GSI Water Solutions, Inc.

TECHNICAL MEMORANDUM

2018 Parcel 15 Cap Maintenance

To: Andrew Smith, Washington State Department of Ecology

From: Randy Pratt, GSI Water Solutions, Inc.

CC: Rob Healy, Port of Tacoma

Date: May 28, 2019

Attachments: Figure 1 Event 5: February 2019 Groundwater Contour Map
Figure 2 2018 - 19 Interim Cap Repair and Maintenance

Background

The purpose of this memorandum is to provide a summary of proposed cap maintenance activities at the Parcel 15 site in Tacoma, WA (Ecology Facility Site No. 1215/ Cleanup Site No. 3642) during the 2019 construction season. The *Final Remedial Investigation Report, Parcel 15 (Portac) Investigation* identified existing perched water zones within the slag containing fill underlying the cap (see Figure 1). These perched water zones were considered to be an ongoing source for the generation of arsenic laden groundwater caused by infiltrating water through cracks in the cap. Drawing from these findings, in February 2018 the Port of Tacoma (Port) and Portac, Inc. submitted the *Public Review Draft Feasibility Study Parcel 15 (Portac) Investigation* which recommended a long term cap enhancement approach, amongst other improvements, for the site. Further refinement of the recommended remedy was completed and documented in the *Final Feasibility Study Addendum* in February 2019. Selective cap maintenance was completed in September/October 2018 that was consistent with the recommended remedy and documented in a December 12, 2018 technical memorandum: *2018 Parcel 15 Interim Action Cap Maintenance – Summary of Work*. The proposed maintenance activities described below are consistent with the recommended remedy and are intended to reduce sources of water to the perched water zone on the west side of the site until a final remedy for the site is implemented.

Cap maintenance in 2018 focused on the west side based primarily on proximity to the known perched water zones, and proximity to Wapato Creek (Figure 2). Two cap maintenance activities will be completed in 2019: (1) apply seal coating in areas were crack sealing was completed but no seal coating was applied in 2018, and (2) improve drainage in areas of ponding found in the middle and eastern portions of the cap (shown in Figure 2). In addition, tide gates will be installed in outfalls OF-2 and OF-3 at Wapato Creek to prevent periodic backflow into the stormwater lines located beneath the cap.

Planned Cap Maintenance Actions

Maintenance for the cap focuses on actions that reduce surface water infiltration through the cap. Reducing infiltration through the cap is expected to reduce the amount of perched water in the slag-containing-fill where higher concentrations of arsenic have been observed. The focus of the work will be in the two drainage swales nearest to Wapato Creek as well as spot improvements in surface drainage areas as shown on Figure 2. Cap maintenance actions planned to be completed during the 2019 construction season

include:

- Sweep Cap: Areas of the cap shown on Figure 2 where cap maintenance is planned will be swept free of debris prior to completing actions described below.
- Seal Cap: After sweeping, the target areas will be sealed to reduce the overall leakage through the cap and to protect the underlying repaired cracks. The seal coat will consist of a thin layer of asphalt emulsion sprayed onto the cap (fog seal). The area targeted for cap sealing is shown on Figure 2.
- Drainage Improvements: Surface grinding of the pavement will be completed to improve drainage in areas where there is persistent ponding of surface water. Where there are existing drainage channels, they will be cleaned and additional grinding completed to improve functionality, if needed. The areas targeted for drainage improvements are shown on Figure 2.

Planned Tide Gate Installation

Tide gates will be installed in outfalls OF-2 and OF-3, as shown on Figure 2. The type and model of the tide gates will be selected and installed by the Port of Tacoma operations staff. The tide gates will be installed in-line near the end of the outfall pipes at Wapato Creek. Specifics of the type and model of tide gate used will be provided in a construction report after the cap maintenance and tide gate work is completed.

References

GSI 2017. Final Remedial Investigation Report, Parcel 15 (Portac) Investigation. GSI Water Solutions, Inc. Prepared for Portac, Inc., and the Port of Tacoma. November 10.

GSI 2018. Public Review Draft Feasibility Study, Parcel 15 (Portac) Investigation. GSI Water Solutions, Inc. Prepared for Portac, Inc., and the Port of Tacoma. February.

GSI 2018. Parcel 15 Interim Action Cap Maintenance – Summary of Work Technical Memorandum. December 12.

GSI 2019. Final Feasibility Study Addendum. February.

FIGURE 1

Event 5: February 2019 Groundwater Contour Map

Parcel 15
Tacoma, WA

LEGEND

- Monitoring Well
- Perched Monitoring Well
- Piezometer
- Inferred Groundwater Elevation Contour (ft MLLW)
- Observed Perched Zone

All Other Features

- Site Boundary[2]
- Cap[3]
- Former Wapato Creek Channel[4]

NOTES:

1. Monitoring well and piezometer locations surveyed in February 2017.
2. Site Boundary defined in Exhibit A of the Draft Agreed Order No. DE 11237 (Ecology, 2015).
3. Cap extent defined on Figure 2 of the Former Portac Inc. Site (AQEA, 2014).
4. Former Wapato Creek Channel alignment based on figure provided in the Review Comments on the 2011 Groundwater Monitoring Reports (HC, 2012) and 1931, 1936, 1940 historical aerial photographs.
5. MLLW: Mean low low water
6. Groundwater contours reflect regional groundwater elevations, and data from wells in the perched water zone was not used for contouring.

N

0 115 230 345
Feet

Date: April 2, 2019
Data Sources: PORTAC, Aerial photo taken on April 19, 2015 by Google Earth

GSI Water Solutions, Inc.

Document Path: Y:\0603_Port_Tacoma\Source_Figures\RI\Event5\Figure3_GW_Contour_Event5.mxd

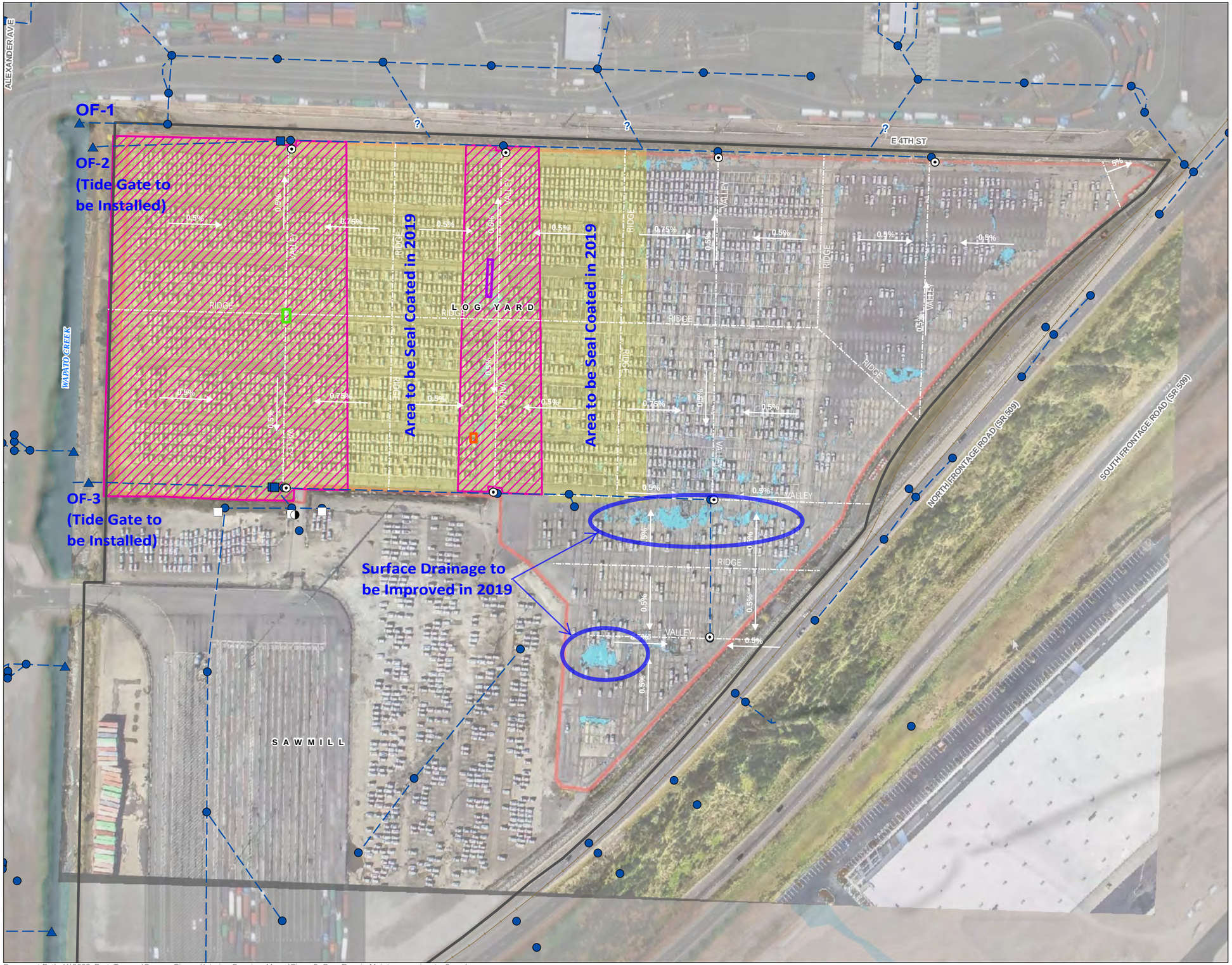

FIGURE 2

2018 - 19 Interim Cap Repair and Maintenance

Parcel 15
Tacoma, Washington

LEGEND

Storm Features[2]

- Catch Basin (CB)
- Catch Basin Manhole (CBMH)
- Oil/Water Separator (OWS)
- Outfall
- Manhole
- Vault

Cap Maintenance

- Approximate Limit of 2018 Seal Coating
- Approximate Limit of 2018 Crack Sealing
- Approximate Location of Pavement Grinding to Improve Drainage in 2018
- Approximate Location of Repaving Low Area to Improve Drainage in 2018
- Approximate Location of Drainage Channel Cleaned out in 2018 to Improve Drainage
- Storm Line

All Other Features

- Site Boundary[2]
- 0.5% Slope and Direction of Pavement Cap Surface
- Railroad
- Ponded Area

NOTES:

Location of all site features is approximate.

SOURCE INFORMATION:

1. Storm and sanitary features provided by Port of Tacoma, 2015.
2. Site Boundary defined in Exhibit A of the Draft Agreed Order No. DE 11237 (Ecology, 2015).
3. Ponded area provided in by PORTAC in raster format.

N

0 90 180 270
Feet

Date: December 3, 2018
Data Sources: PORTAC, DigiGlobe 2017

GSI Water Solutions, Inc.

Document Path: Y:\0603_Port_Tacoma\Source_Figures\Interim_Capping_Memo\Figure2_Cap_Repair_Maintenance_inset_v2.mxd