
PWGSC Ontario
Region Project
Number R.057950.001

SPECIFICATION
TITLE SHEET

Section 00 00 00
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2013-03-31

Project Title GRIFFITH ISLAND LIGHTSTATION DFRP 58231
 GRIFFITH ISLAND, ONTARIO

SITE REMEDIATION - SOIL REMOVAL

Project Number R.057950.001

Project Date 2013-03-31

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PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Title and description of Work.
- 1.2 PRECEDENCE .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.
- 1.3 REFERENCES .1 APPENDIX 1: SITE FIGURES
- .2 APPENDIX 2: EXCERPT OF NAUTICAL CHART 2282: OWEN SOUND TO CABOT HEAD
- .3 APPENDIX 3: ENVIRONMENTAL ASSESSMENT SCREENING REPORT - MITIGATION MEASURES
- .4 APPENDIX 4: ENVIRONMENTAL ASSESSMENT SCREENING REPORT - ADDENDUM TO MITIGATION MEASURES
- .5 APPENDIX 5: SITE PHOTOGRAPHS
- 1.4 WORK COVERED BY CONTRACT DOCUMENTS .1 Work of this Contract comprises soil removal of non-hazardous metal contaminated soils at the Griffith Island Light Station, DFRP 58231. The Light Station is located on the east side of Griffith Island in Georgian Bay, approximately 30 kilometres northwest of Owen Sound, ON; and further identified as PWGSC Project Number R.057950.001.
- .2 Departmental Representative will direct the depth and extent of excavation. Work will include:
- .1 Collection of confirmatory samples by others, await field screening results and if results indicate contaminated soil remains, direct an additional depth or width of excavation, and wait for clean results, before commencing backfill of the excavated area. Contractor to allow for up to five (5) days for Departmental Representative to receive laboratory results.
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1.5 CONTRACT FORM .1 Construct work under "Bid and Acceptance Form -
Combined Price" contract.

1.6 WORK SCHEDULE .1 Duration of on-site activities to be between
August 1 and September 15.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

- 1.1 MINIMUM STANDARDS .1 Execute work to meet or exceed:
- .1 Rules and regulations of authorities having jurisdiction.
 - .2 Occupational Health and Safety Act and Regulations for Construction Projects, Revised Statutes of Ontario 1990, Chapter O.1 as amended, Workplace Safety and Insurance Act and municipal statutes and authorities.
 - .3 Environmental Protection Act, Revised Statutes of Ontario 1990, Chapter E19 as amended, O. Reg. 102/94, Waste Audits and Waste Reduction Work Plans, and O. Reg. 103/94, Industrial, Commercial and Institutional Source Separation Programs. O. Reg. 153/04 as amended, and O. Reg. 347/90 as amended.
 - .4 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.
 - .5 Canadian Environmental Assessment Act.
 - .6 Canadian Environmental Protection Act (New Substance Notification Regulations).
 - .7 Transportation of Dangerous Goods Act.
 - .8 Fisheries Act.
 - .9 Migratory Birds Convention Act.
 - .10 Migratory Birds Regulations.
 - .11 Transport Canada Small Commercial Vessel Regulations.
- 1.2 AUTHORITIES HAVING JURISDICTION .1 The Fire Commissioner of Canada is the sole authority having jurisdiction over this project with regards fire standards.
- 1.3 ROAD LOAD RESTRICTIONS .1 Comply with posted road load restrictions. Acquire and submit to Departmental Representative copies of all necessary permits.
- 1.4 TAXES .1 Pay applicable Federal, Provincial and Municipal taxes.
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- 1.5 FEES, PERMITS, CERTIFICATES AND LETTERS
- .1 Provide authorities having jurisdiction with information requested.
 - .2 Pay fees and obtain certificates, permits and letters required.
 - .3 Furnish certificates, permits and letters when requested.
- 1.6 EXAMINATION
- .1 Examine existing conditions and determine conditions affecting work.
 - .2 Notify Departmental Representative in writing of any discrepancies between contract documents and site conditions.
- 1.7 DOCUMENTS
- .1 Keep one copy of contract documents and the provided drawings at the site.
- 1.8 ELECTRONIC SUBMITTALS
- .1 Submit number of hard copies specified for each type and format of submittal and also submit in electronic format as pdf files. Forward pdf files on CD, USB or through email.
- 1.9 CONTRACTOR'S AS-BUILT DRAWINGS, SPECIFICATIONS AND PHOTOGRAPHS
- .1 As work progresses, neatly record significant deviations from the Contract drawings, specifications and photographs using fine, red marker on full size white prints and specifications. Make the same changes on the electronic files.
 - .2 Neatly print lettering and numbers in size to match original. Lines may be drawn free-hand but shall be neat and accurate. Add at each title block note: "AS BUILT". Also circle on List of Drawings/Photographs each title and number of drawing/photograph marked with "AS-BUILT" information. Circle on Table of Contents each specification section number and title of specification sections marked with "AS-BUILT" information.
 - .3 Departmental Representative will provide one electronic set of drawings, schedules,
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- 1.9 CONTRACTOR'S AS-BUILT DRAWINGS, SPECIFICATIONS AND PHOTOGRAPHS
(Cont'd)
- .3 (Cont'd)
specifications for as-built drawing and specification purposes.
 - .1 Drawings are in Autocad.
 - .2 Specifications are in NMSEdit Professional.
 - .3 Amendments are in MS Word.
 - .4 Record following significant deviations:
 - .1 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvement.
 - .5 Turn one set, paper copy and electronic copy, of AS-BUILT drawings, specifications and photographs over to Departmental Representative on completion of work.
 - .6 If project is completed without significant deviations from Contract drawings and specifications submit to Departmental Representative one set of drawings and specifications marked "AS-BUILT".
- 1.10 CONSTRUCTION PHOTOGRAPHS
- .1 Submit electronic and hard copy of colour digital photography in jpg format, standard resolution.
 - .2 Identification: name and number of project and date of exposure indicated.
 - .3 Number of viewpoints and location of viewpoints determined by Departmental Representative.
 - .4 Frequency: at completion of: clearing and grubbing, soil excavation, backfill and grading and as directed by Departmental Representative.
- 1.11 ADDITIONAL DRAWING/PHOTOGRAPHS
- .1 Departmental Representative may furnish additional drawings/photographs to clarify work.
 - .2 Such drawings/photographs become part of Contract Documents.
- 1.12 PROTECTION
- .1 Protect existing on-site structures from damage.
 - .2 Replace damaged existing work with material and finish to match original.
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- 1.12 PROTECTION (Cont'd) .3 Protect existing trees and plants on site and adjacent properties.
- 1.13 EXISTING SERVICES .1 Establish location, protect and maintain existing utility lines.
- .2 Provide sanitary facilities.
- .3 Provide water and electrical services at no cost.
- 1.14 SITE ACCESS .1 The site has no wharf or dock facilities, nor a helipad on the site. Direct access to the site from Georgian Bay is limited by the cobble shoreline east of the site which is relatively shallow and may limit direct access to the shore by barge. Site access arrangements to be completed by the contractor.
- .1 Refer to Appendix 2 for section excerpt of Nautical Chart 2282: Owen Sound to Cabot Head.
- .2 The contractor is responsible to make own temporary arrangements to access the site safely and in compliance with all applicable permits, codes, and regulations.
- .1 Marine equipment for transportation of personnel, waste materials and/or equipment to be registered with Transport Canada and have applicable certifications/licenses. Copies of registration and applicable certifications/licenses to be submitted to Departmental Representative prior to start of on-site work.
- 1.15 TEMPORARY FACILITIES AND SERVICES .1 Provide and maintain temporary facilities and services required to carry out work.
- .2 Remove temporary facilities and services on completion of work.
- 1.16 METRIC SIZED MATERIALS .1 SI metric units of measurement are used exclusively on the drawings and in the specifications for this project.
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- 1.17 MATERIAL AND EQUIPMENT
- .1 Use new products unless otherwise specified.
 - .2 Deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact.
 - .3 When material or equipment is specified by standard or performance specifications, upon request of Departmental Representative, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.
- 1.18 CO-ORDINATION AND CO-OPERATION
- .1 Site will not be occupied during execution of work.
 - .2 Buildings will not be occupied during execution of work.
 - .3 A private hunting club is located on the island, which operates and owns all lands on the island with the exception of the site owned by the Department of Fisheries and Oceans Canada (DFO).
 - .1 Execute work with minimum disturbance, where possible, to the private hunting club and its members.
 - .2 Contact with the hunting club by the Contractor is not permitted. Communication will be arranged through the Departmental Representative and DFO.
 - .4 Contractor shall limit use of premises for the work, for storage, and for access within the boundaries of the site. All staging areas, storage of materials and/or equipment, and remediation and site reinstatement activities shall be conducted in areas approved by the Departmental Representative.
 - .5 Contractor to provide and maintain site security.
 - .6 Coordinate use of premises under direction of the Departmental Representative.
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- 1.19 ALTERATIONS TO EXISTING SITE .1 Remove and recycle, compost, anaerobic digest, or dispose of:
.1 Building debris or domestic waste materials found in the designated work area.
- 1.20 INSPECTION AND TESTING .1 When initial tests and inspections reveal work not to contract requirements, pay for tests and inspections required by Departmental Representative on corrected work.
- 1.21 COST BREAKDOWN .1 Within 48 hours of notification of acceptance of bid furnish a cost breakdown by Section aggregating contract price.
.2 Within 48 hours of acceptance of bid submit a list of subcontractors.
- 1.22 SCHEDULING .1 On award of contract submit bar chart construction schedule for work in accordance with Section 01 32 16.
.2 Carry out work Monday to Friday from 07:00 to 17:00 hours.
- 1.23 CLEANING .1 Maintain project free of accumulated waste and rubbish.
.2 Remove hazardous and non-hazardous waste observed in the designated work area.
.3 Final cleaning:
.1 Remove temporary protection.
.2 Remove dust, dirt and foreign matter from surfaces.
.3 Rake clean other exterior surfaces.
- 1.24 CONSTRUCTION & DEMOLITION WASTE .1 Submit proof that all waste is being disposed of at a licensed land fill site or waste transfer site. A copy of the disposal/waste transfer site's license and a letter verifying that said landfill site will accept the waste must be supplied to Departmental Representative prior to removal of waste from the project site.
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- 1.25 DESIGNATED SUBSTANCES .1 The work area has been surveyed for the presence of designated substances referred to in the Occupational Health and Safety Act and Regulations for Construction Projects, O.Reg. 213/91 as amended.
.1 Lead and arsenic have been identified in soil.
- .2 If during excavation work previously unidentified designated substances are discovered, stop work and immediately notify the Departmental Representative. Do not remove any existing materials containing designated substances without approval from the Departmental Representative. Such designated substances include, but may not be limited to; Acrylonitrile, Arsenic, Asbestos, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates, Lead, Mercury, Silica, and Vinyl Chloride.
- 1.26 SPECIAL PROTECTION AND PRECAUTIONS .1 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of material safety data sheets acceptable to HRSDC - Labour Program.
- 1.27 POLLUTION CONTROL .1 Spills of deleterious substances:
.1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements.
.2 Report immediately to Ontario Spills Action Centre: 1-800-268-6060.
.3 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.
- 1.28 OPSS AND OPSD .1 OPSS Ontario Provincial Standard Specifications and OPSD Ontario Provincial Standard Drawings quoted in these specifications are available online at <http://www.raqsa.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage>.
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1.29 PROJECT
MEETINGS

- .1 Administrative:
 - .1 Schedule and administer project meetings throughout the progress of the work at the discretion of Departmental Representative. Meetings to be held either on-site or by teleconference, as directed by the Departmental Representative.
 - .2 Prepare agenda for meetings.
 - .3 Distribute written notice of each meeting 4 days in advance of meeting date to Departmental Representative.
 - .4 Provide physical space and make arrangements for meetings.
 - .5 Preside at meetings.
 - .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
 - .7 Reproduce and distribute copies of minutes within 3 days after meetings and transmit to meeting participants and, affected parties not in attendance Departmental Representative.
 - .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

- .2 Preconstruction meeting:
 - .1 Within 4 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
 - .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
 - .3 Establish time and location of meeting and notify parties concerned minimum 3 days before meeting.
 - .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
 - .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.
 - .3 Schedule of submission of shop drawings and samples. Submit submittals.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities and fences.
 - .5 Site security.
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

1.29 PROJECT
MEETINGS
(Cont'd)

- .2 Preconstruction meeting:(Cont'd)
 - .5 Agenda to include:(Cont'd)
 - .7 Owner provided products.
 - .8 Record drawings, specifications and photographs.
 - .9 Acceptance and warranties.
 - .10 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .11 Appointment of inspection and testing agencies or firms.
 - .12 Insurances, transcript of policies.
- .3 Progress meetings:
 - .1 During course of Work, schedule progress meetings as requested by Departmental Representative.
 - .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
 - .3 Notify parties minimum 4 days prior to meetings.
 - .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
 - .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .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 for affect on construction schedule and on completion date.
 - .12 Other business.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

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 Friday, inclusive, will provide 5 day work week and 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.
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- 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 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
 - .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Certificate of Substantial Performance and Certificate of Completion as defined times of completion are of essence of this contract.
- 1.3 SUBMITTALS
- .1 Provide submittals in accordance with Section 01 11 06.
 - .2 Submit to Departmental Representative within 4 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
 - .3 Submit Project Schedule to Departmental Representative within 4 working days of receipt of acceptance of Master Plan.
- 1.4 PROJECT MILESTONES
- .1 Project milestones form interim targets for Project Schedule.
 - .1 On-site activities to commence August 1.
 - .2 On-site activities to be completed September 13.
 - .3 Certificate of Substantial Performance within 5 working days of completion of on-site activities.
- 1.5 MASTER PLAN
- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
 - .2 Departmental Representative will review and return revised schedules within 4 working days.
 - .3 Revise impractical schedule and resubmit within 2 working days.
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- 1.5 MASTER PLAN (Cont'd) .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.
- 1.6 PROJECT SCHEDULE .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
- .1 Award.
 - .2 Samples.
 - .3 Permits.
 - .4 Mobilization.
 - .5 Clearing and Grubbing.
 - .6 Excavation.
 - .7 Confirmatory Testing.
 - .8 Backfill and grading.
 - .9 Landscaping and seeding.
 - .10 Demobilization.
 - .11 Anticipated weather delays.
- 1.7 PROJECT SCHEDULE REPORTING .1 Update Project Schedule on a weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- 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.
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PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

- 1.1 REFERENCES .1 Province of Ontario:
- .1 Occupational Health and Safety Act Revised Statutes of Ontario 1990, Chapter O.1 as amended, and Regulations for Construction Projects, O. Reg. 213/91 as amended.
 - .2 Workplace Safety and Insurance Act, 1997.
 - .3 Municipal statutes and authorities.
- 1.2 SUBMITTALS .1 Make submittals in accordance with Section 01 11 06.
- .2 Submit site-specific Health and Safety Plan: Within 5 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operations.
 - .3 Contractor's and Sub-contractors' Safety Communication Plan.
 - .4 Contingency and Emergency Response Plan addressing standard operating procedures specific to the project site to be implemented during emergency situations. Coordinate plan with existing Tenant's Emergency Response requirements and procedures provided by Departmental Representative.
 - .3 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 2 days after receipt of comments from Departmental Representative.
 - .4 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
 - .5 Submit names of personnel and alternates responsible for site safety and health.
 - .6 Submit records of Contractor's Health and Safety meetings when requested.
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- 1.2 SUBMITTALS (Cont'd)
- .7 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, weekly.
 - .8 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.
 - .9 Submit copies of incident and accident reports.
 - .10 Submit Material Safety Data Sheets (MSDS).
 - .11 Submit Workplace Safety and Insurance Board (WSIB)- Experience Rating Report.
- 1.3 FILING OF NOTICE
- .1 File Notice of Project with Provincial authorities prior to commencement of Work.
- 1.4 WORK PERMIT
- .1 Obtain permits related to project prior to commencement of Work.
- 1.5 SAFETY ASSESSMENT
- .1 Perform site specific safety hazard assessment related to project.
- 1.6 MEETINGS
- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.
- 1.7 REGULATORY REQUIREMENTS
- .1 Comply with the Acts and regulations of the Province of Ontario.
 - .2 Comply with specified standards and regulations to ensure safe operations at site.
- 1.8 PROJECT/SITE CONDITIONS
- .1 Work at site will involve contact with:
 - .1 Lead in soils, vegetation in designated work area and lead acid batteries left on site.
 - .2 Arsenic, barium, copper, naphthalene, selenium and zinc in soil.
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1.8 PROJECT/SITE CONDITIONS (Cont'd)

- .2 Work site may involve contact with:
 - .1 Noxious weeds and vegetation (poison ivy).
- .3 Remote location with no direct access to emergency responders.

1.9 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns either accepting or requesting improvements.
- .3 Relief from or substitution for any portion or provision of minimum Health and Safety standards specified herein or reviewed site-specific Health and Safety Plan shall be submitted to Departmental Representative in writing.

1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990 Chapter 0.1, as amended.

1.11 RESPONSIBILITY

- .1 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.
 - .2 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.
 - .3 Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act for the Province of Ontario.
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- 1.12 UNFORSEEN HAZARDS
- .1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, immediately stop work and advise Departmental Representative verbally and in writing.
 - .2 Follow procedures in place for Employees Right to Refuse Work as specified in the Occupational Health and Safety Act for the Province of Ontario.
- 1.13 HEALTH AND SAFETY CO-ORDINATOR
- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities associated with excavation and handling of metal contaminated soils.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.
- 1.14 POSTING OF DOCUMENTS
- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of Ontario, and in consultation with Departmental Representative.
 - .1 Contractor's Safety Policy.
 - .2 Constructor's Name.
 - .3 Notice of Project.
 - .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable).
 - .5 Ministry of Labour Orders and reports.
 - .6 Occupational Health and Safety Act and Regulations for Construction Projects for Province of Ontario.
 - .7 Address and phone number of nearest Ministry of Labour office.
 - .8 Material Safety Data Sheets.
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- 1.14 POSTING OF DOCUMENTS (Cont'd)
- .1 (Cont'd)
 - .9 Written emergency Response Plan.
 - .10 Site Specific Safety Plan.
 - .11 Valid certificate of first aider on duty.
 - .12 WSIB "In Case of Injury At Work" poster.
 - .13 Location of toilet and cleanup facilities.
- 1.15 CORRECTION OF NON-COMPLIANCE
- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
 - .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
 - .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.
- 1.16 BLASTING
- .1 Blasting or other use of explosives is not permitted.
- 1.17 WORK STOPPAGE
- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.
 - .2 Assign responsibility and obligation to Health and Safety Coordinator to stop or start Work when, at Health and Safety Coordinator's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations.
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PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

PART 1 - GENERAL

- 1.1 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.
 - .3 Green Remediation: the application of technologies and approaches that enhance a cleanup project's environmental, social, and economic footprints, as defined by the California Department of Toxic Substances Control.
- 1.2 SUBMITTALS
- .1 Submittals: in accordance with Section 01 11 06.
 - .2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
 - .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
 - .4 Environmental protection plan: include:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
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1.2 SUBMITTALS
(Cont'd)

- .4 Environmental protection plan:(Cont'd)
- .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
 - .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
 - .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
 - .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris and soil. Plan to include names, addresses, and Certificate of Approval for landfill.
 - .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
 - .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
 - .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, clean-up water, dewatering of ground water,

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- 1.2 SUBMITTALS (Cont'd)
- .4 Environmental protection plan:(Cont'd)
- .13 (Cont'd)
disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .15 Pesticide Treatment Plan: to be included and updated as required.
- .16 Green Remediation Plan: to the extent practicable, explore and implement green remediation strategies and applications in the performance of the requirements of this work assignment to maximize sustainability, including Energy, Water, Air & Atmosphere, Materials & Waste, and Land & Ecosystems:
- .1 Energy management strategies to increase energy efficiency and use of renewable energy.
- .2 Water management strategies to reduce water consumption, reuse treated water, and use efficient techniques to manage and protect surface water and groundwater.
- .3 Air emission strategies to decrease emissions of harmful air pollutants from treatment processes, operation of heavy machinery, and transportation of vehicles.
- .4 Solid and liquid waste management strategies to reduce Contractor and Project materials consumption and waste generation.
- .5 Land and ecosystems management strategies to protect ecosystems during site cleanup.
-
- 1.3 FIRES
- .1 Fires and burning of rubbish on site not permitted.
-
- 1.4 DISPOSAL OF WASTES
- .1 Do not bury rubbish and waste materials on site unless approved by Departmental Representative.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, ditches or ground surface.
- .3 Do not discharge wastes into streams or water ways.
- .4 Separate and dispose of accumulated waste materials off-site in accordance with R.R.O.
-

1.4 DISPOSAL OF
WASTES
(Cont'd)

- .4 (Cont'd)
1990, Reg. 347 General Waste Management, to MOE approved disposal facilities or approved transfer stations, including, but no limited to, the following:
- .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during work.
 - .4 Wastewater removed from wastewater storage tank.
 - .5 Wastewater generated from final equipment decontamination operations including wastewater storage tank cleaning.
- .5 Appropriate procedures shall be implemented for handling, temporary storage, transport and disposal of impacted soils during all phases of the project. Refer to Land Disposal Restrictions in O.Reg. 347 - General Waste Disposal under Ontario EPA and MOE Fact Sheet "Summary of Land Disposal Restrictions, Treatment and Notification Requirements for Waste Generators". Off-site disposal will be by licensed haulers to a MOE-approved disposal facility.
- .6 Disposal/recycling of other waste generated during the project shall be done in compliance with Ontario Waste Regulations and the facilities used will be approved by the Departmental Representative.

1.5 VEHICULAR
ACCESS AND PARKING

- .1 Maintenance and Use:
- .1 Prevent contamination of access roads. Immediately scrape up debris or material on access roads which is suspected to be contaminated as determined by Departmental Representative; transport and place into designated area approved by Departmental Representative. Clean access roads at least once per shift.
 - .2 Departmental Representative may collect soil samples for chemical analyses from traveling surfaces of constructed and existing access routes prior to, during, and upon completion of Work. Excavate and dispose of clean soil contaminated by Contractor's activities at no additional cost to Departmental Representative.
 - .3 Vehicles/equipment shall be in good working order and not be leaking any fuel or fluids.

1.5 VEHICULAR
ACCESS AND PARKING
(Cont'd)

- .2 During construction designated fuelling area(s) will be established.
- .3 Refuelling of vehicles and equipment shall not be conducted near watercourses or water bodies.

1.6 EQUIPMENT
DECONTAMINATION

- .1 Decontaminate equipment after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.
- .2 At minimum, perform following steps during equipment decontamination: mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water to reduce amount of water needed and to reduce amount of contaminated rinsate generated. Pay particular attention to tire treads, equipment tracks, springs, joints, sprockets, and undercarriages.
- .3 Each piece of equipment will be inspected by Departmental Representative after decontamination and prior to removal from site and/or travel on clean areas. Departmental Representative will have right to require additional decontamination to be completed if deemed necessary.

1.7 DRAINAGE

- .1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan: include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and segmentation control plan.
 - .3 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .4 Do not allow water containing suspended materials to enter waterways or drainage systems.
 - .5 Do not pump water containing suspended materials into waterways.
-

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- 1.7 DRAINAGE
(Cont'd)
- .6 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .7 Do not direct water flow in a manner which would cause erosion to existing areas.
- 1.8 SURFACE WATER
AND GROUNDWATER
QUALITY
- .1 Materials and equipment shall be operated and stored in a manner that prevents deleterious substances (e.g., petroleum products, silt, etc.) as defined by the Fisheries Act from entering surface water.
- 1.9 SITE CLEARING
AND PLANT
PROTECTION
- .1 Protect trees and plants on site and adjacent properties where indicated.
- .2 Vegetation and juvenile trees will be removed from within the area of contamination as directed by the Departmental Representative.
- .3 Trees with a trunk diameter greater than 100 mm falling within the area of contamination shall:
- .1 Be excavated to the dripline by hand, with minimal damage to the tree.
 - .2 Be protected by wrapping in burlap and a protective wooden barrier erected around the tree.
- .4 Cut vegetation and juvenile tree material shall be disposed off-site at a licensed landfill.
- .5 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .6 Minimize stripping of topsoil and vegetation.
- .7 Restrict tree removal to areas indicated or designated by Departmental Representative.
- 1.10 VEGETATION
- .1 Protect vegetation that does not have to be removed by fencing and by delineating construction working and storage areas.
- .2 Operate construction machinery in a manner that minimizes damage to adjacent vegetation.
-

- 1.11 WORK ADJACENT TO/IN WATERWAYS
- .1 Do not operate construction equipment in waterways.
 - .2 Do not use waterway beds for borrow material without Departmental Representative's approval.
 - .3 Do not dump excavated fill, waste material or debris in waterways.
 - .4 Design and construct temporary crossings to minimize erosion to waterways.
 - .5 Do not skid logs or construction materials across waterways.
 - .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.
 - .7 Do not blast under water or within 100 m of indicated spawning beds.
 - .8 Place silt fence at the bottom of the bank.
 - .9 Place a second row of silt-fencing half-way between the shore and the bank in areas of potential runoff.
 - .10 Special care shall be exercised while working near water's edge including site-specific erosion and sediment control measures. Silt fences shall be used to minimize sediment transport as well as limit access to watercourses by site personnel.
 - .11 Do not operate vehicles in waterway.
- 1.12 POLLUTION CONTROL
- .1 Maintain temporary erosion and pollution control features installed under this contract.
 - .2 Vehicles and equipment must be maintained in good working condition, equipped with emission controls as applicable to local authorities' emission requirements.
 - .3 Control emissions from equipment and plant to local authorities' emission requirements.
 - .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control and mud tracking for temporary roads or access routes.
-

1.12 POLLUTION
CONTROL
(Cont'd)

- .5 Install silt curtain around barge or contaminated soil transportation equipment to prevent spreading and cleanup any spillage.
- .6 Minimize any temporary storage of contaminated soil or debris at the off-loading location.
- .7 Ensure hazardous substances (including fuel) are stored, handled and applied in a manner to prevent release to the environment and in a legal manner in accordance with hazardous waste regulations.
- .8 Secure all materials at non-productive times (night and shut-down).
- .9 Collect any stockpile runoff and analyze its quality to determine appropriate disposal options.
- .10 Clean up and inspect loading and off-loading site to ensure no impacted soil or debris remains on-site which could contaminate surroundings.
- .11 Vehicles shall be shut off when not in use. No vehicle idling on-site.
- .12 Store hazardous or toxic substances in a designated area. Designated area to consist of tarp underlying storage containers and tarp overtop of storage containers, to prevent cross contamination of adjacent areas.
- .13 Comply with requirements of WHMIS regarding use, handling, storage and disposal of hazardous materials; and regarding labelling and provision of MSDS acceptable to Labour Canada. list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.

1.13 SPILLS OR
RELEASE OF
DELETERIOUS
SUBSTANCES

- .1 Immediately contain, limit spread and clean up in accordance with provincial regulatory requirements.
- .2 All workers shall be fully aware of the spill prevention and response procedures including notification of Departmental Representative.
- .3 The Ontario Ministry of Environment Spills Action Centre must be notified immediately by law at 1-800-268-6060.

1.13 SPILLS OR
RELEASE OF
DELETERIOUS
SUBSTANCES
(Cont'd)

- .4 The Departmental Representative shall be immediately informed of all spills that occur onsite.
- .5 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.
- .6 Spill kits will be kept on-site during all project phases.
- .7 Contractor shall take due care to ensure no deleterious materials including sediment-laden runoff leave the worksite, or enter any: surface water, storm water ditches, or sanitary sewers at or near the worksite.
- .8 Equipment fuelling or lubricating shall occur in a designated area with proper controls to prevent the release of deleterious substances, and shall be conducted away from any surface water drains or collection points.
- .9 In accordance with the Fisheries Act, approval must be obtained from DFO for use of any paints, corrosion protective coatings, wood preservatives or any other hazardous material that will be applied to surfaces that will have contact with the marine environment.
- .10 Any equipment remaining on site overnight shall have appropriately placed drip pans.
- .11 The rinse, cleaning water or solvents for glues, wood preservatives and other potentially harmful or toxic substances should be controlled so as to prevent leakage, loss or discharge into the storm drain system or into the marine environment.
- .12 Protect the roadways from tracking of mud, soil, and debris throughout the work.
- .13 Prevent discharges containing waste materials from reaching storm drains or the marine environment. This includes, but is not limited to:
 - .1 Application of fog seals, tack coats or other coatings, if required, during periods when rainfall is unlikely to occur during application.
 - .2 Cleaning equipment off site.

- 1.13 SPILLS OR .13 (Cont'd)
RELEASE OF .3 Protection of drainage structures with
DELETERIOUS filter fences if required.
SUBSTANCES
(Cont'd)
- 1.14 NOISE CONTROL .1 All construction equipment shall be operated
with exhaust systems in good repair to minimize
noise.
.2 Construction activities that could create
excessive noise shall be restricted to daylight
hours and adhere to the municipal noise by-law.
.3 If work is to be undertaken outside the
specified period in the local noise by-law, then
approval for an exemption to the by-law shall be
obtained by the Contractor from the
municipality.
.4 Ensure that noise control devices (i.e.
mufflers, silencers) on construction equipment
are properly maintained.
- 1.15 HISTORICAL/ .1 Provide historical, archaeological, cultural
ARCHAEOLOGICAL resources biological resources and wetlands plan
CONTROL that defines procedures for identifying and
protecting historical, archaeological, cultural
resources, biological resources and wetlands
known to be on project site: and/or identifies
procedures to be followed if historical
archaeological, cultural resources, biological
resources and wetlands not previously known to
be onsite or in area are discovered during
construction.
.2 Plan: include methods to assure protection of
known or discovered resources and identify lines
of communication between Contractor personnel
and Departmental Representative.
- 1.16 NOTIFICATION .1 Departmental Representative will notify
Contractor in writing of observed noncompliance
with Federal, Provincial or Municipal
environmental laws or regulations, permits, and
-

- 1.16 NOTIFICATION (Cont'd)
- .1 (Cont'd) other elements of Contractor's Environmental Protection plan.
 - .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .3 Departmental Representative 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.
- 1.17 SPECIES AT RISK
- .1 Should a species or its critical habitat be encountered, measures are to be implemented to avoid destruction, injury or interference with the species, its residence and/or its habitat (e.g., through siting, timing or design changes). If the foregoing cannot be avoided Contractor should cease work and contact Departmental Representative for advice regarding mitigation measures.
 - .2 In the event that it is determined that the project likely may have unexpected adverse effects on species at risk (SAR), the Contractor shall notify the Department Representative immediately.
 - .3 Reptiles and amphibians:
 - .1 Eastern Massassauga Rattle Snake may be present on site.
 - .2 Eastern Milksnake is present on site.
 - .4 Refer to the Environmental Screening Report (Appendix 2) and Addendum (Appendix 3) for species at risk information and related mitigation measures.
- 1.18 MIGRATORY BIRDS/WILDLIFE HABITAT
- .1 Disturbance and destruction of habitat should be timed outside of breeding season of mid-April to end of July.
 - .2 Ensure all works are in compliance with the Migratory Birds Convention Act.
-

- 1.18 MIGRATORY BIRDS/WILDLIFE HABITAT
(Cont'd)
- .3 Restrict vehicle movements to construction areas and access roads and avoid harassment of animals.
- 1.19 FISH/ FISH HABITAT
- .1 All materials and equipment used will be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum products, silt, etc.) as defined by the Fisheries Act from entering the surface water.
- 1.20 GREEN REMEDIATION
- .1 Energy
- .1 Select suitably sized power machinery and equipment that operate using clean alternative fuels, are energy efficient or hybrid, and maintain equipment at peak performance to maximize efficiency.
- .2 Coordinate outside services and service providers to minimize transport of equipment.
- .3 Employ auxiliary power units to power cab heating and air conditioning when a machine is unengaged.
- .4 Use treatment systems with optimum efficiency.
- .5 Control nuisance odours associated with diesel emissions from construction equipment.
- .6 Maintain engines to meet original standards and operators are trained to run equipment efficiently.
- .2 Water
- .1 Minimize fresh water and potable water consumption and maximize use of non-potable water and water reuse during daily operations and treatment processes.
- .2 Use native vegetation requiring little or no irrigation.
- .3 Reclaim treated water for beneficial use such as irrigation.
- .4 Prevent nutrient loading in nearby water bodies.
- .5 Minimize runoff using open-space preservation methods.
- .6 Utilize biodegradable tarps and mats to contain dust rather than spraying with water.
- .3 Air Emissions
- .1 Reduce atmospheric release of toxic or priority pollutants and minimize dust export of contaminants.
-

1.20 GREEN
REMEDICATION
(Cont'd)

- .3 (Cont'd)
 - .2 Consolidate onsite and offsite vehicular trips to reduce fuel consumption.
 - .3 Cover excavated areas with biodegradable fabric or with synthetic material that can be reused for other purposes.
 - .4 Secure and cover loose, excavated material in open trucks.
 - .5 Revegetate excavated areas as quickly as possible.
 - .6 Limit onsite vehicle speeds to 10 miles per hour.
 - .7 Maintain engines of vehicles and machinery in accordance with manufacturer recommendations.

 - .4 Waste
 - .1 Minimize waste generation and re-use materials whenever possible.
 - .2 Minimize natural resource extraction and disposal.
 - .3 Segregate materials such as metals, concrete, and lumber for reuse or recycling.
 - .4 Select the closest licensed waste receiver.
 - .5 Use products with recycled and bio-based content and recycling potential.
 - .6 Salvage uncontaminated objects with potential recycle, resale, donation, or onsite infrastructure value such as steel, concrete, and storage containers.

 - .5 Land and Ecosystems
 - .1 Establish efficient traffic patterns to minimize soil compaction in work areas.
 - .2 Ensure all equipment is clean prior to arrival on site to minimize potential of transporting invasive species.
 - .3 Minimize soil and habitat disturbance and reduce noise and lighting disturbance.
 - .4 Seed the landfill cover with native seed to foster rapid plant growth.
 - .5 Plant native vegetation.
 - .6 Provide uncompacted soil that is conducive to plant growth.
 - .7 At the end of the project work, thoroughly clean the project area of debris, dirt, and trash using non-phosphate, plant-based, and biodegradable cleaners and detergents.
 - .8 Utilize environmentally friendly landscaping solutions to minimize environmental impacts at the site.
 - .9 Use environmentally friendly lubricants for engine maintenance.
 - .10 Place decontamination station away from environmentally sensitive areas.
-

1.20 GREEN .5 (Cont'd)
REMEDICATION .11 Use secondary containment to avoid
(Cont'd) cross-contamination.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

<u>1.1 ABBREVIATIONS AND ACRONYMS</u>	.1	The abbreviations and acronyms are commonly found in the Project Manual and represent the associated organizations or terms.
<u>1.2 MATERIALS, EQUIPMENT AND METHODS</u>	.1	A: .1 AL: aluminum. .2 AB: anchor bolt.
	.2	B: .1 B: base. .2 BEAST: benthic assessment of sediment. .3 BH: bore hole. .4 BL: bottom layer. .5 BLK: block. .6 BOT: bottom. .7 BMP: best management practice. .8 B PL: base plate. .9 BRG: bearing. .10 BSMT: basement. .11 BTEX: benzene, toluene, ethylbenzene, and xylenes.
	.3	C: .1 CB: catch basin. .2 CC: centre to centre. .3 CCN: contemplated change notice. .4 CDF: controlled density fill. .5 CEC: Canadian electrical code. .6 CHS: Canadian hydrographic service. .7 CL: centreline.. .8 CLR: clear. .9 COL: column. .10 CONC: concrete. .11 CONC BLK: concrete block. .12 CONT: continuous. .13 COMPL: complete. .14 CPM: critical path method. .15 C/W: complete with.
	.4	D: .1 D: deep. .2 DEG: degree. .3 DIA: diameter. .4 DIM: dimension. .5 DL: dead load.
	.5	E: .1 EA: each. .2 ECF: engineered containment facility.

1.2 MATERIALS,
EQUIPMENT AND
METHODS
(Cont'd)

- .5 E:(Cont'd)
 - .3 EE: each end.
 - .4 EF: each face.
 - .5 EL: elevation.
 - .6 ELEC: electric.
 - .7 ENCL: enclosure.
 - .8 EQ: equal.
 - .9 EXIST: existing.
 - .10 EW: each way.

 - .6 F:
 - .1 FC: fuel contributed.
 - .2 FDN: foundation.
 - .3 FEXT: fire extinguisher.
 - .4 FIN: finish.
 - .5 FIP: federal identity program.
 - .6 FLD: field.
 - .7 FRR: fire resistance rating.
 - .8 FTG: footing.

 - .7 G:
 - .1 GALV: galvanized steel.
 - .2 GC: General Conditions.

 - .8 H:
 - .1 HOR: horizontal.
 - .2 HOR EF: horizontal each face.
 - .3 HP: hydro pole.
 - .4 HPA: Hamilton Port Authority.
 - .5 HT: height.
 - .6 HYD: hydrant.

 - .9 I:
 - .1 ID: inside diameter.

 - .10 J:
 - .1 JT: joint.

 - .11 L:
 - .1 LG: long.
 - .2 LL: live load.

 - .12 M:
 - .1 MAS: masonry.
 - .2 MAX: maximum.
 - .3 MET: metal.
 - .4 MH: maintenance hole.
 - .5 MIN: minimum.

 - .13 N:
 - .1 NBC: national building code.
 - .2 NF: near face.
 - .3 NFC: national fire code.
 - .4 NIC: not in contract.
 - .5 NTS: not to scale.
-

1.2 MATERIALS,
EQUIPMENT AND
METHODS
(Cont'd)

- .14 O:
.1 OBC: Ontario building code.
.2 OC: on centre.
.3 OD: outside diameter.
.4 OPNG: opening.
- .15 P:
.1 PAH: polynuclear aromatic hydrocarbons.
.2 PCC: precast concrete.
.3 PL: plate.
.4 PLYWD: plywood.
.5 PR: pair.
.6 PREFAB: prefabricated.
.7 PRFL: profile.
.8 PT: paint.
.9 PVC: polyvinyl chloride.
- .16 R:
.1 R: radius.
.2 RC: reinforced concrete.
.3 REINF: reinforced/reinforcing.
.4 REQD: required.
.5 REQT: requirement.
.6 RO: rough opening.
.7 RWL: rain water leader.
- .17 S:
.1 SAN SEW: sanitary sewer.
.2 SCHED: schedule.
.3 SD: smoke developed.
.4 SECT: section.
.5 SPEC: specification.
.6 SS: stainless steel.
.7 STD: standard.
.8 STL: steel.
.9 STC: sound transmission class.
.10 STL PL: steel plate.
.11 STN: stone.
.12 STR: structure or structural.
.13 ST SEW: storm sewer.
- .18 T:
.1 T: top.
.2 T&B: top and bottom.
.3 TCB: turbidity control plan.
.4 TEL: telephone.
.5 THKNS: thickness.
.6 TRANSV: transverse.
.7 TYP: typical.
- .19 U:
.1 UGRD: underground.
.2 UOS: unless otherwise specified.
.3 U/S: underside.
-

1.2 MATERIALS,
EQUIPMENT AND
METHODS
(Cont'd)

- .20 V:
.1 VERT: vertical.
.2 VERT EF: vertical each face.
- .21 W:
.1 WD: wood.
.2 WHMIS: workplace hazardous materials
information system.
.3 WSIB: workplace safety and insurance
board.
.4 WT: weight.
.5 WTP: water treatment plant.

1.3 STANDARDS
ORGANIZATIONS

- .1 Standards writing organizations:
.1 AA - Aluminum Association.
.2 ACPA - American Concrete Pipe Association.
.3 ANSI - American National Standards
Institute.
.4 ASHRAE - American Society of Heating and
Refrigerating and Air-Conditioning Engineers.
.5 ASTM - American Society for Testing and
Materials.
.6 AWPA - American Wood Preservers'
Association.
.7 AWWA - American Water Works Association.
.8 CCDC - Canadian Construction Documents
Committee.
.9 CCMPA - Canadian Concrete Masonry
Producers Association.
.10 CGSB - Canadian General Standards Board.
.11 CNTA - Canadian Nursery Trades
Association.
.12 CPCA - Canadian Painting Contractors
Association.
.13 CSA - Canadian Standards Association.
.14 CSC - Construction Specifications Canada.
.15 CSI - Construction Specifications
Institute.
.16 CSSBI - Canadian Sheet Steel Building
Institute.
.17 EEMAC - Electrical and Electronic
Manufacturer's Association of Canada.
.18 ESA - Electrical Safety Authority.
.19 FCC - Fire Commissioner of Canada.
.20 FSC - Forest Stewardship Council.
.21 IEEE - Institute of Electrical and
Electronics Engineers Inc.
.22 ISO - International Organization for
Standardization.
.23 LEED - LEED Canada, Leadership in Energy
and Environmental Design.
.24 MPI - Master Painters Insitute.

- 1.3 STANDARDS ORGANIZATIONS (Cont'd)
- .1 (Cont'd)
 - .25 NAAMM - National Association of Architectural Metal Manufacturers.
 - .26 NCPI - National Clay Pipe Institute.
 - .27 NEMA - National Electrical Manufacturers Association.
 - .28 NFPA - National Fire Protection Association.
 - .29 OPSD - Ontario Provincial Standard Drawings.
 - .30 OPSS - Ontario Provincial Standard Specifications.
 - .31 PPI - Plasctics Pipe Institute.
 - .32 SCAQMD - South Coast Air Quality Management District.
 - .33 TIA - Telecommunications Industry Association.
 - .34 UL - Underwriters Laboratories.
 - .35 ULC - Underwriters Laboratories of Canada.
 - .36 US EPA - United States Environmental Protection Agency.
 - .37 WH - Warnock Hersey.
- 1.4 FEDERAL GOVERNMENT DEPARTMENTS AND AGENGIES
- .1 Departments, agencies and crown corporations.
 - .1 CEAA - Canadian Environmental Assessment Agency.
 - .2 CSC - Correctional Service Canada.
 - .3 CRA - Canada Revenue Agency.
 - .4 DND - Department of National Defence.
 - .5 EC - Environment Canada.
 - .6 FHBRO - Federal Heritage Buildings Review Office.
 - .7 HCD - Heritage Conservation Directorate.
 - .8 LC - Labour Canada.
 - .9 PC - Parks Canada.
 - .10 PWGSC - Public Works and Government Services Canada.
 - .11 RCMP - Royal Canadian Mounted Police.
 - .12 TBS - Treasury Board Secretariat.
 - .13 TC - Transport Canada.
- 1.5 PROVINCIAL GOVERNMENT DEPARTMENTS AND AGENGIES
- .1 MOEE - Ontario Ministry of Environment and Energy.
 - .2 MOL - Ontario Ministry of Labour.
 - .3 MTO and MOT - Ontario Ministry of Transportation.
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- 1.6 INTERNATIONAL GOVERNMENT DEPARTMENTS AND AGENCIES .1 DOHMH - New York City Department of Health and Mental Hygiene, USA.
- .2 GSA - Government Services Administration, USA.
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- 1.7 UNITS OF MEASURE METRIC .1 The following abbreviations of units of measure are commonly found in the Project Manual:
- .1 C: Celsius.
 - .2 cm: centimetre.
 - .3 kg: kilogram.
 - .4 kg/m³: kilogram per cubic metre.
 - .5 kN: kilonewton.
 - .6 kPa: kilopascals.
 - .7 kw: kilowatts.
 - .8 l/s: litre per second.
 - .9 m: metre.
 - .10 m³: cubic metre.
 - .11 mg/kg: milligrams per kilogram.
 - .12 mg/L: milligrams per litre.
 - .13 mm: millimetres.
 - .14 MPa: megapascal.
 - .15 NTU: nephelometric turbidity unit.
 - .16 ppm: parts per million.
 - .17 ug/L: micrograms per litre.
 - .18 ug/m³: micrograms per cubic metre.
-
- 1.8 UNITS OF MEASURE IMPERIAL .1 The following abbreviations of units of measure are commonly found in the Project Manual:
- .1 F: Fahrenheit.
 - .2 ft: foot/feet.
 - .3 ga: gauge.
 - .4 gpm: gallons per minute.
 - .5 in: inches.
 - .6 lbs: pounds.
 - .7 NTU: nephelometric turbidity unit.
 - .8 psi: pounds-force per square inch.
 - .9 ppm: parts per million.
-

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

<u>1.1 SECTION INCLUDES</u>	.1	Barriers.
	.2	Environmental Controls.
	.3	Traffic Controls.
	.4	Fire Routes.
<u>1.2 REFERENCES</u>	.1	Canadian Standards Association (CSA):
	.1	CAN/CSA-0121-08, Douglas Fir Plywood.
<u>1.3 MEASUREMENT PROCEDURES</u>	.1	Supply and installation of temporary barriers, including silt fence for environmental protection and temporary fencing for site security; maintenance during work, and removal of temporary barriers after all work is completed will be measured as lump sum.
<u>1.4 INSTALLATION AND REMOVAL</u>	.1	Provide temporary controls in order to execute Work expeditiously.
	.2	Remove from site all such work after use.
<u>1.5 TEMPORARY SITE FENCING</u>	.1	Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.
	.2	Remove from site all such work after use.
<u>1.6 EROSION AND SEDIMENT CONTROL</u>	.1	Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas. Prevent erosion and sedimentation.
	.2	Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical. Strip vegetation, regrade, or otherwise develop to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage

1.6 EROSION AND
SEDIMENT CONTROL
(Cont'd)

- .2 (Cont'd)
systems, and water courses, and repair damage caused by soil erosion and sedimentation as directed by Departmental Representative.
- .3 Provide and maintain temporary measures which may include, silt fences, hay or straw bales, geotextiles and other construction required to prevent erosion and migration of silt, mud, sediment, and other debris off site or to other areas of site where damage might result, or that might otherwise be required by Laws and Regulations. Make sediment control measures available during construction.
- .4 Silt Fence: assembled, ready to install unit consisting of geotextile attached to driveable posts. Geotextile: uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and contain sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor exposure.
- .5 Net Backing: industrial polypropylene mesh joined to geotextile at both top and bottom with double stitching of heavy-duty cord, with minimum width of 750 mm.
- .6 Posts: sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum 450 mm embedment; post spacing 2.4 m maximum. Securely fasten each post to geotextile and net backing using suitable staples.
- .7 Plan construction procedures to avoid damage to work or equipment encroachment onto water bodies or drainage ditch banks. In event of damage, promptly take action to mitigate effects. Restore affected bank or water body to existing condition.
- .8 Installation:
.1 Construct temporary erosion control items as indicated. Actual alignment and/or location of various items as directed by Departmental Representative.
.2 Do not construct bale barriers and silt fence in flowing streams or in swales.
.3 Check erosion and sediment control measures weekly after each rainfall; during prolonged rainfall check daily.
.4 Silt fence may be removed at beginning of work day, replace at end of work day.
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1.6 EROSION AND
SEDIMENT CONTROL
(Cont'd)

- .8 Installation:(Cont'd)
- .5 Whenever sedimentation is caused by stripping vegetation, regrading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
- .6 Prior to or during construction, Departmental Representative may require installation or construction of improvements to prevent or correct temporary conditions on site. Improvements may include berms, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads, and other measures appropriate to specific condition. Temporary improvements must remain in place and in operation as necessary or until otherwise directed by Departmental Representative.
- .7 Repair damaged bales, end runs, and undercutting beneath bales.
- .8 Unless otherwise directed by Departmental Representative, remove temporary erosion and sediment control devices upon completion of Work.
- .9 Test accumulated sediment to ensure that it meets applicable CCME criteria.
- .10 Spread accumulated sediments to form a suitable surface for seeding or dispose of and shape area to permit natural drainage to the satisfaction of Departmental Representative. Materials once removed become property of Contractor.
- .9 Do not disturb existing embankments or embankment protection.
- .10 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- .11 If soil and debris from site accumulate in low areas, roadways, ditches, or other areas where in Departmental Representative's determination it is undesirable, remove accumulation and restore area to original condition.

1.7 GUARD RAILS AND
BARRICADES

- .1 Provide secure barricades at the top of deep slopes.
- .2 Provide as required by governing authorities on land and marine vessels.

- 1.8 PROTECTION OF BUILDING FINISHES .1 Provide protection for building finishes (Lighthouse and Lightkeepers Residence), site furnishings, and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

- 1.9 ACCESS TO SITE .1 Provide and maintain access roads, ramps and construction runways as required for access to Work.

- 1.10 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.

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

PART 2 - PRODUCTS

- 2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

- 1.1 SUMMARY .1 Section includes non-hazardous contaminated soil removal and offsite disposal, and placement of topsoil.
- .2 Soil remediation work includes:
- .1 Provide equipment required for soil removal, including but not limited to excavation of soil and vacuuming of soil from bedrock crevices.
 - .2 Transportation of all equipment, staff, contaminated materials and topsoil, to and from the site as required.
 - .3 Co-ordination, supervision and preparation for remediation of contaminated soil. Departmental Representative requires 1 week notice previous to the commencement of site work for provision of site supervision.
 - .4 Coordinate work to allow for 2 cycles of excavation with a 5 day waiting period for confirmatory soil sample results.
 - .5 Specification of final soil remediation design and facilities required.
 - .6 Provision and installation of materials and equipment necessary to remediate site.
 - .7 Preparation of soil storage over layout and installation of associated equipment.
 - .8 Implementation of safety work zones, temporary barriers, site Health and Safety Plans and Emergency Response Plans.
 - .9 Clearing and grubbing of work area.
 - .10 Remove stones and cobbles greater than 100 mm in diameter by screening from contaminated soils, and place along the base of the embankment to minimize shoreline erosion.
 - .11 Management of contaminated soil.
 - .12 Backfilling of excavations with imported topsoil and grading of excavations to match existing grade.
- 1.2 MEASUREMENT AND PAYMENT .1 Removal and disposal of non-hazardous contaminated soil shall be measured in metric tonnes of the actual weight of soil disposed of. Measurement shall be based on the net weight of contaminated soil delivered at the landfill site and substantiated by certified weigh bills from the landfill site.
- .1 Remove and dispose of non-hazardous contaminated soil to the extent and limits as directed on site by Departmental Representative.

1.2 MEASUREMENT AND .1
PAYMENT
(Cont'd)

(Cont'd)

.2 Separate cobbles, stones and boulders larger than 100 mm diameter from contaminated soils, and use as erosion protection on site.

.3 Price shall include: Preparatory work including obtaining the required permits and certificates; quality control/quality assurance; other required equipment; implementation of safety work zones; excavation; screening 100 mm and separation of cobbles, stones and boulders from contaminated soil; loading; required storage and delivery of contaminated soil to the landfill sites; placing separated cobbles, stones and boulders to base of excavated slope; grading; and making good all disturbed surfaces.

.4 Include working overtime hours if required to complete the work by the contract completion date.

.2 Imported topsoil, free of toxic elements and debris, appropriate for supporting intended plant growth, shall be measured as a unit price per cubic metre. Measurement shall be based on volume of topsoil delivered to the site and confirmed by the Departmental Representative.

.3 Clearing and grubbing shall be measured as a unit price per square metre. Measurement shall be based on area of site cleared and grubbed and confirmed by the Departmental Representative.

.1 Price shall include: equipment and materials to remove trees and shrubs; off-site disposal of clearing and grubbing debris; and equipment and materials required to protect trees to remain.

.4 All remaining work is to be included as part of the lump sum price and shall include, but is not limited to, the following work:

.1 Mobilization to and demobilization from the site. Additional equipment required to transport equipment to and from the site may be required.

.2 Locating and protecting any buried and aboveground utilities, structures, and features.

1.3 SUBMITTALS .1

Provide quality assurance and quality control submittals in accordance with Section 01 11 06 as follows:

.1 Completed Environmental Assessment Mitigation Monitoring Report Form.

.2 Description of emergency plans in case of breakdown, spill, or other problems.

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- 1.3 SUBMITTALS (Cont'd)
- .1 (Cont'd)
- .3 Waste management plan and complete list of wastes, including waste registration numbers as required by provincial regulations, that will be generated by activities.
- .4 Copies of transport manifests, trip tickets, and disposal receipts for waste materials removed from work area.
- .5 Detailed plan of soil remediation to be supplied by Departmental Representative.
- .2 Provide closeout submittals as follows:
- .1 Provide written proof that contaminated soil has been sent to centre authorized by MOE for Province of Ontario.
- .2 Provide written proof that waste and debris have been sent to site authorized by MOE for Province of Ontario or eliminated according to level of contamination.
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- 1.4 QUALITY ASSURANCE
- .1 Qualifications:
- .1 Provide detailed descriptions of firm and sub-contractors, indicating experience in soil remediation in the past 5 years including names of individuals in charge of the remediation.
- .2 Identify members of project team. Define experience, education and training, qualifications, tasks and responsibilities of each team member. Supply résumés of key technical and management staff.
- .2 Regulatory requirements: perform work in accordance with:
- .1 Acts, Regulations, Laws, guidelines codes of practice, directives and policies of government authorities pertaining to: handling and disposing of metal contaminated soil; environment; noise; water supply; waste water; air quality; health and safety; transportation; and waste management.
- .2 WHMIS.
- .3 Canadian Environmental Assessment Act.
- .4 Canadian Environmental Protection Act (New Substance Notification Regulations).
- .5 Transportation of Dangerous Goods Act.
- .6 National Building Code of Canada, 2010.
- .7 National Fire Code of Canada, 2010.
- .8 The Fisheries Act.
- .9 Migratory Birds Convention Act.
- .10 Migratory Birds Regulations.
- .11 Ontario Regulation 347/90-General Waste Management.
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1.5 DELIVERY,
STORAGE, AND
HANDLING

- .1 Contaminated soil:
 - .1 Store excavated, contaminated soil as determined by Departmental Representative in drums or soil bags. Cover stored, stockpiled contaminated soil with tarp to minimize cross contamination due to water run-off and wind erosion and underlay contaminated soil with flexible membrane to minimize or prevent leaching losses. Transport and dispose of contaminated soil and water according to current provincial regulations.
 - .2 Conduct sieving/screening of soils over an impermeable membrane as directed by the Departmental Representative, to minimize cross contamination due to screening activities.
- .2 New materials and equipment:
 - .1 Ship, store and preserve in original packaging with manufacturer's seal and label remain intact.
 - .2 Ensure materials and equipment are not damaged, altered or soiled during shipment, handling and storage.
 - .3 Transport rejected equipment and materials from work site immediately.
 - .4 Store materials and equipment according to manufacturer's and supplier's instructions.
 - .5 Establish quality management system for materials and equipment.

1.6 PROJECT/SITE
CONDITIONS

- .1 Environmental Requirements:
 - .1 Review of Environmental Assessment to be completed by Departmental Representative.
- .2 Existing conditions: removal of contaminated soil:
 - .1 Set area aside for temporary storage of contaminated soils.
 - .2 Set area aside for screening of cobbles, stones and boulders larger than 100 mm diameter from contaminated soils.
 - .3 Restore excavated portion with imported topsoil and grade excavations to match surrounding grade.
 - .4 Protect non-contaminated material from adjacent contaminated soil.

1.7 SEQUENCING

- .1 Removal of contaminated soils from the work area to be completed following the clearing and grubbing.

1.7 SEQUENCING .2 Decontaminate equipment used in remediation
(Cont'd) procedures before removing equipment from job
site.

1.8 MAINTENANCE OF .1 Unless otherwise directed maintain access roads
ACCESS ROADS as follows:
.1 Obtain permission to use existing
roads/paths to access site.
.2 Maintain and clean roads/paths for
duration of Work.
.3 Repair damage incurred from use of
roads/paths.
.4 Provide photographic documentation of
roads/paths used by construction vehicles
before, during and after Work.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Topsoil: horticultural loam, pH value 5.5 to
7.5.

2.2 EQUIPMENT .1 Geomembrane: flexible, impermeable,
polyethylene liner; 15mm or heavier.
.2 Trucks: use watertight truck bodies for
transporting contaminated soil.
.3 Environmental emergency response equipment.
.4 Safety equipment.

PART 3 - EXECUTION

3.1 EQUIPMENT .1 Marine equipment:
.1 The use of spud barges is an acceptable
option. Spuds shall not be the type that is
driven into the lake bottom.
.2 Prevent any spillage of soils during all
transfers of soil over land or water.
.2 Trucks
.1 Clean meticulously between loads of
contaminated soil and clean fill.
.2 Clean meticulously at end of Work.

- 3.1 EQUIPMENT .2 (Cont'd)
(Cont'd)
- .3 Cover truck boxes with tarpaulins during transportation.
- .3 Ensure that no equipment is driven through or placed within the waterway.
- .4 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- 3.2 PREPARATION .1 Preparation:
 .1 The nature and degree of contaminated soil for each site is shown in Appendix 1 - Figure 2.
 .2 Remove obstructions, debris, miscellaneous waste materials from surfaces to be excavated within the limits indicated
- .2 Protection:
 .1 Keep excavation sites water free throughout work.
 .2 Protect excavation from rainwater.
 .3 Provide temporary structures to divert flow of surface waters from excavation.
 .4 Provide safety measures to ensure worker and public safety.
- 3.3 CLEARING AND GRUBBING .1 Remove and dispose off-site, vegetation and juvenile trees from the area of contamination as directed by the Departmental Representative and in accordance with section 01 35 43.
- .2 Prior to completing clearing and grubbing activities, the area will be scanned for species at risk by the Departmental Representative.
- 3.4 APPLICATION .1 Soil Management:
 .1 Store, transport, and dispose off-site in accordance with applicable provincial standards, requirements and regulations.
 .2 Do not dilute contaminated soil with less contaminated soil.
-

3.5 METHOD OF
REMEDATION

- .1 Contaminated/volatile waste: store in covered metal containers.
- .2 Hazardous waste: dispose of in accordance with regulations.
- .3 Use removal and off site disposal for contaminated soil. Soil removal and off-site disposal shall be completed by Contractor and supervised by Departmental Representative. Contractor is responsible to provide schedule for contaminated soil removal. Departmental Representative requires 1 weeks notice from Contractor to conduct on-site supervision.
- .4 Soil removal and off-site disposal.
 - .1 Excavate contaminated soils so as to prevent contamination of non-contaminated soils. Store contaminated soil in drums or soil bags and underlay stored contaminated soil with a geomembrane.
 - .2 Remove contaminated soils down to 300 mm or bedrock, and from crevices as directed by Departmental Representative.
 - .3 Separate cobbles, stones and boulders from contaminated soil using a 100 mm screen.
- .5 Assist the Departmental Representative in the:
 - .1 Collection of confirmatory soil samples to verify that all contaminated soil has been removed. Contractor to schedule work for 2 cycles of excavation with a 5 day waiting period for confirmatory soil sample test results.
 - .2 Protect excavation at all times until Departmental Representative authorizes the Contractor to backfill the area.
- .6 Devise method to transport material to and from the work site and the barge. Method to be approved by Departmental Representative.
 - .1 Construction of temporary ramps or structures in the water that disrupt the lake bottom is not permitted.
- .7 Removal and off-site disposal of contaminated soils in accordance with applicable federal and provincial regulations.
- .8 Backfill excavation with imported topsoil. Grade excavation to match surrounding grade and to ensure good drainage.

- 3.6 RESTORATION .1 Place stones and cobbles removed from contaminated soil along the base of the excavated slope to minimize shoreline erosion.
- .2 Backfill and grade excavations similar to adjacent natural soil upon completion of soil remediation and maintain proper drainage. Backfill material to consist of imported topsoil.
- .3 Re-instate surface grading to give site same appearance as before remedial work.
- .4 Clean access routes of contamination resulting from project activity at request of Departmental Representative.
- 3.7 FIELD QUALITY .1 Site Tests:
- .1 Ensure toxicity characteristic leachate procedure (TCLP) test results conform to applicable waste regulations.
- .2 Remove and replace non-compliant materials.
- 3.8 EQUIPMENT DECONTAMINATION .1 Decontaminate equipment used in remediation process and remove from site at end of remediation activities.
- 3.9 ENVIRONMENTAL PROTECTION .1 While executing the project, implement the mitigation measures identified in the Environmental Assessment Mitigation Monitoring Report Form of the Environmental Assessment (EA) Screening (Appendix 2) prepared in accordance with the Canadian Environmental Assessment Act (CEAA) for this project. Complete, sign-off, and submit Mitigation Measures Report upon completion of the Work.
- .2 Dredging is not permitted along the shoreline of the work site and DFO property on Griffith Island.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS .1 Section 02 61 00 - Removal and Disposal of
- 1.2 MEASUREMENT AND PAYMENT .1 Payment for seeding will be made at unit price bid per square metre of actual surface measurements taken and computed by Departmental Representative. Areas of blending into existing turf grass will not be measured for payment.
.1 Price shall include: seed bed preparation, watering, fertilizing, seeding, providing and placement of straw erosion control blanket, and maintenance.
.2 All remaining work to be included as part of the lump sum price.
- 1.3 ADMINISTRATIVE REQUIREMENTS .1 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements in accordance with Section 01 11 06.
.2 Scheduling:
.1 Schedule seeding to coincide with preparation and fertilizing and watering of soil surface.
- 1.4 ACTION AND INFORMATIONAL SUBMITTALS .1 Submit in accordance with Section 01 11 06.
.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for seed, fertilizer and straw erosion control blanket.
.2 Submit 2 copies of WHMIS MSDS.
.3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
.4 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
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1.5 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 11 06 and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.
 - .2 Fertilizer must be dry.
- .3 Storage and Handling Requirements:
 - .1 Store fertilizer off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 43.
- .5 Packaging Waste Management: remove for reuse of pallets, crates, padding and packaging materials as specified in Construction Waste Management Plan Section 01 35 43.

1.6 WARRANTY

- .1 For seeding, 12 months warranty period is extended to 1 full growing season.
- .2 End-of-warranty inspection will be conducted by Departmental Representative.

PART 2 - PRODUCTS

2.1 GRASS SEED

- .1 Canada "Certified" seed, "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
 - .1 Provide a mixture composition that provides a mixture suitable for full exposure, with no invasive species, that provides a dense root growth to stabilize the soil, is compatible to existing natural grasses of the area, weather exposure and that will promote natural regeneration.
 - .2 In packages individually labelled in accordance with "Seeds Regulations" and indicating name of supplier.
-

2.2 EROSION CONTROL .1 Erosion Control Straw Blanket: specially manufactured in rolls for fastening to ground to cover seeds; non-toxic, water activated with following properties:

- .1 Made from 70% or more straw fiber matrix.
- .2 Minimum thickness of 6 mm.
- .3 Minimum mass of 7 oz/yd².
- .4 Potential water absorption: minimum 250%.

2.3 WATER .1 Free of impurities that would inhibit germination and growth.

2.4 FERTILIZER .1 To Canada "Fertilizers Act" and Regulations.

.2 Complete synthetic fertilizer, slow release with 8% of nitrogen content in water in-soluble form, 32% phosphorous and 16% potash.

PART 3 - EXECUTION

3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for manual seeding installation in accordance with manufacturer's written instructions.

- .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLERS .1 Use installers members in Good Standing of Horticultural Trades Association.

3.3 SEED BED PREPARATION .1 Do not perform work under adverse field conditions as determined by Departmental Representative.

.2 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; in location as directed by Departmental Representative.

3.3 SEED BED
PREPARATION
(Cont'd)

- .3 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and commence work when instructed by Departmental Representative.
- .4 Fine grade surface free of humps and hollows to smooth, even grade.
- .5 Cultivate fine graded surface approved by Departmental Representative to maximum of 25mm depth immediately prior to seeding.
- .6 Ensure areas to be seeded are moist to depth of 100 mm prior to seeding.

3.4 SEED PLACEMENT

- .1 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.
- .2 For manual seeding:
 - .1 Use manually operated drop seeder ("Cyclone" type or equivalent).
 - .2 Use manually operated, water ballast, landscaping type, smooth steel drum roller. Ballast as directed by Departmental Representative.
 - .3 Use equipment and method acceptable to Departmental Representative.
- .3 On cultivated surfaces, sow seed uniformly at rate of:
 - .1 150 kg/hectare lawn grass mixture.
- .4 Blend applications 150 mm into adjacent grass areas to form uniform surfaces.
- .5 Sow half of required amount of seed in one direction and remainder at right angles as applicable.
- .6 Incorporate seed by light raking in cross directions.
- .7 Cover seeded area with straw erosion control blanket and water to saturate blanket but not to cause erosion of seed or soil underneath.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 11 06.
 - .1 Leave Work area clean at end of each day.
 - .2 Keep area adjacent to site clean and free from mud, dirt, and debris at all times.
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- 3.5 CLEANING
(Cont'd)
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 11 06.
 - .1 Clean and reinstate areas affected by Work.
 - .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 11 06.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2 Divert unused fertilizer from landfill to licensed hazardous material collections site approved by Departmental Representative.
- 3.6 FERTILIZING PROGRAM
- .1 Fertilize prior to fine grading, incorporating fertilizer equally distributed at a rate of 350 kg per hectare of ratio 8-32-16 or as determined by the soil analysis.
 - .2 Re-apply where application is not uniform.
 - .3 Remove slurry from items and areas not designated to be sprayed.
- 3.7 MAINTENANCE DURING ESTABLISHMENT PERIOD
- .1 Ensure maintenance is carried out under supervision of certified Landscape Maintenance Supervisor.
 - .2 Perform following operations from time of seed application until acceptance by Departmental Representative:
 - .1 Water seeded area to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.
 - .2 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
- 3.8 FINAL ACCEPTANCE
- .1 Seeded areas will be accepted by Departmental Representative provided that:
 - .1 Areas are uniformly established free of rutted, eroded, bare or dead spots.
 - .2 Areas have been fertilized.
 - .2 Areas seeded in fall will be accepted in following spring, one month after start of
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3.8 FINAL ACCEPTANCE (Cont'd) .2 (Cont'd) growing season provided acceptance conditions are fulfilled.

3.9 MAINTENANCE DURING WARRANTY PERIOD .1 Perform following operations from time of acceptance until end of warranty period.
.1 Repair and reseed dead or bare spots to satisfaction of Departmental Representative.
