

**Part 1 General**

**1.1 TAXES**

- .1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

**1.2 FEES, PERMITS, AND CERTIFICATES**

- .1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority having jurisdiction.

**1.3 REGULATORY REQUIREMENTS**

- .1 References and Codes:
  - .1 Materials shall be new and work shall conform to the minimum applicable standards of the "References" indicated in the specification sections, the Canadian Highway Bridge Design Code (CAN/CSA-S6-06), National Building Code of Canada, 2010 and all applicable Provincial and Municipal codes. In the case of conflict of discrepancy the most stringent requirement shall apply.
- .2 Hazardous Material Discovery:
  - .1 Stop work immediately when material resembling pray of trowel-applied asbestos, Polychlorinated Biphenyl (PCB), mould or other designated substance is encountered during demolition work.
    - .1 Take preventative measure and promptly notify Departmental Representative.
    - .2 Do no proceed until written instructions have been received from Departmental Representative.

**1.4 FIRE SAFETY REQUIREMENTS**

- .1 Comply with both the National Building Code of Canada 2010 and the National Fire Code of Canada.2010 for safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire, as follows:
  - .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
  - .2 The National Fire Code (NFC):
    - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
    - .2 The conduct of activities that might cause fire hazards in and around buildings.
    - .3 Limitations on hazardous contents in and around buildings.
    - .4 The establishment of fire safety plans.
    - .5 Fire safety at construction and demolition sites.
- .2 Comply with Human Resources and Skills Development Canada (HRSDC), Fire Commissioner of Canada Standards:

- .1 Retain all fire safety documents and standards on site.
- .3 Welding and cutting:
  - .1 At least 48 hours prior to commencing cutting, welding, or soldering procedure, provide to Departmental Representative:
    - .1 Notice of intent, indicating device affected, time and duration of isolation or bypass.
    - .2 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.
  - .2 “Fire Watchers” shall be assigned when welding or cutting operations are carried out in areas where combustible materials may be ignited by conduction or radiation. The radius of protection must be 15 m from the work station, as described in NFC 5.2.3.1 (2).

## **1.5 HAZARDOUS MATERIALS**

- .1 Hazardous Materials: product, substance, or organism that may cause adverse impact to environment or adversely affect health of person, animals, or plant life when released into the environment.
- .2 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS).
- .3 Field Quality Control:
  - .1 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting vocational training and qualification.
  - .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.
  - .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

## **1.6 EXISTING SERVICES**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission in writing.
- .2 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .3 Submit schedule and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .5 Protect, relocate and maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .6 Record locations of maintained, re-routed and abandoned service lines.

## **1.7 TEMPORARY UTILITIES**

- .1 Provide temporary utilities and controls in order to execute Work expeditiously. Remove from site all such utilities and controls after use.
- .2 Arrange and pay costs for all temporary utility installation, maintenance, and removal.
- .3 Notify Departmental Representative and utility companies of intended interruption of services and obtain requisite permission.

## **1.8 WORK BY OTHERS**

- .1 Work by other Contractors will take place on the Chaudière Crossing, such as on the Hull Causeway structure.
- .2 Co-ordinate Work that may affect or be affected by other projects with Departmental Representative.

## **1.9 WORK STAGING**

- .1 Work in stages to ensure continuous public access. Do not close off public usage of part of facilities until use of one stage of Work will provide alternate usage.
- .2 Provide and maintain traffic control for staging in conformance with Section 01 35 00.06 - Traffic Control.
- .3 Maintain at least one lane of traffic in each direction at all times.
- .4 Required phases:
  - .1 Phase 1: Closure of eastern half of bridge for repairs to deck, construction of approach slabs, paving, replacement of barriers and other tasks.
  - .2 Phase 2: Closure of western half of bridge for repairs to deck, construction of approach slabs, paving, replacement of barriers and other tasks.
  - .3 Phase 3: Paving of Booth Street. Booth Street may be reduced to one lane in each direction for this stage in conformance with Section 01 35 00.06 - Traffic Control.
  - .4 Phase 4: Repairs to the bridge soffit, substructure and adjacent works while the OHEPC channel below the bridge is drained by Hydro Ottawa. This stage may be performed simultaneously with other stages.
- .5 Maintain access for fire fighting and provide means of fire control.

## **1.10 WORK RESTRICTIONS**

- .1 Incorporate following work restrictions in the Work and Project Schedule:
  - .1 Attain Substantial Performance of the Work within 14 weeks from date of notification of acceptance of offer.
  - .2 Attain Total Performance of the Work within 20 weeks from date of notification of acceptance of offer.

## **1.11 CLOSURE AND DEWATERING OF CHANNELS**

- .1 Work below deck of OHEPC Bridge will require closure and dewatering of OHEPC Channel and Buchanan channel.
  - .1 Dams and channels are property of Energy Ottawa.

- .2 Make good any damage to Energy Ottawa property.
- .3 Energy Ottawa's shutdown of OHEPC channel for their own inspection and maintenance work is planned for 10 days from September 23, 2013 to October 4, 2013.
- .4 Energy Ottawa will hire Marine Construction Contractor to install stop logs to construct two dams upstream of Work area at headwaters of OHEPC Channel and Buchanan Channel and remove stop logs at end of Work.
- .5 Installation of dams and dewatering of channels by Energy Ottawa to be completed by 7:00 am September 25, 2013.
- .6 Contractor responsible for additional costs due to missing deadline for start of work in OHEPC channel.
- .7 Work in Channel to start upon approval of Energy Ottawa and Departmental Representative.
- .8 Contractor authorized to carry out work during extended channel closure for 21 calendar days from 7:00 am September 25 to 4:00 pm October 15, 2013.
- .9 Channel to be clear of all materials and equipment before 4:00 pm Oct 15, 2013 for flooding of Channel.
  - .1 Take action immediately to address issues raised by Energy Ottawa or Departmental Representative.
  - .2 Energy Ottawa to inspect and approve clearing and cleaning of Channel prior to flooding of Channel to remove stop logs.
- .2 Schedule:
  - .1 Energy Ottawa shuts down channel flow: 7:00 am September 23, 2013.
  - .2 Installation of stop logs: September 23 to 24 (2 days).
  - .3 Energy Ottawa inspects dams: September 24
  - .4 Energy Ottawa opens sluice gates to drain channels: September 24.
  - .5 Construction in Channel: September 25 to October 15 (21 days).
  - .6 Energy Ottawa inspects channels: 4:00 pm October 15.
  - .7 Marine Construction Contractor removes 1 stop log to flood channel: October 16.
  - .8 Marine Construction Contractor removes remaining stop logs: October 16 (1 day).
  - .9 Energy Ottawa inspects channels: 7:00 am October 17.
  - .10 Energy Ottawa power generation restored: 7:00 am October 17, 2013.

## **1.12 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 and provide access for personnel and vehicles.
- .3 Peak traffic hours are 6:00 to 9:30 and 15:00 to 18:30. Unless otherwise approved by Departmental Representative, deliver materials outside of peak traffic hours.

**1.13 SECURITY CHECK**

- .1 All personnel employed on this project will be subject to security check. Obtain requisite clearance, as instructed, for each individual required to enter the premises.

**1.14 COST BREAKDOWN**

- .1 Before submitting first progress claim, submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount.
- .2 Ensure cost breakdowns reasonably reflect the costs associated with the work and that breakdowns are balanced.
- .3 Submit supporting documentation for all breakdowns that Departmental Representative considers unbalanced.
- .4 If supporting documentation cannot be submitted or breakdown cannot be justified to the satisfaction of Departmental Representative, revise and resubmit the cost breakdowns.
- .5 After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

**1.15 PRECEDENCE**

- .1 For Federal Government projects, Division 01 sections take precedence over technical specification sections in other Divisions of this specification.
- .2 Division 01 sections are applicable to all sections of the Contract.

**Part 2 Products**

Not used.

**Part 3 Execution**

Not used.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.1 REGULATORY REQUIREMENTS**

.1 An investigation into the presence of designated substances for the OHEPC Channel Span Repairs Project at the Chaudière Crossing, Ottawa, Ontario, was performed in order to meet the requirements of the Canada Labour Code under Part II, section 124 which stipulates that every employer shall ensure that the health and safety at work of every person employed by the employer is protected. Also, it was performed to meet the requirements of Section 30 of the *Ontario Occupational Health and Safety Act, Revised Statutes of Ontario, 1990, Chapter O.1*. By having a Designated Substances Report (DSR) conducted, the Departmental Representative will be able to inform his or her employees, contractors, and tenants of any designated substances that may be present and possibly disturbed throughout the duration of the project. The informed Departmental Representative will then be able to impose appropriate health and safety precautions for all applicable personnel as required.

.2 The designated substances identified in the *Occupational Health and Safety Act* and its corresponding regulations are:

- .1 **Acrylonitrile:** “Designated Substance – Acrylonitrile” *O.Reg 835* (as amended by *O.Reg 490/09*)
- .2 **Arsenic:** “Designated Substance – Arsenic” *O.Reg 836* (as amended by *O.Reg 490/09*)
- .3 **Asbestos**
  - .1 “The Regulation Respecting Asbestos” *O.Reg 837* (as amended by *O.Reg 490/09*)
  - .2 “General – Waste Management” *O.Reg 347* (as amended by *O.Reg 337/09*)
  - .3 “Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations” *O.Reg 278/05* (as amended by *O.Reg 493/09*)
  - .4 *PWGSC Departmental Policy DP 057 – “Asbestos Management”*
- .4 **Benzene:** “Designated Substance – Benzene” *O.Reg 839* (as amended by *O.Reg 490/09*)
- .5 **Coke Oven Emissions:** “Designated Substance – Coke Oven Emissions” *O.Reg 840* (as amended by *O.Reg 490/09*)
- .6 **Ethylene Oxide:** “Designated Substance – Ethylene Oxide” *O.Reg 841* (as amended by *O.Reg 490/09*)

- .7 **Isocyanates:** "Designated Substance – Isocyanates" *O.Reg 842* (as amended by *O.Reg 490/09*)
- .8 **Lead:**
  - .1 "Designated Substance – Lead" *O.Reg 843* (as amended by *O.Reg 490/09*)
  - .2 "*General – Waste Management*" *O.Reg 347* (as amended by *O.Reg 337/09*)
  - .3 Hazardous Products Act's *Regulations Amending the Surface Coating Materials Regulations* SOR/2010-224
- .9 **Mercury:**
  - .1 "Designated Substance – Mercury" *O.Reg 844* (as amended by *O.Reg 490/09*)
  - .2 "*General – Waste Management*" *O.Reg 347* (as amended by *O.Reg 337/09*)
- .10 **Silica:** "Designated Substance – Silica" *O.Reg 845* (as amended by *O.Reg 490/09*)
- .11 **Vinyl Chloride:** "Designated Substance – Vinyl Chloride" *O.Reg 846* (as amended by *O.Reg 490/09*)

.3 All contractors requesting tenders from subcontractors shall furnish this report to subcontractors.

## 1.2 VALIDITY DATE

- .1 El Houcine Faouzi, Environmental Analyst of the Environmental Services Directorate (ESD) of the Real Property Branch, PWGSC, conducted the on-site survey for this report on 2013/05/22.
- .2 The work area is located on the Chaudière Crossing, Ottawa, Ontario. The proposed scope of the work consists of de-watering the OHEPC Channel, repairing concrete in deteriorated areas of the retaining walls, abutments, bearing seats, and soffit, lengthening deck drains, paving the deck area and approaches, and replacing barrier walls.
  - .1 The scope of work for this designated substances report involved conducting a visual inspection of the project area to identify the presence of designated substances and to evaluate their content in demolition and construction materials.

- .2 From the visual inspection suspect materials were sampled and analyzed, where appropriate, for the above substances. On the basis of this inspection, one (1) bulk sample of suspected lead-containing paint was collected and submitted for analysis to the EXOVA Laboratory (an accredited CAEAL lab) located at 146 Colonnade Road, Nepean, Ontario, K2E 7Y1.
- The lead analysis of the paint samples was completed using Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) in accordance with U.S. EPA Method 6010-C.
- .3 The visual inspection was limited to readily accessible areas.
- .4 It is possible that the designated substances aforementioned are present in non-accessible areas and concealed spaces. No other areas outside the defined work boundaries have been assessed.
- .5 Prior to beginning work, it must be confirmed with the Departmental Representative that no additional designated substances have been brought to the project area.
- .6 In addition, the survey refers to PCBs and halocarbons which can be found in the project area.
- .7 There is a possibility that materials which could not be reasonably identified within the scope of this assessment or which were not apparent during previous site visits may exist. Should any designated substance be encountered in the course of demolition, work must be stopped, preventative measures taken, and the Departmental Representative must be notified immediately. **Do not proceed until written instructions have been received.**

## **PART 2 - DESIGNATED SUBSTANCES**

### **2.1 SURVEY RESULTS**

- .1 **ACRYLONITRILE:** Not Identified
- .2 **ARSENIC:** Not Identified
- .3 **ASBESTOS:** Not Identified
- .4 **BENZENE:** Not Identified
- .5 **COKE OVEN EMISSIONS:** Not Identified
- .6 **ETHYLENE OXIDE:** Not Identified



- .7 **ISOCYANATES:** Not Identified
- .8 **LEAD: Identified**
1. Results from laboratory analysis indicate that the black paint sampled by ESD, on May 22, 2013, from the pedestrian handrails within the project area, has a lead content below 90 parts per million (ppm). The results are shown in Table 1 below.

**Table 1: Lead Sample Results**

Sample ID	Description	Location	Lead Content (ppm)
OHEPC-Pb-1	Black paint	From pedestrian railing, OHEPC Channel	60

2. Although the Hazardous Products Act's *Surface Coating Materials Regulations SOR/2005-109*, as amended, has set a limit of 90 parts per million (ppm) for surface coating materials, there may be a potential for exposure to high levels of lead depending on the activities performed that disturb the lead-containing materials, even at low lead concentrations.
- .9 **MERCURY:** Not Identified
- .10 **SILICA: Identified**
- Free crystalline silica is present in concrete and concrete blocks within the project area.
- .11 **VINYL CHLORIDE MONOMER:** Not Identified
- .12 **POLYCHLORINATED BIPHENYLS (PCBs):** Not Identified
- .13 **HALOCARBONS:** Not Identified

## 2.2 RECOMMENDATIONS

### **1. LEAD**

If lead-containing materials are disturbed (i.e. during dry sanding, grinding, polishing and sawing operations), then proper precautions, as outlined under "Designated Substances" *O.Reg 490/09*, as amended, of the Occupational Health and Safety Act, must be followed.

Under Ontario Regulation 490/09, as amended of the Occupational Health and Safety Act, regulatory limits have been established for occupational exposure limits to airborne lead that may be present in a workplace. The Time Weighted Average Exposure Values to airborne lead dust or fumes should not exceed the Ministry of Labour's 0.05 milligram per cubic metre (mg/m<sup>3</sup>) limit during the removal of paints and products containing any concentration of lead. The TWAEV represents the

time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse health effects.

Contractors performing work that requires disturbance of lead-containing materials are responsible to ensure that the workers are not exposed to airborne lead dust levels in excess of the time-weighted average and Maximum Exposure Concentration for lead-containing paints. It should be noted that the use of mechanically-powered tools or torches on lead-containing materials increases the concentration of airborne lead dust or fumes and thereby requiring more stringent respiratory protection and controlled work procedures.

Ontario Ministry of Labour (MoL) has published the document entitled "*Guideline: Lead on Construction Projects*". This document classifies all disturbances of lead-containing materials as Type 1, Type 2a, Type 2b, Type 3a or Type 3b work, based on presumed airborne concentrations of lead generated during the work each of which will have defined work practices. Although this document is not a regulation, Ministry of Labour Inspectors use it as guidance during site inspections.

## 2. SILICA

.1 Silica occurs as crystalline material in cement. Crystalline silica is regulated under "Designated Substance – Silica" *O.Reg 845* (as amended by *O.Reg 490/09*) of the *Occupational Health and Safety Act* as a Designated Substance.

.2 Silica dust can be generated through such processes as blasting, grinding, crushing, and sandblasting silica-containing material. Since silica is present in concrete and concrete blocks within the project area, appropriate respiratory protection and ventilation must be donned during the demolition and modifications of these structures.

.3 The Occupational Health and Safety Branch of the MoL has published the document entitled "*Guideline: Silica on Construction Projects*". This document classifies the disturbance of materials containing silica as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification. These work procedures should be followed when performing work involving the disturbance of silica-containing materials.

### **3. CONTRACTORS DUTIES**

The contractor must review the designated substance report and take the necessary precautions to protect the health and safety of the workers and the environment. As per Section 30(4) of the *Ontario Occupational Health and Safety Act*, the party hiring the contractor (i.e. Departmental Representative) shall ensure that the contractor and subcontractor (if any) for the project has received a copy of the designated substance report prior to entering a binding contract for the supply of work on the project. As per Section 27(2) (a, b, and c) of the *Ontario Occupational Health and Safety Act*, while onsite, the contractor supervisor shall exercise every reasonable precaution for the protection of a worker. If you have any questions about the designated substance report, please contact the Departmental Representative.

**END OF SECTION**

**Part 1 General**

**1.1 ADMINISTRATIVE**

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

**1.2 PRECONSTRUCTION MEETING**

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 4 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
  - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
  - .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
  - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .7 Owner provided products.
  - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

- .9 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .10 Monthly progress claims, administrative procedures, photographs, hold backs.
- .11 Appointment of inspection and testing agencies or firms.
- .12 Insurances, transcript of policies.

### **1.3 PROGRESS MEETINGS**

- .1 During course of Work, schedule progress meetings every week.
- .2 Contractor, major Subcontractors involved in Work, and Departmental Representative are to be in attendance.
- .3 Notify parties minimum 7 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after meeting.
- .5 Agenda to include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revision to construction schedule.
  - .8 Progress schedule, during succeeding work period.
  - .9 Review submittal schedules: expedite as required.
  - .10 Maintenance of quality standards.
  - .11 Review proposed changes for affect on construction schedule and on completion date.
  - .12 Other business.

### **Part 2 Products**

Not Used.

### **Part 3 Execution**

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), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

### **1.2 REQUIREMENTS**

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

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

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

- .2 Submit to Departmental Representative within 7 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

#### **1.4 PROJECT MILESTONES**

- .1 Project milestones form interim targets for Project Schedule.
  - .1 Completion of Work on West lanes of bridge
  - .2 Completion of Work on East lanes of bridge
  - .3 Completion of Work in the OHEPC channel
  - .4 Completion of paving
  - .5 Substantial Performance of Work in conformance with Section 01 00 10 - General Instructions.
  - .6 Total Performance of Work in conformance with Section 01 00 10 - General Instructions.

#### **1.5 MASTER PLAN**

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

#### **1.6 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Award.
  - .2 Shop Drawings, Samples.
  - .3 Permits.
  - .4 Mobilization.
  - .5 Work on Eastern lanes of bridge
    - .1 Traffic closures
    - .2 Excavation
    - .3 Construction of approach slabs and elimination of expansion joint
    - .4 Replacement of barrier
    - .5 Repairs to deck overlay
    - .6 Application of corrosion inhibitor
    - .7 Installation of waterproofing membrane
    - .8 Paving lower course

- .6 Work on Western lanes of bridge
  - .1 Traffic closures
  - .2 Excavation
  - .3 Construction of approach slabs and elimination of expansion joint
  - .4 Replacement of barrier
  - .5 Repairs to deck overlay
  - .6 Application of corrosion inhibitor
  - .7 Installation of waterproofing membrane
  - .8 Paving lower course
- .7 Work in OHEPC channel
  - .1 Repairs to abutments
  - .2 Repairs to retaining walls
  - .3 Repairs to soffit
- .8 Repairs to sidewalks
- .9 Paving Booth Street
  - .1 Remove existing asphalt at transitions
  - .2 Pave lower course
  - .3 Pave surface course

#### **1.7 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

#### **1.8 PROJECT MEETINGS**

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



**Part 2**            **Products**  
Not used.

**Part 3**            **Execution**  
Not used.

**END OF SECTION**

**Part 1 General**

**1.1 ADMINISTRATIVE**

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

**1.2 SHOP DRAWINGS AND PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario of Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 7 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit an electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit 3 copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

- .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 5 years of date of contract award for project.
- .13 Submit 3 copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

### 1.3 SAMPLES

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin 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 Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

**1.4 MOCK-UPS**

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

**1.5 PHOTOGRAPHIC DOCUMENTATION**

- .1 Submit electronic colour digital photography in jpg format, standard resolution every week with progress statement.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints:
  - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation: .
  - .1 Before concealment of Work, and as directed by Departmental Representative.

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 01 32 16.07 - Construction Progress Schedule Bar (GANTT) Chart

**1.2 REFERENCES**

- .1 Ontario Highway Traffic Act, 1990, (amended 2012).
- .2 Ontario Traffic Manual Book 7, 2001.
- .3 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-O121-08 (R2013), Douglas Fir Plywood.
- .4 Ontario Provincial Standard Specification (OPSS) :
  - .1 OPSS 710, 2011, Construction Specification for Pavement Marking.
  - .2 OPSS 740, 2010, Construction Specification for Concrete Barriers.
- .5 National Cooperative Highway Research Program Report 350

**1.3 USER COMPLAINTS**

- .1 Treat claims or complaints from road users with courtesy.
- .2 Advise Departmental Representative of claims and complaints from road users and apprise Departmental Representative of follow-up actions.
- .3 If Work continues beyond time frame specified in section 01 32 16.07 - Construction progress schedules - Bar GANTT chart , Contractor to maintain signage and traffic management until end of Work at no additional cost.

**1.4 CONSTRUCTION SEQUENCE**

- .1 Perform Work in four phases:
  - .1 Phase 1: Work on eastern side of Booth Street (northbound lanes)
  - .2 Phase 2: Work on western side of Booth Street (southbound lanes)
  - .3 Phase 3: Paving work on Booth Street
  - .4 Phase 4: Work required under OHEPC Bridge
- .2 Execute Phase 4 Work when channel underneath bridge is dammed by Energy Ottawa, within other phases.
- .3 Protect work sites with concrete barriers and crash cushions during Phases 1 and 2, and with TC-54 flexible drums during Phase 3.
- .4 Maintain one lane in each direction of Booth Street, with minimum lane width of 3.3 metres, and separate lanes with temporary pavement marking during Phases 1 and 2 and temporary delineation during Phase 3.
- .5 Maintain access to and from Middle Street during Phases 1 and 2:

- .1 Prevent large trucks from turning right onto Booth Street northbound from Middle Street.
- .2 Detour such trucks southbound on Booth Street.
- .3 Install appropriate signage for this detour.
- .6 Install signs warning drivers of a shared roadway for cyclists and vehicles.
- .7 Install all temporary signage, including installation of concrete barriers for construction sites and crash cushions, during off peak hours only:
  - .1 During installation of concrete barriers and crash cushions on Booth Street, maintain at least one lane of 3.5 meter minimum width, with alternating traffic,
  - .2 Provide flag persons to ensure security of traffic circulation during installation of concrete barriers and crash cushions.
- .8 PHASE 1: Work on Eastern Side of Booth Street
  - .1 Close eastern half of bridge (both northbound lanes).
  - .2 Deviate traffic to western side of Booth Street, where traffic will circulate on one lane in each direction.
  - .3 Close eastern sidewalk near work zone on Booth Street.
  - .4 Deviate pedestrians to western sidewalk and install all appropriate signage and security fences.
  - .5 Use construction fence to prevent pedestrians from using eastern sidewalk north of Middle Street during Phase 1, and install signage to redirect pedestrians southbound on Booth Street to use western sidewalk.
- .9 PHASE 2: Work on Western Side of Booth Street
  - .1 Close western half of bridge (both southbound lanes),
  - .2 Deviate all traffic to eastern side of Booth Street, where traffic will circulate on one lane in each direction.
  - .3 Close western sidewalk near work zone on Booth Street.
  - .4 Deviate pedestrians to eastern sidewalk and install all appropriate signage and security fences.
- .10 PHASE 3: Paving of Booth Street
  - .1 Phase 3 is split into two sub-phases.
    - .1 During phase 3A, execute all paving work on eastern side of Booth Street.
    - .2 During phase 3B, execute all paving work on western side of Booth Street.
  - .2 Accomplish paving work with short duration lane closures of two lanes.
  - .3 Work site to be protected by TC-54 flexible drums.
  - .4 During phase 3A:
    - .1 Close eastern sidewalk to pedestrians.
    - .2 Direct pedestrians to western sidewalk with appropriate signage.
    - .3 Access to Middle Street to be temporarily closed. Contractor must coordinate lane closures with Departmental Representative as described in articles 1.7 and 1.10. Use flagmen to control access to Middle Street during closure.

- .5 During phase 3B:
  - .1 Close western sidewalk to pedestrians.
  - .2 Direct pedestrians to eastern sidewalk with appropriate signage.
- .6 Provide temporary delineation of all lanes between completion of paving work and application of final pavement marking.

#### **1.5 CANCELLATION OF A PLANNED CLOSURE DUE TO UNFORSEEN EVENTS**

- .1 Short duration lane closures on Contractor's schedule may be cancelled by Departmental Representative due to unforeseen events. Such reasons may relate to the weather, public safety, or other unforeseen events requiring lanes to remain open.
- .2 Submit to Departmental Representative for review written request for extension of project completion date by one day for every day of such cancellation if cancellation impedes work on critical path.
- .3 No additional payment will be made for cancellation of planned closures by Departmental Representative.

#### **1.6 TRAFFIC OBSTRUCTIONS**

- .1 Ensure equipment, materials, facilities, on-site vehicle movements and Work do not obstruct traffic or hinder operation of public utilities.
- .2 Carefully plan short duration lane closures so that work is carried out at all times. Open lanes as directed if Departmental Representative determines that work is inactive.
- .3 Traffic obstructions include:
  - .1 Any action or lack of action by Contractor impeding free movement of vehicles without authorization or permit;
  - .2 Any obstacle or vehicle preventing free movement of vehicles without authorization or permit;
  - .3 Any closing of traffic lanes without work being performed;
  - .4 Any premature lane closing or delayed lane reopening, in relation to the authorized time slots.

#### **1.7 AUTHORIZED CLOSURES**

- .1 Plan Work carefully to minimize lane closures.
- .2 Submit proposed lane closures to Departmental Representative for approval at least 10 business days prior to proposed lane closure.
- .3 Short duration lane closures on Booth Street may only occur during off peak hours on weekdays (one lane closure, two lane closures with one lane in each direction, or three lane closures with one lane alternating traffic with flagmen).
- .4 Apply to City of Ottawa for road cut permit before any lane closure on the City of Ottawa right of way:
  - .1 Road cut permit application to be approved by the City of Ottawa before application for lane closures.



- .2 Road cut permit application and guidelines can be obtained by contacting City of Ottawa Right-of-Way By-Laws, Permits and Inspections Unit, at 613-580-2424 extension 16000.
- .5 Any construction work between 10 pm and 7 am (9 am on Sundays) requires noise by-law exemption from City of Ottawa:
  - .1 Submit noise by-law exemption application in writing to the Chief of By-law services at least sixty (60) calendar days prior to the use of the construction equipment.
  - .2 Guidelines for the application are available on City of Ottawa website, at [http://www.ottawa.ca/en/licence\\_permit/bylaw/a\\_z/noise/exemption/index.html](http://www.ottawa.ca/en/licence_permit/bylaw/a_z/noise/exemption/index.html).
- .6 Implement detour routes only after receiving approval for all detour routes from all affected municipalities.

## **1.8 RESTRICTIONS TO LANE CLOSURES**

- .1 Starting October 15, City of Ottawa may decline to authorize lane closures during precipitation (freezing rain, snow, blowing snow, etc.) requiring road snow removal or de-icing operations:
  - .1 If the prevented lane closures impedes on critical path of Work schedule, Contractor may request for extension of project completion date by submitting a written request to Departmental Representative for review.
- .2 As of October 15th, all temporary signage material required for short-term lane closures to be completely removed from site when not in use.
- .3 Departmental Representative may decline to authorize closings or to modify the allowed times for closings on statutory holidays.
- .4 Take statutory holidays into account in development of work schedule. Project completion date will not be changed due to unauthorized or restricted lane closures on statutory holidays.

## **1.9 CONTRACTOR'S RESPONSIBILITIES**

- .1 Provide traffic maintenance to ensure safety of motorists and workers and to maintain free flow of traffic.
- .2 Take traffic flow into consideration when scheduling Work. As required for traffic control, be prepared to work 7 days a week.
- .3 Take the necessary measures with crews and subcontractors to ensure equipment, materials, facilities, construction vehicles and the Work itself do not hinder traffic or operations of public utilities.
- .4 Coordinate with Departmental Representative to adjust Traffic Control Plan to field observations and other feedback.

## **1.10 TRAFFIC CONTROL PLAN**

- .1 Submit traffic control plan (TCP) stamped and signed by a professional engineer registered or licensed in the Provinces of Ontario and Quebec to Departmental

Representative for review at least 10 business days in advance of proposed changes to traffic management:

- .1 Include traffic management plan for each phase of work.
  - .2 Detour routes.
  - .3 Drawings for the production of detour signs and special signs;
  - .4 Requirements for management of pedestrians and cyclists
  - .5 Temporary road markings
  - .6 Location of construction site access points
  - .7 Fences and gates that restrict access to work areas
- 
- .2 Plans to accurately reflect actual conditions on site.
  - .3 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .4 Begin work requiring traffic control only after Departmental Representative has approved traffic control plan.
  - .5 Departmental Representative may request additional temporary traffic signage to ensure safety of workers and road users or to improve traffic flow.

#### **1.11 SIGNAGE MANAGER**

- .1 Signage manager: contractor representative responsible for signage and traffic control during Work. If work performed in shifts, two signage managers, one day and one night, may be required.
- .2 Signage manager qualifications:
  - .1 Employee of contractor.
  - .2 Available to Departmental Representative at all times by means of mobile telephone in continuous operation with text messaging service.
  - .3 Approved by Departmental Representative.
- .3 Signage manager responsibilities:
  - .1 Provide field supervision during relocations of signage equipment and during the changeover from one phase to another.
  - .2 Contact Departmental Representative before beginning of any signage work to obtain approval to proceed, and provide real-time notice of any changes or developments.
  - .3 Participate actively in planning of closures and in all site meetings as well as daily planning meetings.
- .4 Signage manager may be replaced by another contractor representative at certain times during the Work, if approved by Departmental Representative. Replacement personnel must be capable of receiving requests from Departmental Representative and making appropriate decisions.
- .5 Commence Work only after appointment of the signage manager and the site manager and their approval by the Departmental Representative.

## **1.12 SPECIAL REQUIREMENTS FOR SIGNAGE**

- .1 Provide signage to Ontario Traffic Manual Book 7 requirements developed for Long Duration Work regardless of closure duration.
- .2 Remove or render non-functional signage that is no longer relevant:
  - .1 Remove inoperative cones or flexible drums from open lanes, and place as far as possible or behind a guardrail or barrier when possible;
  - .2 Move arrow boards and barricades away from lanes and behind a guardrail, or remove and collect at openings;
  - .3 Remove and collect signs that are not in use, or mask them. Choose between removal or masking at commencement of Work and apply selected option to all signs for duration of Work.

## **Part 2 Products**

### **2.1 SIGNAGE MATERIALS**

- .1 Provide all signage materials to requirements outlined in Ontario Traffic Manual Book 7, and in sufficient quantity.
- .2 Construction zone signs:
  - .1 Construction zone signs are those specified in the typical layout figures (TL) of Ontario Traffic Manual Book 7, modified to suit on-site conditions of the Work.
    - .1 Install signs in use for more than three (3) consecutive days in a permanent manner and located at outer edges of shoulder;
    - .2 Place ballasted signs as far as possible from traffic lanes when located on shoulder of road.
    - .3 Install signs placed on edges of sidewalks completely clear of sidewalk and at a height of 2.2 metres from the ground.
    - .4 Signs located behind a flexible or semi-rigid barrier to be at least 1 metre behind the barrier.
  - .2 Before installing posts, perform all required checks to ensure that no public utility infrastructure or underground structure will be damaged in the process.
  - .3 Signs to Ontario Traffic Manual Book 7 as to their shape and colour, with reflection coefficient of their reflective film not be less than fifty percent (50%).
  - .4 Maintain in good condition, properly positioned (in use or not), supplied in sufficient quantity and clean.

### **2.2 VARIABLE MESSAGE SIGNS**

- .1 Supply portable variable message signs for duration of Work.

### **2.3 SPECIAL SIGNS**

- .1 Special signs are signs not included in Ontario Traffic Manuals.
- .2 Signboard material:
  - .1 19 mm Medium Density Overlaid Douglas Fir Plywood to CAN/CSA O121.

- .2 Aluminum.
- .3 Coroplast, if installed over existing signs and with approval from Departmental Representative.
- .3 Fabricate signs in conformance with Ontario Traffic Manual or additional specifications provided by Departmental Representative.
- .4 Cover signs with orange-coloured reflective film of type IV.
- .5 Lettering: black.
- .6 Use special signs to complement the rest of the construction signage, and to post prohibitions or warnings as directed by Departmental Representative.
- .7 Supply special signs meeting requirements of article 2.1 – Signage materials of this section and requirements of Departmental Representative.

## **2.4 CONCRETE BARRIERS**

- .1 Concrete barriers:
  - .1 Supply to OPSS 740.
  - .2 In new condition.
- .2 Acceptance criteria include, but are not limited to, following:
  - .1 Absence of cracks extending to both sides of end of the guardrail;
  - .2 Presence of connectors free of any loosening at the ends;
  - .3 Installation such that there is no opening between curb and the extremity of the barrier large enough for insertion of a tire.

## **2.5 CRASH CUSHION**

- .1 Performance level: TL-2 (to NCHRP 350).
- .2 Provide certification of compliance of installation in accordance with Section 01 33 00 - Submittal Procedures, upon installation, relocation, repair, and replacement.
- .3 Certification of compliance requirements:
  - .1 Certify installation compliance with applicable standards and manufacturer's requirements.
  - .2 Complete certification at time of installation of crash cushion.
  - .3 Forward certification to Departmental Representative before traffic lanes are opened.
  - .4 Certification to be signed by Professional Engineer registered or licensed in Province of Ontario, Canada

## **2.6 REMOVAL OF PAVEMENT MARKINGS**

- .1 Submit proposed abrasives or solvents used for removing paint, oil, grease or rubber residues to Departmental Representative for review. Product to be designed specifically for cleaning of road surfaces.

## **2.7 TEMPORARY PAVEMENT MARKINGS**

- .1 Paint for temporary pavement markings:
  - .1 Water-borne traffic paint.
  - .2 Colours: white and yellow.
  - .3 To OPSS 710

## **Part 3 Execution**

### **3.1 ACCESS TO WORK AREAS AND PROTECTION**

- .1 Access to work areas:
  - .1 Perform entry and exit operations safely and in a way that ensures full protection of workers and road users.
  - .2 Arrange for flag persons to provide access to vehicles entering or exiting a work area adjacent to an open traffic lane. Provide this service also to Departmental Representative's crews.
  - .3 Submit procedures for access to work areas to Departmental Representative before commencement of Work.
  - .4 Equip all vehicles entering the work area with rotating warning light.
  - .5 When not in use, keep all access points closed using flexible drums placed not more than 2 metres apart.
  - .6 When construction is active, access points may be kept open in order to facilitate entry and exit of authorized vehicles.
  - .7 Under no circumstances do work around site access points. For such work, close access point using concrete barriers.
  - .8 Provide no more than one site access point in a line of concrete barriers.
- .2 Access to properties:
  - .1 Maintain at least one access point for each private property within construction site.
  - .2 Maintain access to properties at all times, in a manner safe for road users, pedestrians and all emergency vehicles.
- .3 Storage of materials and heavy machinery:
  - .1 At all times, even outside working hours (evenings, weekends and statutory holidays), park machinery and store equipment and material so as to ensure safety of road users, according to applicable road safety standards.

### **3.2 MAINTENANCE OF SIGNS, DELINEATION DEVICES AND TRAFFIC LANES**

- .1 Maintenance of signs, delineation devices and other traffic control devices:
  - .1 When devices are in position, whether in operation or not, provide labour, equipment and supplies necessary for regular cleaning of devices (cones, barrels, flashing arrow board signs, barricades and construction zone signs) in order to ensure their continuing reflectivity.
  - .2 When cleaning of equipment requires blockage of open traffic lanes, perform cleaning during next permitted closing period.

- .3 Conduct one complete inspection of work site daily and make all necessary adjustments to temporary signage:
  - .1 Before morning rush hour, between 1:00 a.m. and 5:30 a.m., or before afternoon rush hour, between 12:30 and 3:30 p.m.
  - .2 Maintenance crew to inform Departmental Representative of its presence.
  - .3 Submit daily report for each inspection to Departmental Representative at conclusion of each inspection.
  - .4 Copy of inspection report form to be completed by inspection crew will be submitted to the contractor at the kickoff meeting.
- .2 Maintenance of traffic lanes:
  - .1 Maintain traffic lanes used by motorists during construction, within boundaries of site. In particular:
    - .1 Patch any hole 25 millimetres deep or deeper in traffic lanes and on shoulders, once Work has begun and throughout duration of Work;
    - .2 Clean asphalt surfaces where traffic is maintained, and keep them clear of all debris or liquid or solid material, whether such material (sand, earth, gravel, etc.) originates from the construction work or not, and whether brought to the site by traffic, contractor or weather;
    - .3 Clean, remove snow and de-ice fasteners of concrete barriers to allow water to flow and drain from pavement;
    - .4 Prevent accumulation of any material on the pavement and act immediately to remove them, should they start to accumulate;
    - .5 Maintain work area and traffic lanes such that no dust is rendered airborne;
    - .6 Ensure proper drainage of pavement;
    - .7 Perform any other work required for proper maintenance of traffic.
- .3 Emergency intervention
  - .1 Intervene on-site following a request from Departmental Representative when a situation affecting the safety of road users arises (e.g. temporary signage moved into traffic lanes), at any time of day, seven (7) days a week. This may also apply to maintenance of traffic lanes outside construction hours, such as patching a hole in pavement.

### **3.3 EXISTING SIGNAGE**

- .1 Once Works starts, take responsibility for all existing road signage on work site.
- .2 For full duration of Work, maintain, cover, remove, store, move or adjust all signage in and bordering the site whose message is no longer appropriate. At end of Work, reinstall all existing permanent signs that were removed, stored, moved, covered or modified in accordance with Ontario Traffic Manual Book 7, or to their previous condition.
- .3 Replace existing sign-posts damaged before or during Work with new sign-posts including new hardware.
- .4 Conduct detailed inventory of signage to be removed, covered or moved before beginning Work, together with Departmental Representative.

- .5 Include in inventory for each sign at least one photo of sign and sketch of its location (position, clearance and height). Submit copy of detailed signage inventory to Departmental Representative before beginning Work.

### **3.4 INSTALLATION AND MAINTENANCE OF VARIABLE MESSAGE SIGNS**

- .1 Supply and install two portable variable message signs, at locations specified by Departmental Representative at least two weeks prior to the commencement of Work on Booth Street. Portable variable message signs to be relocated as directed by Departmental Representative, and compliant to Ontario Traffic Manual Book 7.
- .2 Make portable variable message signs functional at least two weeks prior to commencement of Work.
- .3 Ensure that voltage at battery terminals is no less than 12.0 volts. Voltage may be verified either by telemetry or directly.
- .4 Keep portable variable message signs stable and properly oriented, with level text.
- .5 Inform Departmental Representative in real-time of proper installation of variable message sign(s). Provide following information at time of installation:
  - .1 Signs' owner;
  - .2 Signs' identification;
  - .3 Sign type (30 x 72);
  - .4 Precise position of signs (with reference to chainage);
  - .5 Telephone number, including area code.
- .6 Provide same information to Departmental Representative at each relocation, modification, change or removal of variable message sign(s).

### **3.5 SPECIAL SIGNS**

- .1 Install special signs on concrete structures, concrete barriers, ballasted posts or posts driven into the ground, as directed by Departmental Representative.
- .2 For each type of installation, submit drawing sealed and signed by Professional Engineer registered or licensed in Province of Ontario, Canada, showing details of the sign, required hardware and location.
- .3 Produce and install special signs in designated locations within 48 hours of direction from Departmental Representative.
- .4 In case of defect or vandalism, replace totally or partially deteriorated signs within 48 hours of notification from Departmental Representative.
- .5 Clean sign and ensure visibility within 1 hour of notification from Departmental Representative. Reinstall crooked or fallen sign within 4 hours of notification from Departmental Representative. If reinstallation or cleaning requires lane closures, these deadlines are counted from the beginning of the next permitted lane-closure period.
- .6 Maintain availability of all special signs for the full duration of the Work.
- .7 After completion of Work, remove special signs from site.

### **3.6 CONCRETE BARRIERS**

- .1 Supply concrete barriers to delimit work site and protect workers.
- .2 Install concrete barriers for all work requiring presence of workers on a site adjacent to a traffic lane.
- .3 Replace, repair, and reposition concrete barriers as directed by Departmental Representative.
- .4 Remove from site barriers damaged during handling or otherwise imperfect and deemed unacceptable by Departmental Representative.

### **3.7 CRASH CUSHIONS**

- .1 Installation:
  - .1 Install crash cushions in compliance with manufacturer's requirements and applicable standards, at each end of a line of concrete barriers presenting an obstacle to traffic.
  - .2 Crash cushion to cover end of the line of barriers, without blocking traffic lane or adjacent shoulder. Affix orange and white chevron or hazard marker, made of type V film for orange and type IV film for white, to front of crash cushion.
- .2 Winter maintenance
  - .1 When outdoor temperatures are likely to go below 0°C, ensure that liquid within crash cushion does not freeze. Use non-toxic liquid with specific gravity roughly equivalent to water.
- .3 Repair or replacement:
  - .1 Repair or replace with a fully functional unit damaged crash cushion within 8 hours of impact.
  - .2 If damaged crash cushion partially or completely obstructs one or more traffic lanes, clear the lane(s) within 30 minutes of oral notice from Departmental Representative.

### **3.8 REMOVAL OF PAVEMENT MARKINGS**

- .1 In designated zones, remove painted lines by stripping with sandblasting equipment approved by Departmental Representative.
- .2 Avoid loosening large aggregates and removing too many fine particles or damaging bituminous binder, cement concrete, or joint and crack sealants.
- .3 Prevent removal of underlying surface course while removing paint.
- .4 Collect without delay residues produced by erasure of road markings by sandblasting, keeping traffic lanes clear of debris.
- .5 Remove dust, contaminants, free particles, foreign objects, oils and greases from designated surfaces using method approved by Departmental Representative.
- .6 Complete cleaning using mechanical road sweeper with rotating brushes. If surface still unclean, complete the operation with manual sweeping.



- .7 Ensure that runoff drainage network is not obstructed by debris or waste.

### **3.9 APPLICATION OF TEMPORARY ROAD MARKINGS**

- .1 Equipment:
  - .1 Pressurized and mobile;
  - .2 Capable of applying paint uniformly in continuous line, two continuous lines and broken lines, as well as painting other symbols;
  - .3 Capable of applying marking products uniformly according to paint manufacturer's recommended application rates;
  - .4 Equipped with safe shutoff mechanism;
  - .5 Approved by Departmental Representative.
- .2 Road surface to be dry and free of puddles, frost, ice, dust, oil, grease or other foreign matter prior to painting operations.
- .3 Apply temporary pavement markings to OPSS 710.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 02 41 16 - Structure Demolition.
- .2 Section 03 30 03 - Concrete Repair.
- .3 Section 26 05 00 - Common Work Results - Electrical.
- .4 Section 31 23 33.01 - Excavating, Trenching, and Backfilling.

**1.2 REFERENCES**

- .1 Province of Ontario
  - .1 Occupational Health and Safety Act R.S.O. 1990, c. 0.1, current edition and Regulations for Construction Projects, O. Reg. 213/91, and current edition.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports weekly to Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal, Provincial and health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS Material Safety Data Sheets (MSDS).
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .8 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.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

**1.4 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

**1.5 SAFETY ASSESSMENT**

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

**1.6 MEETINGS**

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

**1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Fast-flowing water in the OHEPC channel while channel is undrained
  - .2 Water and debris present in the OHEPC channel while channel is drained.
  - .3 Vehicular, pedestrian, and cycle traffic crossing bridge.
  - .4 Electrical and other utilities.

**1.8 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.

**1.9 RESPONSIBILITY**

- .1 Be responsible and assume the role of "Constructor", as described in the Ontario Occupational Health & Safety Act and Regulations for Construction Projects.
- .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.

**1.10 COMPLIANCE REQUIREMENTS**

- .1 Ontario Health and Safety Act, R.S.O.

**1.11 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 the Occupational Health and Safety Act and Regulations for Construction Projects and advise Departmental Representative verbally and in writing.

**1.12 HEALTH AND SAFETY CO-ORDINATOR**

- .1 The Contractor is authorized to act as the Health and Safety Co-ordinator. The Contractor must:
  - .1 Have site-related working experience specific to activities associated with concrete repairs, electrical work and paving.
  - .2 Have working knowledge of occupational health and safety regulations.
  - .3 Ensure that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .4 Be responsible for implementing, enforcing daily and monitoring his site-specific Health and Safety Plan.
  - .5 Be on site during execution of Work.

**1.13 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects, and in consultation with Departmental Representative.

**1.14 CORRECTION OF NON-COMPLIANCE**

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

**1.15 BLASTING**

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

**1.16 POWDER ACTUATED DEVICES**

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

**1.17 WORK STOPPAGE**

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

**Part 2**

**Products**

Not used.

**Part 3**

**Execution**

Not used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Definitions:
  - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
  - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

**1.2 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 products used in the execution of the Work and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review by Departmental Representative.
- .4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .5 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .6 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 Name and qualifications of person responsible for training site personnel.
  - .4 Descriptions of environmental protection personnel training program.
  - .5 Drawings indicating locations of proposed temporary excavations or embankments for, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
  - .6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
    - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

- .7 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .10 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .11 Waste Water Management Plan identifying methods and procedures for management of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .12 Historical, archaeological, and cultural resources plan that defines procedures for identifying and protecting historical, archaeological, and cultural resources.
- .13 Pesticide treatment plan to be included and updated, as required.

### **1.3 FIRES**

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

### **1.4 DRAINAGE**

- .1 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

### **1.5 SITE CLEARING AND PLANT PROTECTION**

- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
  - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.

### **1.6 WORK ADJACENT TO WATERWAYS**

- .1 Waterways to be kept free of excavated fill, waste material and debris.

## **1.7 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
  - .1 Provide temporary enclosures where directed by Departmental Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

## **1.8 HISTORICAL/ARCHÆOLOGICAL CONTROL**

- .1 Provide historical, archæological, and cultural resources plan that defines procedures for identifying and protecting historical, archaeological, and cultural resources, known to be on project site: and identifies procedures to be followed if historical archæological, and cultural resources not previously known to be onsite or in area are discovered during construction.
- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

## **1.9 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 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.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

## **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 for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 03 20 00 - Concrete Reinforcing
- .2 Section 03 30 00 - Cast-in-Place Concrete
- .3 Section 05 50 00 - Metal Fabrications
- .4 Section 31 23 33.01 - Excavating, Trenching and Backfilling
- .5 Section 32 12 16 - Asphalt Paving.

**1.2 INSPECTION**

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

**1.3 INDEPENDENT INSPECTION AGENCIES**

- .1 Independent Inspection/Testing Agencies may be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

**1.4 ACCESS TO WORK**

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

## **1.5 PROCEDURES**

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

## **1.6 REJECTED WORK**

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

## **1.7 REPORTS**

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

## **1.8 TESTS AND MIX DESIGNS**

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

## **1.9 MILL TESTS**

- .1 Submit mill test certificates as required of specification Sections.

**Part 2            Products**

Not Used.

**Part 3            Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
  - .2 CAN/CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CAN/CSA-O121-08 (R2013), Douglas Fir Plywood.
  - .3 CAN/CSA-S269.2-M1987 (R2003), Access Scaffolding for Construction Purposes.
  - .4 CAN/CSA-Z321-96 (R2006), Signs and Symbols for the Occupational Environment.
- .3 National Building Code of Canada, 2010.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

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

**1.3 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 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

**1.4 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps, or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.5 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, platforms, ladders, or temporary stairs.

**1.6 HOISTING**

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

**1.7 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.

**1.8 CONSTRUCTION PARKING**

- .1 Parking will be permitted on site provided it does not disrupt performance of Work or safe public access for vehicle and pedestrians along Booth Street.
- .2 Provide and maintain adequate access to project site.

**1.9 SECURITY**

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

**1.10 OFFICES**

- .1 Provide office heated to 22 degrees C, lighted 750lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

**1.11 EQUIPMENT, TOOL AND MATERIALS STORAGE**

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

**1.12 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.

**1.13 CONSTRUCTION SIGNAGE**

- .1 Provide project identification site sign comprising, framing, and two 1200 x 2400 mm signboards as detailed and as described below.

- .1 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
  - .2 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CAN/CSA O121.
  - .3 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
  - .4 Fasteners: hot-dip galvanized steel nails and carriage bolts.
  - .5 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay, supplied by Departmental Representative .
- .2 Locate project identification signs as directed by Departmental Representative and construct as follows:
- .1 Erect framework, and attach signboard to framing.
  - .2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
  - .3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- .3 Direct requests for approval to erect Consultant/Contractor signboard to Departmental Representative. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording in both official languages.
- .4 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .5 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.

#### **1.14 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Maintain vehicular and pedestrian traffic and protect the public during construction as required by Section 01 35 00.06 - Traffic Control..

#### **1.15 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 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

### **Part 2 Products**

Not Used.

**Part 3            Execution**

**3.1                TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1      Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- .2      Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3      Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**END OF SECTION**



**Part 1 General**

**1.1 INSTALLATION AND REMOVAL**

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

**1.2 FENCING**

- .1 Provide temporary construction fencing using 1.8 m high steel frames with interior panels of heavy gauge welded wire mesh. Anchor bases to the ground.
- .2 Equip gates and doors with identically keyed padlocks and provide two copies of keys to Departmental Representative.
- .3 Install construction fencing to surround Contractor's yard with lockable vehicle gate and lockable door.
- .4 Install construction fencing at both ends of closed sidewalk areas with lockable gates or doors.
- .5 Install construction fencing to restrict access to work areas under and adjacent to bridge and include lockable gates or doors.
- .6 Install fencing as required to enclose dangerous areas during Work.
- .7 Maintain fences and gates in good repair.

**1.3 GUARD RAILS AND BARRICADES**

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, and edge of channel.
- .2 Provide as directed by Departmental Representative.

**1.4 ACCESS TO SITE**

- .1 Provide and maintain access to Work.

**1.5 PUBLIC TRAFFIC FLOW**

- .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

**1.6 FIRE ROUTES**

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

**1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY**

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

**1.8 WASTE MANAGEMENT AND DISPOSAL**

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

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

**1.2 QUALITY**

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

**1.3 STORAGE, HANDLING AND PROTECTION**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.

- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

#### **1.4 TRANSPORTATION**

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

#### **1.5 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

#### **1.6 QUALITY OF WORK**

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

#### **1.7 CO-ORDINATION**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

**1.8 REMEDIAL WORK**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

**1.9 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

**1.10 PROTECTION OF WORK IN PROGRESS**

- .1 Prevent overloading of structures. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

**1.11 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 02 41 16 - Structure Demolition.
- .2 Section 03 30 03 - Concrete Repair.
- .3 Section 26 56 19 - Roadway Lighting.

**1.2 QUALIFICATIONS OF SURVEYOR**

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

**1.3 SURVEY REFERENCE POINTS**

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Departmental Representative.
- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

**1.4 SURVEY REQUIREMENTS**

- .1 Establish one permanent bench mark on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading and fill.

**1.5 EXISTING SERVICES**

- .1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

**1.6 RECORDS**

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

**1.7 SUBSURFACE CONDITIONS**

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 07 13 52 - Modified Bituminous Sheet Waterproofing.

**1.2 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner, other Contractors, or the public.
- .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, unless approved by Departmental Representative.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site dump containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.
- .7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.3 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner, other Contractors, or the public.
- .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, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.



- .7 Clean lighting reflectors, lenses, and other lighting surfaces.
- .8 Remove dirt and other disfiguration from exterior surfaces.
- .9 Sweep and wash clean paved areas.
- .10 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 WASTE MANAGEMENT GOALS**

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.
- .2 PWGSC's Waste Management Goal 50 percent of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and environment damage.

**1.2 RELATED REQUIREMENTS**

- .1 Section 02 41 16 - Structure Demolition.

**1.3 DEFINITIONS**

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2 Returning reusable items including pallets or unused products to vendors.
- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.

- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .14 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

#### **1.4 DOCUMENTS**

- .1 Maintain at job site, one copy of following documents:
  - .1 Waste Audit.
  - .2 Waste Reduction Workplan.
  - .3 Material Source Separation Plan.

#### **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
  - .1 Submit 2 copies of completed Waste Audit (WA): Schedule A.
  - .2 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
  - .3 Submit 2 copies of completed Demolition Waste Audit (DWA): Schedule C.
  - .4 Submit 2 copies of Cost/Revenue Analysis Workplan (CRAW): Schedule D.
  - .5 Submit 2 copies of Materials Source Separation Program (MSSP) description.
- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
  - .1 Failure to submit could result in hold back of final payment.
  - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
  - .3 For each material reused, sold or recycled from project, include amount in tonnes and the destination.
  - .4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

#### **1.6 WASTE AUDIT (WA)**

- .1 Conduct WA prior to project start-up.
- .2 Prepare WA: Schedule A.
- .3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

### **1.7 WASTE REDUCTION WORKPLAN (WRW)**

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not limited to:
  - .1 Destination of materials listed.
  - .2 Deconstruction/disassembly techniques and sequencing.
  - .3 Schedule for deconstruction/disassembly.
  - .4 Location.
  - .5 Security.
  - .6 Protection.
  - .7 Clear labelling of storage areas.
  - .8 Details on materials handling and removal procedures.
  - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.
- .6 Post WRW or summary where workers at site are able to review content.
- .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

### **1.8 DEMOLITION WASTE AUDIT (DWA)**

- .1 Prepare DWA prior to project start-up.
- .2 Complete DWA: Schedule C.
- .3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

### **1.9 COST/REVENUE ANALYSIS WORKPLAN (CRAW)**

- .1 Prepare CRAW: Schedule D.

### **1.10 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)**

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.

- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.

#### **1.11 STORAGE, HANDLING AND PROTECTION**

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect structural components not removed for demolition from movement or damage.
- .4 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .5 Protect surface drainage, mechanical and electrical from damage and blockage.
- .6 Separate and store materials produced during dismantling of structures in designated areas.
- .7 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.
  - .2 Remove co-mingled materials to off-site processing facility for separation.
  - .3 Provide waybills for separated materials.

#### **1.12 DISPOSAL OF WASTES**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste or volatile materials into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.
  - .3 Total tonnage generated.
  - .4 Tonnage reused or recycled.
  - .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

#### **1.13 SCHEDULING**

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

### **Part 2 Products**

Not Used.

**Part 3 Execution**

**3.1 APPLICATION**

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

**3.2 CLEANING**

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

**3.3 DIVERSION OF MATERIALS**

- .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.
  - .1 Mark containers or stockpile areas.
  - .2 Provide instruction on disposal practices.
- .2 On-site sale of materials is not permitted.
- .3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Rubble	100	[_____]
Other		[_____]

- .4 Construction Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100	[_____]
Plastic Packaging	100	[_____]
Rubble	100	[_____]
Steel	100	[_____]
Wood (uncontaminated)	100	[_____]
Other		[_____]

**3.4 WASTE AUDIT (WA)**

- .1 Schedule A - Waste Audit (WA):

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Wood and Plastics Material Description						
Off-cuts						

Warped Pallet Forms						
Plastic Packaging						
Cardboard Packaging						
Other						
Wood						
Metal						
Other						

### 3.5 WASTE REDUCTION WORKPLAN (WRW)

#### .1 Schedule B:

(1) Material Category	(2) Person(s) Respon- sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina- tion
Wood and Plastics Material Description							
Chutes							
Warped Pallet Forms							
Plastic Packaging							
Card- board Packaging							
Other							
Wood							
Metal							
Other							

### 3.6 DEMOLITION WASTE AUDIT (DWA)

#### .1 Schedule C - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Wood						
Wood Stud						
Plywood						

### 3.7 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

#### .1 Schedule D - Cost/Revenue Analysis Workplan (CRAW):

(1) Material Description	(2) Total Quantity (unit)	(3) Volume (cum)	(4) Weight (cum)	(5) Disposal Cost/Credit \$(+/-)	(6) Category Sub-Total \$(+/-)
Wood					
Wood Stud					
Plywood					
		(7) Cost (-) / Revenue (+)			\$

### 3.8 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

#### .1 Schedule E - Government Chief Responsibility for the Environment:

Province	Address	General Inquires	Fax
Ontario	Ministry of Environment and Energy, 135 St. Clair Avenue West Toronto ON M4V 1P5	416-323-4321 800-565-4923	416-323-4682
	Environment Canada Toronto ON	416-734-4494	

**END OF SECTION**



**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 00 - Common Work Results - Electrical.

**1.2 REFERENCES**

- .1 Canadian Environmental Protection Act (CEPA)

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Pre-warranty Meeting:
  - .1 Convene meeting 1 week prior to contract completion with Departmental Representative, in accordance with Section 01 31 19 - Project Meetings to:
    - .1 Verify Project requirements.
    - .2 Review warranty requirements.
  - .2 Departmental Representative to establish communication procedures for:
    - .1 Notifying construction warranty defects.
    - .2 Determine priorities for type of defects.
    - .3 Determine reasonable response time.
  - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
  - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

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

**1.5 FORMAT**

- .1 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .2 When multiple binders are used correlate data into related consistent groupings.
  - .1 Identify contents of each binder on spine.
- .3 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

**1.6 CONTENTS - PROJECT RECORD DOCUMENTS**

- .1 Table of Contents for Each Volume: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

- .3 Schedule of products and systems, indexed to content of volume.

## **1.7 AS -BUILT DOCUMENTS AND SAMPLES**

- .1 Maintain, at site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
  - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
  - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

## **1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS**

- .1 Record information on set of black line opaque drawings, provided by Departmental Representative .
- .2 Record information concurrently with construction progress.
  - .1 Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
- .4 Specifications: mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.
- .5 Other Documents: maintain field test records required by individual specifications sections.
- .6 Provide digital photos, if requested, for site records.

## **1.9 FINAL SURVEY**

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

## **1.10 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .6 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within 10 days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Conduct joint 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.
- .9 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.

- .2 Contractor's plans for attendance at 9 month post-construction warranty inspections.
- .3 Procedure and status of tagging of equipment covered by extended warranties.
- .4 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .10 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .11 Written verification to follow oral instructions.
  - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

**Part 2 Products**

Not Used.

**Part 3 Execution**

Not Used.

**END OF SECTION**