERIALS

- A. Grout shall be used to seal leachate conveyance piping for abandonment. Grout shall consist of Portland Type II cement grout, mixed in a ratio of 94 pounds (one bag) of cement to 5 gallons of water with 3-5% by weight bentonite powder. The water used to mix the cement shall be clean.
- B. The mixture, method of mixing, and consistency of the cement-bentonite grout shall be reviewed by the Engineer.
- C. Provide vents, tremie pipe, and fill pipe as required to completely fill pipe.

EXECUTION

1.02 GROUTING

A. Contractor shall furnish all necessary equipment to seal both ends of the pipe and supply pressurized grout to the existing pipe to completely fill the pipe.

Grouting shall happen in one continuous pumping. В. ***END OF SECTION***

SECTION 02 61 00

EXCAVATION AND LOADING WASTE

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section covers the work necessary to excavate the solid waste and load the material along with the processed demolition debris into the transfer trailers. Excavation and loading occurs during two regulatory phases, an "Operational Phase" and a "Closure Phase".
 - 1. Operational phase work includes excavating <u>dry</u> waste material from Cell 3; facilitating sampling and testing of waste below the operational phase layer, preparation for dewatering work and temporary tarp liner as described elsewhere in these Specifications.
 - 2. Closure phase work includes excavating <u>dried</u> waste material from Cell 3 including waste layer dewatered during the previous interim wet season, removal of the operations phase cover and dewatering system, leachate collection layer, leachate collection piping, and HDPE liner. Waste to be removed shall include the non-woven geotextile covering the leachate collection layer.
 - 3. Load transfer trucks and trailers during both phases of work with the waste and processed demolition debris.
 - a. Excavate and load waste in phases corresponding to the Operations Phase and Clean Closure Phase schedule and Contract Milestones as described in the Agreement.
 - b. Provide interim dewatering system and temporary cover tarp during wet season (November 1 to April 31).
 - 4. Dewatering of waste during interim wet season will continue uninterrupted until Clean Closure Phase commences. Direct dewatering discharge to Settling Basin 1.
- B. Related Work Described Elsewhere
 - 1. General Requirements: General, Supplemental, and Supplementary Conditions
 - 2. Section 01 01 00: Summary of Work



- 3. Section 31 19 01: Dewatering Trench
- 4. Section 31 19 01.01 Dewatering
- 5. Section 33 47 13 Temporary Cover Tarp

1.02 PRODUCT HANDLING

- A. The Contractor shall follow all the safety protocols in their accepted Site Safety Plan for excavating and handling the solid waste. All employees shall be aware of the hazards and safety requirements. Contractor shall maintain site safety requirements.
- B. The Contractor is advised there are health hazards associated with the excavation and handling of waste containing debris, ash, and possible contaminated soils. The Contractor is responsible for reviewing referenced investigations, studies, and reports, developing a Site Specific Health & Safety Plan for all persons directly or indirectly retained to enter the project area, and implementing appropriate safety measures, including but not limited to:
 - 1. Measures to limit inhalation and ingestion by contact with the waste residues by direct contact or generated dust.
 - 2. Use of enclosed equipment to excavate, dose, or load waste.
 - 3. Use of spray equipment to control the generation of dust and decontaminate trucks and equipment before leaving the Cell 3.
- C. The waste material may contain materials that can damage rubber tires on equipment.

1.03 SUBMITALS

- A. Contractor proposed dewatering plan
- B. Site Specific Health & Safety Plan

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.01 GENERAL

Contractor shall furnish all necessary equipment and labor to excavate, load, and haul all waste material from landfill Cell 3, including but not limited to, ash, metal, plastics, and sludge; temporary piping and tarps not salvaged by Contractor; non-woven geotextile covering the leachate collection layer, sandy leachate collection layer, leachate collection piping, and HDPE liner.



3.02 EXCAVATION

- A. Contractor shall excavate and load Cell 3 materials during the Operational Phase and Final Closure Phase of the landfill.
- B. Contractor shall coordinate with Engineer 30 days prior to the anticipated Operations Phase completion, and assist Engineer collect samples of potentially saturated wastes remaining in Cell 3. Waste will be excavated and sampled at depths near the leachate collection system level. Waste will be tested for saturation level and dewatering characteristics. Following sampling, Contractor shall backfill pothole with waste material.
- C. Unanticipated waste types, that may be potentially hazardous, should be set aside on the landfill footprint for further characterization by the Engineer. Such wastes may have unanticipated color, odor or other characteristics otherwise different than the characterized waste mound. An interim cover shall be installed over segregated waste within 48 hours of segregating materials. Once Engineer determines the waste are not hazardous, load and haul waste.
- D. Saturated waste is anticipated to be encountered at the end of the operations phase excavations. Saturated waste may be located at any elevation within the landfill, but should be expected in the lower elevations of Cell 3. Saturated waste shall not be loaded for transport.
- E. The contractor will be required to de-water waste prior to loading into transfer trucks. Engineer will sample waste loaded in trailers using EPAs free water test method 9095B. Test frequency will be determined based on visual observation.
- F. The Contractor shall submit any requested modification to the dewatering plan or samples and tests required to refine proposed dewatering system. The final dewatering plan to be submitted by Contractor for review by the Engineer.
- G. Waste rejected from transport because of a failed free water test may be placed in processing area of Cell 3 (northwest side where the existing leachate collection system exists).
- H. If waste dries out to the point that blowing dust may become a problem, Contractor shall provide a surface irrigation system to apply water over the exposed waste to wet the material and reduce the risk of blowing dust. Use of water spray should not generate additional leachate percolating through the waste. Water may not be used to add additional weight to the waste being loaded and hauled. Water use shall be subject to the Engineer's approval.



3.03 TESTING

Engineer will conduct free water test as described in Table 02 61 00-1

| Table 02 61 00-1 | | | |
|-------------------------------------------------------------------|-------------------------------|-----------|--|
| Waste Testing | | | |
| Test Type | Test Designation ¹ | Frequency | |
| Free Water Testing Method 9095B To be determined | | | |
| 1. Test demonstrating compliance with 40 CFR 264.314 and 265.314. | | | |

3.04 LOADING

- A. Contractor, at its sole cost and expense, shall load each truck to legal axle and total weight limits using the loading stations along the landfill access road shown in plans.
- B. Contractor shall use two scales to load the transfer trucks. One scale shall be used to load the transport truck to weight limit and the second shall be used to balance the load on the transfer trucks axles.
- C. Except as otherwise agreed in writing by Contractor and Owner, landfill Cell 3 will be available to the Contractor to cause transport vehicles to be loaded with acceptable waste from 4:00 a.m. to 5:00 p.m. Site will be available to the Contractor seven days of the week.
- D. Trucks must not leak liquid after loading throughout the entire transportation route.
- E. All trucks loads must be tarped after loading and before leaving the site.
- F. All trucks shall be decontaminated prior to leaving the site.
- G. Truck decontamination shall include dry-brushing to remove gross residue buildup from the loading bucket and pass through pressure washing truck system. The pressure washing truck system shall be fitted with an oil water separator prior to the wash water being discharged to the site.
- H. The Contractor shall provide pressure washing decontamination truck system. Wash water maybe disposed of into Settling Pond 1. Prior to installation of the pressure washing decontamination truck system shall be approved by the Engineer.
- I. All trucks shall be visually inspected to verify no debris retention in tire treads before exiting the decontamination area.

3.05. CLEAN CLOSURE EXCAVATION

A. Following removal of Cell 3 contents including all components of the leachate liner system, Contractor shall assist Engineer in conducting clean closure sampling by



- providing labor and equipment to excavate shallow test pits in area previously under the Cell 3 foot print.
- B. Excavation will be conducted at random locations as directed by the Engineer.

3.05. CONFIRMATION SAMPLING FOR CLEAN CLOSURE

- A. Following excavation to remove all waste, leachate system and HDPE liner from Cell 3 for clean closure the Engineer will proceed with confirmation sampling for excavated area of Cell 3.
- B. Engineer will implement the confirmation sampling on an expedited basis, and provide verification for adequate removal of residues, or provide the location of specific areas requiring additional material excavations, and subsequent confirmation sampling steps.
- C. It is anticipated 5 to 7 days will be necessary for each confirmation sampling event, including receipt of test results.
- D. Excavate load and haul material contaminated with landfill residues.

END OF SECTION



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DIVISION 31 00 00

EARTHWORKS



J1-000-CIV-RPT-SHN-00009-00

SECTION 31 00 00

DIVISION 31 - EARTHWORK

| <u>SECTION</u> | <u>TITLE</u> |
|----------------|--------------|
|----------------|--------------|

| 31 00 00 | SITE EARTHWORK |
|----------|----------------|
| | |

31 32 19 DE-WATERING TRENCH

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SECTION 31 00 00

SITE EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

- 1. Section includes excavating, transporting, and placing borrow material for
 - a. Temporary cover tarp subgrade
 - b. Trench fills
 - c. Earthfill incorporated into final grading

1.02 REFERENCES

- A. American Society for Testing and Materials:
 - 1. D422 Method of Particle-size Analysis of Soils
 - 2. D1557 Test Method for Moisture Density Relations of Soils and Soilaggregate Mixtures Using 10-pound (4.54 kilograms) Hammer and 18-inch (457 millimeters) Drop
 - 3. D2216 Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
 - 4. D2487 Standard Test Method for Classification of Soils for Engineering Purposes
 - 5. D2488 Standard Practice for Description and Identification of Soils (Visual-manual Procedure)
 - 6. D4643 Standard Test Method for Determination of Water (Moisture) Content of Soil by the Microwave Oven Method
 - 7. D4959 Test Method for Determination of Water (Moisture) Content of Soil by the Direct Heating Method
 - 8. D6938 Standard Test Method for In-place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth)
- B. State of Oregon, Department of Transportation, Standard Specifications, 2018

1.03 QUALITY ASSURANCE

A. The Engineer will conduct construction property tests on fill materials as outlined in Tables 30 00 00-1, 30 00 00-2, 30 00 00-3, and 30 00 00-4.



- B. Contractor shall provide Engineer access and assist acquiring samples for routine and special waste testing. Special testing will be performed on waste samples acquired from the bottom of the cell and soil samples collected from areas currently under the leachate collection system.
- C. The Contractor shall provide labor and equipment to assist Engineer excavate test pits in borrow soils, waste, and under-liner soils. The Engineer may direct that inspection trenches or test pits be cut into fills or the waste mound. Such trenches or pits will be of limited depth and size, and shall be backfilled with the material excavated there from or earthfill material from the borrow area. Earthfill used as backfill shall be compacted to a density specified in Table 31 00 00-03.
- D. Methods of Sampling and Testing:
 - 1. In-place Density: ASTM D6938
 - 2. Moisture Content: ASTM D2216, D4643, D4959, D6938
 - 3. Laboratory Moisture-density Relations: D1557
 - 4. Classification of Soils: ASTM D2487, D2488
- E. Suitability of Materials: The suitability of all materials will be determined by the Engineer. Fill material shall be approved material from onsite excavations. Table 31 00 00-4 summarizes the minimum soil material properties.
- F. The Engineer may direct that inspection trenches or test pits be cut into fills to sample waste. Such trenches or pits will be of limited depth and size, and shall be backfilled with the material excavated there from or earthfill material from the borrow area. Earthfill used as backfill shall be compacted to a density specified in Table 31 00 00-03.

PART 2 PRODUCTS

2.01 GENERAL

- A. Where Plans reference sand or other earthfill material, Contractor shall obtain fill from the on-site borrow area.
- B. All fill materials shall be free of organic and other deleterious materials as determined by the by Engineer.
- C. Properties and testing procedures for earthwork materials are summarized on Tables 31 00 00-1 through 31 00 00-4.



2.02 EARTHFILL

- A. Sources: On-site borrow excavation area shown on Construction Drawings.
- B. Consist of clean sandy material.
- C. Maximum particle size 4 inches.

PART 3 EXECUTION

3.01 EARTHWORK GENERAL

- A. Contractor shall set up and maintain controls to monitor required lines, levels, contours, and datum in fill and borrow areas before the start of earthwork operations.
- B. Earthwork shall conform to lines and grades indicated on the Construction Drawings and as specified in this section.
- C. Materials excavated that conform to this Specification shall be selectively excavated and used as fill and/or stockpiled as designed on the Drawings for later use.
- D. Excavation and earthwork grades shall be constructed and maintained to provide drainage during construction.
- E. Contractor will be responsible for providing erosion control and stormwater management in borrow areas during construction.
- F. Care shall be taken during earthwork operations to avoid damaging surrounding vegetation components of the closure construction. Damage caused by the Contractor shall be repaired at the Contractor's expense consistent with the applicable specification requirements.

3.02 EXCAVATION

A. General:

- 1. Excavation shall be conducted in areas and to the grades shown on the plans.
- 2. At all times, the Contractor shall conduct operations in such a manner as to prevent freestanding water.
- 3. The Contractor shall excavate material from the borrow excavation area and place material in trench fill areas, under tarp as subgrade, or at the site in a designated stockpile area, as approved by the Engineer.
- 4. Adequate working space shall be provided within limits of the borrow area excavation for personnel safety.



- 5. Except as otherwise noted, care shall be exercised to preserve the material below and beyond the lines of all excavation. Where excavation is carried below grade, the Contractor shall excavate to the required grade and backfill with material conforming to the requirements of Table 31 00 00-3 for placement, lift thickness, placement tolerance, subgrade and lift compaction, moisture content, and test methods.
- 6. Any excavation to be carried out for the convenience of the Contractor shall conform to the limits approved by the Engineer and shall be at no additional expense to the Jordan Cove LNG.
- 7. Excavated material shall be placed at sufficient distance from the edge of excavations to prevent cave-ins or bank slides. Side slopes of excavations shall be no steeper than 2:1 (horizontal:vertical) unless otherwise noted.

B. Depressions:

1. Do not excavate below grade to create a depression that retains water.

3.04 USE OF EXCAVATED MATERIALS

A. Excavated Materials:

- 1. Materials excavated from the site shall be used as fill for construction of various features including interim cover leveling course, final site grading, or anchor and drainage trench fill. Stockpile soils at locations designated by the Engineer.
- 2. Where used in fills, such material shall be transported directly from the excavation and placed in its final position whenever possible. If required by the Contractor's schedule, the material may be placed temporarily in stockpiles at approved locations.
- 3. Stockpiles shall be bordered by erosion control measures as required by the site's erosion control plan.

B. Excess/Oversized Unsuitable Materials:

1. Excess excavated materials, oversized materials, or materials unsuitable for use as fill shall be placed at locations designated by the Engineer.

3.05 EARTHFILL CONSTRUCTION

A. General Requirements:

- 1. Materials shall be placed and compacted to the lines and grades shown on the Construction Drawings or as required by the Engineer.
- 2. If any portion of the materials placed as fill does not meet the specified requirements, the Contractor shall remove such material and replace it with



fill materials meeting the Specifications at no additional cost to the Owner.

3. Constructed fills shall be maintained to meet the requirements of this Specification until final completion and acceptance of the work. This shall include all measures to prevent erosion. During the wet season shut down, grade all exposed surfaces as shown on the plans. Place Earth fill in lifts to cover the remaining waste layer and create an even surface to place the cover tarp and sand bag anchoring system

B. Earthfill Placement:

- 1. Material shall not be placed on any portion of the subgrade or against or upon any structure until consent to place such fill has been obtained from the Engineer.
- 2. Conform to the requirements of Table 31 00 00-3 for placement, lift thickness, placement tolerance, sub grade and lift compaction, moisture content, and test methods.
- 3. Prior to placement of materials, the in-place underlying material shall be graded to receive the fill material.
- 4. Materials may require moisture conditioning (wetting or drying) prior to placement and compaction. Moisture-conditioning requirements shall be as specified in Table 31 00 00-3.
- 5. Materials shall be placed in continuous and approximately horizontal lifts for their full length and width, unless otherwise specified or specifically permitted by the Engineer.
- 6. Method of dumping and spreading materials shall ensure uniform distribution of the material.
- 7. Loose thickness of each lift of materials shall be as specified in Table 31 00 00-3.
- 8. Unless otherwise indicated, earthfill materials shall be placed to a grade no flatter than 2 percent to facilitate drainage of water. In areas where ponding cannot be prevented or ponding has occurred and fill is required to be placed, placing shall begin only after the area is dewatered and permission is obtained from the Engineer.

C. Compaction Requirements:

- 1. Each lift of Earthfill material shall be compacted as specified in Table 31 00 00-3.
- 2. During compaction, the moisture content range of the Earthfill shall be maintained relative to the ASTM D1557 optimum moisture content as specified in Table 31 00 00-3. A uniform moisture distribution shall be



- obtained by disking, blading, or other methods approved by the Engineer prior to compaction of a lift.
- 3. Fill compacted less than specified, or fill compacted at moisture contents outside the specified acceptable range of moisture content shall be reworked to meet the compaction and moisture requirements or removed and replaced by acceptable fill compacted to meet these requirements.
- 4. Compaction equipment shall be approved by the Engineer.

3.06 PREPARATION OF SUBGRADE

A. Subgrade below existing leachate system shall be scarified to a minimum depth of 6 inches, moisture conditioned, Earthfill added to fill depressions, and compacted as specified in Table 31 00 00-3.

3.01 PROTECTION OF EXPOSED SURFACES DURING TEMPORARY SUSPENSION OF WORK

- A. When the Engineer deems it necessary to suspend the work due to unsuitable weather, or any other conditions the Engineer considers unfavorable for the suitable prosecution of the work; the Contractor shall comply with the following provisions:
 - 1. For excavated or filled areas, or stockpiles placed by the Contractor, the Contractor shall provide labor, materials, and equipment to maintain and protect exposed surfaces of cut and fill areas against wind and water erosion. The Contractor shall be responsible for protective method effectiveness.

3.07 FIELD QUALITY ASSURANCE

- A. The Engineer will take samples and perform tests throughout the construction period, and the Contractor shall cooperate in providing access for the Engineer to areas where testing is to be performed.
- B. The Engineer will perform the tests listed in Table 31 00 00-1 and 2 on a regular basis when borrow fill is used on site. These tests are a minimum requirement. Additional tests may be performed at the Engineer's discretion.
- C. Placement tolerance shall be as specified in Table 31 00 00-3.

| Table 31 00 00-1 Landfill Material Evaluation Minimum Testing Frequency | | |
|----------------------------------------------------------------------------|------------|--|
| ASTM Test Designation ¹ | Waste (cy) | |
| D2488 (Visual Soil Description) | 10,000 | |
| D1557 (Maximum Density) | 10,000 | |
| Free Water Testing 1 in 10 loads ² | | |
| ¹ Minimum one test per material type | | |
| ² More frequent testing may be performed | | |



| Table 31 00 00-2 Soil Construction Testing Frequency | | |
|---------------------------------------------------------|----------------|--|
| ASTM Test Designation ¹ | Earthfill (cy) | |
| D2216/D4643 (Moisture Content) | 1,000 | |
| D1557 (Maximum Density) 1,000 | | |
| ¹ Minimum one test per material type | | |

| | Table 31 00 00-3 Fill Placement and Compaction | | | | |
|--------------------------------------|------------------------------------------------|---------------------|-----------------------------------------------|-------------------|--------------------------------|
| Fill | Maximum Loose Lift Thickness (in.) | Moisture Content | Minimum Subgrade and Lift Compaction | Method of Test | Finish Grade Tolerance (ft) |
| Tarp Cover Subgrade | 8 | ±3% of Optimum | 85% | ASTM D1557 | ±0.25 |
| Under liner Subgrade | NA | ±3% of Optimum | 90% | ASTM D1557 | ±0.25 |
| Earthfill- backfill | 12 | ±3% of Optimum | 90% | ASTM D1557 | ±0.5 |
| Earthfill- anchor trenches | 8 | ±3% of Optimum | 92% | ASTM D1557 | |
| Earthfill- dewatering trenches | | | 80% | ASTM D1557 | ±0.5 |

| Table 31 00 00-4 Fill Placement and Compaction | | | |
|------------------------------------------------|-------|-----------------------------|--|
| Material and Property Test Requirements | | | |
| Earthfill | | | |
| Maximum Particle Size | D422 | 4 inches | |
| USCS Classification | D2488 | Sand, silty sand, gravel or | |
| | | mixture of thereof | |

END OF SECTION



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SECTION 31 23 19.01

DEWATERING

PART 1 GENERAL

1.01 SUBMITTALS

- A. Informational Submittals:
 - 1. Water control plan.
 - 2. Flow Measurements: Submit monthly record.

1.02 DEWATERING PUMP FLOW WATER CONTROL PLAN

- A. As a minimum, include:
 - 1. Descriptions of proposed water and surface water control facilities including, but not limited to, equipment; methods; standby equipment and power supply, means of measuring pumping rates, pollution control facilities, discharge location in Settlement Pond 1, and provisions for immediate temporary water supply as required by this section.
 - 2. Drawings showing locations, dimensions, and relationships of elements of each system.
 - 3. Design calculations demonstrating adequacy of proposed dewatering systems and components.
- B. If system is modified during installation or operation, revise or amend and resubmit Water Control Plan.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Provide continuously controlled water drainage system during the wet weather season period. Water control system shall operate autonomously continuously and dewater lower layer of Cell 3 over wet season hiatus in work. Pumps shall operate daily, including weekends and holidays. Provide adequate backup systems to maintain control of water.



- B. Remove and control water during wet weather season.
- C. System shall operate continuously under tarp cover for period indicated.

3.02 SURFACE WATER CONTROL

- A. See Section 01 50 00, Temporary Facilities and Controls, Article Temporary Controls.
- B. Install dewatering trenches, dewatering system, and tarp cover.
- C. Remove tarp cover and dewatering system prior to initiating Phase II waste removal (final removal and clean closure).

3.03 DEWATERING SYSTEMS

- A. Provide, operate, and maintain dewatering systems of sufficient size and capacity to lower and maintain groundwater level at the level of the leachate system or below the lowest point of dewatering trench excavations.

 Continuously maintain system operation.
- B. Active dewatering systems shall include wells or well points, and other equipment and appurtenances installed outside limits of Cell 3. Water removal system shall be located sufficiently below lowest point of trenchless drains or to top of leachate collection system.
- C. Design and Operate Dewatering Systems:
 - 1. To prevent loss of ground as water is removed.
 - 2. Avoid inducing settlement or damage to existing facilities, completed Work, or adjacent property.
 - 3. To dry saturated waste to allow transport in subsequent waste removal and final closure phase.
- D. Provide sufficient redundancy in each system to keep control of water in event of component failure.
- E. Provide 100 percent emergency power backup with automatic startup and switchover in event of electrical power failure.
- F. Provide supplemental trenches and integrate active dewatering sumps to collect and convey water from waste to Settlement Pond 1.



3.04 MONITORING WELLS

- A. Monitoring Groundwater Levels: Install and monitor observation wells at locations approved by the Engineer to demonstrate depth of water in lower cell. Measure water levels observed in each observation well weekly and whenever system or component failures are discovered and whenever any event, including but not limited to floods, storms, or changes in water surface elevation of nearby water bodies, may have caused a change in the groundwater elevation.
- B. After groundwater level observation wells are no longer needed for monitoring groundwater levels, abandon observation wells.

3.05 SETTLEMENT

A. Monitoring Dewatering-Induced Settlement: Establish monuments for monitoring settlement at locations approved by the Engineer. Monitor vertical movement of each settlement monument, relative to remote benchmark selected by Engineer, each day of dewatering operations.

3.06 MONITORING FLOWS

A. Monitor volume of water pumped per week from dewatering system. Monitor flows using measuring devices acceptable to Engineer.

3.07 DISPOSAL OF WATER

- A. Discharge dewatering pumps to Settlement Pond 1.
- B. Discharge water in manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.

END OF SECTION



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SECTION 31 23 19

SITE DE-WATERING

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section covers the work necessary to excavate waste to create a de-watering trench into the landfill, placement of perforated pipe and backfill. Excavation and placement required for this Work include, but are not necessarily limited to:
 - 1. Excavation of waste from landfill Cell 3 including the ash/sludge/plastic/construction debris waste to create trench.
 - 2. Stockpiling of excavated saturated waste
 - 3. Excavation and transport of onsite borrow
 - 4. Placement of perforated pipe, unions, and tees
 - 5. Placement of backfill
 - 6. Connection into existing leach collection piping
- B. Related Work Described Elsewhere
 - 1. General Requirements: General, Supplemental, and Supplementary Conditions
 - 2. Section 01 01 00: Summary of Work
 - 3. Section 02 61 00: Excavation and Loading Waste
 - 4. Section 02 60 00: Excavation and Processing Demolition Debris
 - 5. Section 31 00 00: Earthwork

1.02 SUBMITTALS

Perforated Piping

- A. Product data: within 30 days after Contractor has received the Owner's Notice to Proceed, submit:
 - 1. Complete materials list of items proposed to be provided under this section.
 - 2. Complete data on source, size and quality.



3. Sufficient data to demonstrate compliance with the specified requirements.

PART 2 MATERIALS

2.01 MATERIALS

- A. Perforated pipe shall be a minimum of 4 inches in diameter.
- B. Perforated pipe shall be flexible and capable of being attached end to end while being assemble outside of the trench.
- C. Perforated pipe shall be equipped with a filter drain sock.
- D. Perforated pipe shall be cable of withstanding 20 feet of soil bearing pressure on top pipe without crushing.
- E. Perforated pipe shall be capable of joining to tees and unions.
- F. Backfill material shall be native sandy material from borrow area free of aggregate greater than 2 inches, vegetation, and deleterious matter.

PART 3 EXECUTION

3.01 GENRAL

- A. The following procedures shall be followed by Contractor in sequencing the Work:
 - 1. No more than one hundred fifty (150) feet of trench shall be left open at any time.
 - 2. The entire trench shall be backfilled to within fifty (50) feet of the open trench upon conclusion of each day's Work.
 - 3. The trench shall not be backfilled until the pipe installation is found acceptable by Engineer.
 - 4. Trench shall be backfilled within one hundred (100) feet of the pipe installation at all times.

3.02 OBSTRUCTIONS

A. Engineer may, if requested, make changes in the trench alignment to avoid major obstructions, if such alignment changes can be made within the Work limits without adversely affecting the intended function of the facility.

3.03 TRENCH EXCAVATION

A. Clearance:



- 1. The trench shall be excavated so that a minimum clearance of six (6) inches is maintained on each side of the pipe.
- 2. The bottom of the trench shall not come into contact with cell floor leachate collection system.
- B. Excavation of the trench to wider width for the contractors convenience shall be at the contractors own expense.
- C. Except as otherwise dictated by construction conditions, the excavation shall be of such dimensions as to allow for the proper pipe installation and to permit the construction of the necessary pipe connections.
- D. Care shall be taken to ensure that the trench has positive slope to promote drainage.
- E. Contractor shall stockpile excavated fully saturated waste in a safe manner with in Cell 3. Stockpiles shall be graded for proper drainage.
- F. Contractor shall place and grade the trench base to the proper grade ahead of pipe placement.

3.04 PIPE BEDDING

- A. After completion of the trench excavation and proper preparation of the trench floor, pipe shall be placed in bottom of trench and loose backfilled with borrow sand.
- B. Bedding shall be end dumped and left loose in the trench.

3.05 BACKFILL AND COMPACTION

A. Pipe:

- 1. The pipe trench shall be backfilled to grade as shown on the Plans.
- 2. The backfill shall be placed in no greater than 2 feet lifts.
- 3. Compaction of lifts is not required.
- 4. Backfilling shall be conducted at all times in a manner to prevent damage to the pipe.
- 5. Piping shall be assembled prior to placement into trench.
- 6. Piping shall be connected to dewatering system and discharged to Settling Basin 1 at the east end of the Cell 3.

END OF SECTION



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SECTION 32 00 00 EXTERIOR IMPROVEMENTS



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SECTION 32 00 00

DIVISION 32 - EXTERIOR IMPROVEMENTS

<u>SECTION</u> <u>TITLE</u>

32 92 19.16 HYDROSEEDING

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SECTION 32 92 19.16

HYDROSEEDING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work Hydroseeding includes preparing the areas to be vegetated, applying hydro mulch, seed, straw, and other materials as identified herein.
- B. Contractor shall hydroseed Cell 3 after final grading and in disturbed areas or areas as directed by the Engineer. Hydroseed shall include cleared, excavated and graded areas disturbed by Contractor operations within the project site.

1.02 SUBMITTALS

- A. Product data: within 30 days after Contractor has received the Owners Notice to Proceed, submit:
 - 1. Complete materials list of items proposed to be provided under this section.
 - 2. Complete data on source, size and quality.
 - 3. Sufficient data to demonstrate compliance with the specified requirements.
- B. The Contractor shall submit seed bag certification tags indicating the quantity and type of material used in the seeding installation.
- C. Warranty

1.03 WARRANTY FOR CELL 3 AND DISTURBED AREAS

- A. Warranty period of 1 year is applicable for Cell 3 and the borrow area, which includes all areas disturbed with earthwork activities.
- B. Contractor shall replant areas that do not produce ground cover within the warranty period at no expense to the Owner.
- C. Hydroseeded areas shall have a minimum of 50% coverage in one year's time.

PART 2 MATERIALS

2.01 MATERIALS

A. Materials shall be per Oregon Depart of Transportation (ODOT) Standard Specifications (2018) Part 01030 and 01040 unless specified differently in these



- technical specifications.
- B. Seed mix shall be Permanent Seeding Method D, per ODOT requirements.
- C. Plant seed shall have a maximum weed content of 0.5% of the aggregate of pure live seed and other material.
- D. Fertilizer shall be ammonium phosphate sulfate 22-16-8, and including a minimum of 2 percent sulfur or approved alternative.
- E. Mulch (fiber) shall meet the requirements of Section 01030.15 of the ODOT Standard Specifications 2015. Minimum of 3,000 lbs per acre.
- F. In addition to mulch, compost shall be applied and meet the requirements of Section 03010 of the ODOT Standard Specifications 2018 or approved alternative by the Engineer.
- G. Tackifier shall meet the requirements of Section 01030.16 of the ODOT Standard Specifications 2018. Liquid Minimum of 865 gallons per acre

PART 3 EXECUTION

3.01 PREPERATION OF SEEDING AREA

- A. Remove deleterious material.
- B. Remove soil lumps, ridges, and depressions.
- C. Cat walk surface in two direction perpendicular to each other to create favorable conditions for germination. Surface must be approved by Engineer prior to hydroseed placement.

3.02 APPLICATION

- A. Application shall be as done as possible after completing construction or as otherwise approved by the Engineer.
- B. If there is a delay in seeding, during which weeds grow or soil is washed out, the Contractor shall remove the weeds before sowing the seed, without additional compensation. Loosen soil immediately before seeding is begun, per 3.01 C of this Section.
- C. The application of the total seed amount will be verified by the weight of the seed delivered to the site, for use. Contractor shall not apply seed until the Engineer has verified the seed on site.
- D. Even distribution of the seed will be indicated by the even distribution of the hydroseed mix on the surface.



- E. Mix hydro mulch materials in a tank, with a built-in, continuous agitation and recirculating system of sufficient operating capacity to produce a homogeneous slurry, and a discharge system that will apply the slurry to designated areas at a continuous and uniform rate. The tank and all hoses shall have been rinsed thoroughly of all seed and chemicals before entering the project site.
- F. Prepare the slurry preparation at each site, and begin by adding water to the tank when the engine is at half-throttle. Good recirculation shall be established when the water level has reached the height of the agitator shaft; at this time seed shall be added; the wood cellulose fiber shall be added when the tank is at least 30 percent filled with water. The Contractor shall commence spraying once the tank is full.
- G. Slurry shall include a color agent such that the coverage of surfaces can be verified. The maximum duration for material retention in slurry shall be limited to:
 - 1. Seed in slurry \leq 30 minutes
 - 2. Wood fiber in slurry ≤ 2 hours
 - 3. Fertilizer in slurry ≤ 2 hours
- H. The Contractor shall spray designated areas with the slurry in a sweeping motion and in an arched stream, until a uniform coat is achieved with no slumping or shadowing and the material is spread at the required rate per acre.
- I. Apply seed and mulch evenly, at the minimum rate indicated herein.
- J. Apply slurry mixture within 4 hours of mixing. A slurry mixture that has not been applied by the Contractor within 4 hours after mixing shall be rejected and replaced at the Contractor's expense. In addition, all cost incurred for repair or replacement of bare, sparse, or damaged areas shall be the sole responsibility of the Contractor.
- K. No seed shall be added to the slurry mix until immediately prior to the beginning of the hydro mulching application.
- L. Hydro mulching equipment shall be equipped with a gear driven pump and paddle agitator. Agitation by recirculating of the pump will not be allowed.
- M. The time allowed between the placement of the seed in the hydro mulching tank and emptying of the hydro mulching tank shall not exceed 30 minutes.
- N. Hydro mulching shall be performed to provide a uniformly covered surface based on visual observation. The hydro mulched surface shall be free of bare spots and thin areas.
- O. Hydro mulching equipment shall minimize access paths and shall not cause tire ruts. If tire ruts in excess of 4 inches in depth are created by hydro mulching equipment,

Contractor shall notify Engineer. The rutted area shall be avoided by Contractor until the area has been repaired and/or graded or has become sufficiently dry and firm to resume hydro mulching operations. If rutting results from overwatering (saturation) by Contractor, Contractor shall repair these areas at no cost to Owner.

3.03 WEATHER REQUIREMENTS

- A. Contractor shall not hydroseed during unfavorable weather conditions, such as high winds, high temperatures, heavy rains or other conditions not conductive to seed placement or germination. When Work is interrupted by weather conditions, hydro mulching shall not resume until approved by the Engineer.
- B. Hydroseed shall be applied in either March 1 through May 15 and September 1 through October 31.

3.03 APPLICATION METHOD: SEED AND FIBER ONLY

A. Apply the following materials in a single application:

| Table 02 06 00-2 Application | | |
|---------------------------------|---------------------------------|--|
| Mix Application Rate | | |
| Plant Seed | Rate as shown in Table 020600-1 | |
| Fiber | 3,000 lb/acre | |
| Tacking Agent | 865 gallons/acre | |
| Compost | 4 cy/acre | |
| Fertilizer | 500 lb/acre | |
| Water | 3,000 gal. acre | |

- B. Plant seed shall have a maximum weed content of 0.5% of the aggregate of pure live seed and other material.
- C. Fertilizer shall be ammonium phosphate sulfate 22-16-8 or approved alternative.

3.04 PROTECTION

- A. Protect seeding area from damage.
- B. Repair damaged areas.

*** END OF SECTION ***



DIVISION 33 00 00 SITE UTILITIES

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SECTION 33 00 00

DIVISION 33 - SITE UTILITIES

<u>SECTION</u> <u>TITLE</u>

33 47 13 TEMPORARY COVER TARP

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SECTION 33 47 13

TEMPORARY COVER TARP

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes general criteria for String Reinforced LLDPE cover tarp and accessories.
- B. Contractor shall furnish all labor, materials, equipment and incidentals required and install complete, ready for use reinforced LLDPE tarps along with sand layer, sand bags, and anchor trench as shown on the Drawings and as specified herein.
- C. These Technical Specifications are intended to give a general description of what is required to install a temporary cover over the landfill during the wet season, but do not cover all details that will vary with the requirements of the site after the dry waste has been removed.
- D. Tarp sizes and placement shown on the plans may be adjusted to facilitate Contractor's proposed installation procedure.
- E. Related Sections
 - 1. Section 31 00 00 Site Earthwork.
 - 2. Section 31 23 19 De-Watering.

1.02 REFERENCES

A. ASTM D 751 - Standard Test Method for Coated Fabrics.

1.03 SUBMITTALS

- A. The Contractor shall provide the following submittals in accordance with Section 01 33 00 Submittal Procedures.
 - 1. Shop Drawing: Show size layout including tarp size, tarp placement, sand bag grid, and any special details.
 - 2. Product Data

Submit data on:

- a. Tarp materials
- b. Tarp size



- c. Tape material
- 3. Samples

Submit two samples of:

- a. Cover top material, 12 x 12 inch in size
- b. One roll of each adhesive tape proposed for project
- 4. Manufacturer's Installation Instructions: Submit any special procedures for liner installation.
- 5. Manufacturer's Certificates: Certify Products meet or exceed specified requirements.

1.04 QUALIFICATIONS

A. Contractor shall select liner Manufacturer specializing in manufacturing geomembrane lining products specified in this section with minimum three years documented experience.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Contractor shall transport, handle, store, and protect liner products per Manufacturer requirements.
- B. Transport and handle tarp with experienced labor and equipment approved by liner Manufacturer.
- C. Store products in dry areas and protect from exposure to elements.
- D. Do not use materials damaged during storage or handling.
- E. Provide special spreader bars, lifting devices, and labor as necessary to place liner on interim landfill surface.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Conduct operations in accordance with site safety plan.

PART 2 PRODUCTS

2.01 STRING-REINFORCED LLDPE LINER

- A. Manufacturers: Northwest Linings & Geotextile Products, Inc. or an approved equal.
- B. Material: String-Reinforced LLDPE Liner 8 mil Smooth White Surface, One Side with material properties as specified on the following page:



| PROPERTY | TEST METHOD | Minimum Average Valves |
|--------------------------------------|-------------|------------------------|
| | | 8 mil |
| Thickness*, mil | ASTM D 5199 | 8 |
| Mass per Unit Area - oz/yd.2 | ASTM D 751 | 5.5 |
| Color (1) | | W/B |
| Reinforcing Scrim Type | | 1000 Denier PET |
| Tensile Properties | ASTM D 7004 | |
| Maximum Strength MD (2), lb. (N) | | 72 (320) |
| Maximum Strength MD (3), lb. (N) | | 64 (285) |
| Tensile Properties | ASTM D 7003 | |
| Maximum Strength MD (2), ppi | | 38 |
| Maximum Strength MD (3), ppi | | 35 |
| Elongation at Peak Strength MD (2) % | | 20 |
| Elongation at Peak Strength MD (3) % | | 20 |
| Elongation at Film Break MD (2) % | | 540 |
| Elongation at Film Break MD (3) % | | 540 |
| Tear Resistance | ASTM D 5844 | |
| Tear Strength MD (2), lb. (N) | | 30 (133) |
| Tear Strength MD (3), lb. (N) | | 30 (133) |
| CBR Puncture Strength, 1b. (N) | ASTM D 6241 | 233 (1,036) |
| Water Vapor Transmission | ASTM E 96 | |
| WVTR, g/m²/day | Procedure A | .29 |
| Maximum Use Temperature, °F, (°C) | | 186 (86) |
| Minimum Use Temperature, °F, (°C) | | -76 (-60) |

2.02 ACCESSORIES

- A. Adhesives, solvents and caulking shall be types recommended by liner manufacturer for bonding to liners.
- B. Fabrication tape
 - 1. 2" double sided butyl rubber tape for inside taping
 - 2. 4" butyl rubber tape for outside cap strip
- C. Sand bags shall be of UV resistant material.
- D. Rope shall be 1/4-inch braided nylon.

2.03 FABRICATION

- A. Tarps shall be fabricated in a single sheet with factory-sealed seams, consistent with any limitations of weight or manufacturers installation procedures.
- B. Tarp shall be sized by manufacturer to minimize field assembly and to allow safe handling for placement as a cover over landfill.
- C. Contractor shall coordinate installation with trap manufacturer. Tarp shall be sized to facilitate Contractor's installation.

PART 3 EXECUTION

2.04 EXAMINATION

- A. Verify that tarp overlap meets or exceeds five (5) feet or manfacturer's recommendation, whichever is greater.
- B. Place tarps on surface free from angular rocks, rubble, roots, vegetation, debris, voids, protrusions, and ground water, and any other conditions affecting performance of liner.
- C. Verify sand bag placement includes adequate anchorage at taped seams and where tarp edge is to be secured in anchor trench. Install anchor trench for edge of liner as shown on plans.

2.05 PREPARATION

- A. Shape slopes to provide self-draining finished surface.
- B. Remove waste to required depth and install dewatering system as indicated on Drawings. Place surface sand layer to a depth that achieves a substrate surface suitable for tarp placement.
- C. Remove metals, concrete, rubble, sticks, stones, and trash from bottom and sides of excavation subgrade that may puncture liner.
- D. Level and compact sand layer.
- E. Prepare sand bag anchoring system as indicated on Drawings.
- F. Prepare any special tarp installation equipment.
- G. Stockpile anchor trench rock.

2.06 SUBGRADE

A. The following items shall be completed and verified by Contractor prior to tarp installation.



- B. Place sub-grade material from borrow area, roll or plate compact subgrade to achieve 90% relative compaction. Provide an even surface. No metals or sharp/angular stones shall protrude through substrate.
- C. Verify no standing water on layout surface.
- D. Install perimeter anchor trenches dug and rock backfill available.
- E. Cover tarp materials on site and staged not more than 100 yards from the area to be lined.
- F. Provide tarp manufacturer approved mechanical vehicle on site to move and unrole liner materials. Move and transport each panel into position according to manufacturer recommendations.

2.07 INSTALLATION

- A. Unfold and Stretch liner to its full width and length as fabricated.
- B. Position tarps so edge can be overlapped and taped or installed in perimeter anchor trench.
- C. Smooth out wrinkles and air spaces.
- D. Seal liner at overlap using two strips of 2" double adhesive "inside" tape and one strip of 4" "outside" cap seam tape as shown on the Drawings and in accordance with liner manufacturer's instructions.
- E. Replace or repair tarp surfaces showing excessive wear, injury due to scuffing, penetration by sharp objects, or distress from rough subgrade or as directed by Engineer.
- F. Repair damage areas using a patch fixed with a double layer of inside tape and one strip of outside seam tape.
- G. Install sand bags to anchor each tarp panel and include overlap at liner seams.

2.08 FIELD QUALITY CONTROL

- A. Inspect tarp after each panel in installed to ensure tight, continuously bonded installation. Replace or retape any seams where tape has less than 1" of adhesion on edge of tarp.
- B. Hand roll or compress exterior seam tape to ensure complete surface contact.

2.09 PROTECTION OF FINISHED WORK

A. Section 01 70 00 - Project Closeout Requirements

- B. Remove installed tarp and dispose of tarp with Cell 3 materials or salvage according to liner manufacturer's instructions.
- C. Salvage of disposal of interim tarp shall be at Contractor's discression.

END OF SECTION