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CONCEPTUAL SITE MODEL AND DATA GAPS REPORT

Former Jensen Shipyard

FRIDAY HARBOR, WASHINGTON

SHANNON & WILSON

September 2019

Shannon & Wilson No: 101579-001

Submitted To: The Port of Friday Harbor
204 Front Street
Friday Harbor, WA 98250
Attn: Mr. Todd Nicholson

Subject: CONCEPTUAL SITE MODEL AND DATA GAPS REPORT, FORMER JENSEN SHIPYARD, FRIDAY HARBOR, WASHINGTON

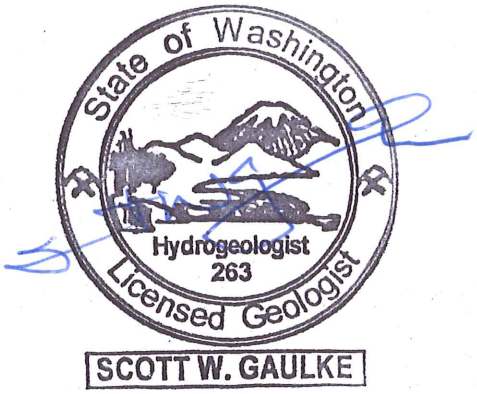
Shannon & Wilson prepared this report and participated in this project as a consultant to The Port of Friday Harbor. Our scope of services was specified in the Scope of Work dated January 4, 2019. This report presents a conceptual site model and data gaps in existing reports, and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Blaine Nesbit
Environmental Staff



Scott W. Gaulke, PE, LHG
Vice President

BON:SWG/bon

EXECUTIVE SUMMARY

The Jensen Shipyard property has been a marina for nearly a century and has had multiple environmental studies completed on it in the last few years. The Port of Friday Harbor has recently purchased the property and is planning to complete renovations to develop the property while simultaneously addressing environmental concerns.

This report provides a conceptual site model (CSM) for the upland portion of the site based upon existing data, as well as provides a summary of data gaps in the current available information. The report focuses on the uplands portion of the property and does not include known contamination associated with marine sediments. The information in this report is based on three Whatcom Environmental Services reports including a 2017 Phase I Environmental Site Assessment (ESA), a 2018 Initial Investigation Report, and a 2018 Draft Remedial Investigation (RI) Report.

The CSM includes primary contaminant sources associated with boat repair and maintenance, including paint stripping and application, former aboveground and underground storage tanks (USTs), stormwater collection and transport, and creosote-treated wood. Analytical data gaps associated with the horizontal and/or vertical extent of contamination were identified, as well as historical data gaps associated with site use, development, and recordkeeping.

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ACRONYMS

AST	aboveground storage tank
bgs	below ground surface
BLWA	Boat Lift Work Area
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CSM	conceptual site model
ESA	Environmental Site Assessment
Leon	Leon Environmental LLC
MTCA	Model Toxics Control Act
OPALCO	Orcas Power and Light Company
PAH	polycyclic aromatic hydrocarbon
RI	Remedial Investigation
SRWA	Ship Rail Work Area
the Site	1293 Turn Point Road, Friday Harbor, Washington.
TPH-D	diesel-range petroleum hydrocarbons
TPH-O	oil-range petroleum hydrocarbons
UST	underground storage tank

1 INTRODUCTION

This CSM and Data Gaps Report has been completed for the uplands portion of the former Jensen Shipyard Property located at 1293 Turn Point Road, Friday Harbor, Washington (the Site). A Vicinity Map is provided as Figure 1, and a Site Map is provided as Figure 2. The subject property was recently acquired by the Port of Friday Harbor. The Port of Friday Harbor has obtained an Integrated Planning Grant to facilitate this study, among other remedial actions and investigations.

The purpose of this CSM and Data Gaps Report is to present an overview of the known contamination on the site and its primary sources, release mechanisms, transport mechanisms, and potential receptors. Data gaps are analyzed to determine which areas may benefit from future additional investigation, and where data is missing to an extent that it impacts the understanding of the Site. The CSM will be refined as more data from future investigations and studies becomes available.

1.1 Site History Summary

The Site is located at 1293 Turn Point Road in Friday Harbor and anecdotal evidence suggests it has been operating as a Shipyard since as early as 1910 (Whatcom Environmental Services, 2017). Originally wooden boats were built on the subject property, but then operations transitioned to boat maintenance and repair as wooden boats were replaced with non-wood vessels. The subject property remains a shipyard and has expanded and developed over the past century. Adjacent properties have had similar histories, serving as marinas or commercial/industrial businesses along the shoreline.

1.2 Previous Reports

Whatcom Environmental Services has completed three reports on the uplands of the subject property:

- Phase I Environmental Site Assessment, Jensen's Shipyard, November (2017)
- Initial Investigation Report, Jensen's Shipyard, April (2018a)
- Draft Remedial Investigation Report, Jensen's Shipyard and Marina, October (2018b)

Information provided in investigation reports is used as the basis for the evaluation of data gaps and developing the CSM in this report. The Initial Investigation Report explored recognized environmental conditions found in the Phase I ESA by taking primarily surface

samples, and the draft RI Report further explored the conclusions of the initial investigation. Analytical data tables and figures from these reports are provided in Appendix A.

1.3 Physical Features of the Site

The subject property is approximately 4.8 acres and is comprised of parcel 351341005000. The Site is zoned as Rural Industrial. There are currently seven structures on the subject property including a storage building, machine shop, office/retail building, derelict boat building structure, oil storage building, a wash water treatment building, abandoned dumpsite, and an abandoned cabin. Surfaces of the Site are largely unpaved, with gravel as the primary ground surface in the boat work areas, and grass and foliage covering approximately 2 acres of undeveloped land. Marina features on the subject property include a pier, bulkhead, boat pullout area with a travel lift, and railways into the water. Generally, the previous owner of the Site deferred many repairs, and many manmade features are in poor condition. Other features include a lined stormwater detention pond, paved laydown area, and parking. Select features are presented in Figure 3.

1.4 Study Area Boundaries

The study area is confined to the uplands portion of the shipyard, parcel 351341005000. This report does not consider sediment sampling or the shoreline area of the adjacent parcels in developing the CSM. The in-water portion of the shipyard has been evaluated in a draft CSM and data gaps report by Leon Environmental LLC (Leon, 2019).

1.5 Report Organization

This report initially describes the physical, chemical, and biological processes that control the release, transport, migration, and actual or potential impacts of contamination on site. A CSM based on available previous reports is presented. The CSM outlines primary areas of concern, primary sources, transport mechanisms, secondary sources, secondary transport mechanisms, and potential impacts. The report then details exposure mediums and pathways. In addition, the report uses the CSM to identify potential data gaps in the previous investigations and offers recommendations on future investigation.

2 PHYSICAL PROCESSES CONCEPTUAL SITE MODEL (CSM)

The physical processes CSM categorizes areas on the Site as primary source areas. These areas contain one or more sources which can reasonably be assumed to be responsible for known contamination in the area. Release and transport mechanisms are then detailed.

This information can be used to interpret the nature and possible extent of contamination where possible, and exposes data gaps when the extent cannot reasonably be determined.

2.1 Primary Source Areas

The uplands of the Site are divided into multiple primary source areas (Figure 3). Though each source is connected to shipyard work, differences in areas may include depth of contamination and primary source. An evaluation of the data gaps within these primary source areas is provided in Section 4.5.

2.1.1 Former Orcas Power and Light Company (OPALCO) Pad Western Property Edge Surface Contamination (Carcinogenic Polycyclic Aromatic Hydrocarbons [cPAHs] and Metals)

The former OPALCO storage area is in the western portion of the site and extends north to the shoreline. Contamination in this area includes surface contamination of cPAHs, cadmium, copper, lead, and zinc. The contamination is likely due to shipyard operations in the area, including stripping paint. Additionally, OPALCO may have stored creosote-treated wood. The OPALCO building burned down and only the building foundation remains, contributing to the cPAH contamination in the area.

2.1.2 Boat Lift Work Area (BLWA) Contamination (Carcinogenic Polycyclic Aromatic Hydrocarbons [cPAHs], Metals, and Diesel-range Petroleum Hydrocarbons [TPH-D])

The BLWA is near the shoreline. cPAHs and zinc contamination exists in the surface soil. Copper, lead, and TPH-D are present a few feet deep, and are not vertically limited. Metals contamination is likely from stripping and applying paint in the work area. cPAH contamination is likely from the presence of treated wood in the area or draining bilges, which frequently contain engine oil or lubricants. TPH-D contamination may be from dumping of fuel, draining of bilges, or leaks while working on boats in the work area. Fill was likely brought in at some point to elevate this area, which may have been contaminated from its former area of use. The limits of contamination in the BLWA are not defined to the south.

2.1.3 Ship Rail Work Area (SRWA) (Metals, Carcinogenic Polycyclic Aromatic Hydrocarbons [cPAHs] and Diesel-range Petroleum Hydrocarbons [TPH-D])

The SRWA is to the west of the boat building, a structure where boats were historically built and repaired. A rail line exists to the east of the pier. Surface contamination includes copper and zinc, likely from the paint stripping operations, or loose paint flaking off boats during their transport. Deeper contamination includes cPAHs, arsenic, lead, mercury, and

TPH-D. This contamination can be attributed to the boat building or maintenance activities in the nearby structure, paint chips, and leaks from boats being transported or stored on the rail line ramp. Fill was likely brought in at some point to develop the shoreline of this area, which may have been contaminated from its former area of use. The arsenic contamination may be an artifact of redox conditions created by TPH-D contamination. After boats were removed from the water on the rail line, the bilges may have been drained on site. The bilge water likely contained oil and lubricants, which contributed to the spread of cPAH and TPH-D contamination.

2.1.4 Former Aboveground Storage Tank (AST) Area (Diesel-range Petroleum Hydrocarbons [TPH-D])

The former AST area has TPH-D and oil-range petroleum hydrocarbons (TPH-O) contamination in soil and groundwater. This is likely due to leaks and/or spills from the AST, or during filling operations due to poor maintenance. The leaks and/or spills likely contacted soil and continued deeper, migrating to groundwater. Petroleum is present in groundwater at MW-1. Surface soil contamination of cadmium, copper, and lead is also present at MW-1. The shop building has a drain with an unknown outfall, which may be contributing to the local contamination.

2.1.5 Stormwater Pond

The existing stormwater pond collects and detains stormwater from the site. The pond contains elevated concentrations of metals. The pond is lined and relies primarily on evaporation or manual removal of stormwater. There is a 6-inch overflow outfall pipe, which releases on the shoreline. If the pond has overflowed or leaked, it could lead to localized releases of the metals or petroleum if present; however, no documentation of the stormwater pond overflowing via the outfall has been found. No sampling of soil or groundwater was performed near the pond.

2.1.6 Former Underground Storage Tank (UST) Area

A former UST existed east of the boat building structure. Two test pits were dug in the footprint of the former AST and revealed no indication of petroleum contamination. If the UST ever leaked, the contamination was apparently removed during the removal of the UST. MW-5 was sampled for groundwater near the former UST and did not have detections of petroleum contamination.

2.1.7 Former Debris Dumping Area

An area formerly used for dumping of miscellaneous boat parts and broken batteries were observed during the Phase I ESA. This area is near the shoreline to the east. Follow-up

surface sampling and test pit sampling revealed elevated levels of petroleum and lead in one sample in the former dump area. Groundwater has not been sampled in this area, and soil deeper than 2.5 feet below ground surface (bgs) has not been investigated.

2.2 Release and Transport Mechanisms

The potential sources of contamination and transport mechanisms within the source areas include:

- Paint stripping and application: Paint stripping and application is a source of heavy metal contamination including lead, copper, nickel, and cadmium. Marine paint has historically contained metals to provide antifouling, anticorrosive, biocide, and longevity properties to paint. Paint chips can fall to the ground and be mobilized by stormwater, wind, and vehicles moving on the site. Additionally, metals can leach from paint into groundwater and stormwater.
- Creosote-treated wood: Treated wood has been used on the subject property as railroad ties, pier columns, and has been likely stored on the site. Creosote is known to contain polycyclic aromatic hydrocarbons (PAHs) and diesel/oil-range hydrocarbons. Deteriorating or leaching creosote wood from the pier, railroad ties, or wood storage could deteriorate and be transported by wind and stormwater.
- Boat building and maintenance: Boat maintenance may include working with petroleum products including diesel and oil. Paints containing metals and lubricants containing cPAHs were also likely used. Over the course of the shipyard's history, it is likely that some amount of petroleum, paint, lubricants, or other maintenance-related fluids were spilled or drained in the area where work was being conducted, likely near the lift where the boats are removed from the water, maintenance and boat construction buildings, and the machine shop. A large source of these releases may be from purging bilge water as boats were hauled out of the water, which could contain engine oil, lubricants, fuel, coolant, and other hazardous substances. The testing and maintenance of older two-stroke engines could contribute to the spread of petroleum and PAHs through the coolant water mobilizing contaminants across the site.
- The machine shop contains a drain which has an unknown outlet location. The machine shop drain has been sampled to contain TPH-D, TPH-O, volatile organic compounds, semi-volatile organic compounds, and metals. The leaks, spills, and drains can cause soil, surface water, or groundwater contamination.
- Former AST: Evidence of an AST was observed south of the machine shop during the Phase I ESA. Elevated concentrations of TPH-D and TPH-O were found near the AST. This is likely due to leaks or spills associated with the operation of the AST, possibly during fueling, or leaks due to poor maintenance. Leaks have contaminated the soil in the area of the former AST and have created detectable concentrations of petroleum in groundwater downgradient of the AST.

- Dumping: Evidence of dumping miscellaneous boat parts and batteries was observed on the site during the Phase I ESA. Leaks from broken batteries could be a source of lead and copper, as well as other metals. Lubricants on engine parts could be a source of petroleum. Leaks from old radiators could contain coolant which may be a source of lead and copper or other metals. These parts could drip onto the soil, contaminating soil and groundwater over time. Rain would mobilize leaking fluids via infiltration to groundwater and overland to surface water.

2.3 Secondary Sources and Transport Mechanisms

The primary sources and mechanisms above may generate secondary sources including contaminated stormwater and associated sediment, groundwater, soil, and fugitive dust. These secondary sources may be transported via secondary transport mechanisms including:

- Contaminants may be mobilized from soil through infiltration and leaching to groundwater or overland transportation to stormwater, surface water or sediment.
- Fugitive dust and paint chips may be mobilized by wind to surface water and sediment.
- Petroleum may enter the vapor phase beneath the shop building and cause elevated concentrations of petroleum vapor in indoor air.

Figure 4 presents the CSM outlining the primary sources, transport mechanisms, exposure mediums, and exposure pathways.

3 EXPOSURE MEDIUMS, EXPOSURE PATHWAYS, AND POTENTIAL RECEPTORS

The potential exposure mediums at the subject property include contained stormwater, vapor, groundwater, contained sediment, and soil. These mediums may become contaminated via transport from the primary and secondary sources. Potential receptors may be exposed via direct contact, inhalation, or ingestion. These exposure mediums and pathways should be further evaluated as future development, land use, and construction advances.

Current and future human receptors may be exposed to hazardous substances by direct contact or ingestion of soil, groundwater, contained stormwater and associated sediment, or by inhalation of vapor or dust. These pathways are considered complete but minor as they are primarily incidental to construction and normal boatyard work where measures are taken to reduce exposure, such as the use of personal protective equipment while accomplishing work. Workers may be exposed via direct contact during future site

renovations requiring the excavation and handling of contaminated soil, contained stormwater and associated sediment, and/or groundwater. Workers should be made aware of the contaminated material and trained properly in handling the material, as well as wear the appropriate personal protective equipment to mitigate exposure hazards. Groundwater and surface water at the subject property is not a potential source of drinking water.

Vapor intrusion may be a direct pathway in the shop building from the petroleum contamination in the former AST area directly outside of the shop building. Petroleum may be contaminating the local atmosphere inside of the shop building due to vapor intrusion, though an analysis has not been completed.

Ecological receptors in the uplands may be exposed to hazardous substances via direct contact or ingestion of the surface water, soil, or sediment. The primary ecological receptor would be water fowl landing in the stormwater pond, benthic organisms in the sediment of the stormwater pond, and burrowing mammals in the undeveloped portions of the Site. These ecological receptors have complete pathways but are expected to be minor exposures given the poor quality of habitat in the develop portions of the Site.

The sediment exposure pathways for the overwater portion of the Site are covered in detail in the 2019 Leon report (Leon, 2019).

4 DATA GAPS ANALYSIS

4.1 Whatcom Environmental Services Initial Investigation

The 2018 initial investigation report was conducted to explore the recognized environmental conditions discovered during the Phase I ESA. The report details using a hand auger to take near-surface samples and a small excavator to dig test pits in the footprint of the former UST. Groundwater was not encountered nor sampled during the investigation, and the report found near-surface contamination of metals, petroleum, and cPAHs (Whatcom Environmental Services, 2017).

4.2 Remedial Investigation (RI)

The most recent report on the subject property is a 2018 Draft RI Report by Whatcom Environmental Services, which includes applicable historical data from previous reports as well as new data found during the investigation. This report is the most recent environmental evaluation of the upland portion of the subject property and is used as the basis of this data gaps analysis and CSM.

4.3 Soil Data Summary

Seventy-one (71) soil samples have been obtained from the surface and shallow subsurface of site by Whatcom Environmental Services. Contaminants are largely present in the surface soils, with contamination extending to a few feet bgs in some locations. The primary contaminants of concern include metals (arsenic, cadmium, copper, lead, mercury, and zinc); petroleum hydrocarbons; cPAHS; chlorinated dibenzo-p-dioxins; and chlorinated dibenzofurans (dioxins/furans). Areas of contamination detailed by contaminant of concern can be found in Figures 2 through 10 of the 2018 Draft RI Report (Whatcom Environmental Services, 2018b), presented in Appendix A.

4.4 Groundwater Data Summary

Groundwater was sampled from six groundwater monitoring wells in 2018. Depths to water range from 28.6 feet near the southern edge of the site, with the other monitoring wells between 11 and 4.5 feet bgs. The only Model Toxics Control Act (MTCA) Method A exceedance was found in MW-1, with dissolved arsenic above the criteria. The wells were placed primarily in the southern half of the site, with no wells near the BLWA. The approximate placement of the wells can be seen in Figure 3, and the Whatcom Environmental Services groundwater data is presented in Appendix A.

4.5 Data Gaps

The previous sampling reports were reviewed and data gaps were discovered in the soil and groundwater sampling. Data gaps were also noted in site history and recordkeeping.

4.5.1 Soil Data Gaps

Areas which contain data gaps and are candidates for additional exploration are outlined in Figure 5 and grouped by potential source area below.

- SRWA: Samples SRWA-1, SRWA-2, and SRWA-3 were taken from the area northwest of the boat building structure and included MTCA Method A exceedances of arsenic, TPH-D, lead, mercury, and cPAHs. Additional exploration was conducted near SRWA-2 with sample locations SRWA-4 and SRWA-5, which did not find contamination above MTCA A at a depth of 3.5 feet bgs. SRWA-6 contains mercury above MTCA Method A with no limits defined. SRWA-7 contains a cPAH exceedance at 3 feet bgs with no limits defined. The vertical extent of contamination in SRWA-1, SRWA-3, SRWA-7, and lateral extent of mercury near SRWA-6 is a data gap.
- Old boat building structure: During the Phase I ESA, the old boat building structure was determined to be unsafe for entry. The ground conditions beneath the structure and the contents of the old boat building structure remains a data gap. Additionally, lead-based

paints and polychlorinated biphenyl-containing caulking may be present on the exterior of the building, which could lead to leaching and contamination on the site.

- Former AST: The vertical extents of TPH-D and TPH-O contamination is not limited by sample AST-1, 2 feet. The sample contains TPH-D and TPH-O above MTCA Method A at a depth of 2 feet bgs, and no deeper sample has been obtained. The lateral bounds to the east, west, and south have also not been distinguished. The extent of this petroleum contamination near the former AST is a data gap.
- Former OPALCO Storage Area: Sample OPALCO PAD 1, taken at 4 inches bgs, has MTCA Method A exceedances of lead and cadmium. The vertical extent of this metal contamination has not been limited in this location. Nearby sampling location MW-4 has a sample taken from 11 feet, which has low concentrations of lead and non-detect concentrations of cadmium. Nearby sampling location OPALCO-3 has a lead exceedance in the surface soil and a low concentration of lead at 4 feet bgs. The lead and cadmium MTCA A exceedances at OPALCO PAD 1 may be limited to the first few feet of soil, as indicated by nearby explorations, but remains as a data gap.
- BLWA: Samples taken from BLWA-1 and BLWA-2 do not have vertical bounds on copper and lead MTCA A exceedances. BLWA-6, a location between BLWA-1 and BLWA-2, has lead contamination above MTCA Method A between 5 and 10 feet bgs. Lead at this depth suggests fill in this area. BLWA-6 also has elevated concentrations of TPH-D and TPH-O at 5 feet bgs. BLWA-4, closer to the shoreline, has a lead exceedance at 5 feet bgs which is not vertically limited. The vertical and lateral extent of contamination of lead and copper in the BLWA and the potential use of contaminated fill is a data gap.
- Site Wide: Chlorinated dioxins/furans exceeded MTCA Method A criteria in each sample taken (MW-4, 2 to 6 inches and MW-3, 2 to 6 inches). Only two samples were analyzed for these contaminants, and the extent of this contamination is unknown. The chlorinated dioxins/furans were likely generated from the same sources which created cPAH contamination. The cPAH testing should be used as an indicator contaminant for potential chlorinated dioxins/furans. The extent of the chlorinated dioxins/furans is data gap, though it likely reflects the cPAH contamination.
- Sitewide: PCBs have not been thoroughly analyzed throughout the Site. PCBs have been evaluated near the OPALCO Storage Area, near MW-4, and in boring SWRA-3. The lack of comprehensive PCB analysis is a data gap.
- Sitewide: Soil beneath the structures present on the site have not been evaluated due to access issues. Uninvestigated soil beneath the structures is a data gap.
- Soil Gas: Soil gas sampling has not been completed at the site, nor has a vapor intrusion study been completed. The lack of soil gas sampling and a vapor intrusion study is a data gap.
- Wooded area to the south: Soil and groundwater conditions have not been evaluated in the south end of the property. It is possible this area was used for indiscriminate

dumping. A walk-through observation of the area should be completed and follow-up sampling if evidence of indiscriminate dumping is noted.

- Former dump area: The former dump area was explored with composite sampling and test pits. Sample FDA-3 was collected as a composite sample from the base of the bluff to a depth of 2.5 feet bgs. This sample contained elevated concentrations of TPH-O and lead. The concentrations are below MTCA Method A, but is indicative that the dump area does contain contamination that has not been fully characterized. The extent and use of the former dump area, the former use of the abandoned cabin, and the extent of contamination in soil and groundwater is a data gap.
- History: The general site and utility history is a data gap. It is unknown when the stormwater pond was installed and what stormwater treatment or utilities, if any, were in use before the current system. Aerial photographs from 2011 show the site without the stormwater pond visible, so it can be assumed the pond was installed after 2011. The location of one outfall is known to be in the middle of the Site, but it is possible other outfalls may have existed.

4.5.2 Groundwater Data Gaps

Areas which contain data gaps and are candidates for additional exploration are outlined in Figure 5 and described below.

- Shoreline: Monitoring wells were not installed in areas downgradient of known contamination in the BLWA, the SRWA, or the OPALCO area. The groundwater conditions closer to the shoreline where there is risk for groundwater to infiltrate into the surface water is a data gap.
- Former AST: One groundwater sample was collected from MW-1, which is approximately 60 feet downgradient of the former AST and contained detectable concentrations of TPH-D and dissolved arsenic above MTCA Method A. Groundwater was not sampled in the direct vicinity of the former AST, where there is known elevated petroleum concentrations in soil. Groundwater conditions near the former AST is a data gap.
- The history and integrity of the stormwater system is unknown. If the system is cracked, leaking, or otherwise damaged, it may be releasing collected contaminated stormwater into the groundwater. It is unknown whether the system has ever been evaluated with a downhole camera to investigate for leaks or cracks, and current or historical utility maps are not available. The stormwater system history and integrity is a data gap.

4.5.3 Additional Exploration Recommendations

To fill in the data gaps, additional exploration and delineation is recommended. Additional recommended explorations are shown in Figure 5.

Shannon & Wilson, Inc. has prepared the enclosed "Important Information About Your Environmental Site Assessment/Evaluation Report" to assist you and others in understanding the use and limitations of our reports.

5 REFERENCES

Leon Environmental LLC (Leon), 2019, Draft intertidal and subtidal conceptual site model and data gaps report, Jensen and Sons Boatyard and Marina: Report prepared by Leon Environmental LLC, Seattle, Wash., March.

Whatcom Environmental Services, 2017, Phase I environmental site assessment, Jensen Shipyard, 1923 Turn Point Road, Friday Harbor, Washington: Report prepared by Whatcom Environmental Services, Bellingham, Wash., November.

Whatcom Environmental Services, 2018a, Initial investigation report, Jensen Shipyard, 1923 Turn Point Road, Friday Harbor, Washington: Report prepared by Whatcom Environmental Services, Bellingham, Wash., April.

Whatcom Environmental Services, 2018b, Draft remedial investigation report, Jensen Shipyard, 1923 Turn Point Road, Friday Harbor, Washington: Report prepared by Whatcom Environmental Services, Bellingham, Wash., October.

0 2,000 4,000

Approximate Scale in Feet

Jensen Shipyard
1293 Turn Point Road
Friday Harbor, Washington

VICINITY MAP

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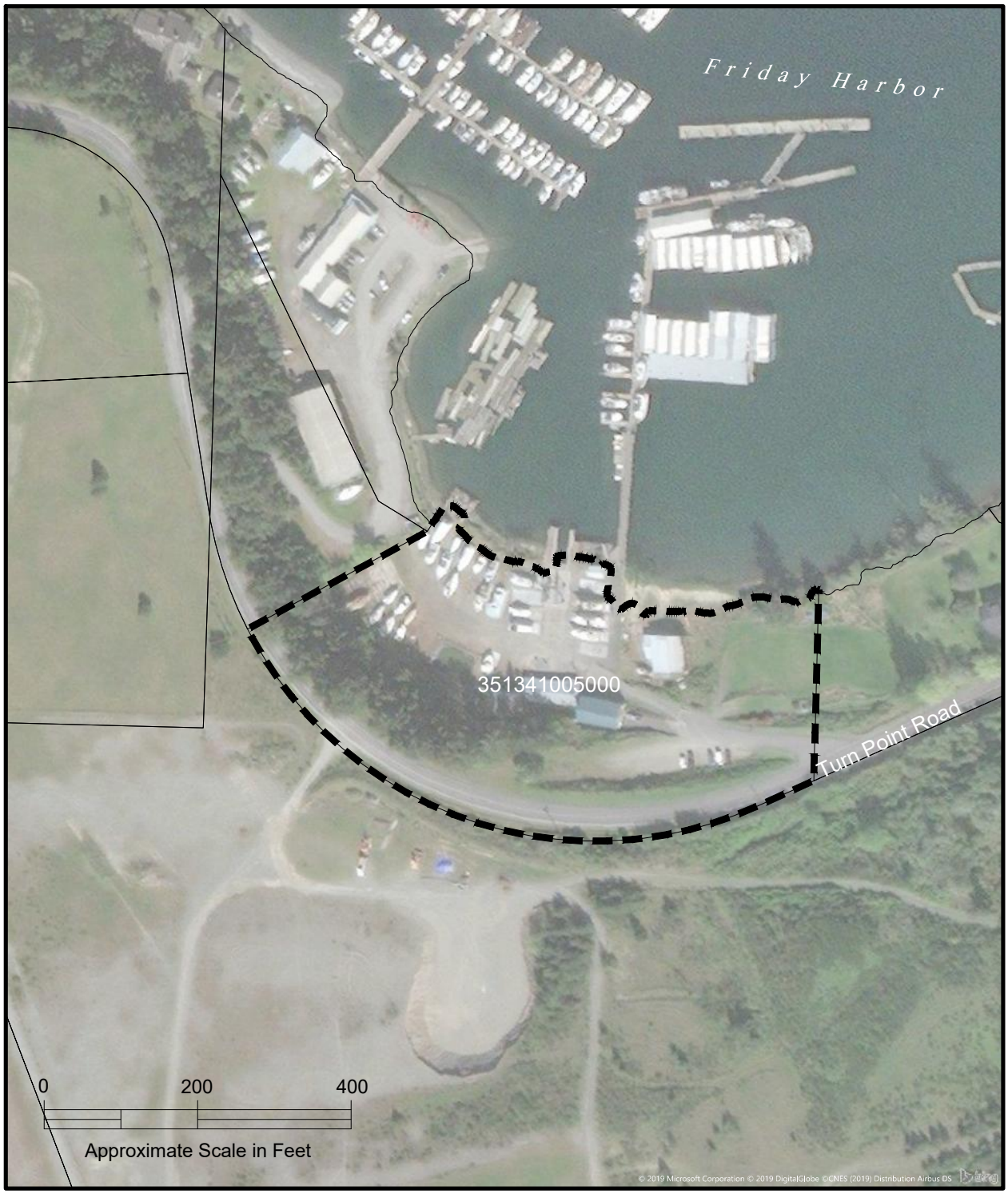
FIG. 1

Filename: \\sea-fs1\Drafting_SEA\101579\001\101579-001 Vicinity Map.dwg Date: 09-26-2019 Login: JRS



LEGEND

Subject Parcel

Other Parcels

Jensen Shipyard
1293 Turn Point Road
Friday Harbor, Washington

SITE MAP

September 2019 101579-001

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FIG. 2

Filename: \\sea-fs1\Drafting_SEA\101579\001\101579-001 Plan.dwg Date: 09-26-2019 Login: JRS

LEGEND

MW-1	Monitoring Well Designation and Approximate Location
BLWA-1	Soil Sample Designation and Approximate Location
	Approximate Subject Site Property Boundary

NOTE

1. General boat maintenance is site wide primary source.

0 60 120

Scale in Feet

Jensen Shipyard
1293 Turn Point Road
Friday Harbor, Washington

UPLANDS PRIMARY SOURCE AREAS

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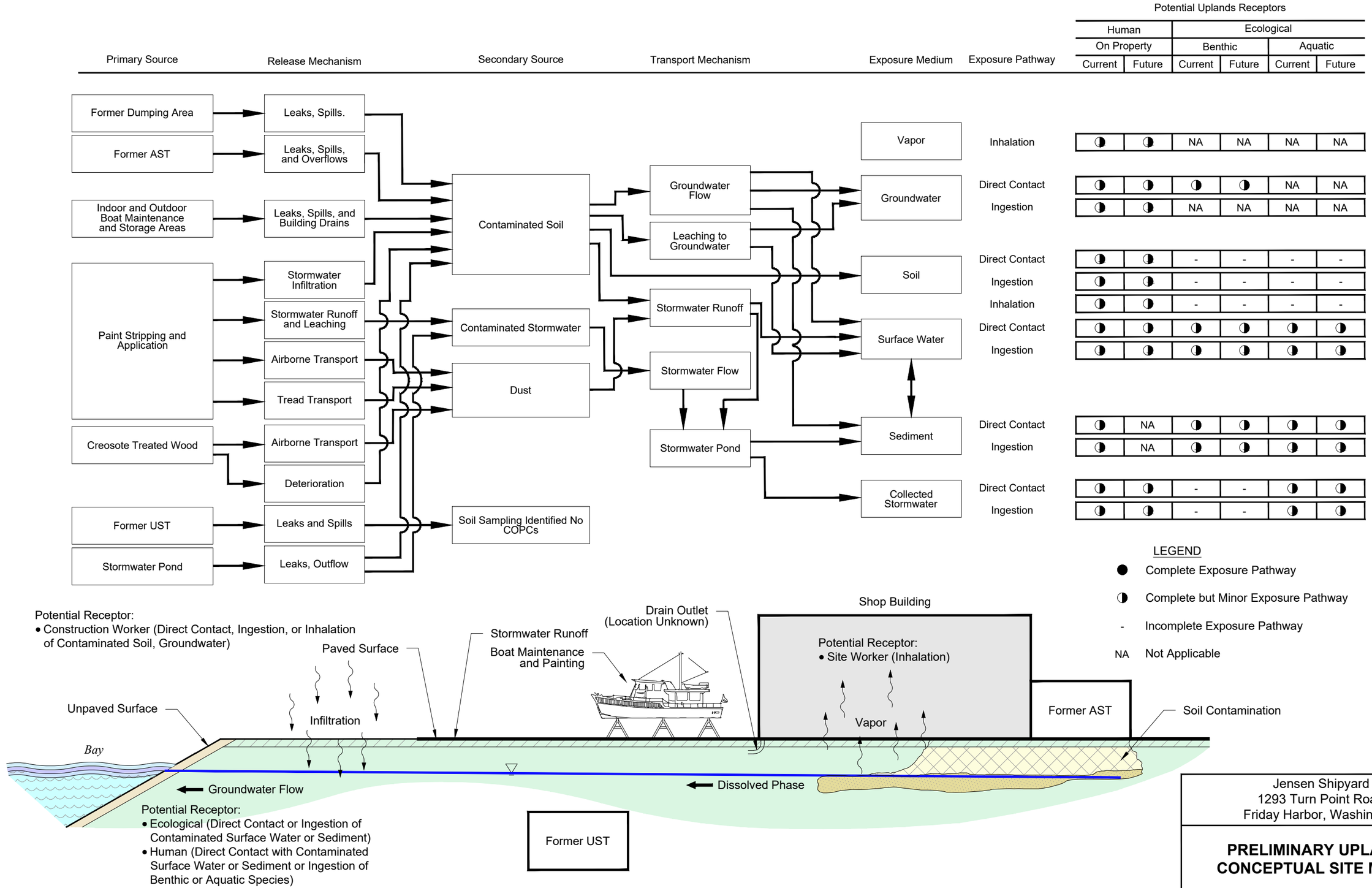
FIG. 3

Filename: \\sea-fs1\Drafting_SEA\101579\001\101579-001 AOC.dwg Layout: Figure 3 Date: 09-26-2019 Login: JRS



Exposure Medium	Exposure Pathway	Human On Property Current	Human On Property Future	Ecological Benthic Current	Ecological Benthic Future	Ecological Aquatic Current	Ecological Aquatic Future
Vapor	Inhalation	◑	◑	NA	NA	NA	NA
Groundwater	Direct Contact	◑	◑	◑	◑	NA	NA
	Ingestion	◑	◑	NA	NA	NA	NA
Soil	Direct Contact	◑	◑	-	-	-	-
	Ingestion	◑	◑	-	-	-	-
	Inhalation	◑	◑	-	-	-	-
Surface Water	Direct Contact	◑	◑	◑	◑	◑	◑
	Ingestion	◑	◑	◑	◑	◑	◑
Sediment	Direct Contact	◑	NA	◑	◑	◑	◑
	Ingestion	◑	NA	◑	◑	◑	◑
Collected Stormwater	Direct Contact	◑	◑	-	-	◑	◑
	Ingestion	◑	◑	-	-	◑	◑

Jensen Shipyard
1293 Turn Point Road
Friday Harbor, Washington

PRELIMINARY UPLANDS CONCEPTUAL SITE MODEL

September 2019 101579-001

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FIG. 4

Filename: \\sea-fs1\Drafting_SEA\101579\001\101579-001 Conceptual Site Model.dwg Layout: Figure 4 Date: 09-26-2019 Login: JRS

LEGEND

MW-1 ⊕	Monitoring Well Designation and Approximate Location
BLWA-1 ⊙	Soil Sample Designation and Approximate Location
— — —	Approximate Subject Site Property Boundary

0 60 120

Scale in Feet

Jensen Shipyard
1293 Turn Point Road
Friday Harbor, Washington

DATA GAPS

September 2019 101579-001

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FIG. 5

Filename: \\sea-fs1\Drafting_SEA\101579\001\101579-001 Data Gaps.dwg Layout: Figure 5 Date: 09-26-2019 Login: JRS

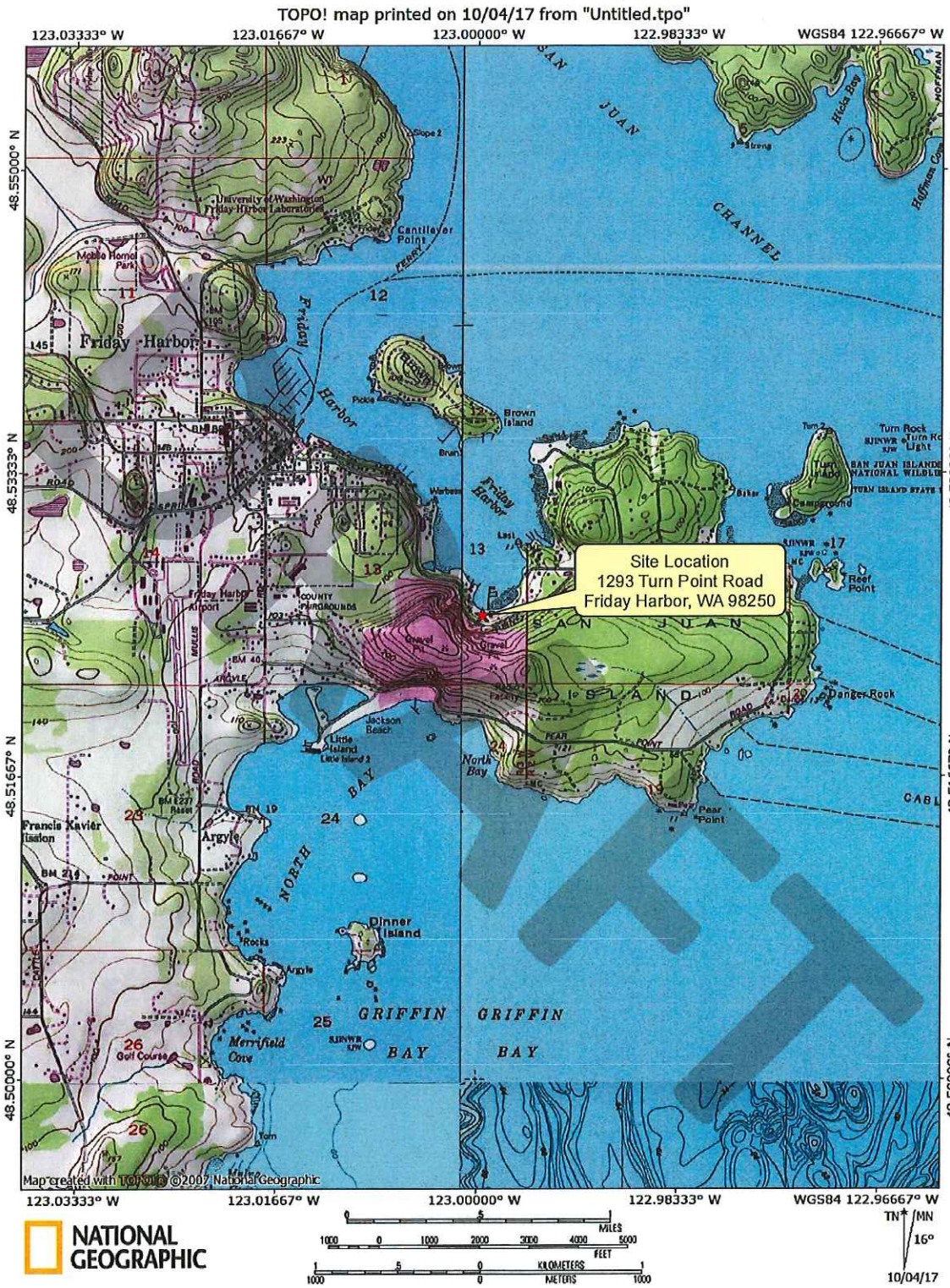
APPENDIX A: ANALYTICAL DATA TABLES AND FIGURES FROM PREVIOUS

Appendix A

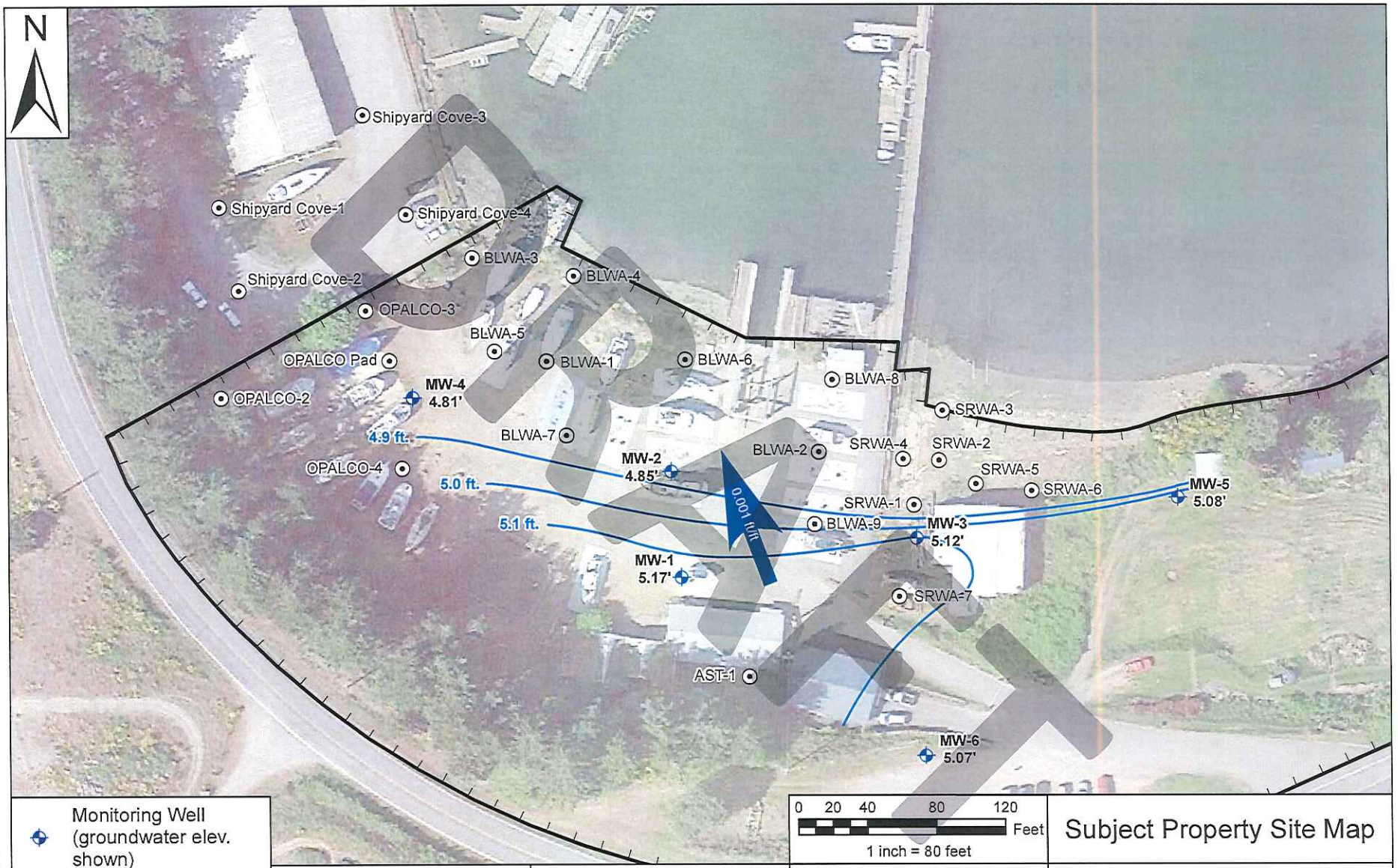
Analytical Data Tables and Figures From Previous Draft* and Final Whatcom Environmental Services Reports

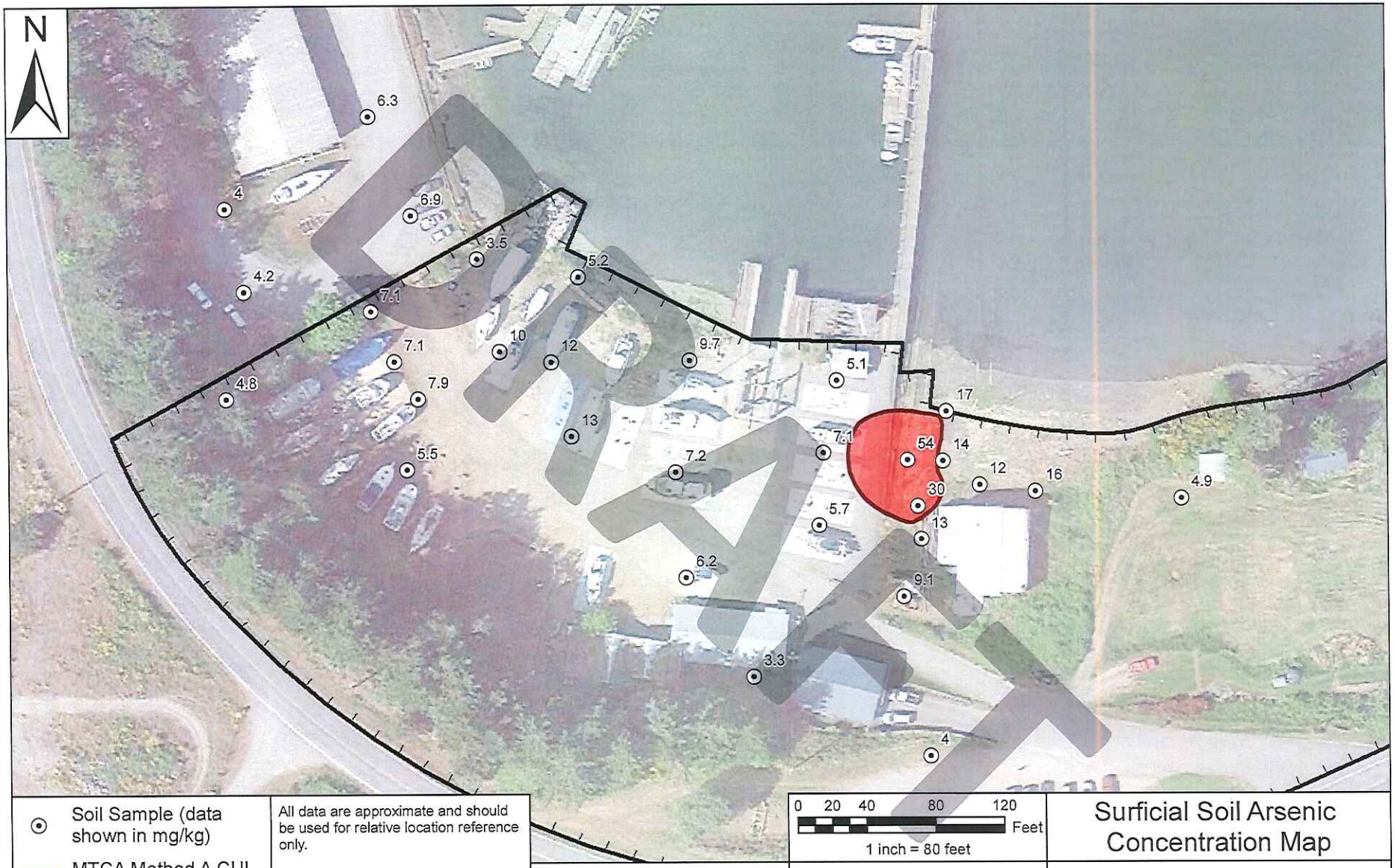
CONTENTS

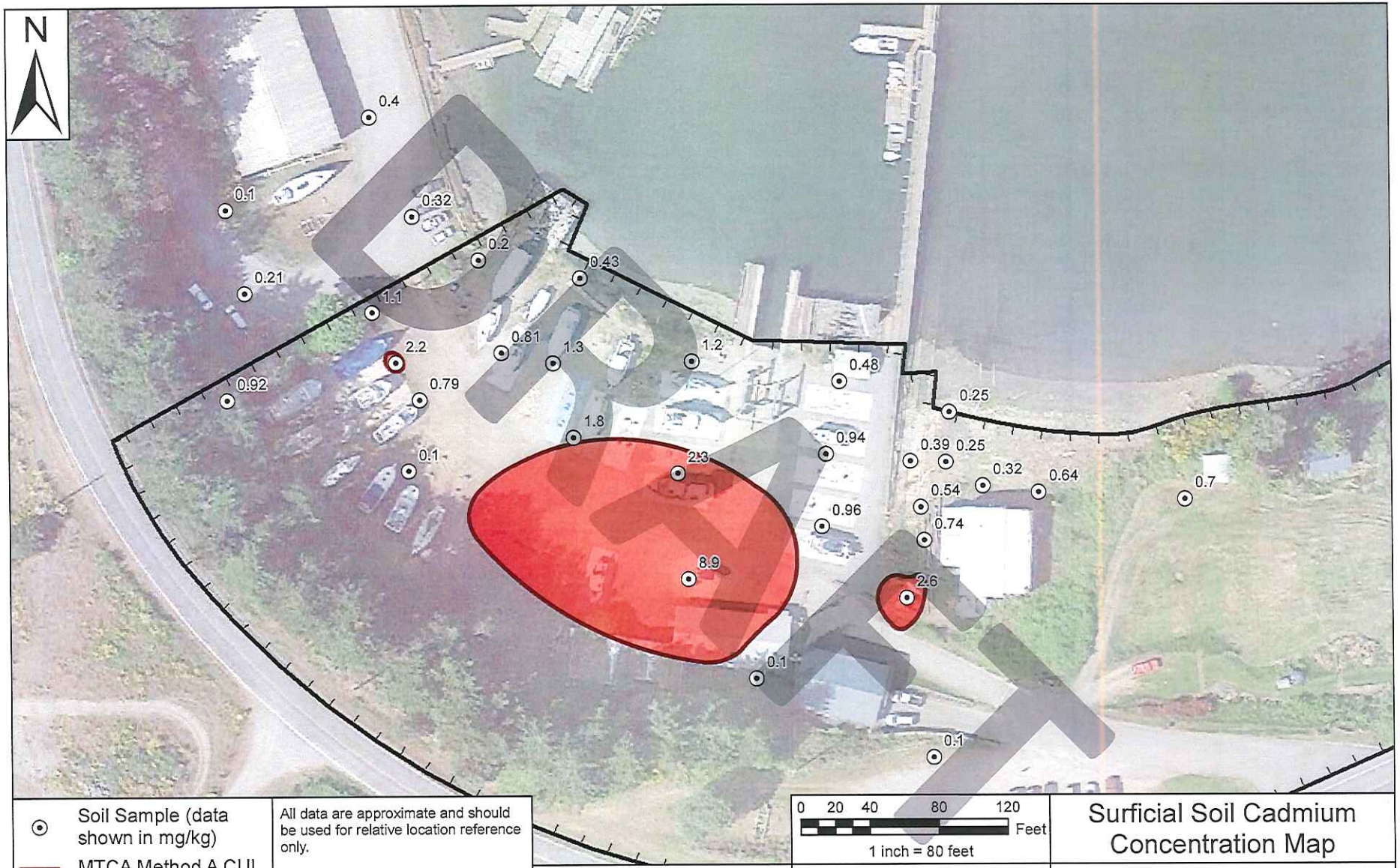
* Draft Figures and Tables are provided when a Final version is not available.



Prepared for:	Prepared by:	Site Location Map	
PORT OF FRIDAY HARBOR	whatcom ENVIRONMENTAL	Jensen's Shipyard Further Investigation 2/20/18	Figure 1


N
Shipyard Cove-3
Shipyard Cove-1
Shipyard Cove-4
BLWA-3
Shipyard Cove-2
BLWA-4
OPALCO-3
BLWA-5
OPALCO Pad
BLWA-1
BLWA-6
BLWA-8
OPALCO-2
MW-4
4.81'
SRWA-3
4.9 ft.
BLWA-7
BLWA-2
SRWA-4
SRWA-2
MW-2
4.85'
SRWA-5
OPALCO-4
5.0 ft.
SRWA-6
MW-5
5.08'
SRWA-1
0.001 ft/ft
5.1 ft.
BLWA-9
MW-3
5.12'
MW-1
5.17'
SRWA-7
AST-1
MW-6
5.07'
0 20 40 80 120
Feet
1 inch = 80 feet
Monitoring Well (groundwater elev. shown)
Soil Sample
Groundwater Elev. Contour (2018-08-29)
Subject Property
All data are approximate and should be used for relative location reference only.
2015 aerial obtained from Google Earth.
Prepared for:
PORT OF FRIDAY HARBOR
Prepared by:
whatcom ENVIRONMENTAL
Subject Property Site Map
1293 Turn Point Road
Friday Harbor, WA 98250
Jensen's Shipyard
10/12/18
Figure 2


N
6.3
4
6.9
3.5
5.2
4.2
7.1
7.1
10
12
9.7
5.1
4.8
7.9
17
13
7.1
54
14
5.5
7.2
12
16
4.9
30
5.7
13
6.2
9.1
3.3
4
DRAFT
Soil Sample (data shown in mg/kg)
MTCA Method A CUL (20 mg/kg)
Ecology Indicator - Wildlife (132 mg/kg)
Subject Property
All data are approximate and should be used for relative location reference only.
2015 aerial obtained from Google Earth.
Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.
0 20 40 80 120 Feet
1 inch = 80 feet
Prepared for:
PORT OF FRIDAY HARBOR
Prepared by:
nwhatcom ENVIRONMENTAL
Surficial Soil Arsenic Concentration Map
1293 Turn Point Road
Friday Harbor, WA 98250
Jensen's Shipyard
10/12/18
Figure 3



Soil Sample (data shown in mg/kg)

MTCA Method A CUL (2.0 mg/kg)

Ecology Indicator - Wildlife (14.0 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

0 20 40 80 120 Feet

1 inch = 80 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

Surficial Soil Cadmium Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 4

Soil Sample (data shown in mg/kg)

MTCA Method A CUL (3200 mg/kg)

Ecology Indicator - Wildlife (217 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

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Prepared by: nwhatcom ENVIRONMENTAL

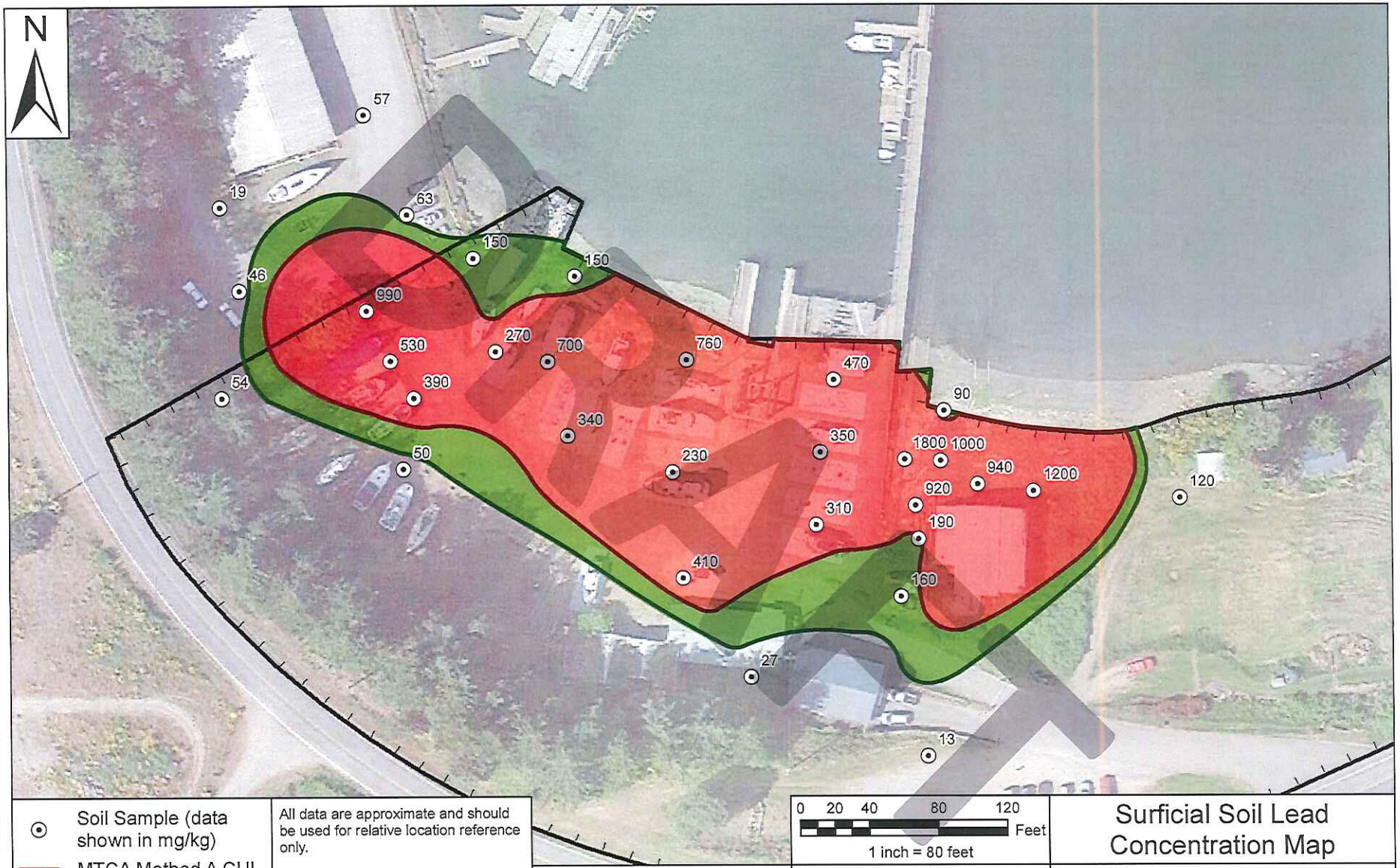
Surficial Soil Copper Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 5



Soil Sample (data shown in mg/kg)

MTCA Method A CUL (250 mg/kg)

Ecology Indicator - Wildlife (118 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

0 20 40 80 120 Feet

1 inch = 80 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

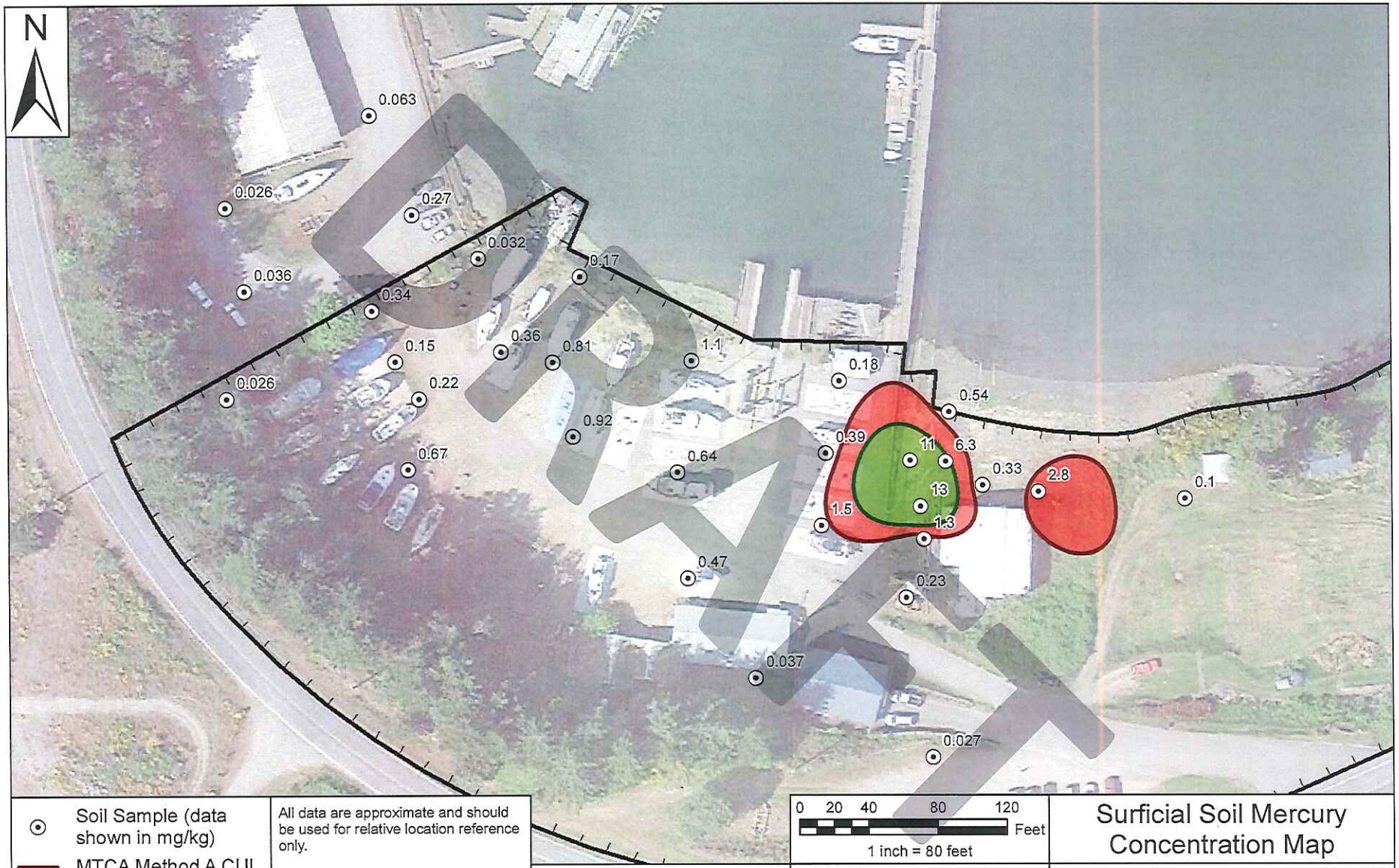
Surficial Soil Lead Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 6



Soil Sample (data shown in mg/kg)

MTCA Method A CUL (2.0 mg/kg)

Ecology Indicator - Wildlife (5.5 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

0 20 40 80 120 Feet

1 inch = 80 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

Surficial Soil Mercury Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 7

Soil Sample (data shown in mg/kg)

MTCA Method A CUL (24,000 mg/kg)

Ecology Indicator - Wildlife (360 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

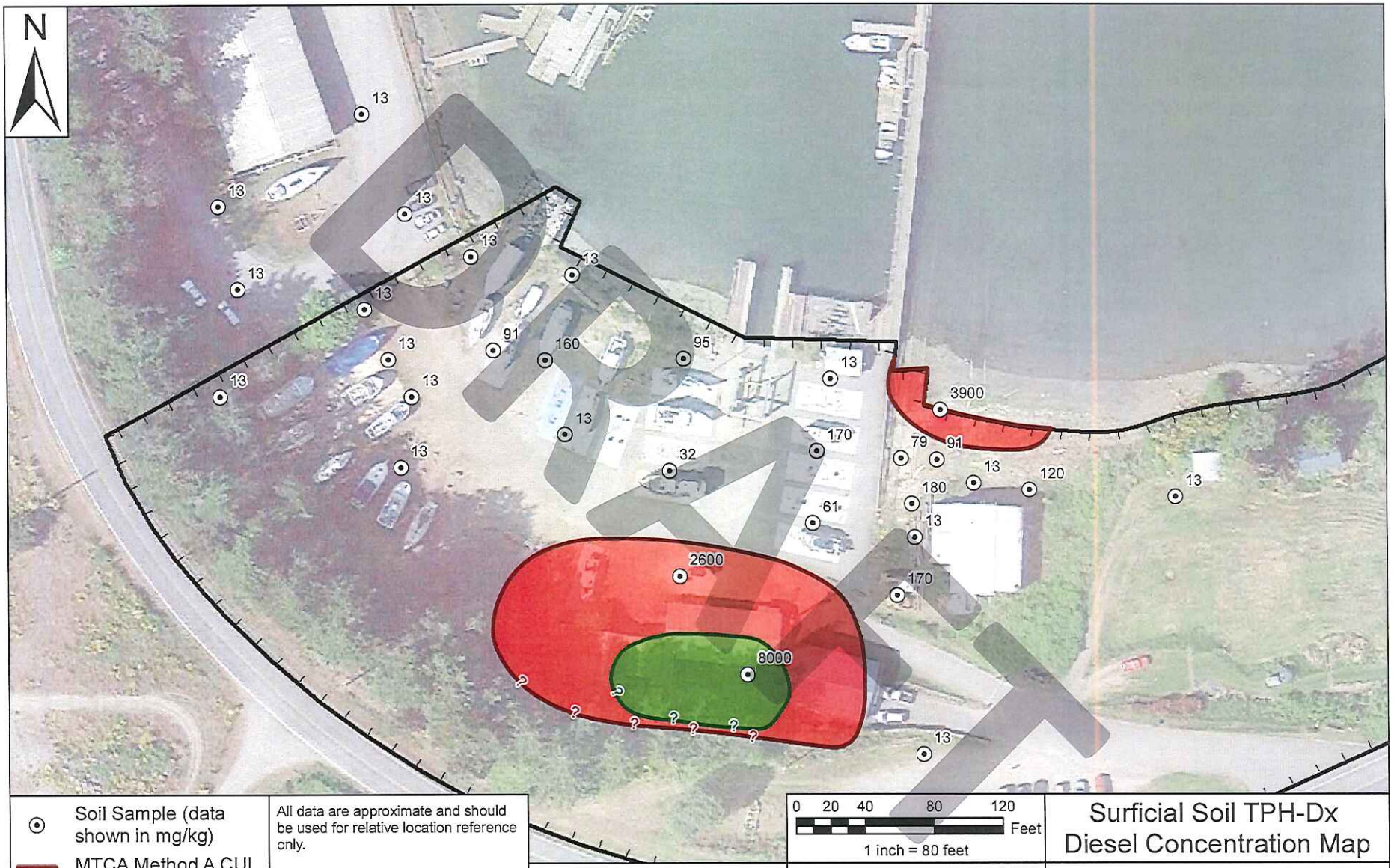
Surficial Soil Zinc Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 8



Soil Sample (data shown in mg/kg)

MTCA Method A CUL (2000 mg/kg)

Ecology Indicator - Wildlife (6000 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

0 20 40 80 120 Feet

1 inch = 80 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

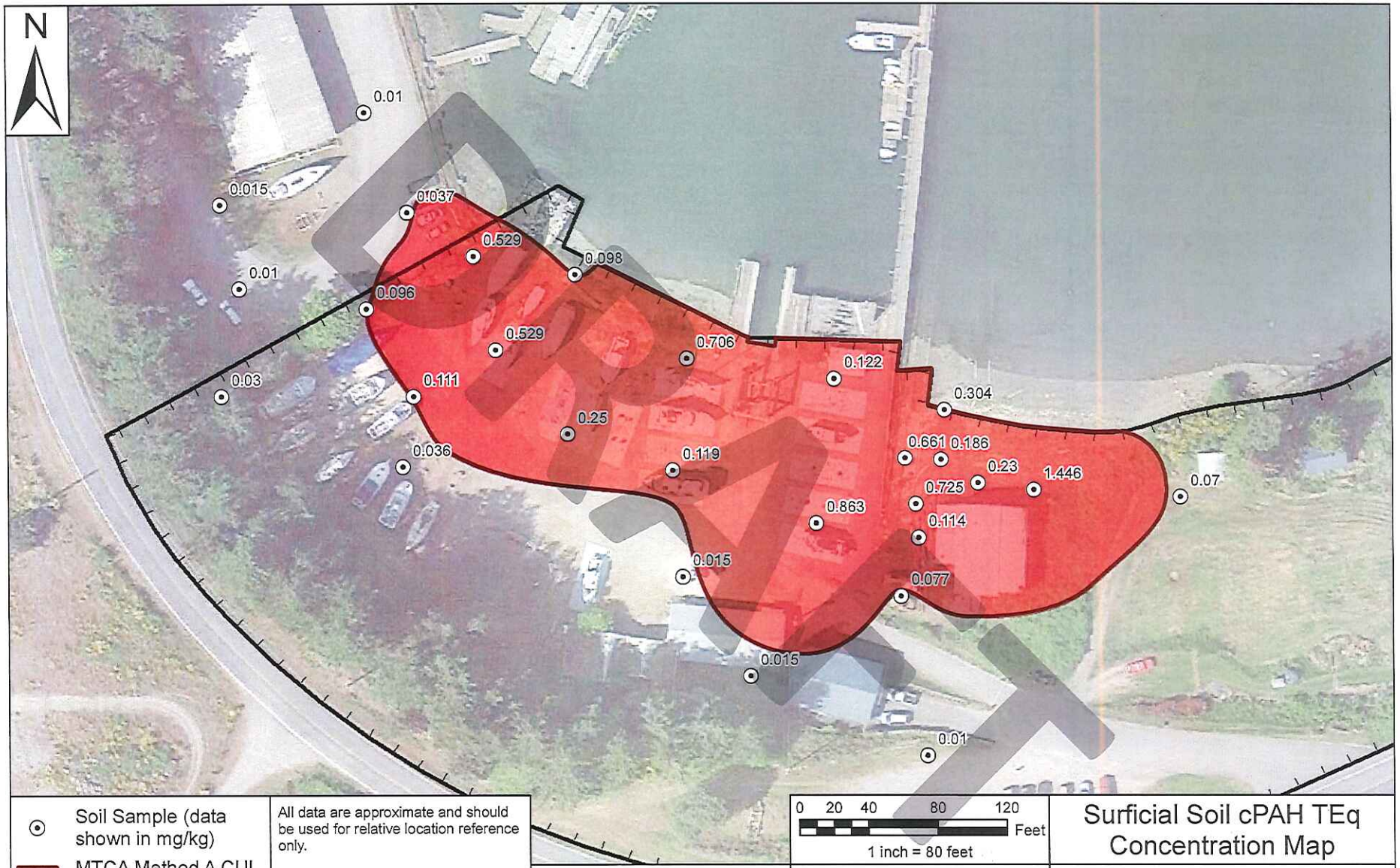
Surficial Soil TPH-Dx Diesel Concentration Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 9



Soil Sample (data shown in mg/kg)

MTCA Method A CUL (0.1 mg/kg)

Ecology Indicator - Wildlife (12 mg/kg)

Subject Property

All data are approximate and should be used for relative location reference only.

2015 aerial obtained from Google Earth.

Contaminant data shown are from surface samples, generally 2 to 6 inches bgs.

0 20 40 80 120 Feet

1 inch = 80 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: nwhatcom ENVIRONMENTAL

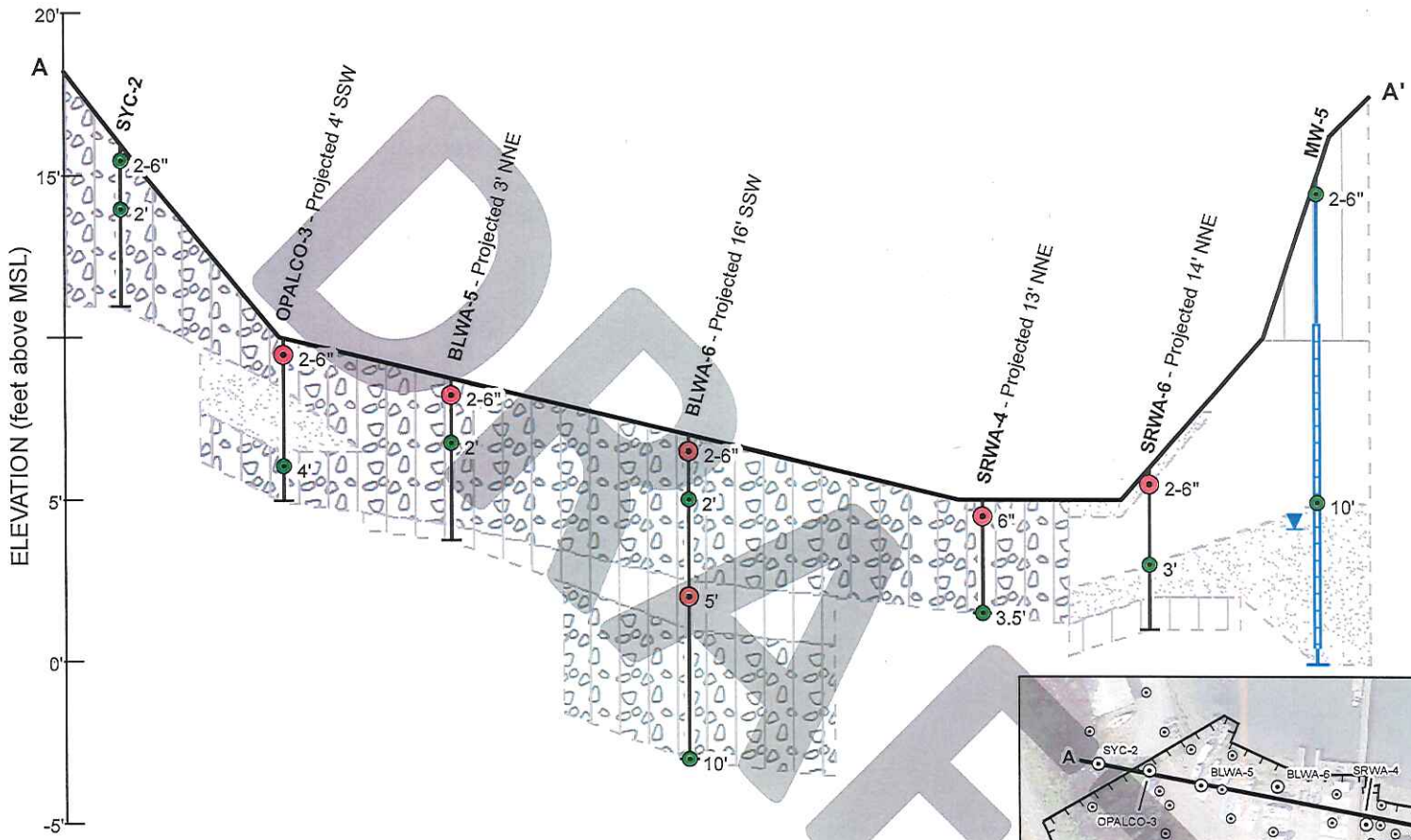
Surficial Soil cPAH TEq Concentration Map

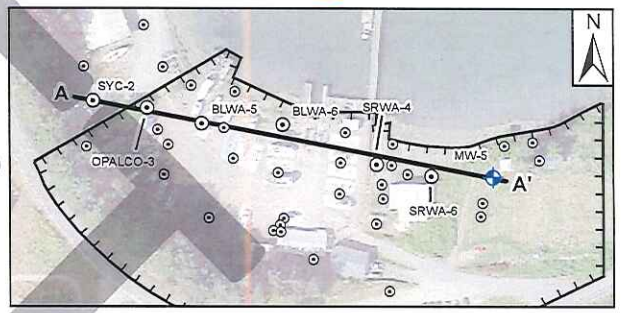
1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard

10/12/18

Figure 10





MW-4
Well/Boring Designation
Ground Surface
Screened Interval
Bottom of Boring
Groundwater Depth (8/29/18)

Soil Sample
- Exceeded MTCA A
- Met MTCA A

Soil Classification
- Silty Gravel
- Sand
- Silt
- No Recovery/No Data

All data are approximate and should be used for relative location reference only.

SCALE: HORZ. 1" = 80'
VERT. 1" = 5.3'
(15x Vertical Exaggeration)

Cross-Section A-A'

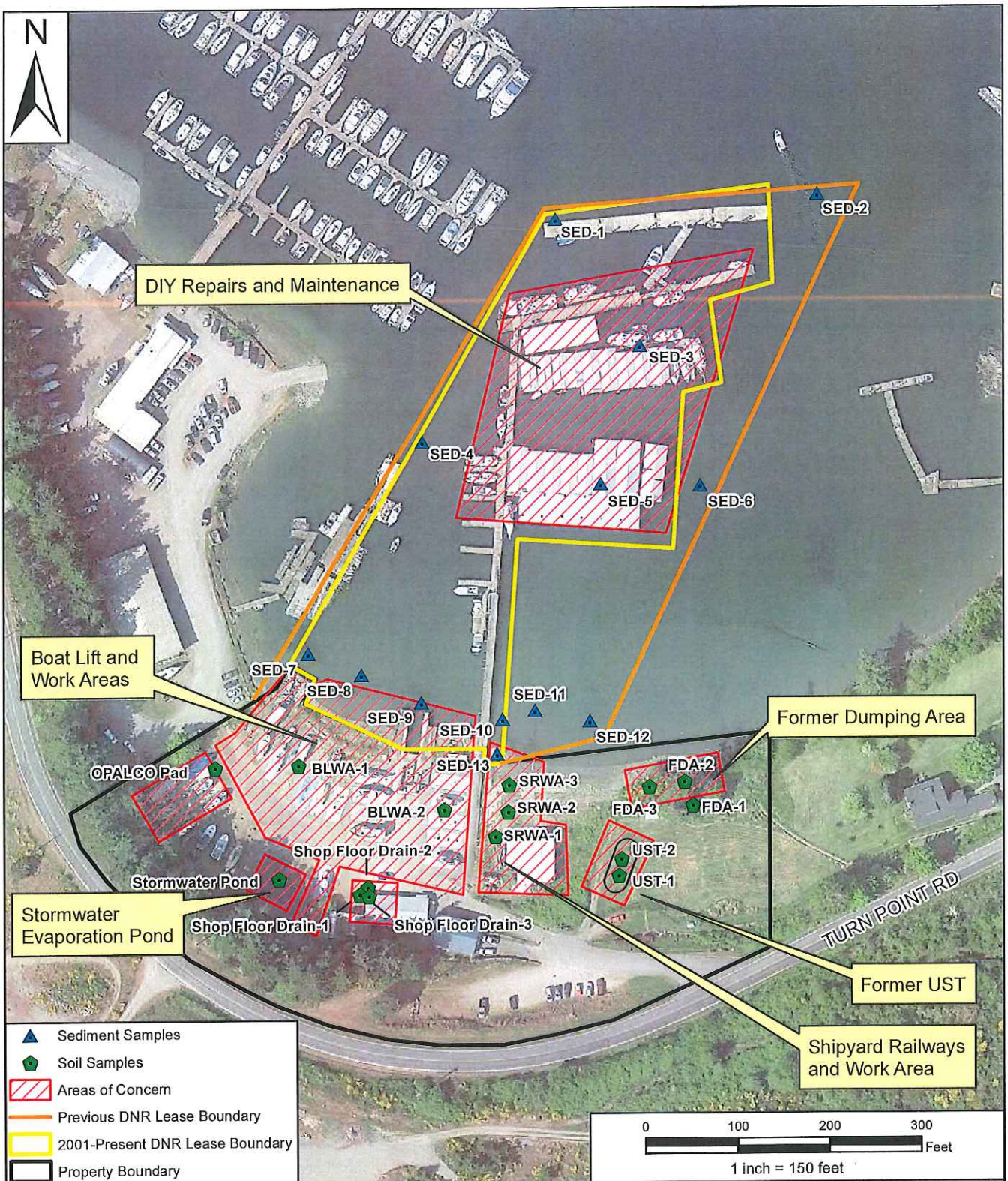
Prepared for: PORT OF FRIDAY HARBOR

Prepared by: whatcom ENVIRONMENTAL

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard
09/25/18

Figure 11



All data are approximate and should be used for relative location reference only.

2017 Google Earth photograph.

Subject Property and Sample Location Map

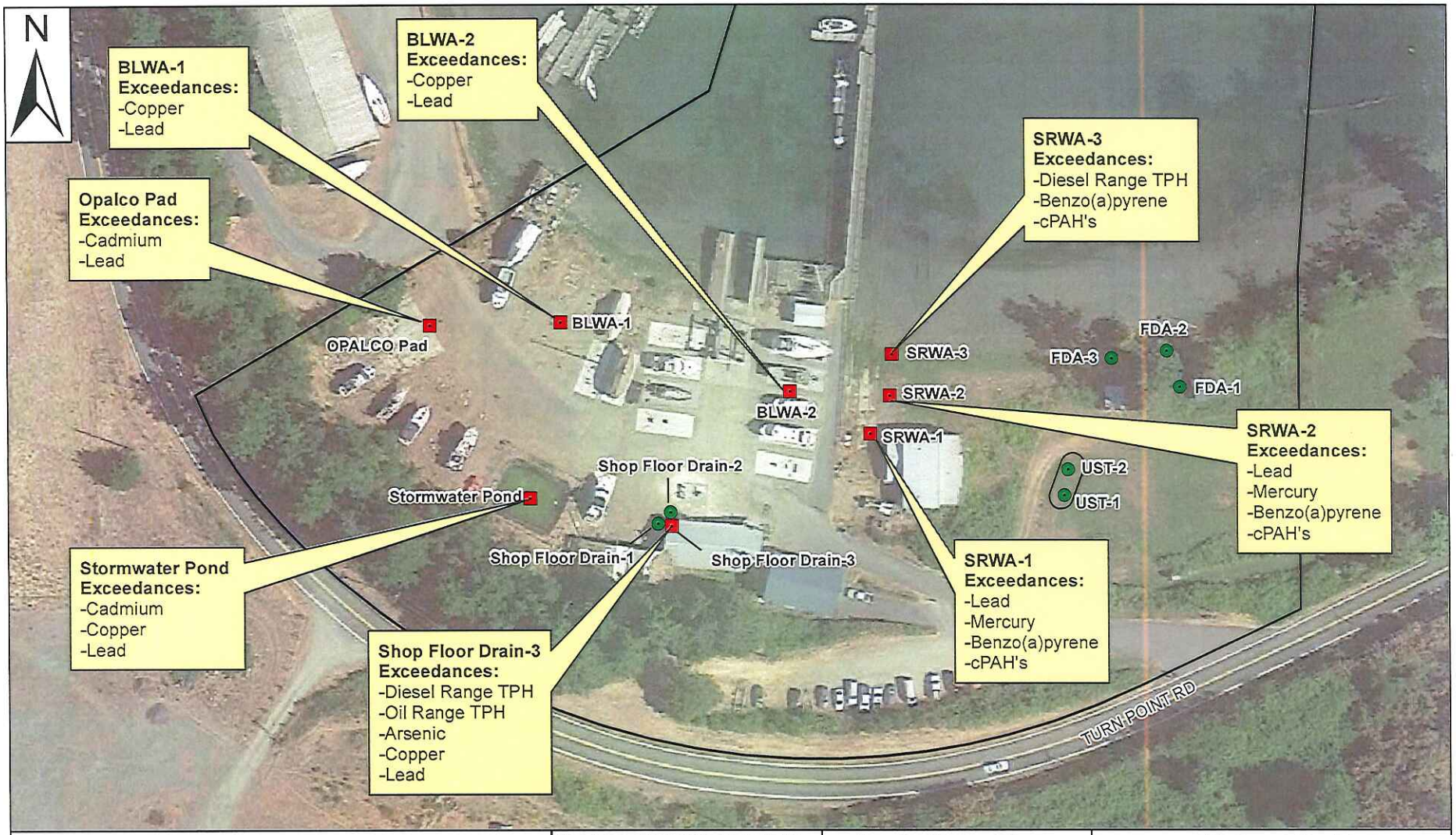
1293 Turn Point Road
Friday Harbor, WA 98250

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: whatcom ENVIRONMENTAL

Jensen's Shipyard
Initial Assessment
3/27/18

Figure 2



Soil Sample (no criteria exceedance)

Soil Sample (exceeds one or more criteria)

Subject Property

Former UST

All data are approximate and should be used for relative location reference only.

2017 Google Earth aerial photograph.

0 25 50 100 Feet

1 inch = 100 feet

Prepared for: PORT OF FRIDAY HARBOR

Prepared by: whatcom ENVIRONMENTAL

Upland Soil Sample Results Map

1293 Turn Point Road
Friday Harbor, WA 98250

Jensen's Shipyard
Initial Assessment
3/27/18

Figure 3

Table 1. Upland Soil Sample Descriptions - Jensen's Shipyard

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
Shop Floor Drain-1	1/24/2018	Collected using a hand auger 1 foot west of the northwest corner of the shop at 3.5 feet bgs. Coarse sand with gravel, brown, loose, moist.	0	VSS
Shop Floor Drain-2	1/24/2018	Collected using a hand auger 2 feet east, and 2 feet north of the northwest corner of the shop at 3.5 feet bgs. Coarse sand with gravel, brown, loose, moist.	0	NS
Shop Floor Drain-3	1/24/2018	Collected directly from shop floor drain inside the shop building using a 1 inch stainless steel soil punch at 1.5 feet bgs. Silty sand with organics, dark brown, firm, dry.	3.0	SS
OPALCO Pad	1/24/2018	Collected as a composite sample from 1 to 4 inches bgs, 15 feet west of the northeast corner of the old OPALCO pad. Coarse gravel with sand and organics, brown, loose, dry.	0	SS
Stormwater Pond	1/24/2018	Collected as a composite sample from soil at the bottom of the stormwater retention pond. Silt with decayed leaves and pine needles, black, loose, saturated.	0	NS
BLWA-1	1/24/2018	Collected as a composite sample from surficial gravel throughout the western half of the boat lift work area. Sandy gravel with paint chips and shell fragments, brown, loose, moist.	0	NS
BLWA-2	1/24/2018	Collected as a composite sample from surficial gravel throughout the eastern half of the boat lift work area. Sandy gravel with paint chips and shell fragments, brown, loose, moist.	0	NS
FDA-1	1/24/2018	Collected from a test pit excavated in the former dumping area, 9 feet west, and 4 feet north of the northwest corner of the old wood shed at 2 feet bgs. Organic rich silty clay, dark brown, firm, moist.	0	NS
FDA-2	1/24/2018	Collected as a composite sample from the surface to 6 inches bgs at the base of the bluff of the former dumping area using a hand auger 15 feet north of FDA-1 location. Coarse sand, brown with heavy iron staining, loose, wet.	0	NS
FDA-3	1/24/2018	Collected as a composite sample from the base of the bluff at the former dumping area, augered into the bluff 6 inches at 2.5 feet bgs from the top of the bluff, 25 feet west of FDA-2 location. Silty sand with gravel, brown, loose, wet.	0	NS

Table 1. Upland Soil Sample Descriptions - Jensen's Shipyard

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
UST-1	1/24/2018	Collected from a test pit excavated at the northern side of the estimated former UST location, 20 feet east of gravel path at 5 feet bgs. Silty clay with fine sand, brown, loose to firm, moist.	0	NS
UST-2	1/24/2018	Collected from a test pit excavated at the southern side of the estimated former UST location, 15 feet north of UST-1 at 3 feet bgs. Silty clay with fine sand, brown, loose, moist.	0.0	NS
SRWA-1	1/24/2018	Collected as composite sample from 3 to 6 inches bgs using a hand auger along the sides of the old wood rails at the old shipyard rail work area, 12 feet west of the northwest corner of the old boat building. Coarse sand with gravel and organics, dark brown, loose, wet.	0.0	NS
SRWA-2	1/24/2018	Collected as composite sample from 3 to 6 inches bgs using a hand auger from the old shipyard rail work area, 25 feet north of the northwest corner of the old boat building. Coarse sand with gravel, dark brown, loose, wet.	0.0	NS
SRWA-3	1/24/2018	Collected as a composite sample from the surface to 6 inches bgs using a hand auger from the old shipyard rail work area, 50 feet north, and 10 feet west of the northwest corner of the old boat building. Sand with silts, gray, loose, saturated.	52.7	HS

[a] - NS = No Sheen; VSS = Very Slight Sheen; SS = Slight Sheen; MS = Moderate Sheen; HS = Heavy Sheen

Table 2. Upland Soil Sample Results - Jensen's Shipyard

Sample ID		MTCA Method A Cleanup Level:	MTCA Method B Cleanup Level:	Shop Floor Drain-1	Shop Floor Drain-2	Shop Floor Drain-3	OPALCO Pad	Stormwater Pond	BLWA-1	BLWA-2	FDA-1	FDA-2	FDA-3	UST-1	UST-2	SRWA-1	SRWA-2	SRWA-3
Date				1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018
TPH																		
NWTPH-Gx Volatile Range	mg/kg	100/30[a]	-	ND(<3.0)	ND(<3.0)	ND(<3.0)	ND(<3.0)	NA	NA	NA	NA	NA	NA	ND(<3.0)	ND(<3.0)	NA	NA	84
NWTPH-Dx Diesel Range	mg/kg	2,000	-	190	ND(<25)	**5,300**	ND(<25)	NA	160	170	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	180	91	**3,900**
NWTPH-Dx Oil-Range	mg/kg	2,000	-	ND(<50)	ND(<50)	**7,800**	130	NA	470	300	ND(<50)	ND(<50)	420	ND(<50)	ND(<50)	1,100	220	940
EPA-8021 Benzene	mg/kg	0.03	-	ND(<0.03)	ND(<0.03)	ND(<0.03)	ND(<0.03)	NA	NA	NA	NA	NA	NA	ND(<0.03)	ND(<0.03)	NA	NA	ND(<0.03)
EPA-8021 Toluene	mg/kg	7	-	ND(<0.05)	ND(<0.05)	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA	ND(<0.05)
EPA-8021 Ethylbenzene	mg/kg	6	-	ND(<0.05)	ND(<0.05)	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA	ND(<0.05)
EPA-8021 Xylenes	mg/kg	9	-	ND(<0.20)	ND(<0.20)	ND(<0.20)	ND(<0.20)	NA	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	NA	NA	ND(<0.20)
Metals (EPA-6020/7471)																		
Arsenic	mg/kg	20.0	-	2.2	1.9	**22**	7.1	10	12	7.1	3.5	8.7	3.5	NA	NA	**30**	14	17
Cadmium	mg/kg	2.0	-	ND(<0.50)	ND(<0.50)	57	**2.2**	**10**	1.3	0.94	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA	NA	0.54	ND(<0.5)	ND(<0.5)
Chromium	mg/kg	19/2000 [c]	-	19	12	350	40	43	35	20	41	21	22	NA	NA	29	18	21
Copper	mg/kg	-	3200	56	29	**8,800**	1,100	**12,000**	**6,700**	**6,100**	16	79	29	NA	NA	2,400	1,100	690
Lead	mg/kg	250.0	-	2.9	1.9	**10,000**	**530**	**450**	**700**	**350**	6.4	52	190	NA	NA	**920**	**1,000**	90
Mercury	mg/kg	2.0	-	ND(<0.02)	0.021	0.25	0.15	0.15	0.81	0.39	0.028	ND(<0.02)	0.16	NA	NA	**13**	**6.3**	0.54
Zinc	mg/kg	-	24000	100	29	7100	2,300	2,400	950	1,700	30	270	220	NA	NA	840	330	580
PCBs (EPA-8082)																		
Total PCBs	mg/kg	1.0		NA	NA	NA	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.35
Volatile Organic Compounds (VOCs) (EPA-8260)																		
Dicholordifluoromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Chloromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Vinyl Chloride	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Bromomethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Chloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Carbon Tetrachloride	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Trichlorofluoromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Carbon Disulfide	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Acetone	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
1,1-Dichloroethene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Methylene Chloride	mg/kg	-	-	NA	NA	ND(<0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.02)
Acrylonitrile	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
Methyl T-Buyl Ether	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Trans-1,2-Dichloroethene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1-Dichloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
2-Butanone	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
Cis-1,2-Dichloroethene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
2,2-Dichloropropane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Bromochloromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Chloroform	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1,1-Trichloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1-Dichloropropene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2-Dichloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Trichloroethene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2-Dichloropropane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Dibromomethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Bromodichloromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)

Table 2. Upland Soil Sample Results - Jensen's Shipyard

Sample ID		MTCA Method A Cleanup Level:	MTCA Method B Cleanup Level:	Shop Floor Drain-1	Shop Floor Drain-2	Shop Floor Drain-3	OPALCO Pad	Stormwater Pond	BLWA-1	BLWA-2	FDA-1	FDA-2	FDA-3	UST-1	UST-2	SRWA-1	SRWA-2	SRWA-3
Trans-1,3-Dichloropropene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
4-Methyl-2-Pentanone	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
Cis-1,3-Dichloropropene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1,2-Trichloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
2-Hexanone	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
1,3-Dichloropropane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Tetrachloroethylene	mg/kg	0.05	-	NA	NA	0.017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Dibromochloromethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2-Dibromoethane	mg/kg	-	-	NA	NA	ND(<0.005)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.005)
Chlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1,1,2-Tetrachloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Styrene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Bromoform	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Isopropylbenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,1,2,2-Tetrachloroethane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2,3-Trichloropropane	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Bromobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
N-Propyl Benzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017
2-Chlorotoluene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,3,5-Trimethylbenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.24
4-Chlorotoluene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
T-Buyl Benzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2,4-Trimethylbenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.61
S-Butyl benzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033
P-Isopropyltoluene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033
1,3-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,4-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
N- Butylbenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.055
1,2-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2-Dicholorbenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2-Dibromo 3-Chloropropane	mg/kg	-	-	NA	NA	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)
1,2,4-Trichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Hexochlorobutadiene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
Naphthalene	mg/kg	5[b]	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)
1,2,3-Trichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.01)

Table 2. Upland Soil Sample Results - Jensen's Shipyard

Sample ID		MTCA Method A Cleanup Level:	MTCA Method B Cleanup Level:	Shop Floor Drain-1	Shop Floor Drain-2	Shop Floor Drain-3	OPALCO Pad	Stormwater Pond	BLWA-1	BLWA-2	FDA-1	FDA-2	FDA-3	UST-1	UST-2	SRWA-1	SRWA-2	SRWA-3
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270/8270 SIM)																		
Pyridine	mg/kg	-	-	NA	NA	ND(<0.23)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	ND(<0.20)
N-Nitrosodimethylamine	mg/kg	-	-	NA	NA	ND(<0.12)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
Phenol	mg/kg	-	-	NA	NA	ND(<0.14)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.12)
Aniline	mg/kg	-	-	NA	NA	ND(<0.27)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.17)	ND(<0.17)	ND(<0.23)
Bis(2-Choloroethyl) Ether	mg/kg	-	-	NA	NA	ND(<0.13)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.11)
2-Chlorophenol	mg/kg	-	-	NA	NA	ND(<0.11)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
1,3-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.13)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.11)
1,4-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.14)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.12)
Benzyl alcohol	mg/kg	-	-	NA	NA	0.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.11)	ND(<0.11)	ND(<0.14)
1,2-Dichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
2-Methylphenol	mg/kg	-	-	NA	NA	6.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.13)
Bis(2-Chloroisopropyl)Ether	mg/kg	-	-	NA	NA	ND(<0.19)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)	ND(<0.16)
3&4-Methylphenol	mg/kg	-	-	NA	NA	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.13)	ND(<0.13)	ND(<0.17)
N-Nitroso-Di-N-Propylamine	mg/kg	-	-	NA	NA	ND(<0.24)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.15)	ND(<0.15)	ND(<0.20)
Hexachlorethane	mg/kg	-	-	NA	NA	ND(<0.14)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.11)
Nitrobenzene	mg/kg	-	-	NA	NA	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
Isophorone	mg/kg	-	-	NA	NA	ND(<0.13)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
2-Nitrophenol	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
2-4-Dimethylphenol	mg/kg	-	-	NA	NA	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
Benzoic Acid	mg/kg	-	-	NA	NA	ND(<1.0)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<1.0)	ND(<1.0)	ND(<1.0)
Bis(2-Chloroethoxy)Methane	mg/kg	-	-	NA	NA	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
2,4-Dichlorophenol	mg/kg	-	-	NA	NA	ND(<0.11)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
1,2,4-Trichlorobenzene	mg/kg	-	-	NA	NA	ND(<0.15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.12)
Naphthalene	mg/kg	5[b]	-	NA	NA	0.052	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	0.0071	ND(<0.10)
4-Chloroaniline	mg/kg	-	-	NA	NA	ND(<0.32)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	ND(<0.26)
2,6-Dichlorophenol	mg/kg	-	-	NA	NA	ND(<0.16)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.13)
Hexachlorobutadiene	mg/kg	-	-	NA	NA	ND(<0.22)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.18)
4-Chloro-3-Methylphenol	mg/kg	-	-	NA	NA	ND(<0.14)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.11)
2-Methylnaphthalene	mg/kg	5[b]	-	NA	NA	0.085	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0067	0.0041	1.2
1-Methylnaphthalene	mg/kg	5[b]	-	NA	NA	0.076	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0052	0.0052	0.9
Hexochlorocyclopentadiene	mg/kg	-	-	NA	NA	ND(<0.50)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.50)	ND(<0.50)	ND(<0.50)
2,4,6-Trichlorophenol	mg/kg	-	-	NA	NA	ND(<0.13)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.11)
2,4,5-Trichlorophenol	mg/kg	-	-	NA	NA	ND(<0.20)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)	ND(<0.17)
2-Chloronaphthalene	mg/kg	-	-	NA	NA	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
2-Nitroaniline	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
Acenaphthylene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.095	0.077	ND<0.00002)
Dimethylphthalate	mg/kg	-	-	NA	NA	ND(<0.17)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29	0.64	ND(<0.14)
2,6-Dinitrotoluene	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
Acenaphthene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012	ND(<0.00002)	ND<0.00002)
3-Nitroaniline	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
2,4-Dinitrophenol	mg/kg	-	-	NA	NA	ND(<0.30)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
4-Nitrophenol	mg/kg	-	-	NA	NA	ND(<0.50)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.50)	ND(<0.50)	ND(<0.50)
Dibenzofuran	mg/kg	-	-	NA	NA	ND(<0.16)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.14)
2,4-Dinitrotoluene	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	NA	NA	ND(<0.25)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.25)
Diethylphthalate	mg/kg	-	-	NA	NA	ND(<0.17)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.14)
Fluorene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)	ND(<0.12)

Table 2. Upland Soil Sample Results - Jensen's Shipyard

Sample ID		MTCA Method A Cleanup Level:	MTCA Method B Cleanup Level:	Shop Floor Drain-1	Shop Floor Drain-2	Shop Floor Drain-3	OPALCO Pad	Stormwater Pond	BLWA-1	BLWA-2	FDA-1	FDA-2	FDA-3	UST-1	UST-2	SRWA-1	SRWA-2	SRWA-3
4-Chlorophenyl-Phenylether	mg/kg	-	-	NA	NA	ND(<0.21)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.13)	ND(<0.13)	ND(<0.17)
4-Nitroaniline	mg/kg	-	-	NA	NA	ND(<0.39)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.25)	ND(<0.25)	ND(<0.32)
4,6-Dinitro-2-Methylphenol	mg/kg	-	-	NA	NA	ND(<0.34)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.15)	ND(<0.15)	ND(<0.29)
N-Nitrosodiphenylamine	mg/kg	-	-	NA	NA	ND(<0.18)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.11)	ND(<0.11)	ND(<0.15)
Azobenzene	mg/kg	-	-	NA	NA	ND(<0.18)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.15)
4-Bromophenyl-Phenylether	mg/kg	-	-	NA	NA	ND(<0.15)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.13)
Hexachlorobenzene	mg/kg	-	-	NA	NA	ND(<0.12)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.50)	ND(<0.50)	ND(<0.10)
Pentachlorophenol	mg/kg	-	-	NA	NA	ND(<0.50)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)
Phenanthrene	mg/kg	-	-	NA	NA	0.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.25	0.13	0.62
Anthrancene	mg/kg	-	-	NA	NA	0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	0.053	ND
Carbazole	mg/kg	-	-	NA	NA	ND(<0.33)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	ND(<0.27)
Di-N-Butylphthalate	mg/kg	-	-	NA	NA	ND(<0.14)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.13)	ND(<0.13)	ND(<0.13)
Fluoranthene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.67	0.21	0.62
Pyrene	mg/kg	-	-	NA	NA	0.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.65	0.21	0.57
Butylbenzylphthalate	mg/kg	-	-	NA	NA	ND(<0.19)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)	ND(<0.16)
3,3-Dichlorobenzidine	mg/kg	-	-	NA	NA	ND(<0.81)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.51)	ND(<0.51)	ND(<0.68)
Benzo[A]Anthracene	mg/kg	-	-	NA	NA	0.41	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	0.11	0.21
Chrysene	mg/kg	-	-	NA	NA	0.63	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.53	0.12	0.34
Bis(2-ethylhexyl)phthalate	mg/kg	-	-	NA	NA	5.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.13)	ND(<0.13)	0.21
Di-N-Octylphthalate	mg/kg	-	-	NA	NA	ND(<0.19)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)	ND(<0.16)
Benzo[B]Fluoranthene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.81	0.2	0.43
Benzo[K]Fluoranthene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.28	ND(<0.11)	ND(<0.00002)
Benzo[A]Pyrene	mg/kg	0.1	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.52**	**0.14**	**0.22**
Indeno[1,2,3-Cd]Pyrene	mg/kg	-	-	NA	NA	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	0.12	0.15
Dibenz[A,H]Anthracene	mg/kg	-	-	NA	NA	ND(<0.00002)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	ND(<0.10)	ND(<0.00002)
Benzo[G,H,I]perylene	mg/kg	-	-	NA	NA	0.39	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.57	0.19	0.17
Total cPAH Equivalent (TEq	mg/kg	0.1	0.137	NA	NA	0.0783	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.7253**	**0.1862**	**0.3044**

[a] - Cleanup level dependent on BTEX concentrations

[b] - indicates sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

[c] - indicates cleanup level is dependant on Chromium(VI) concentrations.

ND - indicates analyte was not detected at level above reporting limit (shown in parenthesis)

NA - indicates sample was not analyzed for the constituent

BOLD - indicates that the concentration in the sample exceeds the MTCA Method A or Method B target cleanup levels

TEq - Toxicity Equivalency to benzo(a)pyrene, calculated by multiplying result by appropriate TEF. For ND values, the TEF was multiplied by one half the reporting limit

TEF - Toxicity Equivalency Factor (WAC 173-340-900 table 708.2)

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
Shop Floor Drain-1	1/24/2018	Collected using a hand auger 1 foot west of the northwest corner of the shop at 3.5 feet bgs. Coarse sand with gravel, brown, loose, moist.	0	VSS
Shop Floor Drain-2	1/24/2018	Collected using a hand auger 2 feet east, and 2 feet north of the northwest corner of the shop at 3.5 feet bgs. Silty sand with organics, dark brown, firm, dry.	0	NS
OPALCO Pad	1/24/2018	Collected as a composite sample from 1 to 4 inches bgs, 15 feet west of the northeast corner of the old OPALCO pad. Coarse gravel with sand and organics, brown, loose, dry.	0	SS
OPALCO-2 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, adjacent to the west corner of the old OPALCO pad. Gravelly sand with silt, brown, soft to slightly firm, dry.	1.5	NS
OPALCO-2 5ft	7/31/2018	Collected as a grab sample from 5 feet bgs, adjacent to the west corner of the old OPALCO pad. Sandy gravel, brown, soft, dry.	2.1	VSS
OPALCO-3 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, adjacent to the north corner of the old OPALCO pad. Silty sandy gravel, brown/gray, soft, dry.	0	VSS
OPALCO-3 4ft	7/31/2018	Collected as a grab sample from 4 feet bgs, adjacent to the north corner of the old OPALCO pad. Silty sandy gravel, brown, soft, dry.	1	VSS
OPALCO-4 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, approximately 45 feet south of the eastern corner of the old OPALCO pad. Silty fine sand, brown, soft, dry.	0	VSS
OPALCO-4 5ft	7/31/2018	Collected as a grab sample from 5 feet bgs, approximately 45 feet south of the eastern corner of the old OPALCO pad. Silty medium sand, brown, soft, dry.	0	NS
SYC-1 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, off the east side of the entrance road above the southwest corner of the covered storage structure. Silty fine sand with gravel, brown, soft, dry.	0	VSS
SYC-1 2ft	7/31/2018	Collected as a grab sample from 2 feet bgs, off the east side of the entrance road above the southwest corner of the covered storage structure. Silty fine sand with gravel, brown, soft, dry.	0	VSS
SYC-2 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, off the west side of the entry road in the gravel parking area. Silty sandy gravel with organics, gray to brown, soft, dry.	0	SS

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
SYC-2 2ft	7/31/2018	Collected as a grab sample from 2 feet bgs, off the west side of the entry road in the gravel parking area. Sandy gravel with minor silt, brown, soft, dry.	0	SS
SYC-3 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, off the west side of the road at the southeast corner of the covered storage structure. Silty sandy gravel with organics, gray, soft, dry.	0	VSS
SYC-3 3ft	7/31/2018	Collected as a grab sample from 3 feet bgs, off the west side of the road at the southeast corner of the covered storage structure. Gravelly sand, brown, soft, moist to dry.	0	VSS
SYC-4 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, off the east side of the road near the gate between the properties. Sandy silty gravel, brown to gray, soft, dry to moist.	0	VSS
SYC-4 2ft	7/31/2018	Collected as a grab sample from 2 feet bgs, off the east side of the road near the gate between the properties. Sandy silty gravel, brown to gray, soft, dry to moist.	0	SS
MW-4 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, adjacent to the east corner of the old OPALCO pad at monitoring well location. Silty sandy gravel, brown, soft, dry.	0	NS
MW-4 11ft	7/31/2018	Collected as a grab sample from 11 feet bgs, adjacent to the east corner of the old OPALCO pad at monitoring well location. Gravelly silty coarse sand, reddish brown, slightly firm, wet.	0	NS
MW-5 2-6in	8/1/2018	Collected as a composite sample from 2 to 6 inches bgs, located in the grassy area to the east of the shipyard at monitoring well location. Fine sandy silt with gravel, tan to brown, soft, dry.	0	VSS
MW-5 10ft	8/1/2018	Collected as a grab sample from 10 feet bgs, located in the grassy area to the east of the shipyard at monitoring well location. Silty clayey medium sand with gravel, olive brown, hard to firm, wet.	0	VSS
MW-6 2-6in	7/31/2018	Collected as a composite sample from 2 to 6 inches bgs, adjacent to the north edge of the upper parking area at monitoring well location. Gravelly silt to silty gravel, tan to brown, soft, dry.	0	VSS
MW-6 40ft	7/31/2018	Collected as a grab sample from 40 feet bgs, adjacent to the north edge of the upper parking area at monitoring well location. Coarse sandy gravel, brown to olive brown, firm, wet.	0	NS
Stormwater Pond	1/24/2018	Collected as a composite sample from soil at the bottom of the stormwater retention pond.	0	NS

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
		Silt with decayed leaves and pine needles, black, loose, saturated.		
BLWA-1	1/24/2018	Collected as a composite sample from surficial gravel throughout the western half of the boat lift work area. Sandy gravel with paint chips and shell fragments, brown, loose, moist.	0	NS
BLWA-2	1/24/2018	Collected as a composite sample from surficial gravel throughout the eastern half of the boat lift work area. Sandy gravel with paint chips and shell fragments, brown, loose, moist.	0	NS
BLWA-3 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs from soil located at the west side of the boat lift area Silty sandy gravel, brown, soft, dry.	0	NS
BLWA-3 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs from soil located at the west side of the boat lift area Silty sandy gravel, brown, soft, dry.	0	NS
BLWA-4 2-6"	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the northwest qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	0	NS
BLWA-4 5ft	7/30/2018	Collected as a grab sample from 5 feet bgs in the northwest qudrant of the boat lift area. Sandy silt with gravel, dark brown, soft to slightly firm, moist.	0	NS
BLWA-5 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the southwest qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	0.5	NS
BLWA-5 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs in the southwest qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	0	NS
BLWA-6 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the northern center of the boat lift area. Silty sandy gravel, brown, soft, dry.	2.1	NS
BLWA-6 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs in the northern center of the boat lift area. Silty sandy gravel, brown, soft, dry.	4.2	VSS
BLWA-6 5ft	7/30/2018	Collected as a grab sample from 5 feet bgs in the northern center of the boat lift area. Sandy silt with gravel, woody debris, dark brown, slightly firm, moist.	186	MS
BLWA-6 10ft	7/30/2018	Collected as a grab sample from 10 feet bgs in the northern center of the boat lift area. Sandy gravel with woody debris, reddish brown, soft, wet.	8	VSS

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
BLWA-7 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the southern center of the boat lift area. Silty sandy gravel, brown, soft to slightly firm, dry.	0	NS
BLWA-7 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs in the southern center of the boat lift area. Silty sandy gravel, brown, soft to slightly firm, dry.	0	NS
BLWA-7 5ft	7/30/2018	Collected as a grab sample from 5 feet bgs in the southern center of the boat lift area. Sandy silt with gravel and minor clay, dark brown, firm, moist.	0	NS
BLWA-8 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the northeast qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	3.8	VSS
BLWA-8 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs in the northeast qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	3.4	VSS
BLWA-8 5ft	7/30/2018	Collected as a grab sample from 5 feet bgs in the northeast qudrant of the boat lift area. Gravelly silty sand, reddish brown, soft to slightly firm, moist.	0	NS
BLWA-9 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs in the southeast qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	0.2	NS
BLWA-9 2ft	7/30/2018	Collected as a grab sample from 2 feet bgs in the southeast qudrant of the boat lift area. Silty sandy gravel, brown, soft, dry.	4.1	VSS
BLWA-9 5ft	7/30/2018	Collected as a grab sample from 5 feet bgs in the southeast qudrant of the boat lift area. Gravelly sandy silt, reddish brown, soft, moist.	2.9	NS
AST-1 2ft	7/30/2018	Collected as a grab sample from approximately 2 feet bgs at a location south of the shop building where evidence of a removed AST was observed. Gravelly sandy silt. dark brown to black, slightly firm, moist.	91	HS
MW-1 2-6in	7/30/2018	Collected as a composite sample from 2 to 6 inches bgs at a location north of the shop building at monitoring well location. Silty sandy gravel, brown, soft, dry.	0	VSS
MW-1 12ft	7/30/2018	Collected as a grab sample from 12 feet bgs at a location north of the shop building at monitoring well location. Sandy gravel, gray, soft, wet.	407	SS
MW-1 15ft	7/30/2018	Collected as a grab sample from 15 feet bgs at a location north of the shop building at monitoring well location. Sandy gravel, gray, soft, wet.	5.6	NS

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
MW-2 6in	7/30/2018	Collected as a grab sample from 6 inches bgs at a location approximately 90 feet south/southwest of the boat lift dock at monitoring well location. Silty sandy gravel, brown, soft, dry.	0	VSS
MW-2 7ft	7/30/2018	Collected as a grab sample from 7 feet bgs at a location approximately 90 feet south/southwest of the boat lift dock at monitoring well location. Organic silty sandy gravel, dark brown to black, slightly firm, wet.	0	NS
FDA-1	1/24/2018	Collected from a test pit excavated in the former dumping area, 9 feet west, and 4 feet north of the northwest corner of the old wood shed at 2 feet bgs. Organic rich silty clay, dark brown, firm, moist.	0	NS
FDA-2	1/24/2018	Collected as a composite sample from the surface to 6 inches bgs at the base of the bluff of the former dumping area using a hand auger 15 feet north of FDA-1 location. Coarse sand, brown with heavy iron staining, loose, wet.	0	NS
FDA-3	1/24/2018	Collected as a composite sample from the base of the bluff at the former dumping area, augered into the bluff 6 inches at 2.5 feet bgs from the top of the bluff, 25 feet west of FDA-2 location. Silty sand with gravel, brown, loose, wet.	0	NS
UST-1	1/24/2018	Collected from a test pit excavated at the northern side of the estimated former UST location, 20 feet east of gravel path at 5 feet bgs. Silty clay with fine sand, brown, loose to firm, moist.	0	NS
UST-2	1/24/2018	Collected from a test pit excavated at the southern side of the estimated former UST location, 15 feet north of UST-1 at 3 feet bgs. Silty clay with fine sand, brown, loose, moist.	0.0	NS
SRWA-1	1/24/2018	Collected as composite sample from 3 to 6 inches bgs using a hand auger along the sides of the old wood rails at the old shipyard rail work area, 12 feet west of the northwest corner of the old boat building. Coarse sand with gravel and organics, dark brown, loose, wet.	0.0	NS
SRWA-2	1/24/2018	Collected as composite sample from 3 to 6 inches bgs using a hand auger from the old shipyard rail work area, 25 feet north of the northwest corner of the old boat building. Coarse sand with gravel, dark brown, loose, wet.	0.0	NS
SRWA-3	1/24/2018	Collected as a composite sample from the surface to 6 inches bgs using a hand auger from the old shipyard rail work area, 50 feet north, and 10 feet west of the northwest corner of the old boat building. Sand with silts, gray, loose, saturated.	52.7	HS

Table 1. Upland Soil Sample Descriptions

Sample ID	Date	Location and Description	PID (ppm)	Sheen Test[a]
SRWA-4 6in	8/1/2018	Collected as a grab sample from 6 inches bgs at a location in the northewest quadrant of the old rail works area; in rail track groove. Sandy gravel, gray, soft, moist.	0	NS
SRWA-4 3.5ft	8/1/2018	Collected as a grab sample from 3.5 feet bgs at a location in the northewest quadrant of the old rail works area; in rail track groove. Highly organic sandy silty gravel, reddish brown, soft, wet.	0	NS
SRWA-5 2-6in	8/1/2018	Collected as a composite sample from 2 to 6 inches bgs in the northern center of the old rail works area. Organic silty sand and gravel, brown, soft, moist.	1.5	VSS
SRWA-5 3.5 ft	8/1/2018	Collected as a grab sample from 3.5 feet bgs in the northern center of the old rail works area. Highly organic silty sand with gravel, dark brown to black, soft, wet.	36.7	NS
SRWA-5 5ft	8/1/2018	Collected as a grab sample from 5 feet bgs in the northern center of the old rail works area. Highly organic silty sand with gravel, dark brown to black, soft, wet.	24.1	VSS
SRWA-6 2-6in	8/1/2018	Collected as a composite sample from 2 to 6 inches bgs in the southern portion of the northeast quadrant of the old rail works area. Gravelly medium sand with heavy organics, reddish brown to brown, soft, dry.	0.7	NS
SRWA-6 3ft	8/1/2018	Collected as a grab sample from 3 feet bgs in the southern portion of the northeast quadrant of the old rail works area. Silty medium sand with gravel, reddish brown, soft, wet.	0	VSS
SRWA-7 2-6in	8/1/2018	Collected as a composite sample from 2 to 6 inches bgs in the southwest quadrant of the old rail works area. Silty gravelly sand, reddish brown to brown, slightly firm, moist to dry.	0	VSS
SRWA-7 3ft	8/1/2018	Collected as a grab sample from 3 feet bgs in the southwest quadrant of the old rail works area. Silty gravelly sand, reddish brown to brown, slightly firm, moist to dry.	0	VSS
MW-3 2-6in	8/1/2018	Collected as a composite sample from 2 to 6 inches bgs in the northern portion of the southwest quadrant of the old rail works area at monitoring well location. Fine sandy silt with gravel, tan, soft, dry.	0	NS
MW-3 5.5ft	8/1/2018	Collected as a grab sample from 5.5 feet bgs in the northern portion of the southwest quadrant of the old rail works area at monitoring well location. Saturated coarse sand with gravel, brown, soft, wet.	0	NS

[a] - NS = No Sheen; VSS = Very Slight Sheen; SS = Slight Sheen; MS = Moderate Sheen; HS = Heavy Sheen

Table 2. Upland Soil Sample Results

Sample ID	MTCA Method A Cleanup Level (or Method B as noted)	Ecology Indicator Soil Concentrations-Wildlife (Table 749-3)	Shop Floor Drain-1 3.5ft	Shop Floor Drain-2 3.5ft	OPALCO Pad 1-4in	OPALCO-2 2-6in	OPALCO-2 5ft	OPALCO-3 2-6in	OPALCO-3 4ft	OPALCO-4 2-6in	OPALCO-4 5ft	SYC-1 2-6in	SYC-1 2ft	SYC-2 2-6in	SYC-2 2ft	SYC-3 2-6in	SYC-3 3ft	SYC-4 2-6in	SYC-4 2ft	MW-4 2-6in	MW-4 11ft
Date			1/24/2018	1/24/2018	1/24/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018	7/31/2018
TPH (mg/kg)																					
NWTPH-Gx Volatile Range	100/30[a]	5,000	ND(<3.0)	ND(<3.0)	ND(<3.0)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NWTPH-Dx Diesel Range	2,000	6,000	190	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)
NWTPH-Dx Oil-Range	2,000	6,000	ND(<50)	ND(<50)	130	ND(<50)	ND(<50)	ND(<50)	ND(<50)	ND(<50)	ND(<50)	120	ND(<50)	130	ND(<50)	70	ND(<50)	140	ND(<50)	120	ND(<50)
EPA-8021 Benzene	0.03	-	ND(<0.03)	ND(<0.03)	ND(<0.03)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Toluene	7	200	ND(<0.05)	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Ethylbenzene	6	-	ND(<0.05)	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Xylenes	9	-	ND(<0.20)	ND(<0.20)	ND(<0.20)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA-6020/7471) (mg/kg)																					
Arsenic	20.0	132	2.2	1.9	7.1	4.8	3.2	7.1	4.1	5.5	3.3	4	4.2	4.2	4.2	5.3	3.9	6.9	4.6	7.9	8.4
Cadmium	2.0	14	ND(<0.50)	ND(<0.50)	**2.2**	0.92	ND(<0.19)	1.1	ND(<0.19)	ND(<0.19)	ND(<0.19)	ND(<0.19)	ND(<0.19)	0.21	ND(<0.19)	0.4	ND(<0.19)	0.32	ND(<0.19)	0.79	ND(<0.23)
Chromium	19/2000[c]	67	19	12	40	17	16	30	16	18	15	24	21	21	22	29	14	22	22	43	64
Copper	3,200[d]	217	56	29	1,100	68	45	1,300	44	120	34	42	26	48	37	99	33	140	63	590	31
Lead	250.0	118	2.9	1.9	**530**	54	2.1	**990**	4.5	50	2.2	19	6.6	46	8.3	57	2.9	63	51	**390**	3.4
Mercury	2.0	5.5	ND(<0.02)	0.021	0.15	0.026	ND(<0.02)	0.34	0.025	0.67	ND(<0.02)	0.026	0.026	0.036	0.022	0.063	ND(<0.02)	0.27	0.23	0.22	ND(<0.02)
Zinc	24,000[d]	360	100	29	2,300	2,600	250	720	39	74	31	74	54	87	46	1,000	34	140	76	620	45
PCBs (EPA-8082) (mg/kg)																					
Total PCBs	1.0	0.65	NA	NA	ND(<0.10)	ND(<0.10)	ND(<0.10)	ND(<0.10)	ND(<0.10)	ND(<0.10)	ND(<0.10)	NA	NA	NA	NA	NA	NA	NA	NA	0.1	ND(<0.10)
Dioxins and Furans (EPA-1613B) (ug/kg)																					
Chlorinated dibenzo-p-dioxins TEQ	0.0128[d]	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0217**	NA
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270 SIM) (mg/kg)																					
Naphthalene	5[b]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.04	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
2-Methylnaphthalene	5[b]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.032	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
1-Methylnaphthalene	5[b]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Acenaphthylene	-	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Acenaphthene	4,800[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Fluorene	3,200[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Phenanthrene	-	-	NA	NA	NA	0.034	ND(<0.02)	0.24	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.15	ND(<0.02)
Anthrancene	24,000[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.044	ND(<0.02)	0.024	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.045	ND(<0.02)
Fluoranthene	3,200[d]	-	NA	NA	NA	0.072	ND(<0.02)	0.34	ND(<0.02)	0.059	ND(<0.02)	0.02	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.031	ND(<0.02)	0.045	0.049	0.24	ND(<0.02)
Pyrene	2,400[d]	-	NA	NA	NA	0.055	ND(<0.02)	0.21	ND(<0.02)	0.041	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.03	ND(<0.02)	0.04	0.048	0.17	ND(<0.02)
Benzo[A]Anthracene	1.37[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.095	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.022	0.024	0.095	ND(<0.02)
Chrysene	137[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.16	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.024	0.03	0.092	ND(<0.02)
Benzo[B]Fluoranthene	1.37[d]	-	NA	NA	NA	0.039	ND(<0.02)	0.17	ND(<0.02)	0.057	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.054	0.043	0.17	ND(<0.03)
Benzo[K]Fluoranthene	13.7[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[A]Pyrene	0.1	12	NA	NA	NA	0.022	ND(<0.02)	0.061	ND(<0.02)	0.024	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.025	0.027	0.076	ND(<0.02)
Indeno[1,2,3-Cd]Pyrene	-	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.045	ND(<0.02)	0.035	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.026	0.021	0.058	ND(<0.02)
Dibenz[A,H]Anthracene	0.137[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[G,H,I]perylene	1.37[d]	-	NA	NA	NA	ND(<0.02)	ND(<0.02)	0.06	ND(<0.02)	0.041	ND(<0.02)	0.025	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.043	0.026	0.07	ND(<0.02)
Total cPAH Equivalent (TEQ)	0.1	-	NA	NA	NA	0.030	ND(<0.02)	0.096	ND(<0.02)	0.036	ND(<0.02)	0.015	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.037	0.038	**0.111**	ND(<0.02)

[a] - Cleanup level dependent on BTEX concentrations

[b] - indicates sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene

[c] - indicates cleanup level is dependant on Chromium(VI) concentrations.

[d] - indicates Method B direct contact cleanup level

ND - indicates analyte was not detected at level above reporting limit (shown in parentheses)

NA - indicates sample was not analyzed for the constituent

BOLD - indicates that the concentration in the sample exceeds the MTCA Method A or Method B target cleanup levels

Table 2. Upland Soil Sample Results

Sample ID	MTCA Method A Cleanup Level (or Method B as noted)	Ecology Indicator Soil Concentrations-Wildlife (Table 749-3)	MW-5 2-6in	MW-5 10ft	MW-6 2-6in	MW-6 40ft	BLWA-1 0-3in	BLWA-2 0-3in	BLWA-3 2-6in	BLWA-3 2ft	BLWA-4 2-6"	BLWA-4 5ft	BLWA-5 2-6in	BLWA-5 2ft	BLWA-6 2-6in	BLWA-6 2ft	BLWA-6 5ft	BLWA-6 10ft	BLWA-7 2-6in	BLWA-7 2ft	BLWA-7 5ft
Date			7/31/2018	7/31/2018	7/31/2018	7/31/2018	1/24/2018	1/24/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018
TPH (mg/kg)																					
NWTPH-Gx Volatile Range	100/30[a]	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<3.0)	ND(<3.0)	NA	NA	NA
NWTPH-Dx Diesel Range	2,000	6,000	ND(<25)	ND(<25)	ND(<25)	ND(<25)	160	170	ND(<25)	ND(<25)	ND(<25)	ND(<25)	91	ND(<25)	95	350	1,400	ND(<25)	ND(<25)	ND(<25)	ND(<25)
NWTPH-Dx Oil-Range	2,000	6,000	96	ND(<50)	ND(<50)	ND(<50)	470	300	ND(<50)	ND(<50)	81	ND(<50)	180	ND(<50)	260	710	940	ND(<50)	180	ND(<50)	ND(<50)
EPA-8021 Benzene	0.03	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.03)	ND(<0.03)	NA	NA	NA
EPA-8021 Toluene	7	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA	NA
EPA-8021 Ethylbenzene	6	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA	NA
EPA-8021 Xylenes	9	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	NA	NA	NA
Metals (EPA-6020/7471) (mg/kg)																					
Arsenic	20.0	132	4.9	2.4	4	3	12	7.1	3.5	3	5.2	3.9	10	3.1	9.7	**150**	3.7	4.6	13	3.7	NA
Cadmium	2.0	14	0.7	ND(<0.22)	ND(<0.19)	ND(<0.2)	1.3	0.94	0.2	ND(<0.2)	0.43	ND(<0.19)	0.81	ND(<0.19)	1.2	**2.6**	ND(<0.19)	ND(<0.19)	1.8	ND(<0.19)	NA
Chromium	19/2000[c]	67	39	18	19	14	35	20	28	15	21	17	29	15	31	78	18	11	30	21	NA
Copper	3,200[d]	217	140	14	28	16	**6,700**	**5,100**	180	32	680	86	1,100	28	**9,300**	**3,500**	84	20	2100	50	NA
Lead	250.0	118	120	2.1	13	1.5	**700**	**350**	150	3	150	**540**	**270**	3.2	**760**	**3,400**	**560**	1.9	**340**	3	NA
Mercury	2.0	5.5	0.1	ND(<0.02)	0.027	ND(<0.02)	0.81	0.39	0.032	0.028	0.17	0.18	0.36	0.038	1.1	0.31	0.11	ND(<0.02)	0.92	ND(<0.02)	NA
Zinc	24,000[d]	360	190	26	65	23	950	1,700	99	29	260	110	390	31	1,400	3,800	72	47	630	39	NA
PCBs (EPA-8082) (mg/kg)																					
Total PCBs	1.0	0.65	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins and Furans (EPA-1613B) (ug/kg)																					
Chlorinated dibenzo-p-dioxins TEQ	0.0128[d]	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270 SIM)																					
Naphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	0.031	ND(<0.02)	0.14	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
2-Methylnaphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	0.093	ND(<0.02)	0.33	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.45	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
1-Methylnaphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	0.039	ND(<0.02)	0.095	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.91	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Acenaphthylene	-	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.095	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.031	ND(<0.02)	0.14	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.031	ND(<0.02)	NA
Acenaphthene	4,800[d]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.13	ND(<0.02)	0.027	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Fluorene	3,200[d]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.13	ND(<0.02)	0.042	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Phenanthrene	-	-	0.031	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.1	ND(<0.02)	0.12	0.025	0.86	ND(<0.02)	0.35	ND(<0.02)	0.71	ND(<0.02)	0.091	ND(<0.02)	NA
Anthrancene	24,000[d]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.17	ND(<0.02)	0.027	0.022	0.24	ND(<0.02)	0.27	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.058	ND(<0.02)	NA
Fluoranthene	3,200[d]	-	0.096	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	1	ND(<0.02)	0.17	0.14	0.75	ND(<0.02)	1.2	0.066	ND(<0.02)	ND(<0.02)	0.34	ND(<0.02)	NA
Pyrene	2,400[d]	-	0.088	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	1.9	ND(<0.02)	0.14	0.086	0.79	ND(<0.02)	0.86	0.081	ND(<0.02)	ND(<0.02)	0.25	ND(<0.02)	NA
Benzo[A]Anthracene	1.37[d]	-	0.048	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.82	ND(<0.02)	0.067	0.036	0.45	ND(<0.02)	0.5	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Chrysene	137[d]	-	0.053	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	1	ND(<0.02)	ND(<0.02)	0.098	0.59	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Benzo[B]Fluoranthene	1.37[d]	-	0.09	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.83	ND(<0.02)	0.16	0.14	0.6	ND(<0.02)	**1.4**	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.59	ND(<0.02)	NA
Benzo[K]Fluoranthene	13.7[d]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA
Benzo[A]Pyrene	0.1	12	0.05	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	**0.33**	ND(<0.02)	0.065	0.037	**0.38**	ND(<0.02)	**0.46**	ND(<0.02)	ND(<0.02)	ND(<0.02)	**0.16**	ND(<0.02)	NA
Indeno[1,2,3-Cd]Pyrene	-	-	0.039	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.17	ND(<0.02)	0.068	0.036	0.28	ND(<0.02)	0.42	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.22	ND(<0.02)	NA
Dibenz[A,H]Anthracene	0.137[d]	-	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.064	ND(<0.02)	0.024	ND(<0.02)	0.091	ND(<0.02)	0.13	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.066	ND(<0.02)	NA
Benzo[G,H,I]perylene	1.37[d]	-	0.048	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	0.17	ND(<0.02)	0.08	0.041	0.34	ND(<0.02)	0.43	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.25	ND(<0.02)	NA
Total cPAH Equivalent (TEQ)	0.1	-	0.070	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	**0.529**	ND(<0.02)	0.098	0.061	**0.529**	ND(<0.02)	**0.706**	0.015	ND(<0.02)	ND(<0.02)	**0.250**	ND(<0.02)	NA

[a] - Cleanup level dependent on BTEX concentrations

[b] - indicates sum of naphthalene, 1-methylnaphthalene, and 2-methylnap

[c] - indicates cleanup level is dependent on Chromium(VI) concentrations.

[d] - indicates Method B direct contact cleanup level

ND - indicates analyte was not detected at level above reporting limit (show

NA - indicates sample was not analyzed for the constituent

BOLD - indicates that the concentration in the sample exceeds the MTCA M

Table 2. Upland Soil Sample Results

Sample ID	MTCA Method A Cleanup Level (or Method B as noted):	Ecology Indicator Soil Concentrations- (Wildlife (Table 749-3)	BLWA-8 2-6in	BLWA-8 2ft	BLWA-8 5ft	BLWA-9 2-6in	BLWA-9 2ft	BLWA-9 5ft	AST-1 2ft	MW-1 2-6in	MW-1 12ft	MW-1 18ft	MW-2 6in	MW-2 7ft	FDA-1 2ft	FDA-2 0-6in	FDA-3 2.5ft	UST-1 5ft	UST-2 3ft	SRWA-1 3-6in	SRWA-2 3-6in
Date			7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	7/30/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018	1/24/2018
TPH (mg/kg)																					
NWTPH-Gx Volatile Range	100/30[a]	5,000	NA	NA	NA	NA	NA	NA	NA	NA	32	ND(<3.0)	NA	NA	NA	NA	NA	ND(<3.0)	ND(<3.0)	NA	NA
NWTPH-Dx Diesel Range	2,000	6,000	ND(<25)	ND(<25)	ND(<25)	61	ND(<25)	ND(<25)	**8,000**	**2,600**	ND(<25)	ND(<25)	32	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	ND(<25)	180	91
NWTPH-Dx Oil-Range	2,000	6,000	56	290	98	160	ND(<50)	ND(<50)	**10,000**	**8,200**	ND(<50)	ND(<50)	160	ND(<50)	ND(<50)	ND(<50)	420	ND(<50)	ND(<50)	1,100	220
EPA-8021 Benzene	0.03	-	NA	NA	NA	NA	NA	NA	ND(<0.03)	NA	ND(<0.03)	ND(<0.03)	NA	NA	NA	NA	NA	ND(<0.03)	ND(<0.03)	NA	NA
EPA-8021 Toluene	7	200	NA	NA	NA	NA	NA	NA	ND(<0.05)	NA	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA
EPA-8021 Ethylbenzene	6	-	NA	NA	NA	NA	NA	NA	ND(<0.05)	NA	ND(<0.05)	ND(<0.05)	NA	NA	NA	NA	NA	ND(<0.05)	ND(<0.05)	NA	NA
EPA-8021 Xylenes	9	-	NA	NA	NA	NA	NA	NA	ND(<0.20)	NA	ND(<0.20)	ND(<0.20)	NA	NA	NA	NA	NA	ND(<0.20)	ND(<0.20)	NA	NA
Metals (EPA-6020/7471) (mg/kg)																					
Arsenic	20.0	132	5.1	6.2	NA	5.7	3.3	NA	3.3	6.2	3.4	2.1	7.2	5.2	3.5	8.7	3.5	NA	NA	**30**	14
Cadmium	2.0	14	0.48	0.23	NA	0.96	ND(<0.19)	NA	ND(<0.2)	**8.9**	ND(<0.2)	ND(<0.2)	**2.3**	0.67	ND(<0.5)	ND(<0.5)	ND(<0.5)	NA	NA	0.54	ND(<0.5)
Chromium	19/2000[c]	67	19	23	NA	25	18	NA	17	44	18	12	27	12	41	21	22	NA	NA	29	18
Copper	3,200[d]	217	1100	170	NA	2900	49	NA	40	1700	32	23	2,100	24	16	79	29	NA	NA	2,400	1,100
Lead	250.0	118	**470**	200	NA	**310**	11	NA	27	**410**	4.4	1.8	230	29	6.4	52	190	NA	NA	**920**	**1,000**
Mercury	2.0	5.5	0.18	0.12	NA	1.5	0.048	NA	0.037	0.47	ND(<0.02)	ND(<0.02)	0.64	0.024	0.028	ND(<0.02)	0.16	NA	NA	**13**	**6.3**
Zinc	24,000[d]	360	350	110	NA	690	92	NA	100	1,200	30	24	540	37	30	270	220	NA	NA	840	330
PCBs (EPA-8082) (mg/kg)																					
Total PCBs	1.0	0.65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins and Furans (EPA-1613B) (ug/kg)																					
Chlorinated dibenzo-p-dioxins TEQ	0.0128[d]	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270 SIM)																					
Naphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	0.029	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	0.12	0.0071
2-Methylnaphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	0.4	0.08	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	0.0067	0.0041
1-Methylnaphthalene	5[b]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	0.78	0.027	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	0.0052	0.0052
Acenaphthylene	-	-	ND(<0.02)	ND(<0.02)	NA	0.13	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.033	ND(<0.02)	NA	NA	NA	NA	NA	0.095	0.077
Acenaphthene	4,800[d]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	0.012	ND(<0.00002)
Fluorene	3,200[d]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	ND(<0.12)	ND(<0.12)
Phenanthrene	-	-	0.07	0.029	NA	0.13	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.1	0.021	NA	NA	NA	NA	NA	0.25	0.13
Anthracene	24,000[d]	-	ND(<0.02)	ND(<0.02)	NA	0.076	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.066	ND(<0.02)	NA	NA	NA	NA	NA	0.11	0.053
Fluoranthene	3,200[d]	-	0.13	0.073	NA	0.52	ND(<0.02)	NA	ND(<0.02)	0.12	ND(<0.02)	ND(<0.02)	0.29	0.075	NA	NA	NA	NA	NA	0.67	0.21
Pyrene	2,400[d]	-	0.12	0.052	NA	0.4	ND(<0.02)	NA	1.3	0.21	ND(<0.02)	ND(<0.02)	0.18	0.072	NA	NA	NA	NA	NA	0.65	0.21
Benzo[A]Anthracene	1.37[d]	-	0.081	0.035	NA	0.32	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.05	NA	NA	NA	NA	NA	0.4	0.11
Chrysene	137[d]	-	0.13	0.032	NA	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.045	NA	NA	NA	NA	NA	0.53	0.12
Benzo[B]Fluoranthene	1.37[d]	-	0.18	0.055	NA	1.2	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.38	0.05	NA	NA	NA	NA	NA	0.81	0.2
Benzo[K]Fluoranthene	13.7[d]	-	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	NA	NA	NA	NA	NA	0.28	ND(<0.11)
Benzo[A]Pyrene	0.1	12	0.083	0.029	NA	**0.61**	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.064	0.048	NA	NA	NA	NA	NA	**0.52**	**0.14**
Indeno[1,2,3-Cd]Pyrene	-	-	0.078	0.028	NA	0.8	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.11	0.035	NA	NA	NA	NA	NA	0.4	0.12
Dibenz[A,H]Anthracene	0.137[d]	-	0.028	ND(<0.02)	NA	**0.2**	ND(<0.02)	NA	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.035	ND(<0.02)	NA	NA	NA	NA	NA	0.11	ND(<0.10)
Benzo[G,H,I]perylene	1.37[d]	-	0.093	0.035	NA	0.95	ND(<0.02)	NA	0.46	0.12	ND(<0.02)	ND(<0.02)	0.12	0.04	NA	NA	NA	NA	NA	0.57	0.19
Total cPAH Equivalent (TEQ)	0.1	-	**0.122**	0.043	NA	**0.863**	ND(<0.02)	NA	0.015	0.015	ND(<0.02)	ND(<0.02)	**0.119**	0.065	NA	NA	NA	NA	NA	**0.725**	**0.186**

[a] - Cleanup level dependent on BTEX concentrations

[b] - indicates sum of naphthalene, 1-methylnaphthalene, and 2-methylnapl

[c] - indicates cleanup level is dependant on Chromium(VI) concentrations.

[d] - indicates Method B direct contact cleanup level

ND - indicates analyte was not detected at level above reporting limit (show

NA - indicates sample was not analyzed for the constituent

BOLD - indicates that the concentration in the sample exceeds the MTCA

Table 2. Upland Soil Sample Results

Sample ID	MTCA Method A Cleanup Level (or Method B as noted):	Ecology Indicator Soil Concentrations-Wildlife (Table 749-3)	SRWA-3 0-6in	SRWA-4 6in	SRWA-4 3.5ft	SRWA-5 3.6in	SRWA-5 3.5 ft	SRWA-5 5ft	SRWA-6 2-6in	SRWA-6 3ft	SRWA-7 2-6in	SRWA-7 3ft	MW-3 2-6in	MW-3 5.5ft
Date			1/24/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018	8/1/2018
TPH (mg/kg)														
NWTPH-Gx Volatile Range	100/30[a]	5,000	84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NWTPH-Dx Diesel Range	2,000	6,000	**3,900**	79	ND(<25)	ND(<25)	ND(<25)	ND(<25)	120	ND(<25)	170	40	ND(<25)	ND(<25)
NWTPH-Dx Oil-Range	2,000	6,000	940	190	ND(<50)	72	ND(<50)	ND(<50)	640	ND(<50)	690	230	280	ND(<50)
EPA-8021 Benzene	0.03	-	ND(<0.03)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Toluene	7	200	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Ethylbenzene	6	-	ND(<0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPA-8021 Xylenes	9	-	ND(<0.20)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (EPA-6020/7471) (mg/kg)														
Arsenic	20.0	132	17	**54**	7.7	12	4.2	5.1	16	5	9.1	4.3	13	5.6
Cadmium	2.0	14	ND(<0.5)	0.39	ND(<0.22)	0.32	1.5	ND(<0.23)	0.64	ND(<0.21)	**2.6**	0.38	0.74	ND(<0.21)
Chromium	19/2000[c]	67	21	35	24	20	11	20	35	20	25	19	29	28
Copper	3,200[d]	217	590	2,000	35	420	43	16	220	11	920	63	400	82
Lead	250.0	118	90	**1,800**	15	**940**	21	3.6	**1,200**	11	160	110	190	25
Mercury	2.0	5.5	0.54	**11**	0.098	0.33	0.04	ND(<0.02)	**2.8**	ND(<0.02)	0.23	0.1	1.3	0.16
Zinc	24,000[d]	360	580	450	64	460	58	55	1,100	32	400	140	310	110
PCBs (EPA-8082) (mg/kg)														
Total PCBs	1.0	0.65	0.35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins and Furans (EPA-1613B) (ug/kg)														
Chlorinated dibenzo-p-dioxins TEQ	0.0128[d]	0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.132**	NA
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270 SIM)														
Naphthalene	5[b]	-	ND(<0.10)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.036	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
2-Methylnaphthalene	5[b]	-	1.2	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.022	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
1-Methylnaphthalene	5[b]	-	0.9	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Acenaphthylene	-	-	ND<0.00002)	0.16	ND(<0.02)	0.037	ND(<0.02)	ND(<0.02)	0.26	ND(<0.02)	ND(<0.02)	ND(<0.02)	0.022	ND(<0.02)
Acenaphthene	4,800[d]	-	ND<0.00002)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Fluorene	3,200[d]	-	ND(<0.12)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Phenanthrene	-	-	0.62	0.24	ND(<0.02)	0.14	0.057	ND(<0.02)	1.2	ND(<0.02)	0.074	0.091	0.071	ND(<0.02)
Anthrancene	24,000[d]	-	ND	0.1	ND(<0.02)	0.051	ND(<0.02)	ND(<0.02)	0.37	ND(<0.02)	0.024	0.023	0.026	ND(<0.02)
Fluoranthene	3,200[d]	-	0.62	0.71	ND(<0.02)	0.34	0.13	ND(<0.02)	2.2	ND(<0.02)	0.15	0.3	0.15	0.033
Pyrene	2,400[d]	-	0.57	0.73	ND(<0.02)	0.33	0.12	ND(<0.02)	1.9	ND(<0.02)	0.16	0.29	0.14	0.028
Benzo[A]Anthracene	1.37[d]	-	0.21	0.54	ND(<0.02)	0.18	0.065	ND(<0.02)	1.2	ND(<0.02)	ND(<0.02)	0.17	0.076	ND(<0.02)
Chrysene	137[d]	-	0.34	0.5	ND(<0.02)	0.19	ND(<0.02)	ND(<0.02)	1.3	ND(<0.02)	ND(<0.02)	0.18	0.11	ND(<0.02)
Benzo[B]Fluoranthene	1.37[d]	-	0.43	0.59	ND(<0.02)	0.24	ND(<0.02)	ND(<0.02)	1.3	ND(<0.02)	ND(<0.02)	0.23	0.15	0.042
Benzo[K]Fluoranthene	13.7[d]	-	ND(<0.00002)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[A]Pyrene	0.1	12	**0.22**	**0.5**	ND(<0.02)	**0.17**	0.06	ND(<0.02)	**1.1**	ND(<0.02)	0.065	**0.16**	0.081	ND(<0.02)
Indeno[1,2,3-Cd]Pyrene	-	-	0.15	0.32	ND(<0.02)	0.12	0.042	ND(<0.02)	0.62	ND(<0.02)	0.079	0.11	0.071	ND(<0.02)
Dibenz[A,H]Anthracene	0.137[d]	-	ND(<0.00002)	0.098	ND(<0.02)	0.035	ND(<0.02)	ND(<0.02)	**0.2**	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[G,H,I]perylene	1.37[d]	-	0.17	0.41	ND(<0.02)	0.15	0.05	ND(<0.02)	0.68	ND(<0.02)	0.13	0.15	0.1	0.022
Total cPAH Equivalent (TEQ)	0.1	-	**0.304**	**0.661**	ND(<0.02)	**0.230**	0.074	ND(<0.02)	**1.446**	ND(<0.02)	0.077	**0.215**	**0.114**	0.018

[a] - Cleanup level dependent on BTEX concentrations

[b] - indicates sum of naphthalene, 1-methylnaphthalene, and 2-methylnapt

[c] - indicates cleanup level is dependant on Chromium[VI] concentrations.

[d] - indicates Method B direct contact cleanup level

ND - indicates analyte was not detected at level above reporting limit (show

NA - indicates sample was not analyzed for the constituent

BOLD - indicates that the concentration in the sample exceeds the MTCA

Table 3. Stormwater Pond Sediment Analytical Results

Sample ID	MTCA Method A Cleanup Level:	Dangerous Waste Toxicity Criteria	Stormwater Pond	Storm Sed.-1
Date			1/24/2018	7/30/2018
Metals (EPA-6020/7471) (mg/kg)				
Arsenic	20.0	NL	10	NA
Cadmium	2.0	NL	**10**	NA
Chromium	19/2000 [a]	NL	43	NA
Copper	3,200[b]	NL	**12,000**	NA
Lead	250.0	NL	**450**	NA
Mercury	2.0	NL	0.15	NA
Zinc	24,000[b]	NL	2,400	NA
TCLP Metals (EPA-1311) (mg/L)				
Arsenic	NL	5	NA	ND (<0.025)
Barium	NL	100	NA	1.1
Cadmium	NL	1	NA	ND (<0.025)
Chromium	NL	5	NA	ND (<0.025)
Lead	NL	5	NA	0.36
Mercury	NL	0.2	NA	ND (<0.0002)
Selenium	NL	1.0	NA	ND (<0.025)
Silver	NL	5	NA	ND (<0.025)
DW Bioassay (Ecology 80-12)	NL	NL	NA	Not Dangerous

[a] - indicates cleanup level is dependant on Chromium(VI) concentrations.

[b] - indicates Method B direct contact cleanup level

ND - indicates analyte was not detected at level above reporting limit (shown in parentheses)

NA - indicates sample was not analyzed for the constituent

NL - indicates there is no target cleanup level

BOLD - indicates that the concentration in the sample exceeds the MTCA Method A or Method B target cleanup levels

Table 4. Groundwater Monitoring Well Sample Analytical Results

Sample ID	MTCA Method A Cleanup Level:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5	MW-6	Equipment Blank
Date		8/28/2018	8/28/2018	8/28/2018	duplicate	8/28/2018	8/29/2018	8/29/2018	8/29/2018
TPH (ug/L)									
NWTPH-Gx Gasoline Range	1,000/800[a]	ND(<50)	200	ND(<50)	ND(<50)	ND(<50)	ND(<50)	ND(<50)	ND(<50)
NWTPH-Dx Diesel Range	500	180	210	ND(<130)	ND(<130)	ND(<130)	ND(<130)	ND(<130)	ND(<130)
NWTPH-Dx Oil Range	500	ND(<250)	ND(<250)	ND(<250)	ND(<250)	ND(<250)	ND(<250)	ND(<250)	ND(<250)
EPA-8021 Benzene	5	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
EPA-8021 Toluene	1,000	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
EPA-8021 Ethylbenzene	700	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
EPA-8021 Xylenes	1,000	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)	ND(<3)
Dissolved Metals (EPA-200.8/245.1) (ug/L)									
Mercury (Dissolved)	2	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)	ND(<0.2)
Arsenic (Dissolved)	5	**12**	ND(<1)	2.3	2.3	1.1	1.2	ND(<1)	ND(<1)
Cadmium (Dissolved)	5	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Chromium (Dissolved)	50	ND(<2)	ND(<2)	4.9	5.0	ND(<2)	ND(<2)	ND(<2)	ND(<2)
Copper (Dissolved)	NA	8.0	ND(<2)	3.2	3.2	3.2	ND(<2)	ND(<2)	ND(<2)
Lead (Dissolved)	15	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)	ND(<1)
Zinc (Dissolved)	NA	3.2	ND(<2.5)	9.8	8.6	3.0	ND(<2.5)	ND(<2.5)	ND(<2.5)
Semi-Volatile Organic Compounds (SVOCs) (EPA-8270 SIM) (ug/L)									
Naphthalenes[b]	160	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[a]pyrene	1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[a]anthracene	0.1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[b]fluoranthene	0.1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Benzo[k]fluoranthene	0.1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Chrysene	0.01	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Dibenz[a,h]anthracene	0.1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
Indeno[1,2,3-cd]pyrene	0.1	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.02)
cPAH Equivalent (TEq)[c]	0.1[d]	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015

[a] - Cleanup level dependent on BTEX concentrations

[b] - Sum of naphthalene, 1-methyl naphthalene, and 2-mehtylnaphthalene

[c] - cPAH level calculated using Toxicity equivalency methodology provided in WAC 173-340-708(8)

[d] - Method A cleanup level of Benzo(a)pyrene

ND - indicates analyte was not detected at level above reporting limit (shown in parentheses)

NA - indicates that there is no MTCA Method A target cleanup level

BOLD - indicates that the concentration in the sample exceeds the MTCA Method A target cleanup levels

TEq - Toxicity Equivalency to benzo(a)pyrene, calculated by multiplying result by appropriate TEF.

Table 5. Groundwater Chemistry Parameters

Well ID	Date	DTW [a] (ft)	GW Elevation (ft)	Temp (°C)	EC (mS/cm)	TDS	Salinity	DO (mg/L)	pH	ORP (mV)	Turbidity [b] NTU
MW-1	8/28/2018	8.23	5.17	16.27	0.364	0.237	0.18	0.26	7.76	-58.4	7.8
MW-2	8/28/2018	5.99	4.85	18.26	5.854	3.808	3.20	0.20	8.02	-57.1	2.9
MW-3	8/28/2018	4.57	5.12	15.39	4.839	3.145	2.61	0.24	8.29	-14.9	2.8
MW-4	8/28/2018	8.09	4.81	15.60	0.351	0.228	0.17	0.28	7.99	-8.2	4.7
MW-5	8/29/2018	10.81	5.08	12.96	0.513	0.333	0.25	0.82	7.42	-55.1	48.0
MW-6	8/29/2018	28.62	5.07	*NA - sample collected using hand bailer due to groundwater depth.*							381

[a] - Depth to water readings presented here were all collected on the same day for comparison purposes.

[b] - Turbidity readings collected with HACH portable turbidity meter. Reading shown at time of sample collection.

IMPORTANT INFORMATION

Important Information

About Your Environmental Site Assessment/Evaluation Report

IMPORTANT INFORMATION

ENVIRONMENTAL SITE ASSESSMENTS/EVALUATIONS ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

This report was prepared to meet the needs you specified with respect to your specific site and your risk management preferences. Unless indicated otherwise, we prepared your report expressly for you and for the purposes you indicated. No one other than you should use this report for any purpose without first conferring with us. No one is authorized to use this report for any purpose other than that originally contemplated without our prior written consent.

The findings and conclusions documented in this site assessment/evaluation have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in this area. The conclusions presented are based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

OUR REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Our environmental site assessment is based on several factors and may include (but not be limited to) reviewing public documents to chronicle site ownership for the past 30, 40, or more years; investigating the site's regulatory history to learn about permits granted or citations issued; determining prior uses of the site and those adjacent to it; reviewing available topographic and real estate maps, historical aerial photos, geologic information, and hydrologic data; reviewing readily available published information about surface and subsurface conditions; reviewing federal and state lists of known and potentially contaminated sites; evaluating the potential for naturally occurring hazards; and interviewing public officials, owners/operators, and/or adjacent owners with respect to local concerns and environmental conditions.

Except as noted within the text of the report, no sampling or quantitative laboratory testing was performed by us as part of this site assessment. Where such analyses were conducted by an outside laboratory, Shannon & Wilson relied upon the data provided and did not conduct an independent evaluation regarding the reliability of the data.

CONDITIONS CAN CHANGE.

Site conditions, both surface and subsurface, may be affected as a result of natural processes or human influence. An environmental site assessment/evaluation is based on conditions that existed at the time of the evaluation. Because so many aspects of a historical review rely on third-party information, most consultants will refuse to certify (warrant) that a site is free of contaminants, as it is impossible to know with absolute certainty if such a condition exists. Contaminants may be present in areas that were not surveyed or sampled or may migrate to areas that showed no signs of contamination at the time they were studied.

Unless your consultant indicates otherwise, your report should not be construed to represent geotechnical subsurface conditions at or adjacent to the site and does not provide sufficient information for construction-related activities. Your report also should not be used following floods, earthquakes, or other acts of nature; if the size or configuration of the site is altered; if the location of the site is modified; or if there is a change of ownership and/or use of the property.

IMPORTANT INFORMATION

INCIDENTAL DAMAGE MAY OCCUR DURING SAMPLING ACTIVITIES.

Incidental damage to a facility may occur during sampling activities. Asbestos and lead-based paint sampling often require destructive sampling of pipe insulation, floor tile, walls, doors, ceiling tile, roofing, and other building materials. Shannon & Wilson does not provide for paint repair. Limited repair of asbestos sample locations is provided. However, Shannon & Wilson neither warranties repairs made by our field personnel, nor are we held liable for injuries or damages as a result of those repairs. If you desire a specific form of repair, such as those provided by a licensed roofing contractor, you need to request the specific repair at the time of the proposal. The owner is responsible for repair methods that are not specified in the proposal.

READ RESPONSIBILITY CLAUSES CAREFULLY.

Environmental site assessments/evaluations are less exact than other design disciplines because they are based extensively on judgment and opinion and there may not have been any (or very limited) investigation of actual subsurface conditions. Wholly unwarranted claims have been lodged against consultants. To limit this exposure, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses may appear in this report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

Consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed or conditions at the site have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of the final assessment/evaluation.

An assessment/evaluation of a site helps reduce your risk but does not eliminate it. Even the most rigorous professional assessment may fail to identify all existing conditions.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, HEALTH, PROPERTY, AND WELFARE OF THE PUBLIC.

If our environmental site assessment/evaluation discloses the existence of conditions that may endanger the safety, health, property, or welfare of the public, we may be obligated under rules of professional conduct, statutory law, or common law to notify you and others of these conditions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland