Vancouver Energy
Operations Facility Oil Spill Contingency Plan

EFSEC Application for Site Certification No. 2013-01
Docket No. EF131590

Appendix C
Vancouver Energy Facility Operations

This page left blank intentionally.

APPENDIX C
VANCOUVER ENERGY FACILITY OPERATIONS

C.1 OVERVIEW

The Facility in the Port of Vancouver USA, Washington, is located in different "areas" of the Port. **Figure C-1** presents a Facility Site Plan. The site address is 5501 NW Lower River Road, Vancouver, Washington 98660. The marine dock is located at Terminal 4, on the north side of the Columbia River, at River Mile 103.5, approximately 2.5 miles downriver of the Interstate 5 bridge. The facility is located at latitude 45° 39' 6" N and longitude 122° 43' 52" W.

C.2 DESIGN AND OPERATIONS

C.2.1 General Operations Description

The Facility receives crude oil by rail, stores it on site, and loads it on vessels for shipment. Unit trains arrive at the Facility and are stationed on the Facility rail loops. The trains are "indexed" through the unloading area (Area 200), where the crude oil is gravity-drained into the transfer pipeline system (Area 500). The crude oil is pumped through the transfer pipelines to the crude oil storage tanks (Area 300) where it is held until the marine vessel loading operation. Marine vessels arrive and moor at the dock (Area 400) where they are preboomed. Crude oil is pumped from the storage tanks to the loading area, and loaded to the marine vessels.

Physical properties of these products are provided in **Figure C.2**. Material Safety Data Sheets (MSDSs) are on file in the Facility office.

C.2.2 Physical Description

The Facility occupies approximately 47.4 acres located in different areas within the Port. The terrain is mostly flat, but drops off toward the south. Facility drainage outside of the various containment areas flows to existing surface water conveyance and treatment systems prior to the eventual release of water to the Columbia River. All of the downstream outfalls are permitted and regulated by the Washington Department of Ecology. There are three separate conveyance systems in which surface discharges are released from the Facility to eventual aquatic discharges.

Terminal 5 stormwater system

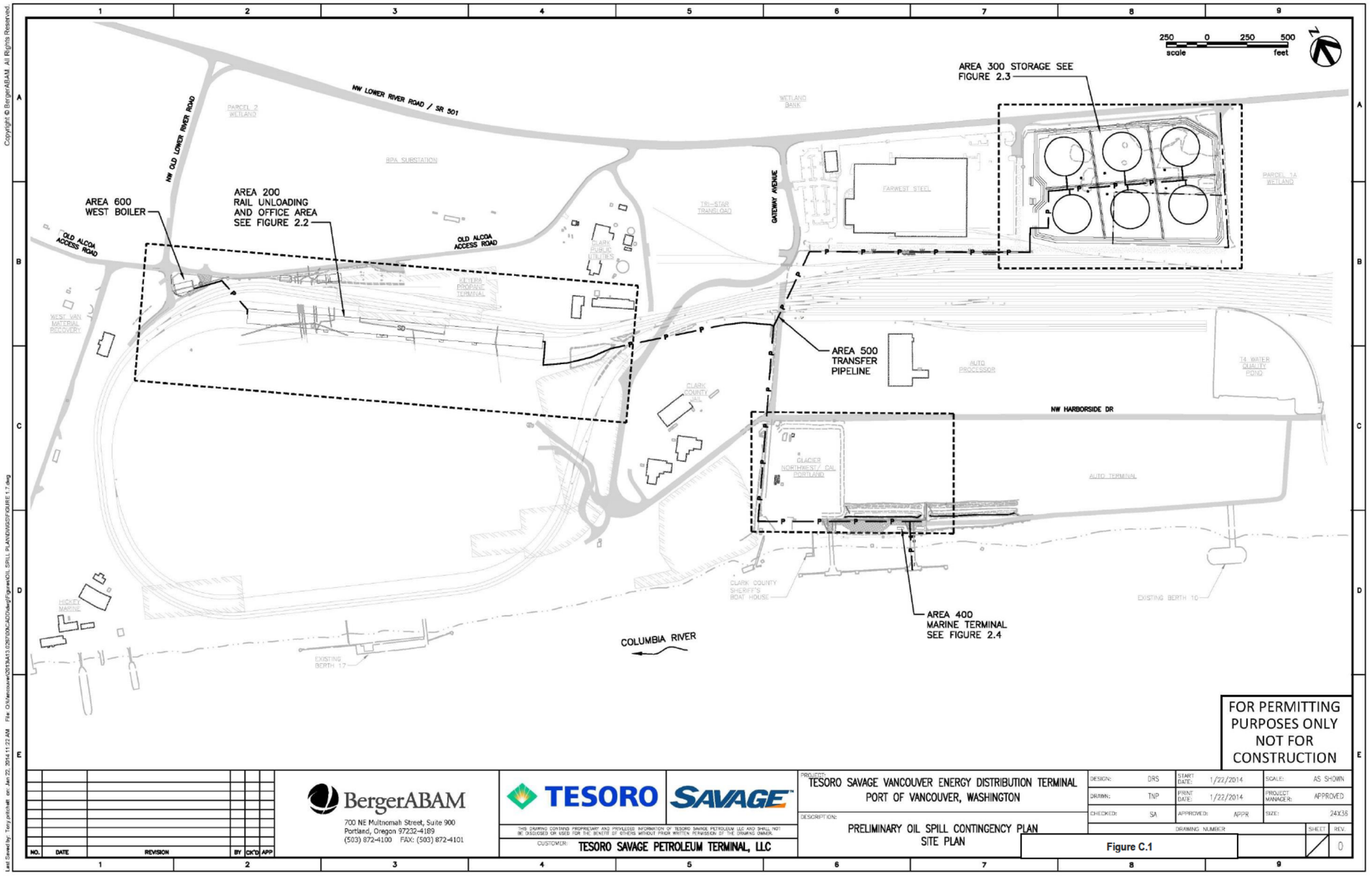
Terminal 4 stormwater system

Combined Marine Terminal and Subaru lot treatment swales

A portion of the Facility lease boundary is located within areas determined by the Port to be within its general use area, which the Port defines as areas in which it is not feasible that individual tenants collect and treat their own stormwater discharges. Areas in this Facility that fall under that designation are limited to rail improvements located within the master plan rail corridor, transfer pipeline alignment, and non-pollution-generating rail yard area on the north side of the rail unloading building.

This page left blank intentionally.

Figure C.1. Facility Site Plan



This page left blank intentionally.

The following discussion summarizes the project site areas.

Area 200 – Administrative/Support and Rail Unloading
Area 200 is located at 5501 NW Lower River Road in Vancouver. The following Facility elements are located in Area 200: administrative and support buildings, parking, rail access to the rail unloading facility, and the rail unloading facility. Area 200 is accessible from an unnamed private road owned and maintained by the Port.

Area 300 – Product Storage
Area 300 is located at the Port's Parcel 1A on the south side of NW Lower River Road just east of the existing Farwest Steel facility. The following Facility elements are located in Area 300: product storage tanks and associated secondary containment, the Area 300 Boiler Building, and associated control and ancillary systems. Area 300 is accessible from NW Gateway Avenue and NW Lower River Road via a shared private drive.

Area 400 – Marine Terminal
Area 400 is located at existing Port berths 13 and 14 on the Columbia River south of the current Subaru facility. The following Facility elements are located in Area 400: product conveyance and loading facilities located on the dock, the marine vapor combustion units (MVCUs), emergency containment and response equipment, and control and ancillary facilities associated with vessel loading. This area is accessed from Gateway Avenue and Harborside Drive by a driveway to be constructed with the project.

Area 500 – Transfer Pipelines
Area 500 consists of a non-exclusive easement located within Terminal 5, Parcel 1A, berths 13 and 14, and corridors adjacent to existing private port roads. Area 500 includes the corridors for the approximately 26,400 = 5 miles lineal feet of transfer pipelines that will connect the Unloading (Area 200), Storage (Area 300), and Marine Terminal (Area 400) portions of the project. These transfer pipelines include

(1) A 36-inch marine transfer pipeline that extends approximately 4,600 feet from the product storage tanks to the marine terminal.
(2) Three 24-inch transfer pipelines that extend approximately 4,500 feet from the rail unloading area to the product storage tanks.
(3) A 6- to 12-inch return line/pressure release.

All transfer pipelines are pressure tested annually. Pipelines are tested according to API RP 1110, ASME B31.4 or B31.3 as appropriate. Test dates and results are recorded and maintained at the Facility.

Area 600 – West Boiler
Area 600 is located at the northwest corner of Terminal 5, and is composed of the Area 600 Boiler Building and its associated parking.

Area 600 is accessed from Old Lower River Road and a private road owned and maintained by the Port.

Rail Facilities
The project uses up to three main rail loops (Tracks 4105, 4106, and 4107) at Terminal 5, and associated bad order car and departure tracks.

Hours of Operation
The Facility is planned to operate 24 hours a day, 7 days a week. Marine terminal operations are scheduled on a 24-hour, 7-day-a-week basis, as required by a particular vessel's schedule.

Figure C.2. Properties of Petroleum Products Handled

Product	Boiling Point (°F)	Specific Gravity (H_2O=1)	Density	API	Oil Group	Sulfur Content	Construction Type
Crude Oil	94 to 1330	0.8 to < 1.0	0.8 to < 1.0	10-45	2, 3, 4	Trace to 5%	Welded steel

MSDSs on products listed are located in the Facility office and are available 24 hours per day.

C.2.3 Drip and Discharge Collection

A minimum three-barrel capacity collection pan is located below the transfer header at the hose crane at the marine terminal. The collection pan is covered with openings to allow drips and incidental discharges to drain into the pan. Additional drip pans are located at all fittings, connection points, and at hose ends.

C.2.4 Secondary Containment

All crude oil storage tanks are surrounded by compacted earthen dikes that meet EPA volumetric guidelines. Secondary containment capacity is sufficient to contain 110 percent of largest tank volume plus a 100-year rainfall event and freeboard.

All crude oil storage tanks are equipped with automatic gauging systems and high level alarms. **Figure C.3** provides a summary of tanks at the facility.

C.2.5 Emergency Shutdown System

While unloading rail cars and pumping oil to the Storage Facility, operators can manually stop the process by pressing an emergency shutdown (ESD) push button. When pressed, automated valves will close at each of the rail offload stations, isolating the crude inside the rail cars from the pump header, shut down the rail transfer pumps, and close the 24-inch valves at the beginning of the rail transfer lines, isolating the rail area process from the transfer pipe line.

When an ESD push button has been pressed, the control room will receive an alert stating which stations' push button has been pressed and an alarm will sound throughout the rail unloading area with horns and beacons.

Within the tank storage area the ESD system will be manually activated by pressing an ESD push button. When an ESD is pressed, all automated valves on the storage tanks will close isolating the crude in the tanks, the marine vessel loading pumps will shut down, and the control rooms will receive an alert stating which push button has been pressed and that an ESD occurrence has taken place.

While loading a Marine Vessel at the berth, operators may manually stop the process by pressing one of the ESD push buttons on the dock. When pressed, the Marine Vessel loading pumps will shut down, the automated valve near the dock will close and an alert will be sent to the control rooms stating which ESD button has been pressed.

If a facility-wide emergency is necessary, there will be a facility wide button to press at each of the control rooms. When a facility-wide ESD is necessary, all operations will be stopped as outlined above for all areas of the facility.

C.2.6 Monitoring Devices

Monitoring devices as described in 33 CFR 154.525 are not required at the Facility dock or terminal.

§ 154.525 Monitoring devices.
The COTP may require the facility to install monitoring devices if the installation of monitoring devices at the facility would significantly limit the size of a discharge of oil or hazardous material and either:

(a) The environmental sensitivity of the area requires added protection;

(b) The products transferred at the facility pose a significant threat to the environment; or

(c) The size or complexity of the transfer operation poses a significant potential for a discharge of oil or hazardous material.

[CGD 75–124, 45 FR 7172, Jan. 31, 1980, as amended by CGD 86–034, 55 FR 36253, Sept. 4, 1990]

C.2.7 Relief Valve Setting

For transferring product from the rail unloading area (Area 200) to the storage area (Area 300), a predetermined PLC set point from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 10-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve downstream of each pump that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the rail unloading area (Area 200) and the storage area (Area 300). These valves are set at varying pressures depending on their location in the piping system. For transferring product from the storage area (Area 300) to the marine terminal area (Area 400), a predetermined PLC set point from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 36-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve on the pump discharge header that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the storage area (Area 300) and the marine terminal are (Area 300). These valves are set at varying pressures depending on their location in the piping system.

Figure C.3. Oil Storage Tank Information

Tank	Product	Volume (bbl)	Built	API 653 Inspection	Major Type of Failure/Cause	Cathodic Protection
0300-TK-001	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-002	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-003	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-004	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-005	Heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-006	Heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes

Total Terminal Storage Shell Capacity = 2,280,000 bbl (six tanks at shell capacity of 380,000 bbl each)
Total Terminal Storage Capacity = 2,160,000 bbl (fill capacity of the six tanks is 360,000 bbl each)
Total Secondary Containment Volume = 606,020 bbl. (157% of largest tank volume)

C.3 Transfer Procedures

There are loading arms located at the marine terminal. Transfers are from manifold to vessel via hose connections using the crane and loading arms.

Product can be transferred at the terminal by two different methods:

1. Railcar (receive only).
2. Vessel (dispense only).

Product receiving and completion of product pumping procedures are described for each of these methods below.

C.3.1 Vessel Transfers

Upon confirmation of product delivery/receipt involving either barge or ship, the following procedures are followed.

1. Notify the Port of the scheduled transfer in advance. Verify availability of dock space.
2. Notify USCG and state of Washington via the Ecology website:

   Name of ship/barge company
   Barge number or ship name
   Product type and volume
   Date of transfer
   Estimated start and finish times

This information is then logged in the terminal log book, along with the initials of the employees making the call, initials of person receiving the call, and the date and time this information was transmitted.

3. Physical inventory is then collected on the receiving or dispensing tank involved. Hand gauging will occur. Beginning meter readings are taken, as well as temperature of the product and the level of condensate water on the bottom of the tank. This information is recorded in the terminal log book. Hourly gauges are logged as in a pipeline receipt.
4. The Tesoro employee on dock duty will be responsible for:
   a. Preparing and checking the transfer site.
      (1) The dock and surrounding area are inspected for oil slicks, debris, and proper condition of the dolphins.
      (2) The pipeline, valves and hose are inspected. Any oil slicks, damage, leaks, etc. must be reported to the Terminal Manager.
      (3) The valve in the shoreline (which is located at the northeast corner of the building just north of the dock) is then opened. The by-pass valves to the shoreline valve are closed.
   b. Inspecting the vessel for proper alignment with the hose header, holding a face-to-face Pre-Transfer Conference with the Vessel Person in Charge, following directions outlined on the Declaration of Inspection1, signing the Declaration of Inspection and checking for hazardous conditions that might exist.
   c. Ensuring that when the hose is passed to the vessel that the end of the hose is capped.

[1] An explanation of Declaration of Inspection Procedures and a blank Declaration of Inspection Form are contained in Appendix F.

d. Begin transfer by opening valves to start the flow to the vessel. Starting with low flow and checking for proper connections, valve alignments and leaks. After a thorough system check, slowly bringing the flow rate to a normal operating rate.

e. During the transfer operation the operator will monitor the transfer operation continuously. Checking transfer pressure and adjusting as necessary. Checking valves, fittings and connections for leaks and checking the water surface for signs of oil in the water.

f. Transfer operation will be stopped should any of the following occur:
   (1) Oil is spilled outside of the containment onto the ground or into the water.
   (2) Communications or power is lost.
   (3) Lighting becomes inadequate.
   (4) Weather turn bad (such as during an electrical storm).

g. Upon completion of product transfer, the terminal dock operator assists vessel personnel in draining the hose, disconnecting the hose and capping the end of the hose prior to the hose being passed over water for storage.

h. h. The terminal dock operator closes all valves and secures the main valves with a chain and lock.

5. The plant operator, upon completion of the transfer, will ensure hand gauging is conducted on the receiving/shipping tank. A bill of lading (BOL) is then prepared.
6. Rack delivery tickets from all previous transactions are kept isolated. Product dispensed through the rack while the dock transfer is occurring is noted.
7. For dispensing product, it is necessary to open the proper valves in the pumping station manifold. The valve to the cargo pump and the valve into the shoreline are opened.
8. All tanks on the vessel (whether it is being loaded or unloaded) are to be gauged to determine the amount of product capacity.

C.3.2 Railcar Transfers

The facility receives railcars on three rail loops located at Terminal 5. Up to three unit trains of 100 to 120 cars each can be simultaneously accommodated on the rail loops at full operation of the Rail Unloading Area. Unit trains are indexed 30 cars at a time through the unloading building. There is one unloading header at each railcar position. Rail cars are gravity drained. Each railcar position is protected by a spill containment system.

During railcar unloading, the following procedures are followed:

1. The railroad will provide at least one-day notice of a railcar delivery. The railroad will spot the railcar, block its wheels and set the brakes.
2. At least one terminal operator is required to monitor railcar-unloading operations.
3. Operators wear protective clothing, including hard hats, goggles, rubber gloves and appropriate outerwear.
4. Before unloading, the grounding cable to the railcar is connected.
5. The contents of the railcar are verified by reviewing the bill of lading.
6. The railcar, transfer equipment and surrounding area is inspected to assure that everything is in normal operating conditions.
7. Bolts on the railcar dome covers are slowly loosened to relieve possible pressure build-up.
8. Each product compartment is inspected for debris or foreign matter.
9. Volume is verified by BOL. The tank that is to receive the product is also gauged.

10. The product is sampled. The product is then verified by visual inspection and testing for specific gravity.
11. The railcar's bottom outlet cap is removed and the terminal's transfer hose camlock is connected to the railcar fitting.
12. The railcar valve and the pipeline valve are then opened, followed by the railcar manifold. The transfer pump is then activated.
13. Upon completion of transfer, the pump is turned off, valves are turned off, the hose is removed, the railcar dome hatch is re-bolted, and the railcar bottom outlet cap is closed and tightened.
14. The amount of product on the bill of lading from the railcar is verified against the inventory change in the receiving tank.
15. Finally, the railroad is notified that the railcar unloading has been completed.

C.4 EMERGENCY SHUT DOWN PROCEDURES

The Facility uses the international recognized signals for emergencies. If an emergency occurs on the marine terminal, the ship will be notified by portable radio or voice.

IN ALL EMERGENCY SITUATIONS, SHUTDOWN ALL PRODUCT TRANSFERS IMMEDIATELY AND SECURE VALVES

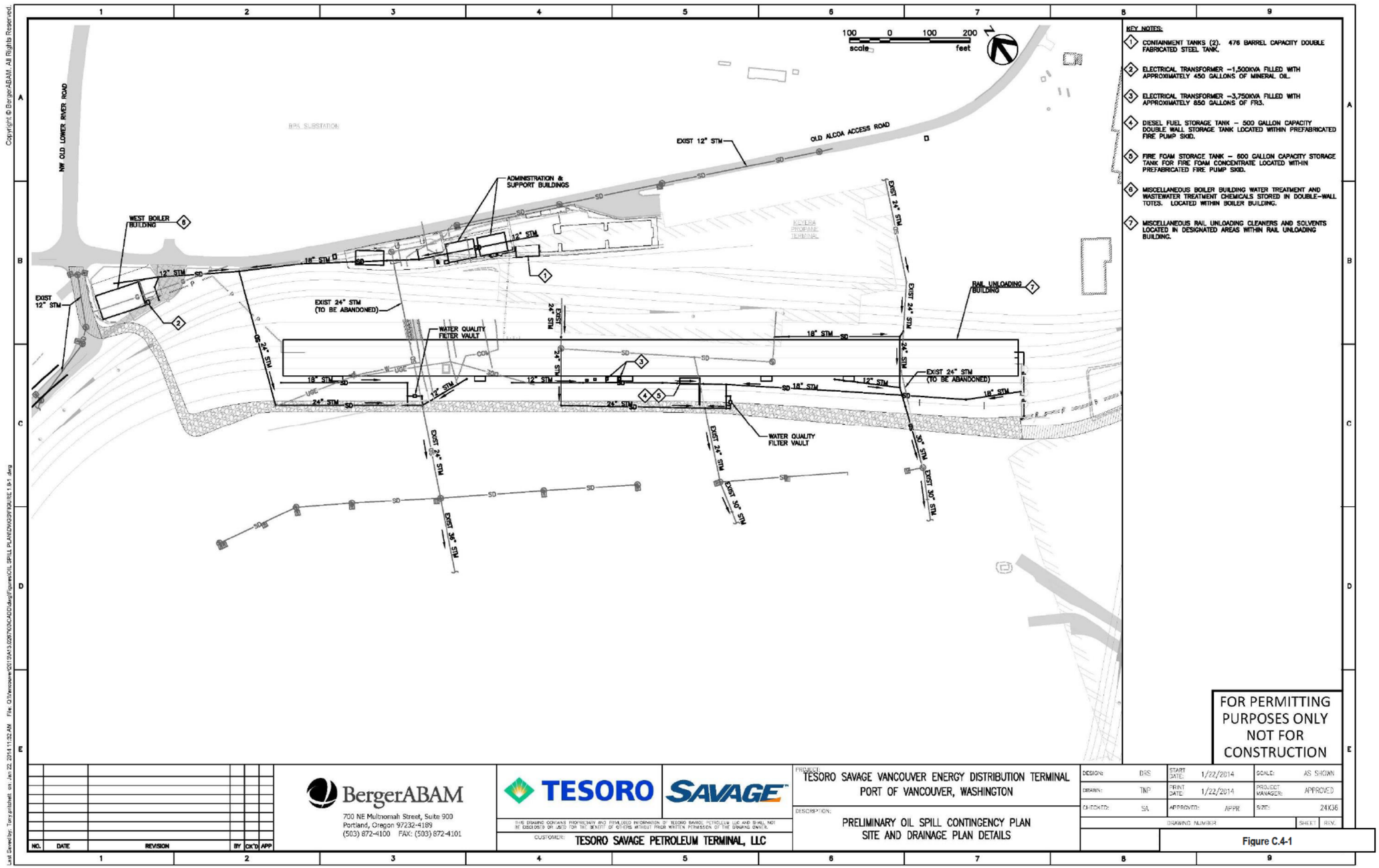
If any abnormal situation is detected during a product transfer, stop all activities. Shut the associated pump down immediately. Close all valves on the railcar, pump, pipeline, or tank. Transfer operations are not resumed until the system has been inspected and repaired, and the Facility Manager has deemed the system fit for continued operations.

If leakage or uncontrolled discharge is detected, the transfer is immediately terminated or not initiated. A safety perimeter is established. When the Facility Manager has deemed conditions are safe, necessary and practical remediation actions are initiated. The first available qualified individual, the emergency response contractor, and appropriate agencies and organizations as described in **Section 2** and **Section 3** are alerted. If necessary, the Tesoro response away-team is alerted.

Product transfer will not resume until the oil is cleaned up, removed from the deck of the vessel and/or from the surface of the water (if possible) and damage is repaired and no further danger exists.

Emergency shutdown systems are described in **Appendix C.2.5**.

Figure C.4. Facility Drainage and General Sewer Plan



This page left blank intentionally.

Figure C.4. Facility Drainage and General Sewer Plan (continued)

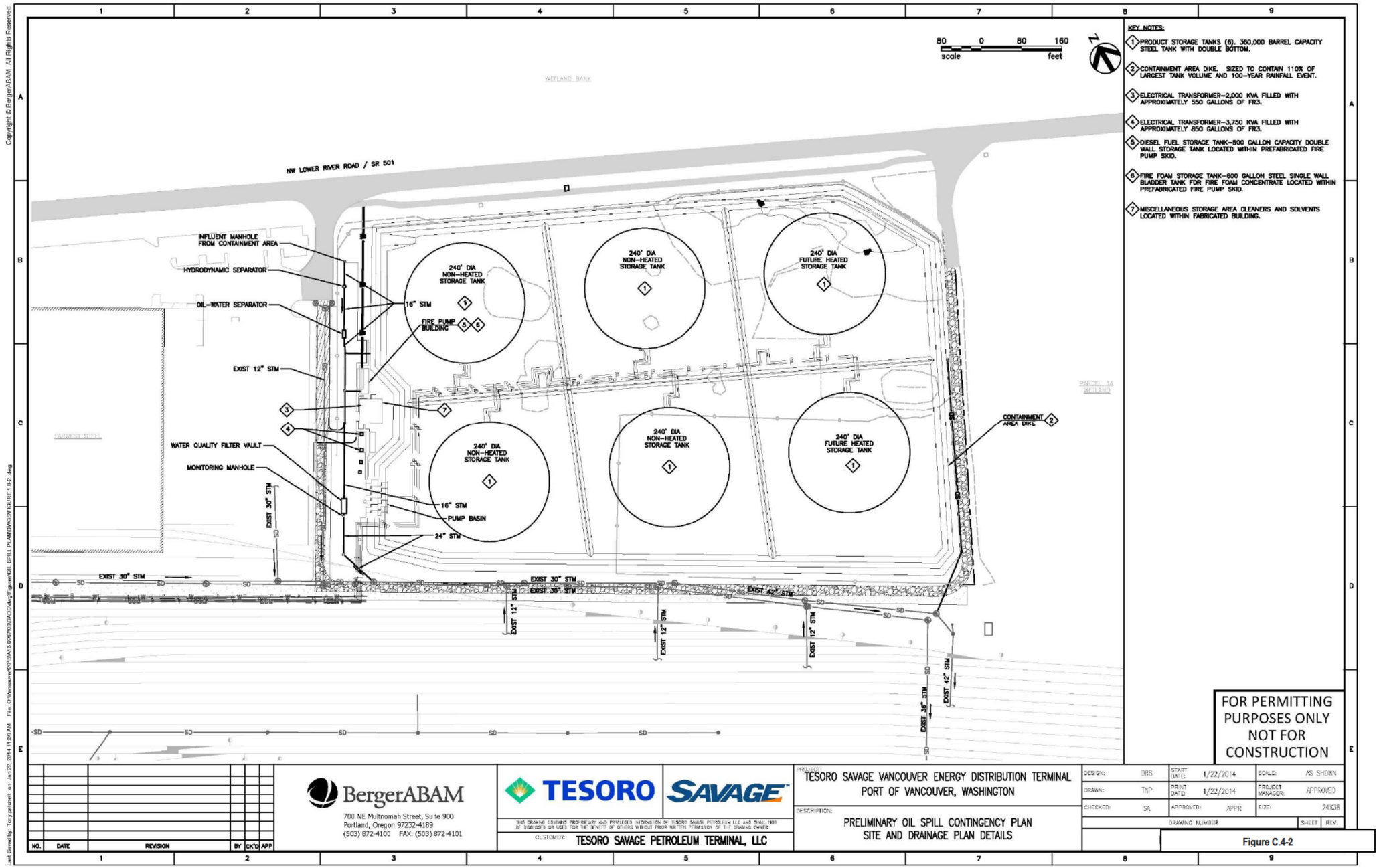


Figure C.4-2

This page left blank intentionally.

Figure C.4. Facility Drainage and General Sewer Plan (continued)

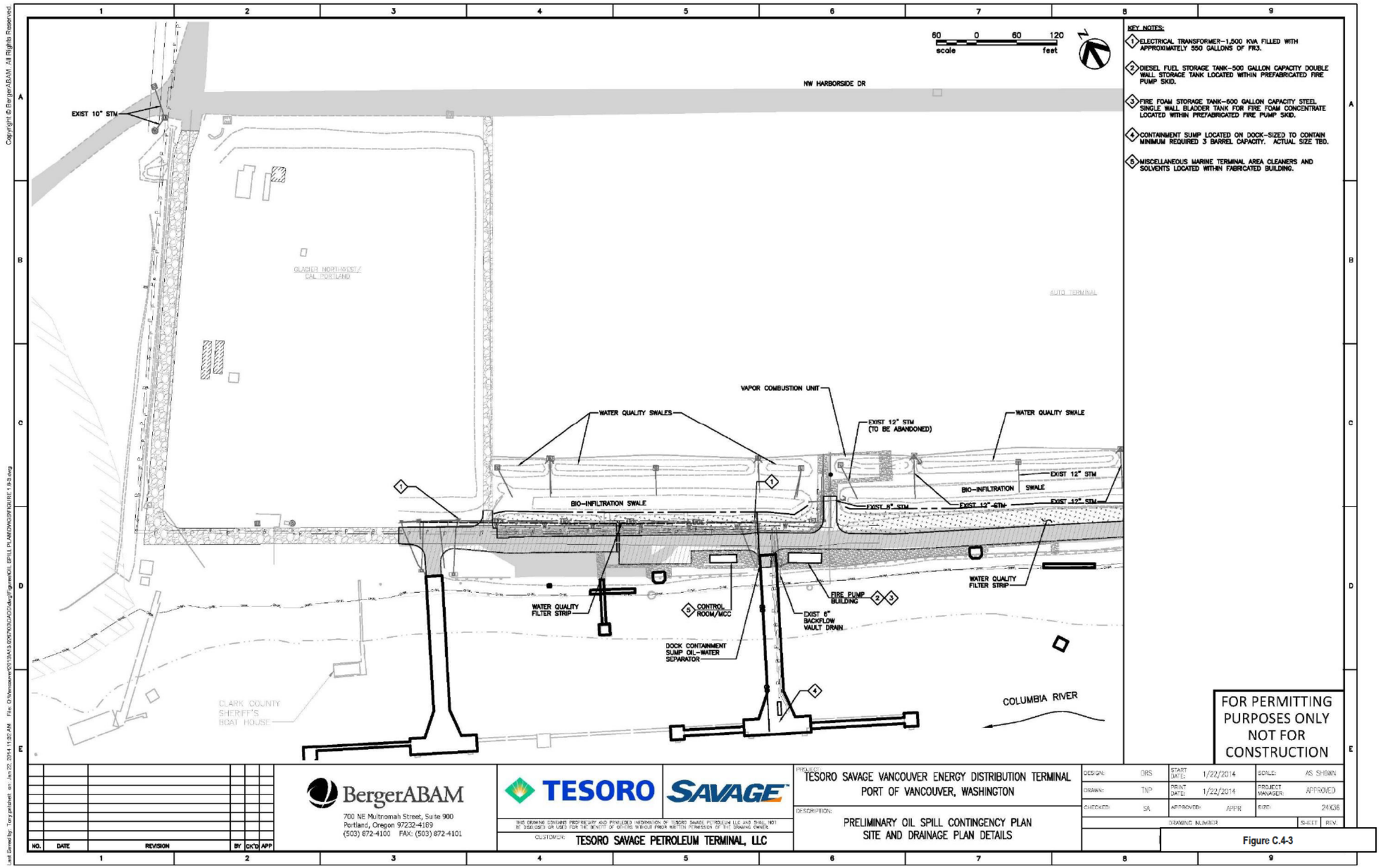


Figure C.4-3

This page left blank intentionally.