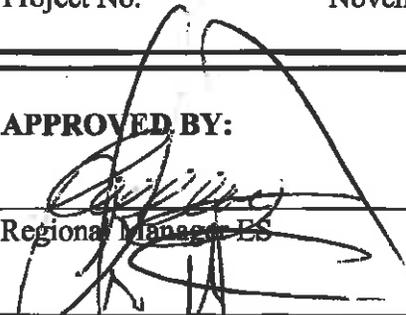




Public Works and Government Services Canada

Requisition No. <u>EZ397-151665</u>
MERX I.D. No. _____
SPECIFICATIONS for EC Wilmer Marsh Site Remediation
Wilmer Marsh Unit, Columbia National Wildlife Area, Near Wilmer, BC
Project No. <u>November 2014</u>
APPROVED BY:
 _____ Regional Manager ES
<u>2014/12/04</u> Date
 _____ Construction Safety Coordinator
<u>2014/12/04</u> Date
TENDER:
 _____ Project Manager
<u>2014/11/2/04</u> Date

Section No.	Title	Pages
Division 1	General Requirements	
01 11 00	Summary of Work	7
01 14 00	Work Restrictions	3
01 31 19	Project Meetings	3
01 32 16.07	Construction Progress Schedule – Bar Chart	3
01 33 00	Submittal Procedures	3
01 35 00.06	Special Procedures for Traffic Control	3
01 35 13.43	Special Project Procedures for Contaminated Sites	6
01 35 29.14	Health and Safety for Contaminated Sites	10
01 35 43	Environmental Procedures	8
01 51 00	Temporary Utilities	2
01 52 00	Construction Facilities	3
01 56 00	Temporary Barriers and Enclosures	1
01 74 11	Cleaning	1
01 77 00	Closeout Procedures	1
01 78 00	Closeout Submittals	1
Division 2	Existing Conditions	
02 61 00.01	Soil Remediation	6
Division 31	Earthwork	
31 23 33.01	Excavating, Trenching and Backfilling	4
Drawings		
Drawing 1	Site Location Map	
Drawing 2	Site Layout	
Drawing 3	Topographic Layout of Remediation Areas	
Drawing 4	Slope Cross- Sections in Main Debris Zone	
Drawing 5	Impacted Areas of Soil and Debris to be Remediated	
Tables		
Table 1	Soil Chemistry Results – Petroleum Hydrocarbon Constituents and MTBE (mg/kg)	
Table 2	Soil Chemistry Results – PAH Parameters (mg/kg)	
Table 3	Soil Chemistry Results – Metals Parameters (mg/kg)	
Table 4	Site-Specific Soil Targets – Area of Impact 3	
Table 5	Soil Characterization Classes for Disposal	
Table 6	Surface Water Baseline Conditions – TDS and TSS	
Appendices		
Appendix A	Draft 2013/2014 Site Works Summary and Remedial Action Plan Report (SLR)	
Appendix B	CWS Permit-Related Documents FOC Response Letter BC MLFRO Access Letter	
Appendix C	Site Photographs	



1.1 GENERAL INFORMATION

Public Works and Government Services Canada (PWGSC), on behalf of Environment Canada (EC), intends to remediate a portion of the Wilmer Marsh Unit of the Columbia National Wildlife Area (NWA). The location of the lands to be remediated is approximately 1.2 km north of the town of Wilmer, British Columbia near Invermere, British Columbia (Drawing 1).

All work will be carried out under contract to PWGSC on behalf of EC. PWGSC will be responsible for approving the final extent of materials to be removed, their destination, monitoring remediation progress, and assuring quality of the work.

1.2 INTRODUCTION

The project area known as the Wilmer Marsh former refuse site (the site) is located on the east side of Westside Road 1.2 km north of the town of Wilmer, British Columbia.

The work required under this contract covers:

- Site preparation activities (i.e. ice engineering assessment, demarcation of exclusion zones, confirming locations of marsh debris through electromagnetic (EM, i.e. EM31/EM38) survey, opening fence and installing temporary fencing) immediately prior to the active remediation component of the project.
- The removal and disposal of several large pieces of debris from the marsh area of the site. Please note that no sediment removal will be conducted; only sediment incidentally adhered to debris is to be removed from the marsh area.
- The remediation and restoration of two areas of significant buried debris (known as the Main Debris Zone and Area of Impact 3) in the trail area of the site. The remediation activities will also involve the removal of impacted soil.
- The removal and disposal of numerous pieces of surficially deposited debris in the trail area of the site.

Remediation and restoration activities are to be completed within the wildlife, fisheries and fiscal year windows for the site (January 5 to March 13, 2015). All final submittals must be completed by March 13, 2015.

The site is located on the western side of the Columbia River Valley and consists of remnant river bench upland with an adjacent shoreline and marsh below. The benchland is relatively flat, with steep slopes and gullies on the south, east and north boundaries. Wilmer Marsh borders the site at the bottom of the steep slopes to the east and is located approximately 60 m lower than the upland bench. A steep trail leads down to the marsh along the southern edge of the uplands bench. A fence borders the site along the western boundary (along Westside Road). There are no buildings or any other structures on the site. The remediation work areas are located in the marsh and in the trail area (refer to Drawing 5).

The Columbia NWA is a federally protected area designed to conserve wildlife and their habitat and is not intended for recreational uses. The Columbia NWA is an important segment of a bird migratory corridor within the Pacific Flyway. Unauthorized disposal of

refuse occurred at the site over the past several decades. Refuse deposited at the site includes, but is not limited to, automobile bodies and parts, cans, glass, building debris, scrap metal, used oil containers and filters, automotive batteries, drums, etc. In 1997, approximately 150 car bodies were reportedly removed from the site.

Due to the potential presence of sensitive species/habitat in the proposed work areas at the site, all work will be monitored by Environmental Monitors (EMs). The Environmental Monitor will notify the Departmental Representative immediately and without delay at any time that adverse impacts to sensitive species are observed or anticipated. The Departmental Representative will in turn direct the Contractor to stop work.

Due to the terrain and sensitive soils at the site, the work will also be monitored by Geotechnical Monitors (GMs). The Geotechnical Monitor will also notify the Departmental Representative immediately and without delay any time that geotechnical concerns are identified. The Departmental Representative will in turn direct the Contractor to stop work.

The EC Wilmer Marsh site remediation involves removal of approximately 2600 m³ of refuse/debris with varying amounts of soil. Specifically:

- Trail Area (Main Debris Zone): 45 m by 20 m area to a depth of at least 1.5 m below grade (in situ volume of combined soil and debris of 1350 m³).
- Trail Area (Area of Impact 3): 20 m by 20 m area to a depth of 2.5 m below grade (in situ volume of combined soil and debris of 1000 m³).
- Trail Area: removal of numerous pieces of surficial debris (estimated volume of 200 m³).
- Marsh Area: removal of approximately seven large pieces of debris (estimated volume of 50 m³). No sediment removal is to be completed.

The proposed excavation areas are depicted on Drawing 5. Excavation depths in the Main Debris Zone in the trail area will extend to at least 1.5 m below grade and potentially deeper in some locations. Excavation in Area of Impact 3 in the trail area will extend to approximately 2.5 m below grade and will correspond to the intersection of native material.

Soil removal associated with this project will be limited to the trail Area. Historical soil analytical data from the trail area is provided in Tables 1 through 3. Soil impacted with metals exceeding the applicable Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Agricultural (AL) land use guidelines) for the site has been identified in the trail area. Groundwater has not been encountered during environmental investigations at the site.

Sediment curtains have been installed around the large debris in the marsh. The sediment curtains will remain in place until surface water turbidity parameters (i.e. total dissolved solids and total suspended solids) return to baseline conditions.

As unauthorized disposal of refuse occurred at the site, there is the possibility that hazardous materials (e.g., asbestos, lead piping, etc.) will comprise a portion of the debris present on the site. The project work assumes that any hazardous building materials encountered will be handled appropriately and disposed at a facility authorized and/or licensed to accept, treat and dispose of the particular materials, subject to review and approval by the Departmental Representative.

Due to the location of the site within a NWA, limited material handling/storage can occur on the site. Consequently, excavated material (soil and debris) must be transported off-site to a temporary staging area for separation (i.e. screening of soil from debris) prior to disposal at the final, approved disposal facility. It will be the contractor's responsibility to arrange for such an off-site staging area (referenced in this document as the soil and debris management facility) including obtaining the relevant permits, approvals or authorizations (e.g. soil relocation agreement).

The soils at the site are comprised of fine-textured glaciolacustrine materials that are susceptible to surface erosion and instability once disturbed. Geotechnical assessment of the Main Debris Zone in the trail area in 2013-2014 concluded that remedial excavation activities in the area would accelerate surface erosion, gullyng and slump failure. The following mitigation measures are to be implemented by the Contractor:

- Reduce excavation areas and depths to minimize the total area of disturbance and to reduce the height of potentially unstable cut slopes. Consequently, excavation depths in the Main Debris Zone will be limited under the proposed work program.
- Utilize low-impact equipment such as rubber-tired or spider hoe-type excavators (with operators experienced in working on steep slopes) to reduce the potential for ground disturbance.
- Exercise caution in operating equipment in the vicinity of the void identified on the lower trail. The location of the void is depicted on Drawing 5.
- Construct cross-ditches at the top of the trail work area to divert surface flow from the work areas.
- Construct cross-slope terraces along long sections of steep uniform slopes to break the slope and slow surface runoff along the slope.
- Implement erosion and sediment control measures including deposition of coarse woody debris and installation of coconut fibre/straw mat cover. Coarse woody debris is to be sourced from other areas of the site or adjacent lands to minimize the potential for introduction of invasive species.

Please note that installation of crushed gravel on the site to protect access routes has been discussed with Canadian Wildlife Service. However, Canadian Wildlife Service has indicated that construction of "roads" and the importation of crushed gravel is not allowed at the site. Consequently, no roads are to be constructed at the site and the work program must be conducted under extended periods of dry, or frozen, ground conditions.

The physical restoration of the trail area (contouring, terracing, etc) will be conducted based on direction provided in the field. The Departmental Representative, with input from the EMs and GMs, will provide direction on the final site reinstatement conditions.

Following the completion of the soil/debris removal component of the project, the contractor will need to implement a number of permanent erosion and sediment controls including placement of coconut fibre/straw mat cover, deposition of coarse woody debris, construction of cross-ditches and seeding with native plant mix. Any erosion control measures implemented must not introduce invasive or non-native species to the site. The implementation of the erosion and sediment controls will be conducted based on direction provided in the field. The Departmental Representative, with input from the EMs and GMs, will provide direction on the final site reinstatement conditions.

An as-built inspection must be conducted before March 13, 2015. The inspection must document the final areal extent of the excavated and restored areas.

The Contractor is responsible for completing a final as-built drawing for the EC Wilmer Marsh site.

The Contractor is responsible for preparing an Environmental Protection Plan (EPP) prior to work commencing which includes:

- Erosion and Sediment Control Plan
- Spill Control Plan
- Non-Hazardous Solid Waste Disposal Plan
- Air Pollution Control Plan
- Contaminant Prevention Plan
- Truck Route Plan and Traffic Control Plan
- Water Management Plan

The EMs, GMs and Departmental Representative will audit the Contractor's compliance with the EPP. Furthermore, the Environmental Monitor will report immediately to the Departmental Representative situations where the Contractor is in non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection Plan. The Departmental Representative will in turn contact the necessary authorities/agencies.

All equipment brought to the site must be cleaned prior to use (debris, dirt, vegetation) to minimize the potential for introduction of invasive species. The lowest impact equipment that can complete the work must be utilized in the work areas to minimize disturbance. Equipment is to be placed to minimize or eliminate impacts to areas outside of the active remediation and restoration activities. In order to minimize impacts to wildlife and vegetation, access and egress routes for equipment must be established prior to remediation and equipment must not travel off of the designated routes or in areas designated as exclusion zones. Where ground disturbance of access/egress routes is observed, temporary access mats (or other suitable measures approved by the Departmental Representative) must be employed.

All work will be carried out under contract to PWGSC. The Departmental Representative will be responsible for approving the final extent of materials to be removed, their destination, monitoring remediation and restoration progress, and assuring quality of the work.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises the following:
 - .1 Health and Safety Planning. Submit site-specific project Health and Safety Plan and emergency procedures to PWGSC within ten working days of award.
 - .2 The Environmental Protection Plan (EPP). The EPP is to provide a comprehensive overview of the work plan and address all known or potential environmental issues which may arise during or be impacted by work activities. Submit EPP to PWGSC within ten working days of award.
 - .3 Location and protection of all known and unknown buried services on and adjacent to the site. The Contractor is responsible for the identification and protection of this and all known and unknown utilities associated with this project.

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- .4 Completion of all works under the supervision of the Departmental Representative, with input from the Environmental Monitors and Geotechnical Monitors.
 - .5 Repair and re-instate to their original condition any utilities or other infrastructure encountered (unless otherwise noted) during the works – including any fencing moved or damaged during works.
 - .6 Completion of remediation activities including site preparation activities, debris/soil excavation, backfilling of prescribed remediation areas, operation of the off-site staging area (soil and debris management facility), physical restoration activities and implementation of sediment/erosion controls.
 - .7 Loading and transport of debris and soil to the off-site staging area (soil and debris management facility) for separation of materials.
 - .8 Disposal of debris, salvageable materials and soil (upon approval from the Departmental Representative) at an appropriately licensed facility.
- .2 All work must be conducted in accordance with the mitigation measures outlined in the Permits (refer to Appendix B) and Approvals as required for the work.

1.4 WORK BY OTHERS

- .1 Co-operate with the Site Owner and other Contractors in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor (e.g., Environmental Monitor), report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of work.

1.5 WORK SEQUENCE

- .1 Remediation and restoration activities are to be completed within the wildlife, fisheries and fiscal year windows for the site (January 5 to March 13, 2015). All final submittals must be completed by March 13, 2015.
- .2 Conduct work in stages. Due to the need to use the trail to access the marsh and Area of Impact 3, these areas must be remediated prior to conducting excavation activities in the Main Debris Zone of the trail. The Contractor must coordinate the work sequence accordingly.
- .3 Coordinate Progress Schedule and coordinate with Site Owner during construction.
- .4 Maintain fire access/control.

1.6 CONTRACTOR USE OF PREMISES

- .1 Portions of the site are potential habitat for sensitive species and therefore equipment storage, temporary material handling areas, routes for equipment and vehicle travel, etc. on the site must be approved by the Departmental Representative in order that the impact to these areas be minimized.
 - .2 Co-ordinate use of premises under direction of Departmental Representative.
 - .3 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
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- .4 At completion of operations the condition of existing work must be equal to or better than that which existed before the new work started.

1.7 OWNER OCCUPANCY

- .1 During the entire remediation period, the site Owner will manage adjacent areas.
- .2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Owner usage of adjacent areas. In the event of a conflict the Contractor must accommodate changes to their operations to minimize interference with Owner operations.

1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING STRUCTURES/SERVICES

- .1 Execute work with least possible interference or disturbance to existing structures, services, wildlife and sensitive habitats on the property unless otherwise indicated in this contract or by the Departmental Representative.

1.9 EXISTING SERVICES

- .1 Locate all utility lines within and immediately surrounding the work area. Completeness and accuracy of any available utility drawings are not guaranteed and the Contractor is responsible for confirming locations of all utilities.
 - .2 Notify the Departmental Representative and utility companies of intended interruption of services and obtain required permission. If work requires breaking into or connecting to existing services, the Contractor must submit a request to the Departmental Representative a minimum of 5 working days prior to the event. The Contractor must not proceed until approval has been granted. PWGSC will make every effort to accommodate the request; however, PWGSC will NOT accept delay charges should the request not be accepted.
 - .3 Minimize duration of interruptions, and where required, provide temporary services to maintain critical systems.
 - .4 Provide traffic control for personnel and vehicular traffic when work impacts established transportation routes (e.g., Westside Road). Maintain and protect traffic on all routes during construction period except as otherwise specifically directed by the Departmental Representative. At minimum one lane must be kept open for traffic flow at all times.
 - .5 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
 - .6 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
 - .7 Provide adequate bridging over trenches to permit normal traffic.
 - .8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
 - .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
 - .10 Record locations of maintained, re-routed and abandoned service lines. The Contractor must complete an as-built drawing upon project completion.
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- .11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.10 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
- .1 All Permits, Authorizations and Approvals for the proposed works.
 - .2 Utility Plans.
 - .3 Contract Drawings.
 - .4 Specifications.
 - .5 Addenda.
 - .6 Change Orders and other modifications to Contract.
 - .7 Reviewed Shop Drawings, product data and samples.
 - .8 List of Outstanding Shop Drawings.
 - .9 Field Test Reports.
 - .10 Copy of Accepted Project Schedule.
 - .11 Health and Safety Plan and Other Safety Related Documents.
 - .12 Daily records of on-site (within site) movement of soil.
 - .13 Daily records of all material movement onto and off the site, including records (manifests) of waste movement and disposition, and analytical records.
 - .14 Worksafe BC notice of project, also to be provided to PWGSC prior to mobilization to the site.
 - .15 Environmental Protection Plan.
 - .16 Other documents as specified by the Departmental Representative.

END OF SECTION

1.1 WORK WINDOWS

- .1 Remediation and restoration activities are to be completed within the wildlife, fisheries and fiscal year windows for the site (January 5 to March 13, 2015). All final submittals must be completed by March 13, 2015.
- .2 For the purpose of this tender specification, "working days" are considered to be Monday through Sunday (excluding statutory holidays) and "business days" are considered to be Monday through Friday (excluding statutory holidays).

1.2 ACCESS AND EGRESS

- .1 Access to the site is off of Westside Road (refer to Drawing 2).
- .2 Provide for personnel, pedestrian and vehicular traffic.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .4 Design, construct and maintain temporary "access to" and "egress from" work areas in accordance with relevant municipal, provincial and other regulations.
- .5 The location of the access and egress routes and on-site hauling routes must be established in consultation with the Departmental Representative prior to remediation in the form of a truck route plan to minimize disturbance to sensitive habitat at the site. The truck route plan must be submitted as part of the Environmental Protection Plan (Section 01 35 43 - Environmental Procedures).
- .6 Equipment must stay on designated access and egress routes only and must keep within limits of work. Exclusion zones with respect to access and egress are depicted on Drawing 5.

1.3 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to the site. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Provide for adequate personnel and vehicle access to the site.
- .3 Where security is reduced by work, provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

1.4 EXISTING SERVICES

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permissions.
 - .2 If work requires breaking into or connecting to existing services, the Contractor must submit a request to the Departmental Representative a minimum of 5 working days prior to the event. The Contractor must not proceed until approval has been granted. PWGSC will make every effort to accommodate the request; however, PWGSC will NOT accept delay charges should the request not be accepted.
 - .3 Minimize duration of interruptions, and where required, provide temporary services to maintain critical systems.
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1.5 SPECIAL REQUIREMENTS

- .1 The Contractor must take into account that the work is to be conducted in an area containing sensitive wildlife habitat, steep terrain, areas of sensitive vegetation and sensitive soils and that the work must be monitored by qualified EMs and GMs.
- .2 The EM will be provided by PWGSC and will coordinate with the Departmental Representative. The EM will notify the Departmental Representative immediately and without delay at any time that adverse impacts to sensitive species or their habitat are observed or anticipated. The Departmental Representative will in turn direct the Contractor to stop work.
- .3 The GM will be provided by PWGSC and will coordinate with the Departmental Representative. The GM will notify the Departmental Representative immediately and without delay any time that geotechnical concerns are identified. The Departmental Representative will in turn direct the Contractor to stop work.
- .4 The EM and GM will monitor work for the duration of the program and, in coordination with the Departmental Representative, will audit the Contractor to ensure compliance with the Contractor's Environmental Protection Plan. The EMs and GMs will advise the Departmental Representative, who will in turn direct the Contractor, before and during the work program of modifications that must be made to ensure protection of the habitat and/or wildlife present at the site. Modifications may include equipment placement, access/egress routes, requirements for surface erosion control measures to reduce impacts in work areas, depth of excavation in steeply sloped areas, establishment of additional exclusion zones due to habitat and/or wildlife concerns and planned physical restoration activities.
- .5 Due to the need to use the trail to access the marsh and Area of Impact 3, these areas must be remediated prior to conducting excavation activities in the Main Debris Zone of the trail. The Contractor must coordinate the work sequence accordingly.
- .6 Carry out noise generating work Monday to Sunday from 07:00 to 22:00 hours. If work is to be completed outside of these hours, written pre-approval from the Regional District of East Kootenay is required (per Bylaw No. 1396).
- .7 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar Chart.
- .8 Ensure that Contractor personnel employed on-site become familiar with and obey regulations including safety, fire, traffic and security regulations. As well, Contractor personnel operating equipment in steep slopes must demonstrate experience working in such conditions.

1.6 SITE SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions. Smoking is not permitted anywhere on the property due to the location of the site within a National Wildlife Area and the presence of sensitive species and habitat. Smoking may occur in a designated smoking area established by the Contractor in the pull-out area adjacent to Westside Road.
 - .2 The Contractor is to provide a designated smoking area and is to ensure proper use and maintenance of ashtrays or other such containers to ensure there is no litter generated and to prevent ignition of vegetation.
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END OF SECTION

1.1 ADMINISTRATIVE

- .1 Schedule and administer weekly project meetings throughout the progress of the Work at the call of the Departmental Representative.
- .2 Departmental Representative will prepare agenda for meetings.
- .3 Distribute written notice of each meeting a minimum of two working days in advance of meeting date to all anticipated meeting participants (including Departmental Representative).
- .4 Contractor must provide physical space, make arrangements for meetings on-site, and preside at meetings.
- .5 Contractor must record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .6 Contractor must reproduce and distribute copies of the minutes within two working days after meetings and transmit to meeting participants, PWGSC, Departmental Representative and affected parties not in attendance for review prior to finalization.
- .7 Representative(s) of Contractor, Subcontractor(s) and suppliers attending meetings will be qualified and authorized to act on behalf of the party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within five working days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
 - .2 Senior representatives from EC, PWGSC and their Representative, the Contractor, major Subcontractors, field inspectors, Environmental Monitors and Geotechnical Monitors will be in attendance.
 - .3 Establish time and location of meeting and notify parties concerned as soon as possible but a minimum of three working days before the 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 16.07 - Construction Progress Schedules – Bar Chart.
 - .3 Site preparation work to be completed to facilitate remediation activities (i.e. ice engineering assessment, demarcation of exclusion zones, confirming marsh debris locations with EM survey, opening fence and installing temporary fencing).
 - .4 Schedule of submission of shop drawings and samples. Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .7 Proposed changes, change orders, procedures, approvals required, and time extensions.
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- .8 Owner provided products.
 - .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .12 Progress claims, administrative procedures, photographs.
 - .13 Appointment of inspection and testing agencies or firms.
 - .14 Insurances, transcript of policies.
 - .15 Environmental controls as prescribed in all applicable Permits, Authorizations, Approvals and as outlined in the documentation in Appendix B.

1.3 COORDINATION MEETINGS

- .1 At least 5 working days prior to relevant Work commencing, submit final meeting minutes and drawings from coordination with Subcontractors.

1.4 PROGRESS MEETINGS

- .1 During course of work, schedule weekly progress meetings, or more frequently as required. The weekly progress meetings must be attended by the PWGSC Project Manager, Departmental Representative, Environmental Monitors, Geotechnical Monitors, Contractor Project Manager, Contractor Superintendent and major Subcontractors, at a minimum.
 - .2 Notify parties a minimum of two working days prior to meetings.
 - .3 Contractor is to record minutes of meetings and circulate draft minutes to attending parties and affected parties not in attendance within two working days after the meeting. Meeting minutes to be finalized upon receipt of comments.
 - .4 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 schedule.
 - .5 Corrective measures and procedures to regain projected schedule.
 - .6 Revision to schedule.
 - .7 Progress schedule, during succeeding work period.
 - .8 Review submittal schedules: expedite as required.
 - .9 Health and Safety issues, including near misses.
 - .10 Environmental compliance and impact: review relating to requirements, changes in weather, other issues.
 - .11 Review proposed changes for affect on schedule and on completion date.
 - .12 Maintenance of quality standards.
 - .13 Review of budget issues.
 - .14 Other business.
 - .5 Submittals
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- .1 Make submittals at least 24 hours prior to scheduled progress meetings as follows:
- .1 Updated progress schedule detailing activities. Include review of progress with respect to previously established dates for starting and stopping various stages of Work, major problems and action taken, injury reports, equipment breakdown, and material removal.
 - .2 Copies of transport manifests, trip tickets, and disposal receipts for waste materials removed from work area.
 - .3 Daily log sheets of transported materials.
 - .4 Weekly copies of site entry and work area logbooks with information on worker and visitor access.
 - .5 Weekly results of any health and safety-related air sampling data, including compliance air monitoring results.
 - .6 Other information required by Departmental Representative for progress meetings.

END OF SECTION

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 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 Working Days: Monday through Sunday (excluding statutory holidays).
- .5 Business Days: Monday through Friday (excluding statutory holidays).
- .6 Construction Work Week: Monday through Sunday, inclusive, (excluding statutory holidays) will constitute the construction work week and define schedule calendar working days as part of Bar Chart submission.
- .7 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.
- .8 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .9 Milestone: significant event in project, usually completion of major deliverable.
- .10 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.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Project Schedule 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 ten working days, to allow for progress reporting.
 - .4 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.
 - .5 Carry out Work in accordance with the Contract and as follows:
 - .1 Do not change Schedule accepted by the Departmental Representative without approval from Departmental Representative.
 - .2 Conduct interim reviews of Work progress based on Work schedule at Progress Meetings or as instructed by the Departmental Representative and schedule updated by Contractor as instructed by the Departmental Representative.
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1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within 10 working days of Contract award Bar Chart as Master Plan for planning, monitoring and reporting of project progress. Bar Chart to include:
 - .1 Dates of commencement and completion of Work for each Description of Work identified on the Unit Price Table as well as date of Contract Award, utility locates and kickoff meeting.
 - .2 Dates of Submittals including Health and Safety submittal, Environmental Protection Plan submittal, all other submittals required prior to project initiation as outlined in Section 01 33 00 - Submittal Procedures and close-out submittals as outlined in Section 01 33 00 - Submittal Procedures.
 - .3 Dates of receipt of all permits, authorizations, approvals, etc. as required for the work.
 - .4 Dates of inspection and testing.
 - .5 Dates of as-built survey and final inspection.
 - .6 Final Completion date within the time period in accordance with the Contract, including Amendments.
- .3 Submit Project Schedule to Departmental Representative within five working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule. Contractor to identify key milestones on Bar Chart.

1.5 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as in the Bar Chart.
- .2 Departmental Representative will review and return revised schedules within 5 business days.
- .3 Revise schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

- .1 All remediation and physical restoration work is to be completed before March 13, 2015. All final submittals must be completed by March 13, 2015.
- .2 Develop detailed Project Schedule derived from Master Plan.
- .3 Ensure detailed Project Schedule includes as minimum milestone and activity types described above in Section 1.3.2.

1.7 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
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- .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 weekly site meetings as specified in Section 01 31 19 Project 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 accepted dates shown on Project Schedule.

END OF SECTION

1.1 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 unless directed to do so by the Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units. Where items or information is not produced in SI Metric units converted values are acceptable.
- .4 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 coordinated 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.
- .5 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Verify field measurements and affected adjacent work are coordinated.
- .7 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative review of submittals.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative.
- .9 Keep one reviewed copy of each submission on-site.

1.2 MANIFESTS

- .1 All excavated material leaving the site must be manifested.
- .2 A copy of all manifests and/or truck weigh scale documents for material brought onto or removed from the site are to be provided to the Departmental Representative.
- .3 Manifest and/or weigh scale documents are to be completed in accordance with applicable federal and provincial regulations.

1.3 PROJECT SUBMITAL LIST – PRIOR TO PROJECT INITIATION

- .1 Health and safety submittals outlined in Health and Safety for Contaminated Sites Section 01 35 29.14 (2010-05).
 - .2 Environmental Protection Plan as outlined in Section 01 35 43 - Environmental Procedures.
 - .3 Master Plan (Bar Chart) as outlined in Section 01 32 16.07 - Construction Progress Schedule –Bar Chart.
 - .4 Site layout drawings as outlined in Section 01 35 13.43 - Special Project Procedures for Contaminated Sites.
 - .5 Evidence of appropriate licensing for transport of contaminated soils or Hazardous Waste (including for any subcontractor retained to transport such materials).
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- .6 Identification of the location of the soil and debris management facility as outlined in Section 01 35 13.43 – Special Project Procedures for Contaminated Sites. Provide evidence that the facility location is licensed and/or authorized to accept the excavated materials. The soil and debris management facility is to be a temporary staging area to allow for separation of excavated materials and is not the final disposal facility.
 - .7 Identification of the facility(s) that will be used to treat and/or dispose of each of the categories of materials identified. Evidence that they are authorized and/or licensed to accept, treat and dispose of the specific category of material. Disposal Facility requirements:
 - .1 Be an existing off-site facility located in Canada.
 - .2 Be designed, constructed and operated to prevent any pollution from being caused by the facility outside the area of the facility from waste placed in or on land within the facility.
 - .3 Hold a valid and subsisting permit, certificate, approval, or any other form of authorization issued by a province or territory for the disposal of soil/sediment, general refuse, construction/demolition waste or other material requiring disposal.
 - .4 Comply with applicable municipal zoning, bylaws, and requirements.
 - .5 If proposed Disposal Facility is not acceptable to Departmental Representative, identify an alternate Disposal Facility that is acceptable.
 - .8 Submit information on the equipment and procedure to be used in the remediation activities in the trail area for review and approval by the Departmental Representative. The proposed approach must specifically address the following constraints:
 - Area of Impact 3 is located near the southern property boundary and operation of equipment on the adjacent provincial land to the south is not permitted.
 - The grade of the trail is approximately 15-20%.
 - There is a large void (approximately 2 m wide by 1 m high by 5 m long) on the lower part of the access trail that may collapse under equipment and worker traffic.
 - Improvements to the trail (including the use of crushed gravel) are not permitted.
 - Surficial debris to be removed is located on the slopes adjacent to the trail. The grade of the slopes are approximately 60-75%.
 - The lowest impact equipment that can complete the work must be utilized in the work areas to minimize disturbance to sensitive species and their habitat.
 - Equipment cannot be operated in exclusion zones.
 - Separation of soil and debris must be conducted to facilitate disposal of the materials.
 - .9 Submit information on the equipment and procedure to be utilized to remove the debris in the marsh from the site for review and approval by the Departmental Representative. The proposed approach must specifically address the following constraints:
 - Although it is anticipated that the marsh will be covered with ice during the remediation activities, this cannot be guaranteed.
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- There is limited access from the end of the trail to the marsh work area (trail is very narrow at the base of the slope, is located in sensitive habitat for migratory birds and passage by equipment over the trail is not allowed).
- Operation of a conveyance (other than those specifically allowed within the permit documents provided in Appendix B) is not permitted within the NWA.
- Operation of motorized boats is not permitted in the marsh (refer to Appendix B).
- The grade of the trail is approximately 15-20%.
- There is a large void (approximately 2 m wide by 1 m high by 5 m long) on the lower part of the access trail that may collapse under equipment and worker traffic.
- Improvements to the trail (including the use of crushed gravel) are not permitted.
- The sediment curtain must remain undisturbed during the debris removal.
- The lowest impact equipment that can complete the work must be utilized in the work areas to minimize disturbance to sensitive species and their habitat.
- Equipment cannot be operated in exclusion zones.
- Ice along marsh shore may expose sensitive sediments during warmer periods. Protection of shoreline from equipment and personnel traffic through use of temporary access mats will be required under such conditions.
- Any work on ice over water will require an assessment of the ice and proposed work by a qualified professional as outlined in Section 01 35 13.43 – Special Project Procedures for Contaminated Sites.
- The EMs must be allowed to inspect at the marsh each piece of debris removed for species that may be adhered to the materials.

1.4 PROJECT SUBMITTAL LIST – CLOSEOUT SUBMITTALS

- .1 Final survey as described in Section 01 78 00- Closeout Submittals.

END OF SECTION

1.1 REFERENCES (LATEST VERSION)

- .1 Manual of Uniform Traffic Control Devices (MUTCD) published by Transport Canada.
- .2 Traffic Control Manual for Work on Roadways, 1999 Consolidated Office Edition, published by the British Columbia Ministry of Transportation and Infrastructure.
- .3 Highway Maintenance Agreements – Maintenance Specifications – Schedule 21 published by the British Columbia Ministry of Transportation and Infrastructure.

1.2 SUBMITTALS

- .1 Truck route plan as outlined in Section 01 35 43 - Environmental Procedures.
 - .1 Truck route plan is to be submitted for review by Departmental Representative within 10 working days of Contract award.
- .2 Traffic control plan as outlined in Section 01 35 43 - Environmental Procedures.
 - .1 Traffic control plan is to be submitted for review by Departmental Representative within 10 working days of Contract award.

1.3 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Comply with requirements of Acts, Regulations and Bylaws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out work or haul materials or equipment, including any required permits or authorizations. Obtain such permits and authorizations.
 - .2 Protect travelling public from damage to person and property.
 - .3 Provide traffic control for personnel and vehicular traffic when work impacts established transportation routes (e.g., Westside Road). Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by the Departmental Representative. At minimum one lane must be kept open for traffic flow at all times.
 - .4 When working on travelled way:
 - .1 Place equipment in position to present minimum of interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
 - .5 Do not close any lanes of road without approval of the Departmental Representative. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in applicable legislation or bylaws or permits.
 - .6 Maintain travelled way (Westside Road between site and the town of Wilmer) to existing condition and of sufficient width for required number of lanes of traffic. Maintain access routes in a tidy condition, free from accumulation of waste products and debris, or as requested by the Departmental Representative.
 - .7 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
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- .8 Traffic routes must be maintained at all times during the completion of the project work. The Contractor must provide access and temporary relocated roads as necessary to maintain traffic.
 - .9 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
 - .10 Maintain access and egress routes.
 - .11 If ground disturbance of on-site access and egress routes is anticipated or observed, the Departmental Representative may stop work until mitigation measures are implemented. The Departmental Representative must provide approval for implementation of appropriate measures to prevent or repair disturbance or damage. Please note that gravel cannot be used to maintain the on-site access/egress routes and the Contractor must employ temporary access mats (or other suitable measures approved by Departmental Representative) in those circumstances.
 - .12 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic and protection of equipment in areas adjacent to Westside Road.
 - .13 Dust control: adequate to ensure safe operation at all times.
 - .14 Provide adequate bridging over trenches to permit normal traffic if and where required.

1.4 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Traffic Control Manual for Work on Roadways, 1999 Consolidated Office Edition, published by the British Columbia Ministry of Transportation and Infrastructure.
- .3 Place signs and other devices in locations recommended in Traffic Control Manual for Work on Roadways, 1999 Consolidated Office Edition, published by the British Columbia Ministry of Transportation and Infrastructure.
- .4 Meet with Departmental Representative prior to commencement of work to prepare list of signs and other devices required for project. If situation on-site changes, revise list to approval of Departmental Representative.
- .5 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

1.5 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag persons, trained in accordance with, and properly equipped as specified in Traffic Control Manual for Work on Roadways, 1999 Consolidated Office Edition, published by the British Columbia Ministry of Transportation and Infrastructure in following situations:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
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- .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .7 Delays to public traffic due to contractor's operators to be minimized as much as possible and conducted in accordance with provincial guidance and regulations.
- .2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system. Adjust, as necessary, and regularly maintain system during period of restriction. Signal system to meet requirements of Traffic Control Manual for Work on Roadways, 1999 Consolidated Office Edition, published by the British Columbia Ministry of Transportation and Infrastructure.

1.6 OPERATIONAL REQUIREMENTS

- .1 Westside Road is used frequently by the public and therefore a through route must be provided at all times. In the event of an emergency, the Contractor must provide as much access on the roadway as possible.
- .2 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under contract and when measures have been taken as specified and approved by Departmental Representative to protect and control public traffic.
- .3 Maintain existing conditions for traffic crossing right-of-way.

END OF SECTION

1.1 RELATED SECTIONS

- .1 Section 31 23 33.01 – Excavation, Trenching and Backfilling
- .2 Section 02 61 00.01 – Soil Remediation
- .3 Section 01 35 43 – Environmental Procedures

1.2 REFERENCES (LATEST EDITION)

- .1 Canada Labour Code: Part 11-Occupational Health and Safety.
- .2 Canada Occupation Health and Safety Regulations.
- .3 Canadian Environmental Protection Act, S.C.
- .4 Species-at-Risk Act.
- .5 Controlled Products Regulations.
- .6 Inter-provincial Movement of Hazardous Waste Regulations.
- .7 National Fire Code of Canada.
- .8 Transportation and Dangerous Goods Act.
- .9 Canadian Council of Ministers of the Environment (CCME) Documentation.
- .10 Canadian Council of Ministers of the Environment. Canada-Wide Standards for Petroleum Hydrocarbons (PHCs) in Soil.
- .11 British Columbia Environmental Management Act
- .12 British Columbia Contaminated Sites Regulation.
- .13 British Columbia Hazardous Waste Regulation.
- .14 British Columbia Water Act.
- .15 British Columbia Groundwater Protection Regulation.
- .16 British Columbia Workers Compensation Act.
- .17 British Columbia Occupational Health and Safety Regulation.
- .18 Land Development Guidelines for the Protection of Aquatic Habitat (Department of Fisheries and Oceans).

1.3 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures, Section 01 31 19 – Project Meetings and Section 01 35 00.06 Special Procedures for Traffic Control.
 - .2 Within 10 working days after Contract Award and prior to mobilization to site, submit site layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor including following:
 - .1 Equipment and personnel decontamination areas (off-site).
 - .2 Equipment inspection area (off-site)
 - .3 Means of ingress, egress and temporary traffic control facilities.
 - .4 Equipment and temporary material handling areas (off-site).
 - .5 Soil and debris management facility (off-site).
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- .6 Exclusion Zones, Contaminant Reduction Zones, and other zones specified in Contractor's site-specific Health and Safety Plan.

1.4 REGULATORY REQUIREMENTS

- .1 Conduct work in accordance with Permit conditions (refer to Appendix B).
- .2 Work to meet or exceed minimum requirements established by federal, provincial, and local laws and regulations which are applicable.
 - .1 Contractor: responsible for complying with amendments as they become effective.
- .3 In event that compliance exceeds scope of work or conflicts with specific requirements of contract notify Departmental Representative immediately.

1.5 SITE PREPARATION

- .1 Complete activities required to facilitate remediation activities, including:
 - .1 Opening fence and installing temporary security fencing.
 - .2 Identification of exclusion zones.
 - .3 Evaluation of ice coverage in marsh area and its ability to support equipment (to be completed by qualified professional).
 - .4 Confirmation of marsh debris locations through EM survey.
- .2 Install security fencing in accordance with Section 01 56 00 – Temporary Barriers and Enclosures.
- .3 Identify exclusion zones in the field using stakes, flagging or other visual means per Drawing 5. Based on site observations at the time of the site preparation activities, the EMs and GMs may recommend to the Departmental Representative the creation of additional exclusion zones. The Contractor must identify any additional exclusion zones requested by the Departmental Representative using stakes, flagging or other visual means. Any materials used to establish the limits of the exclusion zones must be removed upon completion of work.
- .4 Retain qualified professional to assess adequacy of ice cover in marsh to allow movement of equipment and removal of marsh debris based on proposed approach provided in Section 01 33 00 – Submittal Procedures. Qualified professional to evaluate ice type, ice quality, ice thickness, structural homogeneity and defects and acceptable load. Guidance to working on ice over water can be found in Best Practice for Building and Working Safely on Ice Covers in Alberta available on the Worksafe Alberta website.
- .5 Conduct electromagnetic survey in marsh debris work areas to refine locations of debris.

1.6 SOIL AND DEBRIS MANAGEMENT FACILITY AND DEBRIS STOCKPILING

- .1 Due to the location of the site within a NWA and due to habitat and wildlife constraints at the site, mixed soil and debris removed from the work areas must be transported immediately off-site for screening, sorting, stockpiling and other management activities. The Contractor must demonstrate that the soil and debris management facility is licensed and/or authorized to accept the excavated materials.
 - .2 Provide, maintain, and operate the soil and debris management facility as authorized and as detailed below.
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- .3 The soil and debris management facility must be underlain by impermeable materials (i.e. 15 mil polyethylene liner) to ensure that excavated material does not come into contact with the underlying soil and that any water generated from the excavated material does not infiltrate the underlying soils. Material in the soil and debris management facility is to be covered with an impermeable cover (i.e. 6 mil polyethylene cover) nightly, during periods of work stoppage, during periods of high intensity or sustained rainfall, during periods when the excavated materials are not being actively handled and as directed by the Departmental Representative. It is the Contractor's responsibility to ensure that the covers are not left off and are adequately weighted down to ensure the covers are not blown off (e.g. with tires).
- .4 It is expected that separation (i.e. screening) of the soil from the general refuse/debris and potentially salvageable materials will be required to facilitate disposal of each specific category of material. Following separation of general refuse/debris and potentially salvageable materials and upon receiving approval from the Departmental Representative, the soil can be transported for disposal at an appropriately permitted facility.
- .5 Debris removed from the site which is free of soil/sediment may be temporarily stockpiled adjacent to the site off of Westside Road, provided there is no disruption of traffic flow along Westside Road and provided the Contractor obtains approval from the BC Ministry of Transportation. All stockpiled materials must be underlain by impermeable materials (i.e. 15 mil polyethylene liner).
- .6 At completion of Work, Contractor must decommission soil and debris management facility, dispose of all materials associated with the facility and restore area to existing conditions.

1.7 IMPORT OF FILL MATERIAL

- .1 Definitions:
 - .1 Soil includes:
 - (a) unconsolidated mineral or organic material;
 - (b) fill; and
 - (c) sediment deposited on land.
- .2 Fill Characterization and Documentation:
 - .1 No imported fill is to be used to backfill the Area of Impact 3 excavation. Backfilling of the Area of Impact 3 excavation is to be comprised of soil within the excavation limits (where debris can be readily removed and soil concentrations meet the site-specific soil targets provided in Table 4) and/or material borrowed from immediately adjacent areas through re-contouring. Analytical results for soil from within the excavation limits following debris removal must be received by the Departmental Representative prior to use as backfill. The Contractor must not backfill the excavation until approved by the Departmental Representative.
 - .2 No imported fill material is to be placed in the Main Debris Zone excavation. Backfilling of the Main Debris Zone excavation will be limited to that which is required to mitigate potential erosion and health and safety hazards and that which is required by the Departmental Representative. Backfill in these circumstances will be borrowed from immediately adjacent areas where deemed

acceptable by the Departmental Representative, with input from the Environmental Monitor and Geotechnical Monitor.

- .3 No fill materials, other than those described above, are to be used at the site due to concerns regarding the introduction of invasive or weed species. Any non-compliant material imported to the site must be immediately excavated, loaded and transported off-site at the Contractor's cost.

1.8 EQUIPMENT DECONTAMINATION

- .1 Establish location adjacent to site in pullout area to inspect equipment for soil, debris, grease, vegetation, etc. prior to equipment entering the site.
 - .2 Establish location adjacent to site in pullout area for personnel decontamination.
 - .3 Establish off-site location for equipment decontamination.
 - .4 All equipment brought onto the site must be clean and free from contaminants including but not limited to soil, grease, vegetation, weeds, debris.
 - .5 Equipment working in the excavation areas must be dedicated to the work area for the duration of the project. If the equipment has to leave site, the Contractor must decontaminate the equipment at the off-site equipment decontamination location prior to it returning to the site.
 - .6 Decontaminate equipment at the completion of work or as directed by the Departmental Representative.
 - .7 Decontaminate trucks between loads of contaminated soil and non-contaminated materials.
 - .8 Perform equipment decontamination in area where any runoff or impacted material can be contained and collected for treatment or disposal.
 - .9 At minimum, perform following steps during equipment decontamination off-site: 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. Scrub surfaces with long handle scrub brushes and cleaning agent. Rinse off and collect cleaning agent. Decontaminated equipment will be subject to inspection by the Departmental Representative prior to returning to the site and at the completion of work. Departmental Representative will have right to require additional decontamination to be completed if deemed necessary.
 - .10 Maintain inspection record on-site which includes: equipment descriptions with identification numbers; time and date of decontamination; and name of inspector with comment stating that decontamination was performed and completed.
 - .11 Take appropriate measures necessary to minimize drift of mist and spray during decontamination including provision of wind screens.
 - .12 Collect decontamination wastewaters and sediments which accumulate. Transfer wastewaters to designated wastewater storage tank and dispose of sediments appropriately.
 - .13 Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.
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1.9 FINAL DECONTAMINATION

- .1 Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially contaminated materials.
- .2 Perform decontamination as specified to satisfaction of Departmental Representative. Departmental Representative will direct Contractor to perform additional decontamination if required.

1.10 REMOVAL AND DISPOSAL - GENERAL

- .1 Remove surplus materials and temporary facilities from site.
- .2 Dispose of wastes as outlined in Section 01 35 43 - Environmental Procedures and in this section.
- .3 Dispose of following materials at appropriate off-site facility identified by Contractor and accepted by the Departmental Representative:
 - .1 Debris including excess construction material.
 - .2 Non-contaminated litter and rubbish.
 - .3 Disposable PPE worn during final cleaning.
 - .4 Wastewater generated from final decontamination operations.
- .4 Minimize generation of hazardous waste during remediation activities (i.e. from operations) to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .5 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Lead-acid battery recycling.

1.11 DRUMS

- .1 Storage of liquid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled. No drums of liquid waste are to be stored on-site. Drums may be temporarily stored adjacent to the site in the pullout area provided secondary containment is in place.
- .2 Storage of solid waste: 200 L steel drums meeting Transportation and Dangerous Goods Act, closable lids, complete with labels for marking contents and date filled. No drums of solid waste are to be stored on-site. Drums may be temporarily stored adjacent to the site in the pullout area provided secondary containment is in place.

1.12 CONTAMINATED WASTE MANAGEMENT

- .1 Segregate, excavate, handle, stockpile, load, transport and dispose all Contaminated Waste (i.e. contaminated soil, general refuse, construction/demolition waste and other waste) within work areas as outlined in this section and in Section 01 35 43 – Environmental Procedures, Section 02 61 00.01 – Soil Remediation and Section 31 23 33.01 – Excavating, Trenching and Backfilling.
 - .2 Minimize generation of Contaminated Waste to greatest extent practicable.
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- .3 Material characterization additional to information provided in Contract required by transport or Disposal Facility is the responsibility of Contractor.

1.13 CONTAMINATED WASTE TRANSPORT

- .1 Assume ownership of, and be responsible for, Contaminated Waste once it is loaded on a vehicle for transport off-site.
- .2 Transport material off-site as soon as practical. There is to be no stockpiling of material on-site.
- .3 Transport material as outlined in Section 02 61 00.01 – Soil Remediation.

1.14 CONTAMINATED WASTE DISPOSAL

- .1 Contaminated Waste Disposal: dispose Contaminated Waste at Disposal Facility identified by Contractor and accepted by the Departmental Representative. Submit identification of the facility as outlined in Section 01 33 00 – Submittal Procedures.
- .2 Dispose material as soon as practical and before March 13, 2015.
- .3 Permanently store material sent to a Disposal Facility at that facility.
- .4 Submit Certificates of Disposal for all material disposed off-site.

END OF SECTION

1.1 RELATED SECTIONS

- .1 Section 01 35 00.06 - Special Procedures for Traffic Control
- .2 Section 01 56 00 - Temporary Barriers and Enclosures
- .3 Section 31 23 33.01 - Excavating, Trenching and Backfilling

1.2 MEASUREMENT PROCEDURES

- .1 Not Used

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit to Departmental Representative submittals listed for review within 10 working days of Contract Award.
- .2 Proceed with Work affected by Submittal after review is complete.
- .3 Submit the following:
 - .1 Health and Safety Plan.
 - .2 Proof of good standing with WorkSafe BC.
 - .3 Copy of Notice of Project submitted to WorkSafe BC.
 - .4 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .5 Copies of incident and accident reports.
 - .6 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .7 Emergency Procedures.
- .4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 business days after receipt of the plan.
- .5 If changes are required, revise the plan as appropriate and resubmit to Departmental Representative within 5 Working Days.
- .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 Submittal of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It will 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.

1.4 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 Structures
- .4 Fire Protection Engineering Services, HRSDC:
 - .1 FCC No. 301, Standard for Construction Operations
 - .2 FCC No. 302, Standard for Welding and Cutting
- .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

1.5 REGULATORY REQUIREMENTS

- .1 Comply with codes, acts, bylaws, standards and regulations applicable to the performance of the Work in accordance with the Contract 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.

1.6 WORKER'S COMPENSATION BOARD COVERAGE

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

1.7 COMPLIANCE WITH REGULATIONS

- .1 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.

1.8 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor for Work under this contract.
 - .1 Be responsible for health and safety of persons, safety of property and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work. Please note the Work is considered to include activities on-site as well as at the off-site soil and debris management facility.
 - .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable Federal, Provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 HEALTH AND SAFETY COORDINATOR

- .1 The Health and Safety Coordinator must:
 - .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.

1.10 GENERAL CONDITIONS

- .1 All personnel must check in with the site supervisor prior to entering the site and must be wearing high-visibility vests at all times while on site.
- .2 The requirements outlined in this Section pertain to both the on-site and off-site (i.e. soil and debris management facility) work areas.
- .3 Provide safety barricades and lights around site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .4 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the site:
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel, and temporary lighting as required.
 - .2 Secure site and excavation at night time to protect site against entry.

1.11 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with contaminants identified in Specifications and environmental reports.

1.12 WORK PERMITS

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

1.13 FILING OF NOTICE

- .1 The Prime Contractor is to complete and submit a Notice of Project as required by Provincial authorities.
- .2 Provide copies of all notices to the Departmental Representative.

1.14 HEALTH AND SAFETY PLAN

- .1 Conduct a site-specific hazard assessment based on review of Contract Documents, required Work, and project site. Identify any known and potential health risks and safety hazards.
- .2 Prepare and comply with a site-specific project 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 communications 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 Outline procedure for addressing unforeseen hazards (refer to 1.17 below).
- .4 Outline procedure for addressing hazards associated with working in cold weather, working in ice and snow and working on ice over water.
- .5 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .6 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.
- .7 Departmental Representative's review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) will not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract Documents.

1.15 EMERGENCY PROCEDURES

- .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (ie 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 site staff.
- .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 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 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.16 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling 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 Notify Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents as required.
 - .2 Provide adequate means of ventilation as required.

1.17 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 notify the Departmental Representative verbally and in writing. Conduct a health and safety

tailgate meeting to ensure all workers are informed of the factor, hazard or condition before returning to Work.

1.18 POSTED DOCUMENTS

- .1 Post legible versions of the following documents on-site:
 - .1 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 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 accepted by the Departmental Representative.

1.19 MEETINGS

- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.
- .2 Ensure all site personnel attend a health and safety "tailgate" or "toolbox" meeting at the beginning of each shift, which must include:
 - .1 Sign-in of all attendees.
 - .2 Planned Work activities and environmental considerations for that shift.
 - .3 Hazards associated with these Work activities, including environmental hazards (eg. potential for hypothermia, heat exhaustion, heat stroke).
 - .4 Appropriate job-specific safe work procedures.
 - .5 Required personal protective equipment (PPE).
 - .6 Appropriate emergency procedures.
 - .7 Review recent accidents on Site, including near misses.
- .3 Retain records of all health and safety meetings on-site during Work, and retain as corporate records for a minimum of 7 years after Work is completed.

1.20 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.
- .4 Correct non-compliance

1.21 CRITICAL INCIDENT REPORTING

- .1 Critical Incident Includes
 - .1 An event resulting in death or serious injury to employees, client department personnel, contractors or the general public entering or occupying PWGSC facilities. This can include physically or psychologically traumatic events such as natural disasters, hostage takings, terrorism, rape, acts or threats of violence, accidents, suicides or homicides.
 - .2 A fire or explosion causing equipment or property damage or threat to another property.
 - .3 Damage to a boiler or other pressure vessel resulting in fire or rupture of equipment.
 - .4 The free fall of or damage to an elevating device rendering it unserviceable.
 - .5 The uncontrolled release or spill of hazardous wastes or materials.
 - .6 The implementation of rescue, revival or other similar emergency procedures.
 - .7 A structural failure or collapse of a building, tower, crane, hoist, temporary construction support system or excavation.
 - .8 An electric shock, toxic or oxygen deficient atmosphere causing an employee to lose consciousness.
- .2 In the event of a Critical Incident, immediate actions include:
 - .1 Contacting emergency services as required (ambulance, fire department, police, environment).
 - .2 Initiating urgently required corrective action appropriate to the incident (protect life, first-aid treatment, minimize property damage, etc.).
 - .3 Contacting the Regional Manager responsible for Safety and Health.
 - .4 Ensuring that evidence on the site is not disturbed until investigations have been completed.
 - .5 Cooperating with officials authorized to investigate the incident.

1.22 UTILITY CLEARANCE

- .1 The Contractor is solely responsible for utility clearance.
- .2 The Contractor will not rely upon drawings or other information provided with utility locations.

1.23 PERSONAL PROTECTIVE EQUIPMENT PROGRAM

- .1 Submit Personal Protective Equipment (PPE) program to the Departmental Representative addressing:
 - .1 Donning and doffing procedures.
 - .2 PPE selection based upon Site hazards.
 - .3 PPE use and limitations of equipment.
 - .4 Work mission duration, PPE maintenance and storage.
 - .5 PPE decontamination and disposal.
 - .6 PPE inspection procedures prior to, during, and after use.
 - .7 Evaluation of effectiveness of PPE program, and limitations during temperature extremes, and other appropriate medical considerations.
 - .8 Medical surveillance requirements for personnel assigned to work at site.
 - .9 Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
 - .10 Site control measures employed at site including site map, site work zones, use of 'buddy system', site communications including site security, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
 - .11 Decontamination procedures for both personnel and equipment.
 - .12 Emergency response requirements addressing: pre-emergency planning, personnel roles, lines of authority and communication, emergency recognition and prevention, safe distances and places of refuge, site security and control, evacuation routes and procedures, decontamination procedures not covered under decontamination section, emergency medical treatment and first aid, emergency alerting and response procedures, critique of response and follow-up, PPE and emergency equipment, site topography, layout, prevailing weather conditions, and procedures for reporting incidents to local, provincial, or federal agencies.
 - .13 Written respiratory protection program for project activities.
 - .14 Procedures dealing with heat and/or cold stress.
 - .15 Spill containment program if waste material is generated, excavated, stored, or managed on-site.

1.24 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.

1.25 PERSONNEL HEALTH, SAFETY, AND HYGIENE

- .1 Training: ensure personnel entering Site are trained in accordance with specified personnel training requirements. Training session must be completed by Health and Safety Officer.

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- .2 Levels of Protection: establish levels of protection for each Work area based on planned activity and location of activity.
 - .3 Personal Protective Equipment:
 - .1 Furnish site personnel with appropriate PPE as specified above. Ensure that safety equipment and protective clothing is kept clean and maintained.
 - .4 Develop protective equipment usage procedures and ensure that procedures are strictly followed by site personnel; include following procedures as minimum:
 - .1 Ensure prescription eyeglasses worn are safety glasses and do not permit contact lenses on-site within work zones.
 - .2 Ensure footwear is steel-toed safety shoes or boots and is covered by rubber overshoes when entering or working in potentially contaminated work areas.
 - .3 Dispose of or decontaminate PPE worn on-site at end of each workday.
 - .4 Decontaminate reusable PPE before reissuing.
 - .5 Ensure site personnel have passed respirator fit test prior to entering potentially contaminated work areas.
 - .6 Ensure facial hair does not interfere with proper respirator fit.
 - .5 Respiratory Protection:
 - .1 Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied-air respirators in accordance with specified regulations.
 - .2 Develop, implement, and maintain respirator program.
 - .3 Monitor, evaluate, and provide respiratory protection for site personnel.
 - .4 Ensure levels of protection as listed have been chosen consistent with site-specific potential airborne hazards associated with major contaminants identified on-site.
 - .5 In absence of additional air monitoring information or substance identification, retain an industrial hygiene specialist to determine minimum levels of respiratory protection required.
 - .6 Immediately notify Departmental Representative when level of respiratory protection required increases.
 - .7 Ensure appropriate respiratory protection during Work activities. As minimum requirement, ensure that persons entering potentially contaminated work areas are supplied with and use appropriate respiratory protection.
 - .6 Heat Stress/Cold Stress: implement heat stress or cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.
 - .7 Personnel Hygiene and Personnel Decontamination Procedures. Provide minimum as follows:
 - .1 Suitable containers for storage and disposal of used disposable PPE.
 - .2 Potable water and suitable sanitation facility.
 - .8 Emergency and First-Aid Equipment:
 - .1 Locate and maintain emergency and first-aid equipment in appropriate location on-site including first-aid kit to accommodate number of site personnel; portable emergency eye wash; two 9 kg ABC type dry chemical fire extinguishers.

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- .9 Site Communications:
- .1 Post emergency numbers in high visibility locations on the site.
 - .2 Ensure personnel use of "buddy" system and develop hand signal system appropriate for site activities.
 - .3 Provide employee alarm system to notify employees of site emergency situations or to stop Work activities if necessary.
 - .4 Furnish selected personnel with 2-way radios.
 - .5 Safety Meetings: conduct mandatory daily safety meetings for personnel, and additionally as required by special or Work-related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on as-needed basis.

END OF SECTION

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.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Prior to commencing construction activities or delivery of materials to site, submit within 10 working days of Contract Award an Environmental Protection Plan (EPP) for review and acceptance by the Departmental Representative. The EPP is to present comprehensive overview of known or potential environmental issues, which must be addressed during Work.
 - .3 Address topics at level of detail commensurate with environmental issue and required work tasks.
 - .4 The Departmental Representative will review the Contractor's EPP and provide comments to the Contractor within three business days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
 - .5 The contractor must have an EPP in place prior to initiating work. The EPP must contain all environmental mitigation measures outlined in the documentation provided in Appendix B, permits, and authorizations for the project. The EPP must include but is not limited to the following:
 - .1 Names and qualifications of persons responsible for ensuring adherence to EPP.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of EPP training program.
 - .5 Erosion and sediment control plan (including drawing) 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, permit conditions, Federal, Provincial, and Municipal laws and regulations.
 - .6 The Contractor must have provision in the EPP for mitigating impacts of runoff to downstream surface water bodies, including Wilmer Marsh. The EPP must include a conceptual water management plan describing all mitigation measures that will be taken by the Contractor to ensure that any contaminated material from the Project site, including soil and debris, will be isolated and contained, and to ensure that potential runoff will be intercepted and prevented from contacting potentially contaminated materials.
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- .7 A truck route plan detailing access/egress routes. The truck route plan must include drawings showing locations of proposed access/egress routes, exclusion zones and structures (fences, construction facilities, and sanitary facilities).
- .8 Traffic control plans including methods for controlling soil disturbance related to equipment traffic on-site. Plans should also include measures to minimize amount of mud transported onto public roads by vehicles.
- .9 Work area plan showing proposed activity in each portion of area and identifying exclusion zones. Plan to include measures for marking limits of work areas relative to exclusion zones including methods for protection of features to be preserved within authorized work areas. Work area plan must also depict location of fencing.
- .10 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .11 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .12 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel outside the work areas.
- .13 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.
- .14 Procedures for identifying and protecting historical, archaeological, cultural resources and biological resources. All artifacts of historical or cultural value will remain the property of the Crown.
- .15 Details of the sustainable remediation strategies to be implemented by the Contractor during the work.

1.3 REGULATORY REQUIREMENTS

- .1 Protect plants and wildlife in accordance with applicable regulations and the documentation in Appendix B.
- .2 Provide water control in accordance with applicable regulations and the documentation in Appendix B.
- .3 Provide erosion and sediment control in accordance with applicable regulations and the documentation in Appendix B.
- .4 Comply with federal, provincial, and local anti-pollution laws, ordinances, codes, and regulations, as well as the documentation in Appendix B, when disposing of waste materials, debris, and rubbish.

1.4 NOTIFICATION

- .1 The EMs, GMs and Departmental Representative will audit the Contractor's compliance with the EPP.
- .2 Departmental Representative will notify Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of the Contractor's EPP.

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- .3 Contractor: after receipt of such notice, inform the Departmental Representative of proposed corrective action and take such action for approval by the Departmental Representative.
 - .4 The Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
 - .5 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.5 FIRES

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

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste, hazardous wastes or volatile materials, such as mineral spirits, oil or paint thinner, into waterways, storm or sanitary sewers.
- .3 All materials removed from the site must be reused, recycled or disposed of through an approved landfill.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

1.7 PLANT PROTECTION

- .1 Protect on-site native vegetation areas and wildlife trees through demarcation of exclusion or “no work” zones.
- .2 Protect trees and plants on adjacent properties to the site.
- .3 The Departmental Representative will coordinate with the Environmental Monitor to evaluate any trees located in the area of the proposed works. If the Environmental Monitor determines that one or more trees on-site are to be left in place during remediation, the Contractor will retain a qualified arborist to determine how to work around the tree in question. Protect roots of designated trees during remediation activities to prevent disturbance or damage. Avoid unnecessary traffic over root zones.
- .4 Minimize stripping of topsoil and vegetation.

1.8 WILDLIFE PROTECTION

- .1 The site is located within a National Wildlife Area with known Species-at-Risk Act listed species in the area. The Environmental Monitors will notify the Departmental Representative if sensitive species are identified in the work areas and the Departmental Representative will in turn instruct the Contractor to stop work until mitigative measures have been discussed with Canadian Wildlife Service. No standby time will be granted for stoppage due to identification of sensitive species in the work area.
 - .2 Allow Environmental Monitors to conduct pre-remediation survey activities for potential wildlife in work areas.
 - .3 Do not harass or disturb any wildlife present on site or adjacent lands. Notify the Environmental Monitor immediately upon identification of wildlife.
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- .4 Allow Environmental Monitor to conduct fish, vegetation and/or wildlife protection activities prior to and during excavation and debris removal activities and re-contouring and backfill activities. Notify the Departmental Representative in advance of such activities so that the Departmental Representative can coordinate fish, vegetation and/or wildlife protection activities by the EMs.

1.9 WATER CONTROL

- .1 Maintain excavations free of water where possible.
- .2 Prevent precipitation from infiltrating or from directly running off stockpiled materials at the off-site soil and debris management facility. Cover stockpiled materials as outlined in Section 01 35 13.43 - Special Project Procedures for Contaminated Sites.
- .3 Dispose of water in manner not injurious to public health or safety, to property, or to any part of work completed or under construction. Ensure that discharges from site are in compliance with applicable regulations.
- .4 Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, staging areas (including soil and debris management facility), and other work areas free from water.
- .5 Have on hand sufficient equipment in good working condition for ordinary emergencies, including power outage, and competent workers for operation of water control equipment.
- .6 The Contractor is responsible for obtaining all necessary disposal and/or discharge permits as required.

1.10 EROSION AND SEDIMENT CONTROL

- .1 Plan and execute construction by methods to control surface drainage from cuts and fills and from stockpiles, staging areas (including soil and debris management facility), 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. Implement measures intended to minimize erosion as directed by the Departmental Representative, with input from the Environmental Monitor and the Geotechnical Monitor. Remove accumulated sediment resulting from construction activity from adjoining surfaces and water courses, and repair damage caused by soil erosion and sedimentation as directed by the Departmental Representative, with input from the Environmental Monitor and the Geotechnical Monitor. Any such sediment must be transferred to the soil and debris management facility for characterization.
 - .3 Provide and maintain temporary measures which may include silt cloth and fences, temporary drainage pumps and piping, berms, sedimentation basins, vegetative cover, 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. Materials are to be new and not re-used from other sites in order to minimize the potential for introduction of invasive species. Consult the Environmental Monitor, Geotechnical Monitor and Departmental Representative for approval of erosion control measures. Temporary improvements must remain in place and in operation as necessary or until otherwise directed by the Departmental Representative. All temporary erosion control measures are to be removed from the work area prior to demobilization unless directed by Departmental Representative.
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- .4 Erosion control measures to remain at the site following the completion of work include constructed cross-ditches, coconut fibre/straw mat cover and coarse woody debris (obtained from on-site locations in order to minimize introduction of invasive or non-native species) along surface runoff channels and/or at locations and frequencies directed by the Departmental Representative, with input from the EM and GM.
 - .1 Mat cover to be composed of coconut fibre/straw blend (70% agricultural straw and 30% coconut fibre blend): double net (1.59 cm by 1.59 cm top net, 1.49 cm by 1.3 cm bottom net), mass per unit area of 270 g/ m², “C” factor of 0.002, maximum permissible shear stress of 96 Pa, maximum permissible velocity of 2.44 m/s, Manning’s “n” of 0.03 .
 - .2 Mat must have good contact with the underlying surface (tamp down).
 - .3 Mat must be installed with the direction of the slope (i.e. top to bottom) with overlapping edges and pinned in place (install as per manufacturer’s recommendations).
 - .4 Pins must be at least 50 cm long and comprised of natural materials (i.e. wood stakes) free of invasive species.
 - .5 The upslope end of the mat must be buried in a trench at least 300 mm deep. Backfill in the trench must be compacted.
 - .5 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.
 - .6 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.
 - .7 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.
 - .8 Plan construction procedures to avoid damage to work or equipment encroachment outside of proposed work areas. In event of damage, promptly notify the Departmental Representative, and take action to mitigate effects. Restore affected area to existing condition.
 - .9 Installation:
 - .1 Construct temporary erosion control items as indicated by the Departmental Representative, with input from the Geotechnical Monitor and Environmental Monitor.
 - .2 Check erosion and sediment control measures immediately after each rainfall; during prolonged rainfall check daily, during the course of the work.
 - .3 Silt fence may be removed temporarily following consultation with the Departmental Representative.
 - .4 Repair damaged silt fencing immediately upon identification of deficiencies.
 - .10 Implement the following mitigative measures to reduce potential for erosion and sedimentation:
 - .1 Reduce excavation areas and depths to minimize the total area of disturbance and to reduce the height of potentially unstable cut slopes.
 - .2 Conduct remediation activities under extended periods of dry, or frozen, ground conditions.
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- .3 Utilize low-impact equipment such as rubber-tired or spider hoe-type excavators (with operators experienced in working on steep slopes) to reduce the potential for ground disturbance.
 - .4 Exercise caution in operating equipment in the vicinity of the void identified on the lower trail. The location of the void is depicted on Drawing 5.
 - .5 Construct cross-ditches at the top of the trail work area to divert surface flow from the work areas.
 - .6 Construct cross-slope terraces along long sections of steep uniform slopes to break the slope and slow surface runoff along the slope.
 - .11 Do not disturb existing embankments or embankment protection unless requested by the Departmental Representative.
 - .12 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly notify the Departmental Representative and apply corrective measures.
 - .13 If soil and debris from site accumulate in low areas, storm sewers, roadways, gutters, ditches, or other areas where in the Departmental Representative's determination it is undesirable, remove accumulation and restore area to original condition.

1.11 DUST AND PARTICULATE CONTROL

- .1 Execute work by methods to minimize raising dust from construction operations.
- .2 Implement and maintain dust and particulate control measures as directed by the Departmental Representative.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .4 As minimum, use appropriate covers on trucks hauling fine or dusty material.
- .5 Prevent dust from spreading to adjacent property sites.
- .6 The Departmental Representative will stop work at any time when Contractor's control of dusts and particulates is inadequate for wind conditions present at site.
- .7 If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. Contractor must discuss procedures with Departmental Representative that Contractor proposes to resolve problem. Make necessary changes to operations prior to resuming excavation, handling, processing, or other work that may cause release of dusts or particulates.

1.12 POLLUTION CONTROL

- .1 Maintain pollution control features installed under this contract.
 - .2 Control emissions from equipment and plant to local authorities' emission requirements.
 - .3 Control nuisance odours associated with diesel emissions from construction equipment.
 - .4 Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious toxic substances and pollutants produced by construction operations.
 - .5 Contact manufacturer of pollutant if known and ascertain hazards involved, precautions required, and measures used in cleanup or mitigating action.
 - .6 Ensure that equipment and machinery is properly maintained to minimize unnecessary noise pollution. Consider local municipal noise bylaws when mobilizing equipment.
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1.13 SPILLS OR RELEASE OF DELETERIOUS SUBSTANCES

- .1 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water.
- .2 Measures to be implemented to prevent, control or mitigate spills or release of deleterious substances:
 - .1 Contractors must ensure no deleterious materials enter any surface drainage pathways located in the project area. The recommendations in the Land Development Guidelines for the Protection of Aquatic Habitat (Chillibeck et al. 1993) and the Fisheries and Oceans Canada requirements for erosion and sediment control (<http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm>) must be implemented. Silt-laden runoff water from the site must not be allowed to enter nearby surface water. Engineering controls must be implemented to ensure proper isolation of soil from groundwater and surface water.
 - .2 Emergency response procedure for spills of deleterious substances must be in place. In the event of a spill, the contractor will immediately implement the emergency response procedures and then contact the Departmental Representative. In the event of a spill that cannot be easily contained or cleaned up, the Contractor will immediately implement the emergency response procedures, call 911, and then contact the Departmental Representative.
 - .3 Provide spill response equipment/materials, including but not limited to, containers, absorbent material, shovels and personal protective equipment.
 - .4 Provide spill response equipment/materials on-site at all times and train workers in their location and use. The resources on hand must be readily accessible and must be sufficient to respond effectively and expediently to any spill that could occur on site.
 - .5 Make spill response equipment/materials available at all times in which hazardous materials or wastes are being handled or transported. The spill response equipment/materials are to be compatible with the type of material being handled.
 - .6 Properly maintain all construction equipment brought onto the site.
 - .7 Conduct any equipment fuelling or maintenance in a designated area off-site. Guidance regarding siting of fuelling areas is provided by BC Ministry of Environment (A Field Guide to Fuel Handling, Transportation & Storage).
 - .8 Appropriately place drip pans beneath any equipment remaining on-site overnight.
 - .9 Prevent discharges containing asphalt, grout, concrete (includes washwater of equipment used for concrete works), or other waste materials from reaching storm drains or nearby surface water bodies. This includes, but is not limited to:
 - i. Cleaning equipment off-site; and
 - ii. Protection of any other drainage structures not identified here with engineering controls.

1.14 SUSTAINABLE REMEDIATION

- .1 General:
 - .1 Use biodegradable hydraulic fluids in equipment used in and around waterways.
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- .2 Energy:
 - .1 Maintain equipment at peak performance to maximize efficiency and train operators to run equipment efficiently.
 - .2 Evaluate and optimize energy efficiency of equipment with high energy demands periodically and adjust operations accordingly.
- .3 Air Emissions:
 - .1 Consolidate on-site and off-site vehicular trips to reduce fuel consumption.
 - .2 Maintain engines of vehicles and machinery in accordance with manufacturer recommendations.
 - .3 Modify field operations through combined activity schedules, an idle reduction plan, and using machinery with automatic idle-shutdown devices.

END OF SECTION

1.1 INSTALLATION AND REMOVAL

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

1.2 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating as required during the Work period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside buildings must be vented to outside or be non flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of work.
 - .2 Protect Work and products against humidity and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.
- .4 Pay costs for maintaining temporary heat.
- .5 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform to applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct fired combustion units to outside.
- .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.3 TEMPORARY POWER AND LIGHT

- .1 Contractor must pay for and provide for temporary power during construction for temporary lighting, construction facilities and operating of power tools etc. No power is available at the site.
- .2 Provide and maintain temporary lighting throughout project.

1.4 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for all required temporary communications to complete the project. Communication utilities available at the site are limited to cellular telephone coverage.
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1.5 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

END OF SECTION

1.1 REFERENCES (LATEST VERSION)

- .1 Canadian Construction Documents Committee (CCDC)
- .2 Canadian General Standards Board (CGSB)
- .3 Canadian Standards Association (CSA International)
- .4 Measurement Canada: Weights and Measures Act

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

- .1 Construction facilities are to be installed off-site adjacent to Westside Road. The Contractor is responsible for obtaining the necessary permits and approvals from the Ministry of Transportation and Infrastructure.
- .2 Indicate use of supplemental or other staging area (i.e. off-site soil and debris management facility).
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

1.4 CONSTRUCTION PARKING

- .1 Parking will not be allowed on the site due to sensitive habitat. Acceptable parking areas will be determined and agreed upon by Departmental Representative prior to initiation of work.
- .2 Provide and maintain adequate access to project site.

1.5 OFFICES

- .1 Provide office space heated to 20 degrees C, lighted, ventilated, of sufficient size to accommodate site meetings and furnished with drawings laydown table.
 - .2 Provide office space heated to 20 degrees C, lighted, ventilated and with 110V power made available for the Departmental Representative and up to three other individuals (in addition to the Contractor's personnel) to use as a work space, including at minimum a table and chairs for the Departmental Representative's use.
 - .3 Subcontractors to provide their own offices as necessary. Direct location of these offices to Departmental Representative for approval.
 - .4 Clean as outlined in Section 01 74 11 - Cleaning.
 - .5 Maintain at site office one record copy of:
 - .1 General Conditions
 - .2 All Permits, Authorizations and Approvals for the proposed works.
 - .3 Utility Plans.
 - .4 Contract Drawings.
 - .5 Specifications.
 - .6 Addenda.
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- .7 Change Orders and other modifications to Contract.
 - .8 Reviewed shop drawings, product data, and samples.
 - .9 List of Outstanding Shop Drawings.
 - .10 One set of record drawings and Specifications for “as-built” purposes.
 - .11 Field and Laboratory Test Reports.
 - .12 Copy of Accepted Project Schedule.
 - .13 Health and Safety Plan and Other Safety Related Documents including daily toolbox or tailgate meetings.
 - .14 Daily work records to be completed by end of each shift which include:
 - .1 Quantities for each Description of Work identified in the Unit Price Table and Change Orders.
 - .2 Description of Work performed.
 - .3 Current Site conditions.
 - .4 General information including: date, time shift started and ended, Subcontractor(s) on-site, Health and Safety items, and Environmental Protection items.
 - .5 Records of on-site (within site) movement of soil.
 - .6 Records of all material movement onto and off the site, including records (manifests) of waste movement and disposition, and analytical records as need be.
 - .7 Signature of Superintendent and Departmental Representative.
 - .15 Worksafe BC notice of project, also to be provided to PWGSC prior to mobilization to the site.
 - .16 Environmental Protection Plan.
 - .17 Reviewed and accepted submittals.
 - .18 Manufacturers’ installation and application instructions (as appropriate).
 - .19 National Building Code of Canada (as appropriate).
 - .20 Current construction standards of workmanship listed in technical Sections (as appropriate).
 - .21 Final Meeting Minutes, Agendas and associated Attachments.
 - .22 Other document as specified by the Departmental Representative.
 - .6 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage. Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
 - .7 Maintain record documents in clean, dry and legible condition in site office. Do not use record documents for construction purposes.
 - .8 Keep record documents and samples available for inspection the Departmental Representative.

1.6 FIRST AID

- .1 Provide marked and fully stocked first aid case in a readily available location.
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1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain lockable storage for tools, equipment and materials.
- .2 Locate materials not required on-site in manner to cause least interference with work activities.
- .3 Storage of any equipment, tools and materials at the site is at the discretion of the Contractor; PWGSC will not be responsible for damaged, vandalized or stolen items.

1.8 SANITARY FACILITIES

- .1 Provide and maintain sanitary facilities for work force in accordance with governing regulations and ordinances. Contractor is responsible for regular, scheduled removal and disposal of sanitary waste.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.9 CLEAN-UP

- .1 Complete cleaning as outlined in Section 01 74 11 - Cleaning.

END OF SECTION

1.1 INSTALLATION AND REMOVAL

- .1 The site is currently fenced along Westside Road (wooden post and metal wire fencing). In order to access the site, the Contractor must temporarily open the fence. The fence is to be reinstalled to the existing condition upon completion of work. The Contractor must correct any deficiencies observed in the fencing at their cost.
- .2 Temporary fencing (i.e. 6 foot high panel fencing) is required along Westside Road where the Contractor has opened the existing fence to allow movement of personnel and equipment. The temporary fencing must be secured nightly to ensure unauthorized access to the site is restricted.
- .3 Provide fencing around any excavations that are unsafe for entry due to location, steepness of sides or depth.
- .4 Provide temporary controls in order to execute Work expeditiously.
- .5 Remove from site all such work after use.

1.2 HOARDING

- .1 Provide barriers around trees and plants designated to remain in accordance with Section 01 35 43 - Environmental Procedures. Protect from damage by equipment and construction procedures.

1.3 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around work areas as required by WCB regulations.

1.4 ACCESS TO SITE

- .1 Provide and maintain access routes for access to Work. Please note that the use of gravel at the site is not allowed. If necessary, temporary access mats (or other suitable measures approved by the Departmental Representative) are to be utilized to provide access to Work.

1.5 FIRE ROUTES

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

1.6 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.

END OF SECTION

1.1 PROJECT CLEANLINESS

- .1 Maintain project area in tidy condition, free from accumulation of waste products and debris, or as requested by the Departmental Representative
- .2 Provide on-site containers for collection of waste materials, packaging material and debris.
- .3 Remove construction debris, waste materials and packaging material from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Waste materials, packaging materials and debris are to be disposed in accordance with Section 01 35 43 - Environmental Procedures.
- .4 Clean interior areas of temporary construction facilities prior to, during and following work.
- .5 Ensure sanitary facilities are maintained in a hygienic manner.
- .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.2 FINAL CLEANING

- .1 When Work is substantially performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Rake clean other surfaces of ground.
- .5 Final cleaning will be subject to inspection by the Departmental Representative.

END OF SECTION

1.1 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor Design-Builder and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Design-Builder's Inspection and that corrections have been made.
- .2 Owner Inspection: Departmental Representative, Environmental Monitors, Geotechnical Monitors and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Any deficiencies reported by the Departmental Representative will be corrected by the Contractor at their cost.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Operation of systems has been demonstrated to Owner's personnel.
 - .4 Work is complete and ready for final inspection.
- .4 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.
- .5 The Contractor must remove all temporary construction facilities (office, sanitary facilities, equipment storage sheds, soil and debris management facility, etc.) upon completion of the work and at the direction of the Departmental Representative.
- .6 The Contractor must remove any temporary erosion control measures and temporary fencing upon completion of the work and at the direction of the Departmental Representative.
- .7 Environmental control measures must remain in place until the Departmental Representative, with input from the Geotechnical Monitor and Environmental Monitor, determines they are no longer required.
- .8 The Contractor must remove all environmental control measures when the Departmental Representative determines they are no longer required.
- .9 The Contractor must not disturb or remove the sediment curtain from the marsh during the project works. The sediment curtain will remain in place at the site until surface water total suspended solid and total dissolved solid concentrations are consistent with previously established baseline concentrations (Table 6).

1.2 CLEANING

- .1 In accordance with Section 01 74 11 - Cleaning.

END OF SECTION

1.1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Furnish evidence, if requested, for type, source and quality of products provided.
- .3 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .4 Pay costs of transportation.
- .5 Final survey and as-built record as detailed below.
- .6 Revise content of documents as required prior to final submittal.

1.2 AS-BUILTS AND SAMPLES

- .1 Contractor is required to submit to Departmental Representative an as-built record in of the site, including information detailed below, at the completion of work. Provide 1 set of CDs in AutoCAD 14 file format with all as-built information on the CDs. The Departmental Representative must provide the original AutoCAD files for “as-built” purposes.

1.3 FINAL SURVEY

- .1 Submit final site survey showing:
 - .1 Location and extent of excavation, including grade/topography and the location of any utility line replacement to show the work is in conformance with Contract Documents.
 - .2 Location of any decommissioned and/or abandoned utilities encountered and location of any utilities encountered not on current Drawings.
 - .3 Location and extent of permanent erosion control features (terraces, cross-slope ditches, coconut fibre/straw mat cover, etc.).
 - .4 Location of the fence along Westside Road.
 - .5 Location of the provincial-federal boundary along the southern border of the site.

END OF SECTION

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 78 00 - Closeout Submittals.
- .3 Section 31 23 33.01 - Excavation, Trenching and Backfilling.

1.2 SUMMARY

- .1 Work includes:
 - .1 Providing and installing materials and equipment necessary to complete site preparation activities, remediation and physical restoration.
 - .2 Completing all activities in conjunction with and under the supervision of the Departmental Representative, with input from the Environmental Monitors and Geotechnical Monitors.
 - .3 Identifying subsurface utilities, disconnecting utilities and temporarily supplying utilities as required, and, reinstating all utilities and infrastructure following excavation.
 - .4 Implementing safety work zones, site Health and Safety Plans and Emergency Response Plans, and Environmental Protection Plan.
 - .5 Completing site preparation activities (i.e. ice engineering assessment, demarcation of exclusion zones, confirming locations of marsh debris through EM survey, opening fence and installing temporary fencing) immediately prior to the active remediation component of the project.
 - .6 Coordinating with the Departmental Representative to allow the Environmental Monitors to conduct pre-remediation survey activities for potential wildlife and to allow the Environmental Monitors to conduct fish, vegetation and/or wildlife protection activities prior to and during excavation and debris removal activities and re-contouring and backfill activities.
 - .7 Installing temporary access mats (or other suitable measures approved by the Departmental Representative) on on-site access routes where ground conditions are not frozen.
 - .8 Removing and disposing several large pieces of debris from the marsh area of the site.
 - .9 Removing and disposing numerous pieces of surficially deposited debris in the trail area of the site.
 - .10 Excavating and transferring material excavated from two portions of the trail area of the site (i.e. Main Debris Zone and Area of Impact 3) to the off-site soil and debris management facility for separation/screening of general refuse and salvageable materials from the excavated material.
 - .11 Preparing the off-site soil and debris management facility, including obtaining all necessary permits, approvals and authorizations and installing impermeable liners.
 - .12 Screening/separating general refuse and salvageable materials from excavated materials in the soil and debris management facility to facilitate disposal.
 - .13 Stockpiling of screened soils according to classification provided by the Departmental Representative (refer to Table 5, based on in situ characterization
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- of excavated areas) or as directed by the Departmental Representative, in the soil and debris management facility while awaiting final disposal.
- .14 Allowing and assisting the Departmental Representative to collect soil samples from the excavations for characterization purposes, including collection of soil samples from the Main Debris Zone at the beginning of Work. Includes provision of equipment, materials and labour to facilitate sample collection. Approximately five test pits will be advanced to 2.5 m below grade in the Main Debris Zone for sample collection.
 - .15 Loading of, transporting to, and disposing of excavated and screened soil at licensed and authorized off-site treatment or disposal facilities based on classification provided by the Departmental Representative (refer to Table 5, based on in situ characterization of excavated areas).
 - .16 Loading of, transporting to, and disposing of stockpiled general refuse at licensed and authorized off-site disposal facilities.
 - .17 Loading of, transporting to, and disposing of stockpiled salvageable materials at facilities licensed and authorized to accept such materials.
 - .18 Backfilling Area of Impact 3 excavation with soil removed from the excavation in that location which meets the site-specific soil targets provided in Table 4 and debris has been removed and/or with soil from borrow locations immediately adjacent to Area of Impact 3 through re-contouring.
 - .19 Backfilling the Main Debris Zone excavation with material from non-impacted areas located immediately adjacent to the excavation area where deemed acceptable by the Departmental Representative, with input from the EMs and GMs. Backfilling in the Main Debris Zone will only be conducted as required to mitigate potential erosion and geotechnical concerns and health and safety hazards.
 - .20 Constructing cross-ditches at the top of the trail area to divert surface flow from the Main Debris Zone excavation area.
 - .21 Constructing cross-slope terraces along long sections of steep uniform slopes in the Main Debris Zone excavation area to break the slope and slow surface runoff along the slope.
 - .22 Implementing erosion and sediment control measures in areas of soil disturbance including depositing coarse woody debris, broadcast seeding with an approved native plant seed mix and installing coconut fibre/straw mat cover.
 - .23 Maintaining erosion and sediment control at the site and soil and debris management facility, including covering stockpiles, and appropriately managing any surface runoff.
 - .24 Providing traffic control where required to maintain a safe work or traffic area.
- .2 Unit Prices
- .1 Provide unit costs for soil remediation in the Unit Price Table form provided.

1.3 REFERENCES (LATEST EDITION)

- .1 British Columbia Contaminated Sites Regulation and Hazardous Waste Regulation.
 - .2 CCME (Canadian Council of Ministers of the Environment) Contaminated Sites, Contaminated Soil and Groundwater, and Remediation of Contaminated Sites most current publications.
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1.4 SUBMITTALS

- .1 Provide evidence of appropriate licensing for transport of contaminated soils or Hazardous Waste (including for any subcontractor retained to transport such materials).
- .2 Identify the location of the soil and debris management facility as outlined in Section 01 35 13.43 – Special Project Procedures for Contaminated Sites. Provide evidence that the facility location is licensed and/or authorized to accept the excavated materials. Work must NOT proceed until the Departmental Representative is satisfied the facility location can afford PWGSC suitable liability protection.
- .3 Identify the facility(s) that are to be used to treat and/or dispose of each of the categories of materials identified. Provide evidence that they are authorized and/or licensed to accept, treat and dispose of the specific category of material. Work must NOT proceed until the Departmental Representative is satisfied the receiving facilities are appropriately qualified and afford PWGSC suitable liability protection.

1.5 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 a quality management system for materials and equipment.

1.6 PROJECT/SITE CONDITIONS

- .1 Existing Conditions.
 - .1 Review the large debris locations in the marsh area and surficial debris locations in the trail area on Drawing 5.
 - .2 Review the proposed excavation areas on Drawing 5 that summarizes the approximate areal extent of known debris and soil contamination. The excavation at Area of Impact 3 will extend to approximately 2.5 metres below grade. The excavation in the Main Debris Zone will extend to at least 1.5 metres below grade, potentially deeper in some areas.
 - .3 The limits of excavation will be identified in the field by the Departmental Representative as a starting point for the Contractor.
 - .4 Buried services to be addressed as outlined in Section 31 23 33.01 - Excavating, Trenching and Backfilling.

1.7 SEQUENCING

- .1 All remediation works are to be completed within the work windows described in Section 01 14 00 - Work Restrictions.
 - .2 Due to the need to use the trail to access the marsh and Area of Impact 3, these areas must be remediated prior to conducting excavation activities in the Main Debris Zone of the trail. The Contractor must coordinate the work sequence accordingly.
 - .3 All other work must be sequenced in consultation with the Departmental Representative.
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1.8 PREPARATION

- .1 Complete activities required to facilitate remediation activities as outlined in Section 01 56 00 - Temporary Barriers and Enclosures and Section 01 35 13.43 - Special Project Procedures for Contaminated Sites.
- .2 Complete plant protection as outlined in Section 01 35 13.43 - Special Project Procedures for Contaminated Sites and Section 01 35 43 - Environmental Procedures.
- .3 Establish soil and debris management facility per Section 01 35 13.43 - Special Project Procedures for Contaminated Sites.

1.9 EXCAVATION

- .1 Where required, provide water control as outlined in Section 01 35 43- Environmental Procedures.
- .2 Complete excavation in accordance with requirements of Section 31 23 33.01 - Excavating, Trenching and Backfilling, Section 01 35 13 43 - Special Project Procedures for Contaminated Sites and Section 01 35 43 - Environmental Procedures.

1.10 BACKFILLING

- .1 Complete backfilling in accordance with requirements of Section 31 23 33.01 - Excavating, Trenching and Backfilling, Section 01 35 13 43 - Special Project Procedures for Contaminated Sites and Section 01 35 43 - Environmental Procedures.

1.11 SOIL STOCKPILING

- .1 Following separation of refuse and salvageable materials at the soil and debris management facility, screened soils are to be stockpiled in the soil and debris management facility according to the classification provided by the Departmental Representative (refer to Table 5, based on in situ characterization of excavated areas) or as directed by the Departmental Representative while awaiting final disposal.

1.12 SOIL, GENERAL REFUSE AND SALVAGEABLE MATERIAL TRANSPORT

- .1 All soil excavated from Area of Impact 3 that exceeds CCME AL land use guidelines and/or the site-specific soil targets provided in Table 4 must be removed from the site and be transported to a facility permitted to receive the material quality (based on classification provided by Departmental Representative) being disposed of or treated.
 - .2 All soil excavated from the Main Debris Zone must be removed from the site and be transported to a facility permitted to receive the material quality (based on classification provided by Departmental Representative) being disposed of or treated.
 - .3 All general refuse and construction/demolition waste must be removed from the site and be transported to a facility permitted to receive the material being disposed of.
 - .4 All salvageable materials must be removed from the site and be transported to a facility licensed and authorized to accept such materials.
 - .5 Cover material while being transported to prevent release of airborne dust, vapours, or odours, and to prevent saturation and leachate generation from material.
 - .6 Use watertight truck bodies for transporting excavated materials. Do not allow excess water in excavated materials to flow out of vehicle during transport.
 - .7 Stabilize soil or other material as necessary.
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- .8 Transport material by appropriately licensed and equipped vehicles and operators.
 - .9 Manifest and correlate weights of all material transported from site documenting weight at removal from site, movement, transfer stations, interim storage and treatment, and weight of material at final disposal facility. Submit all manifests, as instructed by the Departmental Representative.
 - .10 Resolve discrepancies in manifests for material transported as required by regulations and as acceptable to the Departmental Representative. Discrepancies include:
 - .1 No manifest or an incomplete manifest.
 - .2 The material transported does not match the description in the manifest.
 - .3 The amount transported differs by more than 5% in the manifest.
 - .4 The material transported is in a hazardous condition.
 - .11 Load and transport soil in a manner as to prevent contamination of the site and transportation routes.
 - .12 Contractor must not load trucks in a manner that causes spillage onto areas not underlain by an impermeable surface.
 - .13 Contractor must not load trucks with soil such that spillage occurs onto areas not underlain by an impermeable surface during transport.
 - .14 Immediately scrape up debris or material on access roads which is suspected to be contaminated as directed by the Departmental Representative and transport and place into the soil and debris management facility.
 - .15 Clean access and transport roads as outlined in Section –01 35 00.06 – Special Procedures for Traffic Control.
 - .16 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 PWGSC.

1.13 RESTORATION

- .1 Construct cross-ditches at the top of the trail area or at other locations specified by the Departmental Representative, with input from the Geotechnical Monitor, to divert surface flow from excavation areas. Locations to be determined in the field in consultation with the Departmental Representative, with input from the Geotechnical Monitors and Environmental Monitors.
 - .2 Construct cross-slope terraces along long sections of steep uniform slopes in the excavation areas to break the slope and slow surface runoff along the slope. Locations to be determined in the field in consultation with the Departmental Representative, with input from the Geotechnical Monitors and Environmental Monitors.
 - .3 Implement permanent erosion and sediment control measures in areas of soil disturbance including depositing coarse woody debris and installing coconut fibre/straw mat cover. Coarse woody debris is to be sourced from other areas of the site or adjacent lands to minimize the potential for introduction of invasive species. Permanent erosion control measures are to be installed as outlined in Section 01 35 43 – Environmental Procedures.
 - .4 Prior to installation of the coconut fibre/straw mat cover, broadcast seed soil disturbance areas with a native plant seed mix. Seek Departmental Representative approval of the
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proposed native plant seed mix and supplier prior to ordering. The native seed mix and supplier will also be subject to approval by the Canadian Wildlife Service. The native seed mix must be free of invasive species. Apply seed in accordance with supplier's recommendations.

END OF SECTION

1.1 RELATED SECTIONS

- .1 Section 02 61 00.01 - Soil Remediation
- .2 Section 01 35 29 14 (2010-05) - Health and Safety for Contaminated Sites
- .3 Section 01 56 00 - Temporary Barriers and Enclosures
- .4 Section 01 35 13.43 – Special Project Procedures for Contaminated Sites
- .5 Section 01 35 43 - Environmental Procedures

1.2 MEASUREMENT PROCEDURES

- .1 Excavated materials will be measured in accordance with the following procedure.
 - .1 For soil and debris removed from the site and transferred to the soil and debris management facility, the truck will be weighed at a certified weigh scale station and the weigh scale records will form the weight of measure for the measure of payment.
 - .2 For classified soil, general refuse and salvageable materials transported from the soil and debris management facility to the appropriate final disposal facilities and for general refuse and salvageable materials transported directly from the site to the appropriate final disposal facilities, the truck will be weighed at a certified weigh scale station and the weigh scale records will form the weight of measure for the measure of payment.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures, Section 01 35 13.43 – Special Project Procedures for Contaminated Sites, Section 01 35 43 Environmental Procedures and Section 01 35 29.14 (2010-05) – Health and Safety for Contaminated Sites.
- .2 Submit drawings identifying all utilities within and immediately surrounding the work area to the Departmental Representative at least 5 working days prior to commencing any subsurface disturbance. Update drawings as instructed by the Departmental Representative.
- .3 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in British Columbia, Canada, as required.
- .4 Keep design and supporting data on-site.
- .5 Do not use any fill material until approved by the Departmental Representative.

1.4 EXISTING CONDITIONS

- .1 Examine subsurface investigation reports provided in Appendix A.
 - .2 Protect existing surface features from damage while work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.
 - .3 Buried services:
 - .1 Prior to beginning excavation work, notify Departmental Representative and applicable authorities having jurisdiction and establish location and state of use of buried utilities and structures.
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- .2 All utilities within and immediately surrounding the work area must be located prior to Work through a BC One Call and a private utility locating company to ensure all buried services are properly located. A hydrovac may be required to confirm actual location of all utilities. Completeness and accuracy of any available utility drawings are not guaranteed and the Contractor is responsible for confirming locations of all utilities. Clearly mark utility locations to prevent disturbance during Work.
- .3 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.
- .4 Cap off any obsolete/inactive buried services encountered in a manner approved by authorities having jurisdiction.
- .5 Protect buried services that are required to remain undisturbed.
- .6 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative before removing and re-routing.
- .7 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .9 Contractor must survey the location of maintained, re-routed and abandoned underground lines and include on **final as built drawing**.

1.5 PREPARATION/PROTECTION

- .1 Complete site preparation/protection activities as outlined in Section 01 35 13.43 - Special Project Procedures for Contaminated Sites, Section 01 35 43 - Environmental Procedures, Section 01 56 00 - Temporary Barriers and Enclosures and applicable local regulations.
- .2 Remove obstructions from surfaces to be excavated within limits indicated.

1.6 WATER CONTROL

- .1 Protect open excavations against flooding and damage due to surface runoff.
- .2 Provide water control as outlined in Section 01 35 43 - Environmental Procedures.

1.7 EXCAVATION

- .1 Conduct excavation activities in accordance with requirements of Section 01 35 13.43 - Special Project Procedures for Contaminated Sites, Section 01 35 43 - Environmental Procedures and Section 02 61 00.01 - Soil Remediation.
- .2 At the beginning of Work, provide equipment, materials and labour to facilitate the collection of soil samples from the Main Debris Zone. Approximately five test pits will be advanced to a depth of 2.5 m below grade in the Main Debris Zone for sample collection.
- .3 Store non-contaminated excavated soil only on non-contaminated site surface areas. Ensure no contact between non-contaminated excavated soil and drainage or contaminated water or contaminated soil.

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- .4 Keep excavated materials a safe distance from the excavation while awaiting transport to the off-site soil and debris management facility.
 - .5 Maintain sides and slopes of excavations in a safe condition by appropriate methods and in accordance with all applicable regulations - where conditions are unstable, Departmental Representative will discuss options with Contractor.
 - .6 Contractor must obtain all excavation permits from authority having jurisdiction. Permission to excavate on-site must be obtained in writing from the Departmental Representative.
 - .7 Restrict vehicle operations directly adjacent to open trenches.
 - .8 Obtain Departmental Representative approval of completed excavation.
 - .9 Following removal of designated material, the Departmental Representative will collect confirmatory samples to ensure that impacted materials have been removed as planned. The Contractor must make clean the bottom and walls of the excavation (including water and other waste material) and provide clear access for the Departmental Representative. Assist the Departmental Representative in collection of samples including provision of equipment and personnel as necessary. In the event that contamination remains, additional material may need to be removed. Any additional work must be approved by the Departmental Representative prior to the commencement of this work.
 - .10 Departmental Representative will send samples for chemical analysis by a certified laboratory. Five business days (upon receipt at the laboratory) are required for standard analysis. Additional analysis required based on analytical results will require an additional four business day turnaround time. The Contractor must anticipate this and factor it into the unit price costing.

1.8 BACKFILLING

- .1 All fill material must meet the requirements outlined in Section 01 35 13.43 - Special Project Procedures for Contaminated Sites.
 - .2 Backfill Area of Impact 3 excavation with soil obtained from within the excavation limits (where debris can be readily removed and soil concentrations meet the site-specific soil targets provided in Table 4) and/or with soil borrowed from immediately adjacent areas through re-contouring. Analytical results for soil from within the excavation limits following debris removal must be received by the Departmental Representative prior to use as backfill. The Contractor must not backfill the excavation until approved by the Departmental Representative.
 - .3 Backfill Main Debris Zone excavation with material from non-impacted areas located immediately adjacent to the excavation area where deemed acceptable by the Departmental Representative, with input from the EMs and GMs. Backfilling in the Main Debris Zone will only be conducted as required to mitigate potential erosion and geotechnical concerns and health and safety hazards.
 - .4 Place backfill material in Area of Impact 3 and Main Debris Zone in no greater than 150 mm lifts or as directed by the Departmental Representative, with input from the Geotechnical Monitor. Compact each layer of material using on-site machinery such that subsidence will be minimized. Submit proposed approach for backfill compaction as part of the pre-work submittals outlined in Section 01 33 00 –Submittal Procedures.
 - .5 Compact backfill to satisfaction of the Departmental Representative, with input from the Geotechnical Monitor and Environmental Monitor.
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- .6 Report any issues with compaction that may affect the final grade to the Departmental Representative as soon as they become known.
- .7 Contractor must not proceed with backfilling operations unless approved by Departmental Representative.
- .8 Rough grade to finish grade or as directed by the Departmental Representative at Area of Impact 3.
- .9 Rough grade to levels, profiles and contours as required to implement permanent erosion control features or as directed by the Departmental Representative at the Main Debris Zone.

1.9 RESTORATION

- .1 Upon the completion of the excavation activities, complete restoration works as outlined in Section 02 61 00.01 - Soil Remediation.
- .2 Upon completion of Work, remove surplus material and material unsuitable for fill or grading, remove waste materials and debris, trim slopes and correct defects as directed by Departmental Representative.
- .3 Clean and reinstate areas affected by Work as directed by Departmental Representative.

END OF SECTION
