SEDIMENT SAMPLING AND ANALYSIS PLAN
LOVRIC'S SEA-CRAFT
3022 OAKES AVENUE
ANACORTES, WASHINGTON

prepared for:

Washington Department of Ecology

September 11, 2017

whatcom ENVIRONMENTAL

soil | water | air
compliance consulting

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prepared for:

Washington Department of Ecology

on behalf of:

Lovric's Sea-Craft, Inc.

prepared by:

Whatcom Environmental Services
228 East Champion Street, Suite 101
Bellingham, Washington 98225

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EXECUTIVE SUMMARY

A baseline sediment monitoring event will be performed consistent with the Sediment Cleanup User's Manual II (SCUM II), Appendix A: *Sampling Guidance for NPDES Permits Under the Sediment Management Standards* (Ecology, 2015). The primary objective is to determine whether the facility stormwater discharge is contaminating sediments above the Sediment Management Standards SQS numeric criteria.

Sampling efforts will focus on sediment located in the vicinity of the facility's three permitted discharge locations. These discharges include stormwater surface flow running off the two marine railways where the majority of the facility work occurs, as well as the stormwater drainage pipe running beneath the eastern building which primarily drains gravel roadways and a vegetated hillside. All three locations discharge only stormwater; process water and waste water generated at the facility are captured and properly disposed of offsite.

Sediment samples will be collected for chemical analysis from fifteen sampling stations. Samples will be analyzed for the full list of Sediment Management Standards (SMS) chemicals and conventional parameters as well as organotins. If Sediment Quality Standards (SQS) levels are exceeded, a representative selection of those samples containing exceedances will be further analyzed using bioassays. Samples selected for bioassay will be evaluated using two acute effects tests and one chronic effects test.

Results of the sediment analyses will be provided to the Department of Ecology in a Sediment Data Report. The report will include all chemical and biological data.

1.0 INTRODUCTION AND BACKGROUND INFORMATION

This Sediment Sampling and Analysis Plan (SSAP) has been created to fulfill the requirements of Special Condition S12.A in the Lovric's Sea-Craft Facility National Pollution Discharge Elimination System (NPDES) Permit WA0501491, effective January 1, 2014. The purpose of this plan is to establish procedures that will be used to characterize sediment quality (the nature and extent of any existing chemical contamination and biological toxicity) in the vicinity of the permitted discharge locations. This SSAP was prepared consistent with the guidance provided in Ecology's Sediment Cleanup User's Manual II (SCUM II), Appendix A: *Sampling Guidance for NPDES Permits under the Sediment Management Standards* (Ecology 2015).

1.1 CURRENT SITE DESCRIPTION

Lovric's Sea-craft is a ship repair facility located at 3022 Oakes Avenue in Anacortes Washington.. The upland portion of the permitted site encompasses approximately 4 acres, and the aquatic lands (including piers and docks) encompasses approximately 8 acres. The upland portions of the facility are owned by the Lovric family. Portions of the aquatic lands are leased from the Washington State Department of Natural Resources. The median elevation of the site is approximately 12 feet above mean sea level. The site topography generally slopes to the north/northwest, toward Guemes Channel. The site location and surrounding area is shown on Figure 1.

The facility includes a floating drydock, two marine railways, and docks used primarily for moorage while boats await repair. The facility occasionally provides minor fabrication but does not perform any new ship construction. The general layout of the facility and site drainage are shown on Figure 2.

The facility performs maintenance and repairs on wooden, steel, aluminum, and fiberglass vessels. One of the most common maintenance tasks performed at the facility is hull painting. High pressure washing of hulls takes place only on the railways and floating dry dock. All pressure washing water is collected and disposed of by an outside vendor. Sandblasting is occasionally performed at the facility, and all major sandblasting takes place on the floating dry dock. A wet-blasting technique is used to minimize dust

generation. Spent sandblast grit is contained inside the dry dock by high sidewalls and affixed tarps. All spent sandblast grit is removed and the drydock is cleaned prior to submerging. Lovric's repairs about 40 vessels per year.

1.2 SITE HISTORY

Lovric's Sea-Craft has been operating a ship repair facility in this location since 1965. This facility was first permitted as a boatyard in 1997 under the Ecology's Boatyard General Permit no. WAG030090. After an inspection in November 2010, Ecology determined the facility should be categorized a shipyard facility due to the size of ships handled and number of activities on the site. The facility was issued the Industrial NPDES Individual Permit no. WA050149 on December 13, 2013, which became effective January 1, 2014.

Prior to Lovric's ownership the property was home to various industrial activities. According to a Phase I Environmental Site Assessment (W.D. Purnell & Associates, 1996) of the Lovric's Boatyard, the property was originally obtained by Robinson Fisheries Company from the State of Washington in 1906. The report states that the property was used as a fish packing plant from at least the 1920s until 1950, and the property was vacant from 1950 to 1965. Separate documentation (newspaper article from 1911, Sanborn Fire Insurance map from 1907, and personal letters) indicates that the eastern portion of the site was used to manufacture numerous fish byproducts. Products included fish glue, fish oil, and fish-based fertilizer. Since 1965 the property has been used as a boatyard.

1.3 PREVIOUS SEDIMENT INVESTIGATIONS

Two sediment samples were collected from the Lovric's Sea-Craft facility on May 9, 2016. The samples were collected in the vicinity of the two permitted discharge locations and were named "E. Rail" and "W. Rail". Sampling was performed by walking toward the waters' edge during a minus two-foot tide event and collecting sediment from a depth interval of zero to four inches. Samples were collected by Whatcom Environmental Services personnel and analyzed at Edge Analytical Laboratory in Burlington. Sample collection locations are provided in Appendix A

Samples were analyzed for all chemicals listed in the marine SQS criteria (see SCUM II Table A-1). Samples were also analyzed for tributyltin. No biological tests were completed during the investigation.

The sample collected at the base of the East Railway (named "E. Rail") contained a copper concentration which exceeded the respective SQS criteria. The sample collected at the base of the West Railway (named "W. Rail") contained concentrations of copper, mercury, zinc, and dibenzofuran which exceeded respective SQS criteria. Tributyltin was detected at 0.078 mg/kg in the E. Rail sample and 1.4 mg/kg in the W. Rail sample. No SQS criteria for tributyltin exists for comparison. No other analyzed parameters exceeded the SQS criteria. A summary of the SQS criteria exceedances is shown below:

- E. Rail: copper = 470 mg/kg, SQS criteria = 390 mg/kg
- W. Rail: copper = 2,203 mg/kg, SQS criteria = 390 mg/kg
- W. Rail: mercury = 0.77 mg/kg, SQS criteria = 0.41 mg/kg
- W. Rail: zinc = 983 mg/kg, SQS criteria = 410 mg/kg
- W. Rail: dibenzofuran = 40 ug/kg; SQS criteria = 15 ug/kg

Complete results from the sediment samples collected on May 9, 2016 are provided in Appendix A.

1.4 CURRENT STORMWATER AND WASTEWATER MANAGEMENT

Wastewater and stormwater from the site are managed in accordance with the site NPDES Permit. All wastewater (including sanitary) is collected and taken offsite to be disposed of by licensed waste disposal companies. Numerous operational source control best management practices and structural source control best management practices are utilized. There are currently no stormwater treatment mechanisms in use at the facility.

Stormwater is monitored at three discharge locations within the facility. Stormwater sampling locations include the western Marine Railway #1 (MR1), the eastern Marine Railway #2 (MR2), and the East Building (EB). Stormwater discharge locations are shown on Figure 3. Under the current NPDES Permit, stormwater samples are analyzed for total metals (chromium, copper, iron, lead, and zinc), ethylbenzene, xylenes, oil and grease, visible oil sheen, total suspended solids, turbidity, and pH. A summary of stormwater sampling results collected under the current NPDES permit is provided in Appendix B.

A City of Anacortes public stormwater sewer discharge pipe is located approximately 130 feet east of the Lovric's easternmost stormwater discharge location. The City sewer pipe discharges water from the public roadways located south/southeast of the Lovric's facility.

1.5 FACILITY WASTE DISPOSAL PRACTICES

No solid wastes are treated or disposed of onsite at the Lovric's Sea-Craft facility. The solid wastes handled at the facility including the estimated amounts generated annually, handling/disposal methods, contingency plans for solid waste handling, and contact information for facilities receiving solid waste are described in the Solid Waste Control Plan which is included in Appendix C.

2.0 OBJECTIVES AND DESIGN OF INVESTIGATION

The objective of this sediment investigation is to characterize sediment quality in the vicinity of the permitted discharge locations at the Lovric's Sea-Craft facility as required in Section S12.A of the facility's NPDES Permit. Results of this study may be used as a guide to determine applicability of Sediment impact zone (SIZ_{MAX}) criteria. This study has been designed following guidelines provided in SCUM II Appendix A, and the Puget Sound Estuary Program (PSEP, 1997).

2.1 STUDY DESIGN AND RATIONALE

This study is intended to provide baseline monitoring to determine whether there are current SQS exceedances in the depositional areas of the facility stormwater discharge locations. For the purpose of this study, the site has been identified as discharging a relatively small volume into a tidal area with bidirectional flow. The direction of predominant current flow varies with the ebb and flood of the tide.

The study design incorporates two distinct sampling clusters, the first cluster (A) is located at the marine railway discharge locations, and the second cluster (B) is located at the "East Building" discharge location. Due to the relatively close proximity of the two marine railways at the site, sample stations for the east and west railways have been combined into one cluster. At each cluster, sampling stations are placed along transects running parallel to the shore. Cluster A will have transects located at three depths, while Cluster B will have transects located at two depths. Sample station locations are shown on Figure 3.

2.2 CHEMICAL ANALYTES

All fourteen sediment samples will be analyzed for the full list of SMS chemical and conventional parameters. Samples will also be analyzed for organotins as recommended in Ecology guidance documents (Ecology 2015), which is a pollutant associated with shipyards due to historic uses in antifouling paint. A summary of the selected analyses is provided in Table 1.

2.3 BIOLOGICAL TESTING

During the initial sampling event, adequate sample volume will be collected from all sampling stations and provided to the biological testing laboratory for proper storage while chemical analysis is being completed. Upon receiving chemical analytical results, sampling stations will be selected for biological testing. An iterative approach will be used in which a smaller number of samples which exceed SQS chemical criteria will first be tested, then those results will be used to guide an additional round of biological testing if deemed useful. Samples will be analyzed within the recommended holding time of 8 weeks per the DMMP User Manual (USACE, 2016). At least one sample will be included which contains measurable concentrations of organotins.

Each selected sampling station will be evaluated using three biological tests (two acute tests and one chronic test). The first acute test will be an amphipod 10-day mortality bioassay. Selection of amphipod species will follow the decision tree presented in SCUM II Figure 4-1 in consideration of interstitial salinity and grain size of the sediment collected. The second acute test will be a larval mortality/abnormality bioassay. Larval species will be selected based upon availability and appropriateness at the time of analysis. The Chronic test will be a juvenile Polychaete 20-day growth bioassay. A summary of the selected biological tests is provided in Table 2.

3.0 SAMPLE COLLECTION AND HANDLING

All sampling will be conducted in accordance with SCUM II chapter 4. All samples will be placed in a cooler with ice and delivered to the selected laboratories as soon as possible upon completing sample collection. Sample stations are shown on Figure 3.

3.1 FIELD COLLECTION AND HANDLING PROCEDURES

Surface sediment for chemical and biological analysis will be collected from a small boat using a grab sampler device. If the sample location is accessible by foot during a low tide, surface samples from nearshore areas may be collected directly with stainless steel utensils. Multiple grab samples may be collected and composited at each sampling location to provide sufficient volume for analysis if necessary. If multiple grabs are collected and the same location, they should be collected from within one square meter. Samples will be collected from the uppermost 0-10 cm of sediment. Materials in the sample more than 2 inches in diameter and debris will not be included in the samples. Extra sample volume will be collected from one sample station to allow for laboratory matrix spike / matrix spike duplicate (MS/MSD) analysis.

Neoprene, nitrile, or vinyl gloves will be worn by all personnel when collecting samples. The gloves will be decontaminated or new disposable gloves will be used by personnel to collect each sample. Care will be taken that sediments are not transported from one station to another on boots, gloves, or sampling implements.

Sample containers for volatile organic or sulfide compounds are to be filled prior to homogenization and/or compositing. The remainder of the sample will be transferred directly from the substrate to a stainless steel bowl or HDPE bucket and homogenized as thoroughly as possible with a stainless steel trowel. The homogenized sample portions will be transferred into clean sample containers provided by the analytical laboratory (pre-labeled) and preserved as required. Sufficient sample volume will be collected to meet Quality Control (QC) requirements.

All excess collected sediment remaining after filling required sampling containers will be left at the collection location prior to moving to the next sampling station.

Each sample will be identified with a unique sample designation. The sample designation will be included on the sample label. Sample labels will be completed in permanent ink. Sample labels and/or chain-of-custody forms will include the following information:

- Site ID
- Sample ID
- Date and time of sample collection
- Chemical analysis to be conducted
- Sample preservation information

Immediately after samples are collected, they will be stored on ice or in a refrigerator until they are delivered to the analytical laboratory. Standard chain-of-custody procedures will be followed for all samples collected. The following protocol will be used to ship samples:

- Sample containers will be packed to prevent breakage and transported in a sealed, iced cooler.
- Glass bottles will be separated in the shipping container by cushioning material.
- Blue ice or bagged bulk ice will be used to maintain a temperature of 4 degrees Celsius in each cooler.
- The chain-of-custody form will be sealed in a plastic bag and placed on top of the samples inside the cooler.
- Samples will be delivered in-person to the selected laboratories. If in-person delivery is not feasible, UPS will be used to deliver the samples.

3.1.1 Station Positioning Methods

Sampling station locations will be referenced to the actual deployment locations using a handheld GPS unit. Distances from structures may also be measured in the field using a measuring tape, especially in areas with overhead obstructions. Measurements collected using tape will be transcribed onto a georeferenced map using Esri ArcGIS software to determine latitude and longitude. Target sampling locations are listed in Table 3 and shown on Figure 3.

3.1.2 Sampling Equipment

Samples will be collected using an Ekman, Van Veen, or other similar grab sampler device deployed from a boat. Some samples may also be collected using stainless steel trowels. Stainless steel containers (bowls) or HDPE buckets will be used to homogenize samples in the field prior to filling sample containers.

Sampling implements will be thoroughly decontaminated between stations by scrubbing with a phosphate-free detergent solution (Alconox), followed by a thorough rinsing with analyte-free water (distilled water). All disposable sampling materials and supplies, including personal protective equipment, will be placed in garbage bags and placed in municipal garbage collection containers for disposal as solid waste.

Samples will be collected into containers provided by the selected laboratories. Chemical and physical testing will be performed by Edge Analytical, an Ecology-accredited laboratory, located in Burlington, Washington. Biological testing, will be performed at EcoAnalysts Laboratory located in Port Gamble, WA.

3.1.3 Field Documentation Procedures

Daily field activities will be recorded on appropriate field forms and/or in the project field notebook. Original field notebooks and field forms will be stored with the project file upon completion of the project. Photographic documentation of field activities will be performed as appropriate.

The daily log of field activities will include the following:

- Date
- Time of arrival and departure
- Weather conditions
- Field team members
- Subcontractor personnel onsite (include times of arrival and departure)
- List of daily activities and times concluded
- Observation descriptions
- List of samples collected with sample designations, locations, descriptions, and collection times. Sample descriptions will include the following as appropriate:

  - Physical soil description in accordance with the Unified Soil Classification System (soil type, density/consistency, and color)
  - Substantial product and sheens
  - Odor (e.g., hydrogen sulfide or petroleum)
  - Vegetation
  - Man-made debris
  - Biological activity (e.g., shells, tubes, bioturbation, or organisms)
  - Any other distinguishing characteristics or features
  - Photographs may be taken to document unusual circumstances
- Field monitoring data including health and safety monitoring
- Calibration records for field equipment
- Site visitors
- Maps or sketches
- Signature of person completing field record

Site conditions may make it necessary to modify these procedures as needed. Any additions of field information after the record is complete should be followed by the initials or the person who altered the record and date the changes occurred. Any deletions to field records should be indicated by crossing out the information using a single line and noted with the initials of the person who altered the record and date.

4.0 LABORATORY ANALYTICAL METHODS

Selected laboratories are expected to adhere to the methods outlined in this SSAP and adhere to the SCUM II (Ecology 2015) and PSEP protocols and requirements. Chemical and physical testing will be conducted at Edge Analytical Laboratory, located in Burlington, Washington. Organotin analysis will be conducted at TestAmerica, located in Seattle Washington. Biological testing will be conducted at EcoAnalysts Laboratory (formerly named Ramboll Environ) located in Port Gamble, Washington. All selected laboratories maintain applicable Ecology-accreditation.

The contract laboratories are expected to meet the following minimum requirements:

- Adhere to the methods outlined in this SSAP, including methods referenced for each analytical procedure.
- Deliver PDF and electronic data, as specified.
- Meet reporting requirements for deliverables.
- Meet turnaround times for deliverables.
- Implement adequate QA/QC procedures.
- Notify the project manager of any QA/QC problems when they are identified to allow for quick resolution.
- Allow laboratory and data audits to be performed, if deemed necessary.

4.1 CHEMICAL ANALYSES

A summary of the selected analytical methods and target practical quantitation limits is presented in Table 1. This includes the full list of SMS chemical and conventional parameters, as well as organotins.

The laboratory will use the corrective actions and quality control procedures specified in SCUM II Tables 5-3, 5-4, and 5-5. All calibrations shall be preserved in electronic media. All laboratory data will be reviewed and verified to determine that all data quality objectives have been met and that appropriate corrective actions have been taken, where necessary.

4.2 BIOLOGICAL ANALYSES

A summary of the proposed marine biological tests, species, and applicable endpoints to be used during this project is provided in Table 2. Biological analyses will be performed per the PSEP guidance. The laboratory will adhere to test conditions specified in SCUM II Table 5-9. See section 2.3 for additional biological testing discussion.

5.0 QA/QC REQUIREMENTS

The overall objective of this Quality Assurance/ Quality Control (QA/QC) Plan is to establish confidence that project data are of known and appropriate quality and sufficient to support their intended use.

5.1 LABORATORY REQUIREMENTS

Edge Analytical Laboratory is accredited by the Department of Ecology to perform the analytical methods required by this project. EcoAnalysts, Inc. Laboratory is accredited by the Department of Ecology to perform the biological testing required by this project. If either laboratory is unable to meet the accreditation requirements for any specified analyte, they are required to furnish sample material to an outside laboratory with accreditation for that method and include all associated QA/QC procedures in the final laboratory report.

The laboratory project managers are responsible for maintaining laboratory instruments in the proper working order, including maintenance and calibration and training of personnel. The laboratories are expected to meet all relevant QA/QC requirements presented in SCUM II Chapter 5.

All reports from the laboratory will be accompanied by QC results and any other necessary analytical information to enable reviewers to determine the quality of the data. Analytical data for the specific tasks will be reported in the units specified by the quantification limits.

5.2 QUALITY ASSURANCE REVIEW

A QA1 level review (PTI Environmental Services, 1989) will be performed on the data generated during this sediment investigation. Data review will include an evaluation of:

- Field collection and handling
- Completeness

- Data presentation
- Reporting limits
- Acceptability of test results for:
    - Method blanks
    - Certified reference materials
    - Analytical replicates
    - Laboratory control samples (blank spikes)
    - Matric spikes and surrogate recoveries

The QA1 review of bioassay data will also include an evaluation of acceptability of test results for:

- Positive controls
- Negative controls
- Reference sediment
- Replicates
- Experimental conditions (i.e., temperatures, salinity, pH, etc.)

6.0 DATA ANALYSIS, RECORDKEEPING, AND REPORTING

This section describes data validation procedures, recordkeeping, and data reporting requirements.

6.1 DATA ANALYSIS

The objective for this SSAP is to characterize sediment quality (the nature and extent of chemical contamination and biological toxicity) in the vicinity of the Permittee's discharge locations. The objective will be accomplished by conducting chemical analysis and biological testing on sediment samples using standard laboratory methods.

The analysis of chemical data results will include a comparison of the results to the SQS numeric criteria (Ecology, 2015). The data will be summarized and presented in tables indicating detected contaminants at each sampling station, along with any data qualifiers assigned by the laboratory or during data validation. Sampling station locations will be shown on a map indicating any areas which exceeded the SQS numeric criteria.

A sediment sample that fails the chemical concentration criteria of SMS (WAC 173-204-320(2)) is designated as not complying with the applicable sediment quality standards, if

1) Bioassay is not conducted to override the initial (chemistry) designation; or
2) Bioassay is scheduled, but not conducted within approved sample holding time; or
3) Bioassay is scheduled, conducted but failed any QA/QC requirements.

The analysis of biological data will include comparison to SQS marine biological criteria. The data will be summarized and presented in tables indicating the bioassay method and results at each selected sampling station, along with any data qualifiers assigned by the laboratory or during data validation. Sampling station locations will be shown on a map indicating any areas which exceeded the SQS marine biological criteria.

6.2 RECORDKEEPING

Copies of the following documents will be retained by the Permittee for at least 10 years:

- Final and Ecology-approved SAP
- Field records that document any departures from the SAP and/or QA project plan
- Analytical results, including laboratory reports, summary tables, and data reports
- Original field notebooks and field forms

6.3 REPORTING

At the conclusion of the study a Sediment Data Report will be submitted to Ecology. The report will include:

- A brief statement of the purpose of sampling.
- A brief summary of the field sampling and laboratory analytical procedures, noting any deviations from the SSAP.
- A general vicinity map showing the location of the site, sampling stations, and outfall/storm drain locations.
- Coordinate values for all sampling stations (i.e., latitude and longitude) and their datum.
- Tables summarizing the data results, as well as pertinent QA/QC data.
- A discussion of the interpretation of the results including any exceedances of the benthic criteria.
- A map indicating area(s) exceeding the SQS.
- Copies of complete laboratory data packages as an appendix.
- Quality assurance report as an appendix.
- Copies of field logs as an appendix.
- Copies of signed chain-of-custody forms as an appendix.

In addition, the validated chemistry and biological data from the sediment investigation will be uploaded into Ecology's Environmental Information Management (EIM) database.

7.0 HEALTH AND SAFETY

The purpose of this Health and Safety Plan (HASP) is to set forth appropriate health and safety procedures to be followed during onsite sediment sampling activities at the Lovric's Sea-Craft site. This HASP identifies potential hazards which Whatcom Environmental personnel may be exposed to. Whatcom Environmental personnel shall not participate in these activities without having read this plan in its entirety. This plan works in concert with the Whatcom Environmental Corporate Safety Manual. While working at this site, Whatcom Environmental employees shall follow the procedures outlined in the Whatcom Environmental Corporate Safety Manual.

7.1 DESCRIPTION OF WORK

Deploy and retrieve sampling device while standing in a boat. Homogenize sediment in a container, fill sample jars or bottles, dispose of excess sample material, write labels for sample jars/bottles, then clean sampling equipment.

7.2 HAZARD ASSESSMENT

Whatcom Environmental employees must be aware of the hazards onsite. Based upon previous sampling conducted at the facility, the primary contaminants of concern include heavy metals and dibenzofuran. Polycyclic aromatic chemicals and PCBs were also detected at levels which were orders of magnitude lower than the sediment quality standards. Some contaminants can give off vapors that can be toxic. These vapors are often denser than air and tend to collect in low lying areas and confined or enclosed spaces. Physical hazards may include pinch points, strains due to lifting, noise, and hazards associated with water.

Whatcom Environmental employees must fill out the Pre-Job Safety Analysis form (included in Appendix D) prior to commencing work on site.

7.3 HEALTH AND SAFETY REQUIREMENTS

Each contaminant should be investigated and precautionary measures taken to protect the user being exposed to contaminants. At a minimum, employees should wear: leather or rubber boots, coveralls, a hard hat, safety glasses, disposable vinyl or nitrile gloves, respirator protection if necessary, and hearing protection when near operating equipment.

Personnel and equipment leaving the project area shall be thoroughly decontaminated. Any excess soil or water collected must be returned to the area from which it was collected. Procedures for equipment decontamination will include washing with Alconox soap and rinsing with distilled water. This procedure will be performed on the soil sampling scoops, bowls, and mixing equipment, personal protective equipment, and any other instruments or equipment that encounter contaminated materials.

When working around equipment it is important to be alert at all times. Always make eye contact and express your intentions when approaching an operator in any equipment. Make sure they know where you are. Any work such as sample labeling, writing in the field note book, and sample handling should be performed in a safe area. Whatcom Environmental personnel should not operate equipment unless they are qualified to do so. When investigating a site, field screening may be necessary. When field screening, stand in an area where the operator(s) can see you and make your intentions known.

While working from a boat, all Whatcom Environmental employees must wear a US Coast Guard approved personal flotation device. All instructions given by the vessel's Captain will be followed.

While working onsite, Whatcom Environmental employees must follow health and safety standards that meet or exceed Whatcom Environmental standards.

7.4 EMERGENCY RESPONSE

In an emergency, call 911 for assistance.

The nearest emergency medical facility is the Island Hospital, located at 1211 24th Street in Anacortes, Washington. The main phone number for the hospital is (360) 299-1300. The emergency department may be reached from the Lovric's site by driving east

on Oakes Avenue (which becomes 12th Street), then turn right (south) onto Commercial Avenue, then turn right (west) onto 26th Street. The main hospital entrance can be reached from 24th Street. A map to the hospital and a hospital parking map are provided in Appendix D.

In a non-emergency situation which requires more than basic first aid, the Island Hospital walk-in clinic is available across the street to the west of the Island Hospital. The walk-in clinic is located in the Family Medicine Clinic at 2511 M Avenue, Suite B, in Anacortes, Washington.

First aid kits are kept in Whatcom Environmental vehicles.

All accidents and near misses shall be reported promptly to the immediate supervisor for evaluation or investigation.

8.0 PROJECT SCHEDULE

Sampling will occur after approval of this SSAP by Ecology. Sampling will occur between August 15 and September 30, 2017. Sampling will be scheduled for a day with adequate tide levels to allow the boat sufficient access to the sample locations during daylight hours, and to minimize interference with site work activities.

- Potential sample dates with adequate daylight high tide levels include:
    - The week of August 28, 2017
    - The week of September 11, 2017
    - The week of September 25, 2017
- The sediment data report is anticipated to be complete by January 1, 2018.

9.0 PROJECT PERSONNEL AND RESPONSIBILITIES

This section describes the overall project management strategy for implementing and reporting for the SAP.

Eric Libolt is the Project Manager for Whatcom Environmental Services. The Project Manager will be responsible for overall project coordination, including production of all project deliverables and administrative coordination, to ensure timely and successful completion of the project.

Dan Heimbigner will serve as the Field Coordinator (FC). The FC will provide overall direction for the field sampling effort in terms of logistics, personnel assignments, and field operations. The FC will be responsible for positioning samples accurately; The FC will supervise field collection of all samples and oversee proper recording of sample locations, depths, and identification; ensure conformance to sampling and handling requirements, including field decontamination procedures; ensure proper physical evaluation and logging of samples; and completing COC forms.

Jake Reijm and Britta Nelson will serve as Whatcom Environmental Services Field Technicians. Field Technicians will be responsible for marking sample locations, collecting sediment samples, performing physical sample evaluations, and field decontamination procedures under the supervision of the FC.

Ed Ehler will serve as the primary Onsite Contact for the Lovric's Sea-Craft facility. The Onsite Contact will be responsible for assisting with event scheduling and providing site access. Mr. Ehler will also be responsible for providing and operating the sampling boats.

Sediment chemical testing will be conducted at Edge Analytical Laboratory in Burlington, Washington. Sediment physical testing will be conducted at Materials Testing & Consulting, Inc. located in Tukwila, Washington. Sediment biological testing will be conducted at EcoAnalysts Laboratory located in Port Gamble, Washington. Selected laboratories are accredited by Ecology.

The laboratory Project Managers will oversee all laboratory operations associated with the receipt of the environmental samples, chemical/physical analyses, and laboratory report preparation for this project. The laboratory Project Managers will review all laboratory reports and prepare case narratives describing any anomalies and exceptions that occurred during analysis.

10.0 REFERENCES

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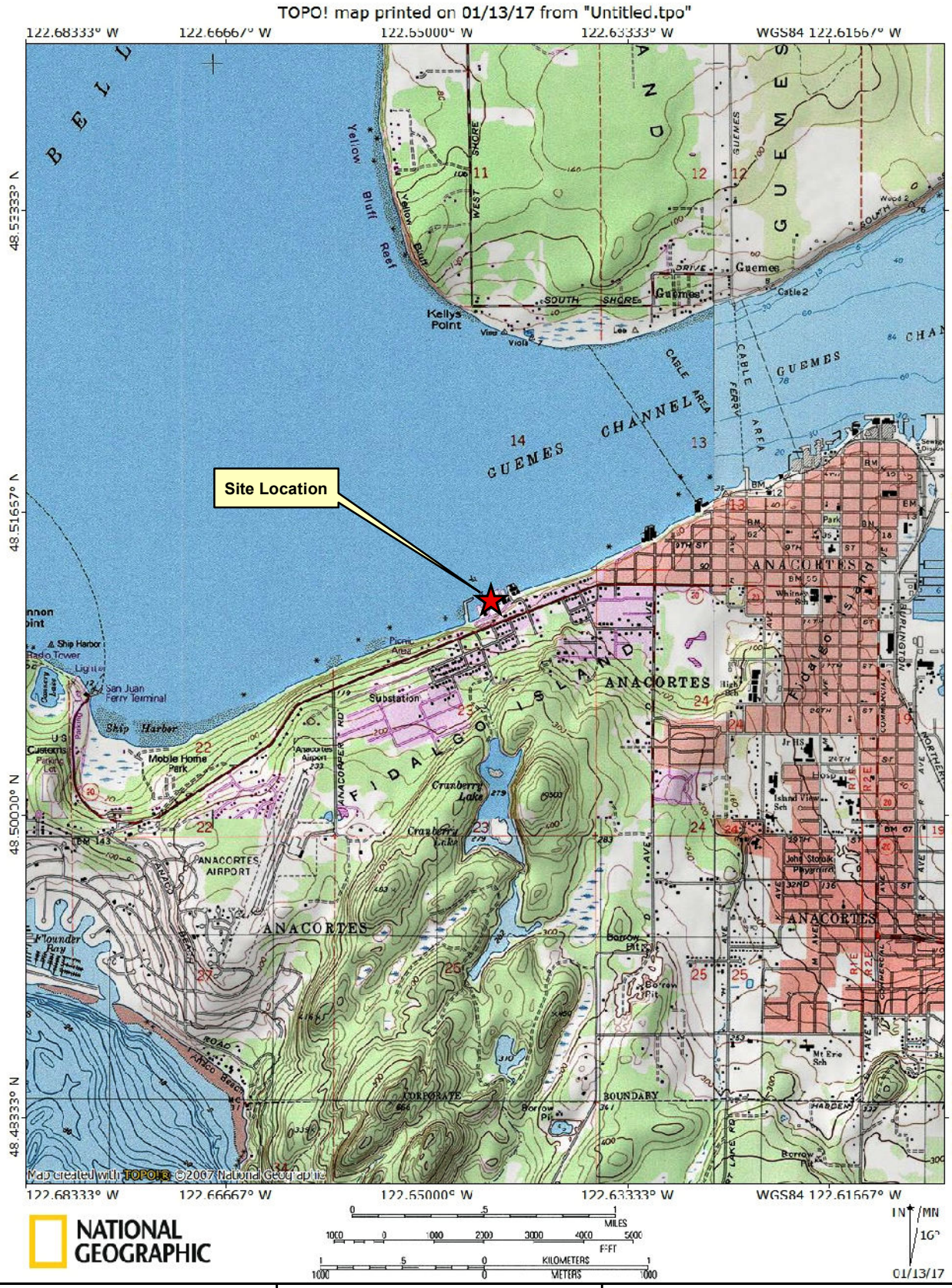
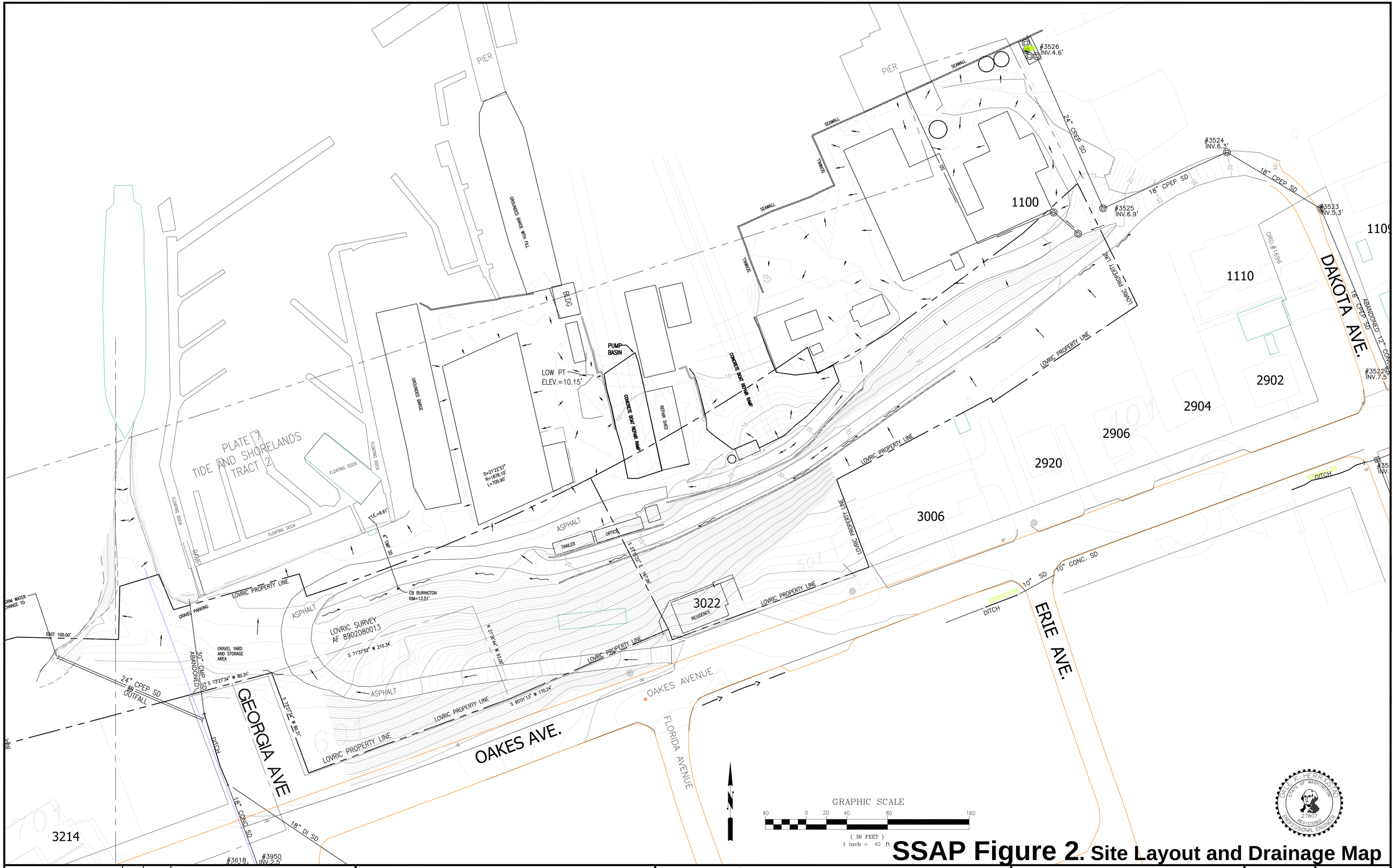


Prepared for:	Prepared by:	Site Location Map	
50 YEARS LOVRIC Sea-Craft Est 1965 Complete Service Shipyard Built on tradition	whatcom ENVIRONMENTAL	Lovric's SAP 1/1/17	Figure 1



SSAP Figure 2. Site Layout and Drainage Map

DALE K. HERRIGSTAD — STATE OF WASHINGTON — 27807 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS	BY	DATE

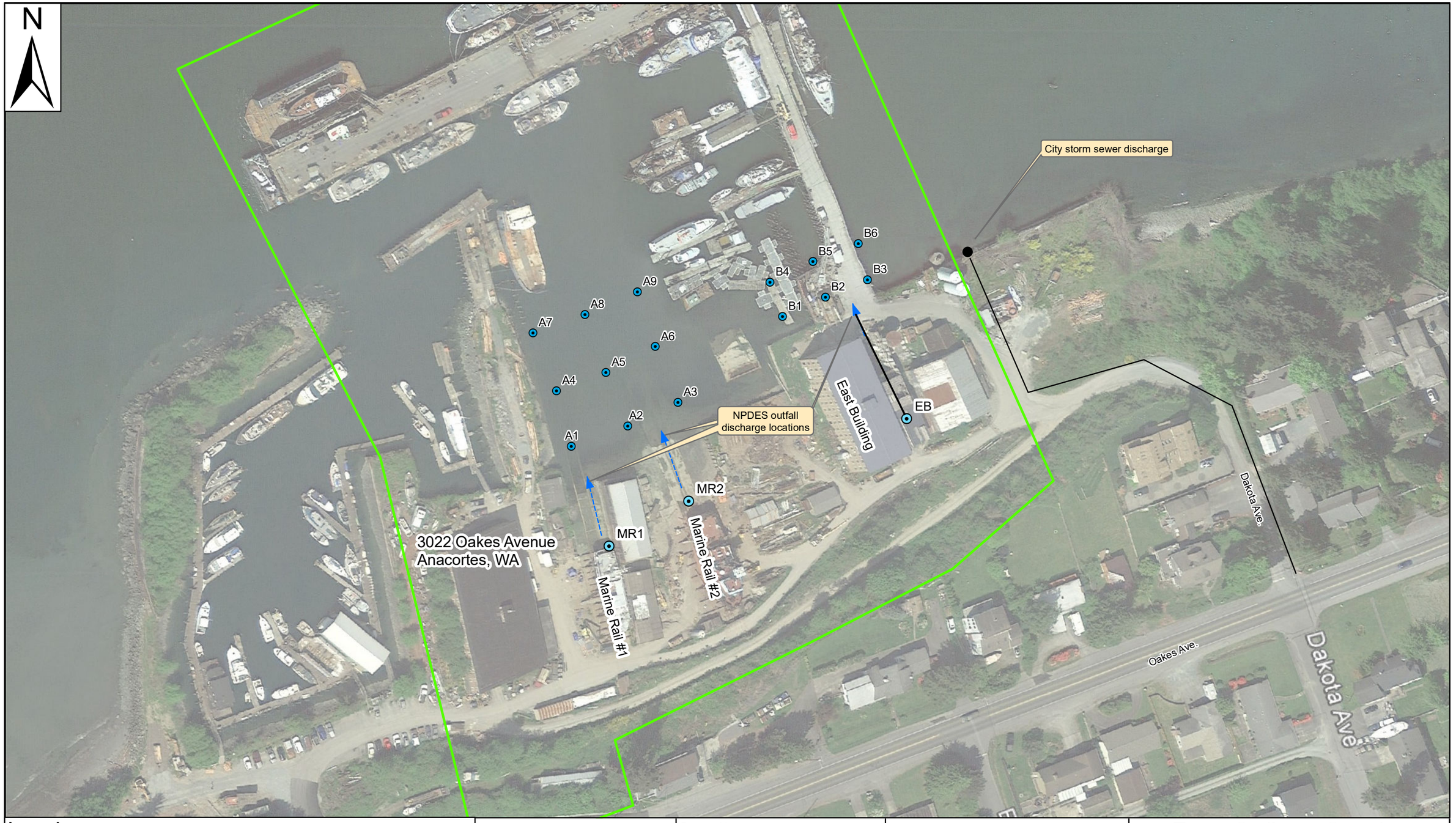
HERRIGSTAD ENGINEERING & SURVEYING
DALE K. HERRIGSTAD P.E., P.L.S.
4320 WHISTLE LAKE ROAD
ANACORTES, WA 98221 (360) 299-8804

Lovric's Sea Craft
3022 Oakes Avenue
Owner/Developer: Lovric's Sea Craft
3022 Oakes Avenue
Anacortes, WA 98221

Site Drainage Plan

SHEET NO. C1 - REV.:

JOB NO: 2014-106
DATE: March 2015
SCALE: 1"=
DRAWN: D. HERRIGSTAD
CHECK: D. HERRIGSTAD
SHEET 1 OF____



Legend

- Proposed Sediment Sampling Location
- Stormwater Sampling Location
- Approximate Site Boundary
- Surface Flow Path
- Buried Stormwater Pipe

Prepared for:

50 YEARS LOVRIC Sea-Craft Est 1969
Complete Service Shipyard
Built on tradition

Prepared by:

whatcom ENVIRONMENTAL

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

0 50 100 200 Feet

1 inch = 100 feet

Target Sediment Sample Location Map

Lovric's SAP

7/12/17

Figure 3

Table 1. Selected Chemistry Analytes and Methods - Lovric's Sea-Craft

			SMS Marine Sediment[a]		Marine Sediment AETs[b]	
Analyte	**Analytical Method**	**Laboratory Practical Quantitation Limit**	**SQS**	**SIZMAX**	**SQS**	**SIZMAX**
Conventional Pollutants						
Ammonia	Plumb (1981)	2	NA	NA	NA	NA
Grain Size	PSEP, 1997a / ASTM D-422	NA				
Total Organic Carbon	9060	0.5	NA	NA	NA	NA
Total Sulfides	PSEP, 1997a	0.1	NA	NA	NA	NA
Total Volatile Solids	PSEP, 1997a	NA	NA	NA	NA	NA
Metals		**mg/kg dw**	**mg/kg dw**		**mg/kg dw**	
Arsenic	EPA 6010/6020	0.26	57	93	57	93
Cadmium	EPA 6010/6020	0.26	5.1	6.7	5.1	6.7
Chromium	EPA 6010/6020	2.60	260	270	260	270
Copper	EPA 6010/6020	2.60	390	390	390	390
Lead	EPA 6010/6020	0.26	450	530	450	530
Mercury	EPA 6010/6020	0.016	0.41	0.59	0.41	0.59
Silver	EPA 6010/6020	0.26	6.1	6.1	6.1	6.1
Zinc	EPA 6010/6020	2.60	410	960	410	960
Organic Chemicals		**µg/kg dw (except *)**	**µg/kg dw (except *)**		**µg/kg dw**	
2,4-Dimethylphenol	EPA 8270	20	29	29	29	29
2-Methylphenol	EPA 8270	20	63	63	63	63
4-Methylphenol	EPA 8270	20	670	670	670	670
Benzoic acid	EPA 8270	50	650	650	650	650
Benzyl alcohol	EPA 8270	20	57	73	57	73
Dibenzofuran	EPA 8270	10	15*	58*	540	540
Phenol	EPA 8270	20	420	1200	420	1200
N-nitrosodiphenylamine	EPA 8270	10	11*	11*	28	40
Phthalates		**mg/kg OC**	**mg/kg OC**		**µg/kg dw**	
Bis(2-Ethylhexyl)phthalate	EPA 8270	0.05	47	78	1300	1900
Butylbenzyl phthalate	EPA 8270	0.05	4.9	64	63	900
Diethyl phthalate	EPA 8270	0.05	61	110	200	*>1200*
Dimethyl phthalate	EPA 8270	0.05	53	53	71	160
Di-n-butyl phthalate	EPA 8270	0.05	220	1700	1400	1400
Di-n-octyl phthalate	EPA 8270	0.05	58	4500	6200	6200

Table 1. Selected Chemistry Analytes and Methods - Lovric's Sea-Craft

			SMS Marine Sediment[a]		Marine Sediment AETs[b]	
Analyte	**Analytical Method**	**Laboratory Practical Quantitation Limit**	**SQS**	**SIZMAX**	**SQS**	**SIZMAX**
Polychlorinated Biphenyls		**mg/kg OC**	**mg/kg OC**		**µg/kg dw**	
Total Aroclors		0.2	12	65	130	1000
Polycyclic Aromatic		**mg/kg OC**	**mg/kg OC**		**µg/kg dw**	
LPAH	EPA 8270	NA	370	780	5200	5200
Naphthalene	EPA 8270	0.05	99	170	2100	2100
Acenaphthylene	EPA 8270	0.05	66	66	1300	1300
Acenaphthene	EPA 8270	0.05	16	57	500	500
Fluorene	EPA 8270	0.05	23	79	540	540
Phenanthrene	EPA 8270	0.05	100	480	1500	1500
Anthracene	EPA 8270	0.05	220	1200	960	960
2-Methylnaphthalene	EPA 8270	0.05	38	64	670	670
Total HPAH	EPA 8270	NA	960	5300	12000	17000
Fluoranthene	EPA 8270	0.05	160	1200	1700	2500
Pyrene	EPA 8270	0.05	1000	1400	2600	3300
Benz[a]anthracene	EPA 8270	0.05	110	270	1300	1600
Chrysene	EPA 8270	0.05	110	460	1400	2800
Total benzofluoranthenes	EPA 8270	0.05	230	450	3200	3600
Benzo[a]pyrene	EPA 8270	0.05	99	210	1600	1600
Indeno[1,2,3-c,d]pyrene	EPA 8270	0.05	34	88	600	690
Dibenzo[a,h]anthracene	EPA 8270	0.05	12	33	230	230
Benzo[g,h,i]perylene	EPA 8270	0.05	31	78	670	720
Chlorinated Organics		**mg/kg OC**	**mg/kg OC**		**ug/kg dw**	
1,2,4-Trichlorobenzene	EPA 8270	0.05	0.81	1.8	31	51
1,2-Dichlorobenzene	EPA 8270	0.05	2.3	2.3	35	50
1,4-Dichlorobenzene	EPA 8270	0.05	3.1	9	110	110
Hexachlorobenzene	EPA 8270	0.05	0.38	2.3	22	70
Hexachlorobutadiene	EPA 8270	0.05	3.9	6.2	11	120
Pentachlorophenol	EPA 8270	0.05	360	690	360	690

Table 1. Selected Chemistry Analytes and Methods - Lovric's Sea-Craft

			SMS Marine Sediment[a]		Marine Sediment AETs[b]	
Analyte	**Analytical Method**	**Laboratory Practical Quantitation Limit**	**SQS**	**SIZMAX**	**SQS**	**SIZMAX**
Organotins		**mg/kg OC[c]**	**mg/kg OC**		**ug/kg dw**	
Tetrabutyltin	Krone 1989	11.5 ug/kg dry	NA	NA	NA	NA
Tributyltin	Krone 1989	1.5 ug/kg dry (PSEP 1997 Organics 9.3)	NA	NA	NA	NA
Dibutyltin	Krone 1989	3.03 ug/kg dry	NA	NA	NA	NA
Monobutyltin	Krone 1989	1.99 ug/kg dry	NA	NA	NA	NA

a, Marine values are dry weight normalized for metals and polar organics and normalized to total organic carbon for nonpolar organics.

b, Dry weight normalized AETs are recommended when total organic carbon is outside the recommended range of 0.5 – 3.5% for organic carbon normalization.

c, Organotin values reported as MDL; MDL limits may be elevated depending on actual percent solids in samples.

> italicized “greater than” value indicates that the toxic level is unknown, but above the concentration shown.

*mg/kg OC

Table 2. Selected Marine Biological Tests - Lovric's Sea-Craft

					Performance Standard		Marine Biological Criteria	
Class/Type	**Species**	**Biological Test Endpoint**	**Acute Effects Test**	**Chronic Effects Test**	**Control**	**Reference**	**SQS**	**SIZ_{MAX}**
Acute Test #1								
Amphipod*	*Rhepoxynius abronius* *Ampelisca abdita* *Eohaustorius estuarius*	10-day mortality	X		M_C < 10%	M_R < 25%	M_T > 25% Absolute *and* M_T vs. M_R SD (*p* = 0.05)	M_T - M_R > 30% *and* M_T vs. M_R SD (*p* = 0.05)
Acute Test #2								
Larval**	*Crassostrea gigas* (Pacific oyster) *Mytilus (edulis) galloprovincialis* (Blue mussel) *Strongylocentrotus purpuratus* (Purple sea urchin) *Dendraster excentricus* (Sand dollar)	Mortality / abnormality	X		N_C / I > 0.70	na	N_T / N_R < 0.85 *and* N_T vs. N_R SD (*p* = 0.10)	N_T / N_R < 0.70 *and* N_T vs. N_R SD (*p* = 0.10)
Chronic Test #1								
Juvenile Polychaete	*Neanthes arenaceodentata*	20-day growth		X	M_C < 10% *and* MIG_C > 0.72 mg/individual-day (or case-by-case)	MIG_R / MIG_C > 0.80	MIG_T / MIG_R > 0.70 *and* MIG_T vs. MIGR SD (*p* = 0.05)	na

*Amphipod species will be selected based upon sediment salinity and grain size.

** Larval species will be selected based upon availability and appropriateness at the time of analysis.

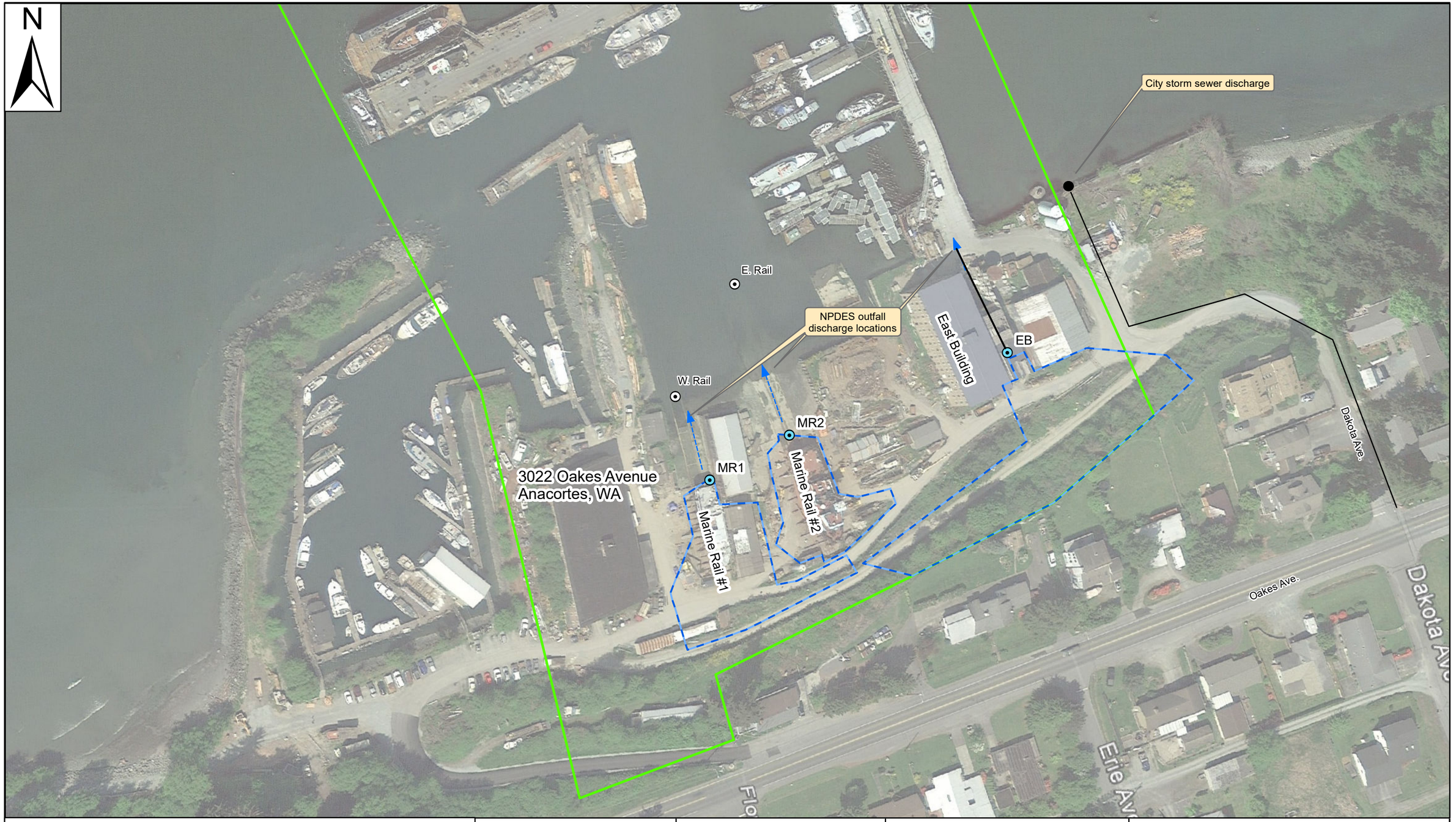
C = Control; R = Reference; T = Test; F = Final; M = Mortality; N = Normal Survivorship expressed as actual counts; I = Initial count; MIG = Mean Individual Growth Rate expressed in mg/ind/day Ash Free Dry Weight; SD = Significantly Different.

Table 3. Target Sample Location Descriptions - Lovric's Sea-Craft

Location ID	**Lat./Lon.** (GCS_North_American_1983_HARN)		**Associated Outfall**
Sample Station Cluster #1			
A1	48.511697	-122.645045	MR1 and MR2 (marine railways)
A2	48.511761	-122.644796	MR1 and MR2 (marine railways)
A3	48.511834	-122.644575	MR1 and MR2 (marine railways)
A4	48.511860	-122.645117	MR1 and MR2 (marine railways)
A5	48.511917	-122.644899	MR1 and MR2 (marine railways)
A6	48.511997	-122.644682	MR1 and MR2 (marine railways)
A7	48.512030	-122.645227	MR1 and MR2 (marine railways)
A8	48.512087	-122.644999	MR1 and MR2 (marine railways)
A9	48.512158	-122.644767	MR1 and MR2 (marine railways)
Sample Station Cluster #2			
B1	48.512096	-122.644118	EB (east building)
B2	48.512155	-122.643929	EB (east building)
B3	48.512210	-122.643744	EB (east building)
B4	48.512195	-122.644179	EB (east building)
B5	48.512259	-122.643990	EB (east building)
B6	48.512316	-122.643790	EB (east building)

APPENDIX A

Previous Sediment Sampling Results



Legend

- Surface Flow Path
- Buried Stormwater Pipe
- Stormwater Sampling Location
- Sediment Sample Location 5-9-16
- Stormwater Drainage Area
- Approximate Site Boundary

Prepared for: Lovric Sea-Craft Est. 1965 — 50 Years — Complete Service Shipyard — Built on tradition

Prepared by: nwhatcom ENVIRONMENTAL

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

0 50 100 200 Feet

1 inch = 100 feet

Previous Sediment Sample Location Map

Lovric's SAP

1/1/17

Figure A1

Table A1. Previous Sediment Sampling Results - Collected May 9, 2016 - Lovric's Sea-Craft

		Lovric Sample Results		SQS Marine Criteria[a]
		E. Rail	W. Rail	
Conventional Pollutants	**Method**	**mg/kg dw**		**mg/kg dw**
Ammonia	Plumb (1981)	68	19	NA
Grain Size	PSEP, 1997a /	see lab report	see lab report	NA
Total Organic Carbon	9060	23,000	13,000	NA
Hydrogen Sulfide	Plumb (1981)	920	1,100	NA
Total Volatile Solids	PSEP, 1997a	5.4	3.6	NA
Metals		**mg/kg dw**		**mg/kg dw**
Arsenic	EPA 6010/6020	6.6	6.2	57
Cadmium	EPA 6010/6020	0.7	0.5	5.1
Chromium	EPA 6010/6020	49.4	45.5	260
Copper	EPA 6010/6020	**470**	**2,203**	390
Lead	EPA 6010/6020	10.1	33.8	450
Mercury	EPA 6010/6020	0.13	**0.77**	0.41
Silver	EPA 6010/6020	0.4	0.5	6.1
Zinc	EPA 6010/6020	250	**983**	410
Organic Chemicals		**µg/kg dw (except *)**		**µg/kg dw (except *)**
2,4-Dimethylphenol	EPA 8270	<20	<20	29
2-Methylphenol	EPA 8270	<20	<20	63
4-Methylphenol	EPA 8270	<20	<20	670
Benzoic acid	EPA 8270	<50	<50	650
Benzyl alcohol	EPA 8270	<20	<20	57
Dibenzofuran	EPA 8270	<10	**40**	15*
Phenol	EPA 8270	<20	<20	420
N-nitrosodiphenylamine	EPA 8270	<10	<10	11*
Phthalates		**mg/kg OC**		**mg/kg OC**
Bis(2-Ethylhexyl)phthalate	EPA 8270	0.6	0.6	47
Butylbenzyl phthalate	EPA 8270	0.1	<0.05	4.9
Diethyl phthalate	EPA 8270	<0.05	<0.05	61
Dimethyl phthalate	EPA 8270	<0.05	0.3	53
Di-n-butyl phthalate	EPA 8270	0.1	0.1	220
Di-n-octyl phthalate	EPA 8270	<0.05	<0.05	58
PCBs		**mg/kg OC**		**mg/kg OC**
Total Aroclors		<0.2	0.093	12

Table A1. Previous Sediment Sampling Results - Collected May 9, 2016 - Lovric's Sea-Craft

		Lovric Sample Results		SQS Marine Criteria[a]
		E. Rail	W. Rail	
Polycyclic Aromatic		**mg/kg OC**		**mg/kg OC**
LPAH	EPA 8270	1	2	370
Naphthalene	EPA 8270	0.1	0.1	99
Acenaphthylene	EPA 8270	0.1	0.2	66
Acenaphthene	EPA 8270	0.1	0.1	16
Fluorene	EPA 8270	0.1	0.1	23
Phenanthrene	EPA 8270	0.5	1.0	100
Anthracene	EPA 8270	0.3	0.4	220
2-Methylnaphthalene	EPA 8270	0.03	0.03	38
Total HPAH	EPA 8270	9	19	960
Fluoranthene	EPA 8270	2	4	160
Pyrene	EPA 8270	2	5	1000
Benz[a]anthracene	EPA 8270	1	2	110
Chrysene	EPA 8270	1	2	110
Total benzofluoranthenes	EPA 8270	2	4	230
Benzo[a]pyrene	EPA 8270	0.6	1	99
Indeno[1,2,3-c,d]pyrene	EPA 8270	0.4	0.8	34
Dibenzo[a,h]anthracene	EPA 8270	<0.05	0.1	12
Benzo[g,h,i]perylene	EPA 8270	0.3	0.5	31
Chlorinated Organics		**mg/kg OC**		**mg/kg OC**
1,2,4-Trichlorobenzene	EPA 8270	<0.05	<0.05	0.81
1,2-Dichlorobenzene	EPA 8270	<0.05	<0.05	2.3
1,4-Dichlorobenzene	EPA 8270	<0.05	<0.05	3.1
Hexachlorobenzene	EPA 8270	<0.05	<0.05	0.38
Hexachlorobutadiene	EPA 8270	<0.05	<0.05	3.9
Pentachlorophenol	EPA 8270	<0.05	<0.05	360
Organotins		**mg/kg OC**		**mg/kg OC**
Tributyltin	Krone 1989	0.078	1.4	NA
Dibutyltin	Krone 1989	NA	NA	NA
Monobutyltin	Krone 1989	NA	NA	NA

a, Marine values are dry weight normalized for metals and polar organics and normalized to total organic carbon for nonpolar organics.

*mg/kg OC (organic carbon)

< "less than" value indicates the parameter was not detected at or above the method detection limit shown.

Bold - indicates parameter was detected above the SQS value.

ANALYTICAL

Burlington, WA	*Corporate Laboratory (a)*	1620 S Walnut St	Burlington, WA 98233	**800.755.9295** • 360.757.1400
Bellingham, WA	*Microbiology (b)*	805 Orchard Dr Ste 4	Bellingham, WA 98225	360.715.1212
Portland, OR	*Microbiology/Chemistry (c)*	9150 SW Pioneer Ct Ste W	Wilsonville, OR 97070	503.682.7802
Corvallis, OR	*Microbiology (d)*	540 SW Third Street	Corvallis, OR 97333	541.753.4946

June 6, 2016

Case Narrative

Reference: **16-10485**

Lab Sample ID	Sample Information
23783	**W. Rail**

Analytical Method	Notes	Created by
8082	Aroclor 1254: 0.040 mg/Kg OC Aroclor 1016: 0.053 mg/Kg OC Suspect trace amount (Less than the Practical Quantitation Limit) of Aroclor 1260 present in sample. RK	RJK

Lab Sample ID	Sample Information
23784	**E. Rail**

Analytical Method	Notes	Created by
8082	Suspect trace amount (Less than the Practical Quantitation Limit) of Aroclors 1254 and 1260 present in sample. RK	RJK

Qualifier Definitions

Reference Number: 16-10485
Report Date: 06/06/16

Qualifier	Definition
b0	Phthalate compounds are commonly found in plastics used within the extraction method. Background amounts are not unexpected and are typically below the MRL. Results reported are likely biased high.
D12	The amount detected is at or near the PQL and a higher degree of error is expect in the quanitation of the compound. A greater %RPD is expected.
INH	The sample was non-homogeneous
IS	The ratio of the spike concentration to sample background was too low to meet performance criteria
J	Indicates an estimated concentration. This occurs when an analyte concentration is below the calibration curve but is above the method detection limit.
N1	See case narrative.
S	Spiking amount was lower than the 5:1 spike to background (sample amount) basis for performance criteria. The reported criteria does not apply due to increased errors in measurement of both sample and spike concentration.

Note: Some qualifier definitions found on this page may pertain to results or QC data which are not printed with this report.

Burlington, WA *Corporate Laboratory (a)*
1620 S Walnut St - Burlington, WA 98233 - **800.755.9295** • 360.757.1400

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805 Orchard Dr Ste 4 - Bellingham, WA 98225 - 360.715.1212

Portland, OR *Microbiology/Chemistry (c)*
9150 SW Pioneer Ct Ste W - Wilsonville, OR 97070 - 503.682.7802

Corvallis, OR *Microbiology/Chemistry (d)*
540 SW Third Street - Corvallis, OR 97333 - 541.753.4946

Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

Data Report

Client Name: Whatcom Environmental Services
228 E. Champion Street, Suite 101
Bellingham, WA 98225

Reference Number: **16-10485**
Project: Lovric's SeaCraft

Report Date: 6/6/16

Date Received: 5/9/16
Approved by: anp,bj,fm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: W. Rail
Lab Number: 23783 Sample Comment:
Sample Date: 5/9/16 1:30 pm
Collected By: Dan Heimbigner (W.E.

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7664-41-7	**AMMONIA-N**	19	2		mg/Kg	1.0	350.1	a	5/17/16	ANP	350.1_160517BS	
E-10195	**TOTAL ORGANIC CARBON**	13000		0.5	mg/kg	1.0	9060		5/25/16	SPP	SPEC9060_16052	Analyzed by TestAmerica
NA	**GRAIN SIZE**	*	0		mg/L	1.0	NA		6/1/16	BG	MTCGS_160601	See MTC Report
18496-25-8	**HYDROGEN SULFIDE**	1100	0	0.1	mg/Kg	1.0	Plumb (1981)		5/26/16	ERB	TA-SPCEP_16052	Analyzed by TestAmerica
688-7-3--3	**TRIBUTYLTIN**	1400			ug/Kg	1.0	PSEP		5/26/16	ERB	TA-SPCEP_16052	Analyzed by TestAmerica
E-10151	**VOLATILE SOLIDS**	3.6			%	1.0	SM2540 G	a	5/12/16	MMH	VS_160512	

Sample Description: E. Rail
Lab Number: 23784 Sample Comment:
Sample Date: 5/9/16 1:45 pm
Collected By: Dan Heimbigner (W.E.

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7664-41-7	**AMMONIA-N**	68	2		mg/Kg	1.0	350.1	a	5/17/16	ANP	350.1_160517BS	
E-10195	**TOTAL ORGANIC CARBON**	23000		0.5	mg/kg	1.0	9060		5/25/16	SPP	SPEC9060_16052	Analyzed by TestAmerica
NA	**GRAIN SIZE**	*	0		mg/L	1.0	NA		6/1/16	BG	MTCGS_160601	See MTC Report
18496-25-8	**HYDROGEN SULFIDE**	920	0	0.1	mg/Kg	1.0	Plumb (1981)		5/26/16	ERB	TA-SPCEP_16052	Analyzed by TestAmerica
688-7-3--3	**TRIBUTYLTIN**	78			ug/Kg	1.0	PSEP		5/26/16	ERB	TA-SPCEP_16052	Analyzed by TestAmerica
E-10151	**VOLATILE SOLIDS**	5.4			%	1.0	SM2540 G	a	5/12/16	MMH	VS_160512	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

If you have any questions concerning this report contact us at the above phone number.

Form: cRslt_2.rpt

Burlington, WA	*Corporate Laboratory (a)*	1620 S Walnut St	Burlington, WA 98233	**800.755.9295** • 360.757.1400
Bellingham, WA	*Microbiology (b)*	805 Orchard Dr Ste 4	Bellingham, WA 98225	360.715.1212
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Corvallis, OR	*Microbiology (d)*	540 SW Third Street	Corvallis, OR 97333	541.753.4946

WSDOE Lab C567

Marine Sediment Quality Standards
Chemical Criteria
WAC 173-204-320

Client Name: Whatcom Environmental Services
228 E. Champion Street, Suite 101
Bellingham, WA 98225

Reference Number: **16-10485**
Project: Lovric's SeaCraft

Lab Number: 23784
Field ID: E. Rail
Sample Description:
Matrix: Soil
Sample Date: 5/9/16

Report Date: 6/6/16
Date Analyzed: 5/18/16
Approved by: anp,co,mvp,pdm
Authorized by:

Patrick Miller, MS
QA Officer

CAS	Chemical Parameter	RESULT	Flag	Units	PQL	Maximum Allowance	Method	Analyst	Batch	Lab	Comment
	Metals										
7440-38-2	ARSENIC	**6.63**		mg/Kg	0.26	57	6010B/3051	BJ	6010B_160518A	a	
7440-43-9	CADMIUM	**0.69**		mg/Kg	0.26	5.1	6010B/3051	BJ	6010B_160518A	a	
7440-47-3	CHROMIUM	**49.4**		mg/Kg	2.60	260	6010B/3051	BJ	6010B_160518A	a	
7440-50-8	COPPER	**470**		mg/Kg	2.60	390	6010B/3051	BJ	6010B_160518A	a	
7439-92-1	LEAD	**10.1**		mg/Kg	0.26	450	6010B/3051	BJ	6010B_160518A	a	
7439-97-6	MERCURY	**0.129**		mg/Kg	0.0163	0.41	7471A	MMH	7471A_160519	a	
7440-22-4	SILVER	**0.38**		mg/Kg	0.26	6.1	6010B/3051	BJ	6010B_160518A	a	
7440-66-6	ZINC	**250**		mg/Kg	2.60	410	6010B/3051	BJ	6010B_160518A	a	
	Polynuclear Aromatic Hydrocarbons (PAHs)										
	LOW MOLECULAR WT PAH	**1.02**		mg/Kg OC*		370	8270D/3540C	CO	MSQS_160519	a	
91-20-3	NAPHTHALENE	**0.07**		mg/Kg OC	0.05	99	8270D/3540C	CO	MSQS_160519	a	
208-96-8	ACENAPHTHYLENE	**0.1**		mg/Kg OC	0.05	66	8270D/3540C	CO	MSQS_160519	a	
83-32-9	ACENAPTHENE	**0.05**		mg/Kg OC	0.05	16	8270D/3540C	CO	MSQS_160519	a	
86-73-7	FLUORENE	**0.06**		mg/Kg OC	0.05	23	8270D/3540C	CO	MSQS_160519	a	
85-01-8	PHENANTHRENE	**0.45**		mg/Kg OC	0.05	100	8270D/3540C	CO	MSQS_160519	a	
120-12-7	ANTHRACENE	**0.26**		mg/Kg OC	0.05	220	8270D/3540C	CO	MSQS_160519	a	
91-57-6	2-METHYLNAPHTHALENE	**0.03**		mg/Kg OC	0.05	38	8270D/3540C	CO	MSQS_160519	a	
	HIGH MOLECULAR WT PAH	**8.79**		mg/Kg OC		960	8270D/3540C	CO	MSQS_160519	a	
206-44-0	FLUORANTHENE	**1.93**		mg/Kg OC	0.05	160	8270D/3540C	CO	MSQS_160519	a	
129-00-0	PYRENE	**1.97**		mg/Kg OC	0.05	1000	8270D/3540C	CO	MSQS_160519	a	
56-55-3	BENZ[A]ANTHRACENE	**0.76**		mg/Kg OC	0.05	110	8270D/3540C	CO	MSQS_160519	a	
218-01-9	CHRYSENE	**1.23**		mg/Kg OC	0.05	110	8270D/3540C	CO	MSQS_160519	a	

Notes:

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Units - mg/Kg is parts per million, mg/Kg OC is parts per million in terms of Organic Carbon, ug/Kg is parts per billion.
Practical Quantitation Limit or PQL is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
Maximum Allowable is taken from Table 1 "Marine Sediment Quality Standards Chemical Criteria" in WAC 173-204-320.
Method - The value listed is the Analytical Method along with the Analytical Prep Mehtod separated by a forward slash.
Batch - The analytical batch number identifies samples that were analyzed together in a group. It is also associated with all quality control processed in that sample group.

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CAS	Chemical Parameter	RESULT	Flag	Units	PQL	Maximum Allowance	Method	Analyst	Batch	Lab	Comment
	TOTAL BENZOFLUORANTHENES	**1.65**		mg/Kg OC	0.05	230	8270D/3540C	CO	MSQS_160519	a	Benzo(B,J,K)fluoranthenes
50-32-8	BENZO[A]PYRENE	**0.59**		mg/Kg OC	0.05	99	8270D/3540C	CO	MSQS_160519	a	
193-39-5	INDENO[1,2,3,C,D]PYRENE	**0.41**		mg/Kg OC	0.05	34	8270D/3540C	CO	MSQS_160519	a	
53-70-3	DIBENZO[A,H]ANTHRACENE	**< 0.05**		mg/Kg OC	0.05	12	8270D/3540C	CO	MSQS_160519	a	
191-24-2	BENZO[G,H,I]PERYLENE	**0.25**		mg/Kg OC	0.05	31	8270D/3540C	CO	MSQS_160519	a	
	Base/Neutral Extractables										
95-50-1	1,2 - DICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	2.3	8270D/3540C	CO	MSQS_160519	a	
106-46-7	1,4 - DICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	3.1	8270D/3540C	CO	MSQS_160519	a	
120-82-1	1,2,4-TRICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	0.81	8270D/3540C	CO	MSQS_160519	a	
118-74-1	HEXACHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	0.38	8270D/3540C	CO	MSQS_160519	a	
131-11-3	DIMETHYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	53	8270D/3540C	CO	MSQS_160519	a	
84-66-2	DIETHYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	61	8270D/3540C	CO	MSQS_160519	a	
84-74-2	DI-N-BUTYL PHTHALATE	**0.1**	b0	mg/Kg OC	0.05	220	8270D/3540C	CO	MSQS_160519	a	
85-68-7	BENZYL BUTYL PHTHALATE	**0.11**	b0	mg/Kg OC	0.05	4.9	8270D/3540C	CO	MSQS_160519	a	
117-81-7	DI(2-ETHYLHEXYL)PHTHALATE	**0.56**	b0	mg/Kg OC	0.05	47	8270D/3540C	CO	MSQS_160519	a	
117-84-0	DI-N-OCTYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	58	8270D/3540C	CO	MSQS_160519	a	
132-64-9	DIBENZOFURAN	**< 10**		ug/Kg	10	15	8270D/3540C	CO	MSQS_160519	a	
87-68-3	HEXACHLOROBUTADIENE	**< 0.05**		mg/Kg OC	0.05	3.9	8270D/3540C	CO	MSQS_160519	a	
55-18-5	N-NITROSODIPHENYLAMINE	**< 10**		ug/Kg	10	11	8270D/3540C	CO	MSQS_160519	a	
1336-36-3	PCBS (Total Aroclors)	**< 0.2**	N1	mg/Kg OC	0.2	12	8082/3540C	RJK	8082_S160516	a	
	Acid Extractables										
108-95-2	PHENOL	**< 20**		ug/Kg	20	420	8270D/3540C	CO	MSQS_160519	a	
95-48-7	2-METHYLPHENOL (o-CRESOL)	**< 20**		ug/Kg	20	63	8270D/3540C	CO	MSQS_160519	a	
106-44-5	4-METHYLPHENOL (p-CRESOL)	**< 20**		ug/Kg	20	670	8270D/3540C	CO	MSQS_160519	a	
105-67-9	2,4-DIMETHYLPHENOL	**< 20**		ug/Kg	20	29	8270D/3540C	CO	MSQS_160519	a	
87-86-5	PENTACHLOROPHENOL	**< 0.05**		mg/Kg OC	0.05	360	8270D/3540C	CO	MSQS_160519	a	
100-51-6	BENZYL ALCOHOL	**< 20**		ug/Kg	20	57	8270D/3540C	CO	MSQS_160519	a	
65-85-0	BENZOIC ACID	**< 50**		ug/Kg	50	650	8270D/3540C	CO	MSQS_160519	a	

Notes:

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Maximum Allowable is taken from Table 1 "Marine Sediment Quality Standards Chemical Criteria" in WAC 173-204-320.
Method - The value listed is the Analytical Method along with the Analytical Prep Mehtod separated by a forward slash.
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Burlington, WA	*Corporate Laboratory (a)*	1620 S Walnut St	Burlington, WA 98233	**800.755.9295** • 360.757.1400
Bellingham, WA	*Microbiology (b)*	805 Orchard Dr Ste 4	Bellingham, WA 98225	360.715.1212
Portland, OR	*Microbiology/Chemistry (c)*	9150 SW Pioneer Ct Ste W	Wilsonville, OR 97070	503.682.7802
Corvallis, OR	*Microbiology (d)*	540 SW Third Street	Corvallis, OR 97333	541.753.4946

WSDOE Lab C567

Marine Sediment Quality Standards
Chemical Criteria
WAC 173-204-320

Client Name: Whatcom Environmental Services
228 E. Champion Street, Suite 101
Bellingham, WA 98225

Reference Number: **16-10485**
Project: Lovric's SeaCraft

Lab Number: 23783
Field ID: W. Rail
Sample Description:
Matrix: Soil
Sample Date: 5/9/16

Report Date: 6/6/16
Date Analyzed: 5/18/16
Approved by: anp,co,mvp,pdm
Authorized by:

Patrick Miller, MS
QA Officer

CAS	Chemical Parameter	RESULT	Flag	Units	PQL	Maximum Allowance	Method	Analyst	Batch	Lab	Comment
	Metals										
7440-38-2	ARSENIC	**6.22**		mg/Kg	0.32	57	6010B/3051	BJ	6010B_160518A	a	
7440-43-9	CADMIUM	**0.46**		mg/Kg	0.32	5.1	6010B/3051	BJ	6010B_160518A	a	
7440-47-3	CHROMIUM	**45.5**		mg/Kg	3.24	260	6010B/3051	BJ	6010B_160518A	a	
7440-50-8	COPPER	**2203**		mg/Kg	3.24	390	6010B/3051	BJ	6010B_160518A	a	
7439-92-1	LEAD	**33.8**		mg/Kg	0.32	450	6010B/3051	BJ	6010B_160518A	a	
7439-97-6	MERCURY	**0.774**		mg/Kg	0.161	0.41	7471A	MMH	7471A_160519	a	
7440-22-4	SILVER	**0.48**		mg/Kg	0.32	6.1	6010B/3051	BJ	6010B_160518A	a	
7440-66-6	ZINC	**983**		mg/Kg	3.24	410	6010B/3051	BJ	6010B_160518A	a	
	Polynuclear Aromatic Hydrocarbons (PAHs)										
	LOW MOLECULAR WT PAH	**1.95**		mg/Kg OC*		370	8270D/3540C	CO	MSQS_160519	a	
91-20-3	NAPHTHALENE	**0.06**		mg/Kg OC	0.05	99	8270D/3540C	CO	MSQS_160519	a	
208-96-8	ACENAPHTHYLENE	**0.23**		mg/Kg OC	0.05	66	8270D/3540C	CO	MSQS_160519	a	
83-32-9	ACENAPTHENE	**0.11**		mg/Kg OC	0.05	16	8270D/3540C	CO	MSQS_160519	a	
86-73-7	FLUORENE	**0.13**		mg/Kg OC	0.05	23	8270D/3540C	CO	MSQS_160519	a	
85-01-8	PHENANTHRENE	**1.01**		mg/Kg OC	0.05	100	8270D/3540C	CO	MSQS_160519	a	
120-12-7	ANTHRACENE	**0.38**		mg/Kg OC	0.05	220	8270D/3540C	CO	MSQS_160519	a	
91-57-6	2-METHYLNAPHTHALENE	**0.03**	J	mg/Kg OC	0.05	38	8270D/3540C	CO	MSQS_160519	a	
	HIGH MOLECULAR WT PAH	**19.4**		mg/Kg OC		960	8270D/3540C	CO	MSQS_160519	a	
206-44-0	FLUORANTHENE	**4.06**		mg/Kg OC	0.05	160	8270D/3540C	CO	MSQS_160519	a	
129-00-0	PYRENE	**4.75**		mg/Kg OC	0.05	1000	8270D/3540C	CO	MSQS_160519	a	
56-55-3	BENZ[A]ANTHRACENE	**1.75**		mg/Kg OC	0.05	110	8270D/3540C	CO	MSQS_160519	a	
218-01-9	CHRYSENE	**2.49**		mg/Kg OC	0.05	110	8270D/3540C	CO	MSQS_160519	a	

Notes:

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Units - mg/Kg is parts per million, mg/Kg OC is parts per million in terms of Organic Carbon, ug/Kg is parts per billion.
Practical Quantitation Limit or PQL is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
Maximum Allowable is taken from Table 1 "Marine Sediment Quality Standards Chemical Criteria" in WAC 173-204-320.
Method - The value listed is the Analytical Method along with the Analytical Prep Mehtod separated by a forward slash.
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CAS	Chemical Parameter	RESULT	Flag	Units	PQL	Maximum Allowance	Method	Analyst	Batch	Lab	Comment
	TOTAL BENZOFLUORANTHENES	**3.68**		mg/Kg OC	0.05	230	8270D/3540C	CO	MSQS_160519	a	Benzo(B,J,K)fluoranthenes
50-32-8	BENZO[A]PYRENE	**1.25**		mg/Kg OC	0.05	99	8270D/3540C	CO	MSQS_160519	a	
193-39-5	INDENO[1,2,3,C,D]PYRENE	**0.77**		mg/Kg OC	0.05	34	8270D/3540C	CO	MSQS_160519	a	
53-70-3	DIBENZO[A,H]ANTHRACENE	**0.08**		mg/Kg OC	0.05	12	8270D/3540C	CO	MSQS_160519	a	
191-24-2	BENZO[G,H,I]PERYLENE	**0.53**		mg/Kg OC	0.05	31	8270D/3540C	CO	MSQS_160519	a	
	Base/Neutral Extractables										
95-50-1	1,2 - DICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	2.3	8270D/3540C	CO	MSQS_160519	a	
106-46-7	1,4 - DICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	3.1	8270D/3540C	CO	MSQS_160519	a	
120-82-1	1,2,4-TRICHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	0.81	8270D/3540C	CO	MSQS_160519	a	
118-74-1	HEXACHLOROBENZENE	**< 0.05**		mg/Kg OC	0.05	0.38	8270D/3540C	CO	MSQS_160519	a	
131-11-3	DIMETHYL PHTHALATE	**0.28**	b0	mg/Kg OC	0.05	53	8270D/3540C	CO	MSQS_160519	a	
84-66-2	DIETHYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	61	8270D/3540C	CO	MSQS_160519	a	
84-74-2	DI-N-BUTYL PHTHALATE	**0.13**	b0	mg/Kg OC	0.05	220	8270D/3540C	CO	MSQS_160519	a	
85-68-7	BENZYL BUTYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	4.9	8270D/3540C	CO	MSQS_160519	a	
117-81-7	DI(2-ETHYLHEXYL)PHTHALATE	**0.59**	b0	mg/Kg OC	0.05	47	8270D/3540C	CO	MSQS_160519	a	
117-84-0	DI-N-OCTYL PHTHALATE	**< 0.05**		mg/Kg OC	0.05	58	8270D/3540C	CO	MSQS_160519	a	
132-64-9	DIBENZOFURAN	**40**		ug/Kg	10	15	8270D/3540C	CO	MSQS_160519	a	
87-68-3	HEXACHLOROBUTADIENE	**< 0.05**		mg/Kg OC	0.05	3.9	8270D/3540C	CO	MSQS_160519	a	
55-18-5	N-NITROSODIPHENYLAMINE	**< 10**		ug/Kg	10	11	8270D/3540C	CO	MSQS_160519	a	
1336-36-3	PCBS (Total Aroclors)	**0.093**	N1	mg/Kg OC	0.1	12	8082/3540C	RJK	8082_S160516	a	
	Acid Extractables										
108-95-2	PHENOL	**< 20**		ug/Kg	20	420	8270D/3540C	CO	MSQS_160519	a	
95-48-7	2-METHYLPHENOL (o-CRESOL)	**< 20**		ug/Kg	20	63	8270D/3540C	CO	MSQS_160519	a	
106-44-5	4-METHYLPHENOL (p-CRESOL)	**< 20**		ug/Kg	20	670	8270D/3540C	CO	MSQS_160519	a	
105-67-9	2,4-DIMETHYLPHENOL	**< 20**		ug/Kg	20	29	8270D/3540C	CO	MSQS_160519	a	
87-86-5	PENTACHLOROPHENOL	**< 0.05**		mg/Kg OC	0.05	360	8270D/3540C	CO	MSQS_160519	a	
100-51-6	BENZYL ALCOHOL	**< 20**		ug/Kg	20	57	8270D/3540C	CO	MSQS_160519	a	
65-85-0	BENZOIC ACID	**< 50**		ug/Kg	50	650	8270D/3540C	CO	MSQS_160519	a	

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SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Calibration Check

Reference Number: **16-10485**
Report Date: 06/06/16

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
350.1_160517BS	0	AMMONIA-N	2.48	2.50	mg/L	350.1	99	90-110		CAL	
6010B_160518A	2	ARSENIC	0.96	1	mg/L	6010B	96	90-110		CAL	
	2	CADMIUM	0.97	1	mg/L	6010B	97	90-110		CAL	
	2	CHROMIUM	0.97	1	mg/L	6010B	97	90-110		CAL	
	2	COPPER	0.96	1	mg/L	6010B	96	90-110		CAL	
	2	LEAD	0.98	1	mg/L	6010B	98	90-110		CAL	
	2	SILVER	0.49	0.5	mg/L	6010B	98	90-110		CAL	
	2	ZINC	0.98	1	mg/L	6010B	98	90-110		CAL	
7471A_160519	0	MERCURY	0.00196	0.00200	mg/L	7471A	98	85-115		CAL	
	1	MERCURY	0.000189	0.000200	mg/L	7471A	95	85-115		CAL	MRL

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: **16-10485**
Report Date: 06/06/16

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
6010B_160518A	0	ARSENIC	0.91	1	mg/L	6010B	91	85-115		LFB	
	0	CADMIUM	0.86	1	mg/L	6010B	86	85-115		LFB	
	0	CHROMIUM	0.93	1	mg/L	6010B	93	85-115		LFB	
	0	COPPER	0.94	1	mg/L	6010B	94	85-115		LFB	
	0	LEAD	0.9	1	mg/L	6010B	90	85-115		LFB	
	0	SILVER	0.5	0.5	mg/L	6010B	100	85-115		LFB	
	0	ZINC	0.9	1	mg/L	6010B	90	85-115		LFB	
7471A_160519	0	MERCURY	0.00203	0.00200	mg/L	7471A	102	85-115		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: **16-10485**
Report Date: 06/06/16

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
350.1_160517BS	0	AMMONIA-N	ND		mg/L	350.1		0-0		LRB	
6010B_160518A	0	ARSENIC	ND		mg/L	6010B		0-0		LRB	
	0	CADMIUM	ND		mg/L	6010B		0-0		LRB	
	0	CHROMIUM	ND		mg/L	6010B		0-0		LRB	
	0	COPPER	ND		mg/L	6010B		0-0		LRB	
	0	LEAD	ND		mg/L	6010B		0-0		LRB	
	0	SILVER	ND		mg/L	6010B		0-0		LRB	
	0	ZINC	ND		mg/L	6010B		0-0		LRB	
7471A_160519	0	MERCURY	ND		mg/L	7471A		0-0		LRB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: **16-10485**
Report Date: 06/06/16

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
350.1_160517BS	0	AMMONIA-N	ND		mg/L	350.1		0-0		MB	
6010B_160518A	0	ARSENIC	0.034		mg/L	6010B		0-0		MB	
	0	CADMIUM	ND		mg/L	6010B		0-0		MB	
	0	CHROMIUM	0.108		mg/L	6010B		0-0		MB	
	0	COPPER	0.06		mg/L	6010B		0-0		MB	
	0	LEAD	ND		mg/L	6010B		0-0		MB	
	0	SILVER	ND		mg/L	6010B		0-0		MB	
	0	ZINC	ND		mg/L	6010B		0-0		MB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: **16-10485**
Report Date: 06/06/16

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
350.1_160517BS	0	AMMONIA-N	2.95	2.85	mg/L	350.1	104	85-115		QCS	
6010B_160518A	0	ARSENIC	1.96	2	mg/L	6010B	98	90-110		QCS	
	0	CADMIUM	1.9	2	mg/L	6010B	95	90-110		QCS	
	0	CHROMIUM	1.96	2	mg/L	6010B	98	90-110		QCS	
	0	COPPER	1.99	2	mg/L	6010B	100	90-110		QCS	
	0	LEAD	2.06	2	mg/L	6010B	103	90-110		QCS	
	0	SILVER	0.49	0.5	mg/L	6010B	98	90-110		QCS	
	0	ZINC	1.97	2	mg/L	6010B	99	90-110		QCS	
7471A_160519	0	MERCURY	0.00261	0.00265	mg/L	7471A	98	85-115		QCS	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE DEPENDENT
QUALITY CONTROL REPORT
Duplicate, Matrix Spike/Matrix Spike Duplicate and Confirmation Result Report

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Type	Comments
Duplicate										
350.1_160517BS										
	23372	AMMONIA-N	1464	467	mg/Kg	103.3	0-20	INH	DUP	
6010B_160518A										
	24852	ARSENIC	0.83	0.95	mg/Kg	13.5	0-20		DUP	
	24852	CADMIUM	2.01	2.20	mg/Kg	9.0	0-20		DUP	
	24852	CHROMIUM	32.9	36.2	mg/Kg	9.6	0-20		DUP	
	24852	COPPER	475	412	mg/Kg	14.2	0-20		DUP	
	24852	LEAD	19.3	18.0	mg/Kg	7.0	0-20		DUP	
	24852	ZINC	1129	1127	mg/Kg	0.2	0-20		DUP	
	25935	ARSENIC	ND	ND	mg/Kg	NA	0-20		DUP	
	25935	CADMIUM	ND	ND	mg/Kg	NA	0-20		DUP	
	25935	CHROMIUM	37.6	34.4	mg/Kg	8.9	0-20		DUP	
	25935	COPPER	46.8	42.0	mg/Kg	10.8	0-20		DUP	
	25935	LEAD	1.52	1.98	mg/Kg	26.3	0-20	INH	DUP	
	25935	ZINC	103	111	mg/Kg	7.5	0-20		DUP	
7471A_160519										
	24852	MERCURY	0.863	1.01	mg/Kg	15.7	0-50		DUP	
8082_S160516										
	23783	PCBS (Total Aroclors)	0.093	0.087	mg/Kg OC	6.7	0-50		DUP	
MSQS_160519										
	23783	1,2 - DICHLOROBENZENE	ND	ND	mg/Kg OC	NA	0-60		DUP	
	23783	1,2,4-TRICHLOROBENZENE	ND	ND	mg/Kg OC	NA	0-60		DUP	
	23783	1,4 - DICHLOROBENZENE	ND	ND	mg/Kg OC	NA	0-60		DUP	
	23783	2 - FLUOROBIPHENYL (Surr)	99	87	%	12.9	70-60		DUP	
	23783	2 - FLUOROPHENOL (Surr)	21	35	%	50.0	70-60		DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

FORM: QC Dependent.rpt

Reference Number: 16-10485
Report Date: 6/6/2016

Batch	Sample	Analyte	Result		Duplicate Result		Units	%RPD	Limits	QC Qualifier	Type	Comments
	23783	2,4,6 - TRIBROMOPHENOL (Surr)	95		82		%	14.7	70-60		DUP	
	23783	2,4-DIMETHYLPHENOL	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	2-METHYLNAPHTHALENE	0.03	J	0.03	J	mg/Kg OC	0.0	0-60		DUP	
	23783	2-METHYLPHENOL (o-CRESOL)	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	4-METHYLPHENOL (p-CRESOL)	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	ACENAPHTHYLENE	0.23		0.09	D12	mg/Kg OC	87.5	0-60		DUP	
	23783	ACENAPTHENE	0.11		0.09		mg/Kg OC	20.0	0-60		DUP	
	23783	ANTHRACENE	0.38		0.37		mg/Kg OC	2.7	0-60		DUP	
	23783	BENZ[A]ANTHRACENE	1.75		1.32		mg/Kg OC	28.0	0-60		DUP	
	23783	BENZO[A]PYRENE	1.25		0.97		mg/Kg OC	25.2	0-60		DUP	
	23783	BENZO[G,H,I]PERYLENE	0.53		0.41		mg/Kg OC	25.5	0-60		DUP	
	23783	BENZOIC ACID	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	BENZYL ALCOHOL	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	BENZYL BUTYL PHTHALATE	ND		ND		mg/Kg OC	NA	0-60		DUP	
	23783	CHRYSENE	2.49		2.05		mg/Kg OC	19.4	0-60		DUP	
	23783	d5-NITROBENZENE (Surr)	81		76		%	6.4	70-60		DUP	
	23783	d5-PHENOL (Surr)	46		48		%	4.3	70-60		DUP	
	23783	DI(2-ETHYLHEXYL)PHTHALATE	0.59		0.76		mg/Kg OC	25.2	0-60		DUP	
	23783	DIBENZO[A,H]ANTHRACENE	0.08		0.08		mg/Kg OC	0.0	0-60		DUP	
	23783	DIBENZOFURAN	40		40		ug/Kg	0.0	0-60		DUP	
	23783	DIETHYL PHTHALATE	ND		ND		mg/Kg OC	NA	0-60		DUP	
	23783	DIMETHYL PHTHALATE	0.28		0.09		mg/Kg OC	102.7	0-60		DUP	
	23783	DI-N-BUTYL PHTHALATE	0.13		0.11		mg/Kg OC	16.7	0-60		DUP	
	23783	DI-N-OCTYL PHTHALATE	ND		ND		mg/Kg OC	NA	0-60		DUP	
	23783	FLUORANTHENE	4.06		3.03		mg/Kg OC	29.1	0-60		DUP	
	23783	FLUORENE	0.13		0.12		mg/Kg OC	8.0	0-60		DUP	
	23783	HEXACHLOROBENZENE	ND		ND		mg/Kg OC	NA	0-60		DUP	
	23783	HEXACHLOROBUTADIENE	ND		ND		mg/Kg OC	NA	0-60		DUP	
	23783	HIGH MOLECULAR WT PAH			ND		mg/Kg OC	NA	0-60		DUP	
	23783	INDENO[1,2,3,C,D]PYRENE	0.77		0.59		mg/Kg OC	26.5	0-60		DUP	
	23783	LOW MOLECULAR WT PAH			ND		mg/Kg OC*	NA	0-60		DUP	
	23783	NAPHTHALENE	0.06		0.04		mg/Kg OC	40.0	0-60		DUP	
	23783	N-NITROSODIPHENYLAMINE	ND		ND		ug/Kg	NA	0-60		DUP	
	23783	PENTACHLOROPHENOL	ND		ND		mg/Kg OC	NA	0-60		DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

FORM: QC Dependent.rpt

Reference Number: 16-10485
Report Date: 6/6/2016

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Type	Comments
	23783	PHENANTHRENE	1.01	0.79	mg/Kg OC	24.4	0-60		DUP	
	23783	PHENOL	ND	ND	ug/Kg	NA	0-60		DUP	
	23783	p-TERPHENYL-d14 (Surr)	91	86	%	5.6	70-60		DUP	
	23783	PYRENE	4.75	4.32	mg/Kg OC	9.5	0-60		DUP	
	23783	TOTAL BENZOFLUORANTHENES	3.68	2.39	mg/Kg OC	42.5	0-60		DUP	
TS_160512										
	24852	TOTAL SOLIDS FOR CALCULATION	99.31	99.42	%	0.1	0-20		DUP	
VS_160512										
	24852	VOLATILE SOLIDS	69.4	69.4	%	0.0	0-20		DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

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Reference Number: 16-10485
Report Date: 6/6/2016

Laboratory Fortified Matrix (MS)

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits*	%RPD	Limits*	QC Qualifier	Type	Comments
350.1_160517BS															
	23372	AMMONIA-N	1464	9876	10508	9253	mg/Kg	**91**	**98**	70-130	7.2	0-0		LFM	
6010B_160518A															
	24852	ARSENIC	0.83	68.8	65.6	79.3	mg/Kg	**86**	**82**	75-125	4.8	0-20		LFM	
	24852	CADMIUM	2.01	77.8	79.1	79.3	mg/Kg	**96**	**97**	75-125	1.7	0-20		LFM	
	24852	CHROMIUM	32.9	109	111	79.3	mg/Kg	**96**	**98**	75-125	2.6	0-20		LFM	
	24852	COPPER	475	491	490	79.3	mg/Kg	**20**	**19**	75-125	6.5	0-20	IS	LFM	
	24852	LEAD	19.3	98.5	99.3	79.3	mg/Kg	**100**	**101**	75-125	1.0	0-20		LFM	
	24852	ZINC	1129	1184	1173	79.3	mg/Kg	**69**	**55**	75-125	22.2	0-20	IS	LFM	
	25935	ARSENIC	ND	63.1	70.6	59.5	mg/Kg	**106**	**119**	75-125	11.2	0-20		LFM	
	25935	CADMIUM	ND	57.2	56.2	59.5	mg/Kg	**96**	**94**	75-125	1.8	0-20		LFM	
	25935	CHROMIUM	37.6	94.0	88.4	59.5	mg/Kg	**95**	**85**	75-125	10.4	0-20		LFM	
	25935	COPPER	46.8	100	96.3	59.5	mg/Kg	**89**	**83**	75-125	7.2	0-20		LFM	
	25935	LEAD	1.52	57.0	56.3	59.5	mg/Kg	**93**	**92**	75-125	1.3	0-20		LFM	
	25935	ZINC	103	169	159	59.5	mg/Kg	**111**	**94**	75-125	16.4	0-20		LFM	
7471A_160519															
	24852	MERCURY	0.863	0.683	0.725	0.0839	mg/Kg	**-215**	**-164**	70-130	26.4	0-20	IS	LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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FORM: QC Dependent.rpt

CHAIN OF CUSTODY / ANALYSIS REQUEST (PLEASE COMPLETE ALL APPLICABLE SHADED SECTIONS)

REPORT TO: Whatcom Environmental Services	BILLING EMAIL: lovricseacraft@gmail.com
ADDRESS: 228 E. Champion Street, Suite 101	BILL TO: Ed Ehler
CITY: Bellingham STATE: WA ZIP: 98225	ADDRESS: 3022 Oakes Ave
ATTN: Dan Heimbigner	CITY: Anacortes STATE: WA ZIP: 98221
PHONE: 360-752-9571 FAX:	PHONE: 206-979-0784 P.O.#:
REPORT EMAIL: dheimbigner@whatcomenvironmental.com	CARD: ☐ VISA ☐ M/C EXPIRES /
PROJECT NAME: Lovric's SeaCraft	CARD#

FOR LAB USE ONLY

REF#

CHECK REGULATORY PROGRAM

- ☐ SAFE DRINKING WATER ACT
- ☐ CLEAN WATER ACT
- ☐ RCRA / CERCLA
- ☒ OTHER

EDGE ANALYTICAL

Main Lab (800-755-9295)
1620 South Walnut St. Burlington, WA 98233
Microbiology (888-725-1212)
805 W. Orchard Dr. Suite 4 Bellingham, WA 98225

Wilsonville Lab (503-682-7802)
9150 SW Pioneer Ct. Suite W Wilsonville, OR 97070
Corvallis Lab (541-753-4946)
540 SW 3rd St. Corvallis, OR 97333

INSTRUCTIONS

1. USE ONE LINE PER SAMPLE LOCATION.
2. BE SPECIFIC IN TEST REQUESTS.
3. NEW LIST EACH METAL INDIVIDUALLY. NEW
4. CHECK OFF ANALYSIS TO BE PERFORMED FOR EACH SAMPLE LOCATION.
5. ENTER NUMBER OF CONTAINERS.

TURN AROUND TIME REQUIRED

- ☒ STANDARD
- ☐ HALF-TIME (50% SURCHARGE)
- ☐ QUICKEST (100% SURCHARGE) PHONE CALL REQ.
- ☐ EMERGENCY (PHONE CALL REQUIRED)

ANALYSIS REQUESTED

16-10485
23783 - 23784

	SAMPLE ID	LOCATION	GRAB/ COMP.	SAMPLE MATRIX*	DATE	TIME	Sediment Quality Standards (Chemical Criteria)	Grain Size	Organotins (butyltins: mono, di, tri, and tetra)					NUMBER OF CONTAINERS	SPECIAL INSTRUCTIONS/ CONDITIONS ON RECEIPT
1	W. RAIL		GRAB	SEDIMENT	5-9-16	1:30	☒	☒	☒	☐	☐	☐	☐		Analyte list attached.
2	E. RAIL		GRAB	SEDIMENT	5-9-16	1:45	☐	☐	☐	☐	☐	☐	☐		
3							☐	☐	☐	☐	☐	☐	☐		Please send results
4							☐	☐	☐	☐	☐	☐	☐		to both Whatcom
5							☐	☐	☐	☐	☐	☐	☐		Environmental and
6							☐	☐	☐	☐	☐	☐	☐		Lovric's SeaCraft
7							☐	☐	☐	☐	☐	☐	☐		(Ed Ehler).
8							☐	☐	☐	☐	☐	☐	☐		
9							☐	☐	☐	☐	☐	☐	☐		
10							☐	☐	☐	☐	☐	☐	☐		

SAMPLED BY: Dan Heimbigner (W.E.S.) PHONE: 360-752-9571 FAX: EMAIL:

◀TOTAL CONTAINERS

SAMPLE RECEIPT REQUESTED (MUST INCLUDE FAX OR EMAIL) ☒

*W- WATER DW- DRINKING WATER SW- SURFACE WATER GW- GROUND WATER WW- WASTE WATER S- SOIL OL- OIL OTHER

W1

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
1 [signature] (W.E.S.)	5-9-16	15:30	[signature]	5.9.16	1530

	YES	NO	N/A
CUSTODY SEALS INTACT	☐	☐	☑
SAMPLE TEMP 16.6 C SATISFACTORY	☑	☐	☐
EVIDENCE OF COOLING	☑	☐	☐
SAMPLES RECEIVED INTACT	☑	☐	
CHAIN OF CUSTODY & LABELS AGREE	☑	☐	

FORM: COC 01-06-2011

Appendix A: Table A-1. Marine benthic chemical criteria.

	SMS Marine Sediment[a]		Marine Sediment AETs[b]	
Analyte	**SQS**	**SIZ_{MAX}**	**SQS**	**SIZ_{MAX}**
Conventional Pollutants				
Ammonia				
Total sulfides				
Total Organic Carbon				
Total Sulfides				
Total Volatile Solids				
Metals	**mg/kg dw**		**mg/kg dw**	
Arsenic	57	93	57	93
Cadmium	5.1	6.7	5.1	6.7
Chromium	260	270	260	270
Copper	390	390	390	390
Lead	450	530	450	530
Mercury	0.41	0.59	0.41	0.59
Silver	6.1	6.1	6.1	6.1
Zinc	410	960	410	960
Organic Chemicals	**µg/kg dw (except *)**		**µg/kg dw**	
2,4-Dimethylphenol	29	29	29	29
2-Methylphenol	63	63	63	63
4-Methylphenol	670	670	670	670
Benzoic acid	650	650	650	650
Benzyl alcohol	57	73	57	73
Dibenzofuran	15*	58*	540	540
Phenol	420	1200	420	1200
N-nitrosodiphenylamine	11*	11*	28	40
Phthalates	**mg/kg OC**		**µg/kg dw**	
Bis(2-Ethylhexyl)phthalate	47	78	1300	1900
Butylbenzyl phthalate	4.9	64	63	900
Diethyl phthalate	61	110	200	*>1200*
Dimethyl phthalate	53	53	71	160
Di-n-butyl phthalate	220	1700	1400	1400
Di-n-octyl phthalate	58	4500	6200	6200
Polychlorinated Biphenyls	**mg/kg OC**		**µg/kg dw**	
Total Aroclors	12	65	130	1000
Polycyclic Aromatic Hydrocarbons	**mg/kg OC**		**µg/kg dw**	
LPAH	370	780	5200	5200
Naphthalene	99	170	2100	2100
Acenaphthylene	66	66	1300	1300
Acenaphthene	16	57	500	500

Also need:
- Grain size
- Organotins (butyltins: mono, di, tri, and tetra)

PAGE 1 OF 2

Appendix A: Table A-1 (continued). Marine benthic chemical criteria.

	SMS Marine Sediment[a]		Marine Sediment AETs[b]	
Analyte	**SQS**	**SIZ_{MAX}**	**SQS**	**SIZ_{MAX}**
Polycyclic Aromatic Hydrocarbons	**mg/kg OC**		**µg/kg dw**	
Fluorene	23	79	540	540
Phenanthrene	100	480	1500	1500
Anthracene	220	1200	960	960
2-Methylnaphthalene	38	64	670	670
Total HPAH	960	5300	12000	17000
Fluoranthene	160	1200	1700	2500
Pyrene	1000	1400	2600	3300
Benz[a]anthracene	110	270	1300	1600
Chrysene	110	460	1400	2800
Total benzofluoranthenes	230	450	3200	3600
Benzo[a]pyrene	99	210	1600	1600
Indeno[1,2,3-c,d]pyrene	34	88	600	690
Dibenzo[a,h]anthracene	12	33	230	230
Benzo[g,h,i]perylene	31	78	670	720
Chlorinated Organics	**mg/kg OC**		**ug/kg dw**	
1,2,4-Trichlorobenzene	0.81	1.8	31	51
1,2-Dichlorobenzene	2.3	2.3	35	50
1,4-Dichlorobenzene	3.1	9	110	110
Hexachlorobenzene	0.38	2.3	22	70
Hexachlorobutadiene	3.9	6.2	11	120
Pentachlorophenol	360	690	360	690

a, Marine values are dry weight normalized for metals and polar organics and normalized to total organic carbon for nonpolar organics.

b, Dry weight normalized AETs are recommended when total organic carbon is outside the recommended range of 0.5 – 3.5% for organic carbon normalization.

> *italicized* "greater than" value indicates that the toxic level is unknown, but above the concentration shown.

*mg/kg OC

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project:	16-10485	**Date Received:**	May 17, 2016
Project #:	16T016	**Sampled By:**	Others
Client :	EDGE Analytical	**Date Tested:**	June 1, 2016
Source:	Multiple	**Tested By:**	B. Goble, K. O'Connell
MTC Sample#:	T16-0761, T16-0762		

CASE NARRATIVE

1. Two samples were submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP).
2. One sample from another job was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
3. The data is provided in summary tables and plots.
4. There were no noted anomalies in this project.

Reviewed by: EGabriel Goble

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 16-10485
Project #: 16T016
Date Received: May 17, 2016
Date Tested: June 1, 2016

Client: EDGE Analytical
Sampled by: Others
Tested by: B. Goble, K. O'Connell

Apparent Grain Size Distribution Summary

Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.0	15.6	7.8	3.9	2.0	1.0
T16-0399	100.0	99.7	74.3	49.7	27.2	11.6	8.2	6.3	4.8	3.4	2.3	1.4	0.8	0.5
	100.0	99.1	73.7	51.2	27.6	11.8	8.4	6.7	4.7	3.3	2.2	1.4	0.8	0.4
	100.0	99.4	74.4	50.5	27.8	11.9	8.5	6.5	4.8	3.3	2.3	1.4	0.8	0.4
23783.0	100.0	100.0	98.1	95.2	91.5	84.6	61.7	35.3	19.0	11.6	8.2	6.3	5.6	3.5
23784.0	100.0	99.5	99.0	96.9	95.5	94.0	88.7	72.8	49.3	31.4	23.3	17.5	17.5	8.7

Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: EGabriel Goble

Corporate ~ 777 Chrysler Drive • Burlington, WA 98233 • Phone (360) 755-1990 • Fax (360) 755-1980
Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 16-10485
Project #: 16T016
Date Received: May 17, 2016
Date Tested: June 1, 2016

Client: EDGE Analytical
Sampled by: Others
Tested by: B. Goble, K. O'Connell

Apparent Grain Size Distribution Summary

Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10-18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0	<230 (<62)
T16-0399	25.7	24.5	22.5	15.7	3.4	1.9	1.4	1.4	1.1	0.9	0.6	0.3	0.5	6.3
	26.3	22.5	23.6	15.8	3.3	1.8	2.0	1.3	1.1	0.8	0.6	0.4	0.4	6.7
	25.6	23.9	22.7	15.8	3.5	1.9	1.7	1.5	1.0	0.9	0.6	0.4	0.4	6.5
23783	1.9	3.0	3.6	7.0	22.9	26.4	16.3	7.4	3.3	1.9	0.8	2.1	3.5	35.3
23784	1.0	2.1	1.4	1.5	5.3	15.9	23.5	17.9	8.1	5.8	0.1	8.7	8.7	72.8

Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: 

Corporate ~ 777 Chrysler Drive • Burlington, WA 98233 • Phone (360) 755-1990 • Fax (360) 755-1980
Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 16-10485
Project #: 16T016
Date Received: May 17, 2016
Date Tested: June 1, 2016

Client: EDGE Analytical
Sampled by: Others
Tested by: B. Goble, K. O'Connell

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
T16-0399	100.0	99.7	74.3	49.7	27.2	11.6	8.2	6.3	4.8	3.4	2.3	1.4	0.8	0.5
	100.0	99.1	73.7	51.2	27.6	11.8	8.4	6.7	4.7	3.3	2.2	1.4	0.8	0.4
	100.0	99.4	74.4	50.5	27.8	11.9	8.5	6.5	4.8	3.3	2.3	1.4	0.8	0.4
AVE	100.0	99.4	74.1	50.5	27.5	11.8	8.4	6.5	4.8	3.4	2.3	1.4	0.8	0.5
STDEV	0.0	0.3	0.3	0.6	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0
%RSD	0.0	0.3	0.4	1.1	0.8	1.3	1.6	2.5	1.7	1.0	2.3	1.5	3.7	7.0

The Triplicate Applies To The Following Samples

Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
T16-0399	3/10/2016	3/15/2016	3/22/2016	100.2		7.9
	3/10/2016	3/15/2016	3/22/2016	101.0		8.6
	3/10/2016	3/15/2016	3/22/2016	100.4		8.4
23783	5/9/2016	5/24/2016	6/1/2016	99.6		7.6
23784	5/9/2016	5/24/2016	6/1/2016	99.3		12.8

* MTC Internal QA limits = 95-105%

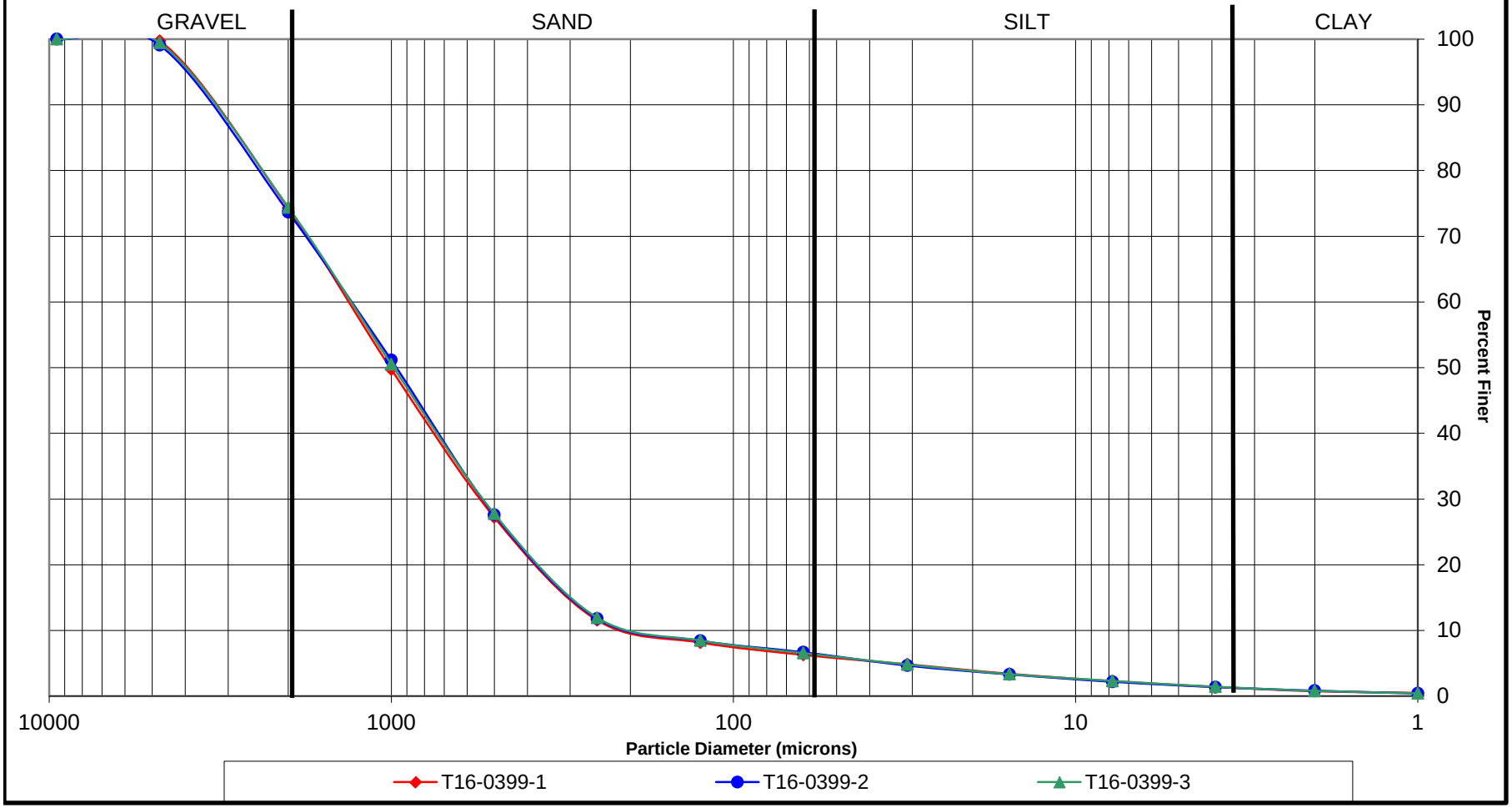
Notes to the Testing: Organic matter was not removed prior to testing, thus the reported values are the "apparent" grain size distribution. See narrative for discussion of the testing.

Reviewed by: EGabriel Goble

Corporate ~ 777 Chrysler Drive • Burlington, WA 98233 • Phone (360) 755-1990 • Fax (360) 755-1980
Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

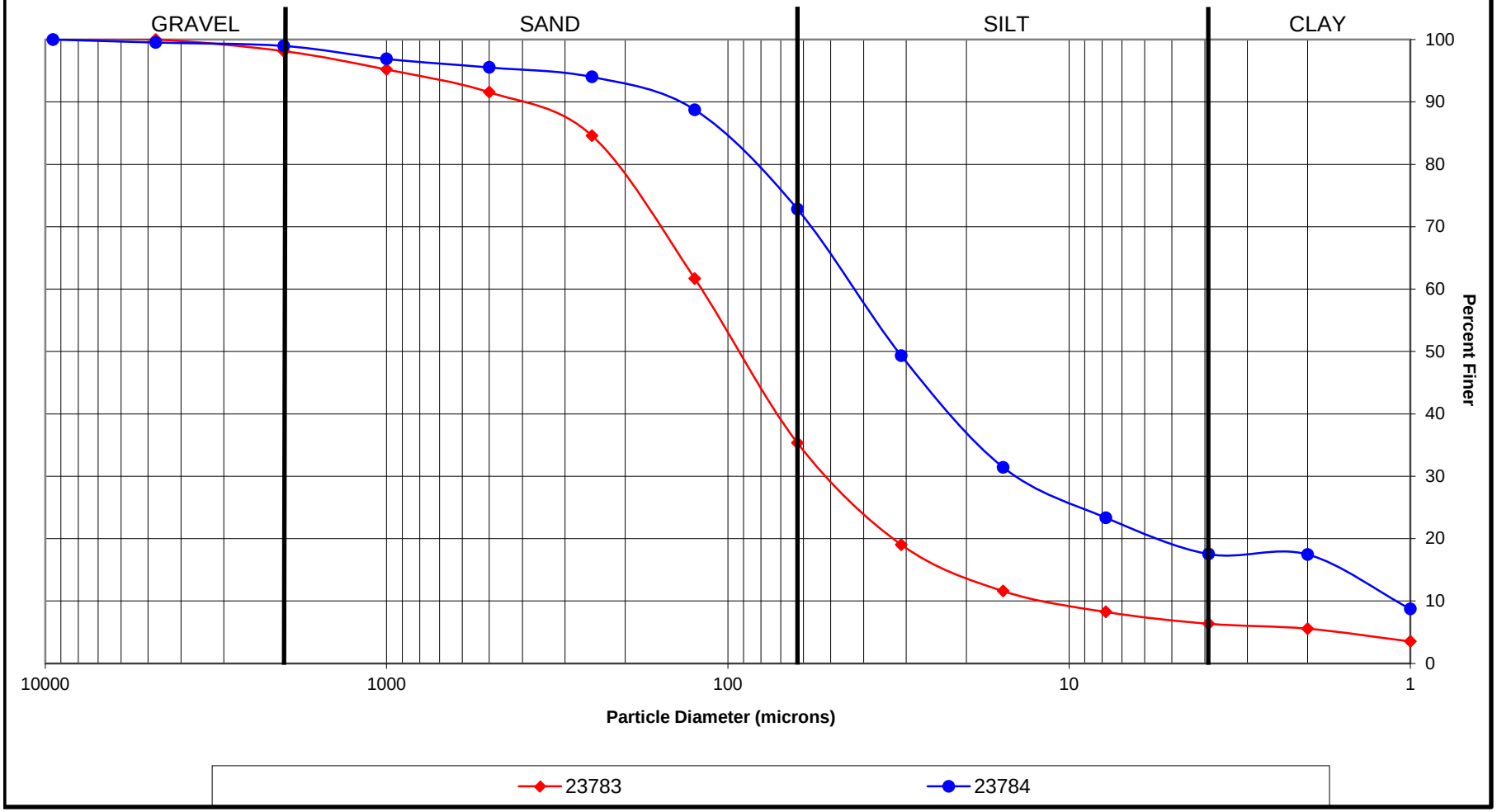
PSEP Grain Size Distribution

Triplicate Sample Plot



MTC
Materials Testing & Consulting, Inc.

PSEP Grain Size Distribution



APPENDIX B

NPDES Stormwater Sampling Results Summary

Table B1. NPDES Stormwater Sampling Results Summary - Lovric's Sea-Craft

	Chromium (Total)	Copper (Total)	Iron (Total)	Lead (Total)	Zinc (Total)	Visual Oil Sheen	Total Petroleum Hydrocarbons Dx	Total Suspended Solids	Turbidity	Ethyl-benzene	Xylenes	pH
	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	Yes/No	(mg/L)	(mg/L)	NTU	(ug/L)	(ug/L)	Standard Units
EB (East Building)												
1/1/2014	1.3	47	390	23	236	no	j	15	5.77	0.0003	0.0018	6.68
2/1/2014	1	23	320	39	182	no	0.86	5	5.38	j	j	3.64
5/1/2014	3.9	23	292	23	222	no	j	4	2.81	j	0.0004	6.92
7/1/2014	4.2	48	1,591	7	100	no	0.22	18	33.5	j	0.0004	6.38
10/1/2014	28	106	10,100	32	235	no	j	44	230	j	j	7.35
11/1/2014	78	208	32,400	80	471	no	9.18	390	688	j	j	7.56
12/1/2014	42	123	20,240	47	245	no	0.92	182	384	j	0.0004	7.09
1/1/2015	80	309	38,160	111	524	no	1.47	384	840	j	j	7.97
2/1/2015	35	125	15,850	46	252	no	0.49	92	325	j	j	7.41
8/1/2015	2	48	330	22	247	no	j	j	6.9	j	j	6.77
10/1/2015	67	285	33,840	221	967	no	0.57	244	741	j	j	7.75
11/1/2015	13	49	4,059	12	104	no	0.24	46	115	j	j	6.99
12/1/2015	63	376	24,334	186	646	no	0.92	346	567	j	j	7.29
1/1/2016	19	118	8,093	46	228	no	1.3	62	168	j	j	6.89
2/1/2016	56	252	22,198	83	419	no	0.79	138	439	j	j	7.79
MR1 (Marine Railway #1, West)												
1/1/2014	11	228	3,240	20	301	no	0.47	22	92.2	j	j	7.16
2/1/2014	44	1,560	19,500	41	1,120	no	0.86	262	424	0.0263	0.187	6.58
5/1/2014	7.7	825	1,300	2.6	924	no	0.34	35	14.9	0.0006	0.0045	7.24
7/1/2014	9.2	2,828	5,530	26	992	no	0.75	69	106	0.0003	0.0024	6.68
10/1/2014	20	1,087	7,390	44	671	no	0.93	70	155	j	j	7.69
11/1/2014	7	386	2,670	10	200	no	0.3	19	57.5	0.0008	0.0098	8.47
12/1/2014	30	936	13,010	35	867	no	0.9	110	268	j	j	7.76
1/1/2015	15	654	6,920	20	410	no	2.97	53	125	j	0.0014	6.68
2/1/2015	27	404	12,030	49	492	no	0.72	43	241	j	j	6.05
8/1/2015	4	2,436	670	4	918	no	j	30	23.7	0.0004	0.0037	6.73
10/1/2015	32	614	13,880	50	643	no	0.6	52	330	j	j	7.74
11/1/2015	14	355	4,364	23	310	no	0.75	26	92.4	j	j	6.69
12/1/2015	9	171	1,272	10	235	no	0.43	25	55.5	j	j	7.3
1/1/2016	35	947	13,492	38	685	no	0.76	146	326	j	j	6.76
2/1/2016	52	1,818	20,659	48	1,429	no	1.47	218	390	j	j	8.97

Table B1. NPDES Stormwater Sampling Results Summary - Lovric's Sea-Craft

	Chromium (Total)	Copper (Total)	Iron (Total)	Lead (Total)	Zinc (Total)	Visual Oil Sheen	Total Petroleum Hydrocarbons Dx	Total Suspended Solids	Turbidity	Ethyl-benzene	Xylenes	pH
	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	Yes/No	(mg/L)	(mg/L)	NTU	(ug/L)	(ug/L)	Standard Units
MR2 (Marine Railway #2, East)												
1/1/2014	27	591	8,940	52	711	no	0.76	56	172	6	0.0005	7.49
2/1/2014	22	1,010	14,540	64	903	no	1.7	132	243	j	0.0006	6.62
5/1/2014	24	795	5,177	12	354	no	0.34	91	107	j	7.00E-05	7.66
7/1/2014	8.3	2,210	5,880	24	628	no	0.83	62	101	J	0.0007	6.69
10/1/2014	31	1,054	10,100	31	536	no	2.3	68	232	j	j	8.22
11/1/2014	2.5	419	1,850	8	185	no	0.74	67	33.5	j	j	7.96
12/1/2014	40	1,450	16,760	46	715	no	1.9	126	322	j	j	8.25
1/1/2015	39	1,894	17,580	52	944	no	j	162	367	j	j	7.07
2/1/2015	10	971	4,910	17	507	no	1.69	39	83.4	j	j	6.65
8/1/2015	2.5	378	2	2.3	131	no	j	22	12.7	j	0.0007	8.05
10/1/2015	24	1,372	12,310	35	914	no	2.31	136	298	j	j	7.54
11/1/2015	7.3	224	2,857	11	183	no	0.43	20	63	j	j	7.14
12/1/2015	12	835	5,005	37	694	no	1.67	36	91.2	j	j	7.23
1/1/2016	34	857	17,367	61	573	no	0.67	66	352	j	j	7.29
2/1/2016	18	699	7,652	26	455	no	1.47	68	137	j	j	7.69

J - Estimated Value/Below Quantitation Limit

APPENDIX C

Solid Waste Control Plan

NEW & USED ZINC ANODES
NEW PAINT & SOLVENT STORAGE
USED PAINT & SOLVENTS
WASTE WATER TANKS
BULK SAND STORAGE
FUELING STATION
STEEL STORAGE
USED OIL PRODUCTS
SAMPLING SITES
FLAMABLE GASES STORAGE AREA

PIER
SEAWALL
GROUNDED BARGE WITH FILL
#3526 INV.4.6'
#3524 INV.6.3'
#3525 INV.6.9'
#3523 INV.5.3'
#3522 INV.7.5'
24" CPEP SD
18" CPEP SD
18" CPEP SD
18" CPEP SD
ABANDONED 12" CONC SD
BULK SAND STORAGE (INSIDE)
FUELING STATION (OUTSIDE)
METAL STORAGE BUILDING
USED OIL FILTERS & SORBENTS (INSIDE)
USED OIL CONTAINMENT TANK (UNDER COVER OUTSIDE)
EAST BUILDING
SITE #3
FLAMABLE GASES(ACETYLENE, OXYGEN, CO2, ETC.)
POSSIBLE RAIN GARDEN SITE
STEEL STORAGE AREA
WOOD BLD
FABRICATION SHOP
LOVRIC PROPERTY LINE
ORD #1696
DAKOTA AVE.
1100
1110
1109
2902
2904
2906
2920
3006
PAINT & SOLVENT STORAGE BLD.
USED THINNERS, SOLVENTS & PAINTS (INSIDE)
WOOD SHOP
WASTE WATER STORAGE TANK (OUTSIDE)
WASTE WATER STORAGE TANKS (OUTSIDE)
EAST RAILWAY SITE #2
PUMP BASIN
LOW PT ELEV.=10.15
WEST RAILWAY SITE #1
PORTABLE WASTE WATER TANKS (OUTSIDE)
CONCRETE BOAT REPAIR RAMP
REPAIR SHED
STEEL STORAGE AREA
COMPRESSOR HOUSE
AIR TANKS
GROUNDED BARGE
POSSIBLE RAIN GARDEN SITE
NEW & USED ZINC ANODE STORAGE (INSIDE)
WEST BUILDING
MACHINE SHOP
D=21°22'53"
R=187.10'
L=109.90'
PLATE 7
TIDE AND SHORELANDS
TRACT 2
FLOATING DOCK
RAMP
ASPHALT
TRAILER
OFFICE
S 21°22'53" E 157.06'
6" CMP SD
CB BURINGTON RIM=13.51'
LOVRIC PROPERTY LINE
GRAVEL PARKING
LOVRIC SURVEY AF 8902080013
S 71°37'52" W 210.34'
N 21°26'44" W 83.00'
3022
RESIDENCE
SD000128
DITCH
10" SD
10" CONC. SD
ERIE AVE.
FORM WATER CHANGE TO
EAST 100.00'
GRAVEL YARD AND STORAGE AREA
30" CMP ABANDONED SD
24" CPEP SD
50' OUTFALL
S 73°27'34" W 80.31'
S 73°27'34" W 80.31'
S 65°01'13" W 170.24'
GEORGIA AVE
OAKES AVENUE
FLORIDA AVENUE
3214
18" CONC SD
18" DI SD
#3618
#3950 INV.2.5'
GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

SSAP Figure C1. Material Storage Map

REVISIONS	BY	DATE

HERRIGSTAD ENGINEERING & SURVEYING
DALE K. HERRIGSTAD P.E., P.L.S.
4320 WHISTLE LAKE ROAD
ANACORTES, WA 98221 (360) 299-8804

Lovric's Sea Craft
3022 Oakes Avenue
Owner/Developer: Lovric's Sea Craft
3022 Oakes Avenue
Anacortes, WA 98221

Site Drainage Plan

SHEET NO. C1 - REV.:

JOB NO: 2014-106
DATE: March 2015
SCALE: 1"=
DRAWN: D. HERRIGSTAD
CHECK: D. HERRIGSTAD
SHEET 1 OF____

SOLID WASTE CONTROL PLAN

NPDES PERMIT NUMBER WA0501491

Facility:

Lovric's Sea-Craft Inc.
3022 Oakes Avenue
Anacortes, WA 98221

Facility Contact(s):

Ed Ehler (Facility Manager)
(206) 979-0784
lovricseacraft@gmail.com

Prepared by:

Whatcom Environmental Services
228 East Champion Street, Suite 101
Bellingham, WA 98225
(360) 752-9571

Preparation Date:

December 15, 2016

_____ _____

Signature of Facility Manager Date

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

This solid waste control plan is required per the National Pollutant Discharge Elimination System (NPDES) Permit, number WA0501491 issued to Lovric's Sea-Craft Inc. This is an individual waste discharge permit. The facility is located at 3022 Oakes Avenue in Anacortes, Washington. No other solid waste permits are issued to the site.

This solid waste control plan has been prepared in accordance with Ecology's guidance document, Publication No. 07-10-024. No solid wastes are treated or disposed of onsite at the Lovric's Sea-Craft facility. Additional site description and activities information can be found in the facility Stormwater Pollution Prevention Plan (SWPPP). A current copy of the SWPPP is maintained onsite. Material storage areas are shown on Figure 2 of the SWPPP. This plan should be updated as needed to reflect changes at the site and changes in disposal methods.

2.0 SOLID WASTES HANDLED

This section describes solid wastes handled at the facility including the estimated amounts generated annually, treatment/handling/disposal methods, contingency plans for solid waste handling, and contact information for facilities receiving solid the waste.

2.1 SAND BLAST GRIT

Amount Generated Annually: Approximately 18 tons of spent sandblast grit.

Description: The facility typically uses 16/30 Black Alum Oxide sandblast grit. New sandblast grit is purchased from:

Kleen Blast - Washington
1448 St. Paul Avenue
Tacoma, WA 98421
(253) 383-2168
www.kleenblast.com

Used sandblast grit is generated during blasting operations conducted on the floating drydock. Sandblasting is conducted primarily on ship exteriors. All sandblast operations utilize a wet-blasting method to minimize dust. Used sandblast grit contains iron dust and paint chips.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods: Both new and used grit awaiting disposal are stored, under cover, in the northeast steel building. The facility typically stocks 30 tons of grit. Grit is stored in 2000-pound jumbo bags on pallets with rain covers.

Disposal Methods: Used sand is placed back into existing bags, pallets, and rain covers and is staged inside northeast steel building while awaiting pickup for disposal. Used sand is picked up and disposed of by:

Evergreen Recycling, Inc
P.O. Box 84364
Seattle, WA 98124-5664

(206) 932-8838

www.evergreenrecycling.com

2.2 BULK USED OIL, OIL ABSORBENTS, USED OIL FILTERS.

Amount Generate Annually: Approximately 600 gallons of used oil; two 55 gallon drums of used oil absorbents; less than one 55 gallon drum of oil filters; and less than one 55 gallon drum of coolant.

Description: Used oil includes hydraulic oil from ship and equipment hydraulic system maintenance, and engine oil from ship engine maintenance. Oil absorbents are generated during maintenance activities.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods:

- Used oil is stored in a 600 gallon used oil tank with secondary containment located under cover between the northeastern steel and wood buildings.
- Used oil absorbents, used oil filters, and coolant are stored in DOT 55gal drums on a secondary containment pallet located inside the eastern wood building. All oil filters are drained before disposal.

Disposal Methods: Disposal of all used oil, oil absorbents, oil filters, and coolant occurs twice a year and is handled by:

Orrco Oil Re-Refining Co.
4150 N. Suttle Road
Portland, OR. 97217
(800) 367-8894
www.orrco.biz

2.3 BULK WASTE WATER, PRESSURE WASH WATER, BILGE AND BALLAST WATER.

Amount Generate Annually: Approximately 18,000 gallons of waste wash water.

Description: All pressure wash water is captured and collected for offsite disposal. Waste pressure wash water is generated at each of the two railways and at the floating drydock during vessel pressure-washing conducted to prep surfaces for painting. The pressure washing water does not use any acid solution and the spent pressure washing water is not pretreated (e.g., filtered, settled, centrifuged) prior to disposal.

Vessel operators are made aware that the discharge of bilge water, ballast water, and any other waste water is not allowed at the facility. Lovric's does not provide pump-out services.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods: Permanent water/sediment runoff collection troughs located at the base of each railway capture pressure wash water. Wash water is actively pumped from the railway runoff collection troughs to collection tanks using portable pumps during all pressure washing activities. Drydock washwater drains into sumps in the dock and is then pumped into portable 300 gallons tanks for disposal.

There are two 600 gallon stainless steel pressure wash waste water storage tanks located at the East Railway work area. There is a 1,200 gallon steel water storage tank located at the West Railway work area. Six 300-gallon portable plastic caged water storage tanks are used to cover the rest of the yard as needed.

Contingency Plan: If bilge water removal is unavoidable, water is collected in portable storage tanks for disposal by Venoil.

Disposal Methods: All waste water is picked up and disposed of by:

Venoil, LLC
Carlos Arco
9390 Marchs Point Rd.
Anacortes, WA 98221-8371
(360) 540-1563

2.4 WASTE PAINT AND THINNER

Amount Generate Annually: Approximately 50 gallons of used paint; and 80 gallons of used paint thinner.

Description: The types of paints used on-site are International Coatings 262 intertuff epoxy AC, Intershield 300 AC, Interthane 990 finish coat, Interspeed 640 antifoulant, and GTA220 thinner.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods: Paints are mixed on location, or inside the paint building.

- The paint storage building is located west of the West Railway and has the capacity to store up to 300 gallons with secondary containment.
- The facility does not stock paint or thinner, and instead purchases as needed. The facility is working to down grade storage to 100 gallons and left overs.
- The facility does not have any painting booths.
- Used paint cans are scraped and dried in a paint shed.
- Spent solvent is settled and reused after separated. The facility does not maintain any still for recycling of solvents.
- For waste paint and thinner, one DOT 55 gallon drum on a secondary drum containment pallet is located in the paint storage building.

Disposal Methods:

- After every job (or when cans are dry) the still bottoms and waste paints are disposed of by the City of Anacortes Sanitations (municipal solid waste).
- Waste liquid paints and thinners are picked up and disposed of by:

  Emerald Recycling
  7343 East Marginal Way South
  Seattle WA 98108
  (206) 832-3000
  www.emeraldrenews.com

2.5 SPENT ZINC ANODES

Amount Generate Annually: Approximately 1,800 pounds of spent zinc anodes.

Description: Spent zinc anodes removed from ships are collected for disposal.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods: Spent zinc anodes are stored on pallets inside the west building along with approximately 4000 pounds of new zinc anodes.

Disposal Methods: Spent zinc anodes are picked up by Skagit River Steel & Recycling for disposal:

Skagit River Steel & Recycling Inc.
1265 S. Anacortes St.
PO Box 376
Burlington WA 98233
www.skagitriversteel.com

2.6 STEEL SCRAP

Amount Generate Annually: Approximately 8.5 tons of steel scrap.

Description: Steel scraps are generated during ship repairs.

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods:

- Steel scrap is loaded into scrap bins as generated (typically 2 yard bins).
- Scrap bins are fitted with lids or kept under cover.

Disposal Methods:

- Scrap steel is picked up by Skagit River Steel & Recycling for disposal:

  Skagit River Steel & Recycling Inc.
  1265 S. Anacortes St.
  PO Box 376
  Burlington WA 98233

www.skagitriversteel.com

2.7 USED BATTERIES.

Amount Generate Annually: Approximately 800 pounds of used batteries.

Description: Used batteries are returned for core deposit immediately when new batteries are purchased

Treatment Methods: This waste is not treated or disposed of onsite.

Handling Methods: Onsite storage of used batteries is minimized as much as possible. If temporary onsite storage is unavoidable, batteries are stored inside the warehouse to prevent contact with stormwater.

Disposal Methods: Used batteries ("cores") are returned to the supplier whenever new batteries are purchased. If needed, used batteries can also be taken to Skagit Steel for disposal.

3.0 REFERENCES

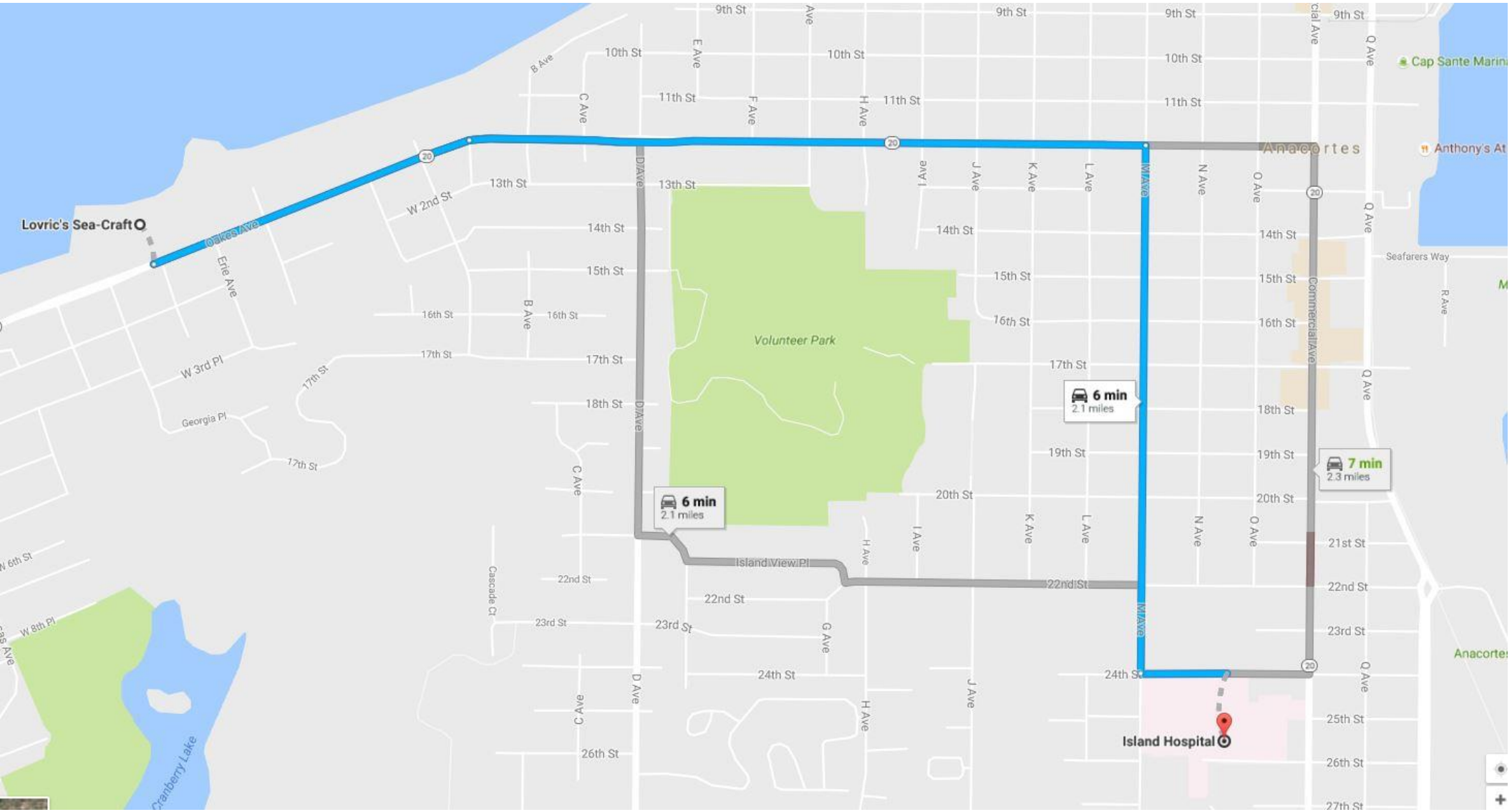
Lovric's Sea-Craft Inc. September 14, 2016. Stormwater Pollution Prevention Plan, Permit Number WA0501491, 3022 Oakes Avenue, Anacortes, WA 98221.

Washington State Department of Ecology (Ecology). February 2007. Focus on Solid Waste Control Plan (Publication Number 07-10-024).

Washington State Department of Ecology (Ecology). December 2013. Fact Sheet for NPDES Permit WA05014941 Lovric's Sea-Craft Inc.

APPENDIX D

Health and Safety Documents


Lovric's Sea-Craft
Oakes Ave
W 2nd St
Erie Ave
W 3rd Pl
Georgia Pl
17th St
B Ave
C Ave
D Ave
E Ave
F Ave
H Ave
I Ave
J Ave
K Ave
L Ave
M Ave
N Ave
O Ave
Q Ave
Commercial Ave
9th St
10th St
11th St
13th St
14th St
15th St
16th St
17th St
18th St
19th St
20th St
21st St
22nd St
23rd St
24th St
25th St
26th St
27th St
Volunteer Park
Island View Pl
Cascade Ct
Cranberry Lake
W 6th St
W 8th Pl
Cap Sante Marina
Anthony's At
Seafarers Way
R Ave
Anacortes
6 min
2.1 miles
6 min
2.1 miles
7 min
2.3 miles
Island Hospital

Island Prenatal Care Center/
Lifeline /
Teen Clinic

Home Health

Employee Parking

26th Street

Visitor Parking

Visitor Parking

Emergency Entrance

Visitor Parking

Medical Arts Pavilion

Visitor Parking

Medical Office Building

Visitor Parking

Visitor Parking

Island Hospital

Island Medical Center

Physician Parking

25th Street

Visitor Parking

Commercial Avenue

Employee Parking

Main Entrance

Visitor Parking

M Avenue

24th Street

24th Street

ISLAND HOSPITAL
Parking Map

EV Charging Station

Handicap Parking

S
E W
N

23rd Street

22nd Street

22nd Street

O Avenue

Sleep Wellness Center

N Avenue

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WIND DIRECTION 

whatcom ENVIRONMENTAL

EVACUATION LOCATION

PRE-JOB SAFETY ANALYSIS

LOCATION: DATE: TIME: WEATHER CONDITIONS:

PERSONNEL

Printed Name: _____ Signature: _____

Printed Name: _____ Signature: _____

Printed Name: _____ Signature: _____

JOB DESCRIPTION:

DESCRIBE JOB SCOPE:

JOB TASKS:

DESCRIBE SPECIFIC JOB TASKS:

IDENTIFY POTENTIAL HAZARDS:

☐ CHEMICAL BURN	☐ ELEVATED WORK	☐ DROPPING TOOLS	☐ SPILLS	☐ HEAT STRESS
☐ THERMAL BURN	☐ SLIPS,TRIPS,FALLS	☐ INHALING HAZ SUB	☐ ABRASIONS	☐ ELECTRICAL SHOCK
☐ PARTICLES IN EYE	☐ OVERHEAD WORK	☐ CUTS	☐ COMPATIBLE WORK	☐ LINE OF FIRE
☐ OVEREXERTION	☐ SPRAINS/STRAINS	☐ FIRE	☐ LOUD NOISES	☐ PINCH POINTS
☐ CAVE IN	☐ LADDER WORK	☐ CONFINED SPACES	☐ SCAFFOLDING	☐ GENERATED WASTES
☐ SKIN ABSORPTION OF HAZ. CHEMICALS		☐ HEAVY LIFTING	☐ DRILLING EQUIP.	☐ TRAFFIC

LIST OTHER POTENTIAL HAZARDS:

IDENTIFY HAZARD ELIMINATION:

☐ SLOPING, SHORING, TRENCH BOX	☐ HOSES, FIRE EXTINGUISHER	☐ PROPER TOOLS
☐ SCAFFOLD, SAFETY HARNESS	☐ DON'T ENTER OTHERS WORK AREAS	☐ AIR MONITORING
☐ EQUIPMENT INSPECTION & TRAINING	☐ BARRICADES	☐ PROPER GLOVES
☐ PROPER GROUNDING	☐ MACHINE GUARDS	☐ MONOGOGGLES
☐ DECON PROCEDURES	☐ STAY HYDRATED	☐ SAFE LADDER USE
☐ HEARING PROTECTION	☐ RESPIRATOR / SUPPLIED BREATHING AIR	☐ HOUSEKEEPING
☐ TOE BOARDS, NETTING	☐ PROPER POSITIONS AND LIFTING TECHNIQUES	
☐ CONFINED SPACE PROCEDURES	☐ RUBBER GLOVES, FACE SHIELD, CHEMICAL GEAR	

LIST OTHER HAZARD ELIMINATION PROCEDURES:

EMERGENCY PLAN:

PLEASE DESCRIBE EMERGENCY PROCEDURES:

NEAREST HOSPITAL/ AID FACILITY:

EMERGENCY EQUIPMENT LOCATION:

LIST THE LOCATION OF EMERGENCY EQUIPMENT (FIRST AID KIT, EYE WASH, FIRE EXTINGUISHER, ETC.)

FOLLOW-UP ON DAYS ACTIVITIES?

DESCRIBE ANY ACTION ITEMS, NEAR MISSES, LEARNING OPPORTUNITIES, AND QUESTIONS RELATED TO TODAYS WORK: