ENVIRONMENTAL CAP INSPECTION REPORT

FORMER PORTAC FACILITY

Order on Consent DE 88-S326 (September 22, 1988)
Washington State Department of Ecology Facility ID # 1215
Inspection Date: February 8, 2017

March 30, 2017

Prepared by:

Windward environmental LLC

200 West Mercer Street, Suite 401
Seattle, Washington • 98119

LANDAU ASSOCIATES

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Acronyms

Ecology	Washington State Department of Ecology
ID	identification
MOU	Memorandum of Understanding
Port	Port of Tacoma
RI/FS	remedial investigation / feasibility study
VCP	voluntary cleanup program
Windward	Windward Environmental LLC

Certification

I hereby certify that I am familiar with the facilities addressed in this report and that the inspection was conducted in accordance with acceptable engineering practices.

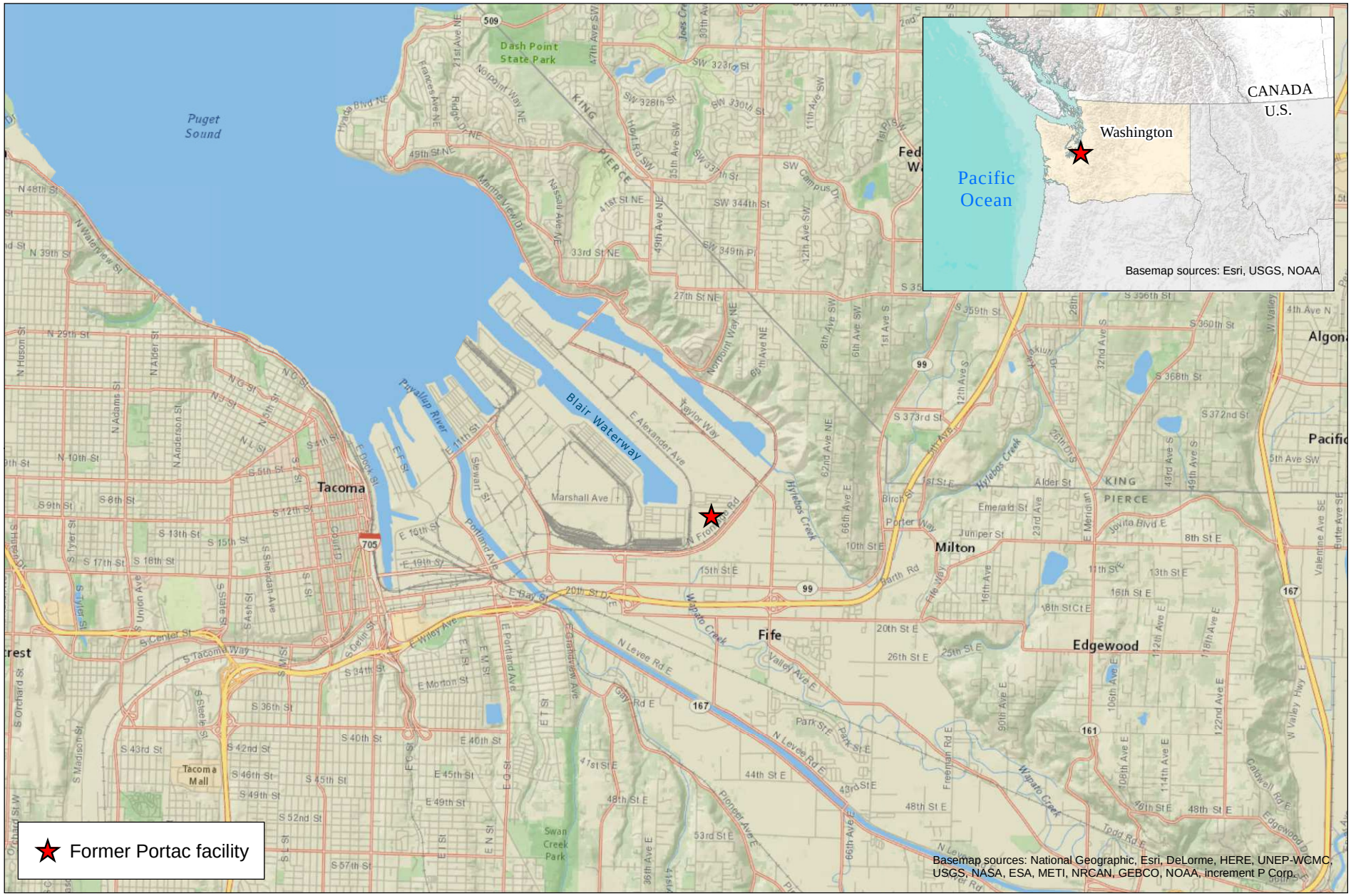
Warren G. Hansen, PE

Expires 4-22-2019

1 Introduction

This report summarizes the field activities and results for the cap inspection conducted on behalf of the Port of Tacoma (Port) for the former Portac facility. The former Portac facility is located at 4215 State Route 509 – North Frontage Road, Tacoma, Washington (Figure 1). The former Portac facility is owned by the Port and is leased to Auto Warehousing Company for automobile storage.

Approximately 30 ac of the facility are covered by an environmental cap; the facility has several stormwater drainage features, further described herein. Cap inspection activities were conducted in accordance with the requirements identified in the Order on Consent (DE 88-S326) and memorandum of understanding (MOU) between the Washington State Department of Ecology (Ecology) and the Port, which was issued on September 12, 2011 (Ecology and Port of Tacoma 2011).



Windward environmental LLC

N

0 1 2 Miles

0 1 2 Kilometers

Figure 1. Former Portac facility vicinity map

Prepared by mikey, 3/29/2017, W:\Projects\Landau-Port of Tacoma on-call\Data\GIS\Maps and Analyses\Cap_Inspections_2017\Portac\6593_Vicinity map.mxd

1.1 PURPOSE AND SCOPE

The purpose of this report is to present the findings of the 2017 environmental cap and stormwater drainage system inspection at the former Portac facility. The inspection was performed by Windward Environmental LLC (Windward) on February 8, 2017, in accordance with the scope of work provided by the Port (Port of Tacoma 2016), which included the following tasks:

- Inspection of the asphalt/concrete pavement for presence of cracks or other failures in the pavement that allow surface water runoff to infiltrate the bark/slag surficial fill (e.g., cracks greater than 1/8 in. wide, sub-base material exposed, pavement edge deterioration, and general appearance)
- Evaluation of the structural and functional condition of the cap and drainage systems (including catch basins, manholes, and oil/water separators)
- Evaluation of debris/sediment accumulation in the stormwater structures

The purpose of the environmental cap is to prevent water infiltration, exposure of humans and the environment to underlying materials, and erosion. The stormwater drainage system is designed to convey stormwater off the cap surface to prevent infiltration and erosion.

1.2 FACILITY BACKGROUND

The former Portac facility began operations as a log yard and sawmill in 1974 (Ecology 2017, 1988). The facility was leased from the Port by Portac, Inc. beginning in 1978 (Ecology 1988). Portions of the facility were operated as a log sort yard as recently as 2011. Waste from the former ASARCO smelter was used as ballast material at this property (Ecology 2017).

In the 1980s, the facility was identified as a source of heavy metals contamination to site soil and to surface water in Wapato Creek and Blair Waterway (Ecology 1988). Ecology subsequently issued an Administrative Order on Consent to Portac, Inc. and the Port, requiring both parties to "abate contaminant loading to waters of the state."

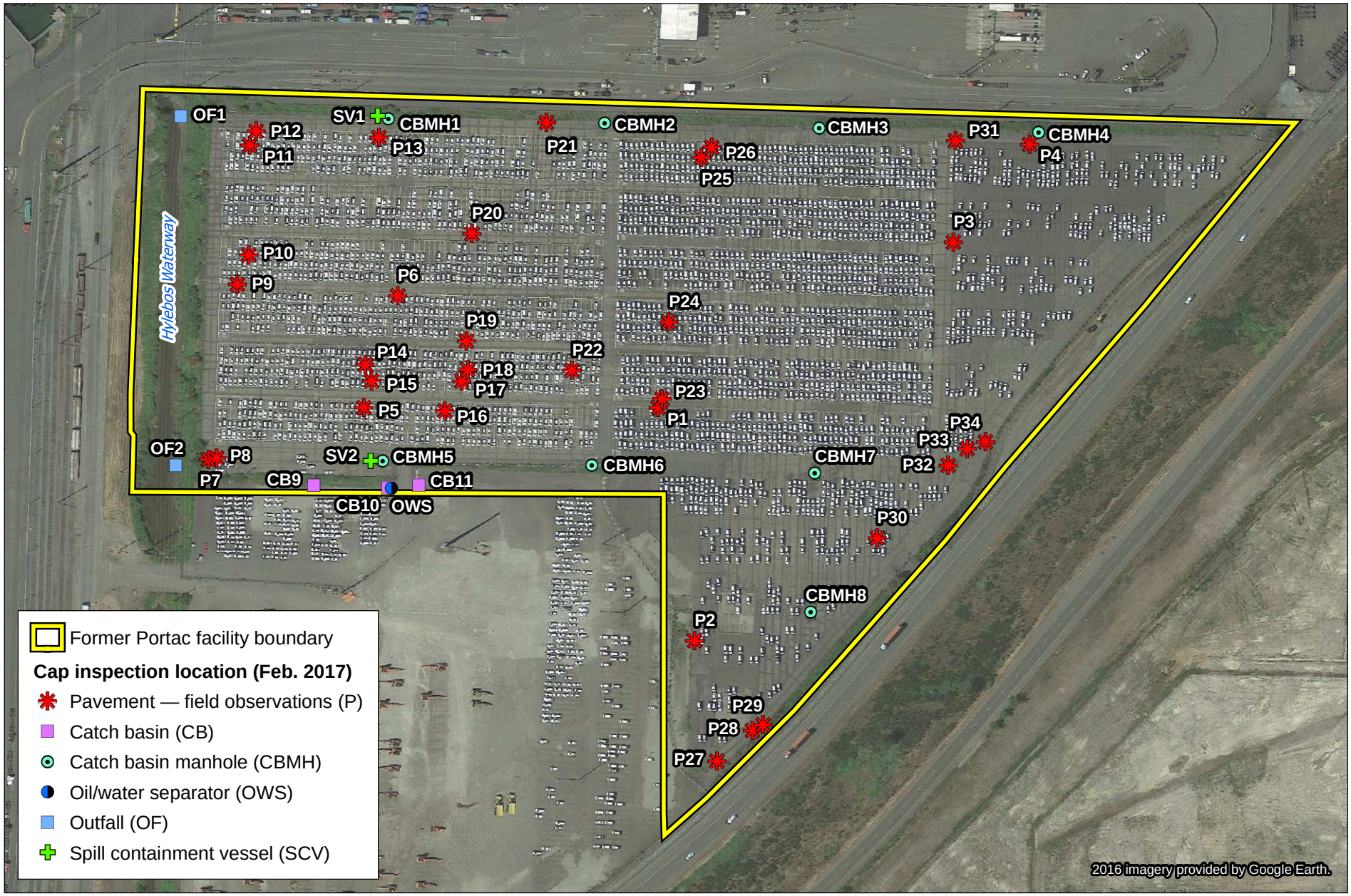
In 2011, Ecology and the Port entered into a MOU related to the property's cap inspection and groundwater monitoring requirements (Ecology and Port of Tacoma 2011). The MOU requires cap inspections every 30 months. The last inspection was performed in August 2014 (Hart Crowser 2014). In 2016, Portac, Inc., the Port, and Ecology entered into an Agreed Order requiring the first two parties to perform a remedial investigation/feasibility study (RI/FS) (Ecology 2016). This work is ongoing.

2 Field Observations

Windward performed the inspection at the former Portac facility on February 8, 2017.

2.1 ENVIRONMENTAL CAP

At the time of Windward's inspection, the general appearance of the environmental cap at the former Portac facility was good. Numerous cap repairs, including those made with slurry overlay, caulking, and sealant, were observed. However, re-emerging cracks were observed in many of these repaired areas. In general, cracks that seemed to have been repaired in the past with slurry overlay or caulking appeared to exhibit new cracks during the inspection. Some cracks were also observed in areas that had not been previously repaired. Many cracks were narrower than 1/8 in. and therefore did not require immediate repair. Some of the observed cracks, however, were wider than 1/8 in.; these cracks were documented (Figure 2, Appendix A) and should be repaired. Because of the number of narrow, potentially "emerging" cracks that were observed, the next inspection should include another site-wide evaluation of pavement condition.



Windward environmental LLC

N

0 0.05 0.1 Miles

0 200 400 Feet

Figure 2. Former Portac facility field observations

Prepared by mikey, 3/30/2017, W:\Projects\Landau-Port of Tacoma on-call\Data\GIS\Maps and Analyses\Cap_Inspections_2017\Portac\6582_Portac cap inspection locations_Feb 2017.mxd

Moss was observed growing on portions of the caulking used to repair pavement cracks. In some areas, the moss on top of the caulking created the appearance of an open crack where there was none.

The edge of the cap was inspected and found to be in good condition. Curbs, which had been installed at some locations around the edge of the cap, were observed to have been pushed off the edge of the pavement in some places; however, it appeared that the curb had not been installed for the purpose of stormwater runoff containment. The condition of the curbs was not observed to be impacting the integrity of the cap or stormwater drainage system.

The cap was inspected for the presence of exposed sub-base material and none was observed.

Table 1 provides a summary of the cap condition observed during the inspection.

Table 1. Environmental cap condition

Required Inspection Elements	Observed Condition	Recommended Actions
Presence of cracks wider than 1/8 in.	Cracks wider than 1/8 in. were observed throughout the cap.	See Figure 2 and Appendix A for the locations of cracks and recommended repairs.
Sub-base material exposed	No sub-base material was exposed.	none
Pavement edge deterioration	No pavement edge deterioration was observed.	none
Degradation, subsidence, general appearance	No degradation or subsidence was observed.	none

Example photos of cracks observed at the former Portac facility are presented in Figures 3 and 4. Photos were taken of each crack observed during the inspection. These photos are included in Appendix A, which lists the cracks observed on the environmental cap and provides additional details regarding cap condition.

Figure 3. Representative crack A

Note: width of screwdriver blade is 1/8 in.

Figure 4. Representative crack B

2.1 STORMWATER DRAINAGE SYSTEMS

The stormwater drainage system consists of three catch basins, eight "catch basin manholes," one oil/water separator, two spill containment vessels, and two outfalls. Each drainage structure was inspected for structural and functional condition and debris and sediment accumulation. Observations made at each structure are summarized in Table 2.

Table 2. Stormwater structure observations

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
CB9	catch basin	structurally sound, functioning normally	nm (could not observe bottom of chamber)	none	continue to maintain catch basin under stormwater permit	
CB10	catch basin	functioning normally	nm (did not open due to surface debris; see photo)	water level approximately 6 in. from top of structure; grate broken; boom broken	replace broken grate; remove debris from around grate; continue to maintain catch basin under stormwater permit	
CB11	catch basin	functioning normally	approx. 6	catch basin insert present; sediment accumulation around grate	remove sediment from around grate; continue to maintain catch basin under stormwater permit	

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
CBMH1	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	sediment and debris accumulation in basin; standing water of approximately 1 in. depth on south side of basin	remove accumulated sediment and debris; continue to maintain structure under stormwater permit	
CBMH2	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	broken boom; sediment and debris accumulation in basin	remove accumulated sediment and debris; continue to maintain structure under stormwater permit	
CBMH3	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	broken boom; organic debris and sediment accumulation in basin; standing water of approximately ½ in. depth on south side of basin	remove accumulated sediment and debris; continue to maintain structure under stormwater permit	
CBMH4	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	organic debris accumulated on grate; sediment accumulated in sump	remove accumulated sediment and debris; continue to maintain structure under stormwater permit	

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
CBMH5	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	broken boom; sediment and debris accumulated on grate; plant growth around perimeter of basin	remove boom; remove accumulated sediment and debris; remove vegetation around basin perimeter; continue to maintain structure under stormwater permit	
CBMH6	catch basin manhole	functioning normally	nm; some debris noted (see additional observations)	broken boom; vegetation in and around basin; debris in basin	remove boom; remove vegetation; remove debris continue to maintain structure under stormwater permit	
CBMH7	catch basin manhole	functioning normally	none in surface basin	vegetation growing around perimeter of basin; foam on grate; standing water approximately 2 in. deep in a large area on west side of basin	remove vegetation; remove foam; continue to maintain structure under stormwater permit	
CBMH8	catch basin manhole	functioning normally	none in surface basin (other than vegetation)	numerous blackberry bushes in and around basin	remove vegetation; continue to maintain structure under stormwater permit	

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
OF1	outfall	functioning normally; unable to observed structure due to tide	na	unable to access outfall due to tide	observe structure during next inspection	
OF2	outfall	functioning normally; unable to observe structure due to tide	na	unable to access outfall due to tide	observe during next inspection	
OWS	oil/water separator	structurally sound, functioning normally	less than 1	less than 1 in. sediment accumulation in center of vault/under lid; no sediment accumulation away from center of vault; minor floatables in first chamber	remove debris from around lid; remove floatables from first chamber; continue to maintain structure under stormwater permit	

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
SV1	spill containment vessel	appears to be functioning normally	nm (confined space entry required to probe vault bottom)	1 in. separation between access manhole and pavement on south side; floatables in west chamber; foam and minor floatables in east chamber	repair separated pavement; remove floating material from east and west chambers during next maintenance cycle; continue to maintain structure under stormwater permit	

Location ID[a]	Type of Structure	Observed Condition	Sediment Accumulation (inches)	Additional Observations	Recommended Actions	Photos
SV2	spill containment vessel	appears to be functioning normally	nm (confined space entry required to probe vault bottom)	floatables in east chamber; mud accumulating on pavement in vicinity	remove floating material during next maintenance cycle from east chamber; remove accumulated mud; continue to maintain structure under stormwater permit	

[a] See Figure 2.

ID – identification na – not applicable nm – not measured

3 Status and Recommendations

3.1 Maintenance and Repair Performed Since Previous Inspection

3.1.1 Environmental cap

Several recommendations for cap maintenance were made in the previous inspection report (Hart Crowser 2014), including the repair of 4,727 ft of cracks. The specific locations of individual cracks were not specified in the report. Cap repairs have not been made since the previous inspection. The most recent cap repairs were made in the summers of 2012 and 2013. The Port made repairs to the cap based on the recommendation of the 2012 Cap Inspection Report (Conestoga-Rovers 2012). Repairs included a section of asphalt overlay and crack sealing as necessary. Crack sealing involved removing debris from cracks, filling with crack sealant, and covering with asphalt slurry seal.

3.1.2 Stormwater drainage system

Recommendations in the previous inspection report included replacing the grate on the oil/water separator catch basin (presumably CB10); replacing the filter sock in catch basin CB11; and clearing vegetation from around catch basins CB9, CB10, and CB11 (Hart Crowser 2014). Based on observations made during the 2017 inspection, the grate on catch basin CB10 still needs to be replaced. Vegetation had been cleared from catch basins CB9 and CB10 since the previous inspection. The filter sock (insert) in catch basin CB11 appeared to be in good condition, so it is assumed that it had been replaced since the previous inspection.

3.2 Recommendations

3.2.1 Environmental cap

All cracks wider than 1/8 in. and a gouge in the pavement surface have been identified as specified in Appendix A and shown on Figure 2. Since the Site is under an Agreed Order with Ecology to complete a remedial investigation and feasibility study, alternative metrics and methods for cap repair will be evaluated as part of the upcoming Site feasibility study.

3.2.2 Stormwater drainage system

All stormwater structures should continue to be maintained under the Port's municipal stormwater permit. The broken grate on catch basin CB10 should be replaced (Figure 2; Table 2). It is also recommended that the broken booms observed at catch basins CB10, CBMH2, CBMH3, CBMH5, and CBMH6 be removed, and that accumulated sediment and debris be removed from inside and around these structures (Figure 2; Table 2).

3.3 LIMITATIONS

Observations contained in this report are limited to environmental cap areas that were visible to the field team. In some instances, portions of the cap surface may have been covered and not readily available for inspection. Inspection of stormwater structures was limited to observations made from the surface and by means of direct observation, probes (extendible poles to check for sediment), and photography. No confined space entry was performed. Observation of some stormwater structures was also be limited by storm flow and/or the presence of damaged or sediment-laden catch basin inserts that could not be safely removed. No guarantee is made that all cap or stormwater deficiencies that could impact cap/drainage system performance were identified.

4 References

Conestoga-Rovers. 2012. Cap inspection report, February 2012, former Portac facility. Conestoga-Rovers & Associates, Tacoma, WA.

Ecology. 1988. Order on Consent. Docket No. DE 88-S326. Washington State Department of Ecology.

Ecology, Port of Tacoma. 2011. Memorandum of understanding. Former log yard groundwater monitoring and cap inspection. Washington State Department of Ecology and Port of Tacoma.

Ecology. 2016. Agreed Order. No. DE 11237. Washington State Department of Ecology.

Ecology. 2017. Portac Inc Tacoma [online]. Washington State Department of Ecology. Available from: https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3642.

Hart Crowser. 2014. Cap inspection report, former Portac facility. Hart Crowser, Seattle, WA.

Port of Tacoma. 2016. Long-term monitoring events - scope of work February 2017. Port of Tacoma, Tacoma, WA.

APPENDIX A. ENVIRONMENTAL CAP FIELD OBSERVATIONS

ENVIRONMENTAL CAP FIELD OBSERVATIONS

Contents:

Table A1 lists cracks on the environmental cap wider than 1/8 in. and other conditions requiring attention and observed during the cap inspection.

Table A1. Environmental cap observations

Location ID[a]	Observations	Recommended Actions	Photos
P1	crack approximately ¾ in. wide in previously unrepaired pavement extending south from the recorded coordinates;[b] vegetation in crack	repair crack	
P2	gouge in pavement; approximately 36 x 8 in.	repair by patching or providing a pavement overlay	
P3	crack wider than 1/8 in. in previously unrepaired pavement extending approximately 15 ft west from the recorded coordinates[b]	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P4	crack wider than 1/8 in. in previously unrepaired pavement extending approximately 15 ft south from the recorded coordinates;[b] some vegetation in crack	repair crack	
P5	crack in pavement caulking wider than 1/8 in. with vegetation	repair crack	
P6	crack in pavement caulking wider than 1/8 in. extending south approximately 40 ft from the recorded coordinates[b]	remove caulk and repair crack	
P7	crack in slurry overlay wider than 1/8 in.	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P8	crack in slurry overlay wider than 1/8 in. with vegetation	repair crack	
P9	crack in slurry overlay wider than 1/8 in.	repair crack	
P10	crack in slurry overlay wider than 1/8 in.; sections of pavement between cracks appear loose and may become unattached from surrounding pavement	repair crack	
P11	crack in slurry overlay wider than 1/8 in. extending north, south, east, and west from the recorded coordinates[b]	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P12	crack in slurry overlay wider than 1/8 in. extending north and south from the recorded coordinates[b]	repair crack	
P13	crack in slurry overlay wider than 1/8 in. extending north and south from the recorded coordinates[b]	repair crack	
P14	crack in slurry overlay wider than 1/8 in. extending east and west at least 30 ft from the recorded coordinates;[b] pavement on north side of crack at higher elevation than pavement on south side	repair crack	
P15	crack in slurry overlay wider than 1/8 in. extending east and west from the recorded coordinates[b]	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P16	crack in slurry overlay wider than 1/8 in. extending north and south from the recorded coordinates[b]	repair crack	
P17	crack in slurry overlay wider than 1/8 in. extending north and south from the recorded coordinates[b]	repair crack	
P18	crack in slurry overlay wider than 1/8 in. extending east and west from the recorded coordinates;[b] pavement on north side of crack at higher elevation than pavement on south side	repair crack	[no photo]
P19	crack in slurry overlay wider than 1/8 in. extending east and west from the recorded coordinates[b]	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P20	crack in slurry overlay wider than 1/8 in. extending north and south from the recorded coordinates[b]	repair crack	
P21	crack in slurry overlay wider than 1/8 in. extending approximately 40 ft east from the recorded coordinates[b]	repair crack	
P22	crack in slurry overlay wider than 1/8 in. extending east and west from the recorded coordinates[b]	repair crack	
P23	crack in slurry overlay wider than 1/8 in.; vegetation in crack	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P24	crack in slurry overlay wider than 1/8 in.; vegetation in crack	repair crack	
P25	crack in slurry overlay wider than 1/8 in. extending approximately 30 ft south and 50 ft north from the recorded coordinates[b]	repair crack	
P26	crack approximately ½ in. wide in slurry overlay extending north to edge of cap and approximately 100 ft south from the recorded coordinates[b]	repair crack	
P27	crack in slurry overlay; width ranges from 1/8 in. to approximately 1 in.; located at top of ramp	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P28	crack wider than 1/8 in. in slurry overlay extending northeast approximately 30 ft and southwest approximately 10 ft from the recorded coordinates[b]	repair crack	
P29	crack wider than 1/8 in. in slurry overlay extending approximately 15 ft southeast from the recorded coordinates[b]	repair crack	
P30	crack wider than 1/8 in. in slurry overlay extending approximately 40 ft north from the recorded coordinates[b]	repair crack	
P31	crack wider than 1/8 inch in slurry overlay extending (non-continuously) approximately 40 ft west from the recorded coordinates[b]	repair crack	

Location ID[a]	Observations	Recommended Actions	Photos
P32	crack wider than 1/8 in. in slurry overlay extending approximately 30 ft from the recorded coordinates;[b] crack previously repaired using caulk; caulk now coming out of crack	repair crack	
P33	crack wider than 1/8 in. in slurry overlay extending approximately 50 ft northeast from the recorded coordinates[b]	repair crack	
P34	crack wider than 1/8 in. in slurry overlay extending approximately 20 ft east from the recorded coordinates[b]	repair crack	

[a] See Figure 2.

[b] The latitude and longitude of each observation were recorded in the field and are available in the project file. These coordinates were used to map the locations shown on Figure 2.

P – pavement observation