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END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Entire Specification - All areas of common work.

1.2 DEFINITIONS

- .1 Contractor: Firm or representative retained to conduct the Works as per this Specification.
- .2 Departmental Representative: Person designated in the Contract, to act as the Departmental Representative for the purposes of the Contract,
- .3 Site: Property on which the Works will be conducted.
- .4 Works: Scope of work as detailed and described in this Specification

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Title and description of Work: Landfill Closure, including related earthworks at the Agriculture and Agri-Food (AAFC) Indian Head Agroforestry Development Centre (ADC) located south of Indian Head, Saskatchewan.
- .2 The work comprises all activities associated with: landfill closure at APEC 2, including: sorting and removal of waste material, reshaping the existing landfill surface, placement of a cover soil barrier (landfill cap), construction of perimeter drainage, placement of topsoil, fertilization and seeding, and installation of perimeter fencing as part of final restoration of the site. See Figures 01 through 04 for location and details of the site.
- .3 Mobilization and demobilization consists of preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to and from the project.
- .4 Work includes:
 - .1 Permit Applications, including:
 - .1 Obtaining all Municipal, Provincial and Federal permits, as required to complete the Work.
 - .2 Management of Site Safety, including:
 - .1 Responsibility for Site Safety.
 - .2 Development of Site Specific Safety Plan.
 - .3 Coordinating and Leading Pre-Job Safety Meeting and Daily On-Site Safety Meetings.
 - .4 Spill Prevention Plan and Spill Response Plan,
 - .5 Emergency Response Plan
 - .3 Site Preparation Activities, including:
 - .1 Areas of work should be identified prior to beginning work with the Departmental Representative and all work should remain within the established work boundaries.

- .2 Maintain and protect all existing trees within the proposed work areas.
- .3 Maintain and protect all overhead and underground utilities within the proposed work areas.
- .4 Decommissioning of one (1) existing environmental monitoring well located at APEC-2. See Figures 02 and 03.
- .5 Implementation of safety work zones, site Health and Safety Plan and Emergency Response Plan.
- .6 Landfill Closure Activities, including:
 - .1 Sorting of existing waste piles, including the removal and off-site disposal of wood timbers, brush and other waste materials prior to commencing earthwork activities.
 - .2 Reshaping of the landfill cover area, including inert fill piles.
 - .3 Placement of an additional soil barrier layer over the landfill.
 - .4 Grading and construction of perimeter ditching to promote positive drainage away from the landfill area.
 - .5 Placement of topsoil, vegetation seed and fertilization of the finished cover.
 - .6 Installation of perimeter fencing.
 - .7 General site cleanup and restoration.
- .5 The scope of work contained in this specification will be conducted in accordance and in conjunction with supervision from the Departmental Representative.

1.4 CONTRACT METHOD

- .1 Construct Work under combined lump sum and unit price contract.

1.5 SITE LOCATION AND INFORMATION

- .1 The AAFC ADC is located approximately 2.5 km south of the town of Indian Head, Saskatchewan. The legal description of the site is Section 11, Township 18, Range 13, W2M. The UTM (WGS84, Zone 13) coordinates for the center of the property are E592881, N5595696.
- .2 The site is comprised of a square shaped lot covering 246 hectares that has historically been used for research and tree production (growing and distributing trees to prairie regions in Western Canada). The site is occupied by 27 permanent buildings/structures, that are mainly centralized in the operations yard.
- .3 A location and area plan are presented as Figure 01. This Figure includes the location of APEC-2 at the Indian Head ADC. The current features and site layout on the Property is illustrated on Figure 02.
- .4 The site is located in an agricultural region and is surrounded by farms, residences and agricultural lands.
- .5 The Indian Head ADC site lies between 600 and 610 m above sea level (asl) and consists of generally flat lying topography with a gentle grade from the southwest to the northeast.

- .6 Based on the soil logs and soil descriptions provided in the Phase II Environmental Site Assessment (ESA) report prepared by DST, dated February 2014, the soils in the vicinity of the proposed work area consist of clayey silt to silty clay. Groundwater levels reported for November 2013 ranged from 1.8 to 2.4 m below grade. Test hole logs completed as part of the Phase II ESA are included in Appendix A of the Specification.
- .7 Environmental test holes are referenced in the 2014 Phase II ESA by DST. Environmental investigation reports by their nature cannot reveal all conditions. Environmental data is provided for information only and is based on conditions at the time of investigation and at the test hole locations shown and may not be indicative of the entire site or the present conditions.

1.6 SITE EXAMINATION

- .1 Contractor shall compare plans and specifications with existing conditions, to fully satisfy themselves as to all data and matters required for the completion of the contract.
- .2 Failure of Contractor to acquaint themselves fully with all available information concerning conditions affecting the work shall not relieve the Contractor of the responsibility for estimating the difficulties and costs of satisfactorily performing the work.
- .3 Commencement of mobilization shall constitute acceptance of existing conditions, and verification of dimensions.
- .4 Claims for additional costs will not be entertained with respect to conditions which would reasonably have been ascertained by an inspection of the site prior to tender closing time.

1.7 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from 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, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.8 COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, temporary facilities, and construction Work with progress of Work of other contractors, and where applicable, under instructions of the Departmental Representative.

1.9 CONSTRUCTION ORGANIZATION AND START UP

- .1 Within 7 days after award, attend a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Owner, Contractor, major Subcontractors, field inspectors and supervisors to be in attendance.
- .3 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 Schedule - Bar (GANTT) Chart.
- .3 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
- .4 Change order process and procedure, approvals required, and administrative requirements.
- .5 Health and safety requirements in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .6 Environmental protection requirements in accordance with Section 01 35 43 - Environmental Procedures.
- .7 Close out procedures and submittals in accordance with Sections 01 77 00 - Closeout Procedures and 01 78 00 - Closeout Submittals.
- .8 Other Business.
- .4 During construction, coordinate use of site and facilities through Departmental Representative.
- .5 Coordinate field engineering and layout work with Departmental Representative.

1.10 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit, within 5 days of Award, Environmental Protection Plan detailing management of waste (waste streams and disposal locations) and Spill Prevention Plan, Emergency Response Plan and Health and Safety Plan, in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures.
- .3 Site Layout: within 5 days prior to mobilization to site, submit site layout drawings showing existing conditions and facilities, construction facilities and temporary controls provided by Contractor including the following:
 - .1 Equipment and personnel decontamination areas.
 - .2 Means of ingress, egress and temporary traffic control facilities (as required).
 - .3 Equipment and material staging areas.
 - .4 Exclusion Zones, Contamination Reduction Zones and other zones specified in Contractor's site-specific Health and Safety Plan

1.11 WORK SEQUENCE

- .1 Construct Work in stages to accommodate overall project schedule.

1.12 CONTRACTOR USE OF PREMISES

- .1 The Contractors use of the site shall be restricted to the identified work areas.
- .2 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .3 The Contractor shall not unreasonably encumber site with materials or equipment or move stored products or equipment which interferes with AAFC operations at the Site.

- .4 Use of site shall comply with the environmental protection requirements of Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan.
- .5 The Contractor shall keep the roads clean of impacted soil and tracked mud from the excavations, and passable at all times. Contractor shall remove litter on a daily basis as directed by the Departmental Representative. If litter created by the Contractor's activities is not cleaned to the satisfaction of the Departmental Representative and upon notification, the Contractor refuses to improve road conditions, the Departmental Representative shall direct that this work be performed by others and the cost of the Work shall be borne by the Contractor. The Departmental Representative assumes no responsibility for any inconvenience or costs incurred due to road passage interruptions/closures.
- .6 Contractor will provide sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .7 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .8 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed in writing by Departmental Representative.
- .9 At completion of construction operations, condition of existing work shall be equal to or better than that which existed before new work started.

1.13 DEPARTMENTAL REPRESENTATIVE

- .1 PWGSC will be represented at the site by the Departmental Representative.

1.14 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

- .1 Execute work with least possible interference or disturbance to site operations, occupants and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.15 EXISTING SERVICES

- .1 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings in writing. Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .2 Obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power, communications, water and external heating services. Adhere to approved schedule and provide minimum 24 hour notice to affected parties.
- .3 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .4 Record locations of maintained, re-routed and abandoned service lines and provide information in writing to the Departmental Representative

1.16 WASTE DISPOSAL QUANTITIES

- .1 Contractor to provide summary of all wastes disposed including quantities, disposal locations, and original scale tickets, as applicable. Waste quantities to be reconciled daily in writing with the Department Representative, including the provision of original waste manifests.

1.17 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy of each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents including Spill Prevention Plan and Spill Response Plan.
 - .11 Other documents as specified.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, independent of finished surfaces and in accordance with relevant Municipal, Provincial, Federal and other regulations.

1.2 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to surrounding facilities and provide for personnel and vehicle access.
- .3 Contractor to provide sanitary facilities and will be responsible for upkeep of these facilities.

1.3 EXISTING SERVICES

- .1 Maintain existing roads for personnel and vehicular traffic.

1.4 SPECIAL REQUIREMENTS

- .1 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.
- .2 Ensure that Contractor personnel employed on site are familiar with and obey all site specific safety, fire, traffic and security requirements, where applicable.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Erect and maintain a temporary fence around the work areas throughout duration of work.
- .5 Contractor to outline site specific traffic control measures to be followed on site as part of their site layout plan.

1.5 BUILDING SMOKING ENVIRONMENT

- .1 No smoking is permitted on site.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Departmental Representative to schedule and administer preconstruction meeting upon Award.
- .2 Departmental Representative to schedule and administer project meetings throughout the progress of the Work as needed.
- .3 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.
- .4 Departmental Representative and Contractor to meet daily once work on site commences to discuss:
 - .1 Field observations, problems and conflicts.
 - .2 Problems which impede construction schedule.
 - .3 Corrective measures and procedures to regain projected schedule.
 - .4 Revision to construction schedule.
 - .5 Progress schedule during succeeding work period.
 - .6 Review proposed changes for affect on construction schedule and on completion date.
 - .7 Track volumes daily and reconcile daily with Departmental Representative.
 - .8 Departmental Representative to take minutes and distribute daily to Owner and Contractor.

1.2 PRECONSTRUCTION MEETING

- .1 Within 7 days after award of Contract, attend a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Owner, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Departmental Representative to establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 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 Schedule - Bar (GANTT) Chart.
 - .3 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .4 Change order process and procedure, approvals required, and administrative requirements.
 - .5 Health and safety requirements in accordance with Section 01 35 29.06 - Health and Safety Requirements.

- .6 Environmental protection requirements in accordance with Section 01 35 43 - Environmental Procedures.
- .7 Close out procedures and submittals in accordance with Sections 01 77 00 - Closeout Procedures and 01 78 00 - Closeout Submittals.
- .8 Other business.

1.3 PROGRESS MEETINGS

- .1 During course of Work and as required, Departmental Representative to schedule progress meetings as required.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Departmental Representative to notify parties minimum 48 hours prior to meetings.
- .4 Agenda to include the following:
 - .1 Review of Work progress since previous meeting.
 - .2 Field observations, problems, conflicts.
 - .3 Problems which impede construction schedule.
 - .4 Corrective measures and procedures to regain projected schedule.
 - .5 Revision to construction schedule.
 - .6 Progress schedule, during succeeding work period.
 - .7 Review submittal schedules: expedite as required.
 - .8 Review proposed changes for affect on construction schedule and on completion date.
 - .9 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package or activity).
- .4 Construction Work Week: Sunday to Saturday, inclusive, will provide seven day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Duration is usually expressed as work days or work weeks.
- .6 Milestone: significant event in project, usually completion of major deliverable.
- .7 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. The project schedule is a 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.
- .8 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project Work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Project Schedule is practical and remains within specified duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Schedule activity durations to a maximum of approximately 10 working days to allow for progress reporting.
- .4 Ensure that it is understood that time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of the essence of this contract.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

- .2 Submit to Departmental Representative within 5 working days of Award Schedule as Bar (GANTT) Chart for planning, monitoring and reporting of project progress. Schedule to be discussed at pre-construction meeting.

1.4 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 Participate in Preconstruction Meeting within seven working days of award date.
 - .2 Complete preparatory Work including permitting, and health and safety within two weeks of award date.

1.5 PROJECT SCHEDULE

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Award.
 - .2 Permits.
 - .3 All submittals as specified in Section 01 33 00 - Submittal Procedures including but not limited to Health and Safety Plan, Environmental Protection Plan including Spill Response and Spill Prevention Plan, Emergency Response Plan, and site layout drawings.
 - .4 Completion of utility locates.
 - .5 Mobilization.
 - .6 Excavation.
 - .7 Off-site disposal of designated waste debris (wood timbers, brush, etc.) at licensed waste management facility.
 - .8 Backfill and compaction.
 - .9 Final grading.
 - .10 Topsoil placement and seeding.
 - .11 Final inspection.
 - .12 Deficiency corrections.
 - .13 Demobilization.
- .3 Departmental Representative will review Project Schedule and return revised schedule within three working days.
- .4 Revise schedule and resubmit within three working days.
- .5 Accepted revised schedule will be used as baseline for updates.

1.6 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on regular basis reflecting activity changes and completions, as well as activities in progress and submit to Departmental Representative for review.

1.7 PROJECT MEETINGS

- .1 Discuss Project Schedule at site meetings with Departmental Representative, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed in Table 1 below for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit as detailed in specification is not considered reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

Table 1: Breakdown of Required Project Submittals and Submission Dates

Submittal Required	Submission Date
<ul style="list-style-type: none"> Project Schedule - as per Section 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart. 	<ul style="list-style-type: none"> Five days following Contract Award.
<ul style="list-style-type: none"> Health and Safety Plan (including Spill Response and Spill Prevention Plan, Emergency Response Plan and Training Certificates) - as per Section 01 35 29.06 - Health and Safety Requirements. 	<ul style="list-style-type: none"> Five days following Contract Award.
<ul style="list-style-type: none"> Environmental Protection Plan (including Non-hazardous Waste Disposal Plan, Erosion Control Plan and Sediment Control Plan) - as per Section 01 35 43 - Environmental Procedures. 	<ul style="list-style-type: none"> Five days following Contract Award.
<ul style="list-style-type: none"> Site Layout Drawings - as per Section 01 35 13.43 - Special Project Procedures for Contaminated Sites. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> Source and sample of proposed backfill - as per Section 31 23 33.01 - Excavating, Trenching and Backfilling. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> Product Data for Fence and Gate - as per Section 32 31 26 - Wire Fences and Gates. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> Source and sample of proposed topsoil - as per Section 32 91 19.13 - Topsoil Placement and Grading. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> Product Data for Seed and Fertilizer - as per Section 32 92 19.13 - Mechanical Seeding. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> MSDS for Fertilizer - as per Section 32 92 19.13 - Mechanical Seeding. 	<ul style="list-style-type: none"> Five days prior to the start of construction.
<ul style="list-style-type: none"> Utility locate clearance sheets - as per Section 31 23 33.01 - Excavating, Trenching and Backfilling. 	<ul style="list-style-type: none"> At the start of construction.
<ul style="list-style-type: none"> Site Health and Safety Inspection Reports - as per Section 01 35 29.06 - Health and Safety Requirements. 	<ul style="list-style-type: none"> Daily during construction.

<ul style="list-style-type: none"> Incident and Accident Repots - as per Section 01 35 29.06 - Health and Safety Requirements. 	<ul style="list-style-type: none"> As required during construction.
<ul style="list-style-type: none"> Waste Manifests - as per Section 01 74 21 - Construction/Demolition Waste Management and Disposal. 	<ul style="list-style-type: none"> Daily during construction.
<ul style="list-style-type: none"> As-built Plans of Completed Work, Waste Summary Report and Digital Photos of Work - as per Section 01 78 00 - Closeout Submittals. 	<ul style="list-style-type: none"> Five Days following completion of the work.

- .2 Do not proceed with Work affected by submittal until review is complete and written confirmation to proceed with Work has been provided by Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items and/or information are not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with the requirements of the Specifications. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Specifications stating reasons for deviations. Await written Departmental Representative approval to proceed.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representatives review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Specifications is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.2 SAMPLES

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin, date and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative in writing, at time of submission, of deviations in samples from requirements of Specifications.

1.3 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in jpg format, standard resolution with progress statement as directed by Departmental Representative.

- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Frequency of photographic documentation: daily or as directed by Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canada Labour Code Part 11- Occupational Health and Safety (R.S. 1985, c.L-2).
- .2 CCME, Canadian Environmental Quality Guidelines, <http://st-ts.ccme.ca/>.
- .3 Canadian Environmental Protection Act. (CEPA), 1999, c.33.
- .4 Canadian Environmental Assessment Act (CEAA), (2012).
- .5 Canada Labour Code (1985, c. L-2) – Canadian Occupational Health and Safety Regulations (SOR/86-304).
- .6 Transportation of Dangerous Goods Regulation, *SOR/2001-286, Canada Gazette Part II, August 2001.*

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submittals for Progress Meetings: 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 signed daily safety meetings.
 - .3 Copies of transport manifests, trip tickets, and disposal receipts for waste materials removed from work area.
 - .4 Weekly copies of site entry and work area logbooks with information on worker and visitor access.
 - .5 Other information required by Departmental Representative or relevant to agenda for upcoming progress meeting.
- .3 Site Layout: within 5 days 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 Means of ingress, egress and temporary traffic control facilities.
 - .2 Equipment and material staging areas.
 - .3 Soil stockpile areas as per direction and approval from the Departmental Representative.
 - .4 Grading, including contours, required to construct temporary facilities.

1.3 REGULATORY REQUIREMENTS

- .1 Provide erosion and sediment control in accordance with regulations.

- .2 Comply with Federal, Provincial, Municipal and local laws, ordinances, codes, and regulations when disposing of waste materials, debris, and rubbish.
- .3 Work to meet or exceed minimum requirements established by Federal, Provincial, Municipal and local laws and regulations which are applicable.

1.4 VEHICULAR ACCESS AND PARKING

- .1 Maintenance and Use:
 - .1 Prevent contamination of access roads. Immediately scrape up debris or material on access roads which is suspected to be contaminated as determined by Departmental Representative; transport and place into designated area approved by Departmental Representative; transport and dispose of in appropriate off-site disposal facility.
 - .2 Clean, maintain and restore access roads as directed by Departmental Representative.
 - .3 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.

1.5 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 determined necessary by Departmental Representative during construction.
- .3 As minimum, use appropriate covers on trucks hauling fine or dusty material. Use watertight vehicles to haul wet materials.
- .4 Prevent dust from spreading to adjacent property sites.
- .5 Departmental Representative will stop work at any time when Contractor's control of dust and particulate is inadequate for wind conditions present at site.
- .6 If Contractor's dust and particulate control is not sufficient for controlling dust and particulates into atmosphere, the Departmental Representative will stop work. Contractor must discuss procedures that Contractor proposes to resolve problem. Make necessary changes to operations and get written approval to proceed from Departmental Representative prior to resuming excavation, handling, processing, or other work that may cause release of dusts or particulates.

1.6 POLLUTION CONTROL

- .1 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 as outlined in Spill Response Plan.
- .2 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Maintain materials and equipment required for cleanup of spills or releases readily accessible on site.
- .3 Immediately report spills and releases potentially causing damage to environment to:

- .1 Authority having jurisdiction or interest in spill or release including: fire department, conservation authority, water supply authorities, drainage authority and/or road authority.
- .2 Departmental Representative.
- .4 Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release.
- .5 Provide spill response materials including, containers, adsorbent, shovels, and personal protective equipment. Provide list of materials in the Spill Response Plan. Make spill response materials available at all times in which hazardous materials or wastes are being handled or transported. Spill response materials: compatible with type of material being handled.

1.7 EQUIPMENT DECONTAMINATION

- .1 Equipment Decontamination, including all heavy equipment and trucks, to be carried out in area designated by Departmental Representative.
- .2 Decontaminate equipment after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.
- .3 At minimum, mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water.
- .4 Collect all scraped and/or brushed material for off-site disposal at designated facility as approved by the Departmental Representative.
- .5 Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

1.8 WATER CONTROL

- .1 Maintain excavations free of water.
- .2 Protect site from puddling or running water. Provide water barriers as necessary to protect site from soil erosion.
- .3 Prevent surface water runoff from leaving work areas.
- .4 Do not discharge surface water runoff or groundwater which may have come in contact with potentially contaminated material, off site.
- .5 Prevent precipitation from infiltrating or from directly running off stockpiled materials. Cover stockpiled materials with an impermeable liner during periods of work stoppage including at end of each working day and as directed by Departmental Representative.
- .6 Direct surface waters that have not contacted potentially contaminated materials to existing surface drainage systems.
- .7 Control surface drainage such that runoff from un-stabilized areas is intercepted and diverted to suitable outlet.
- .8 Dispose of any collected water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.

1.9 EROSION AND SEDIMENT CONTROL

- .1 Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other work areas.
- .2 Provide and maintain temporary measures 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.
- .3 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures as directed by the Departmental Representative.
- .4 If soil and debris from site accumulate in low areas, or other areas where Departmental Representative has not approved, remove accumulation, deposit in area approved by Departmental Representative and restore area to original condition.

1.10 PROGRESS CLEANING

- .1 Maintain cleanliness of Work and surrounding site to comply with Federal, Provincial, Municipal and local fire and safety laws, ordinances, codes, and regulations.
- .2 Co-ordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.11 FINAL DECONTAMINATION

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

1.12 REMOVAL AND DISPOSAL

- .1 Remove surplus materials and temporary facilities from site.
- .2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off site.
- .3 Do not burn or bury rubbish and waste materials on site.
- .4 Do not discharge wastes into streams or waterways.
- .5 Dispose of following materials at appropriate off-site facilities identified by Contractor and approved by Departmental Representative:
 - .1 Non-contaminated litter and rubbish.
 - .2 Disposable PPE worn during final cleaning.
 - .3 Water encountered during remedial excavations.
- .6 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

1.13 RECORD KEEPING

- .1 Maintain adequate records to support information provided to Departmental Representative.
- .2 Provide original bills of lading to Departmental Representative within 24 hours.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Saskatchewan.
 - .1 The Workers Compensation Act RSM 1987 - Updated [2013].

1.2 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 5 days after date of Award and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 On-site contingency and Emergency Response Plan.
 - .4 Site control measures employed at site including site map, site Work zones, site communications, alerting means for emergencies, standard operating procedures or safe work practices, and identification of nearest medical assistance.
 - .5 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.
 - .6 Procedures dealing with heat and/or cold stress.
 - .7 Spill containment program if waste material is generated, excavated, stored, or managed on site.
 - .8 Spill Response and Spill Prevention Plan.
 - .9 Training Certificates.
- .3 Submit electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal and Provincial Health and Safety Inspectors. Submit verbal report immediately followed by a written report within 24 hours to the Departmental Representative.
- .5 Submit copies of incident and accident reports. Submit verbal report immediately followed by a written report within 24 hours to the Departmental Representative.

- .6 Departmental Representative will review Contractor's site-specific Health and Safety Plan including on-site contingency and Emergency Response Plan, Spill Prevention and Spill Response Plan and provide comments to Contractor within 3 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative 3 days after receipt of comments from Departmental Representative.
- .7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.4 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.5 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
- .3 Ensure Health and Safety guidelines provide for safe and minimal risk for site personnel and minimize impact of activities involving contact with hazardous materials or hazardous wastes on general public and surrounding environment.

1.6 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 COMPLIANCE REQUIREMENTS

- .1 Comply with Saskatchewan Ministry of Advanced Education, Employment and Labour *The Occupational Health and Safety Regulations* (1996, including amendments up to 2012).
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.8 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and immediately advise Departmental Representative verbally and in writing.

1.9 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have working knowledge of occupational safety and health regulations.
 - .2 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .4 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.10 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

1.11 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified within 24 hours of such notice.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected or at any time.

1.12 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.13 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.14 PERSONNEL HEALTH, SAFETY, AND HYGIENE

- .1 Training: ensure personnel entering site are trained in accordance with specified personnel training requirements.
- .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. Ensure that safety equipment and protective clothing is kept clean and maintained. Include requirements in Health and Safety Plan.
- .4 Heat Stress/Cold Stress: implement heat stress, cold stress monitoring program as applicable and include in site-specific Health and Safety Plan.
- .5 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.
 - .2 As minimum, provide on site at all times when Work activities are in progress 1 first-aid technician holding at a minimum a Standard First Aid and CPR Level C certification recognized in Canada, as per Canada Labour Code and Saskatchewan Occupational Health and Safety regulations. Provide proof of certification within 5 days of Award.
- .6 Safety Meetings: conduct mandatory daily safety meetings for all personnel on site, Departmental Representative, 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.

1.15 SITE CONTROL

- .1 Meet specified requirements as indicated in Section 01 14 00 - Work Restrictions, Section 01 35 43 - Environmental Procedures, Section 01 52 00 - Construction Facilities, Section 01 74 11 - Cleaning and Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Restrict access to site to those involved in the remediation Work.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 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.

1.2 REFERENCES AND CODES

- .1 Perform Works in accordance with all applicable codes and standards including all amendments and other codes of Federal, Provincial, Municipal or local application, provided that in case of conflict or discrepancy more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.
 - .3 Meet or exceed the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of Canada and Saskatchewan as follows but not limited to:
 - .1 National Building Code of Canada, 2010.
 - .2 National Fire Code of Canada, 2010.
 - .3 Canada Labour Code Part 11- Occupational Health and Safety (R.S. 1985, c.L-2).
 - .4 CCME, Canadian Environmental Quality Guidelines, <http://sts.ccme.ca/>.
 - .5 Canadian Environmental Protection Act. (CEPA), 1999, c.33.
 - .6 Canadian Environmental Assessment Act (CEAA), (2012).
 - .7 Transportation of Dangerous Goods Regulation, *SOR/2001-286, Canada Gazette Part II, August 2001*.
 - .8 Saskatchewan Environmental Code, June 2015.

1.3 WHMIS

- .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 acceptable to Labour Canada and Health and Welfare Canada.

1.4 REGULATORY REQUIREMENTS

- .1 Perform work in accordance with the Canadian Environmental Protection Act.

- .2 Provide erosion and sediment control in accordance to regulations of authorities having jurisdiction.
- .3 Comply with Federal, Provincial, Municipal and local laws, ordinances, codes, and regulations when disposing of waste materials, debris, and rubbish.
- .4 Work to meet or exceed minimum requirements established by Federal, Provincial, Municipal and local laws and regulations which are applicable.
 - .1 Contractor: responsibility for complying with amendments as they become effective.
- .5 In event that compliance exceeds scope of work of conflicts with specific requirements of contract notify Departmental Representative immediately.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit Environmental Protection Plan for review by Departmental Representative within 5 days of Contract award and in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks, and as outlined in the Corrective Action Plan (see Appendix B).
- .4 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Erosion and sediment control plan identifying 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, and Federal, Provincial and Municipal laws.
 - .4 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
 - .5 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .6 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .7 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
 - .8 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

- .9 Waste Water Management Plan identifying methods and procedures for management and /or discharge of waste waters which are directly derived from construction activities, such as, clean-up water.

1.6 FIRES

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

1.7 DRAINAGE

- .1 Control disposal and/or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.8 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants from damage within the area of the Work, where applicable.
- .2 Minimize over stripping of topsoil and vegetation.
- .3 Restrict tree removal and clearing activities to areas indicated by Departmental Representative.

1.9 POLLUTION CONTROL

- .1 Maintain erosion and sedimentation control features installed in this specification and in accordance with Section 01 57 13 - Erosion and Sediment Control.
- .2 Control emissions from equipment in accordance with local authorities' emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .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 Be prepared to intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Maintain materials and equipment required for cleanup of spills or releases readily accessible on site.
- .6 Immediately report spills and releases potentially causing damage to environment to:
 - .1 Authority having jurisdiction or interest in spill or release including: the fire department, conservation authority, water supply authorities, drainage authority and road authority, as applicable.
 - .2 Owner of pollutant, if known.
 - .3 Person having control over pollutant, if known.
 - .4 Departmental Representative.
- .7 Take immediate action using available resources to contain and mitigate effects on environment and persons from spill or release, if safe to do so.
- .8 Provide spill response materials including at a minimum, containers, adsorbent, shovels, and personal protective equipment. Make spill response materials available at all times in

which hazardous materials or wastes are being handled or transported. Spill response materials: compatible with type of material being handled and as detailed in Emergency Response Plan.

1.10 EQUIPMENT DECONTAMINATION

- .1 Perform equipment decontamination at Work site to the satisfaction of the Departmental Representative.
- .2 At minimum, perform following steps during equipment decontamination: mechanically remove packed dirt, grit, and debris by scraping and brushing without using steam or high-pressure water. Perform assessment as directed by Departmental Representative to determine effectiveness of decontamination.
- .3 Each piece of equipment may be inspected by Departmental Representative after decontamination and prior to removal from site and/or travel on clean areas. Departmental Representative will have right to require additional decontamination to be completed if deemed necessary.
- .4 Collect decontamination sediments which accumulate on equipment decontamination area.
- .5 Furnish and equip personnel engaged in equipment decontamination with appropriate personal protective equipment.

1.11 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection Plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative within 24 hours of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Take action only after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken. Stop order of work shall not be allowed to be a delay claim.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.12 WILDLIFE

- .1 Do not approach, feed or harass the wildlife.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .4 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Contractor will provide all refuse bins required to complete Work.
 - .2 Remove refuse containers and bins from site and dispose of materials at appropriate facility.
- .5 Provide and maintain sanitary facilities in accordance with Section 01 52 00 - Construction Facilities.
- .6 Complete final site restoration in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian Construction Documents Committee (CCDC)
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-Z321-[96(R2001)], Signs and Symbols for the Occupational Environment.
- .3 US EPA 832/R-92-005 - Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

1.3 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.4 CONSTRUCTION PARKING

- .1 Parking will be permitted on site as directed by the Departmental Representative provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.5 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials as necessary.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.6 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.7 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages with Graphic symbols to CAN/CSA-Z321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.8 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .8 Provide necessary lighting, signs, barricades, and markings for safe movement of traffic.
- .9 Dust control: adequate to ensure safe operation at all times.

1.9 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Clean-up in accordance with Section 01 74 11 - Cleaning.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 EROSION AND SEDIMENTATION CONTROL

- .1 Provide erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff that complies with US EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent and in accordance with Section 01 57 13 - Erosion and Sediment Control.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction.
- .3 Remove any temporary erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 US EPA 832/R-92-005 - Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, September 1992.

1.2 DEFINITIONS

- .1 Erosion: Deterioration, displacement, or transportation of land surface by wind or water, intensified by land-clearing practices related to construction activities.
- .2 Rain or Rain Storm: An event defined causing the pooling of water on road or other impervious surfaces.
- .3 Sediment: Particulate matter transported and deposited as a layer of solid particles within a body of water.

1.3 SUBMITTALS

- .1 Provide requested information specified in Section 01 33 00 - Submittal Procedures.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

- .1 Prevent cleared topsoil and regraded areas from being eroded by wind and/or rain.
- .2 Limit operation of vehicles on site to gravel surfaces in order to avoid disturbing the soil.

3.2 MUNICIPAL STORM WATER

- .1 Each Week: Inspect erosion and sediment control measures, to ensure proper functions are not damaged.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 Maintain work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Provide on-site refuse containers for collection of waste materials and debris.
- .4 Dispose of waste materials and debris off site.
- .5 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .6 Provide adequate ventilation during use of volatile or noxious substances.

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 including fencing.
- .2 Remove waste products and debris other than that caused by others, and leave Work area clean.
- .3 Prior to final inspection by Departmental Representative and as per Section 01 77 00 - Closeout Procedures, remove surplus products, tools and machinery/equipment.
- .4 Remove waste products and debris other than that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Definitions:
 - .1 Inert Fill: inert waste - exclusively asphalt and concrete.
 - .2 Waste: Visible debris on the ground surface or partially buried within existing stockpiles, consisting of non-hazardous material.
- .2 Reference Standards:
 - .1 Canadian Construction Association (CCA)
 - .1 CCA 81-2001: A Best Practices Guide to Solid Waste Reduction.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit on weekly basis, throughout project and/or at intervals agreed to in writing by Departmental Representative the following:
 - .1 Original receipts, scale tickets, waybills, and/or waste disposal receipts that show quantities and types of materials disposed of. Contractor invoices will not be paid until original receipts have been submitted and verified by Departmental Representative.

1.3 USE OF SITE AND FACILITIES

- .1 Execute Work with minimal interference and disturbance to normal use of premises.
- .2 Provide temporary security measures approved by Departmental Representative, where required.

1.4 WASTE PROCESSING SITES

- .1 Waste materials are to be transported off site to approved and/or authorized facilities. Contractor to provide proof of disposal for all materials removed from site.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be disposed of off-site at locations as directed by Departmental Representative.
- .2 Separate waste materials from inert fill for transport and delivery to licensed disposal facility.
- .3 Protect surface drainage from damage and blockage.
- .4 Handle materials in accordance with requirements for acceptance by designated processing facilities.

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste into waterways, storm, or sanitary sewers.
- .3 Keep records of waste including:
 - .1 Waste type.
 - .2 Tonnage generated for off-site disposal.
 - .3 Waste destination.
 - .4 Provide original waste manifest to Departmental Representative.
- .4 Remove materials off-site as Work progresses.

1.7 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 APPLICATION

- .1 Handle waste materials in accordance with all applicable regulations and codes.

3.2 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: 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 inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection within 24 hours of project completion.
 - .2 Departmental Representative Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents, including submittal of all original waste manifests.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Certificates required by authorities having jurisdiction: submitted.
 - .4 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
 - .2 When Work incomplete according to Owner and Departmental Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .2 When Work deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

1.2 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove all surplus materials, excess materials, rubbish, tools and equipment.

- .2 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide evidence, if requested by Departmental Representative, for type, source and quality of products supplied.

1.2 FORMAT

- .1 Organize data as a neat record of Work, available for inspection by Departmental Representative.

1.3 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Provide as-built plans of completed work within one week of project completion to Departmental Representative.
- .2 Provide waste summary report, including wastes hauled, disposal location and hauler within one week of project completion to Departmental Representative.

1.4 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Provide digital photos for site records within one week of project completion to Departmental Representative.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PRICE AND PAYMENT PROCEDURES

.1 Measurement and Payment:

- .1 Reshaping within the designated areas and to the authorized limits and grades indicated on the Specification Drawings or as directed by the Department Representative will be measured on a square metre basis. The estimated area to be re-shaped is 4,200 square metres.
- .2 Sorting of the existing waste piles, including the removal and off-site disposal of wood timbers, brush and other waste materials prior to commencing the reshaping activities will be measured on a per tonne basis. The estimated quantity of material designated for off-site disposal is 100 tonnes.
- .3 Grading and construction of perimeter ditching to promote positive drainage away from the landfill area will be measured on a lineal metre basis. The excavated material shall be used in the reshaping of the landfill surface. The estimated length of perimeter ditching is 200 lineal metres.
- .4 The supply and placement of the compact clay cover over the landfill will be measured for payment by the cubic metre as determined by the average end area survey method. The survey shall be completed by Contractor's third party agency, as approved by Departmental Representative. Cross sections of the area to receive fill shall be surveyed following removal/stripping (if required) and rough grading of surface material. Cross sections shall be surveyed at significant breaks in the original ground surface grade. The maximum distance between cross sections shall not exceed 20 metres unless otherwise indicated by the Departmental Representative. Survey measurements shall be to the nearest 0.1 metre. Following placement of the fill material, the cross sections shall be re-surveyed. The volume measurement of fill material for payment will be determined as the difference in area of the original and the final cross section survey multiplied by the average distance between adjacent cross section locations. The estimated volume of clay cover to be placed is 2,800 cubic metres.
- .5 Supply, placement and spreading of topsoil will be measured on a square metre basis as per Section 32 91 19.13 - Topsoil Placement and Grading.
- .6 Seeding to be included in square metre cost of supply, placement and spreading of topsoil as per Section 32 92 19.13 - Mechanical Seeding.
- .7 Decommissioning the one environmental monitoring well will be measured on a per unit basis.
- .8 Supply and installation of the perimeter fencing, including gate, will be measured on a lineal basis as per Section 32 31 26 - Wire Fences and Gates.
- .9 Balance of Project Costs to be measured as lump sum.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)

- .1 ASTM C117-[04], Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136-[05], Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D422-63[2002], Standard Test Method for Particle-Size Analysis of Soils.
- .4 ASTM D698-00ae1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m).
- .5 ASTM D1557-02e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN-m/m).
- .6 ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-[M88], Sieves, Testing, Woven Wire, Metric.
- .3 US EPA 832/R-92-005 - Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, September 1992.
- .4 Phase II Environmental Site Assessment, DST 2014 - Test Hole Logs (see Appendix A).
- .5 Corrective Action Plan, EGE 2016 (see Appendix B).

1.3 DEFINITIONS

- .1 Reshaping: The levelling and grading of the existing landfill surface to meet the specified grades, including the movement of stockpiles in designated areas to blend in with the natural terrain and provide positive drainage. Includes material to be excavated from the grading and construction of the perimeter ditches.
- .2 Capping: The placement of cover material over the reshaped area, including blending with the natural terrain and providing positive surface drainage.
- .3 Waste material: excavated material from the on-site stockpiles that is unsuitable for use in the landfill reshaping (wood timbers, brush and other waste material) and designated for off-site disposal.
- .4 Borrow material: material obtained from locations outside the work area for use in construction of the clay cap.
- .5 Unsuitable materials:
 - .1 Weak, chemically unstable, frozen and/or compressible materials.
 - .2 Non-uniform material of widely varying moisture density characteristics.
 - .3 Soils with moisture content exceeding optimum moisture by 5% or more. Frost susceptible materials:
 - .4 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Pre-construction Submittals:
 - .1 Submit records of underground utility locates, indicating: location plan of existing utilities as found in field and abandoned services, as required.
- .3 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Inform Departmental Representative 5 days prior to start of Work of proposed source of fill materials and provide representative samples to a third party testing agency for proctor analysis and testing of Atterberg Limits (liquid limit and plasticity index).
 - .3 Provide third party test results demonstrating the proposed fill material meets the specifications to Departmental Representative, including the results of the proctor and Atterberg testing.
 - .4 Submit 2 kg sample of proposed fill material to Departmental Representative, in tightly closed container to prevent contamination and exposure to elements for environmental testing 5 days prior to start of Work.

1.5 QUALITY ASSURANCE

- .1 Do not use soil material until written report of soil test results are reviewed and approved by Departmental Representative.
- .2 Health and Safety Requirements:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements as a minimum.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for off-site disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.7 EXISTING CONDITIONS

- .1 Examine 2014 Phase II ESA report by DST (test hole logs only) provided in Appendix A.
- .2 Suspend operations whenever climatic conditions are unsatisfactory to conform with this Specification.
- .3 Do not operate equipment in work areas until the material has dried sufficiently to prevent excessive rutting.
- .4 Areas to be graded are to be free from debris and standing water.
- .5 Buried services:
 - .1 Before commencing work establish location of buried services on and adjacent to site.

- .2 Arrange with appropriate authority for relocation of active buried services that interfere with execution of work: pay costs of relocating services.
- .3 Prior to beginning excavation Work, notify Departmental Representative and establish in writing, location and state of use of buried utilities and structures.
- .4 Maintain and protect from damage, water, electric, telephone and other utilities and structures to remain.
- .5 Record location of maintained and abandoned underground lines and provide written record to Departmental Representative.
- .6 Existing surface features:
 - .1 Conduct, with Departmental Representative, condition survey of existing surface features which may be affected by Work.
 - .2 Protect existing surface features from damage as directed by Departmental Representative while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.
 - .3 Where required for excavation, cut roots or branches as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Clay fill: approved by the Departmental Representative and meeting the following requirements:
 - .1 Selected native material from off-site borrow excavation source, approved by the Department Representative for the use intended.
 - .2 Unfrozen and free from rocks larger than 25 mm and other deleterious substances.
 - .3 Material shall be classified as CH soil and fall within the following liquid limit, plasticity index values: (50, 22), (50, 80), (120, 72), (120, 80).
 - .4 Fill is not to contain petroleum hydrocarbons (BTEX, PHC Fractions F1 to F4) at concentrations in excess of the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (2007), Tier I guidelines for Residential land use, fine-grained soils.
 - .5 Fill is not to contain metals (including mercury) at concentrations in excess of the CCME CEQG, Tier 1 guidelines for Residential land use, fine-grained soils.

Part 3 Execution

3.1 EROSION AND SEDIMENTATION CONTROL

- .1 Provide erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff that complies with US EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent, and in accordance with Section 01 57 13 - Erosion and Sediment Control.

- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction.
- .3 Remove any temporary erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 SITE PREPARATION

- .1 Remove obstructions from surfaces to be excavated within limits indicated and place in designated area as approved by Departmental Representative.

3.3 PREPARATION/PROTECTION

- .1 Keep work areas free of water while Work is in progress.
- .2 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated, protect existing trees from damage.
- .3 Protect buried services that are required to remain undisturbed.
- .4 Protect work areas against flooding and damage due to surface run-off.
- .5 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures and in a manner not detrimental to public and private property or portion of Work completed or under construction.
- .6 At end of each day's work, leave Work Site in safe and stable condition, and to not be a hazard to wildlife and people.

3.4 WELL DECOMMISSIONING

- .1 Decommission environmental monitoring well in accordance with applicable Federal and Provincial guidelines.

3.5 STOCKPILING

- .1 Stockpile clean cover materials in areas designated by Departmental Representative.
- .2 Protect fill materials from contamination.
- .3 Implement erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.6 RESHAPING

- .1 Advise Departmental Representative at least 7 days in advance of reshaping operations.
- .2 Blade and trim material to lines, grades and dimensions indicated or directed by the Departmental Representative.
- .3 Make use of material within the area designated for reshaping to provide a surface that is smooth and compact with firm slopes.
- .4 Cover waste debris exposed during reshaping with on-site fill soil as directed by the Departmental Representative.

- .5 Keep stockpiled materials safe distance away from edge of drainage features as directed by Departmental Representative.
- .6 Reuse of landfill material is acceptable on site as directed by Departmental Representative.
- .7 Do not obstruct flow of surface drainage or natural watercourses.
- .8 Remove unsuitable waste material (wood timbers, brush and other waste materials) for off-site disposal as directed by Departmental Representative.
- .9 Excavate perimeter ditches to lines and grades indicated or as directed by the Departmental Representative and use excavated material for reshaping of the final landfill surface.
- .10 Correct unauthorized over-excavation at Contractor's expense with clay fill compacted to not less than 90% of corrected Standard Proctor maximum dry density.
- .11 Obtain Departmental Representative approval of completed reshaping.

3.7 PLACEMENT AND COMPACTION

- .1 Set grades and lay out work in detail from control points in areas of compacted clay fill placement. Advise Departmental Representative sufficiently in advance of fill placement operations to enable original ground cross-sections to be surveyed and verified.
- .2 Place compacted clay fill material to the lines, grades and dimensions indicated on the Specification Drawings, or as approved by the Departmental Representative.
- .3 Compaction testing to be completed by Contractor third party agency as approved by Departmental Representative.
- .4 Areas to be backfilled to be free from debris and water.
- .5 Do not use backfill material which is frozen or contains debris.
- .6 Maintain a crowned surface during construction to ensure ready runoff of surface water. Do not place material in free standing water. Drain low areas, before placing material.
- .7 Compact clay cover materials to a minimum of 90 percent of Maximum Dry Density wet of optimum.
- .8 Place cover material in uniform layers not exceeding 200 mm compacted thickness up to the minimum total thickness indicated. Compact each layer before placing succeeding layer. Compaction testing is to be completed by Contractor's third party testing agency.
- .9 Compaction equipment must be capable of obtaining required densities uniformly in materials on project.
- .10 Do not spread topsoil over the compacted clay cover until the Departmental Representative has inspected and approved the underlying subgrade materials.

3.8 GRADING

- .1 Grade so that areas of work match surrounding slope and grade and provide positive drainage away from area.

3.9 RESTORATION

- .1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21 - Construction/Demolition Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.
- .2 Place topsoil and seed across the disturbed area in accordance with Section 32 90 19.13 Topsoil Placement and Grading and Section 32 92 19.13 Mechanical Seeding.
- .3 Clean and reinstate areas affected by Work as directed by Departmental Representative.
- .4 Protect newly graded and seeded areas from traffic and erosion and maintain free of trash or debris.

END OF SECTION

Part 1 General

1.1 PRICE AND PAYMENT PROCEDURES

- .1 Measurement and Payment
 - .1 Supply and erection of wire fence will be measured on a lineal metre basis, including but not limited to: gate, posts, wire fabric, anchors, staples and all other associated materials. Estimated length of fencing, including gate, is 300 lineal metres.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- .2 CSA International
 - .1 CSA G42-1964(R1998), Galvanized (Zinc-Coated) Steel Farm-Field Wire Fencing.
 - .2 CAN/CSA O80 Series-08, Wood Preservation.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for fence, gate and posts, and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in accordance with manufacturer's recommendations.
 - .2 Store and protect fence and gate from damage.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Wire Fence:
 - .1 Fence fabric: No. 9 3/4 Standard Style No. 948 and shall conform: to CSA G42.
- .2 Gate:
 - .1 Frame: to ASTM A53, galvanized steel pipe, standard weight, 25 mm outside diameter.
 - .2 Size: 4.5 m or approved by Departmental Representative.
 - .3 Joints: electrically welded and hot dipped galvanized after welding.
 - .4 Fabric and other components shall match those of the fence and be subject to the same quality requirements.
 - .5 To be supplied with galvanized hinge bolts, hinge clips, chain and hook.
 - .6 Gate to be lockable.
- .3 Timber Posts:
 - .1 Sound, seasoned wood, with ends cut square or as indicated.
 - .2 Intermediate posts: 2.5 m long and 125 mm minimum diameter at small end.
 - .3 Corner, end, gate and anchor posts: 2.7 m long and 200 mm minimum diameter at small end.
 - .4 Straight, free from splits, shakes and excessive knots.
 - .5 Existing knots trimmed flush with surface.
 - .6 Cleats for anchoring corner, gate, end and anchor posts: [38 x 140 x 910] mm.
 - .7 Braces for end, corner and gate posts: 89 x 89mm 3 m long.
 - .8 Posts to be treated in accordance with CAN/CSA O80 Series.
- .4 Steel Posts:
 - .1 Steel line posts shall be either –T-Rail posts or Staple Gripper Fence posts.
T-Rail posts: 2.4 m long, weigh approximately 2 kg/m of length conforming to ASTM Standard A702-87, and punched so that the fence fabric can be secured to the broad side of the post. Posts to be furnished with not less than 7 ties of 4.0 mm galvanized steel wire for securing the fence fabric.
 - .2 Staple Gripper posts: 2.4 m long, 2 mm hot rolled carbon steel.
 - .3 Posts shall be shop painted with one coat of primer.
 - .4 Concrete mixes and materials: to CSA A23.1.
 - .1 Nominal coarse aggregate size: 20-5.
 - .5 Compressive strength: 20 MPa minimum at 28 days.
- .5 Organic zinc-rich coating: to MPI EXT 5.5.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for fence and gate installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 PREPARATION

- .1 Grading:
 - .1 Level ground along fence line in order to ensure that bottom wire of fence between posts can be maintained at not more than 150 mm above ground.

3.3 ERECTION OF FENCE

- .1 Erect fence along lines as indicated on Specification Drawings.
- .2 Installation of posts:
 - .1 Space intermediate posts at 5 m.
 - .2 Space corner, end and gate posts 3 m from adjacent post.
 - .3 Locate and erect gate posts as indicated.
 - .4 Install posts true to line and plumb with 1.5 m of post projecting above ground.
- .3 Fencing with steel posts:
 - .1 Install steel posts to depth of 0.9 m.
 - .2 Set following items in concrete:
 - .1 End, corner and gate posts.
 - .2 Intermediate posts adjacent to end, corner and gate posts.
 - .3 Intermediate posts every 30 m along fence line.
 - .3 Brace corner, end and gate posts.
 - .4 Erect woven wire as indicated.
 - .5 Stretch wires to have uniform tension.
 - .1 Splice wires with standard wire splices.
 - .6 Attach wires to posts and projection arms with metal clips approved in writing by Departmental Representative.

3.4 INSTALLATION OF GATE

- .1 Install gate in location as indicated on Specification Drawings.

- .2 Install gate to prevent over-stress on gate posts when gate is open.
 - .1 Install on level ground with ground clearance of 100 mm maximum.
- .3 Locate anchor pipe for drop bolt, and install pipe flush with grade surface.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Clean and trim areas disturbed by operations. Dispose of surplus material.
 - .1 Clean damaged galvanized surfaces with wire brush removing loose and cracked coatings.
 - .1 Apply 2 coats of organic zinc-rich coating.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

Part 1 General

1.1 PRICE AND PAYMENT PROCEDURES

- .1 Measurement and Payment
 - .1 Supply, placement and spreading of topsoil to be measured in square metres. Estimated area is 4,800 m² and topsoil to be 100 mm in thickness.
 - .2 Supply and placement of seed and fertilizer, as per Section 32 92 19.13 - Mechanical Seeding, is incidental to the cost of topsoil placement and grading.

1.2 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.

1.3 SUBMITTALS

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

Part 2 Products

2.1 TOPSOIL

- .1 Topsoil for seeded areas: weed free mixture of particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth.
 - .1 A locally sourced weed free topsoil with soil texture of clay or silty clay and colour of gray based on The Canadian System of Soil Classification.
 - .2 Topsoil is not to contain petroleum hydrocarbons (BTEX, PHC Fractions F1 to F4) at concentrations in excess of the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (2007), Tier I guidelines for Residential land use, fine-grained soils.
 - .3 Topsoil is not to contain metals (including mercury) at concentrations in excess of the CCME CEQG, Tier 1 guidelines for Residential land use, fine-grained soils.
 - .4 Finished surface free from:
 - .1 Debris and stones over 50 mm diameter.
 - .2 Coarse vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
 - .5 Consistence: friable when moist.

2.2 SOURCE QUALITY CONTROL

- .1 Provide source of topsoil to be utilized to the Departmental Representative 5 days before soil is to be delivered to site.

- .2 Submit 2 kg sample of proposed topsoil material to Departmental Representative, in tightly closed container to prevent contamination and exposure to elements for environmental testing 5 days prior to start of Work.
- .3 Contractor is responsible for amendments to supply topsoil as specified.
- .4 Testing of topsoil will be carried out by testing laboratory designated by Departmental Representative.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures as outlined in Section 01 57 13 - Erosion and Sediment Control.

3.2 PREPARATION OF SUB-GRADES

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
 - .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
 - .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.

3.3 PLACING AND SPREADING OF TOPSOIL

- .1 Place topsoil after Departmental Representative has accepted subgrade.
- .2 Spread topsoil in uniform layer not exceeding 100 mm over all final site restoration areas, excluding existing road surfaces.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
 - .1 Prepare loose friable bed by means of cultivation and subsequent raking.
 - .2 Leave surfaces smooth, uniform and firm against deep foot printing.

3.5 ACCEPTANCE

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.6 CLEANING

- .1 Upon completion of installation, remove all surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 PRICE AND PAYMENT PROCEDURES

- .1 Measurement and Payment:
 - .1 No measurement of payment will be made for this section.
 - .1 Include supply and placement costs of seeding and fertilizer in Section 32 91 19.13 - Topsoil Placement and Grading.
 - .2 A minimum of 110 kg of grass seed and 80 kg of fertilizer will be required.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Scheduling:
 - .1 Schedule seeding and planting to coincide with preparation of soil surface.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for seed and fertilizer 5 days prior to the start of construction.
 - .2 Submit one copy of WHMIS MSDS for fertilizer 5 days prior to the start of construction.
- .3 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.
 - .2 Fertilizer must be dry.
- .2 Storage and Handling Requirements:
 - .1 Store fertilizer off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry and well-ventilated area.
 - .2 Replace defective or damaged materials with new.

Part 2 Products

2.1 GRASS SEED

- .1 For grass seed, use Canada "Certified" seed, "Canada No. 1 Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".
- .2 Departmental Representative to review and approve grass seed mixture before seeding.
 - .1 Grass seed mixture.
 - .1 Mixture composition:
 - .1 40% Creeping Red Fescue
 - .2 20% Chewing Red Fescue
 - .3 20% Perennial Ryegrass.
 - .4 20% Kentucky Bluegrass.
 - .2 A minimum of 110 kg of mixed seed will be required.
 - .2 Free of impurities that would inhibit germination and growth.
 - .3 Supplied by Contractor at designated location.

2.2 FERTILIZER

- .1 To Canada "Fertilizers Act" and Regulations.
- .2 Complete synthetic fertilizer with guaranteed minimum analysis as specified.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under Section 32 91 19.13 - Topsoil Placement and Grading.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after approval to proceed from Departmental Representative.

3.2 SEED BED PREPARATION

- .1 Do not perform work under adverse field conditions as determined by Departmental Representative.
- .2 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; and other deleterious materials; in location as directed by Departmental Representative in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and commence work when instructed by Departmental Representative.

- .4 Seedbed should be firm and weed free prior to seeding.

3.3 FERTILIZING PROGRAM

- .1 Fertilize during establishment with a turf grass starter fertilizer. Fertilizer blend (NPK ratio) should be determined based on topsoil analysis and should be evenly broadcast and mixed/raked into the topsoil seed bed prior to grass seeding at a rate as per the manufacturer's directions. A minimum of 80 kg of mixed fertilizer should be supplied.

3.4 SEED PLACEMENT

- .1 Use manually operated drop seeder (Cyclone type or equivalent).
- .2 Sow seed uniformly at rate of 250 kg/hectare (0.025 kg/m²) grass mixture as specified.
- .3 Blend applications 150 mm into adjacent grass areas to form uniform surfaces.
- .4 Sow half of required amount of seed in one direction and remainder at right angles.
- .5 Incorporate seed by light raking in cross directions.
- .6 Consolidate seeded areas with manually operated, water ballast, landscaping type, smooth steel drum roller.

3.5 CLEANING

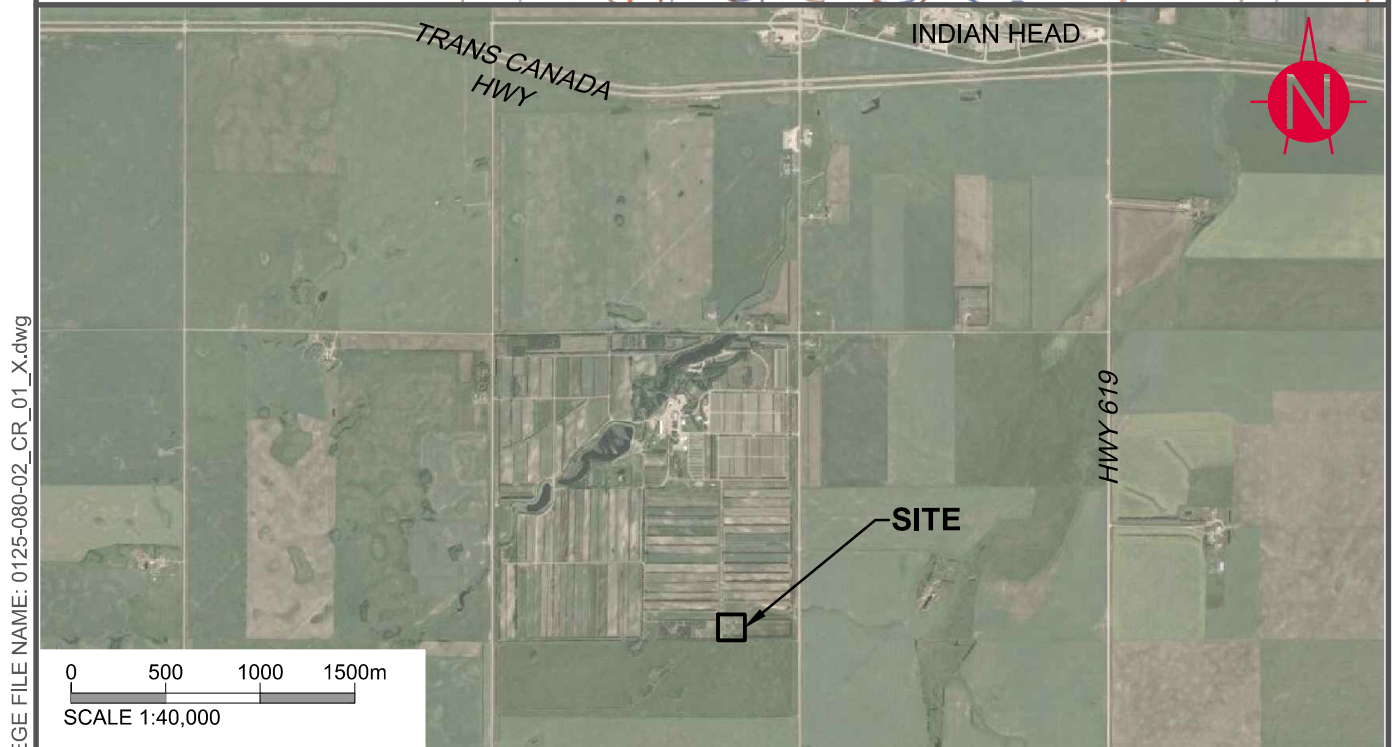
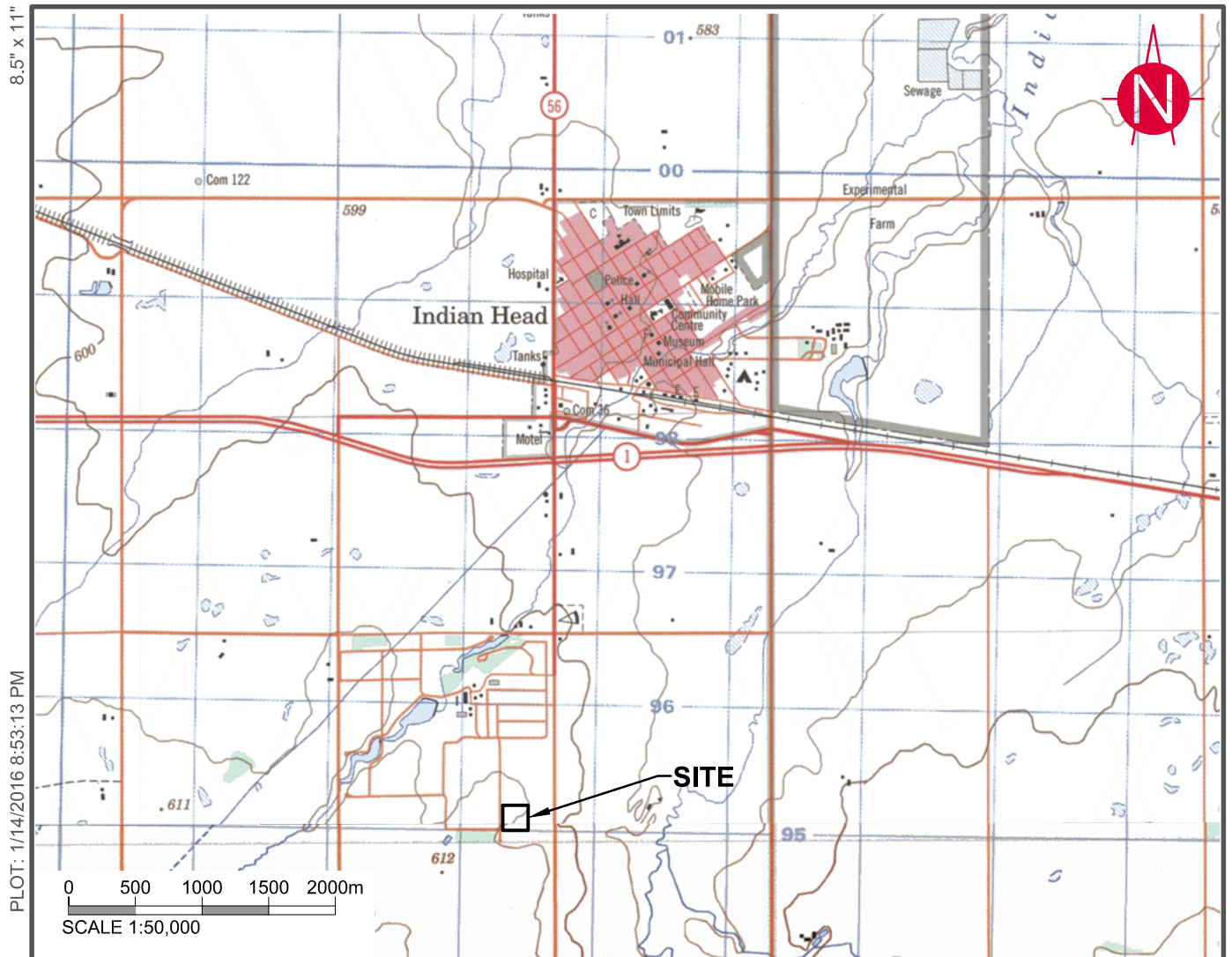
- .1 Progress Cleaning: clean in accordance with Section 01 35 43 - Environmental Procedures.

3.6 FINAL ACCEPTANCE

- .1 Seeded areas will be accepted by Departmental Representative provided that:
 - .1 Area is uniformly seeded and successfully germinated/established in the spring/summer 2016 and free of weeds.
 - .2 If seeding is unsuccessful, Contractor will be responsible for re-seeding and all required maintenance until satisfactory germination has been established.
 - .3 If seeded area is not free of weeds following germination, Contractor will be responsible for proposing and implementing a weed management plan.

END OF SECTION

FIGURES



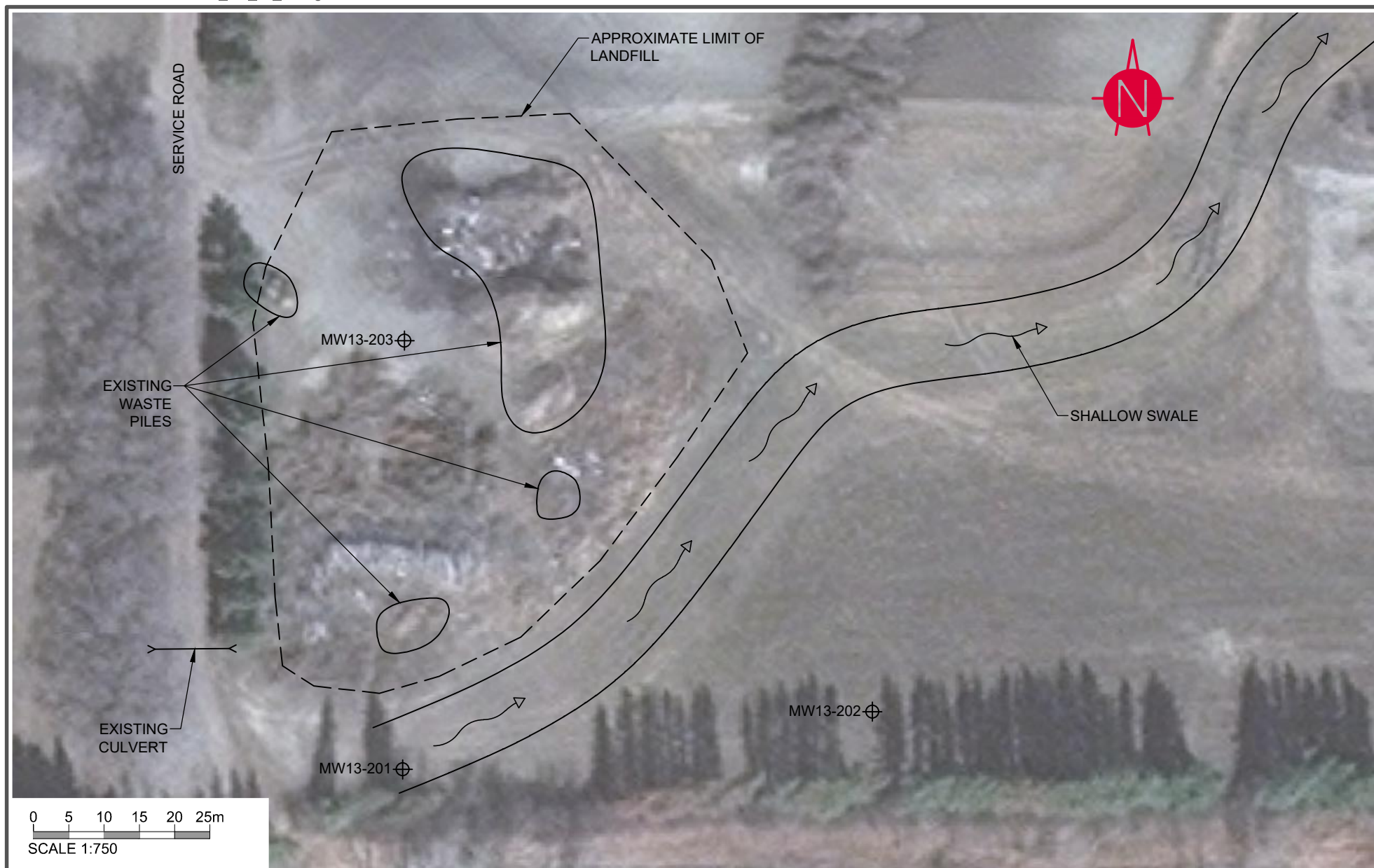
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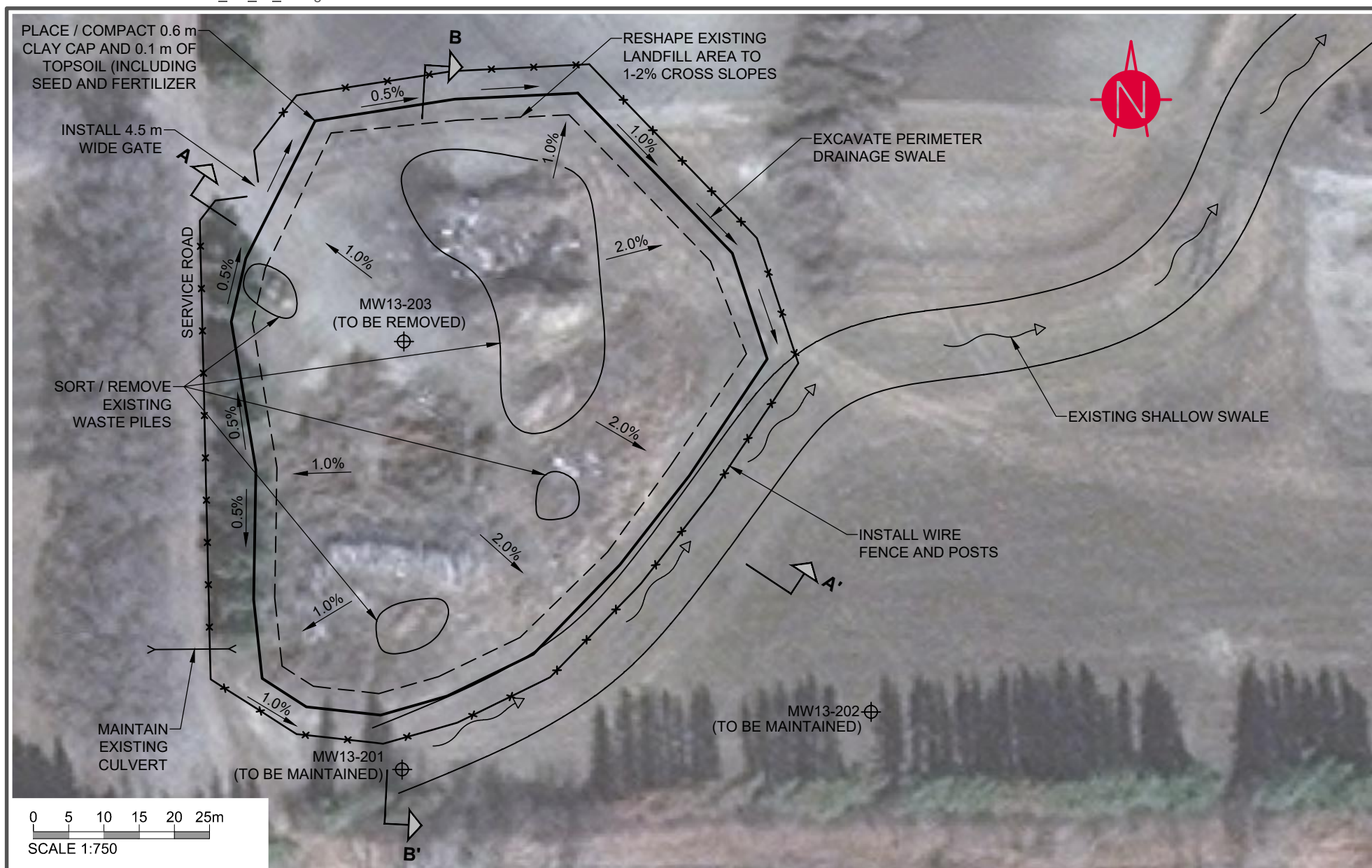
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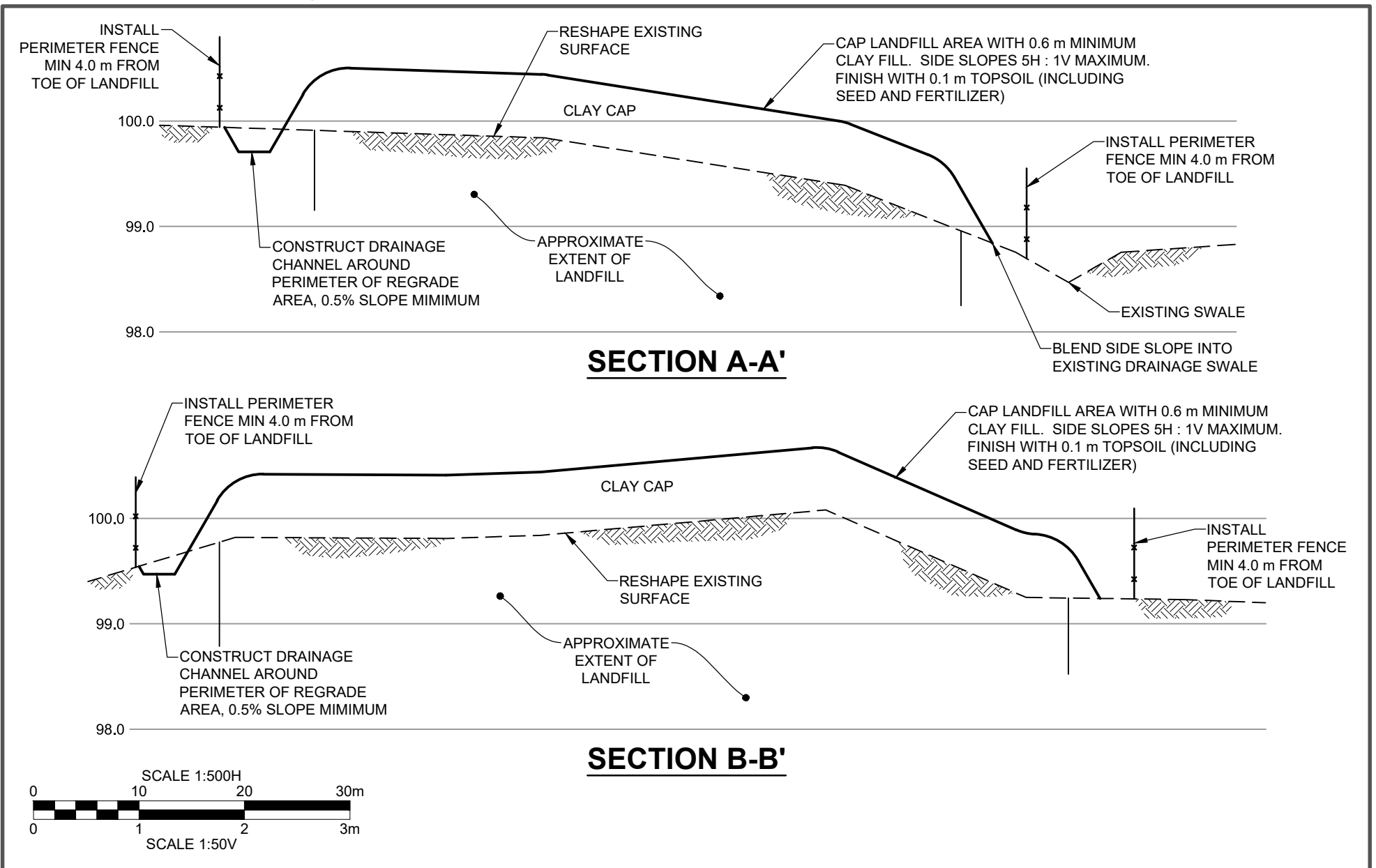
Public Works & Government Services Canada
AAFC Agroforestry Development Centre
 Indian Head, SK
 Landfill Closure

**Location
Plan**

Figure 01







APPENDIX A

**PHASE II ENVIRONMENTAL SITE ASSESSMENT - TEST HOLE LOGS
(DST, 2014)**

APPENDIX B

**CORRECTIVE ACTION PLAN
(EGE, 2016)**