

"A"
SPECIFICATION FOR
GARRISON GROUNDS
PARKING UPGRADES
HALIFAX CITADEL
NATIONAL HISTORIC SITE OF CANADA
HALIFAX, NOVA SCOTIA

PREPARED BY:
PARKS CANADA AGENCY

September, 2013

Drawing List

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HAHC 13/P1 – Sheet 1, SITE PLAN AND DETAILS

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This document is the document referred to as Plans and Specifications and marked "A" in the Articles of Agreement.

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1. Description of Work .1 Work under this contract covers upgrades to the Garrison Grounds at the Halifax Citadel, National Historic Site. Related items include removals, paving/repaving the existing parking areas, extending a gravel service road, drainage elements and other items indicated on the drawings.
- The Citadel is an historic place and as such must be protected from any damage due to construction activities on the site. Preservation of existing historic fabric shall be given the highest priority during construction related to the protection/ repair of the assets. Any damage which occurs to adjacent assets or surfaces shall be repaired at the Contractor's cost.
- The Contractor shall be deemed to have visited the site and examined all assets and to have become fully familiar with all conditions relative to carrying out the work. There shall be no consideration given to claims resulting from the Contractor's failure to carry out sufficient site investigations prior to tendering of the work.
2. Documents Required .1 Maintain at job site, one copy each of following:
- .1 Contract drawings
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed shop drawings.
 - .5 Change orders.
 - .6 Other modifications to Contract.
 - .7 Field test reports.
 - .8 Copy of approved work schedule
 - .9 Manufacturers' installation and application instructions.
 - .10 Record drawings(kept up to date on a daily basis)
 - .11 Site Specific Safety Plan
3. Products .1 Contractor's duties:
- .1 Order products specified from designated suppliers. Order in quantities and at times compatible with construction schedule and site storage capacity.
 - .2 Transport, unload and handle at site.
 - .3 Promptly inspect delivered products, and give written report to the Departmental Representative on condition of all items received.
 - .4 Pay demurrage charges.

.5 Install, connect and finish products as specified.

4. Work Schedule

- .1 The Contractor is to prepare and submit to the Departmental Representative within five days of notification of award of the Contract five copies of the proposed Construction Schedule for approval by Parks Canada Agency. All work shall be complete no later than March 31/14.
- .2 The Contractor is to comply with the agreed schedule(s) at all times. If, for any reasons, the schedule is not followed, the Contractor is to immediately notify the Departmental Representative of the change and submit a revised Schedule for acceptance.
- .3 Interim reviews of work progress based on work Schedule will be conducted as decided by the Departmental Representative and Schedule updated by Contractor as requested by the Departmental Representative.
- .4 If required, the Contractor shall increase manpower and equipment and make whatever adjustments are appropriate to ensure that the project is completed on schedule.

5. Contractor's Use of Site

- .1 The site is located at the Halifax Citadel. Use of the site shall be limited to the existing paved/gravel areas adjacent to the work. Access to these areas will be by the existing gates from Bell Rd. and Ahern Ave. The contractor shall liaise with Parks regarding acceptable times and usage of the site, roads, etc. It shall be the Contractor's responsibility to arrange for all required transportation of men, equipment and materials to the site.
- .2 Do not unreasonably encumber site with materials or equipment.
- .3 Move stored products or equipment which interfere with operations of Parks Canada.
- .4 Obtain and pay for use of additional storage or work areas needed for operations.
- .5 Provide all barriers, signs, enclosures, etc. to ensure safety of the public or other parties on the site.

6. Departmental Representative

- .1 The Departmental Representative for this work shall be Mark Garnett, Asset Manager, Mainland NS Field Unit. Contact information is as follows:
Phone: 426-1994, E-mail: mark.garnett@pc.gc.ca , Fax: 426-4228

7. Measurement for Payment

- .1 The work of this contract is covered by lump sum and unit rates and shall be measured and paid for as described in Section 01 29 01. The final quantities for the various items will only become known as the work proceeds. Unit rates provided will apply to greater or lesser quantities as the eventual scope of work dictates.

8. Codes and Standards

- .1 Perform work in accordance with latest edition of National Building Code of Canada (NBCC) and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.
- .3 All work shall be carried out in accordance with the Nova Scotia Occupational Health and Safety Act and the Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.

9. Project Meetings

- .1 Attend project meetings at times and locations approved by the Departmental Representative.
- .2 Notify all parties concerned of meetings.
- .3 Parks will record notes of meetings, and distribute to all parties.

10. Setting Out of Work

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations required.
- .2 Provide devices needed to lay out and construct work.
- .3 Supply such devices as straight edges and templates required to

- facilitate the Departmental Representative 's inspection of work.
- .4 Supply stakes and other survey markers required for laying out work.
- .5 Do not use spray paint, chalk, etc. that will deface finished, exposed surfaces.
11. Cutting, Fitting and Patching
- .1 Execute cutting, fitting and patching required to make work fit properly. Maintain historic fabric at all times. Review items to be cut, fitted, patched, etc. with the Departmental Representative and obtain approval before proceeding with the work.
- .2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.
- .3 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
- .4 Fit work airtight to pipes, sleeves, ducts and conduits.
- .5 Halifax Citadel is an historic site and no historically significant aspects shall be altered.
12. Protection
- .1 Provide temporary dust screens, barriers, warning signs in locations where work is adjacent to areas used by public or government staff.
13. National Parks Act
- .1 Perform work in accordance with applicable sections of the National Parks Act.
14. Protection of Materials
- .1 Store and protect all materials and equipment required in connection with the work until they have been placed in the work and accepted by the Departmental Representative. Immediately remove rejected materials from the site.
15. Cleaning During Construction
- .1 Maintain work area free from accumulations of waste materials and rubbish.

PART 1 - GENERAL

1.1 Description

- .1 This section covers the measurement of work done for payment purposes, and the scope of the work covered by the pay items in the Unit Price Table.
- .2 It is the intention to provide for a finished piece of work, complete in all essentials and details, including all items reasonably inferable from the drawings and specifications.
- .3 The aggregate of all unit prices and lump sum payments shall constitute full compensation for the entire work of the Contract, as shown, specified and intended, regardless of any omission in the tender documents of any items which are necessary for the completion of the work including temporary facilities, safety, etc.
- .4 Should there be any discrepancy regarding measurement between the Measurement and Payment Section and any other section in the specifications, the Measurement and Payment Section shall overrule the other specification section.
- .5 Unless otherwise specified, all materials necessary to complete the items listed in the Unit Price Table and the finished work are to be supplied by the Contractor and the cost of such material is to be included in the Contractor's prices. There will be no measurement for work not authorized, or for work beyond authorized limits as determined by the Departmental Representative.
- .6 All unit prices and lump sums shall include all costs applicable to the items, including labour, materials, equipment, transportation, ancillaries and all other applicable and relevant costs as intended and as required to complete the work to the full satisfaction of the Departmental Representative. The unit prices and lump sums indicated shall exclude HST.

- .7 All work including shoring, protection measures, etc. required to prevent damage/disturbance to existing structures of any areas damaged as a result of work or access are considered incidental to the work.
- .8 Where disposal of excess material or debris is included in an item this shall include disposal off site in an environmentally approved disposal site.
- .9 The intent is to cover a range of required work as determined by the Departmental Representative on the site under established unit rates. Actual quantities may vary widely depending on the final scope of work and the condition of the various structures.

1.2 Measurement and Payment

.1 General Conditions

There shall be no measurement associated with this item.

Payment will be at the lump sum price bid for Item No. 1 in the Unit Price Table.

The price shall include all costs associated with mobilizing and demobilizing from the site, temporary site fencing and hoarding, pedestrian and workers safety measures and signage, full reinstatement of all disturbed surfaces at completion of the work and provision of all labour, equipment and materials necessary to complete the work as intended but not covered in other pay items.

.2 Removals

There shall be no measurement associated with this item.

Payment will be at the lump sum price bid for Item No. 2 in the Unit Price Table.

The price shall include all labour, equipment and materials required to remove all existing asphalt and granular materials within the indicated limits and depth, removal of the existing berm and adjacent sodded surfaces to allow the extension of the parking surface to the north in the Type 2

area, removal of the existing concrete chase structure on the north edge of the existing parking area, removal (including stump) of the existing tree at the corner of the southern lot, removal of two existing catchbasin structures (including salvaging the covers for reuse) and all other required excavation or removals not specifically covered elsewhere.

.3 Subgrade Replacement

Measurement for this item shall be by the square meter of subgrade area within the Type 1 paved areas identified by the Departmental Representative for removal and replacement.

Payment shall be at the unit price bid for Item 3 in the Unit Price Table.

The price shall include all labour, equipment and materials required to excavate to the indicated depth below subgrade and to place and compact the granular sub-base under the paved parking areas.

.4 Paved Areas

Measurement for this item shall be by the square meter of Type 1 or Type 2 paved areas completed to the satisfaction of the Departmental Representative.

Payment will be at the unit prices bid for Items No. 4 a) and b) in the Unit Price Table.

The price shall include all labour, equipment and materials required to supply, place and compact all granular materials and asphalt as indicated on the drawings for either Type 1 or Type 2 paved areas.

.5 Storm Sewer

There shall be no measurement associated with this item.

Payment will be at the lump sum price bid for Item No. 5 in the Unit Price Table.

The price shall include all labour, equipment and materials required to adjust all existing manhole and catchbasin covers to finished grade as well as install two new catchbasins complete with salvaged covers, granular backfill and all other items required for a completed installation.

.6 Concrete Curb and Gutter

Measurement for this item shall be by the meter of new concrete curb and gutter completed to the satisfaction of the Departmental Representative.

Payment will be at the unit price bid for Items No 6 in the Unit Price Table.

The price shall include all labour, equipment and materials required to remove and dispose of existing curb sections as applicable, excavate, supply and place granular base and concrete curb.

.7 Service Road Extension

There shall be no measurement associated with this item.

Payment will be at the lump sum price bid for Item No. 7 in the Unit Price Table.

The price shall include all labour, equipment and materials required to excavate, place and compact granular, backfill edges, topsoil and sod and install a new gate at the southern limit as indicated on the drawings.

.8 Fencing and Gates

There shall be no measurement associated with this item.

Payment will be at the lump sum price bid for Item No. 8 in the Unit Price Table.

The price shall include all labour, equipment and materials required to remove all existing fencing and gates (2) and

supply and install new fencing and gates(3) as indicated on the drawings. All details of new sections to match existing details.

.9 Cost Plus Work

Measurement for this item shall be by the approved hours for labour and equipment and by quantities approved by the Departmental Representative for materials.

Payment for labour shall be at the hourly rates bid for Item No. 9a in the Unit Price Table. The rates shall include a small tools allowance for shovels, chipping hammers, wheel barrows, etc. Only large equipment will be paid for separately. The rate shall apply to all hours during the Contractor's regular working day. There shall be no additional payment for overtime hours unless approval has been obtained in advance from the Departmental Representative. Only labour designations identified on the Unit Price Table or subsequently approved by the Departmental Representative will be recognized for payment purposes.

Payment for equipment shall be at the hourly rates bid for Item No. 9b in the Unit Price Table. The rates shall include the operator and all expenses associated with operating the equipment. Only equipment specifically identified on the Unit Price Table or subsequently approved by the Departmental Representative shall be recognized for payment purposes. If it becomes necessary to use additional equipment the hourly rates shall be submitted for approval of the Departmental Representative in advance.

Payment for materials shall be at cost (excluding HST) plus 10% for overhead and profit.

At the end of each day the Contractor shall submit a detailed log of all hours and all labour, equipment and material which will be reviewed and signed by the Departmental Representative. Any corrections shall be made by the Contractor as directed. These sheets shall be

submitted with back-up invoices for material with each progress claim.

Cost plus claims shall be broken down by activity (i.e. "fence repairs," etc.) and shall indicate the days being claimed to allow for cross referencing with the submitted logs.

Only work specifically approved by the Departmental Representative shall be carried out under this item.

1.1 SUBMITTALS

- .1 Submit to Departmental Representative copies of the following documents, including updates:
 - .1 Site Specific Health and Safety Plan.
 - .2 Building Permit, compliance certificates and other permits obtained.
 - .3 Reports or directions issued by Federal, Provincial or other authority having jurisdiction.
 - .4 Accident or Incident Reports.
 - .5 MSDS data sheets.
 - .6 Name of Contractor's Representative designated to perform health and safety supervision on site.

1.2 COMPLIANCE REQUIREMENTS

- .1 Comply with the Occupational Health and Safety Act for the Province of Nova Scotia, and the Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.
- .3 Observe and enforce construction safety measures required by:
 - .1 National Building Code of Canada;
 - .2 Provincial Worker's Compensation Board;
 - .3 Municipal statutes and ordinances.
- .4 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.
- .5 A copy of the Canada Labour Code Part II may be obtained by contacting:

Canadian Government Publishing
Public Works & Government Services Canada
Ottawa, Ontario, K1A 0S9
Tel: (819) 956-4800 (1-800-635-7943)
Publication No. L31-85/2000 E or F)

- .6 Maintain Workers Compensation Coverage for duration of Contract. Submit Letter of Good Standing to Departmental Representative upon request.

1.3 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, of property and for protection of persons [and public] circulating adjacent to work operations to extent that they may be affected by conduct of the Work.
- .2 Enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.4 SITE CONTROL
AND ACCESS

- .1 Control work site and entry points to construction areas.
 - .1 Delineate and isolate construction areas from other areas of site by use of appropriate means.
 - .2 Post notices and signage at entry points and at other strategic locations identifying entrance onto site to be restricted to authorized persons only.
 - .3 Signage must be professionally made, bilingual in both official languages or display internationally understood graphic symbols.
- .2 Approve and grant access to site only to workers and authorized persons.
 - .1 Immediately stop non-authorized persons from circulating in construction areas and remove from site.
 - .2 Provide site safety orientation to all persons before granting access. Advise of site conditions, hazards and mandatory safety rules to be observed on site.
- .3 Secure site at night time to extent required to protect against unauthorized entry.
- .4 Ensure persons granted access to site wear appropriate personal protective equipment (PPE) suitable to work and site conditions.

.1 Provide such PPE to authorized persons who require access to perform inspections or other approved purposes.

1.5 PROTECTION

- .1 Carry out work placing emphasis on health and safety of the Public, Facility personnel, construction workers and protection of the environment.
- .2 Erect safety barricades, lights and signage on site to effectively delineate work areas, protect pedestrian and vehicular traffic around and adjacent to work and to create a safe working environment.
- .3 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.6 FILING OF NOTICE

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.

1.7 PERMITS

- .1 Post on site applicable permits, licenses, compliance certificates, etc. as.
- .2 Where particular permit or compliance certificate cannot be obtained at the required stage of work, notify Departmental Representative in writing and obtain his/her approval to proceed before carrying out that portion of work.

1.8 HAZARD ASSESSMENTS

- .1 Conduct site specific health and safety hazard assessment before commencing project and during course of the work. Identify risks and hazards resulting from site conditions, weather conditions and work operations.
 - .1 Perform on-going assessments addressing new risks and hazards as work progresses
 - .2 Also, conduct assessment when the scope of work has been changed by Change Order and when potential hazard or weakness in current health and safety practices are identified by Departmental Representative or by an authorized safety Representative.

- .2 Record results in writing and address in Health and Safety Plan.
- .3 Keep copy of all assessments on site.

1.9 PROJECT/SITE
CONDITIONS

- .1 The following are known or potential project related health, environmental and safety hazards at site which must be properly managed if encountered during course of work:
 - .1 Existing hazardous products [stored] [used by Facility personnel] are:
 - .1 N/A
 - .2 Existing hazardous or contaminated [building] materials on site are:
 - .1 N/A
 - .3 Safety hazards due to existing site conditions and conduct of work [adjacent] [inside] operational Facility are:
 - .1 N/A
 - .2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work. Include above items into hazard assessment process.
 - .3 Obtain from Departmental Representative, copy of MSDS Data sheets for existing hazardous products stored on site or used by Facility personnel.

1.10 HEALTH AND
SAFETY MEETINGS

- .1 Attend pre-construction health and safety meeting conducted by Departmental Representative. Have following persons in attendance:
 - .1 Contractor's designated Health and Safety Site Supervisor.
 - .2 Departmental Representative will advise of date, time and location.
- .2 Conduct health and safety meetings and tool box briefings on site. Hold on a regular and pre-scheduled basis during entire work in accordance with requirements and frequency as

stipulated in provincial occupational health and safety regulations.

- .1 Keep workers informed of potential hazards and provide safe work practices and procedures to be followed.
- .2 Take written minutes and post on site.

1.11 HEALTH AND SAFETY PLAN

- .1 Develop written site-specific Project Health and Safety Plan, based on hazard assessments, prior to commencement of work.
 - .1 Submit copy to Departmental Representative within 14 calendar days of acceptance of bid.
 - .2 Submit updates as work progresses.
- .2 Health and Safety Plan shall contain three (3) parts with following information:
 - .1 Part 1 - Hazards: List of individual health risks and safety hazards identified by hazard assessment process.
 - .2 Part 2 - Safety Measures: engineering controls, personal protective equipment and safe work practises used to mitigate hazards and risks listed in Part 1 of Plan.
 - .3 Part 3a: Emergency Response: standard operating procedures, evacuation measures and emergency response in the occurrence of an accident, incident or emergency.
 - .1 Include response to all hazards listed in Part 1 of Plan.
 - .2 Evacuation measures to complement the Facility's existing Emergency Response and Evacuation Plan. Obtain pertinent information from Departmental Representative.
 - .3 List names and telephone numbers of officials to contact including:
 - .1 General Contractor and all Subcontractors.
 - .2 Federal and Provincial Departments as stipulated by laws and regulations and local emergency resource organizations, as needed based on nature of emergency or accident.
 - .3 Officials from site Facility management. Departmental Representative will provide list.
 - .4 Part 3b - Site Communications:
 - .1 Procedures used on site to share work related safety issues between workers, subcontractors, and

General Contractor.

.2 List of critical tasks and work activities, to be communicated with the Facility Manager, which has risk of affecting tenant operations, or endangering health and safety of Facility personnel and the general public. Develop list in consultation with the Departmental Representative.

- .3 Prepare Health and Safety Plan in a three column format, addressing the three parts specified above, as follows:

Column 1	Column 2	Column 3
Part 1 Identified Hazards	Part 2 Safety Measures	Part 3a/3b Emergency Response & Site Communications

- .4 Develop Plan in collaboration with subcontractors. Address work activities of all trades. Revise and update Plan as Sub-contractors arrive on site.
- .5 Implement and enforce compliance with requirements of Plan for full duration of work to final completion and demobilization from site.
- .6 As work progresses, review and update Plan. Address additional health risks and safety hazards identified by on-going hazard assessments.
- .7 Post copy of Plan, and updates, on site.
- .8 Submission of the Health and Safety Plan, and updates, to the Departmental Representative is for review and information purposes only. Departmental Representative's receipt, review and any comments made of the Plan shall not be construed to imply approval in part or in whole of such Plan by Departmental Representative and shall not be interpreted as a warranty of being complete and accurate or as a confirmation that all health and safety requirements of the Work have been addressed and that it is legislative compliant. Furthermore, Departmental Representative's review of the Plan shall not relieve the Contractor of any of his legal obligations for Occupational Health and Safety provisions specified as part of

the Work and those required by provincial legislation.

1.12 SAFETY
SUPERVISION AND
INSPECTIONS

- .1 Designate one person to be present on site at all times, responsible for supervising health and safety of the Work.
 - .1 Person to be competent in Occupational Health and Construction Safety as defined in the Provincial Occupational Health and Safety Act.
 - .2 Assign responsibility, obligation and authority to such designated person to stop work as deemed necessary for reasons of health and safety.
 - .3 Conduct regularly scheduled safety inspections of work site on a minimum [bi-weekly] basis.
 - .1 Note deficiencies and remedial action taken in a log book or diary.
 - .4 Keep inspection reports on site.

1.13 TRAINING

- .1 Ensure that all workers and other persons granted access to site are competently trained and knowledgeable on:
 - .1 Safe use of tools and equipment.
 - .2 How to wear and use personal protective equipment (PPE).
 - .3 Safe work practices and procedures to be followed in carrying out work.
 - .4 Site conditions and minimum safety rules to be observed on site, as given at site orientation session.

1.14 MINIMUM
SITE SAFETY RULES

- .1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, the following safety rules shall be considered minimum requirements to be obeyed by all persons granted site access:
 - .1 Wear personnel protective equipment (PPE) appropriate to function and task on site; the minimum requirements being hard hat, safety footwear and eye protection.
 - .2 Immediately report unsafe activity or condition at site, near-miss accident, injury and damage.
 - .3 Maintain site in tidy condition.
 - .4 Obey warning signs and safety tags.
- .2 Brief workers on site safety rules and on disciplinary measures

to be taken by Departmental Representative for violation or non compliance of such rules. Post rules on site.

1.15 ACCIDENT REPORTING

- .1 Investigate and report the following incidents and accidents:
 - .1 Those as required by Provincial Occupational Safety and Health Act and Regulations.
 - .2 Injury requiring medical aid as defined in the Canadian Dictionary of Safety Terms-1987, published by the Canadian Society of Safety Engineers (C.S.S.E)as follows:
 - .1 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
 - .3 Property damage in excess of \$5000.00,
 - .4 Interruption to Facility operations with potential loss to a Federal Dept. in excess of \$5000.00,
 - .5 Those which require notification to Workers Compensation Board or other regulatory agencies as stipulated by applicable law or regulations.
- .2 Send written report to Departmental Representative for all above cases.

1.16 TOOLS AND EQUIPMENT SAFETY

- .1 Routinely check and maintain tools, equipment and machinery for safe operation.
- .2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.
- .3 Tag and immediately remove from site items found faulty or defective.

1.17 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site. Post on site. Submit copy to Departmental Representative upon receipt.

1.18 POWDER ACTUATED DEVICES

- .1 Use powder actuated fastening devices only after receipt of written permission from Departmental Representative.

1.19 CONFINED SPACES

- .1 Carry out work in confined spaces in compliance with:
 - .1 Provincial Occupational Safety and Health Regulations and;
 - .2 Canada Occupational Safety and Health Regulations (COSH) made under the Canada Labour Code - Part II.
- .2 Conduct hazard assessment and address in Safety Plan before entering confined space.
- .3 Provide and maintain equipment and PPE as required for the safety and emergency evacuation of persons entering confined spaces.
- .4 Provide training to persons who will be entering and to those persons who will be assisting in the confined space entry process. Training to be specialized instructions beyond (basic confined space entry information) as required to suit type and conditions of confined space.
- .5 Safety for Inspectors:
 - .1 Upon request, provide PPE and training to Departmental Representative and to other authorized persons, for the purpose of entering confined space to conduct inspections.
 - .2 Be responsible for the efficacy of the equipment and safety of such persons during their entry and occupancy in the confined space.

1.20 POSTING OF DOCUMENTS

- .1 Post on site safety documentation as stipulated by Authorities having jurisdiction and as specified herein. Place in a common visible location.

1.21 SITE RECORDS

- .1 Maintain on site a copy of all health and safety documentation and reports specified to be produced as part of the work and received from authorities having jurisdiction.
- .2 Upon request, make available to Departmental Representative and to other authorized safety representative for review. Provide copy when directed by Departmental Representative.

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

 - 2. Disposal of Wastes .1 Do not bury rubbish and waste materials on site.
.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil, paint thinner or herbicides into waterways, storm or sanitary sewers or onto the ground.
.3 The Contractor shall be fully responsible for safe disposal off the site in an environmentally acceptable manner and in accordance with all applicable regulations.

 - 3. Drainage .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

 - 4. Pollution Control .1 Maintain temporary erosion and pollution control features installed under this contract.
.2 Control emissions from equipment to 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 Clean up and remove all blown, excavated or imported material, material packaging, general equipment maintenance containers, general working debris, etc., to the designated dump site from the site daily.

 - 5. Environmental Assessment .1 An environmental screening has been carried out on this proposed construction project. The assessment document is attached to this specification.

*****END*****

1. Access
- .1 Provide and maintain adequate access to project site.
 - .2 Build and maintain temporary roads when approved or directed.
 - .3 Use existing roads/paths for access to project site, storage areas or work areas, maintain such roads/paths for duration of contract and make good damage resulting from Contractor's use of roads/paths to Owner's satisfaction.
 - .4 Contractor shall accommodate and permit authorized Public Works (PWGSC)/Parks Canada (PC) employees and the Departmental Representative on the site.
2. Contractor's Site Office
- .1 N/A
3. Storage Sheds
- .1 Provide adequate weathertight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
4. Sanitary Facilities
- .1 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and ordinances.
 - .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
5. Water Supply
- .1 Arrange, pay for and maintain temporary potable water supply in accordance with governing regulations and ordinances.
6. Power
- .1 Arrange, pay for and maintain temporary electrical power supply as required in accordance with governing regulations and ordinances.
7. Signs and Notices
- .1 Signs and notices for safety or instruction to be in English and French languages, or commonly understood graphic symbols.

Counterscarp Wall
Halifax Citadel

.2 Supply all labour, materials and equipment as required to install the furnished signs.

8. Scaffolding

.1 N/A

9. Removal of
Temporary Facilities

.1 Remove temporary facilities from site when directed by the Departmental Representative.

.2 If project is closed down at end of construction season keep temporary facilities operational until close down or removal is approved by the Departmental Representative.

*****END*****

1. General

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by the Departmental Representative, submit following information for materials and equipment proposed for supply:
 - .1 name and address of manufacturer,
 - .2 trade name, model and catalogue number,
 - .3 performance, descriptive and test data,
 - .4 manufacturer's installation or application instructions,
 - .5 evidence of arrangements to procure.
- .3 Provide material and equipment of specified design and quality , performing to published ratings and for which replacement parts are readily available.
- .4 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.

2. Manufacturer's Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify the Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions. The Departmental Representative will designate which document is to be followed.

3. Delivery and Storage

- .1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.
- .2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
- .3 Store material and equipment in accordance with supplier's instructions.
- .4 Touch-up damaged factory finished surfaces to the Owners satisfaction. Use primer or enamel to match original. Do not paint over name plates.

4. Substitution

- .1 Proposals for substitution may be made in accordance with Instructions To Tenders, Item 7, standard PWGSC documents. Such requests must include statements of respective costs of items originally specified and proposed substitutions.
- .2 Proposals will be considered by the Departmental Representative if:
 - .1 Products selected by tenderer from those specified, are not available, or
 - .2 Delivery date of products selected from those specified would unduly delay completion of Contract, or
 - .3 Alternative products to those specified, which are brought to attention of and considered by the Departmental Representative as equivalent to those specified and will result in credit to Contract amount.
- .3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.
- .4 Amounts of all credits arising from approval of substitutions will be determined by the Departmental Representative and Contract price will be reduced accordingly. No substitutions will be permitted without prior written approval of the Departmental Representative.

5. Construction
Equipment and Plant

- .1 On request, prove to the satisfaction of the Departmental Representative that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.
- .2 Maintain construction equipment and plant in good operating order.

- 1. General
 - .1 Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
 - .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
 - .3 Provide adequate ventilation during use of volatile or noxious substances.
- 2. Materials
 - .1 Use only cleaning materials recommended by manufacturer for surface to be cleaned, and as recommended by cleaning material manufacturer.
- 3. Cleaning During Construction
 - .1 Provide on site, dump containers for collection of waste materials, and debris.
 - .2 Dispose of waste materials, and debris legally off site. No on site disposal is permitted.
 - .3 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet surfaces nor contaminate building systems or be hazardous to the public visiting the site.
- 4. Final Cleaning
 - .1 Broom clean stone, concrete, top of walls and other hard surfaces.
 - .2 Rake clean other surfaces of the grounds, ramparts, etc.
 - .3 Dispose of all debris, legally, off the site.

PART 1 - GENERAL

1.1 Description

The work of this section includes but is not necessarily limited to the supply of all materials, labour and equipment for placement of formwork for all slabs, curbs, etc. and all other concrete work, as indicated on the drawings. The contractor is responsible to ensure all formwork is located in accordance with the drawings and is securely supported as required.

1.2 Related Work

- .1 Concrete Reinforcement Section 03 30 10
- .2 Cast-in-Place Concrete Section 03 30 0

1.3 Reference Standards

- .1 Do concrete formwork in accordance with CAN3-A23.1-LATEST, except where specified otherwise.

PART 2 – PRODUCTS

2.1 Materials

- .1 Formwork lumber: wood formwork materials to CAN3-A23.1-LATEST, To produce authentic finish appearance approved by the Departmental Representative.
- .2 Falsework materials: to CSA S269.1-LATEST
- .3 Form stripping agent: colourless mineral oil, free of kerosene, with viscosity between 70 and 100 s Saybolt Universal at 100°F, flashpoint minimum 300°F, open cup.
- .4 Form ties: removable or snap-off metal ties, fixed or adjustable length, free of devices leaving depressions larger than 25mm diameter in concrete surface.
- .5 Form liner:
 - .1 Plywood: Douglas Fir to CSA 0141-LATEST.
 - .2 No plywood to be used against concrete (where it will show).

PART 3 – EXECUTION

3.1 Erection

- .1 Verify lines, levels with the Departmental Representative before proceeding with formwork and ensure dimensions agree with drawings.
- .2 Construct forms to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN3-A23.1-LATEST.
- .3 Obtain the Departmental Representative's approval for use of earth forms.
- .4 Hand-trim sides and bottoms and remove loose earth from forms before placing concrete.
- .5 Align form joints and make watertight. Keep form joints to minimum.
- .6 Form chases, slots, openings, drips, recesses, expansion and control joints, etc. as indicated.
- .7 Clean formwork in accordance with CAN3-A23.1-LATEST before placing concrete.
- .8 Leave formwork in place for following minimum periods of time after placing concrete.
 - .1 7 days for walls, retaining walls and sides of beams.
 - .2 7 days for beam soffits, slabs, decks and other structural members.
 - .3 7 days for footings and pedestals.
- .9 Re-use formwork and falsework subject to requirements of CAN3-A23.1-LATEST.

PART 1 - GENERAL**1.1 Description**

Provision of all labour, material and equipment necessary for supply and placement of concrete reinforcement as shown on the drawings. Work to include but not necessarily be limited to the following:

- .1 Detailing, including provision of shop drawings to Owner for review.
- .2 Supply, fabrication and placement of concrete reinforcement according to drawings.
- .3 Supply of all ties, reinforcement chairs, etc. as required to secure reinforcement in proper location.

1.2 Related Work

- | | | |
|----|------------------------|------------------|
| .1 | Concrete Formwork | Section 03 10 10 |
| .2 | Cast-in-Place Concrete | Section 03 30 10 |

1.3 Reference Standards

- .1 Do reinforcing work in accordance with CAN3-A23.1-Latest.

1.4 Source Quality Control

- .1 Provide the Departmental Representative with a certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 3 weeks prior to commencing reinforcing work.
- .2 Inform the Departmental Representative of proposed source of material to be supplied.

1.5 Shop Drawings

- .1 In accordance with Section 01 33 00

1.6 Substitutes

- .1 Substitution of different size bars permitted only upon written approval of the Departmental Representative.

PART 2 PRODUCTS**2.1 Materials**

- .1 Reinforcing steel; billet steel, grade 400 deformed bars to CSA G30.18-M92 unless indicated otherwise.
- .2 Cold-drawn annealed steel wire ties: to CSA G30.3-M1983.
- .3 Welded steel wire fabric: to CSA G30.5-M1983. Provide in flat sheets only.

- .4 Chairs, bolsters, bar supports, spacers: to CAN3-A23.1-M94.
- .5 Mechanical splices: subject to the approval of the Owner.
- .6 Dowels: smooth steel dowels to ASTM A307, lightly oiled on one end.

2.2 Fabrication

- .1 Fabricate reinforcing in accordance with CAN3-A23.1-M94, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Ontario.
- .2 Obtain the Departmental Representative's approval for locations of reinforcement splices other than shown on steel placing drawings.
- .3 Ship bundles of bar reinforcement, clearly identified in accordance with bar list.

PART 3 – EXECUTION

3.1 Field Bending

- .1 Do not field bend reinforcement except where indicated or authorized by Owner.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars which develop cracks or splits.

3.2 Placing Reinforcement

- .1 Place reinforcing steel as indicated on reviewed shop drawings and in accordance with CAN3-A23.1-M94.
- .2 Drill and grout into concrete as indicated.
- .3 Obtain the Departmental Representative's approval of reinforcing steel and position.
- .4 Give the Departmental Representative 48 hours to inspect reinforcing steel and position.
- .5 Field touch-up all damaged epoxy coatings.

- .5 Premolded joint fillers: Bituminous impregnated fibre board: to ASTM D1751-83 or sponge rubber: to ASTM D1752-84, Type I, flexible grade.

2.2 Concrete Mixes

- .1 Proportion normal density concrete in accordance with CAN3-A23.1-Latest, and other applicable standards to give following properties:
 - .1 Use Type 10 Cement.
 - .2 Minimum compressive strength at 28 days: 30 MPa.
 - .3 Minimum cement content: to be determined in accordance with CAN3-A23.1-Latest.
 - .4 Class of exposure: A
 - .5 Nominal size of coarse aggregate: 20 mm.
 - .6 Slump at time and point of discharge: 25 to 75 mm.
 - .7 Air content: 5.0 to 8.0%.
 - .8 Maximum water cement ratio of 0.45.

PART 3 – EXECUTION

3.1 Workmanship

- .1 Obtain the Departmental Representative's approval before placing concrete. Provide 48 hours notice prior to placing of concrete.
- .2 Ensure reinforcement and inserts, are not disturbed during concrete placement.
- .3 Prior to placing of concrete obtain the Departmental Representative's approval of proposed method.
- .4 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, inside and outside air temperature and test samples taken.
- .5 Apply curing compound maximum 1 hr after concrete placing begins or after forms are removed.
- .6 Do not place load upon new concrete until authorized by the Engineer.

.7 In cold weather, protect concrete work to CAN/CSA-A23.1-LATEST and as follows:

.1 Cold weather is defined as a period when the mean air temperature drops below 5 C for more that 3 successive days.

.2 When air temperature is above 0 C and is forecast to remain so for 48 hours after placing, insulated tarps are acceptable protection provided concrete temperatures are monitored and comply with the limits specified in .5 below. Prevent contact between the tarps and the fresh concrete to avoid marking the finished surface.

.3 For all other cold weather conditions, protect concrete with a windproof enclosure that allows free circulation of air around fresh concrete. Enclosure shall provide sufficient clearance to allow finishing operations and stripping of the forms.

.4 If required supply approved heating equipment to maintain temperatures as follows:

.1 Concrete temperature between 10 C and 30 C for the initial 10 days after placing.

.2 Take concrete temperature readings at start and end of each day and keep records.

3.2 Inserts, etc

.1 The Contractor shall be responsible to ensure that the concrete work is placed to suit the existing conditions.

3.3 Finishing

.1 Finish concrete in accordance with CAN3-A23.1-Latest.

3.4 Testing

.1 Inspection and testing may be carried out by a Testing Laboratory designated by the Departmental Representative.

PART 1 - GENERAL

1.1 Scope

- .1 The work of this section includes but is not necessarily limited to supply of all labour, material and equipment necessary for the supply, installation and painting of the following items as indicated on the drawings:
 - .1 New picket fence on the south and west boundary of the south field. The fence shall be a fabricated steel fence painted black.
 - .2 Three new gates at the Sackville parking lot, Bell Rd. and Ahern Ave.

1.2 Reference Standards

- .1 Do welding work in accordance with CSA W59-M1989 unless specified otherwise.

1.3 Shop Drawings

- .1 Submit shop drawings of the gates and fence sections for the Departmental Representative's approval. Obtain general details from existing sections prior to removal
- .2 Do not proceed with work until relevant submissions are reviewed by the Departmental Representative.

PART 2 - PRODUCTS

2.1 Materials

- .1 Steel sections and plates: to CAN3-G40.21-M92 , Grade 300W.
- .2 Welding materials: to CSA W59-M89.
- .3 Primer: Alkyd primer, Kem Kromik universal metal primer - B50Z series by Sherwin Williams or approved equal.
- .4 Finish paint; two coats gloss alkyd black enamel. Industrial enamel B54Z by Sherwin Williams or approved equal.

2.2 Fabrication

- .1 Build work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Fabricate items from steel unless otherwise noted.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure welds are continuous for length of each joint.

2.3 Shop Painting

.1 Apply one shop coat of primer to metal items.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7° C.

.3 Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 Erection

.1 Erect work square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.2 Concrete post footings to extend minimum 1200 below grade. Use 200 mm sono-tubes or approved equal bedded in minimum 150 surround of Type 1 granular fill.

.3 Make field connections with bolts or weld in accordance with reviewed shop drawings.

.4 Provide items for casting into concrete or building into masonry complete with setting templates to appropriate trades.

.5 Touch-up field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

PART 1 - GENERAL

1.1 Source Approval

- .1 Inform the Departmental Representative of proposed source of aggregates and provide access for sampling at least 4 weeks prior to commencing production.
- .2 If, in opinion of the Departmental Representative materials from the proposed source do not meet, or cannot reasonably be processed to meet specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .3 Should a change of material source be proposed during work, advise the Departmental Representative four weeks in advance of proposed change to allow sampling and testing.
- .4 Acceptance of a material at source does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

1.2 Production
Sampling

- .1 Provide the Departmental Representative with a gradation curve of proposed aggregate. Contractor to be responsible for cost of initial gradation curve.
- .2 Aggregate will be subject to continual sampling by the Departmental Representative during production.
- .3 Provide the Departmental Representative with ready access to source and processed material for purpose of sampling and testing.
- .4 Contractor to bear the cost of sampling and testing of aggregates which fail to meet specified requirements.

PART 2 - PRODUCTS

2.1 Materials

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material or other deleterious substances.
- .2 Flat and elongated particles are those whose greatest dimension exceeds five times their least dimensions.
- .3 Fine aggregates satisfying requirements of applicable section shall be one, or a blend of following:
 - .1 Natural sand.
 - .2 Manufactured sand.
 - .3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
- .4 Coarse aggregates satisfying requirements of applicable section shall be one of or blend of the following:
 - .1 Crushed rock.
 - .2 Gravel and crushed gravel composed of naturally formed particles of stone.
 - .3 Light weight aggregate, including slab and expanded shale.

PART 3 - EXECUTION

3.1 Processing

- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- .2 Blend aggregates if required to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by the Departmental Representative.
- .3 Wash aggregates, if required to meet specifications. Use only equipment approved by the Departmental Representative.
- .4 When operating in stratified deposits use excavation equipment and methods that will produce uniform, homogeneous aggregate.

Garrison Grounds
Halifax Citadel

3.2 Handling

- .1 Handle and transport aggregates to avoid segregation, contamination and degradation.

3.3 Stockpiling

- .1 Stockpile aggregates in sufficient quantities to meet project schedules but so as not to encumber the site.
- .2 Stockpiling sites shall be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- .3 Separate different aggregates by substantial dividers or stockpile far enough apart to prevent intermixing.
- .4 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by the Departmental Representative within 48 hours of rejection.
- .5 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
- .6 Coning of piles or spilling of material over edges of pile will not be permitted.
- .7 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.4 Stockpile Clean Up

- .1 Leave aggregate stockpile site in a tidy, well drained condition, free of standing surface water.
- .2 Leave any unused aggregates in neat compact stockpiles as directed by the Departmental Representative.

PART 1 - GENERAL

1.1 Scope

- .1 Work covered under this section includes but is not necessarily limited to provision of labour, material and equipment necessary to excavate, trench, backfill and compact to allow preparation of the subgrade, installation of catchbasins etc. as shown on the drawings. Work shall include but not necessarily be limited to:
 - .1 Excavation to remove existing asphalt, surface granulars, sod, etc.
 - .2 Backfilling, placement and compaction of granular fill and gravels as required on the drawings and in the specification.
 - .3 Importation of granular fill.
 - .4 Removal of all unsuitable or excess material, and disposal as directed by the Departmental Representative.
 - .5 Fills.
 - .6 All testing of fill material and compaction as identified in specification.
 - .7 All other excavation, trenching and backfilling as required to complete the work indicated or specified to the full satisfaction of the Departmental Representative.

1.2 Protection of Existing Features

- .1 Conduct, with the Departmental Representative, condition survey of existing features which are designated for removal and items to remain.
- .2 Prevent movement, settlement or damage to adjacent structures, services, and parts of existing structures to remain. Provide bracing and shoring as required. In event of damage, immediately replace such items or make repairs to approval of the Departmental Representative at Contractor's cost.

- .3 Relics and antiquities and items of historical or scientific interest found on site, shall remain property of Parks Canada. Protect such articles and request directives from the Departmental Representative.
- .4 Give immediate notice to the Departmental Representative if evidence of archaeological finds are encountered during construction, and await his written instructions before proceeding with work in this area.
- .5 An archaeologist, representing Parks Canada, may be present during excavation work. Archaeologist has authority to stop work when excavation uncovers archaeological resources.
- .6 Suspend excavation so that appropriate recording and removal of archaeological resources can be completed. Provide labour assistance as necessary to the archaeologist during removal and recording of archaeological resources. There will be no additional payment to the Contractor as a result of this provision of labour assistance and work suspension.
- .7 Any other aspects of the work that might involve disturbance of existing surfaces, grade, walls, etc. may also be subject to archaeological surveillance.
- .8 Existing buried utilities and structures:
 - .1 Prior to commencing any excavation work, notify the Departmental Representative, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.
 - .2 Confirm locations of buried utilities by careful test excavations.
 - .3 Maintain and protect from damage utilities and structures encountered. Obtain direction of the Departmental Representative before moving or disturbing utilities or structures.

- .9 Prevent damage to existing structures, vents, foundations, walls, stairs, etc. and any other existing feature to remain.
- .10 Conduct with the Departmental Representative a condition survey of existing structures, features, etc. which may be affected by the work.
- .11 Protect existing surface features which may be affected by work from damage while work is in progress and repair damage resulting from work.
- .12 Make good any damage to approval of the Departmental Representative.

PART 2 - PRODUCTS

2.1 Materials

- .1 Gravels to the minimum requirements of the NSDOT Standard Specifications: clean, hard, durable crushed gravel or stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested to ASTM C136-83 and ASTM C117-80 and giving a smooth curve without sharp breaks when plotted on a semilog chart:

.1 Type 1

<u>ASTM Sieve Designation</u> (um)	<u>% Passing</u>
28,000	100
14,000	50 - 85
5,000	20 - 50
160	5 - 12
80	3 - 8

.2 Type 2

<u>ASTM Sieve Designation</u> (µm)	<u>% Passing</u>
80,000	100
56,000	70 - 100
28,000	50 - 80
14,000	35 - 65
5,000	20 - 50
160	3 - 10
80	0 - 7

.3 Surge:

<u>ASTM Sieve Designation</u> (µm)	<u>% Passing</u>
112,000	100
14,000	not more than 50
80	not more than 10

- .2 Site Fill: selected material from excavation or other sources, approved by the Departmental Representative for use intended, unfrozen and free from rocks larger than 150 mm, cinders, ashes, sods, refuse or other deleterious materials.

PART 3 - EXECUTION

3.1 Site Preparation

- .1 Remove obstructions from surfaces to be excavated.
- .2 Strip topsoil from within limits of excavation and stockpile as directed by the Departmental Representative for respreading after backfilling.

3.2 Stockpiling

- .1 Stockpile fill materials on site in approved areas. Reinststate surfaces to original state leaving no evidence of stockpiling. Stockpile granular materials in manner to prevent segregation.

- .2 Protect fill materials from contamination and from getting wet. Protect material from moisture and do not allow moisture content to increase above optimum which will adversely affect compactability. Work materials during dry weather because wet conditions may result in softening of material.

3.3 Dewatering

- .1 Keep excavations free of water while work is in progress.
- .2 Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction and to the Departmental Representative's approval.
- .3 Submit for the Departmental Representative's approval details of proposed dewatering methods.
- .4 Softening of excavated surfaces due to standing water (ground or surface) shall be prevented. Soft spots due to lack of dewatering shall be excavated out and replaced with surge at the Contractor's expense.

3.4 Excavation

- .1 Excavate to lines, grades and dimensions as indicated on drawings or agreed on site. Remove soft and unsuitable material and replace with granular fill.
- .2 Dispose of surplus and unsuitable excavated material in approved location as directed by the Departmental Representative.
- .3 Do not obstruct flow of surface drainage or natural watercourses.
- .4 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter. Compact excavated surfaces.
- .5 Notify the Departmental Representative when soil at bottom of excavation appears unsuitable and proceed as directed by the Departmental Representative.
- .6 Obtain the Departmental Representative's approval of completed excavation.

- .7 Remove unsuitable material from trench bottom to extent and depth directed by the Departmental Representative.
- 3.5 Fill Types and Compaction
- .1 Use fill as specified below. Unless otherwise specified, compact to following densities:
- .1 All Gravels: 98% standard proctor dry density.
 - .2 Site Fill and Granular Fill: 98% standard proctor dry density.
- 3.6 Backfilling
- .1 Do not proceed with backfilling operations until the Departmental Representative has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water or frozen ground.
- .3 Do not use backfill material which is frozen or contains ice, snow or debris.
- .4 Backfilling around installations, manholes, etc.
- .1 Place material by hand under, around and over drain pipes until 300 mm of cover is provided. Dumping material directly on drain pipes will not be permitted.
- .5 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .6 Hand tamp clear stone in drainage trenches.
- 3.7 Restoration
- .1 Upon completion of work, remove surplus materials and debris, trim slopes, and correct defects noted by the Departmental Representative.
- .2 Replace topsoil as directed by the Departmental Representative.
- .3 Clean and reinstate areas affected by work as directed by the Departmental Representative.

3.8 Surplus Materials

- .1 Remove surplus material from site as directed by the Departmental Representative.
- .2 Remove material undesirable for fill, grading or landscaping from site as directed by the Departmental Representative.

*****END*****

PART 1 - GENERAL

1.1 Scope

The work of this section includes but is not necessarily limited to the supply of all material, labour and equipment necessary for the supply, placement, finishing of asphalt pavement as indicated on the drawings.

1.2 Related Work

- .1 Aggregates: General Section 31 05 17
- .2 Excavating, Trenching and Backfilling Section 31 23 20

1.3 Source

- .1 If requested, at least 3 days prior to commencing work, inform the Departmental Representative of proposed source of asphalt.

1.4 Protection

- .1 Keep the traffic off newly paved areas until paving surface temperature has cooled below 100 F. Do not permit stationary loads on pavement until 24 hr after placement.

PART 2 – PRODUCTS

2.1 Material

- .1 Asphalt pavement shall comply with the following:
 - .1 Minimum requirements of NSTPW Standard Specification Division 4, Section 4
 - .2 Mix Type C asphalt including mix design, liquid asphalt content, air voids, mixing temperature, Marshall Stability, etc. to NSDOT Standard Specification.
 - .3 Liquid asphalt 85-100 penetration.
- .2 Line Paint to comply with requirements of Clause 4.1 in Division 6, Section 6 of NSTPW Standard Specification. Colour to match CGSB-GP-12C (white 513-301)

PART 3 – EXECUTION

3.1 General

- .1 Perform work for supplying, hauling, placing, shaping and compacting of the required Type C asphalt, subgrade, granular base, line painting etc. in accordance with the appropriate sections of the NSTPW Standard Specification.

PART 1 - GENERAL

1.1 Scope

- .1 Work covered under this section includes but is not necessarily limited to provision of labour, material and equipment necessary for final grading and placement of topsoil and finish grading. Work shall include but not necessarily be limited to:
 - .1 provision of suitably conditioned topsoil.
 - .2 grading related to finish surfaces as indicated on the drawings.
 - .3 Other areas as indicated or as required to reinstate disturbed areas.

1.2 Protection

- .1 Prevent damage to bench marks, existing structures, curbs to remain, etc. Make good any damage at Contractor's cost.

1.3 Source of Topsoil

- .1 Topsoil may be obtained from on site. Strip topsoil and stockpile separately prior to excavating or regrading in any areas. Locate stockpiles as directed on site. Cover stockpiles to protect the topsoil from becoming wet.
- .2 Rototill topsoil thoroughly before stripping and remove all rocks debris, etc., larger than 25 mm.
- .3 Off-site source of topsoil approved by the Departmental Representative prior to delivery.

1.4 Scheduling of Work

- .1 Schedule placing of topsoil and finish grading to permit sodding operations under optimum conditions.
- .2 The finished surfaces rely on an established grass surface for erosion protection and stability. It is the Contractor's responsibility to protect the surfaces from becoming saturated and slipping, eroding or from other damage until the interim certificate of completion is issued. Any damage which occurs prior to final acceptance shall be repaired at the Contractor's cost.

PART 2 - PRODUCTS

2.1 Materials

- .1 Fill material: in accordance with Excavation, Trenching and Backfilling.
- .2 Obtain approval of excavated or graded material used as fill for grading work. Protect approved material from contamination or from becoming wet, soft and unsuitable for use in the work.

PART 3 - EXECUTION

3.1 Preparation of Existing Grade

- .1 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage. Remove soil contaminated with toxic materials. Dispose of removed materials as directed by the Departmental Representative.
- .2 Remove surface debris, roots, vegetation, branches and stones in excess of 25 mm diameter.

3.2 Grading

- .1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.
- .2 Rough grade to dimensions shown on drawings.
- .3 Compact filled and disturbed areas to 98% Standard Proctor Dry Density.
- .4 Finished grade shall provide positive drainage to catchbasins or other approved areas.

3.3 Testing

- .1 Inspection and testing of soil compaction will be carried out by a designated testing laboratory selected by the Departmental Representative.

3.4 Surplus Material

- .1 Dispose of surplus material not required as directed by the Departmental Representative.
- .2 Remove materials unsuitable for fill, grading or landscaping from site as directed by the Departmental Representative.

3.5 Spreading of
Topsoil/Planting Soil

- .1 Spread topsoil (50 mm min. thickness) after the Departmental Representative has inspected and approved subgrade.
- .2 Spread topsoil with adequate moisture in uniform layers over approved, unfrozen subgrade, where sodding or seeding is indicated.
- .3 For sodded areas keep topsoil below finished grade as indicated.
- .4 Apply topsoil as indicated.
- .5 The Departmental Representative may adjust the thickness of topsoil to be spread depending on the quantity available on site.

3.6 Finish Grading

- .1 Fine grade and loosen topsoil. Eliminate rough spots and low areas to ensure positive drainage.
- .2 Roll to consolidate topsoil for areas to be sodded leaving surface smooth, uniform, firm against deep foot printing, and with a fine loose texture to approval of the Departmental Representative.
- .3 The Contractor shall be fully responsible to grade, regrade as required to ensure that all surfaces are maintained until the 12 month warranty period has expired.

3.7 Restoration of
Stockpile Sites

- .1 Restore stockpile sites acceptable to the Departmental Representative.

3.8 Sodding

- .1 Sodding shall be in accordance with Section 32 92 23.

3.9 Protection

- .1 Provide tarps etc. as the Contractor deems necessary to protect finished slopes from saturation and failure due to heavy rains. Damaged slopes shall be repaired at the Contractor's cost.

PART 1 - GENERAL

1.1 Description

This section includes but is not necessarily limited to provision of labour, material, and equipment necessary to sod designated areas around disturbed areas, as specified, indicated on the drawings or as required to reinstate damaged areas.

1.2 Source Quality

Control

- .1 Obtain the Departmental Representative's approval of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization.
- .3 Provide written confirmation that sod of the required dimensions and thicknesses will be supplied and used in the work.

1.3 Scheduling

- .1 Schedule sod laying to coincide with topsoil operations.
- .2 Schedule all work to take place in optimum weather conditions.

1.4 Payment

- .1 There shall be no payment for sodded areas until the areas are well established and accepted by the Departmental Representative. All maintenance, repair, etc., required up to final acceptance shall be carried out at the Contractors cost.

PART 2 - PRODUCTS

2.1 Materials

- .1 Sod
 - .1 Pasture sod shall be certified #1 cultivated grass sod grown and classified in conformity to standards of the Canadian Sod Growers Association and the Canadian Atlantic Nursery Trades Association and comply with standards outlined in Guide Specifications for Nursery Stock (Section 17) published by the Canadian Nursery Trades Association.
- .2 Cut sod sizes:
 - .1 Standard sod: 900 x 450 x 38.

- .2 The sod shall have at least 2 years growth at the time of cutting with strong fibrous roots, no stones or bare spots. Sods shall be cut to a uniform thickness.
- .3 Wooden pegs: 50 x 12 x 600 long.
- .4 Water: free of impurities that could inhibit germination and growth.
- .5 Fertilizer: fertilizer shall be commercial, synthetic, slow release type.

PART 3 - EXECUTION

3.1 Procedure

- .1 General: Areas indicated on the drawings shall be sodded.
- .2 Sodding
 - .1 Obtain the Departmental Representative's approval of sod at source.
 - .2 Schedule deliveries of sod such that storage at the job site is kept to a minimum. Sods shall be delivered, unloaded and stored on pallets.
Deliver sod to site within 24 hours of being lifted and lay sod within 36 hours of being lifted. Do not deliver small, irregular or broken pieces of sod.
During wet weather, allow sod to dry sufficiently to prevent tearing during lifting and handling. During dry weather, protect sod from drying and water sod as necessary to insure its vitality and prevent dropping of soil in handling. Sod which dries out will be rejected. Schedule sod laying to coincide with topsoil operations.
 - .3 Obtain the Departmental Representative's approval of topsoil grade and depth before starting sodding. Minimum topsoil thickness shall be 50 mm.
 - .4 Place sod during growing season. Sodding during freezing temperatures, or over frozen soil is not acceptable.
 - .5 Lay sod sections at right angles to slopes and secure with wooden pegs. Place pegs to prevent shifting of soil, drive pegs flush with top of sod soil.
 - .6 Butt new sod flush against existing along a well defined neatly cut line.
 - .7 Provide close contact between sod and soil by means of light roller. Heavy rolling to correct irregularities in grade is not permitted.

- .8 Water immediately after sod laying to obtain moisture penetration through sod into top 50 mm of top soil.
- .9 On slopes steeper than 3:1 secure sod with wooden pegs. Place pegs to prevent shifting sod and drive pegs flush with top of sod. Number and spacing of pegs to be determined by the Contractor. Pegs must be sufficient to secure all sods in place, without open joints, until they have rooted and are accepted.
- .10 Provide adequate protection of sodded areas against erosion and mechanical damage. Remove protection after sod areas have been accepted. Assume full responsibility for condition of sodded areas until the warranty period has expired. Repair defective sod and slopes as required at Contractor's expense.
- .11 Provide erosion protection as required.
- .12 Cut grass first time when it reaches height of 50 mm. Remove clippings that could smother grassed areas. At no time shall the grass be allowed to reach a height greater than 150 mm.
- .13 Fertilize areas one month after sodding. Spread evenly and water well. Postpone fertilizing until next spring if application falls within four week period to accepted end of growth season in locality.

3.2 Acceptance

- .1 Sodded areas will be accepted at final inspection provided that:
 - .1 Areas are properly established at required grades free of low spots, rutting, eroding, gulleys, etc.
 - .2 Areas are free of bare or dead spots, and weeds.
 - .3 No surface soil is visible when grass has been cut to height of 50 mm.
 - .4 Areas have been cut at least twice.
 - .5 Areas have been fertilized.
 - .6 Areas completed in Fall will be accepted the following Spring, one month after start of growing season provided acceptance conditions are fulfilled.
 - .7 Payment for sodded areas shall only be made following acceptance by the Departmental Representative.

PART 1 - GENERAL1.1 Description

This section specifies requirements for supplying and installing catchbasins and connecting drainage pipe, provision of all bedding material and backfill, etc. As required to complete the drainage features as indicated on the drawings

1.2 Related Work

- .1 Excavating, Trenching and Backfilling Section 31 23 20

PART 2 - PRODUCTS2.1 Plastic Pipe

- .1 Type PSM Polyvinyl Chloride: to ASTM D3034-Latest:
 - .1 SDR: 28
 - .2 Separate gasket in integral bell system.

2.2 Precast Concrete Sections

- .1 Standard sections in sizes indicated by L.E. Shaw Limited or approved equal.

2.3 Catchbasin Covers

- .1 Salvaged: as noted on the drawings
- .2 New: Type R41 by IMP or approved equal.

PART 3 - EXECUTION3.1 Installation

- .1 Do trenching and backfilling in accordance with Section 31 23 20.
- .2 Trench line and depth require approval prior to placing bedding material and pipe.
- .3 Place granular bedding, cover and backfill materials as indicated.
- .4 Position and join pipes in accordance with manufacturers recommendations.
- .5 Prior to backfilling conduct hydrostatic tested on completed pipe sections by plugging the downstream end of a section and maintaining a water level above the top of the pipe in the upstream structure for at least 1 hour.

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3.2 Handling

- .1 Handle and transport pipes and precast section by approved methods and ensure no damage occurs.

3.3 Reinstatement

- .1 After pipe is installed, bedded and hydrostatically tested, reinstate all disturbed surfaces.