



Public Works and Government Services Canada

Requisition No: EZ108 - 170949

DRAWINGS & SPECIFICATIONS for:

Building Lead Dust Remediation
Esquimalt Graving Dock
825 Admirals Road, Victoria, BC. V9A 2P1

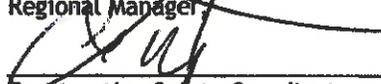
Project Number: R.031576.244

July 2016

APPROVED BY:

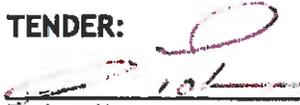

Regional Manager

2016-07-27
Date


Construction Safety Coordinator

2016-07-26
Date

TENDER:


Project Manager

July - 26 - 2016
Date

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SK_01 – Pumphouse Mezzanine Level

SK_02 – Pumphouse Main Floor, Machine Shop, Tool Crib

SK_03 – Pumphouse Basement

Part 1 General

1.1 PRECEDENCE

- .1 Division 1 sections take precedence over technical specification sections in other Divisions of this specification.

1.2 EXISTING CONDITIONS

.1 Existing Services

- .1 The site is supplied with drinking water and sewage disposal.
- .2 The site is supplied with electricity and telephone services.

.2 Existing Routes

- .1 Access to the site is a paved access road from Admirals Road.

.3 Special Requirements

- .1 No work adjacent to open water may commence until appropriate measures are taken to control sediment releases in water as prescribed under Sections 01 35 43 - Environmental Procedures.

1.3 BACKGROUND INFORMATION

- .1 The Site consists of the pump house at the Esquimalt Graving Dock, which is located on the west side of Admirals Road in the Township of Esquimalt, BC.

- .2 The results of previous assessments have identified potential hazards on site which include, but are not limited to, the following:

.1 Lead dust.

- .2 Hazards that may be encountered at the site include, but are not limited to:

- .1 Site conditions.
- .2 Debris.
- .3 Hazardous waste.

- .5 Supporting Documents include, but are not limited to:

- .1 Lead Paint Risk Assessment – Esquimalt Graving Dock – Pump House Building, North West Environmental Group, May 2012
- .2 Lead Assessment Report – Island Environmental Health and Safety Ltd., July 4, 2016

- .6 Department Representatives:

- .1 Steve Windl, Project Manager, Real Property Services Branch, email: Steve.Windl@pwgsc-tpsgc.gc.ca / Tel: 250-363-8739).
- .2 Melissa Piasta, Environmental Specialist, 825 Admirals Road, Victoria, email: melissa.piasta@pwgsc-tpsgc.gc.ca / Tel: 250-363-3961).

- .7 Security
 - .1 Contractor personnel needs to be pre cleared. Contractor must have PWGSC Security Requirements Check List (SRCL) completed.

- .8 Safety orientation
 - .1 A mandatory safety orientation for all staff working at the Site will be held at the onset of the project.

- .9 Bidders meeting
 - .1 A mandatory bidders meeting will be held at the site.

- .10 Work hours
 - .1 On site work can be done 24 hours, 7 days per week.

- 11 Project Completion Date
 - .1 Project Completion date is August 28, 2016.

1.4 DESCRIPTION OF WORK

- .1 Work for this Contract comprises the activities of lead dust remediation of the pump house, including, but not limited to, the following:
 - .1 Mobilization and demobilization of personnel, equipment, support facilities and materials required to complete the Work as often as required.
 - .2 Segregating and packaging Hazardous Materials. Hazardous Materials may include, but are not limited to:
 - .1 Lead-containing materials (e.g. paint).
 - .3 Transportation and disposal of Hazardous Materials to the Contractor's Designated Off-Site Disposal Facility.
 - .4 Collecting, segregating and consolidation of non-hazardous waste and debris from across the site as well as transportation and disposal.
 - .5 Provision of the following site support services:
 - .1 Health and Safety Requirements, as specified in Section 01 35 33.
 - .2 Worker Orientation, as specified below in 1.16

1.5 POTENTIAL ADDITIONAL WORK

- .1 Potential additional work will be issued via change order.

1.6 DEFINITIONS

- .1 Departmental Representative: Within the context of these Specifications, the term Departmental Representative refers to the person exercising the roles and attributes of Canada under the contract.
- .2 Departmental Representative's Authorized Personnel: Within the context of these Specifications, the term Departmental Representative's Authorized Personnel refers to personnel appointed by Departmental Representative or authorized on site by Departmental Representative. Departmental Representative's Authorized Personnel provide recommendations/technical guidance to Departmental Representative as required, for the enforcement of these specifications.
- .3 Contractor: Contractor retained to undertake the remediation Work as defined within the context of these specifications.
- .4 Contractor's Site Superintendent: Contractor's resident site representative, who is authorized to make decisions on behalf of Contractor.
- .5 The word "provide" means supply and install, operate, submit or any other procedure necessary to complete the work as intended.

1.7 SUBMITTALS

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.8 ON-SITE DOCUMENTS

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract drawings.
 - .2 Contract Specifications.
 - .3 Requests for Clarification and responses.
 - .4 Contemplated Change Notices
 - .5 Addenda to Contract documents
 - .6 Change Orders.
 - .7 Other modifications to Contract.
 - .8 Previous site reports.
 - .9 Copy of approved Work Schedule.
 - .10 Manufacturers' installation and application instructions.
 - .11 Material and Safety Data Sheets.
 - .12 Site Instructions
 - .13 Site Specific Health and Safety Plan and Response Plan.
 - .1 Spill Contingency Plan.
 - .2 Fire Safety Plan.
 - .3 Emergency Response Plan.
 - .14 Environmental Protection Plan
 - .15 Field test reports.

- .16 Reviewed samples
- .17 Waste Disposal Work Plan.
- .18 All applicable Provincial permits and licenses.
- .19 All applicable Federal permits and licenses.
- .20 All applicable municipal permits and licenses
- .21 Copies of manifests and bills of lading.
- .22 Worksafe BC - Notification of Project.
- .23 Letter of Good Standing with Worksafe BC.
- .24 Other documents as specified.

1.9 Work Schedule

- .1 Provide and maintain Work Schedule in accordance with instructions of Section 01 32 16.07 - Construction Progress Schedules - Bar (GANNT) Chart.
- .2 Keep the Departmental Representative advised of planned Work activities in accordance with the instructions of Section 01 33 00 – Submittal Procedures.

1.10 **CONTRACTOR USE OF SITE**

- .1 Use of site is unrestricted until substantial performance.
- .2 Coordinate use of premises under direction of Departmental Representative.

1.11 **EXAMINATION OF SITE**

- .1 Prior to mobilization of equipment and supplies, check the field conditions to ensure that the correct equipment, and supplies are being mobilized to site for the execution of the Work, and notify Departmental Representative in writing, of all matters which could prejudice proper execution of the Work. Provide a minimum of two (2) days notice to Departmental Representative prior to examining the site.
- .2 Commencement of mobilization constitutes acceptance of existing conditions, and verification of dimensions.

1.12 **DEPARTMENTAL REPRESENTATIVE FURNISHED ITEMS**

Not used.

1.13 **PERMITS AND LICENSES**

- .1 Be responsible for obtaining and paying for permits, licenses and approvals associated with the site work.
- .2 Register, obtain and pay for all required licenses and permits for individual tradesmen employed for Work as referenced in the various Sections of the Contract Specifications for the duration of employment.

- .3 Obtain and pay for any other licenses or permits required to perform the activities required on site.
- .4 Provide supplemental information to the regulators for any necessary license amendments or reporting requirements.
- .5 Pay all costs associated with complying with the requirements for the permits and licenses noted in the above clauses.

1.14 SITE SUPERVISION

- .1 Designate Contractor's Site Superintendent to be on site at all times during construction, to have full authority to make decisions for Contractor, to be knowledgeable of the requirements of the contract, and to act upon Departmental Representative's instructions.
- .2 Notify Departmental Representative one (1) week in advance of Site Superintendant change and provide updated organizational chart.

1.15 ADDITIONAL DRAWINGS

- .1 Departmental Representative may furnish additional drawings to assist with proper execution of the Work. These drawings will be issued for clarification only. Such drawings have the same meaning and intent as if they were included with plans referred to in Contract documents.

1.16 WORKER ORIENTATION

- .1 Develop, prior to the start of Work, training material for a Worker Orientation. The outline of this seminar will be reviewed by Departmental Representative and is intended to describe the remediation activities at the site, and provide instruction for the applicable health, safety, and environmental policies and regulations as related to the site Work activities.
- .2 Submit two (2) hard copies and one (1) electronic copy of the Worker Orientation course material to Departmental Representative for review at least three (3) days prior to the training. The Orientation will be conducted on the first day of the demolition site work or as directed by the Departmental Representative.
- .3 The Orientation Course will address, but is not necessarily limited to, the following topics:
 - .1 Project Communication
 - .1 Roles of Departmental Representative.
 - .2 Roles of Contractor and Contractor's authorized representatives.
 - .3 Lines of Project communication.
 - .2 Remediation Activities (Scope of Work).

- .1 Removal of lead dust.
- .2 Collection, containerization, and transportation for disposal of non-hazardous waste and debris.
- .3 Collection, containerization, and transportation for disposal of hazardous waste material.
- .3 Overview of the Site
- .4 Project Organization/Schedule/Administration
 - .1 Personnel policies.
 - .2 Supervisory reporting relationships.
 - .3 Communication.
 - .4 Work Schedules and hours.
 - .5 Site rules.
- .5 Environmental Issues and Protection Procedures
 - .1 Climate.
 - .2 Land use.
 - .3 Water.
 - .4 Dust suppression.
 - .5 Heritage resources.
 - .6 Spill contingency plans/procedures.
 - .7 Training activities.
- .6 General Site Specific Health and Safety
 - .1 Team Work.
 - .2 Work attitudes/productivity.
 - .3 Anti-Harassment Policy.
 - .4 First aid procedures.
 - .5 Protective equipment and clothing.
 - .6 Safe operation of equipment and tools.
 - .7 WHMIS requirements.
 - .8 Climate.
 - .9 Work Specific Task Requirements.
 - .10 Lead dust.
 - .11 Demolition and material disposal.
 - .12 Transportation of Dangerous Goods (TDG).
 - .13 Environmental mitigation procedures.
 - .14 Emergency spill response training.
 - .15 Residual fuel collection and disposal/containerization.
- .4 On the first morning of the project, conduct Worker Orientation for site Workers (Contractor's Workforce), and Departmental Representative based on the course material.
- .5 Each person on site will attend the orientation. Require each attendee to sign a record of attendance upon completion of the seminar. Retain, for Departmental Representative's review at any time, this record of attendance. Provide copy of attendee record to Departmental Representative.

1.17 MEASUREMENT OF PAYMENT

- .1 Work under this contract will be paid for as follows:
 - .1 Lump sum pay items will be paid at the lump sum price tendered for each lump sum item listed in the Basis of Pricing Form.
 - .2 Unit price items will be paid at the unit price tendered for each unit price item listed in the Basis of Pricing Form.
 - .3 Miscellaneous Project costs will be paid at the lump sum price tendered for "Balance of Project Costs" (BOPC) on the Basis of Pricing Form.
- .2 Unit price items, lump sum pay items and provisional cost recoverable items will be paid under the Basis of Pricing which will form the Basis of Pricing Schedule of the proposed contract. All other items, whether specifically defined in the specific sections of the Specifications or not, will be paid under Item BOPC-1, Balance of Project Costs, in the Basis of Pricing Schedule.
- .3 Direct costs include all costs directly attributable to a particular pay item including fuel equipment, operators, materials, equipment maintenance and depreciation, etc. All direct costs for lump sum and unit price items are to be included in the appropriate price item in the Basis of Pricing Schedule.
- .4 Indirect costs include all costs not directly attributable to the pay items including profit, supervision, overhead, administration, Commercial General Liability (CGL) Insurance, Worksafe BC payments, allowance for equipment maintenance and depreciation repairs, and any other relevant costs. All indirect costs associated with specific unit price or lump sum items will be included in Item BOPC-1, Balance of Project Costs, in the Basis of Pricing Schedule.
- .5 Include costs of any statement of or requirement for Work, goods or services required in this section that are not covered by appropriate payment clauses in other sections in Item BOPC-1, Balance of Project Costs, in the Basis of Pricing Schedule.
- .6 Notify Departmental Representative of planned Work activities in accordance with requirements of Section 01 33 00 - Submittal Procedures, and at least two (2) days in advance of operations to permit required measurements for payment.
- .7 All costs for the preparation of the Worker Orientation, are to be included in the lump sum price for Worker Orientation , Item 01 11 00-1, as indicated in the Basis of Pricing Schedule.
- .8 Except as otherwise indicated work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule.

PART 2 PRODUCTS

Not Used

Not Used

END OF SECTION

Part 1 General

1.1 CODES, BYLAWS, STANDARDS

- .1 Perform work in accordance with the WorkSafeBC Occupational Health & Safety Regulation, and other indicated Codes, Construction Standards and/or any other Code or Bylaw of local application.
- .2 Comply with applicable local bylaws, rules and regulations enforced at the location concerned.
- .3 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.
- .4 In any case of conflict or discrepancy, the most stringent requirements shall apply.

1.2 DESCRIPTION OF WORK

- .1 Work under this Contract comprises, but is not limited to, the provision of all labour, materials, services and equipment necessary for the remediation of lead dust as fully described in the Tender Documents.

1.3 CONTRACT DOCUMENTS

- .1 The Contract documents, drawings and specifications are intended to complement each other.
- .2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.

1.4 TIME OF COMPLETION

- .1 Commence work immediately upon official notification of acceptance of offer and complete the project by August 28, 2016.

1.5 HOURS OF WORK

- .1 All work shall be executed during the operating hours of Esquimalt Graving Dock: Monday through Sunday – 00:00 to 24:00 hours, including statutory holidays.

1.6 WORK SCHEDULE

- .1 Carry out work as follows:

- .1 Within 2 working days after Contract award, submit Bar (GANTT) chart as per specification sections 01 32 16.07 Construction Progress Schedule Bar (GANTT) chart. Indicate the following:
 - .1 Commencement and completion of work of each section of the specifications or trades for each phase as outlined.
 - .2 Final completion date within the time period required by the Contract documents.
- .2 Do not change approved Schedule without notifying Departmental Representative.
- .3 Interim reviews of work progress based on work schedule will be conducted by Departmental Representative and schedule updated by Contractor in conjunction with and to approval of Departmental Representative. A copy of the updated schedule will be provided with 1 day of the agreed change.

1.7 DIVISION OF SPECIFICATIONS

- .1 The specifications are subdivided in accordance with the current 6-digit National Master Specifications System.
- .2 A division may consist of the work of more than 1 subcontractor. Responsibility for determining which subcontractor provides the labour, material, equipment and services required to complete the work rests solely with the Contractor.
- .3 In the event of discrepancies or conflicts when interpreting the drawings and specifications, the specifications govern.

1.8 INVESTIGATION OF HIDDEN SERVICES

- .1 Not Applicable.

1.9 DOCUMENTS REQUIRED

- .1 Maintain one copy each of the following at the job site:
 - .1 Contract drawings.
 - .2 Contract specifications.
 - .3 Addenda to Contract documents.
 - .4 Copy of work schedule.
 - .5 Change orders.
 - .6 Other modifications to Contract.
 - .7 Field test reports.
 - .8 Reviewed samples.
 - .9 Contemplated Change *Notices*
 - .10 WHMIS Documents
 - .11 Site Instructions

- .12 Contractor's Health and Safety Plan, including map to nearest hospital.
- .13 Environmental Protection Plan.
- .14 Lead Exposure Control Plan

1.10 REGULATORY REQUIREMENTS

- .1 Comply with conditions as stated in the following:
 - .1 BC Environmental Management Act
 - .2 BC Waste Discharge Regulation
 - .3 WorkSafe BC OH&S Regulation
 - .4 WorkSafe BC – Lead-Containing Paints and Coatings- Preventing Exposure in the Construction Industry.

1.11 CONTRACTOR'S USE OF SITE

- .1 Use of site:
 - .1 Exclusive and complete for execution of work.
 - .2 Assume responsibility for assigned premises for performance of this work.
 - .3 Be responsible for coordination of all work activities on site, including the work of other contractors engaged by the Departmental Representative.
 - .4 Provide security of Contractor's work site and all Contractors and Subcontractor's equipment and material. Secure Contractor's work site at the end of each work day.
 - .5 Any area of the Esquimalt Graving Dock property to which access is restricted by sign is a secured or restricted area and shall not be entered.
 - .6 Do not obstruct access to other areas outside of the Contractor's work site. Maintain overhead clearances, keep roadways and walkways clear, and maintain routes for emergency response vehicles.
- .2 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with approved schedules.
- .3 Do not unreasonably encumber site with material or equipment.
- .4 Coordinate work in particular crossover of underground duct banks entering and under the building.

1.12 EXAMINATION

- .1 Examine site and be familiar and conversant with existing conditions likely to affect work.

1.13 EXISTING SERVICES

- .1 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.14 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space, and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative at least 48 hours prior to impending installation and obtain approval for actual location.
- .4 Submit field drawings or shop drawings to indicate the relative position of various services and equipment when required by the Departmental Representative and/or as specified.

1.15 CUTTING AND PATCHING

- .1 Not applicable.

1.16 SETTING OUT OF WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply such devices as templates required to facilitate Departmental Representative's inspection of work.

1.17 ACCEPTANCE OF SUBTRADES

- 1 Each trade shall examine surfaces prepared by others and job conditions which may affect his work, and shall report defects to the General Contractor. Commencement of work shall imply acceptance of prepared work or substrate surfaces.

1.18 QUALITY OF WORK

- .1 Ensure that quality workmanship is performed through use of skilled tradesmen, under supervision of qualified journeyman.
- .2 The workmanship, erection methods and procedures to meet minimum standards set out in the National Building Code of Canada 2010 and Construction Standards as specified herein.
- .3 In cases of dispute, decisions as to standard or quality of work rest solely with the Departmental Representative, whose decision is final.

1.19 WORKS COORDINATION

- .1 .Coordinate work of sub-trades:
 - .1 Designate one person to be responsible for review of contract documents and shop drawings and managing coordination of Work.
- .2 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.
 - .1 Provide each subcontractor with complete plans and specifications for Contract, to assist them in planning and carrying out their respective work.
 - .2 Develop coordination drawings when required, illustrating potential interference between work of various trades and distribute to affected parties.
 - .1 Pay particularly close attention to overhead work above ceilings and within or near to building structural elements.
 - .2 Identify on coordination drawings, building elements, services lines, rough-in points and indicate location services entrance to site.
 - .3 Facilitate meeting and review coordination drawings. Ensure subcontractors agree and sign off on drawings.
 - .4 Publish minutes of each meeting.
 - .5 Plan and coordinate work in such a way to minimize quantity of service line offsets.
 - .6 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.
- .3 Not applicable.
- .4 Work cooperation:
 - .1 Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.
 - .2 Ensure that each trade provides all other trades reasonable opportunity for completion of Work and in such a way as to prevent unnecessary delays, cutting, patching and removal or replacement of completed work.
 - .3 Ensure disputes between subcontractors are resolved.
 - .4 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.
 - .5 Maintain efficient and continuous supervision.

1.20 APPROVAL OF PRODUCT DATA AND SAMPLES

- .1 In accordance with Section 01 33 00, submit the requested product data, MSDS sheets and samples.
- .2 Allow sufficient time for the following:
 - .1 Review of product data and MSDS sheets.

1.21 PROJECT MEETINGS

- .1 Contractor shall arrange project meetings and assume responsibility for setting times and distributing minutes. Meeting frequency should be at a minimum of once every week throughout the contract period.
- .2 The contractor shall record the meeting minutes and distribute meeting agenda 2 days prior to the meeting to Departmental Representative and all other parties as directed by Departmental Representative for review.
- .3 Meeting room will be provided by EGD in one of their facilities on site.

1.22 TESTING AND INSPECTION

- .1 Particular requirements for inspection and testing to be carried out by testing service or laboratory approved by the Departmental Representative are specified in Sections 01 45 00.
- .2 The Contractor will appoint and pay for the services of testing agency or testing laboratory as specified, and where required for the following:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of mechanical and electrical equipment and systems.
 - .1 Mill tests and certificates of compliance.
 - .2 Tests specified in the contract documents to be carried out by Contractor which may be under the Departmental Representative's supervision.
- .3 Within 1 working day after Contract award provide a list of proposed testing services or testing laboratories for Departmental Representative's approval.
- .4 The Departmental Representative may require, and pay for, additional inspection and testing services not included in paragraph 1.22.2.
- .5 Where tests or inspections by designated testing laboratory reveal work is not in accordance with the Contract requirements, Contractor shall pay costs for additional tests or inspections as the Departmental Representative may require to verify acceptability of corrected work.
- .6 Contractor shall furnish labour and facilities to carry out specified testing and notify Departmental Representative in advance of planned testing.
- .7 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

- .8 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative.
- .9 Provide Departmental Representative with digital copy of testing laboratory reports as soon as they are available.

1.23 RELICS & ANTIQUITIES

- .1 Relics and antiquities and items of historical or scientific interest shall remain property of Department. Protect such articles and request directives from Departmental Representative.
- .2 Give immediate notice to Departmental Representative if evidence of archaeological discoveries are encountered during excavation/construction, and await Departmental Representative's written instructions before proceeding with work in this area.

1.24 SECURITY CLEARANCES

- .1 Personnel employed on this project will be subject to security check. Obtain requisite clearances, as instructed, for each individual required to enter the premises.
- .2 Personnel will need to obtain security clearance at start of project and be provided with a pass which must be worn at all times.
- .3 Contractor shall be fully responsible for securing the premises and its contents throughout construction period.

1.25 SURVEYING

- .1 Not applicable.

1.26 AS-BUILT DOCUMENTS

- .1 Not applicable.

1.27 CLEANING

- .1 Refer to Sections 01 35 43 and 02 83 13.

1.28 DUST CONTROL

- .1 Provide temporary dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of work and public.
- .1 Details are provided in Section 02 83 13.

1.29 ENVIRONMENTAL PROTECTION

- .1 Prevent extraneous materials from contaminating air beyond construction area, by providing temporary enclosures during work.
- .2 Do not dispose of waste or volatile materials into water courses, storm or sanitary sewers.
- .3 Ensure proper disposal procedures in accordance with all applicable territorial regulations.
- .4 Refer to other sections for site specific environmental requirements and risk management procedures.

1.30 MAINTENANCE MATERIALS, SPECIAL TOOLS AND SPARE PARTS

- .1 Specific requirements for maintenance materials, tools and spare parts are specified in individual technical section of specifications.

1.31 ADDITIONAL DRAWINGS

- .1 The Departmental Representative may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with drawings referred to in the Contract Documents.
- .2 Departmental Representative will furnish up to a maximum of three (3) sets of Contract Documents for use by the Contractor at no additional cost. Should more than three (3) sets of documents be required, the Departmental Representative can provide them at additional cost.

1.32 BUILDING SMOKING ENVIRONMENT

- .1 Smoking within the building and within 7.5m of all air intakes is not permitted.
- .2 A 'No Smoking' sign to be put up by Contractor at the project area.
- .3 Smoking is only allowed in designated locations within EGD. "Designated Smoking Areas" are at the discretions of the Director of EGD and Departmental Representative.

1.33 SYSTEM OF MEASUREMENT

- .1 The metric system of measurement (SI) will be employed on this Contract.

1.34 FAMILIARIZATION WITH SITE

- .1 Before submitting tender, visit site as indicated in tender documents and become familiar with all conditions likely to affect the cost of the work.

1.35 SUBMISSION OF TENDER

- .1 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site, and is fully conversant with all conditions.

1.36 COST BREAKDOWN

- .1 Before submitting the first progress claim, submit a breakdown of the Contract price in detail as directed by the Departmental Representative and aggregating Contract price. After approval, the cost breakdown will form the basis of progress payments.
- .2 Within 5 days after award of contract, provide a monthly cash flow projection for the whole contract period in detail as directed by Departmental Representative. Contractor should provide a bi-monthly update of the cash flow projection according to the actual work schedule and progress payment submitted.

1.37 SUBSTANTIAL COMPLETION

- .1 Substantial completion includes commissioning and functional use of the project in addition to the requirements under other terms and conditions of the contract listed in the Standard Acquisition Conditions and Clauses.

END OF SECTION

Part 1 General

1.1 FACILITY OPERATIONS AND SECURITY PROCEDURES

- .1 All construction staff shall become thoroughly familiar with and abide by all provisions and requirements of Esquimalt Graving Dock's Operations, Safety and Security Procedures and Restrictions. Construction staff will be required to complete mandatory EGD site safety orientation.
 - .1 The parking area(s) to be used by construction employees will be designated by the Supervisor of EGD. Parking in other locations will be prohibited and vehicles may be subject to removal.
 - .2 Speed limits are posted on site. Failure to abide by site speed limits may result in removal of employee and vehicle from site.
 - .3 EGD is under surveillance at all times on closed circuit TV. All activities are monitored internally for security purposes. All construction staff should be advised that they are being recorded.
 - .4 Supervisor of EGD may require photographs to be taken for construction identification badges used to access the site.
 - .5 EGD enforces a zero tolerance policy for the following misbehavior:
 - .1 Appear to be under the influence of alcohol, drugs or narcotics.
 - .2 Behave in an unusual or disorderly manner.
 - .3 In possession of contraband.
- .2 Cooperate with and coordinate construction/demolition activities with Esquimalt Graving Dock.

1.2 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant Federal, municipal, provincial and other regulations.
- .2 Provide hoarding, and scaffolding plan for Departmental Representative to review 2 business days prior to installation.

1.3 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work, provide temporary means to maintain security as per Departmental Representatives direction.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

- .5 The whole dockyard will be occupied by the public, government staff and other PWGSC construction contractors and other dock lease operations during entire construction period.
- .6 Coordinate with Departmental Representative in scheduling operations to minimize conflict and to facilitate use of space.

1.4 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to Esquimalt Graving Dock's operations, occupants, and normal use of existing Pumphouse. Arrange with Departmental Representative to facilitate execution of work.

1.5 EXISTING SERVICES SHUT DOWNS

- .1 Notify Departmental Representative and utility companies of any intended interruption of services. Obtain applicable permission as required.
- .2 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 BUILDING SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is not permitted within Esquimalt Graving Dock.

1.7 NOISE CONTROL

- .1 Comply with applicable provincial by-law for noise control.

1.8 SECURITY

- .1 Be accountable for tools/equipment at all times. Do not leave tools unattended and/or within reach of the public.
- .2 Do not interact with the public, unless authorized to do so where required.

END OF SECTION

Part 1 General

- .1 Coordination of Work under administration of Departmental Representative.
- .2 Scheduled Pre-construction and Site meetings.
- .3 Project planning and construction schedule.
- .4 Site progress monitoring and control.

1.1 DESCRIPTION

- .1 Coordinate and manage construction schedule, submittals, use of site, temporary utilities, construction facilities, quality control program, and construction Work, with progress of Work of subcontractors, other contractors and Departmental Representative.

1.2 PRE-CONSTRUCTION MEETING

- .1 Pre-construction Meeting:
 - .1 Within 1 day after award of Contract, Departmental Representative will arrange pre-construction meeting.
 - .2 Departmental Representative, Contractor and members of EGD Project Management Office (PMO) will be in attendance.
 - .3 Departmental Representative will establish time and location of meeting and notify parties concerned.
 - .4 The Departmental Representative will chair the meeting, record minutes and issue minutes to all attendees.
 - .1 Agenda of meeting is generally as follows:
 - .1 Project team introductions including main construction personnel, PWGSC personnel, EGD and consultants.
 - .2 Communication protocol for submittals.
 - .3 Start date on site.
 - .4 EGD security requirements.
- .5 Construction Organization and Start-up:
 - .1 Comply with Departmental Representative's allocation of mobilization areas of site; for access, traffic, and parking facilities.
 - .2 During construction coordinate use of site and facilities through Departmental Representative's procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
 - .3 Comply with instructions of Departmental Representative for use of temporary utilities and construction facilities.

- .4 Coordinate layout of construction barrier with Departmental Representative.

1.3 PROJECT PLANNING

- .1 Plan construction activities, submittals and field reviews ahead of time for efficient and effective management to ensure timely completion of project.

1.4 SCHEDULES

- .1 Submit preliminary construction schedule to Departmental Representative 2 days after contract award and prepare for review during Pre-Construction meeting.
- .2 After review, revise and resubmit schedule. Submit final full schedule within 1 day after Pre-Construction meeting.

1.5 CONSTRUCTION SITE MEETINGS

- .1 During course of Work and prior to project completion, Departmental Representative will request Construction Site Meetings as required.
- .2 Contractor will record minutes of meetings and circulate to attending parties and affected parties not in attendance.
- .3 Agenda to include following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Review of Health and Safety including any incidents, near misses, and WorkSafe BC visits.
 - .5 Problems which impede construction schedule.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes on construction schedule and on completion date.
 - .12 Other business.

1.6 WALK THROUGH FIELD REVIEW BY DEPARTMENTAL REPRESENTATIVE

- .1 Departmental Representative will carry out the following:
 - .1 Walk-through field review of the work with contractor's representatives.
 - .2 Preparation and distribution of the walk-through field review reports. Reports will be distributed within 1 days of field review.

1.7 SUBMITTALS

- .1 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative utilizing Request for Information (RFI) forms.
- .2 Process substitutions through Departmental Representative.
- .3 Deliver closeout submittals for review and inspections, for transmittal to Departmental Representative.

1.8 CLOSEOUT PROCEDURES

- .1 Notify Departmental Representative when Work is considered Substantially Complete. Contractor to prepare list of defects, deficiencies and incomplete work prior to inspection by Departmental Representative. Follow procedures as outlined in Section 01 78 00 – Closeout Submittals.
- .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with Departmental Representative's instructions for correction of items of Work listed in deficiency list.
- .4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally, Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Sunday, inclusive, will define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.

- .3 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .4 Clearly show sequence and interdependence of construction activities and indicate:
 - .1 Start and completion of all items of Work, their major components and interim milestones completion dates.
 - .2 Include sufficient detail for project activities to assure adequate planning and execution of work.
 - .3 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated to allow coordination and control of project activities. Show continuous flow from left to right.
 - .4 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being whenever possible, continuous series of activities throughout length of project to form critical path.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 2 working days after Award of Contract Project schedule in form of Bar (GANTT) Chart for planning, monitoring and reporting of project progress.

1.4 REVIEW OF THE SCHEDULE

- .1 Allow 1 working days for Departmental Representative to review proposed schedule. Make necessary changes to proposed schedule within 1 day.
- .2 Submit letter ensuring the schedule has been prepared in coordination with major subcontractors and suppliers.
- .3 Promptly provide additional information to validate practicability of schedule as required by Departmental Representative.
- .4 Submittal of Schedule indicates that it meets Contract Requirements and will be executed generally in sequence.

1.5 COMPLIANCE WITH SCHEDULE

- .1 Comply with reviewed schedule.
- .2 Proceed with significant changes and deviations from schedule sequence of activities which cause delay only after review by Departmental Representative.

- .3 Identify activities that are behind schedule and causing delay. Provide recovery plan and schedule to regain slippage.
 - .1 Recovery plan and schedule must include:
 - .1 An increase of personnel on the site for effective activities or work packages.
 - .2 An increase in materials and equipment.
 - .3 Additional work shifts, longer hours.
 - .4 Resource loaded schedule indicating the items noted above.

1.6 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule that shows milestone and activity types and expand from the following items:
 - .1 Award.
 - .2 Document Submittal and Approval
 - .3 Permits.
 - .4 Mobilization.
 - .5 Lead Dust Decontamination
 - .6 Demobilization

1.7 PROJECT SCHEDULE REPORTING

- .1 On an ongoing basis, schedule on job site must show "progress to date". Arrange participation on and off site of subcontractor and suppliers, as and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once weekly to establish progress on each current activity shown on applicable networks.
- .2 Maintain a daily log of progress of the work:
 - .1 Submit daily report to Departmental Representative daily prior to noon the following day indicating:
 - .1 Total number of personnel on site.
 - .2 Major subcontractors on site listed by trade.
 - .3 Major equipment on site.
 - .4 Work progress.
 - .5 Visitors to site.
 - .6 Documents required from Departmental Representative to Contractor to maintain.
- .3 Provide schedule update by end of working day every Friday. Update to reflect activities completed to date, activities in progress, logic and duration changes.

- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
- .5 Requirements for progress monitoring and reporting are basis for progress payment request.

1.8 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Not applicable.

1.2 REFERENCES

- .1 Section 02 83 13.

1.3 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present product data, samples in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.4 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board (WorkSafeBC) status or clearance letter.
- .2 Submit transcription of insurance immediately after award of Contract.

END OF SECTION

1. REFERENCES

- .1 Government of Canada.
 - .1 Canada Labour Code - Part II
 - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 Canadian Standards Association (CSA) as amended:
 - .1 CSA Z797-2009 Code of Practice for Access Scaffold
 - .2 CSA S269.1-1975 (R2003) Falsework for Construction Purposes
 - .3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structure
 - .4 CSA Z1006-10 – Management of Work In Confined Space
- .4 National Fire Code of Canada 2010 (as amended)
 - .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .5 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .6 Province of British Columbia:
 - .1 Workers Compensation Act Part 3-Occupational Health and Safety.
 - .2 Occupational Health and Safety Regulation.

2. RELATED SECTIONS

- .1 Refer to the current NMS Sections as indicated in Section 00 01 11 List of Contents.

3. WORKERS' COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

4. COMPLIANCE WITH REGULATIONS

- .1 Public Works and Government Services Canada (PWGSC) may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a

requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.

- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

5. SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for review in accordance with Section 01 33 00.
- .2 Work effected by submittal shall not proceed until review is complete.
- .3 Submit the following:
 - .1 Site Specific Health and Safety Plan.
 - .2 Environmental Protection Plan
 - .3 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .4 Copies of incident and accident reports.
 - .5 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .6 Copy of Contractors' Construction Safety Manual
- .4 Emergency Procedures.
- .5 The Departmental Representative will review the Contractor's Site Specific Health and Safety Plan and Emergency Procedures, and provide comments to the Contractor within 2 (two) days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .6 Medical surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of work, and submit additional certifications for any new site personnel to Departmental Representative.
- .7 Submission of the Site Specific Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
 - .1 Be construed to imply approval by the Departmental Representative.
 - .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
 - .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

6. RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for work under this contract.
- .2 Be responsible for health and safety of persons on site, safety of

property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

- .3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial, Territorial and local statutes, regulations, and ordinances, and with Site Specific Health and Safety Plan.

7. HEALTH AND SAFETY COORDINATOR

- .1 The contractor shall appoint a Health and Safety Coordinator who shall:

- .1 Be responsible for completing all health and safety training, and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to perform work.
- .2 Be responsible for implementing, daily enforcing, and monitoring the Site-Specific Health and Safety Plan.
- .3 Be on site during execution of work.

8. GENERAL CONDITIONS

- .1 Provide safety barricades and lights to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work sites.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
 - .2 Secure site at night time or provide security guard as deemed necessary to protect work sites against entry.

9. UTILITY CLEARANCES

- .1 The Contractor is solely responsible for all utility detection and clearances prior to starting the work
- .2 The Contractor will not rely solely upon the Reference Drawings or other information provided for utility locations.

10. PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 PWGSC and other Federal employees,
 - .2 EGD (federal) operational staff,
 - .3 Ship repair and other contractors,
 - .4 Work over and under water, Protection Against Drowning

Refer to COHS Section A Part X11-Safety Materials, Equipment, Devices and Clothing – Section 12.11 inclusive.

- .5 Overhead cranes,
- .6 Work at heights, **(2.4m on Federal Property)**
- .7 Unpredictable weather conditions,
- .8 Threat of tsunami and earthquake, and
- .9 Confined space and restricted access space.
- .10 Work with hazardous substances.
- .11 See Pre-construction Hazard Assessment Annex A

11. REGULATORY REQUIREMENTS

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

21. WORK PERMITS

- .1 Obtain specialty permits related to project before start of work.

13. FILING OF NOTICE

- .1 The Prime Contractor shall submit a Notice of Project to the Provincial authorities.
- .2 Provide copies of all notices to the Departmental Representative.

14. SITE SPECIFIC HEALTH AND SAFETY PLAN

- .1 Conduct a site-specific hazard assessment based on a review of Contract documents, required work, and all project work sites. Identify any known and potential health risks and safety hazards.
- .2 Develop, implement, and enforce the Site Specific Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.

- .5 Job-specific safe work, procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures
 - .8 Occupational Health and Safety Committee/Representative procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communication and record keeping procedures.
- .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
 - .3 List hazardous materials to be brought on site as required by work.
 - .4 Indicate Engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
 - .5 Identify personal protective equipment (PPE) to be used by workers.
 - .6 Identify personnel and alternates responsible for site safety and health.
 - .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the Site Specific Health and Safety Plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
 - .4 Revise and update Site Specific Health and Safety Plan as required, and re-submit to the Departmental Representative for review.
 - .5 Departmental Representative's review: the review of the contractors' Site Specific Health Safety Plan by PWGSC shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.

15. EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulations.

- .3 Local emergency resources.
- .4 Departmental Representative and other PWGSC staff as required.
- .2 Include the following provisions in the emergency procedures:
 - .1 Notify workers and the first-aid attendant, of the nature and location of the emergency.
 - .2 Evacuate all workers safely.
 - .3 Check and confirm the safe evacuation of all workers.
 - .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative and PWGSC site staff.
- .3 Provide written rescue/evacuation procedures as required for, but not limited to:
 - .1 Work at high angles.
 - .2 Work in confined spaces or where there is a risk of entrapment.
 - .3 Work with hazardous substances.
 - .4 Underground work.
 - .5 Work on, over, under and adjacent to water.
 - .6 Workplaces where there are persons who require physical assistance to be moved.
- .4 Design and mark emergency exit routes to provide quick and unimpeded exit.
- 5 At least once each year, emergency drills must be held to ensure awareness and effectiveness of emergency exit routes and procedures, and a record of the drills must be kept.
- .6 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

16. HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous and toxic products cannot be avoided:
 - .1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as per [Section 01 33 00].

- .2 In conjunction with Departmental Representative, schedule to carry out work during "off hours" when tenants have left the building.
- .3 Provide adequate means of ventilation in accordance with NMS Sections as indicated in Section 00 01 11 List of Contents.

17. OFF SITE CONTINGENCY AND EMERGENCY RESPONSE PLAN

- .1 Prior to commencing Work involving handling of hazardous materials, develop off site Contingency and Emergency Response Plan.
 - 2. Plan must provide immediate response to serious site occurrence such as explosion, fire, or migration of significant quantities of toxic or hazardous material from Site.
 - 3. Notification of fire departments [4.17 – WorkSafe BC Regulations Part 4 Buildings, Structures, Equipment, and Site Conditions]
 - (1) An employer having at a workplace hazardous products covered by WHMIS, explosives, pesticides, radioactive material, consumer products or hazardous wastes in quantities which may endanger firefighters, must ensure the local fire department is notified of the nature and location of the hazardous materials or substances and methods to be used in their safe handling.
 - (2) Subsection (1) does not apply to a workplace
 - (a) where materials are kept on site for less than 15 days if the employer ensures an alternative effective means for notification of fire departments is in place in the event of fire or other emergency, or
 - (b) which is not within the service area of a fire department.
- [Amended by B.C. Reg. 30/2015, effective August 4, 2015.]

18. PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

- .1 Work shall be performed in compliance with Part 8 - Personal Protective Clothing and Equipment, and Part 5 – Chemical Agents and Biological Agents, (as applicable) WorkSafe B.C. OHS Regulations

19. ASBESTOS HAZARD

- .1 Not applicable.

20. PCB REMOVALS

- .1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous

waste.

- .2 Remove, handle, transport and dispose of as indicated in Section 00 01 11 List of Contents.

21. REMOVAL OF LEAD-CONTAINING PAINTS

- .1 All paints containing TCLP lead concentrations above 5 ppm are classified as hazardous.
- .2 Carry out demolition and any other activities involving lead-containing paints in accordance with WorkSafe B.C. Regulations Part 6 Substance Specific Requirements Lead and all applicable regulations.

22. ELECTRICAL SAFETY REQUIREMENTS

- .1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.
 - .1 Before undertaking any work, coordinate required energizing and de-energizing of new and existing circuits with Departmental Representative.
 - .2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.
 - .3 Develop, implement and enforce a communication plan with Departmental representative and EGD maintenance staff for all electrical work and lockout procedures.

23. ELECTRICAL LOCKOUT

- .1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.
- .2 Prepare the lockout procedures in writing, listing step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.
- .3 Keep the documents and lockout tags at the site and list in a log book for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

24. OVERLOADING

- .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

25. FALSEWORK

- .1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003).

26. SCAFFOLDING

- .1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA Z797-2009 and B.C. Occupational Health and Safety Regulations.

27. CONFINED SPACES

- .1 Carry out work in confined spaces in compliance with WorkSafe B.C. Part 9 Confined Spaces and CSA Z1006-10 Management of Work in Confined Space.

28. RESTRICTED ACCESS

- .1 Contractor shall perform a hazard assessment and develop an appropriate restricted access entry and emergency rescue plan in accordance with WorkSafe B.C. regulations.

29. CONFINED SPACE AND RESTRICTED SPACE OUTSIDE OF DEFINED WORK SITE

- .1 Carry out work in confined spaces in compliance with WorkSafe B.C. Part 9 Confined Spaces and CSA Z1006-10 Management of Work in Confined Space. Coordinate all confined space entry work with PWGSC Departmental Representative through the contractor's confined space entry permit system.
- .2 Contractor shall perform a hazard assessment and develop an appropriate restricted access entry and emergency rescue plan in accordance with WorkSafe B.C. regulations. Coordinate all restricted access space entry work with the PWGSC Departmental Representative prior to entry.
- .3 The Contractor is required to provide a reasonable amount of time to the Departmental Representative for making arrangements for entry and/or access to Confined Space or Restricted Access spaces located outside the designated work site.

30. POWDER-ACTUATED DEVICES

- 1 Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative.

31. FIRE SAFETY AND HOT WORK

- .1 Coordinate all hot work with PWGSC Departmental

Representative through the contractors' hot work permit system.

- .2 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.
- .3 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

32. FIRE SAFETY REQUIREMENTS

- .1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.
- .2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

33. FIRE PROTECTION AND ALARM SYSTEM

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut off.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.
- .3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

34. UNFORESEEN HAZARDS

- .1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

35. POSTED DOCUMENTS

- .1 Post legible versions of the following documents on site:
 - .1 Site Specific Health and Safety Plan.
 - .2 Sequence of work.
 - .3 Emergency procedures.
 - .4 Site drawing showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
 - .5 Notice of Project.
 - .6 Floor plans or site plans.
 - .7 Notice as to where a copy of the Workers' Compensation

Act and Regulations are available on the work site for review by employees and workers.

- .8 Workplace Hazardous Materials Information System (WHMIS) documents.
 - .9 Material Safety Data Sheets (MSDS).
 - .10 List of names of Health and Safety Coordinator, Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of this Contract includes construction activities adjacent to occupied areas.
 - .3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

36. MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.
- 2. All personnel employed by the contractor and its subcontractors shall attend the EGD Safety Orientation presentation prior to starting work at the EGD Work Site.

37. CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance with health and safety issues identified.
- .3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 02 83 13 – Lead Dust Remediation.

1.2 REFERENCES

- .1 Definitions:
 - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- .2 Reference Standards:
 - .1 Canadian Environmental Protection Act (CEPA)
 - .2 WorkSafeBC Occupational Health & Safety Regulation (OHSR)
 - .3 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-[92], Storm Water Management for Construction Activities, Chapter 3.
 - .4 BC Environmental Management Act
 - .5 BC Waste Discharge Regulation
 - .6 WorkSafe BC – *Lead-Containing Paints and Coatings- Preventing Exposure in the Construction Industry.*

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.
- .3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required abatement task[s].
- .5 Include in Environmental Protection Plan:

- .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.
- .2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.
- .3 Name[s] and qualifications of person[s] responsible for training site personnel.
- .4 Descriptions of environmental protection personnel training program.
- .5 Traffic Control Plans including measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
- .6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .7 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .10 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .11 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from lead dust removal.

1.4 FIRES

- .1 Fires and burning of rubbish on site not permitted.

1.5 DRAINAGE

- .1 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

- .1 Provide temporary enclosures where required.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .5 The Contractor must have spill containment kits ready for immediate deployment, containing sufficient quantities of absorbent materials on site in close proximity to work area including working machinery and equipment such as fuel portable generator, air compressors, hoist and tools.
- .6 The Contractor is to have personnel on site that are trained and ready to use spill containment kits. Ensure proper disposal procedures in accordance with all applicable provincial and municipal regulations.

1.7 NOTIFICATION

- .1 Departmental Representative or Consultant will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative or Consultant of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Do not take action until after receipt of written approval by Departmental Representative or Consultant.
- .3 Departmental Representative or Consultant will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 CLEANING

- .1 Waste Management: dispose of waste in accordance with Section 02 83 13.
- .2 Rubbish and waste materials are not to be buried on site.
- .3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 02 83 13.

1.02 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-[94], Stipulated Price Contract.

1.03 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.04 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Department Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

1.05 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work.
- .2 Co-operate to provide reasonable facilities for such access.

1.06 PROCEDURES

- .1 Notify Departmental Representative 24 hours in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide

sufficient space to store and cure test samples.

1.07 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.08 REPORTS

- .1 Submit two (2) copies of inspection and test reports to Departmental Representative.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 02 83 13 - Lead Dust Remediation

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs as necessary
- .2 Provide as required by governing authorities.

1.4 WEATHER ENCLOSURES

- .1 Not applicable

1.5 DUST TIGHT SCREENS

- .1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers and public, as required.
- .2 Maintain and relocate protection until such work is complete.

1.6 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.7 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 02 83 13 – Building Lead Dust Remediation.

1.2 REFERENCES

- .1 Not applicable.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative or Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative/Consultant's inspection.
 - .2 Departmental Representative/Consultant's Inspection:
 - .1 Departmental Representative/Consultant and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, Consultant, and Contractor.
 - .2 When Work incomplete according to Departmental Representative, Consultant, complete outstanding items and request re-inspection.
 - .5 Final Payment:
 - .1 When Departmental Representative and Consultant consider final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

1.4 FINAL CLEANING

- .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: dispose of waste materials in accordance with Section 02 83 13.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 FORMAT

- .1 Organize data in the form of a site record, provide two copies on CD ROM and two paper copies.
- .2 Arrange content by site feature and date.

1.2 CONTENTS – EACH VOLUME

- .1 Prior to completion of Project, submit the following to the Departmental Representative:
 - .1 Copies of all documents and permits obtained by the Contractor.
 - .2 Results of all testing carried out by the Contractor.
 - .3 Any other pertinent information.
 - .4 Copies of all hazardous waste shipping documents identifying the shipper, the receiver and all carriers involved in the transport of materials.
 - .5 Information as required by other applicable permits.
- .2 Consolidate the above information in one document and submit two copies to the Departmental Representative.

PART 2 PRODUCTS

2.1 Not Used

- .1 Not used.

PART 3 EXECUTION

3.1 Not Used

- .1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- .1 The disturbance, handling, removal, and disposal of lead containing surface dust and debris from within specified areas of the Pumphouse Building at the Esquimalt Graving Dock. It is the intent of this Scope of Work to show the work necessary to complete the lead remediation.
- .2 The disturbance, handling, removal and disposal of lead and heavy metal-containing surface dust will be performed in strict compliance with these specifications and with all applicable regulatory requirements.

1.2 RELATED REQUIREMENTS

- .1 Not Applicable

1.3 REFERENCES

- .1 Contractors will maintain the following documentation on site.
 - .1 A copy of the WorkSafeBC Occupational Health & Safety Regulation (current edition).
 - .2 A copy of the WorkSafeBC WHMIS core manual (current edition).
 - .3 WorkSafeBC “**Notice of Project for Lead**” (**NOP**) and, attached to the NOP, the site specific lead abatement work procedures intended for use.
 - .4 The Contractor’s Corporate Occupational Health & Safety Program.
 - .5 The Contractor’s Exposure Control Plan.
 - .6 Material Safety Data Sheets (MSDS) for regulated products used on the project.
 - .7 Canadian Standards Association, CSA Z-190, “Selection, Care and Use of Respirators” (current edition).
 - .8 WorkSafeBC Publication “Lead Containing Paints and Coatings”.
 - .9 The Contractor’s site-specific Health and Safety Plan.

1.4 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Authorized Visitors: include Public Works and Government Services Canada representatives, the Consultant and other designated representatives and representatives of regulatory agencies.
- .3 Occupied Area: areas of building or work site that is outside Work Area.

- .4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.
- .5 Airlock: ingress or egress system, without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.
- .6 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another. Typically constructed as follows:
 - .1 Place two overlapping polyethylene sheets over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and secure other sheet along opposite vertical side of doorway.
 - .2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.
 - .3 Overlap each polyethylene sheet at openings 1.5 m on each side.
- .7 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead that is 50 percent of the WorkSafeBC occupational exposure limit of 50 micrograms per cubic meter of air calculated as 8 hour time-weighted average (TWA). Intermediate precautions for lead abatement are based on airborne lead concentrations greater than 0.05 milligrams per cubic meter of air within Work Area.
- .8 Competent person: Consultant capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.
- .9 Lead in Dust: wipe sampling on vertical and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 200 micrograms of lead in dust per square foot and 40 micrograms of lead in dust per square foot in selected areas.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide proof satisfactory to the Departmental Representative that suitable arrangements have been made to dispose of lead based paint waste in accordance with requirements of authority having jurisdiction.
- .3 Provide Provincial Notice of Project Form.
- .4 Provide proof of Contractor's General and Environmental Liability Insurance.
- .5 Quality Control:
 - .1 Provide to the Departmental Representative necessary permits for transportation and disposal of lead based paint waste and proof it has been received and properly disposed.
 - .2 Provide proof satisfactory to the Departmental Representative that employees had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.
 - .3 Provide proof that supervisory personnel have attended lead abatement course, of not less than two days duration, approved by the Departmental Representative. Minimum of one supervisor for every ten workers.
- .6 Product data:

- .1 Provide documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
 - .1 Encapsulants.
 - .2 Amended water.
 - .3 Slow drying sealer.

1.5 **QUALITY ASSURANCE**

- .1 Regulatory Requirements: comply with Provincial requirements pertaining to lead paint, in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.
- .2 Health and Safety:
 - .1 Complete a Site-Specific Health and Safety Plan.
 - .2 Safety Requirements: worker and visitor protection.
 - .1 Protective equipment and clothing to be worn by workers and visitors in Work Area includes:
 - .1 Respirator NIOSH approved and equipped with filter cartridges acceptable to Authority having jurisdiction. Suitable for type of lead and level of lead dust exposure in Lead Work Area. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.
 - .2 Disposable type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
 - .2 Requirements for workers:
 - .1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.
 - .2 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in Work Area, store work footwear in Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area or from Equipment and Access Room.
 - .3 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of Container and Equipment Decontamination Enclosure system.

Workers not to use this system as means to leave or enter work area.

- .3 Eating, drinking, chewing, and smoking are not permitted in Work Area.
- .4 Ensure workers are fully protected with respirators and protective clothing during preparation of system of enclosures prior to commencing actual lead abatement.
- .5 Ensure workers wash hands and face when leaving Work Area.
- .6 Provide and post in Clean Change Room and in Equipment and Access Room the procedures described in this Section, in both official languages.
- .7 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.
- .8 Visitor Protection:
 - .1 Provide protective clothing and approved respirators to Authorized Visitors to Work Areas.
 - .2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.
 - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Work Area.

1.6 QUALIFICATIONS

- .1 Supervisors and workers for the lead-contamination remediation project work must have successfully completed a recognized course, or equivalent training, in lead awareness and abatement. Documentation to be provided by the Contractor.

1.7 PROCEDURES AND REQUIREMENTS

- .1 Lead containing surface dust removal for this project must be conducted following lead-containing surface dust removal work procedures as defined by the WorkSafeBC Occupational Health & Safety Regulation and these specifications.
- .2 The Occupational Health and Safety consultant must be notified prior to any disturbance, removal, handling and disposal of lead-based surface coating materials in addition to those hazardous materials identified elsewhere within these Specifications.
- .3 A copy of the site-specific work procedures intended for use on this project must also be submitted to WorkSafeBC with the NOP.

1.8 DESCRIPTION OF WORK

- .1 General
 - .1 The work specified herein shall be the disturbance, removal, handling and disposal of known lead-containing dust and debris and cleaning of lead contaminated materials by competent persons trained,

- knowledgeable and qualified in lead-contamination remediation work procedures.
- .2 Access to areas of the site where hazardous materials are being removed is to be restricted to, the Department Representative, the Contractor, the Occupational Health and Safety consultant, and representatives of regulatory agencies who may have jurisdiction. The Contractor will instruct and train any visitors requiring access to the work areas on; entry and exit procedures and the use of any appropriate personal protective equipment for the type of work being performed at the time of entry. Any worker deemed by the Occupational Health and Safety consultant to be inadequately trained or unfit to perform their duties will be removed from the project.
 - .3 All platforms used to access the hazardous materials will be constructed and used in accordance with the requirements of the WorkSafeBC Occupational Health & Safety Regulation. All elevated platforms for this project (i.e. both rolling scaffolding and man lifts) will be engineered, supplied, installed, cleaned and dismantled by the Contractor.
 - .4 All required documentation is the responsibility of the Contractor. Site-specific emergency procedures for work in contaminated areas will be provided by the Contractor and posted on site.
 - .5 The health and safety of Contract employees in the areas affected during hazardous material removal work will be the sole responsibility of the Contractor and, the Contractor's supervisor must remain on site at all times during abatement work. Should the Contractor require the assistance of any other trade during the performance of the work of this project, he will be responsible for providing all necessary equipment and training required to affect that assistance. Any specific trade documentation requirements for items such as lock out procedures must be provided by a qualified tradesperson.
 - .6 The Contractor will assume total responsibility for the erection and maintenance of all signs and the integrity of all enclosures and barriers related to the hazardous material removal work.
 - .7 The Contractor will provide all necessary labour, materials, insurance, permits and equipment necessary to carry out the work in accordance with all applicable regulations and this documentation.
 - .8 The Contractor will provide all necessary labour and equipment (GFCI electrical panel, hoses, valves, connections, etc.) to secure the required utilities for all hazardous materials removal work.
 - .9 Air monitoring and inspections will be conducted by Occupational Health and Safety consultant. If air-monitoring results show areas outside the enclosure to be contaminated the Contractor will clean these identified areas immediately under direction of the Departmental Representative at no additional cost to the Owner.
 - .10 The Contractor will not demobilize from an area of removal until the Department Representative has inspected the completed area and have approved demobilization.
 - .11 The dust removal in contaminated work areas will be conducted following "Moderate Risk" work procedures as described in the WorkSafeBC publication "Lead Containing Paints and Coatings".

Moderate-risk activities are defined as:

- Removing lead-containing coatings with a chemical gel or paste by hand.
- Removing lead-containing coatings with a heat gun.
- Scraping or sanding lead-containing materials using non-powered hand tools.
- Manually demolishing lead-painted plaster walls or building components using a sledgehammer or similar tool.
- Cleaning up and removing lead-containing dust and debris.

.12 Work area preparation shall include the following:

- Barriers shall be erected to prevent access to the Work Area by unprotected workers.
- Signs should be posted at every entrance to the work area; sign should include warnings of lead contamination and the requirement for respiratory protection.
- Shut-off and isolate HVAC system to prevent dust dispersal into other building areas.
- Build airlocks at entrances and exits from Work Area

.13 The Contractor will allow sufficient time for inspection of the site after set up and before commencement of remediation activities and must not begin work in a new area without informing the Occupational Health and Safety consultant and without the consultants approval.

.14 All HEPA vacuums and negative-air units to be used on the project are to be DOP (dioctyl phthalate) or PAO (poly alfa olefin) tested at the beginning of the project, and from that point on, at the discretion of the Occupational Health and Safety consultant. **All DOP testing is to be conducted by the Occupational Health and Safety consultant.**

.2 Lead containing surface dust impacted by this project

.1 The following lists the type of hazardous materials with their known location and the Risk Level appropriate for the nature of their disturbance in compliance with the current WorkSafeBC Occupational Health & Safety Regulation.

.2 If any lead-based surface coating material or surface dust not specified herein are to be impacted by the scheduled decontamination, the Contractor is to stop work and wait to receive direction from the Department Representative. If required, Occupational Health and Safety consultant will collect further samples for verification of lead contamination.

.3 All measurements of quantities in which lead containing materials have been identified on site are the responsibility of the Contractor.

.3 Lead and heavy metal-containing surface dust areas included in the work

Main Level	Main Level Washroom
Lower Level	Main Level Supervisor's Office
Workshop	
Hydraulic Room	Upper Level Lunchroom

SCADA Room
 Mezzanine Storage Areas
 Storage areas adjacent to
 Hydraulic and SCADA Rooms

Upper Level Change Room
 Upper Level Washroom
 Upper Level IT Room

- .1 All specified areas of lead removal include the removal of all settled dust, debris, and all generated waste materials, in accordance with **Moderate Risk** lead abatement procedures, from the following areas (as per WorkSafeBC publication “*Lead Containing Paints and Coatings*”)
- .2 Removal of all lead dust from all surfaces, including, but not limited to, all horizontal surfaces, all equipment, all exterior surfaces of ductwork), electrical equipment, pipe lagging, exhaust ventilation, heaters, floors, hangers, cable trays, all equipment, desk/tables, and fluorescent lights. Small items and items composed of porous materials will be removed for disposal. These will include rubber mats, computer monitors, keyboards and mice. Scrap materials in Workshop will be placed in a waste bin for disposal. All surfaces cleaned shall be free of any visible dust or debris.
- .3 Remove items such as nuts and bolts (in storage bins), fittings (on shelves), etc. from the building to be cleaned onsite in an area set up for this purpose.
- .4 Clean-up procedures shall utilize HEPA-filtered vacuum systems and/or wet methods, such as mopping, wet wiping, shoveling of wet debris, etc. No dry sweeping of dust, particulate matter or debris is allowed during any phase of the work affecting lead-coated surfaces.
- .5 The dust-wipe clearance levels collected by Occupational Health and Safety consultant completion of lead abatement work must not exceed:

	Floor	Sill/ledge	Trough
Residences, schools, daycare centres, and other public buildings	0.43 mg/m ² (40 µg/ft ²)	2.7 mg/m ² (250 µg/ft ²)	4.3 mg/m ² (400 µg/ft ²)
Commercial buildings, including retail stores, offices (administrative), and laboratories (other than lead assay laboratories)	2.2 mg/m ² (200 µg/ft ²)	5.4 mg/m ² (500 µg/ft ²)	8.6 mg/m ² (800 µg/ft ²)

- .6 Turnaround time for laboratory sample analysis will be 48 hours.
- .7 Levels for commercial buildings will be used for this project with the exception of washrooms, change rooms and lunch room areas where the residential levels will be used.

1.9 CONDITIONS OF WORK

- .1 Some electrical systems will remain live throughout the work. Prior to completion of work, these systems are to be de-energized (following lock out procedures and in co-ordination with the Department Representative and cleaned of all residual dust and debris.

- .2 The fire protection systems will be protected and maintained by the Contractor during the work. This work will be coordinated with the Department Representative s maintenance personnel.
- .3 It may be necessary to carry out work outside of regular working hours.

1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Disposal of all hazardous waste will be performed in accordance with the Ministry of Environment and TDGA regulations pertaining to hazardous waste.
- .2 Department Representative will provide to the Contractor with a British Columbia waste generator number that must appear on all waste transfer manifests, if required.
- .3 Leachate testing of waste materials will be carried out before materials are removed from the site by the Department Representative.

1.11 MANAGEMENT SERVICES

- .1 Lead and heavy metal-wipe sampling, air monitoring and inspections will be conducted by the Department Representative.
- .2 The Department Representative. will have full access to all documentation.
- .3 No hazardous materials removal work will be undertaken without prior communication with the Department representative.

END OF SECTION

ANNEX A
Preliminary Hazard Assessment



PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	R.031576.244
Location:	Esquimalt Graving Dock
Date:	July 22, 2016
Name of Departmental Representative:	Steve Windl
Name of Client:	EASS-EGD
Name of Client Project Co-ordinator	Stafford Bingham

Site Specific Orientation Provided at Project Location **Yes** **No**

Notice of Project Required **Yes** **No**

NOTE:

PWGSC requires "**A Notice of Project**" for all construction work related activities.

NOTE:

OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

Important Notice: This hazard assessment has been prepared by PWGSC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PWGSC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
	PWGSC, OGD's, or tenants		General Public or other contractors		
Examples: Chemical, Biological, Natural, Physical, and Ergonomic					Note: When thinking about this pre-construction hazard assessment, remember a hazard is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the risk is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.	Yes	No	Yes	No	

Typical Construction Hazards					
Concealed/Buried Services (electrical, gas, water, sewer etc)	X		X		No Natural Gas Services on site
Slip Hazards or Unsound Footing	X		X		
Working at Heights	X		X		
Working Over or Around Water		X		X	
Heavy overhead lifting operations, mobile cranes etc.	X		X		
Marine and/or Vehicular Traffic (site vehicles, public vehicles, etc.	X		X		



Fire and Explosion Hazards	X		X		
High Noise Levels	X		X		
Excavations	X		X		
Blasting		X		X	
Construction Equipment	X		X		
Pedestrian Traffic (site personnel, tenants, visitors, public)	X		X		
Multiple Employer Worksite	X		X		

Electrical Hazards					Comments
Contact With Overhead Wires	X			X	
Live Electrical Systems or Equipment	X			X	
Other:					
Physical Hazards					
Equipment Slippage Due To Slopes/Ground Conditions		X		X	All work conducted on building interiors
Earthquake	X		X		
Tsunami	X		X		
Avalanche		X		X	
Forest Fires		X		X	
Fire and Explosion Hazards	X		X		
Working in Isolation		X		X	
Working Alone	X		X		
Violence in the Workplace	X		X		
High Noise Levels	X		X		
Inclement weather	X		X		
High Pressure Systems	X		X		
Other:					
Hazardous Work Environments					
Confined Spaces / Restricted Spaces	X		X		Some of the work in compressed air ducts and equipment housing will be "restricted space"
Suspended / Mobile Work Platforms	X		X		
Other:					
Biological Hazards					
Mould Proliferations		X		X	
Accumulation of Bird or Bat Guano		X		X	
Bacteria / Legionella in Cooling Towers / Process Water		X		X	
Rodent / Insect Infestation		X		X	
Poisonous Plants		X		X	
Sharp or Potentially Infectious Objects in Wastes	X		X		
Wildlife	X		X		
Chemical Hazards					
Asbestos Materials on Site		X		X	
Designated Substance Present	X		X		Lead Dust – See Island EHS report July 04, 2016.



Chemicals Used in work	X		X		
Lead in paint	X		X		See attached Lead Paint Risk Assesment EGD Pumphouse North West Environmental Group Ltd. May 2012.
Mercury in Thermostats or Switches		X		X	
Application of Chemicals or Pesticides		X		X	
PCB Liquids in Electrical Equipment		X		X	
Radioactive Materials in Equipment		X		X	
Other:					
Contaminated Sites Hazards					
Hazardous Waste	X		X		Lead dust
Hydrocarbons		X		X	
Metals	X		X		Other metals in dust
Other:					

Security Hazards					Comments
Risk of Assault	X		X		Multiple employer workplace
Other:	X		X		Unauthorized entry to site
Other Hazards					

Other Compliance and Permit Requirements ¹	YES	NO	Notes / Comments ²
Is a Building Permit required?		X	
Is a Electrical permit required?		X	
Is a Plumbing Permit required?		X	
Is a Sewage Permit required?		X	
Is a Dumping Permit required?		X	
Is a Hot Work Permit required?		X	
Is a Permit to Work required?		X	
Is a Confined Space Entry Permit required?			N/A
Is a Confined Space Entry Log required?			N/A
Discharge Approval for treated water required?	X		No discharge into sewer nor storm drain

Notes:

- (1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.
- (2) TBD means To Be Determined by Service Provider.

Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary



protective measures (which may exceed those cited herein) for performance of the work.

Service Provider Name			
Signatory for Service Provider		Date Signed	
RETURN EXECUTED DOCUMENT TO PWGSC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING			

ANNEX B

Lead Paint Risk Assessment
Esquimalt Graving Dock – Pump House
Building

Lead Paint Risk Assessment

Esquimalt Graving Dock – Pump House Building



Prepared for:



Public Service Commission
of Canada

Commission de la fonction publique
du Canada

Environmental Services

Prepared by



**North West
Environmental Group Ltd.**

210-2950 Douglas Street
Victoria, British Columbia
NWEG Project: 17294

EXECUTIVE SUMMARY

North West Environmental Group Ltd. was retained by Public Works and Government Services Canada (PWGSC) Environmental Services to conduct a lead paint risk assessment in the Pump House located within the Esquimalt Graving Dock (EGD), Esquimalt BC.

The following locations were sampled at the request of PWGSC:

- Beams/Columns (existing grey and white paint)
- Interior Walls (white paint)
- Under decking of Pump House Floor (white paint)
- Handrails (light green/dark green paint)
- Stairs/Walkways (expanded metal)

Samples were collected on April 24th, 2012 by Trevor Olsen and Devin Fenwick, Hygiene Technicians from North West Environmental Group.

Samples were sent to a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

Findings

Table 1: Paint Chip Sampling Results

Sample	Description	Lead (% wt)	Lead (mg/kg)
17294- 01	Lower Floor West Wall – Paint Chips White	0.019	190
17294- 02	Lower Floor East Wall – Paint Chips White	0.44	4400
17294- 03	Lower Floor Pump 1 – Paint Chips Gray	3.2	32000
17294- 04	Lower Floor Pump 3 – Paint Chips Gray	16	160000
17294- 05	Lower Floor East Wall Column – Paint Chips White	29	290000
17294- 06	Lower Floor Pump 3 Component – Paint Chips Green	0.28	2800
17294- 07	Upper Mid Level Catwalk Railing – Paint Chips Light Green	0.13	1300
17294- 08	Upper Mid Level Catwalk Railing – Paint Chips Dark Green	0.30	3000
17294- 09	Lower Mid Level Catwalk "I" Beam – Paint Chips White	17	170000
17294- 10	Upper Mid Level Catwalk "I" Beam – Paint Chips White	17	170000
17294- 11	Upper Mid Level Catwalk Railing – Paint Chips Light Green	0.027	270
17294- 12	Upper Mid Level Catwalk Stairs – Paint Chips Black	0.10	1000
17294- 13	Main Stairs South Side Stairs – Paint Chips Black	8.3	83000
17294- 14	Upper Catwalk Overhead Steel Sheeting – Paint Chips White	19	190000

Paint

Analysis of paint samples indicated that lead is present in concentrations ranging from a high of 29% to a low of 0.019%. Samples were found to have lead concentrations in excess of the threshold specified in the federal *Surface Coatings Material Regulation SCMR* of 90 mg/kg for new paint acceptable for use in residential applications.

Overall, paint coatings were found to be in poor to good condition. Where damaged and deteriorating, paint should be removed, debris cleaned following procedures designed to protect the workers from heavy metal exposure and to avoid the spread of contamination.

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LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
EC	Environment Canada
EGD.....	Esquimalt Graving Dock
EMA	Environmental Management Act
HPA.....	Hazardous Products Act
HWR.....	Hazardous Waste Regulation
LCM.....	Lead Containing Material
NWEG.....	North West Environmental Group
NVLP.....	National Voluntary Laboratory Accreditation Program
PWGSC.....	Public Works and Government Services Canada
SCMR.....	Surface Coating Materials Regulation

1.0 INTRODUCTION

North West Environmental Group Ltd. (NWE) was retained by Public Works and Government Services Canada (PWGSC) Environmental Services to conduct a Lead Paint Risk Assessment in the Pump House located at the Esquimalt Graving Dock, Esquimalt BC. The facility is referred to as the "subject site" or "site" throughout this document.

The following locations were sampled at the request of PWGSC:

- Beams/Columns (existing grey and white paint)
- Interior Walls (white paint)
- Under decking of Pump House Floor (white paint)
- Handrails (light green/dark green paint)
- Stairs/Walkways (expanded metal)

Samples were collected on April 24th, 2012 by Trevor Olsen and Devin Fenwick, Hygiene Technicians from North West Environmental Group.

Samples were sent to a laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

2.0 REGULATORY FRAMEWORK, GUIDELINES AND CODES

2.1 Federal Occupational Health and Safety

In Federal jurisdictions, lead-containing materials (LCM) are regulated under the *Canada Labour Code, Part II*. Specifically, *Part X, Hazardous Substances*, provides the direction for the control of exposure to potentially toxic substances in the workplace. Under this regulation, employers are required to:

- Maintain a record of all lead containing materials;
- Undertake a hazard investigation by competent persons;
- Ensure materials are properly stored and handled;
- Post warning signs;
- Inform and educate employees regarding hazards; and
- Control exposure through substitution, engineering or protective equipment.

2.2 BC Occupational Health and Safety Regulation

Most of the employees working in the PWGSC buildings are Federal employees and are subject to the federal OHS. However for the majority of contractors and some site tenants, workplace health and safety is regulated in British Columbia by WorkSafeBC under the *Workers' Compensation Act* (effective April 15, 1998), as amended by *Workers' Compensation (Occupational Health and Safety) Amendment Act* (effective October 1, 1999). The Act defines the general duties and obligations of the employer, employees and others at the work site.

Under this regulation, employers are required to:

- Maintain a record of all lead containing materials;

- Undertake a hazard investigation by competent persons;
- Ensure materials are properly stored and handled;
- Post warning signs;
- Inform and educate employees regarding hazards; and
- Control exposure through substitution, engineering or protective equipment

WorkSafeBC Regulations apply to the handling of materials containing designated substances and the prevention of possible worker exposures. Permissible exposure limits to these designated substances, which include, lead, are established by the American Conference of Governmental Industrial Hygienists (ACGIH) and adopted by WorkSafeBC.

2.3 Environmental Management Act

The *Environmental Management Act* (EMA), brought into force in July 2004, is the principle environmental statute in British Columbia. The EMA prohibits the introduction of waste into the environment in such a manner or quantity as to cause pollution, except in accordance with a regulation, permit, approval or code of practice issued under the Act. The Hazardous Waste Regulation (HWR) addresses the proper handling, transport and disposal of hazardous wastes, under provisions of the EMA. While the Provincial Regulations do not apply directly to the sites operated by the Federal Government, they do apply when the materials are removed from the site for disposal.

2.4 BC Occupational Health and Safety Regulation

WorkSafeBC Regulations apply to the handling of materials containing designated substances and the prevention of possible worker exposures. These designated substances, which include lead, mercury and arsenic, are established by the American Conference of Governmental Industrial Hygienists (ACGIH) and adopted by WorkSafeBC.

Where worker exposure to a designated substance may exceed 50% of the threshold limit value for a substance, WorkSafeBC requires that the employer establish an exposure control plan. All routes of entry must be considered when establishing the extent of worker exposure. Exposure limits are summarized in Table 4.4.1.

Table 2.4.1: ACGIH / WorkSafeBC Exposure Limits

<i>Substance [CAS No.]</i>	<i>Time Weighted Average (TWA)</i>
Lead - elemental and inorganic compounds, as Pb [7439-92-1]	0.05 mg/m ³

2.5 Hazardous Products Act, Surface Coating Materials Regulation

The *Hazardous Products Act (HPA)*, *Surface Coating Materials Regulation (SOR/2005-109) (SCMR)* permits the advertising, sale and labeling of surface coatings (including paint) that meet the following criteria set out below. Quantities of lead and mercury are specifically limited. Other heavy metals are not addressed in this regulation.

There has been confusion in the past regarding the limits for lead and mercury in paint and how that relates to worker safety and disposal. An explanation of the SCMR limits for paint and mercury are included in this report to help alleviate this confusion. Although a given paint sample may have concentrations of lead and mercury lower than the limits specified within the SCMR, worker exposure may still occur if sufficient quantities of lead and/or mercury are inhaled, ingested or absorbed through the skin. The risk to workers posed by heavy metal

containing coatings is proportional to the work undertaken. Heavy metal laden coatings that are not disturbed pose little risk to non-pre-school aged building occupants.

Lead Paint

In 2005 the federal *Surface Coating Materials Regulation* was amended to reduce the amount of lead in paint required to be considered 'lead based' from 5,000 mg/kg to 600 mg/kg and then to 90 mg/kg in 2010. As paints under this concentration of lead are acceptable for use in residential settings today, such coatings do not pose a significant hazardous material issue unless rendered airborne within a worker's breathing zone by fine dust generating processes.

If a worker is, or may be, exposed to potentially harmful levels of lead, the employer must ensure that a risk assessment is conducted by a qualified person. Where a worker may be exposed to airborne lead concentrations in excess of 50% of the exposure limit of 0.05 mg/cu.m or where exposure through any route of entry could cause elevated blood levels, the employer must develop and implement an exposure control plan (ECP) which meets the requirements of section 5.54 of the BC Occupational Health and Safety Regulation. As an ALARA substance, worker exposure must be kept as low as reasonably achievable.

Appropriate precautions for protecting workers from lead exposure should be implemented during any work involving lead or lead paint including the use of personal protective equipment, localized ventilation and/or dust suppression methods.

Paint chips can be hazardous wastes if they contain leachable components that when subjected to the *Toxicity Characteristic Leaching Procedure (TCLP, US EPA Method 1311)* leach out levels of contaminant in excess of those published in Table 1 of *Schedule 4* of the *BC Hazardous Waste Regulation*. Wastes deemed to be hazardous wastes must be disposed through a waste disposal contractor licensed by the Province.

3.0 METHODOLOGY

Paint

Painted surfaces were scraped down to the base substrate to ensure that all layers of paint were included. Paint samples were tested using the following analytical method:

- Lead: EMSL (SW 846 3050B*/7000B) Lead in Paint Chips by Flame Atomic Absorption Spectrophotometer

A total of fourteen (14) paint chips were submitted to EMSL Analytical for analysis.

4.0 FINDINGS

of sample locations are provided in Section 7.0. The lead paint risk assessment are provided in this section. The analytical reports are provided in Appendix A.

4.1 Lead Paint

Lead was found in all samples of paint. The results vary from a high of 29% to a low of 0.019%.

All samples were confirmed to exceed the concentration of lead permissible in new paint (0.009% - SCMR) threshold to be sold without notifying the consumer of its lead content.

Table 2: Paint Chip Sampling Results

Sample	Description	Lead (% wt)	Lead (mg/kg)
17294- 01	Lower Floor West Wall – Paint Chips White	0.019	190
17294- 02	Lower Floor East Wall – Paint Chips White	0.44	4400
17294- 03	Lower Floor Pump 1 – Paint Chips Gray	3.2	32000
17294- 04	Lower Floor Pump 3 – Paint Chips Gray	16	160000
17294- 05	Lower Floor East Wall Column – Paint Chips White	29	290000
17294- 06	Lower Floor Pump 3 Component – Paint Chips Green	0.28	2800
17294- 07	Upper Mid Level Catwalk Railing – Paint Chips Light Green	0.13	1300
17294- 08	Upper Mid Level Catwalk Railing – Paint Chips Dark Green	0.30	3000
17294- 09	Lower Mid Level Catwalk “I” Beam – Paint Chips White	17	170000
17294- 10	Upper Mid Level Catwalk “I” Beam – Paint Chips White	17	170000
17294- 11	Upper Mid Level Catwalk Railing – Paint Chips Light Green	0.027	270
17294- 12	Upper Mid Level Catwalk Stairs – Paint Chips Black	0.10	1000
17294- 13	Main Stairs South Side Stairs – Paint Chips Black	8.3	83000
17294- 14	Upper Catwalk Overhead Steel Sheeting – Paint Chips White	19	190000

Overall, paint coatings were found to range from poor to good condition. Where damaged and deteriorating, paint should be removed, debris cleaned following procedures designed to protect the workers from heavy metal exposure and to avoid the spread of contamination. Lead content of painted materials should not increase their disposal costs however; concentrated paint chips would need to be disposed as hazardous waste. Routine removal of lead paint is not recommended; rather it should be managed in place and removed on an “as needed” basis.

5.0 Sample Locations

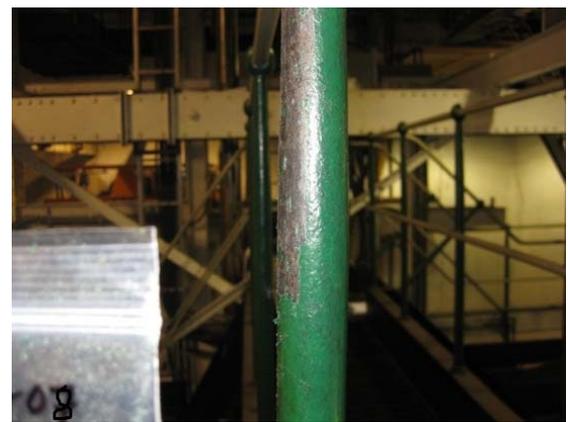
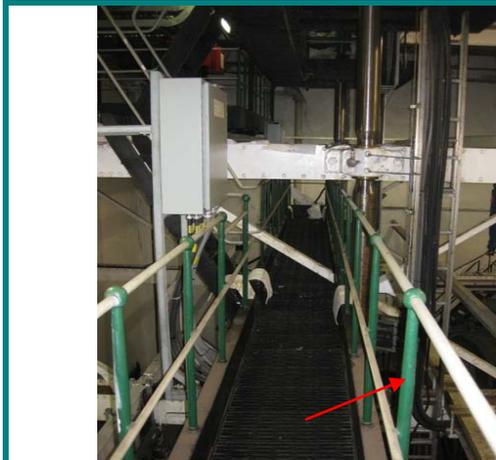
	
Sample: 17294-01 Location: Lower Floor West Wall Description: Wall Paint Chips - White	Sample: 17294-01 Description: Wall Paint Chips - White Lead: 190 mg/kg
	
Sample: 17294-02 Location: Lower Floor East Wall Description: Wall Paint Chips - White	Sample: 17294-02 Description: Paint Chips - White Lead: 4400 mg/kg
	
Sample: 17294-03 Location: Lower Floor Pump # 1 Description: Pump #1 Paint Chips - Grey	Sample: 17294-03 Description: Pump # 1 Paint Chips - Grey Lead: 32000 mg/kg

	
<p>Sample: 17294-04 Location: Lower Floor Pump # 3 Description: Pump # 3 Paint Chips - Grey</p>	<p>Sample: 17294-04 Description: Pump # 3 Paint Chips - Grey Lead: 160000 mg/kg</p>
	
<p>Sample: 17294-05 Location: Lower Floor East Wall Column Description: Column Paint Chips - White</p>	<p>Sample: 17294-05 Description: Column Paint Chips - White Lead: 290000 mg/kg</p>
	
<p>Sample: 17294-06 Location: Lower Floor Pump # 3 Component Description: Pump #3 Component Paint Chips – Dark Green</p>	<p>Sample: 17294-06 Description: Pump # 3 Component Paint Chips – Dark Green Lead: 2800 mg/kg</p>



Sample: 17294-07
Location: Upper Mid-Level Catwalk
Description: Railing Paint Chips – Light Green

Sample: 17294-07
Description: Railing Paint Chips – Light Green
Lead: 1300 mg/kg



Sample: 17294-08
Location: Upper Mid-Level Catwalk
Description: Railing Paint Chips – Dark Green

Sample: 17294-08
Description: Railing Paint Chips – Dark Green
Lead: 3000 mg/kg



Sample: 17294-09
Location: Lower Mid-Level Catwalk
Description: I-Beam Paint Chips - White

Sample: 17294-09
Description: I-Beam Paint Chips – White
Lead: 170000 mg/kg

	
Sample: 17294-10 Location: Upper Mid-Level Catwalk Description: I-Beam Paint Chips - White	Sample: 17294-10 Description: I-Beam Paint Chips - White Lead: 170000 mg/kg
	
Sample: 17294-11 Location: Upper Mid-Level Catwalk Description: Railing Paint Chips – Light Green	Sample: 17294-11 Description: Railing Paint Chips – Light Green Lead: 270 mg/kg
	
Sample: 17294-12 Location: Upper Mid-Level Catwalk Description: Stair Paint Chips – Black	Sample: 17294-12 Description: Stair Paint Chips – Black Lead: 1000 mg/kg

	
<p>Sample: 17294-13 Location: South Wall Main Stairs (Mid Level) Description: Stair Paint Chips – Black</p>	<p>Sample: 17294-13 Description: Stair Paint Chips – Black Lead: 83000 mg/kg</p>
	
<p>Sample: 17294-14 Location: Upper Catwalk Overhead Steel Decking Description: Steel Decking Paint Chips - White</p>	<p>Sample: 17294-14 Description: Steel Decking Paint Chips – White Lead: 190000 mg/kg</p>

6.0 Limitation of Survey

This document details the methodology, findings and conclusions of this survey and assessment conducted on the subject site on April 24th, 2012.

Analytical results included in the report reflect the sampled materials at the specific sample locations. Visually similar materials were referenced to specific analyzed samples.

Yours very truly,

North West Environmental Group Ltd.



Julie Scott-Moncrieff, B.Sc.,
Senior Occupational Hygienist

APPENDICES





EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: cinnaminsonleadlab@emsl.com

Attn: **Janet Peto**
North West Environmental Group
2950 Douglas Street
Unit 210
Victoria, BC V8T 4N4

Customer ID: PAEC50
Customer PO:
Received: 04/26/12 10:17 AM
EMSL Order: 201203938

Fax: (250) 384-9865 Phone: (250) 384-9695
Project: **17294 Public Works & Government Services Canada**

EMSL Proj:

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B*/7000B)

Client Sample Description	Lab ID	Collected	Analyzed	Lead Concentration
17294-01 Site: Lower Floor West; Wall Desc: Paint Chips- White	0001		4/26/2012	0.019 % wt
17294-02 Site: Lower Floor East; Wall Desc: Paint Chips- White	0002		4/26/2012	0.44 % wt
17294-03 Site: Lower Floor; Pump 1 Desc: Paint Chips- Grey	0003		4/26/2012	3.2 % wt
17294-04 Site: Lower Floor; Pump 3 Desc: Paint Chips- Grey	0004		4/26/2012	16 % wt
17294-05 Site: Lower Floor East Wall; Column Desc: Paint Chips- White	0005		4/26/2012	29 % wt
17294-06 Site: Lower Floor; Pump #3 Component Desc: Paint Chips- Dark Green	0006		4/26/2012	0.28 % wt
17294-07 Site: Upper Mid-Level Catwalk; Railing Desc: Paint Chips-Light Green	0007		4/26/2012	0.13 % wt
17294-08 Site: Upper Mid-Level Catwalk; Railing Desc: Paint Chips-Dark Green	0008		4/26/2012	0.30 % wt
17294-09 Site: Lower Mid-Level Catwalk; I-Beam Desc: Paint Chips-White	0009		4/26/2012	17 % wt

Initial report from 04/26/2012 17:20:04

Julie Smith - Laboratory Director
NJ-NELAP Accredited:04653
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10896, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01



EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Phone: (856) 858-4800 Fax: (856) 858-9551 Email: cinnaminsonleadlab@emsl.com

Attn: **Janet Peto**
North West Environmental Group
2950 Douglas Street
Unit 210
Victoria, BC V8T 4N4

Customer ID: PAEC50
Customer PO:
Received: 04/26/12 10:17 AM
EMSL Order: 201203938

Fax: (250) 384-9865 Phone: (250) 384-9695
Project: **17294 Public Works & Government Services Canada**

EMSL Proj:

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B*/7000B)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
17294-10 Site: Upper Mid-Level Catwalk; I-Beam Desc: Paint Chips-White	0010		4/26/2012	17 % wt
17294-11 Site: Upper Mid-Level Catwalk; Railing Desc: Paint Chips- Light Green	0011		4/26/2012	0.027 % wt
17294-12 Site: Upper Mid-Level Catwalk; Stairs Desc: Paint Chips- Black	0012		4/26/2012	0.10 % wt
17294-13 Site: Main Stairs (South Side); Stairs Desc: Paint Chips- Black	0013		4/26/2012	8.3 % wt
17294-14 Site: Upper Catwalk; Overhead Steel Sheeting Desc: Paint Chips- White	0014		4/26/2012	19 % wt

Initial report from 04/26/2012 17:20:04

Julie Smith - Laboratory Director
NJ-NELAP Accredited:04653
or other approved signatory

Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. The QC data associated with these results included in this report meet the method QC requirements, unless specifically indicated otherwise. Unless noted, results in this report are not blank corrected. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. * slight modifications to methods applied. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10896, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

ANNEX C
Lead Assessment Report
Island EHS

July 4, 2016

Public Works and Government Services Canada

825 Admirals Road.
Victoria, B.C.

Attention: Ms. Melissa Piasta, A/Senior Environmental Specialist

Dear Ms. Piasta:

We have received results for metal wipe samples collected from the several buildings at the Esquimalt Graving Dock. Samples were collected on June 29th, 2016 and we report the final results as follows.

Background

Island EHS has been engaged by Public Works and Government Services Canada to carry out wipe tests for lead contamination in the Pumphouse and other areas on the Esquimalt Graving Dock site.

Published guidelines are available for lead clearance. Table 1 defines the WorkSafeBC dust-wipe clearance levels for lead.

Table 1: WorkSafeBC Dust-Wipe Clearance Levels for Lead (expressed in µg/ft²)

	Floor	Sill/ledge	Trough
Residences, schools, daycare centres, and other public buildings	0.43 mg/m ² (40 µg/ft ²)	2.7 mg/m ² (250 µg/ft ²)	4.3 mg/m ² (400 µg/ft ²)
Commercial buildings, including retail stores, offices (administrative), and laboratories (other than lead assay laboratories)	2.2 mg/m ² (200 µg/ft ²)	5.4 mg/m ² (500 µg/ft ²)	8.6 mg/m ² (800 µg/ft ²)

Methodology:

32 samples, and the requisite field blank (Sample 1), were collected using standardized swabs and submitted to an accredited lab for analysis using procedures based on EPA 6010c R3. A surface area of 1 square foot was sampled where feasible; some pipes in the service tunnel were sampled for a surface area of 0.5 square foot.

Results:

A summary excerpt of laboratory results, in relation to proposed clearance levels, is presented in Table 2. Full laboratory results have been appended. Results in red exceed current WorkSafeBC levels for lead contamination on surfaces. Results in bold approach current WorkSafeBC levels for lead contamination on surfaces. Surfaces sample results less than 1 square foot have been corrected for comparison.

Table 2: Dust-Wipe Clearance Results for Lead (expressed in µg/ft²)

Sample	Metal	Lead
	Floors/Walls Allowable Limit	200
10758 – 1	Blank	ND
10758 – 2	Operations Building - Stores	62.5
10758 – 3	Operations Building – Staff Lunch Room	<2.0
10758 – 4	Operations Building – Electrical Room	61.6
10758 – 5	Standby Generator – North NS13	110
10758 – 6	Standby Generator – South SJ42	119
10758 – 7	Electrical Shop – Upper Office	3.4
10758 – 8	Electrical Shop – Workshop	78.3
10758 – 9	Electrical Shop – Electrical Room	384
10758 – 10	Electrical Shop – Lower Office	19.4
10758 – 11	North Landing Wharf – NS21	251
10758 – 12	North Landing Wharf – Valve Room	138
10758 – 13	Main Substation – NS12	162
10758 – 14	Garage – Mechanic Office	54.7
10758 – 15	Garage – Main Shop	41.2
10758 – 16	Rope Locker Building – SJ22 (crate surface)	54.0
10758 – 17	South Compressor Room – SJ23	65.5
10758 – 18	South Substation – SJ42	115
10758 – 19	Service Tunnel – North #2	898
10758 – 20	Service Tunnel – North #1	288
10758 – 21	Service Tunnel – North #3	177
10758 – 22	Service Tunnel – South #3	147
10758 – 23	Service Tunnel – South #2	3900
10758 – 24	Service Tunnel – South #1	175
10758 – 25	East End Centre	109
10758 – 26	Pumphouse Main Floor – Hydraulic Room	173
10758 – 27	Pumphouse Main Floor – Operator Booth	598
10758 – 28	Pumphouse – SCADA Room	109
10758 – 29	Pumphouse – Supervisor's Office	31.3
10758 - 30	Pumphouse – Main Level WC	72.3
10758 - 31	Pumphouse – Upper Level WC	35.8
10758 - 32	Pumphouse – Upper Level IT Room	45.9

Results in red exceed current WorkSafeBC concentrations for lead on surfaces

Results in bold approach current WorkSafeBC concentrations for lead on surfaces

Paint was noted to be flaking in the area where sample 12 was collected. Areas less than one square foot were sampled in the service tunnels due to the uneven nature of surfaces there.

Lead concentrations on a number of surfaces exceed WorkSafeBC guidelines.

Discussion:

Several wipe samples collected throughout the site exceed current WorkSafeBC guidelines for lead contamination. These include the Electrical Shop's Electrical Room, North Landing Wharf, Service Tunnels and the Pumphouse Operator's Booth.

We recommend that these areas be included in the Pumphouse cleanup that is planned. Cleaning will include non-porous surfaces. It will likely be more cost effective to dispose of small items rather than clean them. Site determination will be carried out for difficult to clean items.

Personal protective equipment for people carrying out **routine work** in these areas should be implemented immediately. These will include at a minimum:

- Gloves
- Disposable coveralls, or coveralls that remain on site and can be laundered
- Disposable foot coverings
- Respiratory (N95 disposable respirators)
- Worker decontamination as they leave the area
- Training for workers who have to be in the lower level of the Pumphouse
- Management plan to prevent, or minimize, future contamination

An exposure control plan needs to be developed for work on the site. This plan should include procedures to reduce the risk of contamination re-occurring.

I hope this information is helpful to you and I look forward to working with you in the future.

Yours truly,

Island EHS

A handwritten signature in cursive script that reads "Robert Christie".

Robert Christie, B.Sc., MBA, CIH (1998-2015)

Principal

Field Investigation & Report

Appendix 1

Laboratory Results

Maxxam Job #: B652621
Report Date: 2016/06/30

ISLAND EHS
Client Project #: 10758

ELEMENTS BY ATOMIC SPECTROSCOPY (WIPE)

Maxxam ID		OY0270	OY0271	OY0272	OY0273	OY0274		
Sampling Date		2016/06/29	2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039	08416039	08416039	08416039	08416039		
	UNITS	10758-1, FIELD BLANK	10758-2, OP BUILDING - STORES	10758-3, OPS BUILDING - STAFF LUNCH ROOM	10758-4, OPS BUILDING - ELECTRICAL ROOM	10758-5, STANDBY GENERATOR, NORTH NS13	RDL	QC Batch

Total Metals by ICP								
Total Lead (Pb)	ug	<2.0	62.5	<2.0	61.6	110	2.0	8316351
RDL = Reportable Detection Limit								

Maxxam ID		OY0275	OY0276	OY0277	OY0278	OY0279		
Sampling Date		2016/06/29	2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039	08416039	08416039	08416039	08416039		
	UNITS	10758-6, STANDBY GENERATOR, STOUT SJ42	10758-7, ELECTRICAL SHOP- UPPER OFFICE	10758-8, ELECTRICAL SHOP- WORKSHOP	10758-9, ELECTRICAL SHOP - ELECTRICAL ROOM	10758-10, ELECTRICAL SHOP - LOWER OFFICE	RDL	QC Batch

Total Metals by ICP								
Total Lead (Pb)	ug	119	3.4	78.3	384	19.4	2.0	8316351
RDL = Reportable Detection Limit								

Maxxam ID		OY0280	OY0281	OY0282	OY0283	OY0284		
Sampling Date		2016/06/29	2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039	08416039	08416039	08416039	08416039		
	UNITS	10758-11, NORTH LANDING WHARF, NS21	10758-12, NORTH LANDING WHARF, VALVE ROOM	10758-13, MAIN SUBSTATION NS12	10758-14, GARAGE - MECHANIC OFFICE	10758-15, GARAGE - MAIN SHOP	RDL	QC Batch

Total Metals by ICP								
Total Lead (Pb)	ug	251	138	162	54.7	41.2	2.0	8316351
RDL = Reportable Detection Limit								

Maxxam Job #: B652621
Report Date: 2016/06/30

ISLAND EHS
Client Project #: 10758

ELEMENTS BY ATOMIC SPECTROSCOPY (WIPE)

Maxxam ID		OY0285		OY0286	OY0287	OY0288	OY0289		
Sampling Date		2016/06/29		2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039		08416039	08416039	08416039	08416039		
	UNITS	10758-16, ROPE LOCKER BUILDING SJ22	QC Batch	10758-17, SOUTH COMPRESSOR RM SJ23	10758-18, SOUTH SUBSTATION SJ42	10758-19, SERVICE TUNNEL, NORTH #2	10758-20, SERVICE TUNNEL, NORTH #1	RDL	QC Batch

Total Metals by ICP									
Total Lead (Pb)	ug	54.0	8316351	65.5	115	449	144	2.0	8316378
RDL = Reportable Detection Limit									

Maxxam ID		OY0290	OY0291	OY0292	OY0293	OY0294		
Sampling Date		2016/06/29	2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039	08416039	08416039	08416039	08416039		
	UNITS	10758-21, SERVICE TUNNEL NORTH #3	10758-22, SERVICE TUNNEL SOUTH #3	10758-23, SERVICE TUNNEL SOUTH #2	10758-24, SERVICE TUNNEL SOUTH #1	10758-25, EAST END CENTRE	RDL	QC Batch

Total Metals by ICP									
Total Lead (Pb)	ug	88.4	147	1950	87.6	109	2.0	8316378	
RDL = Reportable Detection Limit									

Maxxam ID		OY0295	OY0296	OY0297	OY0298	OY0299		
Sampling Date		2016/06/29	2016/06/29	2016/06/29	2016/06/29	2016/06/29		
COC Number		08416039	08416039	08416039	08416039	08416039		
	UNITS	10758-26, PUMPHOUSE MAIN FLR, HYDRAULIC RM	10758-27, PUMPHOUSE, OPERATOR BOOTH	10758-28, PUMPHOUSE, SCADA RM	10758-29, PUMPHOUSE, SUPERVISOR'S OFFICE	10758-30, PUMPHOUSE, WC LOWER LEVEL	RDL	QC Batch

Total Metals by ICP									
Total Lead (Pb)	ug	173	598	109	31.3	72.3	2.0	8316378	
RDL = Reportable Detection Limit									

Maxxam Job #: B652621
Report Date: 2016/06/30

ISLAND EHS
Client Project #: 10758

ELEMENTS BY ATOMIC SPECTROSCOPY (WIPE)

Maxxam ID		OY0300	OY0301		
Sampling Date		2016/06/29	2016/06/29		
COC Number		08416039	08416039		
	UNITS	10758-31,PUMPHOUSE, UPPER LEVEL WC	10758-32, PUMPHOUSE, UPPER LEVEL IT	RDL	QC Batch
Total Metals by ICP					
Total Lead (Pb)	ug	35.8	45.9	2.0	8316378
RDL = Reportable Detection Limit					

Appendix 2

Photographs



Sample: 10758 - 2
Unit/Location: Operations Building
Description: Stores



Sample: 10758 - 3
Unit/Location: Operations Building
Description: Staff Lunch Room

No image available



Sample: 10758 - 4
Unit/Location: Operations Building
Description: Electrical Room

Sample: 10758 - 5
Unit/Location: Standby Generator Building
Description: North NS13



Sample: 10758 - 6
Unit/Location: Standby Generator Building
Description: South SJ42



Sample: 10758 - 7
Unit/Location: Electrical Shop
Description: Upper Office, Desk



Sample: 10758 - 8
Unit/Location: Electrical Shop
Description: Workshop



Sample: 10758 - 9
Unit/Location: Electrical Shop
Description: Electrical Room



Sample: 10758 - 10
Unit/Location: Electrical Shop
Description: Lower Office



Sample: 10758 - 11
Unit/Location: North Landing Wharf
Description: NS21



Sample: 10758 - 12
Unit/Location: North Landing Wharf
Description: Valve Room



Sample: 10758 - 13
Unit/Location: Main Substation
Description: NS12



Sample: 10758 - 14
Unit/Location: Garage
Description: Mechanic Office



Sample: 10758 - 15
Unit/Location: Garage
Description: Main Shop



Sample: 10758 - 16
Unit/Location: Rope Locker Building
Description: SJ22, Crate



Sample: 10758 - 17
Unit/Location: South Compressor Room
Description: SJ23



Sample: 10758 - 18
Unit/Location: South Substation
Description: SJ42



Sample: 10758 - 19
Unit/Location: Service Tunnel
Description: North #2, Pipe



Sample: 10758 – 20
Unit/Location: Service Tunnel
Description: North #1, Pipe



Sample: 10758 – 21
Unit/Location: Service Tunnel
Description: North #3, Pipe



Sample: 10758 – 22
Unit/Location: Service Tunnel
Description: South #3, Pipe



Sample: 10758 – 23
Unit/Location: Service Tunnel
Description: South #2, Pipe



Sample: 10758 – 24
Unit/Location: Service Tunnel
Description: South #1, Pipe



Sample: 10758 – 25
Unit/Location: Service Tunnel
Description: East End Centre, Pipe



Sample: 10758 – 26
Unit/Location: Pumphouse
Description: Main Floor, Hydraulic Room



Sample: 10758 – 27
Unit/Location: Pumphouse
Description: Operator Booth



Sample: 10758 – 28
Unit/Location: Pumphouse
Description: SCADA Room



Sample: 10758 – 29
Unit/Location: Pumphouse
Description: Supervisor's Office



Sample: 10758 – 30
Unit/Location: Pumphouse
Description: Lower Level Washroom



Sample: 10758 – 31
Unit/Location: Pumphouse
Description: Upper Level Washroom



Sample: 10758 – 32
Unit/Location: Pumphouse
Description: Main Floor, Upper Level IT

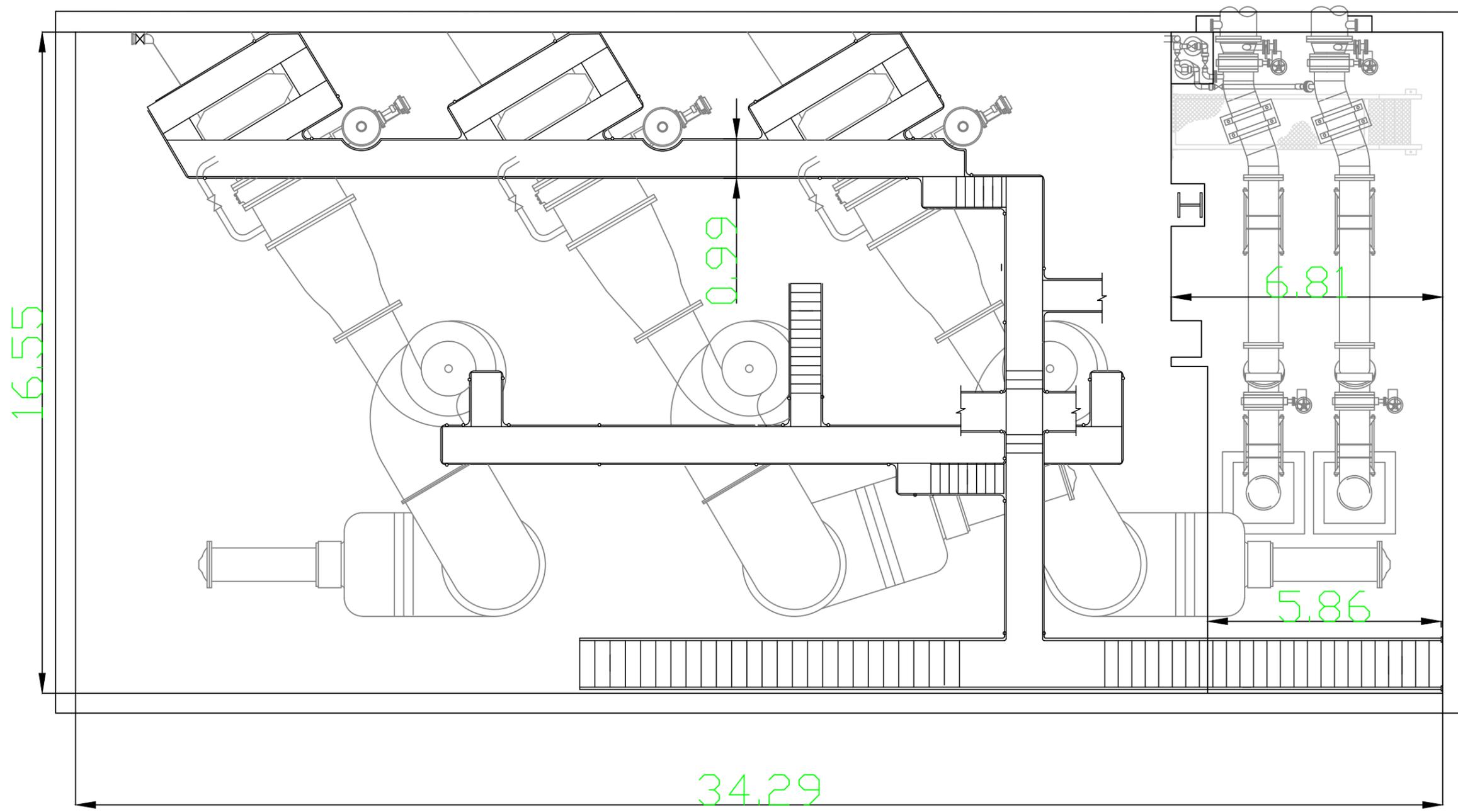
ANNEX D

Building Floor Plans



Public Works and
Government Services
Pacific Region

Travaux publics et Services
gouvernementaux Canada
Région du Pacifique



revisions	date

A	A detail no. no. du détail	A
B	B location drawing sur dessin no.	B
C	C drawing no. dessin no.	C

project / projet
**Building Lead Dust
 Remediation
 PumpHouse
 Esquimalt Graving
 Dock.**

drawing / dessin
 designed / conçu
 date

drawn / dessiné
Evan Bosdachin

date
Aug.02, 2016

approved / approuvé
 date

tender / soumission
Steve Windl

PWGSC Project Manager / Administrateur de projets TPC
 project no. / no. du projet
R.031576.244

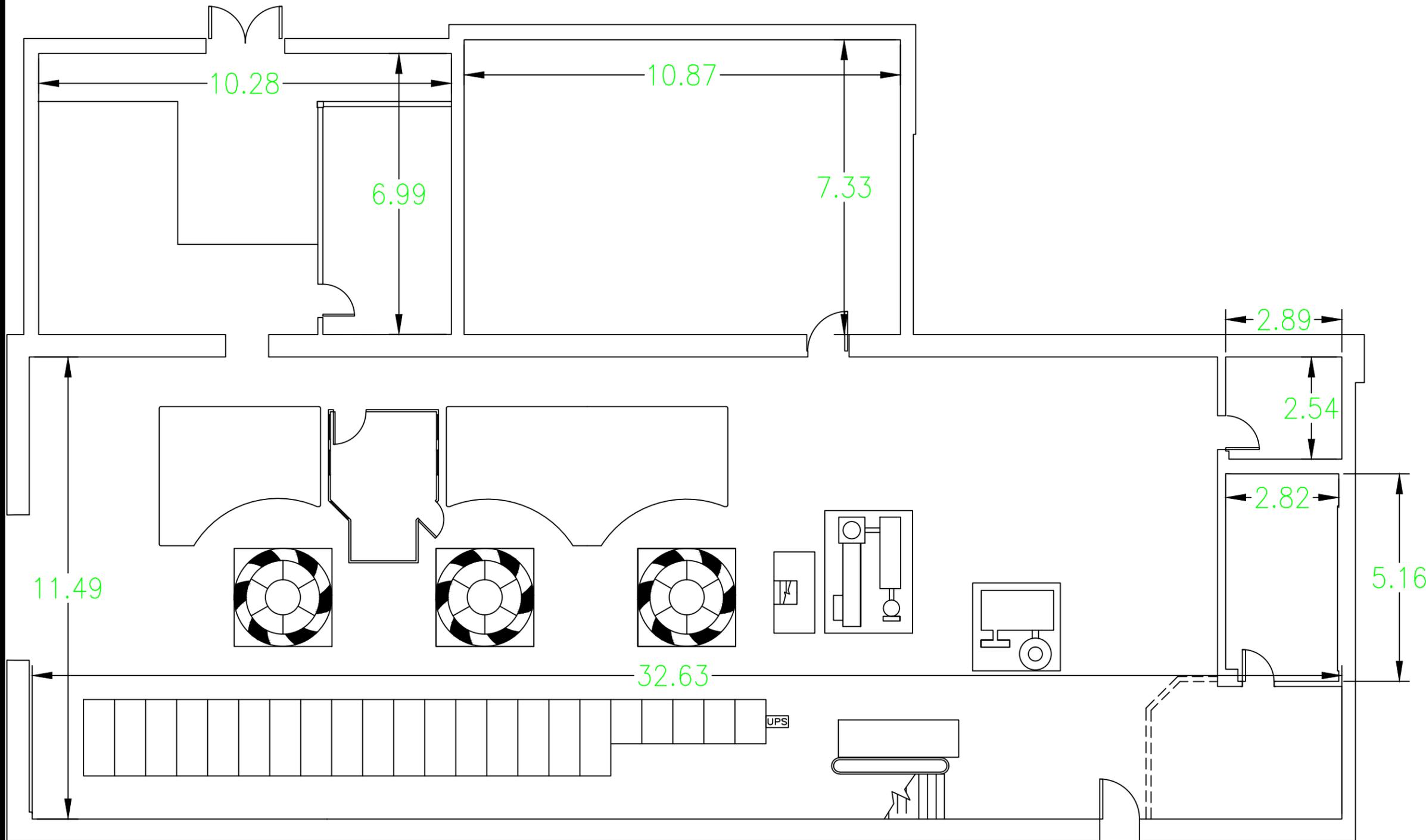
drawing no. / no. du dessin
SK_03

drawing name
PumpHouse Basement Level



Public Works and
Government Services
Pacific Region

Travaux publics et Services
gouvernementaux Canada
Région du Pacifique



revisions	date

A	A detail no. no. du détail	A
C	B location drawing sur dessin no.	B C
	C drawing no. dessin no.	

project / projet
**Building Lead Dust
 Remediation
 PumpHouse
 Esquimalt Graving
 Dock.**

drawing / dessin

designed / conçu

date

drawn **Evan Bosdachin** / dessiné

date **Aug.02, 2016**

approved / approuvé

date

tender **Steve Windl** / Soumission

PWGSC Project Manager / Administrateur de projets TPC

project no. / no. du projet

R.031576.244

drawing no. / no. du dessin

SK_02

drawing name

PumpHouse Main Floor, Machine Shop, Tool Crib



Public Works and
Government Services
Pacific Region

Travaux publics et Services
gouvernementaux Canada
Région du Pacifique

revisions		date
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A	A detail no. no. du détail	A
C	B location drawing sur dessin no.	B C
	C drawing no. dessin no.	

project / projet
Building Lead Dust
Remediation
PumpHouse
Esquimalt Graving
Dock.

drawing / dessin

designed / conçu

date

drawn Evan Bosdachin / dessiné

date Aug.02, 2016

approved / approuvé

date

tender Steve Windl / soumission

PWGSC Project Manager / Administrateur de projets TPC

project no. / no. du projet
R.031576.244

drawing no. / no. du dessin
SK_01

drawing name
PumpHouse Mezzanine Level

