Project Manual

Reesor North Office Accessibility Improvements

10725 Reesor Road, Markham, Ontario

EVOQ – Project No.: 9380-20

Issued for Tender – November 25, 2020

PROJECT MANUAL

REESOR NORTH OFFICE
Accessibility Improvements

ISSUED FOR TENDER
November 25, 2020

SPECIFICATIONS

PART 1 GENERAL

1.01 ARCHITECT AND PRIME CONSULTANT

EVOQ Architecture Inc.
75 Sherbourne Street, Suite 503
Toronto, Ontario M5A 2P9

.1 Specifications sealed for Architectural Work in Sections as listed below:

.1 Section 01 00 10 – General Instructions
.2 Section 01 14 00 – Work Restrictions
.3 Section 01 32 16 – Construction Progress Schedule (CPM)
.4 Section 01 33 00 – Submittal Procedures
.5 Section 01 35 29 – Health and Safety Requirements
.6 Section 01 35 91 – Heritage Protective Measures
.7 Section 01 50 01 – Scaffolding and Enclosures
.8 Section 01 51 00 – Temporary Utilities
.9 Section 01 52 00 – Construction Facilities
.10 Section 01 56 00 – Temporary Barriers and Enclosures
.11 Section 01 61 00 – Common Product Requirements
.12 Section 01 74 11 – Cleaning
.13 Section 01 78 00 - Closeout Submittals
.14 Section 02 41 13 – Selective Site Demolition
.15 Section 04 03 01 – Heritage Common Work Results for Masonry
.16 Section 05 52 00 – Metal Railings
.17 Section 06 03 40 – Historic – Wood Repair
.18 Section 06 10 00 – Rough Carpentry
.19 Section 06 40 00 – Architectural Woodwork
.20 Section 08 14 00 – Wood Doors and Frames
.21 Section 08 71 00 – Door Hardware
.22 Section 09 21 16 – Gypsum Board Assemblies
.23 Section 09 65 00 – Resilient Flooring
.24 Section 09 91 00 – Painting

Architect

1.02 STRUCTURAL ENGINEER

Ojdrovic Engineering
4195 Dundas Street W., Suite 233
Toronto, Ontario M8X 1Y4

.1 There are no structural specification sections.

1.03 ENVIRONMENTAL CONSULTANT

EHS Partnerships Ltd
2 Gurdwara Road, Suite 406
Ottawa, Ontario K2E 1A2

.1 The Environmental Consultant provided the following specification sections:
.1 Section 02 82 00.02 – Asbestos Abatement – Intermediate Precautions (Type 2)
.2 Section 02 83 11 – Lead-Base Paint Abatement – Intermediate Precautions

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

PART 1 GENERAL

1.01 DEFINITIONS

.1 'Departmental Representative' within this project manual refers to the owner Parks Canada and any representative designated by Parks Canada.

1.02 MINIMUM STANDARDS

.1 Materials shall be new and work shall conform to the minimum applicable standards of the Canadian General Standards Board, the Canadian Standards Association, the most recent edition of the National Building Code of Canada (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.

1.03 TAXES

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

1.04 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.

1.05 SPECIAL REQUIREMENTS

.1 Submit schedule in accordance with Section 01 32 16 Construction Progress Schedule (CPM).

.2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Submit execution plan prior to start of work indicating, but not limited to, the work plan and methodologies, sequence of work, tools and materials, heritage protection, and safety plan.

1.06 FIRE SAFETY REQUIREMENTS

.1 Comply with the most recent editions of National Building Code of Canada (NBC) for fire safety in construction and the National Fire Code of Canada (NFC) for fire prevention, firefighting and life safety in building in use.

.2 Welding and cutting:

.1 Before welding, soldering, grinding and/or cutting work, obtain a permit from the Fire Prevention Unit as directed by the Departmental Representative. Store flammable liquids in approved CSA containers inspected by the Fire Prevention Unit. No open flame shall be used unless authorized by the Fire Prevention Unit.

.2 At least 48 hours prior to commencing cutting, welding or soldering procedure, provide to Departmental Representative:

.1 Notice of intent, indicating devices affected, time and duration of isolation or bypass.

.2 Completed Hot Work Permit

.3 Return welding permit to Departmental Representative immediately upon completion of procedures for which permit was issued.

.4 A fire watcher shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.

.3 Store flammable liquids in approved in CSA containers inspected by the Fire Prevention Unit. No open flame is to be used unless authorized by the Fire Prevention Unit.

.3 Burning rubbish or any construction product or waste material is not permitted.

1.07 FIELD QUALITY CONTROL

.1 Carry out Work using qualified licenced workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.

.2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licenced workers.

.3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

.4 Qualifications

.1 **Prequalification**: Bidders when specifically requested, must complete and submit prequalification form provided with Bid Form to Departmental Representative.

.2 **Subcontractors**: Departmental Representative reserves right to reject proposed subcontractor for reasonable cause.

1.08 REMOVED MATERIALS

.1 Unless otherwise specified or directed by Departmental Representative, materials for removal become the Contractor's property and shall be taken from site.

.2 Immediately take removed materials from site. Leave no build-up of removed materials on site.

.3 Prepare salvaged and removed materials by loading onto pallets and securely strapping. . Cover and prevent damage and deterioration during storage on site and transport.

.4 Store salvaged material on site where directed by Departmental Representative and/or provide transport to location as directed by Departmental Representative.

.5 Provide transport for items removed from site to be restored or worked on in shop.

1.09 QUALITY ASSURANCE

.1 10725 Reesor Road is listed on the municipal heritage register. All construction activities must be managed, sequenced, planned and executed in order to ensure the preservation of its specific characteristics, in accordance with Section 01 35 91 – Heritage Protective Measures.

.2 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, Departmental Representative 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 Departmental Representative.

1.10 PROTECTION

.1 Protect finished work against damage until take-over.

.2 Protect adjacent work against the spread of dust and dirt beyond the work areas.

.3 Protect interior areas adjacent to work. Coordinate the displacement of any furniture and equipment with Departmental Representative. Reinstall all displaced furniture and equipment once the work is complete.

.4 Protect operatives and other users of site from all hazards.

.5 Refer to Section 01 35 91 – Heritage Protective Measures and to Section 01 56 00 – Temporary Barriers and Enclosures for exterior and interior protection.

1.11 CUT, PATCH AND MAKE GOOD

.1 Cut existing surfaces as required to accommodate new work.

.2 Remove all items so shown or specified.

.3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match existing material, colour, finish and texture.

1.12 EXAMINATION

.1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.

.2 Prior to undertaking any on-site work, provide high resolution digital photographs of surrounding properties, objects and structures liable to be damaged by the work of the Contract, or be the subject of subsequent claims. Carry out a joint inspection with the Departmental Representative.

.3 Conduct a pre-construction survey. Survey is to include all areas that the contractor will use within scope of work, including areas for site staging and access. Survey is to be completed as a report, to be submitted as a searchable pdf.

.4 All documentation will serve as a benchmark on existing conditions. Provide a written report together with progress photographs every two months on existing conditions for the Departmental Representative’s review and comment.

1.13 ACCESS AND EGRESS

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

.2 Keep within limits of work access and egress routes. Review proposed routes with Departmental Representative.

1.14 GUARANTEES AND WARRANTIES

.1 Before completion of work collect all manufacturer's guarantees and warranties and deposit with Departmental Representative.

1.15 BUILDING SMOKING ENVIRONMENT

.1 Smoking is not permitted on property.

1.16 WASTE MANAGEMENT AND DISPOSAL

.1 Comply with the Environmental Protection Act, Ontario Regulations O.Reg. 102/94 and O. Reg. 103/94 for waste management program on construction and demolition projects.

.2 Conduct "waste audit" to determine waste generated during demolition or construction operations, prepare written "waste reduction work plan" and implement procedures to reduce, reuse and recycle materials to the extent possible.

.3 Provide a "source separation program" to disassemble and collect in an orderly fashion the following "materials designated for alternative disposal" from the "general waste" stream.

.1 cardboard (corrugated).

.2 steel.

.3 wood (not including treated or laminated wood).

.4 Separate wood waste in designated areas in the following categories for recycling: Solid wood/softwood/hardwood, treated, painted, or contaminated wood, sheet materials, off-cuts.

.5 Do not burn scrap at the project site.

.6 Fold up sheet metal, flatten, and place in designated area for recycling.

.1 Unused or damaged masonry materials must be diverted from landfill to a local facility as authorized

.2 Waste Management and Disposal for painting:

.1 Separate waste materials for recycling.

.2 Paint, stain and wood preservative finishes and related materials are hazardous products and are subject to regulations for disposal. Information on these controls can be obtained from Provincial Ministries of Environment and Regional levels of Government.

.3 Materials that cannot be reused must be treated as hazardous waste and disposed of in an appropriate manner.

.4 Place materials defined as hazardous or toxic waste, including used sealant and adhesive tubes and containers, in containers or areas designated for hazardous waste.

.5 To reduce the amount of contaminants entering waterways, sanitary/storm drain systems or into the ground the following procedures shall be strictly adhered to:

.1 Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.

.2 Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.

.3 Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.

.4 Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.

.5 Empty paint cans are to be dry prior to disposal or recycling (where available).

.6 Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

.3 Submit complete records of all removals from site for both "materials designated for alternative disposal" and "general waste" including:

.1 Time and date of removal

.2 Description of material and quantities.

.3 Proof that materials have been received at an Approved Waste Processing Site or certified Waste Disposal Site as required.

.4 Certificates: Submit copies of certified weigh bills receipts from authorized disposal sites and reuse and recycling facilities for material removed from site upon request of Departmental Representative.

.4 Provide and use clearly marked separate bins for recycling.

1.17 SCHEDULING

.1 On award of contract submit bar chart construction schedule for work, indicating anticipated progress stages within time of completion in accordance with Section 01 32 16 – Construction Progress Schedule (CPM). When schedule has been reviewed by the Departmental Representative, take necessary measures to complete work within scheduled time. Do not change schedule without notifying Departmental Representative.

.2 Provide a separate two-week look-ahead schedule, based on the detailed project schedule, to show the advancement of work. Submit an updated two-week look-ahead schedule, every other week, 48 hours prior to the project progress meeting.

.3 Carry out work during "regular hours" Monday to Friday from 08:00to 17:00 hours. Notify Departmental Representative prior to carrying out work beyond these hours.

.4 Pre-Construction Conference

.1 One week prior to scheduled start of work of this Section the following parties will attend a site meeting: Project Construction Manager, Departmental Representative, prequalified trades, materials manufacturer / supplier and representatives of other entities directly concerned with Work of this Section.

.2 The purpose of the meeting will be to review all pertinent details and specifications, noting any potential problems and making any changes, deletions or additions as deemed necessary. The meeting will address the following:

.1 Verify Project requirements.

.2 Review installation and substrate conditions.

.3 Coordination with other trades.

.4 Availability of materials.

.5 Submittal requirements.

.6 Scheduling.

.7 Additional items relating to the Work.

.3 Attendees will also inspect the worksite and review condition of site and substrates, protection requirements, determine where mock-ups will be prepared and where or how other requirements such as lighting, heating and ventilation will be implemented.

1.18 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. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

.2 Include all costs related to Winter Construction activities. Include related time constraints in the Project Schedule.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 HERITAGE SIGNIFICANCE

.1 Reesor North Office at 10725 Reesor Road is listed on the municipal heritage register. Contractor to ensure all subcontractors and trades employed are aware of the buildings' heritage recognitions and heritage requirements.

1.02 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

1.03 WORK SCHEDULING

.1 Co-ordinate use of premises under direction of Departmental Representative.

.2 The building and property will be in use throughout construction.

.3 Schedule Work to provide for continuous usage. Do not close off usage of facilities until use of one stage of Work will provide alternate usage.

.4 Coordinate site access with Departmental Representative.

.5 Construction operations that will general noise must be carried out between Monday to Friday, hours as per municipal by-laws to regulate noise.

.6 Construction operations while the building is occupied:

.1 A disturbance is caused by disruptive work creating vibrations, impacts, noise, dust, fumes or unsightly condition; perceptible to building occupants. The Contractor may be required to cease work for limited periods of time.

.7 Crane work including delivery and removal to be coordinated with the Departmental Representative.

.8 Work requiring the obstruction of roads or obstruction of building access/egress to be coordinated with Departmental Representative.

.9 Work Stoppage: Departmental Representative will establish a procedure for Work Stoppages. Provide Contact Names, Back-up contacts for all Sub-Contractors for notification purposes in the event that a Work Stoppage needs to be communicated.

.1 Include in the Tender price for two (2) complete days of work stoppages. Assume all associated costs and maintain all security operations during work stoppages.

.2 Redirect all personnel on site at time of Work Stoppage to other work. If no other work can be found for trained personnel, this will constitute a period of "Stop Work" applicable to the specified allowance.

.3 The cost must include all labour costs, equipment charges, lost production plus overhead and profit.

.4 Site must remain secure during all periods of Work Stoppage.

.5 The delays caused by Work Stoppages will be taken by float in the Schedule.

.6 Stop Work orders for infraction of contract Document of violations of applicable health and safety regulations will not be considered a “Stop Work” period.

1.04 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to the normal use of premises.

.2 All site staging must be coordinated and signed off by the Departmental Representative prior to any mobilization on site. Refer to drawings for potential areas for site staging.

.3 The building and property will be occupied and operational during the construction period.

.4 For work located within the building, areas must be returned to a safe working environment and thoroughly cleaned after each shift.

.5 Confirm with Departmental Representative permitted use of spaces outside the building. Refer also to drawings for potential permitted areas. Provide storage as specified in Section 01 52 00 - Construction Facilities.

.6 Delivery location to be confirmed with Departmental Representative. Ensure that the entrance and all access areas are protected as per section 01 35 91 – Heritage Protective Measures.

.7 Ensure that site personnel become familiar with and obey regulations including safety, fire, traffic and security regulations.

.8 Where security is reduced by work provide temporary means to maintain security.

.9 Closures: Protect work temporarily until permanent enclosures completed.

.10 Any work requiring access to the interior of the building not within scope of work must be coordinated with Departmental Representative.

1.05 FIRE ROUTE

.1 Maintain fire access to property and building, including overhead clearances for use by emergency response vehicles, as directed by Departmental Representative.

1.06 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

1.07 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

.2 Maintain pedestrian access as much as possible around the building, complete with signs. Should this not be possible, provide plan to mitigate the impact to the Departmental Representative.

.3 Refer to drawings for areas of access to be maintained at all times.

.4 Protect travelling public from damage to person and property.

1.08 DUST CONTROL

.1 Refer to Section 01 56 00 – Temporary Barriers and Enclosures.

1.09 TRAFFIC MANAGEMENT PLAN

.1 Access to the Construction Site will be strictly enforced by the Departmental Representative. Maintain access to the Construction Site as indicated and as approved by the Departmental Representative.

.1 Obtain required permits for road and sidewalk closures for crane and site access. Verify adequacy of existing roads and allowable load limit on these roads. Contractor is responsible for repair of damage to roads caused by construction operations.

.2 Maintain designated exterior access routes for the duration of the project and make good damage resulting from use for construction purposes. Clean deposited mud and other debris from surfaces of roads within one hour after its deposition. Immediately thereafter wash down roads and routes to completely remove all traces of soiling to the satisfaction of the Departmental Representative.

.3 Maintain dust control on roadways to ensure safe operation at all times and to approval of the Departmental Representative.

.2 Arrange delivery of large or heavy or oversized materials using the smallest possible vehicles.

.3 Accompany vehicles over 10 Tonne gross vehicle weight, with flagmen.

.4 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

.5 Instruct drivers of vehicles associated with the Work to exercise care, patience and courtesy when driving around the site. Give right-of-way to pedestrians and exercise extreme care when vehicles commence motion in any direction.

.6 Shut down vehicles and machinery when inactive, to reduce noise and generation of fumes.

1.10 DELIVERY SCHEDULING

.1 Establish and provide to the Departmental Representative, a written schedule for all deliveries to the Construction Site. Update delivery schedule on a weekly basis or more frequently as directed by the Departmental Representative.

.2 Schedule deliveries and removals to minimize vehicle waiting time on site or adjacent areas.

.3 Schedule all deliveries with the Departmental Representative. Comply with all procedures and security requirements as directed by the Departmental Representative.

.4 Provide 48 hours' notice to Departmental Representative for major deliveries, with the exception of deliveries or removals using articulated tractor trailers or vehicles with large or heavy items, to be scheduled and approved by the Departmental Representative a minimum of 5 business days in advance.

.5 Materials must be delivered to the designated loading area, unloaded and immediately transported to the designated materials storage area. Do not allow materials or equipment to remain in the vicinity of the loading area.

1.11 ACCESS AND EGRESS

.1 Use of existing stairs and entrances by site personnel for construction purposes, unless indicated otherwise, is strictly forbidden.

.2 Refer to drawings for access routes to the building and to Section 01 35 91 – Heritage Protective Measures. 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.

.3 Keep within limits of work avenues of access and egress.

.4 Refer to Section 01 56 00 - Temporary Barriers and Enclosures.

1.12 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Provide Departmental Representative a minimum of 10 business days' notice if a building system shutdown is required (electrical). Minimize duration of interruptions.

.3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.5 Provide temporary services when directed by Departmental Representative to maintain critical building systems.

.6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.7 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.8 Record locations of maintained, re-routed and abandoned service lines.

.9 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.13 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed Shop Drawings.
- .5 List of Outstanding Shop Drawings.
- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Site Instructions / Field Clarifications.
- .9 Field Test Reports.

.10 Copy of Approved Work Schedule.
.11 Health and Safety Plan and Other Safety Related Documents.
.12 Environmental Protection Plan
.13 Other documents as specified.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.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 Actual Finish Date (AF): point in time that Work actually ended on activity.

.3 Actual Start Date (AS): point in time that Work actually started on activity.

.4 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.

.5 Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.

.6 Cash Flow: projection of progress payment requests based on cash loaded construction schedule.

.7 Completion Milestones: they are firstly Interim Certificate and secondly Final Certificate.

.8 Constraint: applicable restriction or limitation, either internal or external to project, that will affect performance of Project. Factors that affect activities can be scheduled.

.9 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.

.10 Critical Activity: any activity on a critical path. Most commonly determined by using critical path method.

.11 Critical Path: sequence of activities that determines duration of Project. Generally, it is the longest path through Project. Usually defined as those activities with float less than or equal to specified value, often zero.

.12 Critical Path Method (CPM): network analysis technique used to determine the amount of scheduling flexibility (amount of float) on various logical network paths in Project schedule network, and to determine the minimum total Project duration.

.13 Data Date (DD): date through which project status and progress were last determined and reported for analyses, such as scheduling and performance measurements.

.14 Duration (DU): total number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element. Usually expressed as workdays or work weeks.

.15 Early Finish Date (EF): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints. Early finish dates can change as Project progresses and changes are made to Project plan.

.16 Early Start Date (ES): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network

logic and schedule constraints. Early start dates can change as Project progresses and changes are made to Project Plan.

.17 Finish Date: point in time associated with activity's completion. Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.

.18 Float: amount of time that activity may be delayed from its early start without delaying Project finish date. This resource is available to both PWGSC and Contractor.

.19 Impact Analysis: schedule analysis technique that adds a modeled delay to an accepted construction schedule to determined possible outcome of that delay on project completion.

.20 Lag: modification of logical relationship that directs delay in successor activity.

.21 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).

.22 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).

.23 Lead: modification of logical relationship that allows acceleration of successor task.

.24 Logic Diagram: see Project network diagram.

.25 Master Schedule: summary-level schedule that identifies major deliverable; work breakdowns structure and key milestones.

.26 Milestone: significant point or event in Project, usually completion of major deliverable.

.27 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.

.28 Near-Critical Activities: activity that has low total float.

.29 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.

.30 Project Control System: fully computerized system utilizing commercially available software packages.

.31 Project Network Diagram: schematic display of logical relationships of Project activities. Always drawn from left to right to reflect Project chronology.

.32 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.

.33 Project Planning: development and maintenance of Project Plan.

.34 Project Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.

.35 Project Schedule: planned dates for performing activities and 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.

.36 Quantified days duration: working days based on 5 day work week, discounting statutory holidays.

.37 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.

.38 Scheduled Finish Date (SF): point in time that Work was scheduled to finish on activity. Scheduled finish date is normally within range of dates delimited by early finish date and late finish date.

.39 Scheduled Start Date (SS): point in time that Work was scheduled to start on activity. Scheduled start date is normally within range of dates delimited by early start date and late start date.

.40 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.

.41 Work Breakdown Structure (WBS): deliverable-oriented hierarchical decomposition of Work to be executed by contractor to accomplish project objectives and create required deliverables. It organizes and defines total scope of Project. Each descending level represents an increasingly detailed definition of Project Work. WBS is decomposed into Work packages.

.2 Reference Standards:

.1 Project Management Institute (PMI Standards)

.1 A Guide to the Project Management Body of Knowledge (PMBOK Guide) - Fourth Edition.

.2 Practice Standard for Scheduling - 2011.

1.02 SYSTEM DESCRIPTION

.1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of Project are properly co-ordinated. It consists of planning, time estimating, scheduling, progress monitoring and control.

.2 Planning: this is most basic function of management, that of determining presentation of action and is essential.

.1 It involves focusing on objective consideration of future, and integrating forward thinking with analysis; therefore, in planning, implicit assumptions are made about future so that action can be taken today.

.2 Planning and scheduling facilitates accomplishment of objectives and should be considered continuous interactive process involving planning, review, scheduling, analysis, monitoring and reporting.

.3 Ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made. This implies progressively more reliability of scheduling data. Detail Project schedule is used for analysis and progress monitoring.

.4 Ensure project schedule efficiencies through monitoring.

.1 When activities begin on time and are performed according to estimated durations without interruptions, original Critical Path will remain accurate. Changes and delays will however, create an essential need for continual monitoring of Project activities.

.2 Monitor progress of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.

.3 Monitoring should be done sufficiently often so that causes of delays are immediately identified and removed if possible.

.5 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.

.1 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.03 ADMINISTRATIVE REQUIREMENTS

.1 Project Meeting:

.1 Meet with Departmental Representative within 5 working days of Award of Contract date, to establish Work requirements and approach to project construction operations.

.2 Participate in project progress meetings, every other week, with Departmental Representative specifically intended to discuss update of detailed schedule and contract changes. The Departmental Representative will record and distribute minutes of meetings. Arrange for subcontractors to attend meetings as required. Meetings will occur on weekdays, between 10:00 – 15:00 hours.

.2 Scheduling:

.1 Planning: ensure that planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made.

.2 Ensure project schedule efficiencies through monitoring of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.

.3 Monitor sufficiently often so that causes of delays can immediately be identified and removed.

.3 Project monitoring and reporting:

.1 Keep team aware of changes to schedule, and possible consequences as project progresses.

.2 Use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.

.3 Begin narrative reporting with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

.4 Critical Path Method (CPM) Requirements:

.1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.

.2 Revise Master Schedule and Detail Schedule deemed impractical by Departmental Representative and resubmit for approval.

.3 Change to Contract Duration:

.1 Acceptance of Master Schedule and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to Contract.

.2 Duration of Contract may only be changed through bilateral Agreement.

.4 Consider Master Schedule and Detail Schedule deemed practical by Departmental Representative, showing Work completed in less than specified Contract duration, to have float.

.5 First Milestone on Master Schedule and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.

.6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.

.7 Interim Certificate with "LF" constraint equal to calculated date.

.8 Calculations on updates to be such that if early finish of Interim Certificate falls later than specified Contract duration then float calculation to reflect negative float.

.9 Delays to non-critical activities, those with float may not be basis for time extension.

.10 Do not use float suppression techniques such as software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates other than required by Contract.

.11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated.

.1 Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.

.12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration.

.1 Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.

.13 Arrange participation on and off site of subcontractors and suppliers, as required by Departmental Representative, for purpose of network planning, scheduling, updating and progress monitoring.

.1 Approvals by Departmental Representative of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.

.14 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.

1.04 SUBMITTALS

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

.2 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring and reporting of project progress.

.3 Submit Project Control System to Departmental Representative for approval.

.1 Failure to comply with each required submission may result in progress payment being withheld in accordance with Federal Government's GC 5 Terms of Payment.

.4 Include costs for execution, preparation and reproduction of schedule submittals in bid documents.

.5 Submit letter ensuring that schedule has been prepared in co-ordination with major sub-contractors.

.6 Refer to article "PROGRESS MONITORING AND REPORTING" of this specification Section for frequency of Project control system submittals.

.7 Submit impact analysis of schedule for changes that result in extension of contract duration.

.1 Include draft schedule update and report as outlined in article "PROGRESS MONITORING AND REPORTING".

.8 Submit Project planning, monitoring and control system data as part of initial schedule submission and monthly status reporting as required by Departmental Representative in following form.

.1 CD files in original scheduling software and in PDF containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.

.2 Master Schedule Bar Chart.

.3 Construction Detail schedule Bar Chart.

.4 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.

.5 Criticality report listing activities and milestones with zero total float used as first sort for ready identification of critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.

.6 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished within 2 months from monthly update date. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

1.05 QUALITY ASSURANCE

.1 Use experienced personnel, fully qualified in planning and scheduling to provide services from start of construction to Final Certificate, including Commissioning.

1.06 WORK BREAKDOWN STRUCTURE (WBS)

.1 Prepare construction Work Breakdown Structure (WBS) within 5 working days of Award of Contract date.

.1 Develop WBS through at least five levels: project, stage, element, sub-element and work package.

1.07 PROJECT MILESTONES

.1 Completion of the work shall not extend the number of weeks identified in Section 01 00 10 General Instructions, Scheduling.

.2 Mandatory and recommended project milestones form targets for both Master Schedule and Detail Schedule of CPM construction network system.

.1 Mandatory: Mobilization.
.2 Mandatory: Dismantling of exterior porch and entrance enclosures
.3 Mandatory: Mandatory: openings weatherproofed.
.4 Mandatory: Construction of exterior porch, ramp and rear entrance
.5 Mandatory: in-situ work completed.
.6 Mandatory: shop work completed.
.7 Mandatory: work completed.
.8 Mandatory: De-mobilization.
.9 Mandatory: interim Certificate (substantial completion).
.10 Mandatory: final Certificate completion.

1.08 MASTER SCHEDULE

.1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.

.2 Prepare comprehensive construction Master Schedule (CPM logic diagram) and dependent Cash Flow Projection within 5 working days of finalizing Agreement to confirm validity or alternates of identified milestones.

.1 Master Schedule will be used as baseline.

.1 Revise baseline as conditions dictate and as required by Departmental Representative.

.2 Departmental Representative as Project progresses will review and return revised baseline within 5 working days.

.3 Reconcile revisions to Master Schedule and Cash Flow Projections with previous baseline to provide continuous audit trail.

.4 Initial and subsequent Master Schedule will include:

.1 CD containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.
.2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.
.3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.
.4 Actual/projected monthly cash flow: expressed monthly and shown in both graphical and numerical form.

1.09 DETAIL SCHEDULE

.1 Provide detailed project schedule (CPM logic diagram) within 5 working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:

.1 Submittals.
.2 Shop Drawings.
.3 Samples.

.4 Mockups.

.5 Approvals.

.6 Removals.

.7 Protection.

.8 Testing.

.9 In-situ work.

.10 Shop work.

.11 Acceptance.

.2 Detail CPM schedule to cover in detail minimum period of 6 months beginning from Award of Contract date.

.1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.

.2 Detail activities completely and comprehensively throughout duration of project.

.3 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Schedule.

.4 Clearly show sequence and interdependence of construction activities and indicate:

.1 Start and completion of all items of Work, their major components, and interim milestone completion dates.

.2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:

.1 Time for submittals, resubmittals and review.

.2 Time for fabrication and delivery of manufactured products for Work.

.3 Interdependence of procurement and construction activities.

.3 Include sufficient detail to assure adequate planning and execution of Work.

.5 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.

.6 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path". Increased number of critical activities is seen as indication of increased risk.

.7 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

1.10 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

.1 Allow 5 working days for review by Departmental Representative of proposed construction Detail Schedule.

.2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 5 working days.

.3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.

.4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.11 COMPLIANCE WITH DETAIL SCHEDULE

.1 Comply with reviewed Detail Schedule.

.2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after written receipt of approval by Departmental Representative.

.3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.

.1 Corrective measures may include:

.1 Increase of personnel on site for effected activities or work package.

.2 Increase in equipment.

.3 Overtime work Additional work shifts.

.4 Submit to Departmental Representative, justification, project schedule data and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:

.1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.

.2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.

.3 Other supporting evidence requested by Departmental Representative.

.4 Do not assume approval of Contract extension prior to receipt of written approval from Departmental Representative.

.5 In event of Contract extension, display in Detail Schedule that scheduled float time available for work involved has been used in full without jeopardizing earned float.

.1 Departmental Representative will determine and advise Contractor number of allowable days for extension of Contract based on project schedule updates for period in question, and other factual information.

.2 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

1.12 PROGRESS MONITORING AND REPORTING

.1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.

.2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.

.3 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.

.4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.

.5 Submit to Departmental Representative copies of updated Detail Schedule.

.6 Requirements for monthly progress monitoring and reporting are basis for progress payment request.

.7 Submit monthly written report based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:

.1 Description of progress made.

.2 Pending items and status of: permits, shop drawings, change orders, and possible time extensions.

.3 Status of Contract completion date and milestones.

.4 Current and anticipated problem areas, potential delays and corrective measures.

.5 Review of progress and status of Critical Path activities.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 ADMINISTRATIVE

.1 Submit to Departmental Representative a log of submittals for review prior to the start of work. Update submittal log and submit to Departmental Representative 24 hours before each bi-weekly Project Meeting.

.2 Within 10 days after date of award of contract, submit list of submittal items. Include:

.1 Project title and number.

.2 Expected date of submittal item.

.3 Description of items to be submitted; e.g.: shop drawings, test reports, samples.

.4 Specification section number/title.

.3 Submit to Departmental Representative submittals 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.

.4 Do not proceed with Work affected by submittal until review is complete.

.5 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.6 Where items or information is not produced in SI Metric units converted values are acceptable.

.7 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.

.8 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.9 Verify field measurements and affected adjacent Work are co-ordinated.

.10 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.11 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.12 Keep one reviewed copy of each submission on site.

1.02 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, 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 5 working 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, Submissions without transmittal letters will be returned without being examined and must be considered rejected. Include:

.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 3 prints and one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit 3 prints and one electronic copy 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 prints and one electronic copy 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 3 years of date of contract award for project.

.13 Submit 3 prints and one electronic copy 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 3 prints and one electronic copy of manufacturer’s 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 3 prints and one electronic copy 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 3 prints and one electronic copy 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 is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that the Departmental Representative 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.

1.03 SAMPLES

.1 Submit for review samples in duplicate 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.

1.04 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Departmental Representative as specified in specific Section.

.3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups 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.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

1.05 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic copy of colour digital photography in jpg format, fine resolution, organized by date, monthly with progress statement and as directed by Departmental Representative.

.1 Photograph quality: well-illuminated, proper exposure, sharply focused, free of glare and motion blur.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Number of viewpoints: 2 locations.

.1 Viewpoints and their location as determined by Departmental Representative.

.4 Frequency of photographic documentation: weekly as directed by Departmental Representative.

.1 Provide a minimum twenty (20) photographs daily of the progress of work.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Safety Data Sheets (SDS).

.3 Province of Ontario

.1 Occupational Health and Safety Act for Construction Projects, R.S.O. 1990, c. 0.1, as amended and O. Reg. 213/91, as amended.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan in an indexed three ring binder: 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 3 prints and one electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative and or authority having jurisdiction, weekly.

.4 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS SDS – Safety Data Sheets to Departmental Representative for all products that will be used during construction. Identify any hazardous products and odour emitting products at time of submission.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 working days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 3 days after receipt of comments from Departmental Representative. Once revisions complete the Health and Safety Plan binder will be returned to the Contractor for site use.

.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.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

.11 Submit proof of training and qualifications of personnel, and alternates, responsible for site health and safety including, but not limited to, the following:

.1 Requirements for hazards present on site.

.2 Training for use of personal protective equipment.

1.03 FILING OF NOTICE

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

1.04 SAFETY ASSESSMENT

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

1.05 MEETINGS

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

1.06 PROJECT/SITE CONDITIONS

.1 Work at site may involve contact with:

.1 Silica.

.2 Lead.

.3 Asbestos.

.2 Refer also to Section 01 35 43 – Environmental Protection.

1.07 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

.3 The contractor will be unable to request extra funding to meet environmental requirements. It is the Contractor's responsibility to be aware of environmental requirements and the best management practices and pollution control measures necessary to meet them.

1.08 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 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.3 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.

1.09 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Health and Safety Act and Regulations for Construction Projects, O. Reg. 213/91.

.2 Comply with NBC 2010 (Part 8, Safety Measures at Construction and Demolition Sites.)

.3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

.4 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and the provision of Safety Data Sheets (SDS) acceptable to Human Resources Development Canada, Labour Program.

1.10 UNFORSEEN HAZARDS

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

1.11 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have minimum 2 years' site-related working experience specific to activities associated with hazardous materials.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.12 POSTING OF DOCUMENTS

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

1.13 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.

1.14 POWDER ACTUATED DEVICES

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

1.15 BLASTING

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

1.16 WORK STOPPAGE

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

.2 Assign responsibility and obligation to Health and Safety Officer to stop or start Work when, at Health and Safety Officer's discretion, it is necessary or advisable for reasons of health or safety. Owner’s Representative or Consultant may also stop Work for health and safety considerations.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.1 Federal

.1 Statutes of Canada 1999 Chapter 33. "Canadian Environmental Protection Act 1999".

.2 "Transportation of Dangerous Goods Act" and pursuant regulations.

.3 Revised Statutes of Canada 1985, Chapter F-14. Fisheries Act

.2 Provincial

.1 Ministry of Labour. 2011. Guideline: Lead on Construction Projects.

.2 Statutes of Ontario 2000, Chapter 16. "*Technical Standards and Safety Act, 2000*" and pursuant regulations, codes, and standards.

.3 Revised Statutes of Ontario 1990, Chapter E.19. "*Environmental Protection Act*".

.4 Revised Regulations of Ontario 1990, Regulation 347 "*General—Waste Management".*

.3 Municipal & Base Standing Orders

.1 City of Markham Municipal Sewer Use By-Law.

.4 Designated Substances Report

.1 Designated Substances and Hazardous Materials Survey, PIN 614124 for 10725 Reesor Road, Markham, Ontario.

1.02 SUBMITTALS

.1 An Environmental Protection Plan to include the following:

.1 Spill Response Plan;

.2 Waste Transmittals and Transport Schedule;

.3 Hazardous Materials Management Plan;

.4 Erosion and Sediment Control Plan.

1.03 DESIGNATED SUBSTANCES

.1 In accordance with Section 30 of Ontario's *Occupational Health and Safety Act*, following is a list of designated substances present at the project site:

.1 Silica.

.2 Lead.

.3 Asbestos.

.2 Disturbances of lead-containing mortar must comply with measures and procedures for working with lead as detailed by the Ontario Ministry of Labour Guideline: Lead on Construction Projects (April 2011).

1.04 GENERAL

.1 Comply with all federal, provincial, and municipal regulatory requirements and guidelines for environmental protection and natural resource conservation, including the References noted above.

.2 The Work site is subject to inspection by the Departmental Representative, without prior notice.

.3 Failure to comply with environmental requirements may result in a stop work order or assessment of damages commensurate with repair of damage.

.4 The Contractor will be unable to request extra funding to meet environmental requirements.

.5 It is the Contractor's responsibility to be aware of environmental requirements and the best management practices and pollution control measures necessary to meet them.

.6 Blasting is not permitted.

1.05 FIRES

.1 Fires and burning of rubbish are not permitted.

1.06 DISPOSAL OF WASTES – GENERAL

.1 Refer to Section 01 00 10 – General Instructions, Waste Management and Disposal.

1.07 HAZARDOUS MATERIALS MANAGEMENT

.1 Submit a hazardous materials management plan ("the Plan") to the Departmental Representative before construction work begins at the site.

.2 The Plan is to encompass both hazardous materials used in the course of the work, and hazardous materials waste.

.3 The Plan is to comply with legislation, best practices, and with the requirements of the specifications.

.4 Provide evidence in the Plan that all proposed transport methods, temporary storage procedures, and disposal sites are licensed where applicable.

.5 Include copies of licenses.

.6 The Plan is to include handling, storage, transportation, disposal, and emergency response. Specific minimum requirements to be addressed are listed below.

.1 Handling:

.1 All waste products will be placed in suitable containers and labeled clearly.

.2 Waste products are to be segregated by commodity and placed in separate containers based on class.

.3 Similar waste products are not to be mixed together without prior approval from the Departmental Representative.

.4 Waste products are not to be contaminated with foreign materials such as cigarette packages, coffee cups etc.

.2 Storage:

.1 Store all petroleum, oil, lubricants, and other hazardous materials within secondary containment, or in an appropriate storage building with containment.

.2 Store incompatible materials separated to prevent reaction.

.3 Transportation:

.1 Transportation of hazardous material must be in accordance with the *Transportation of Dangerous Goods Act*, by a licensed hauler and in approved containers.

.4 Disposal:

.1 Shipments that are hazardous waste require a generator number pursuant to Ontario Regulation 347.

.1 Coordinate with Departmental Representative so that shipments are reviewed and documented.

.2 Provide copies of all manifests to the Departmental Representative.

.3 Notify Departmental Representative 5 days prior to the transport of hazardous materials off site.

.5 Dispose of leachate toxic lead-based paint as hazardous materials complying with legislation on transport and disposal.

.7 Disposal to Sewers:

.1 Disposal to sewers is not permitted.

.8 Liquid Spill Response

.1 Emergency Response:

.1 Establish and submit a spill response plan.

.2 With respect to liquid spills, provide enough on-site equipment to control for one hour a liquid spill of 100% of any material brought on to—or handled at—the site.

.3 The minimum typical on-site spill response equipment required to include spill kit in on-site vehicles and machinery, absorbent pads, absorbent granular, garbage bags and shovels.

.4 In the event of a spill, invoke Contractor’s spill response plan and make notifications.

.5 In the event of a spill into the natural environment, do everything practicable to prevent, eliminate, and ameliorate adverse effects, and to restore the natural environment.

.6 Emergency response planning is to include measures to escalate the response in the event of an emergency that exceeds on-site equipment capabilities.

.2 Prior to starting work, provide to the Departmental Representative an inventory of hazardous material to be brought to the site, including volume or mass, and Material Safety Data Sheets (MSDS).

1.08 DRAINAGE

.1 Establish and submit to the Departmental Representative an erosion and sediment control (ESC) plan prior to work on-site.

.1 Erosion and Sediment Control Plan to identify type and location of erosion and sediment controls to be provided. Include monitoring and reporting requirements to ensure that control measures are in compliance with ESC Plan, Federal, Provincial, and Municipal laws and regulations

.2 Comply with the requirements of Ontario Provincial Standard Specification 805 “Construction Specification for Temporary Erosion and Sediment Control Measures”, with the exception that berm barriers are not permitted.

.3 Store any stock piles of soil or fill material at least thirty metres from the water bodies, and protect them with either a heavy duty or light duty sediment barrier constructed in accordance with Ontario Provincial Standard Specification 805 “Construction Specification for Temporary Erosion and Sediment Control Measures”, with the exception that berm barriers are not permitted.

1.09 PROTECTION OF STORM DRAINS

.1 Protect storm drains against entry by sediment, debris, oil, or chemicals prior to any work on-site and maintain until completion of work.

1.10 POLLUTION PREVENTION – GENERAL

.1 If materials are to be transported between sites, prevent any loss of material during transit.

.2 Cover or wet down dry materials or rubbish to prevent blowing dust and debris.

.1 Cover or otherwise contain loose materials that have potential to release airborne particulates during their transport, installation or removal.

.3 Secure covers on waste bins and dumpsters at the end of each working day so as to prevent unauthorized use.

.4 Secure covers on waste bins and dumpsters so as to shed rain.

1.11 POLLUTION PREVENTION – AIR

.1 Prevent material from sandblasting, saw-cutting, and other operations from contaminating air beyond application area, by providing temporary enclosures.

.2 Use new or well-maintained heavy equipment and machinery, preferably fitted with muffler/exhaust system baffles, engine covers.

.3 Comply with operating specifications for heavy equipment and machinery.

.4 Minimize the operation and idling of vehicles, and avoid operating and idling vehicles and gas-powered equipment during smog advisories.

.5 Control emissions from equipment and plan to conform to federal, provincial, and municipal requirements.

1.12 INFORMATION PLACARDS

.1 These requirements apply to all Contractor-controlled tanker-type vehicles, trailers, bulk containers, or similar, containing liquids whether hazardous or not.

.2 Display an information placard on all such material and equipment containing liquid products that will be located overnight or longer on property. Provide the following:

.1 Contractor's name and address.

.2 Contact person and emergency telephone numbers.

.3 Liquid contents.

.3 Post the information placard either on the exterior of the container, or on the dashboard of the vehicle, where applicable.

1.13 NOISE

.1 Refer to Section 01 14 00 – Work Restrictions.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 PRODUCTS

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 RELATED SECTIONS

.1 Section 01 00 10 – General Instructions

.2 Section 01 14 00 – Work Restrictions

.3 Section 01 33 00 – Submittal Procedures.

.4 Section 01 51 00 - Temporary Utilities.

.5 Section 02 41 13 – Selective Site Demolition.

1.02 REFERENCES

.1 National Fire Protection Association (NFPA), latest edition

.1 NFPA 241 - Standard for safeguarding Construction, Alteration, and Demolition Operations.

.2 Canadian Standards Association (CSA International), latest editions

.1 CAN/CSA-S350- Code of Practice for Safety in Demolition of Structures.

.2 CSA O80.20, Fire-Retardant Treatment of Lumbering Pressure Processes.

.3 CSA O80.27, Fire-Retardant Treatment of Plywood by Pressure Processes.

.3 Human Resources and Skills Development Canada.

.1 FC 301 Standard for Construction Operations

.2 FC 302 Standard for Welding and Cutting.

.4 Parks Canada, latest edition

.1 Standards and Guidelines for the Conservation of Historic Places in Canada, published by Parks Canada.

1.03 PERFORMANCE REQUIREMENTS

.1 The Contractor is responsible for any damage to or loss of Heritage Materials and Finishes occurring as a result of site, handling, transport and storage activities.

.2 Ensure materials, equipment and procedures safely support existing structure and construction live loads;

.3 Apply methods that minimize the risk of damage to Heritage Materials and Finishes.

.4 All methods and techniques utilized in the protection of heritage material, or materials that may have an impact on heritage materials, must conform to Heritage Protection requirements of this Section.

1.04 DEFINITIONS

.1 Heritage Materials: Existing materials within scope of work deemed essential to the heritage value of the building. These include, but are not limited to:

.1 Exterior Materials

.1 Wood trimwork and frames

.2 Existing wood porch

.2 Heritage Materials: Existing materials not within scope of work, but deemed essential to the heritage value of the building. These include, but are not limited to:

.1 Existing house form

.2 Existing brick chimney, brick cladding and stone foundations

.3 Non-heritage materials: Existing materials that are not essential to the heritage value of the building, but are part of the materials that require protection. These include, but are not limited to:

.1 None.

1.05 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 – Submittals Procedures.

.2 Submit detailed plans, sections and details of protective barrier assemblies. Show both typical and atypical configurations.

.3 Identify each assembly and locate all items in plan drawings.

.4 Submit Product data specifications for fasteners, waterproofing and soft padding materials used in barrier assemblies.

1.06 PROCEDURES

.1 Submit detailed demolition procedures indicating tools used inside or near heritage areas. Describe additional measures to be implemented to ensure vibration control and protection of heritage fabric.

.2 Submit plan describing procedures to be followed in the event that undocumented or concealed heritage materials systems are discovered.

1.07 MOCK-UPS

.1 Erect mock-ups in-situ for protective measures for each condition containing heritage elements and materials to be protected.

1.08 EXISTING CONDITIONS

.1 Refer to Drawings showing existing conditions.

.2 Before starting work, verify existing conditions and variations from original contract documents and notify Departmental Representative of any discrepancy. Refer also to Section 02 41 13 – Selective Site Demolition.

1.09 SCHEDULING

.1 Submit schedule of activities, showing dates and estimated duration to Departmental Representative as per Section 01 32 16 Construction Progress Schedule.

.2 Heritage Protection may be required at different times for different areas. Inform the Departmental Representative in a timely manner of upcoming milestone reviews as identified in the schedule and work plans.

.3 Once pre-demolition protective measures are completed, advise the Departmental Representative and schedule a visit of the heritage areas and associated facilities for review.

.4 Unless otherwise indicated, all protective barriers shall remain in place for duration of the Contract.

.5 During the course of the contract, allow for the temporary removal and reinstatement of Heritage Protection as required.

.6 When work of the Contract is deemed sufficiently complete by Departmental Representative, carefully remove protective barriers for final review. Ensure that all barriers are removed and that view of all previously concealed materials is unobstructed before advising Departmental Representative to begin review.

1.10 QUALITY ASSURANCE

.1 Perform work in accordance with The Standards and Guidelines for the Conservation of Historic Places in Canada, published by Parks Canada.

.2 Contractor: a company with minimum five (5) years successful performance in heritage conservation work similar to that specified for this project.

.3 Workers Abilities:

.1 Work shall be performed by personnel having a minimum of five (5) years recent experience with heritage restoration work of the type specified and displaying appropriate abilities as demonstrated through mock-ups.

.2 Workers shall be specialized in techniques related to the type of heritage material involved.

.3 Unless specifically permitted by the Departmental Representative, only accepted procedures and the personnel that performed them during the mock-ups may be utilized to do that procedure throughout the duration of the project.

.4 No approved specialized workers shall be changed during the progress of the work without written acceptance by the Departmental Representative.

.5 Workers may be trained to perform new tasks, subject to the approval of the Departmental Representative, following additional procedural mock-ups.

.4 Accepted mock-ups must be maintained, and remain accessible throughout and for the duration of the project. Accepted mock-ups may become part of the final work.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Ensure that materials used in exterior barriers conform to Section 01 50 0 – Scaffolding and Enclosures.

.2 Material grades – general

.1 Conform to material grades prescribed in the following paragraphs for protective barriers.

.2 Lumber: spruce, pine or fir to CAN/CSA-O141, NLGA #2 grade, S4S, moisture content 19% (S-dry) or less. Where pressure treated lumber is required, treat lumber with Alkaline Copper Quaternary to CSA O80-Series.

.3 Plywood: exterior grade softwood plywood to CSA O151, thickness as indicated. Where pressure treated plywood is required, treat plywood with Alkaline Copper Quaternary to CSA O80-Series.

.4 Acceptable dust, dirt, liquid barriers, including:

.1 Vapour-permeable sheeting: made with flashspun high-density polyethylene fibers.

.2 6 mil clear construction grade polyethylene film.

.3 Polyethylene fastening tape compatible with sheeting.

.5 Acceptable soft padding:

.1 Compressible polychloroprene rubber, minimum 25 mm.

.2 Polychloroprene rubber foam sheeting, 13 mm thickness.

.3 Resilient medium-density closed-cell Polyethylene foam sheeting

.4 Low-density extruded polystyrene, minimum 25 mm.

.6 Accessories:

.1 Use only low impact and low vibration fasteners, including bolts with nuts and washers, wood screws, liquid adhesives, adhesive strips or tapes and removable, non-residue adhesive strips and tapes.

.2 No high impact attachment systems are permitted, including spikes, nails, staples, explosive actuated fastening devices and masonry anchoring fastener systems.

.7 Conform to material grades prescribed in the following paragraphs for crating.

.1 Lumber: spruce, pine or fir to CAN/CSA-O141, NLGA #2 grade, S4S, moisture content 19% (S-dry) or less.

.2 Plywood: exterior grade softwood plywood to CSA O151, thickness as indicated.

.3 Soft padding: Heavy craft paper and resilient medium-density closed-cell polyethylene foam sheeting

.4 Low-density extruded polystyrene, minimum 25 mm.

.5 Use only low impact and low vibration fasteners, including bolts with nuts and washers, wood screws and removable non-residue adhesive strips and tapes.

.8 Component tags: sheet brass tag with hole at one end, punched with identification number corresponding to labelling method and secured with 300 Series stainless steel wire.

PART 3 EXECUTION

3.01 PROTECTIVE MEASURES – GENERAL

.1 Provide protective measures for any and all heritage conditions.

.2 Anchoring or attachment to historic materials:

.1 The use of any mechanical fasteners into or onto any heritage material is prohibited.

.2 In the event that dust, dirt, and liquid barriers require attachment to historic materials, only non-permanent removable, non-residue adhesive tapes may be used on the heritage material.

.3 No other attachments to historic materials are permitted.

.3 Heritage materials are sensitive to humidity and temperature variations. Maintain an interior and attic space minimum temperature of 15C with a minimum humidity level of 30% in winter and a maximum humidity level of 60% in summer.

3.02 PROTECTIVE MEASURES – EXTERIOR

.1 Direct attachment of barriers, construction lifts, scaffolds, and debris chutes to the exterior cladding or other heritage materials or construction is prohibited.

.2 Passage of materials and construction debris through windows and other openings in the masonry-clad facades is not allowed.

.3 Provide barriers in all locations where exterior walls may be damaged by normal site activities.

.4 Scaffold netting shall be tightly fastened to scaffolds

.1 Resilient and sturdy enough to prevent tools and workers from accidentally damaging the protected masonry façade.

.2 Woven tightly enough to prevent passage of small tools and material fragments.

3.03 ARCHAEOLOGY MITIGATION MEASURES

.1 Construction lay-down areas are to remain within the previously disturbed areas – in this case, the pathways.

.2 Directional boring is the preferred method for installing the new utility

.3 No additional excavations are allowed outside of the indicated route, as reviewed, for the utility line.

.4 Chance Find clause:

.1 Archaeological testing is by its nature “sampling” (i.e., not 100% coverage). There is a chance, however low, that features and/or artifact concentrations may be encountered post-archaeological-testing. If significant features (e.g., structural remains and/or high artifact concentrations) are encountered, development work should stop in this immediate area, photographs taken, and the Parks Canada project manager informed. The project manager will then contact Parks Canada’s Terrestrial Archaeology section for advice. An assessment of the significance will determine what will be required to mitigate the chance find.

3.04 PROTECTIVE BARRIERS

.1 Final design of protective barriers is the responsibility of the Contractor and is subject to review by the Departmental Representative.

3.05 DOCUMENTATION

.1 Photographic Record: Prior to any work involving heritage materials, photograph them as per Section 02 41 13 – Selective Site Demolition and as follows:

.1 General view of the work.

.2 Detail shots of each heritage item showing condition and appearance at commencement of work. Item shall be photographed to show all sides.

.3 The location of each item shall be identified in writing on the photograph.

.4 Photograph quality: Well-illuminated, proper exposure, free of glare and motion blur. And produced using high-resolution digital equipment.

.5 Provide copies of photographs to Departmental Representative. Include copy of photographs on portable digital storage media. Minimum 9 megapixel quality, JPEG format.

.6 Submit typical photographic sample format to Departmental Representative for review, prior to commencement of Work.

.2 When heritage materials must be transported to contractor's shop, label and photograph all Heritage Materials prior to their removal. The labelling method shall be sufficiently clear to allow future reinstallation. In addition to numbering, labelling shall identify the following information:

.1 Location of origin;

.2 N/S/E/W elevation;

.3 Vertical orientation;

.4 Specifics (as applicable);

.5 Open a condition assessment log recording the general condition of each individual Heritage Material. Note any irregularities using the Condition Assessment Form template appended to this section. Sheets shall be assembled in a binder and submitted in 3 copies to the Departmental Representative.

.6 Keep an inventory of removed items using the Inventory Form template appended to this section. Attach a corresponding inventory form to each crate in a transparent plastic sleeve. 3 copies of all sheets shall be assembled in binders and submitted in to the Departmental Representative.

3.06 PACKING AND CRATING

.1 Pack existing heritage materials as follows:

.1 Label each component to be removed for restoration using brass tags with stainless steel tie wires on each component being disassembled. Do not use aluminum. If tags cannot be used, place in an approved container and tag container.

.2 Wrap with heavy craft paper or polyethylene foam sheeting and crate as follows.

.3 Construct crates with lumber and plywood to suit component sizes. Crates shall be designed to be lifted and handled by no more than two persons and to be stored in horizontal position. Line crates with 25 mm thick polystyrene foam to avoid impact damage.

.4 Clearly label and identify each crate.

.5 Handle crates with care; do not drop or damage packing and crating during transport.

.2 Transport crates to shop for restoration.

3.07 PREVENTION OF WATER / LIQUID / PARTICULATE DAMAGE

.1 Maintain proper water-shedding conditions at all times to ensure that rainwater does not infiltrate inside the building.

.2 Provide waterproofing sheeting and wrapping to cover heritage materials including all walls so as to protect them during the plaster consolidation and repair scope. Attach sheeting to walls with non-residue adhesive tape.

.3 Provide waterproofing sheeting and wrapping to cover heritage materials so that in the event that failed or damaged mechanical equipment, equipment being dismantled and removed, or any other demolition or abatement procedure does not cause liquids and/or allow particulates and/or airborne humidity or airborne particulates to come into contact with the heritage materials.

.4 Water or any aqueous mixtures may produce significant damage to heritage items. Protect heritage items to remain in place from all contact with water or other aqueous mixture.

.5 Wrap, cover and protect all millwork, doors and trims, windows and trims, baseboards, fireplaces, staircases, balustrades and other heritage materials with padding and waterproof sheeting prior to the commencement of the work. Maintain the protection for the duration of the work.

.6 Protect all heritage materials from impact damage during the floor removal and reinstallation process.

.7 Protect all heritage materials along all paths of travel within the building, including light fixtures.

3.08 UNKNOWN HERITAGE MATERIALS

.1 If undocumented or concealed materials or systems which are potentially heritage in nature are discovered anywhere within the building inside or outside of identified areas, cease demolition activities in the immediate vicinity, tape off and protect the items, materials, and systems, and alert the Departmental Representative immediately. Areas similar in nature under which similarly undocumented or concealed materials or systems could exist shall also be immediately identified by the Contractor so that advancing demolition is aware of the potential hidden items.

END OF SECTION

HERITAGE INVENTORY FORM

N.B.: In addition to this form, fill out condition assessment form for each element identified in this list. Identification crate number and identification label must be consistent.

CRATE NUMBER

Label	Removed By (initials)	Packed By (initials)	Date of removal (DD/MM/YY)

Notes:

HERITAGE CONDITION ASSESSMENT FORM

ITEM NUMBER: **CRATE NUMBER:** **LABEL:**

Chipping				
Dents				
Breakage				
Rust				
Other (Specify)				

Notes:

PART 1 GENERAL

1.01 SUMMARY

.1 Section Includes:

.1 This Section provides requirements to work such as modular scaffolds and fabric enclosures and applies to all scaffolding to be installed throughout the site.

1.02 RELATED SECTIONS

.1 Section 01 35 91 – Heritage Protective Measures.

.2 Section 01 35 92 – Heritage Standards and Definitions.

.3 Section 01 50 00 – Temporary Facilities and Control.

.4 Section 02 41 13 – Selective Site Demolition

.5 Section 04 05 10 – Heritage Common Work Results for Masonry.

1.03 REFERENCES

.1 Occupational Health and Safety Act (OHSA)

.1 Ontario Regulation 213/91 for Construction Projects.

1.04 INSTALLATION AND REMOVAL

.1 Provide construction facilities in order to execute work expeditiously.

.2 Coordinate with governing authorities and obtain required permits.

.3 Remove from site all such work after use.

1.05 FUNCTIONAL REQUIREMENTS

.1 Provide all necessary hoists for work.

.2 Locate hoists where directed by Departmental Representative.

1.06 DESIGN CRITERIA

.1 Scaffolding and scaffold enclosures shall be designed and certified by a Professional engineer, retained by contractor and licensed in the Province of Ontario. The same Professional engineer must approve, in writing, additions or modifications to scaffolding.

.1 Scaffold and enclosure must be built to withstand all wind, rain and snow loads applicable to construction site in accordance with NBC, latest edition and OBC, latest edition.

.2 Scaffold may be loaded up to 2.40 kPa. No more than 5 (five) working levels shall be loaded at one time.

.2 Where scaffolding must be supported by existing structures, the condition and capacity of the existing structure should be reviewed by a Professional engineer, retained by contractor and licensed in the Province of Ontario, to complete scaffolding design.

1.07 GENERAL REQUIREMENTS FOR SCAFFOLDING

.1 Provide scaffolding as defined in this Section.

.2 Power elevated work platforms are not acceptable.

.3 Design scaffolds as follows:

.1 Platforms shall be prefabricated clip platforms, planks are not permitted.

.2 Scaffolds shall be built of modular parts whenever possible.

.3 Scaffold accessories including braces and jackscrews shall be compatible with the capacity of frames.

.4 Provide internal horizontal x-bracing at all planking levels.

.5 Platforms shall be wide enough to circulate and temporarily store masonry units.

.6 Platforms shall be designed to support extra loads of removed masonry units.

.7 Provide steel guardrails, including toe boards, intermediate rails and handrails, at perimeter and around openings of all work platforms.

.8 Scaffold design and erection shall be in accordance with the “Occupational Health And Safety Act” and “Regulations For Construction Projects”, and relevant municipal, provincial and federal regulations.

.4 Scaffolding shall be tied back to the masonry using push-pull ties. Scaffolding shall be isolated from masonry with 12 mm thick rubber or neoprene pads. Show all anchor locations and ties on shop drawings; Departmental Representative shall review anchor locations prior to installation.

.1 Anchoring into Heritage Materials (i.e. exterior masonry) shall conform to requirements of Section 01 35 91. Anchoring may only be located in mortar joints as indicated.

.5 Scaffold roofs shall be waterproof and meet Design Criteria.

1.08 GENERAL REQUIREMENTS FOR ENCLOSURES

.1 Fabric enclosure must be in place throughout construction. Netting around scaffold is not permitted, unless otherwise noted or directed by Departmental Representative.

.2 Cold season, defined for the purposes of this contract as the period starting October 15th and ending March 31st. Provide continuous heating, ventilation and humidity control within the fabric enclosure during this period as specified in Section 04 05 10 – Common Works for Masonry.

.3 All gaps in the scaffold fabric enclosure must be sealed in such a way to shield the interior from precipitation, wind and cold air. Temporary openings for the purpose of passing materials and providing natural ventilation are permitted but must not compromise the scaffold and fabric’s capacity to withstand loads as defined above.

1.09 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

.2 Submit for review shop drawings of scaffold and weather enclosure system including:

.1 Scaffold assembly drawings.

.2 Scaffold anchoring;

.3 Enclosure fabric with fastening and support system;

.4 Waterproofing details for scaffold roof, including water management.

.5 Protection details where scaffolding is adjacent to or in contact with heritage fabric.

.6 Indicate on drawings distance from platforms to wall surface to be worked on.

1.10 MOCK-UPS

.1 Construct mock-ups as follows.

.2 Provide mock-ups showing assembly of scaffold and enclosure at location and to extent required by Departmental Representative.

.3 Mock-ups shall include scaffolding, platforms, anchoring, enclosures, safety netting and scaffold roof.

.4 Departmental Representative reserves the right to have additional mock-ups prepared to suit Project conditions.

.5 Allow three (3) working days for inspection of mock-ups by Departmental Representative before proceeding with work.

PART 2 PRODUCTS

2.01 TUBULAR SCAFFOLD

.1 Tubular scaffold, scaffold bridge, stair, side brackets, work platforms, guardrails, barricades, and other accessories shall be an engineered type modular tubular scaffold system.

.2 Complementary 50 mm diameter tube and clamp assemblies may be used where structural reinforcement is required and/or irregular geometry prevents use of modular parts.

.3 All components shall be hot dip galvanized steel.

.4 Platforms shall be clip type prefabricated platforms; wood planks are not permitted.

2.02 FABRIC ENCLOSURE

.1 Fabric: scrim design, woven from high density polyolefin slit tapes, containing flame retardant and ultra-violet stabilizers. Fabric to be free from plasticizers and chlorine.

.2 Fabric to include an engineered coating to provide resistance to tears and punctures, ultra-violet light and low temperatures. Fabric to be inert to most chemicals and liquids.

.3 Fabric to have the following minimum properties:

.1 Weave count: Woven clear HDPE scrim using natural FR/U tapes

.2 Scrim weight: 407 g/m^2.

.3 Coating thickness: LDPE, 4 mil average each side (95g/m^2/side)

.4 Total thickness: 0.59 mm to ASTM D1777

.5 Grab tensile: Warp 1598 N x Weft 1555 N to ASTM D-5034-09

.6 Strip tensile: Warp 2444 N/5cm x Weft 2222 N/5cm to ASTM D-5035-11

.7 Tongue tear: Warp 533 N x weft 533 N to ASTM D-2261-07a

.8 Trapezoidal tear: Warp 444 N x Weft 400 N to ASTM D-4533-04(2009)

.9 Mullen burst: 4657 kpa to ASTM D-3786-09

.10 Max. operating temperatures:-50 to +70 deg. C.

.11 UV resistance: >90% to ASTM G154-06.

.12 Flame resistance to CAN/ULC-S109-M87 (R2001) - Flame tests of flame-resistant fabrics and films.

.13 Colour: white

2.03 FABRIC ENCLOSURE SUPPORT SYSTEM

.1 Extruded aluminium track supports: installed vertically at 3600mm c/c spacing maximum. Tracks are attached to horizontal ledgers of tubular scaffold system with galvanized steel tube clamps compatible with scaffold system.

.2 Install clamp supports at locations and intervals to optimally resist wind loads as defined by performance criteria and indicated on shop drawings.

.3 Fabric locked into aluminium tracks with continuous nylon ropes inserted into sewn or welded continuous flaps on long edges.

2.04 ACCESSORIES

.1 Anchoring into Heritage Materials: as specified in Section 01 35 91 – Heritage Protective Measures.

.2 Spacers and protection pads: rubber or neoprene spacers: 12 mm thick min.

.3 Pipe fasteners: 3 mm thick min. galvanized steel fasteners designed for 25 mm and for 50 mm exterior diameter tubing.

.4 Debris netting: lightweight high density polyethylene (HDPE) netting with the following properties:

.1 Weight: 135 g/m²

.2 Density: 35%

.3 Tensile strength (MD): 445 N, as per ASTM D751

.4 Tensile strength (CD): 400 N, as per ASTM D751

.5 Trap tear (MD): 156 N, as per ASTM D4533

.6 Trap tear (CD): 120 N, as per ASTM D4533

.7 FR performance: Pass NFPA 701 Method 2

.5 Fabric finishing tape: Water-resistant, one-sided polyethylene tape with synthetic rubber adhesive, color to match enclosure fabric.

.1 Use to splice loose ends only in non-structural applications.

2.05 ROOF

.1 Structure and deck: designed to meet Design Criteria and general requirements.

.2 Deck: smooth and continuous to receive waterproofing.

.3 Roof waterproofing system: self-adhesive modified bituminous membrane to CAN/CGSB-37-GP-56M – Membrane, Modified, Bituminous, Prefabricated and

Reinforced for Roofing or other waterproofing system approved by Departmental Representative.

.4 No insulation is required for roofs.

PART 3 EXECUTION

3.01 INSTALLATION

.1 A competent worker shall supervise erection of the scaffold.

.2 Professional engineer that prepared shop drawings shall inspect the scaffold before it is used to ensure that it is erected in accordance with design drawings.

.3 Scaffolds:

.1 Install engineered scaffold, stairs and aluminum track system in accordance with approved shop drawings and mock-ups.

.2 Protect Heritage Materials at all times, in accordance with Section 01 35 91. Use rubber spacers between scaffolding and existing Heritage masonry walls.

.4 Enclosure and netting:

.1 Use plastic wrap ties to fasten netting securely to scaffolding.

.2 Fasten netting to Heritage masonry using wood furring, minimum 3 mm thick synthetic rubber pads and anchor in accordance with approved shop drawings and requirements of Section 01 35 91.

.3 Install and fasten enclosure fabric in accordance with the manufacturer’s written requirements. Make good any damage to enclosure. Where fabric is fastened to existing masonry, follow installation procedures set out for netting.

.4 Track supports must maintain fabric taut and provide constant offset from scaffold and scaffold protrusions to prevent tearing.

3.02 REMOVAL

.1 Remove temporary scaffolding and enclosures when directed by Departmental Representative.

.2 Coordinate removal work with Heritage Masonry contractor; have anchor holes repointed as scaffolding is being removed.

.3 Remove temporary work carefully; protect Heritage Materials at all times in accordance with Section 01 35 91 – Heritage Protective Measures.

.4 Leave all areas clean, free of rubbish, tools and extra materials.

END OF SECTION

PART 1 GENERAL

1.01 ACTION AND INFORMATIONAL SUBMITTALS

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

1.02 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove all temporary installations at the end of the work and return the conditions to those that existed prior to undertaking this work of this Contract to the approval of the Departmental Representative.

1.03 INTERRUPTION OF SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services; obtain requisite permission.

.2 Give Departmental Representative 10 working days notice for each interruption of mechanical or electrical service throughout the course of the work. Keep duration of interruption to a minimum. Carry out interruptions during off hours.

1.04 WATER SUPPLY

.1 Departmental Representative will designate the access point and provide continuous supply of potable water for construction use.

.2 Provide temporary lines and related infrastructure as required to bring water from the designated supply point to the Construction site as required for specific construction activities. Pay all associated costs.

.3 Departmental Representative will pay for utility charges at prevailing rates.

.4 Assume that relative humidity levels within the enclosure will follow (within 10% of relative humidity) ambient exterior humidity levels.

1.05 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance and maintenance.

.2 Construction heaters must be vented to outside or be flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.

.2 Protect Work and products against dampness and cold.

.3 Prevent moisture condensation on surfaces.

.4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for safe working environment.

.4 Maintain temperatures in areas where construction is in progress.

.5 Ventilating:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate temporary sanitary facilities.

.5 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.6 Pay costs for maintaining temporary heat.

.7 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform to applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.8 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

.9 Provide and maintain environmental monitoring equipment (temperature and humidity sensors) at curing locations.

1.06 TEMPORARY POWER AND LIGHT

.1 Contractor to provide and pay for temporary power and lighting.

.2 Arrange for connection with City of Markham. Pay all associated costs for installation and maintenance of power supply line from connection point to Construction site. Contractor to pay for all associated costs for temporary power connection.

.3 Provide for temporary lighting and operating of power tools, to a maximum supply of 120 volts 15 amps. Power is not to be used for heavy load items such as temporary heating or cooling.

.4 Provide and maintain temporary lighting throughout project. Pay all associated costs.

1.07 TEMPORARY COMMUNICATIONS FACILITIES

.1 Provide and pay for temporary communication (telephone, fax, data, fire alarm) hook up, lines, equipment necessary for own use.

1.08 FIRE PROTECTION

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

.2 Burning rubbish and construction waste materials is not permitted on site.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 ACTION AND INFORMATIONAL SUBMITTALS

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

1.02 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, 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. Refer to drawings for potential areas for site staging.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.03 SCAFFOLDING

.1 Scaffolding in accordance to CAN/CSA-S269.2.

.2 Provide and maintain scaffolding and enclosures as specified in Section 01 50 01 – Scaffolding and Enclosures.

.3 Provide and maintain scaffolding, ramps, temporary stairs, cranes, aerial man-lifts and ladders.

.4 Lifting devices to be operated by qualified operator.

1.04 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.

1.05 SITE STORAGE/LOADING

.1 Maintain, in clean and orderly condition, exterior storage space assigned by the Departmental Representative. Refer to drawings.

.1 Laydown area as identified to be used for equipment, tool and material storage, including overnight man-lift storage.

.2 Confine work and operations of employees to inside of Construction Site. Do not unreasonably encumber premises with products.

.3 Move stored products or equipment which interfere with operations or other contractors.

.4 Do not load or permit to load any part of Work with weight or force that will endanger Work.

.5 Provide and pay for use and transport of materials to additional storage, or workspace, needed for work.

.6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.06 CONSTRUCTION PARKING

.1 Final locations to be coordinated with Departmental Representative. Refer to drawings for potential locations.

.2 Provide and maintain adequate access to project site.

1.07 OFFICES

.1 No space within building will be provided for a site office. Locate site office within designated site staging area, final locations to be coordinated with Departmental Representative.

.2 Provide marked and fully stocked first-aid case in a readily available location.

.3 Make own arrangements for wireless voice and data communications services.

1.08 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof chests for storage of tools, equipment and materials. Locate as directed by Departmental Representative. Maintain in clean and orderly condition.

1.09 SANITARY FACILITIES

.1 Sanitary facilities will be provided in the adjacent building. Refer to drawings, to be confirmed with Departmental Representative.

1.10 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to the normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to building.

.3 Where security is reduced by work provide temporary means to maintain security. Provide security services contact information to Departmental Representative.

.4 Protect from damage, safety hazards and overloading of existing equipment.

1.11 CONSTRUCTION SIGNAGE

.1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etc.

.2 Provide all signs and notices for safety and instruction in both official languages or by the use of commonly understood internationally accepted graphic symbols to the Departmental Representative's approval.

.3 No signs or advertisements, other than warning signs, are permitted on site.

.4 Maintain approved signs and notices in good condition for duration of project, and dispose offsite on completion of project or earlier if directed by Departmental Representative.

.5 Provide a construction safety board immediately adjacent to each construction access/egress point.

.6 Provide signage to manage occupants inside buildings, pedestrians on sidewalks, and vehicular traffic.

.7 Submit proposed changes to approved locations of signage and contents to Departmental Representative for approval.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.

.2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.

.3 Protect travelling public from damage to person and property.

.4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.7 Dust control: adequate to ensure safe operation at all times.

.8 Lighting: to assure full and clear visibility for work areas during night work operations.

1.13 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

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.02 HOARDING

.1 Provide and maintain temporary hoarding with access points around areas as indicated.

.2 Hoarding must be continuous and act as an anti-climb element.

.3 Erect temporary site enclosures using construction grade lumber framing and exterior grade fir plywood to CSA 0121.

.4 Apply plywood panels vertically as indicated, flush and butt jointed.

.5 Provide drawing details and procedures for site enclosures, directly adjacent to the building and other barriers, in accordance with Section 01 33 00 - Submittal Procedures.

.6 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.03 GUARD RAILS, FENCES AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open edges of roofs, and as required by governing authorities.

.2 Provide guards and protections for existing items inside the Construction site. Maintain for duration of Construction activities and reinstate to previous condition and to approval of Departmental Representative.

.3 All fencing to be self-supported and without ground piercing.

1.04 WEATHER CLOSURES

.1 Provide weather tight closures to exterior door and window openings.

.2 Design enclosures to withstand wind pressure and snow loading.

1.05 TEMPORARY ENCLOSURES

.1 Interior enclosures: erect interior dust-proof temporary enclosures where required. Enclosure to be complete with door, fastenings, lock and two keys for construction, constructed as follows:

.1 38 mm x 89 mm wood framing

.2 One layer of 0.25 mm thick polyethylene, or

.3 Two layers of 0.15 mm thick polyethylene

.4 Erect enclosure to form a dust-proof installation. Install slab door, opening toward the Work, complete with lock.

.2 Establish impervious barriers between occupied and construction areas to prevent dissemination of dust. Gypsum board walls are preferable to taped plastic drapes (which are easily pushed aside) and should extend from floor to ceiling.

.3 Vacuum the attic area, duct work and pipes prior to construction.

.4 Establish traffic control patterns which prevent construction dust from being tracked into occupied areas. Adhesive strips on floors to catch dust on shoes may be useful.

.5 Ventilate construction areas with negative pressure with respect to adjacent areas. Exhaust air from construction areas directly outside the building.

.6 Clean construction areas before occupancy.

.7 Maintain and relocate protection until such work is complete.

1.06 DUST TIGHT SCREENS

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.07 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes during performance of Work.

.2 Provide necessary temporary screens and covers to protect interventions during the progress of work. Install to allow easy access to perform work.

.3 Select appropriate material, and leave in place no longer than required.

.4 Secure protections such that fasteners do not damage the historic fabric. Anchor into existing joints at discretion of the Departmental Representative.

.5 Confirm with Departmental Representative locations and installation schedule three (3) working days prior to installation.

.6 Be responsible for damage incurred due to lack of or improper protection.

1.08 SITE SEPARATION AND IDENTIFICATION

.1 Install proper site separation and identification at all times throughout the life of the project.

.2 When Departmental Representative requires access to equipment in order to operate the building, carry out coordination and communication activities so that all parties are aware of the Work.

1.09 WASTE MANAGEMENT AND DISPOSAL

Separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions, Waste Management.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 PRODUCTS

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 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 born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.02 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.

1.03 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, lumber and finished parts 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.

1.04 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

.2 Pay transportation costs of products supplied by Departmental Representative. Unload, handle and store such products.

1.05 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.

1.06 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.

.4 Use qualified licenced workers or apprentices.

1.07 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.

1.08 CONCEALMENT

.1 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.09 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.

1.10 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent galvanic 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 unless otherwise noted.

.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.

.7 Submit to Departmental Representative product data of all proposed fasteners prior to commencing work.

1.11 PROTECTION OF WORK IN PROGRESS

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

1.12 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/or building occupants 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

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Departmental Representative or other Contractors.

.2 Conduct regular cleaning of the entire Construction site inside the security fence on a weekly basis and more frequently as directed by Departmental Representative.

.3 Conduct regular cleaning of the spaces within the construction scaffolding daily. Maintain spaces inside the scaffolding clear of dust and debris to approval of Departmental Representative.

.4 Remove waste materials and debris from site daily at regularly scheduled times and deposit in waste containers at end of each working day. Remove waste materials more frequently as directed by Departmental Representative to ensure a clean and orderly work site.

.5 Do not burn rubbish or waste materials on site.

.6 Clear snow and ice from access to building. Bank or pile snow in designated areas only. Remove snow from site as directed by Departmental Representative.

.7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris. Dispose of waste materials and debris at designated dumping areas off site.

.8 Provide on-site containers for collection of waste materials and debris. Provide appropriate sized disposal bins and locate bins on site where directed by Departmental Representative. Empty waste disposal bins daily or more frequently at times as directed by Departmental Representative.

.9 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.

.10 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.11 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.02 FINAL CLEANING

.1 When Work is Substantially Performed and prior to final review, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work. Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.2 Clean and polish all exterior surfaces.

.3 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, fitments and walls.

.4 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.5 Broom clean and power wash exterior walks, steps and surfaces. Rake clean other surfaces of grounds. Sweep and wash clean paved areas. Remove dirt and other disfiguration from exterior surfaces. Remove snow and ice from access to building.

.6 Clean and sweep roofs, gutters, areaways, and sunken wells. Clean roofs, downspouts, and drainage systems.

.7 Remove debris and clean all attic spaces.

.8 Remove debris and surplus materials from other accessible concealed spaces.

.9 Clean equipment and fixtures to a sanitary condition. Clean or replace filters of mechanical equipment.

1.03 INTERIOR CLEANING

.1 When directed by Departmental Representative, arrange for cleaning of Interior Spaces that have been affected by the work of this contract. Cleaning to be carried out at times as directed by Departmental Representative and is only to address cleaning that is a direct result of exterior and interior work that has resulted in interior dirt and dust migrating to the interior.

PART 2 PRODUCTS

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one week prior to contract completion with contractor's representative and Departmental Representative, in accordance with Section 01 32 16 – Construction Progress Schedule (CPM) to:

.1 Verify Project requirements.

.2 Review manufacturer's installation instructions and 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.

1.02 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, 3 final printed copies of operating and maintenance manuals in contract language.

.3 Provide evidence, if requested, for type, source and quality of products supplied.

.4 Copy will be returned after final inspection, with Departmental Representative’s comments. Revise content of documentation as required prior to final submittal.

1.03 FORMAT

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in DWG format on CD or USB key with other documentation described herein.

1.04 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Table of Contents for Each Volume:

.1 provide title of project;

.2 Date of submission;

.3 Names, addresses, and telephone numbers of Departmental Representative and Contractor with name of responsible parties.

.4 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.05 AS -BUILT DOCUMENTS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at site for Departmental Representative one record copy of:

.1 Contract Drawings. Specifications.

.2 Addenda. Change Orders and other modifications to Contract.

.3 Reviewed shop drawings, product data, and samples.

.4 Field test records.

.5 Inspection certificates. Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. 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. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.06 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Field changes of dimension and detail.

.2 Changes made by change orders.

.3 Details not on original Contract Drawings.

.4 References to related shop drawings and modifications.

.5 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.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.7 Provide digital photos, requested as part of Photographic Documentation, for site records on a USB key.

1.07 MATERIALS AND FINISHES

.1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.

.1 Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Additional requirements: as specified in individual specifications sections.

1.08 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 Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.8 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 Provide list for each warranted equipment, item, feature of construction or system indicating:

.1 Name of item.

.2 Model and serial numbers.

.3 Location where installed.

.4 Name and phone numbers of manufacturers or suppliers.

.5 Names, addresses and telephone numbers of sources of spare parts.

.6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.

.7 Cross-reference to warranty certificates as applicable.

.8 Starting point and duration of warranty period.

.9 Summary of maintenance procedures required to continue warranty in force.

.10 Cross-Reference to specific pertinent Operation and Maintenance manuals.

.11 Organization, names and phone numbers of persons to call for warranty service.

.12 Typical response time and repair time expected for various warranted equipment.

.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.

.9 Respond in timely manner to oral or written notification of required construction warranty repair work.

.10 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

2.01 NOT USED

PART 3 EXECUTION

3.01 NOT USED

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.1 Definitions:

.1 Demolish: Detach items from existing construction and legally dispose of them off site, unless indicated to be removed and salvaged or removed and reinstalled.

.2 Remove and Salvage: Detach items from existing construction and deliver them to the Departmental Representative.

.3 Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

.4 Existing to Remain: Existing items of construction that are not removed and that are not otherwise indicated as being removed, removed and salvaged, or removed and reinstalled.

.5 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well-being or environment if handled improperly.

.2 Reference Standards:

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Safety Data Sheets (SDS).

.2 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act (TDGA), c. 34, latest editions.

1.02 ADMINISTRATIVE REQUIREMENTS

.1 Site Meetings.

.1 Convene pre-demolition meeting one week prior to beginning work of this Section in accordance with Section 01 32 16 - Construction Progress Schedule (CPM) to:

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

.2 Arrange for site visit with Departmental Representative to examine existing site conditions adjacent to demolition work, prior to start of Work.

.3 Ensure the site supervisor, project manager and subcontractor representatives attend.

.4 Departmental Representative will provide written notification of change of meeting schedule established upon contract award 24 hours prior to scheduled meeting.

.2 Scheduling: meet project time lines without compromising specified minimum rates of material diversion.

.1 Notify Departmental Representative in writing when unforeseen delays occur.

1.03 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.2 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.

.3 Hazardous Materials:

.1 Provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.

.4 Waste Management and Disposal:

.1 Refer to Section 01 00 10 – General Instructions, Waste Management

.5 Photographic Documentation:

.1 Submit within three (3) working days after of Notice to Proceed, photographs prior to commencing work.

.1 Where work is performed in groups, submit with the advancement of each group of work.

.2 Photographs, showing existing conditions of work areas and materials:

.1 General views of work areas at the interior and exterior of the building, including the landscaping and grounds.

.2 Detailed images for existing woodwork showing condition and appearance of all facets, and any unique conditions.

.3 Detailed images of existing conditions exposed by demolition work.

.4 Detailed images of interior finishes: floors, walls, millwork and trimwork, cornices, and other interior elements

.3 Clearly identify unit number and date of exposure on each photo. Use of an erasable portable whiteboards is recommended.

.4 Submit in digital format sample to Departmental Representative for review, prior to commencing work.

1.04 QUALITY ASSURANCE

.1 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial regulations.

.2 Qualifications: provide adequate workforce training through meetings and demonstrations. Have someone on site with deconstruction experience throughout project for consultation and supervision purposes.

1.05 DELIVERY, STORAGE AND HANDLING

.1 Storage and Protection.

.1 Store materials salvaged for reuse in locations as directed by Departmental Representative.

.2 Maximum permitted duration of material storage on site determined in consultation with Departmental Representative.

.3 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Departmental Representative and at no cost to Departmental Representative.

.4 Remove and store materials to be salvaged, in manner to prevent damage.

.1 Store and protect in accordance with requirements for maximum preservation of material.

.2 Handle salvaged materials as new materials.

.5 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping. Provide bracing shoring underpinning as required. Repair damage caused by deconstruction as directed by Departmental Representative.

.6 Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems.

.2 Packaging Waste Management: remove for reuse and return of pallets, crates, padding, and packaging materials in accordance with Section 01 00 10 – General Instructions, Waste Management and applicable regulations.

1.06 SITE CONDITIONS

.1 Site Environmental Requirements:

.1 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.2 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

.1 Ensure proper disposal procedures are maintained throughout the project.

.3 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.

.4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities as directed by Departmental Representative.

.5 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.

.6 Protect trees, plants and foliage on site and adjacent properties as required.

.2 Existing conditions:

.1 Remove contaminated or hazardous materials as defined by authorities having jurisdiction as directed by Departmental Representative from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with applicable regulatory requirements.

PART 2 PRODUCTS

2.01 EQUIPMENT

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

.2 Where possible, use water efficient wetting equipment, trucks or attachments when minimizing dust.

.3 Demonstrate that tools are being used in manner which allows for salvage of materials in best condition possible.

.4 Provide debris bins and waste containers. Do not use any occupant-owned containers.

.5 Ensure that all interior cutting equipment is equipped with HEPA filters to minimize dust.

PART 3 EXECUTION

3.01 SITE VERIFICATION OF CONDITIONS

.1 Employ necessary means to assess site conditions and structures to determine quantity and locations of hazardous materials.

.2 Investigate site and structures to determine dismantling, processing and storage logistics required prior to beginning of Work.

.3 Develop strategy for deconstruction to facilitate optimum salvage of reusable and recyclable materials.

3.02 PREPARATION

.1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

3.03 REMOVAL OF HAZARDOUS WASTES

.1 Remove contaminated or dangerous materials defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

3.04 REMOVAL OPERATIONS

.1 Remove items as indicated.

.2 Salvage:

.1 Dismantle items containing materials for salvage and stockpile salvaged materials at locations as indicated.

.3 Disposal of Material:

.1 Dispose of materials not designated for salvage or reuse on site as instructed by Departmental Representative at authorized facilities.

3.05 DISASSEMBLY

.1 Materials removed from designated structures for disposal and salvage are the property respectively of Contractor and Departmental Representative.

.2 Throughout course of deconstruction pay close attention to connections and material assemblies. Employ workmanship procedures which minimize damage to materials and equipment.

.3 Ensure workers and subcontractors are trained to carry out work in accordance with appropriate deconstruction, dismantling and salvage techniques.

.4 Project supervisor with previous deconstruction experience must be present on site throughout project.

.5 Workers must utilize adequate fall protection including certified harness and belay systems where necessary.

.6 Source separate for recycling materials that cannot be salvaged for reuse including wood and metal.

.7 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

.8 Where existing materials are to be re-used in Work, use special care in removal, handling, storage and re-installation to assure proper function in completed work.

3.06 PROCESSING

.1 Designate location for processing of materials which eliminates double handling and provides adequate space to maintain efficient material flow.

.2 Separate materials to ensure best possible condition of salvaged materials.

.3 Keep processing area clean and free of excess debris.

.4 Separate processed materials into organized piles for stockpiling. Provide collection area for materials processed. Pile materials on pallets to facilitate transport off-site or to storage areas.

3.07 STOCKPILING

.1 Label stockpiles, indicating material type and quantity.

.2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.3 Locate stockpiled materials convenient for use in new construction to eliminate double handling wherever possible.

.4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.08 REMOVAL FROM SITE

.1 Remove stockpiled material as directed by Departmental Representative, when it interferes with operations of project.

.2 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.

.3 Transport material designated for alternate disposal using approved haulers facilities receiving organizations and in accordance with applicable regulation.

.4 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

3.09 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning of Work.

.2 Restore lawn, landscaping and paving damaged due to use and storage of lifting devices and other equipment used for work.

.3 Use treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.10 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 – Cleaning.

.1 Leave Work area clean at end of each day.

.2 Remove debris, trim surfaces and leave work site clean, upon completion of Work

.3 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

3.11 PROTECTION

.1 Repair damage to adjacent materials or property caused by selective site demolition.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Removal or disturbance of less than one square meter of asbestos containing plaster

1.2 SECTION INCLUDES

.1 Requirements and procedures for asbestos abatement of asbestos containing materials of the type described within.

1.3 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA Standard Z94.4-02, Selection, Use and Care of Respirators

.2 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 Underwriters' Laboratories of Canada (ULC)

.6 Public Services and Procurement Canada Asbestos Management Standard

.7 Part II – Canada Labour Code (OH&S).

.8 Occupational Health and Safety Act (OHSA)

.1 Ontario Regulation 278/05 – Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations.

.2 Ontario Regulation 213/91 – Construction Projects.

1.4 DEFINITIONS

.1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.

.2 Asbestos Containing Materials (ACMs): materials that contain 0.5per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.3 Asbestos Work Area: area where work takes place which will or may disturb ACMs.

.4 Authorized Visitors: Designated Representatives, and representatives of regulatory agencies.

.5 Competent worker: in relation to specific work, means a worker who:

.1 Is qualified because of knowledge, training and experience to perform the work.

.2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.

.3 Has knowledge of all potential or actual danger to health or safety in the work.

.6 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.

.8 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.

.9 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.10 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.

.11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

1.5 SUBMITTALS

.1 Submit proof satisfactory to Designated Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.

.2 Submit proof of Contractor's Asbestos Liability Insurance.

.3 Submit to Designated Representative necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.

.4 Submit proof satisfactory to Designated Representative that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

.5 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Designated Representative. Minimum of one supervisor for every ten workers.

.6 Submit Worker's Compensation Board status and transcription of insurance.

.7 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:

.1 Encapsulants;

.2 Amended water;

.3 Slow drying sealer.

.4 All additional controlled products.

.8 Submit proof satisfactory to Consultant that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.

.2 Health and Safety:

.1 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

.2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.3 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.

.4 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are located close to Asbestos Work Area.

.5 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

.6 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.2 Disposal of asbestos waste generated by removal activities must comply with Federal and Provincial requirements. Dispose of asbestos waste in sealed double bagged thickness 0.15mm bags or leak proof drums. Label containers with appropriate warning labels.

.3 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

1.8 EXISTING CONDITIONS

.1 Designated substances including asbestos containing materials are present at the Site.

.2 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project can be requested from the Departmental Representative. These Reports/records must be reviewed prior to conducting work detailed in this specification.

.3 Notify Departmental Representative and Consultant of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative/Consultant in writing.

1.9 SCHEDULING

.1 Hours of Work: work may be conducted during normal working hours

1.10 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Departmental Representative/Consultant satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.

.2 Instruction and training related to respirators includes, at minimum:

.1 Fitting of equipment.

.2 Inspection and maintenance of equipment.

.3 Disinfecting of equipment.

.4 Limitations of equipment.

.3 Instruction and training must be provided by competent, qualified person.

Part 2 Products

2.1 MATERIALS

.1 Drop and Enclosure Sheets:

.1 Polyethylene: 0.15 mm thick.

.2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.

.2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.

.3 Waste Containers: contain waste in two separate containers.

.1 Inner container: 0.15 mm thick sealable polyethylene bag.

.2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.

.3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.

.4 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.

.5 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.

.1 Sealer: flame spread and smoke developed rating less than 50.

Part 3 Execution

3.1 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 PROCEDURES

.1 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.

.2 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.

.1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.

.2 Do not use compressed air to clean up or remove dust from any surface.

.3 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.

.1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.

.2 Erect an enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.

.4 Remove loose material by HEPA vacuum; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.

.1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.

.2 Perform Work in a manner to reduce dust creation to lowest levels practicable.

.5 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.6 Cleanup:

.1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.

.2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.

.3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

.4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous

nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.

.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.3 AIR MONITORING

.1 From beginning of Work until completion of cleaning operations, Consultant to take air samples in accordance with Public Services and Procurement Canada Asbestos Management Standard.

.1 Contractor will be responsible for monitoring inside enclosure in accordance with with Part II – Canada Labour Code (OH&S).

.2 If air monitoring shows that areas outside Asbestos Work Area enclosure are contaminated, enclose, maintain and clean these areas in same manner as that applicable to Asbestos Work Area.

.3 Ensure that respiratory safety factors are not exceeded.

.4 During the course of Work, Consultant to measure fibre content of air outside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).

.1 Stop Work when PCM measurements exceed 0.05 f/cc and correct procedures.

.5 Final air monitoring to be conducted as follows: After Asbestos Work Area has passed visual inspection Consultant will perform air monitoring within Asbestos Work Area by aggressive methods.

.1 Final air monitoring results must show fibre levels of less than 0.01 f/cc.

.2 If air monitoring results show fibre levels in excess of 0.01 f/cc, re-clean work area and apply another acceptable coat of lock-down agent to surfaces.

.3 Repeat as necessary until fibre levels are less than 0.01 f/cc.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Comply with requirements of this Section when performing following Work:

.1 Manual demolition of lead-painted building components.

.2 Removal of paint from the brick by scraping or sanding using non-powered hand tools

1.2 SECTION INCLUDES

.1 Requirements and procedures for disturbance of lead based paints.

1.3 REFERENCES

.1 Department of Justice Canada

.1 Canadian Environmental Protection Act, 1999 (CEPA).

.2 Health Canada

.1 Workplace Hazardous Materials Information System (WHMIS), Material Safety Data Sheets (MSDS).

.3 Human Resources and Social Development Canada (HRSDC)

.1 Canada Labour Code Part II, - SOR 86-304 - Occupational Health and Safety Regulations.

.4 Transport Canada (TC)

.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.5 U.S. Environmental Protection Agency (EPA)

.1 EPA 747-R-95-007- Sampling House Dust for Lead.

.6 U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Institute for Occupational Safety and Health (NIOSH)

.1 NIOSH 94-113 - NIOSH Manual of Analytical Methods (NMAM), 4th Edition (1994).

.7 U.S. Department of Labour - Occupational Safety and Health Administration (OSHA) - Toxic and Hazardous Substances

.1 Lead in Construction Regulation - 29 CFR 1926.62

.8 Underwriters' Laboratories of Canada (ULC)

.9 Ontario Ministry of Labour

.1 Guideline – Lead on Construction Projects

1.4 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Authorized Visitors: Departmental Representative or designated representatives and representatives of regulatory agencies.

.3 Occupied Area: areas of building or work site that is outside Work Area.

.4 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.5 Airlock: ingress or egress system, without permitting air movement between contaminated area and uncontaminated area. Consisting of two curtained doorways at least 2 m apart.

.6 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another. Typically constructed as follows:

.1 Place two overlapping polyethylene sheets over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and secure other sheet along opposite vertical side of doorway.

.2 Reinforce free edges of polyethylene with duct tape and add weight to bottom edge to ensure proper closing.

.3 Overlap each polyethylene sheet at openings 1.5 m on each side.

.7 Action level: employee exposure, without regard to usage of respirators, to an airborne concentration of lead of 50 micrograms per cubic meter of air calculated as 8 hour time-weighted average (TWA). Intermediate precautions for lead abatement are based on airborne lead concentrations greater than 0.05 milligrams per cubic meter of air within Work Area.

.8 Competent person: individuals capable of identifying existing lead hazards in workplace and taking corrective measures to eliminate them.

.9 Lead in Dust: wipe sampling on vertical and/or horizontal surfaces, dust and debris is considered to be lead contaminated if it contains more than 40 micrograms of lead in dust per square foot.

1.5 SUBMITTALS

.1 Provide proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of lead based paint waste in accordance with requirements of authority having jurisdiction.

.2 Provide: Provincial Notice of Project Form.

.3 Provide proof of Contractor's General and Environmental Liability Insurance.

.4 Quality Control:

.1 Provide Departmental Representative necessary permits for transportation and disposal of lead based paint waste and proof that it has been received and properly disposed.

.2 Provide proof satisfactory to Departmental Representative that employees have had instruction on hazards of lead exposure, respirator use, dress, entry and exit from Work Area, and aspects of work procedures and protective measures.

.3 Provide proof that supervisory personnel have attended lead abatement course, approved by Departmental Representative. Minimum of one supervisor for every ten workers.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial and local requirements pertaining to lead paint, in case of conflict among those requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at time work is performed.

.2 Health and Safety:

.1 Safety Requirements: worker and visitor protection.

.1 Protective equipment and clothing to be worn by workers and visitors in Work Area includes:

.1 Respirator NIOSH approved and equipped ½ face air purifying respirator with filter cartridges with assigned protection factor. Provide sufficient filters so workers can install new filters following disposal of used filters and before re-entering contaminated areas.

.2 Disposable type protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.

.2 Requirements for workers:

.1 Remove street clothes in clean change room and put on respirator with new filters or reusable filters, clean coveralls and head covers before entering Equipment and Access Rooms or Work Area. Store street clothes, uncontaminated footwear, towels, and similar uncontaminated articles in clean change room.

.2 Remove gross contamination from clothing before leaving work area. Place contaminated work suits in receptacles for disposal with other lead - contaminated materials. Leave reusable items except respirator in Equipment and Access Room. When not in use in Work Area, store work footwear in Equipment and Access Room. Upon completion of lead abatement, dispose of footwear as contaminated waste or clean thoroughly inside and out using soap and water before removing from Work Area or from Equipment and Access Room.

.3 Enter unloading room from outside dressed in clean coveralls to remove waste containers and equipment from Holding Room of

Container and Equipment Decontamination Enclosure system. Workers not to use this system as means to leave or enter work area.

.3 Eating, drinking, chewing, and smoking are not permitted in Work Area.

.4 Ensure workers wash hands and face when leaving Work Area.

.5 Ensure no person required to enter Work Area has facial hair that affects seal between respirator and face.

.6 Visitor Protection:

.1 Provide protective clothing and approved respirators to Authorized Visitors to Work Areas.

.2 Instruct Authorized Visitors in use of protective clothing, respirators and procedures.

.3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Work Area.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

.3 Disposal of lead waste generated by removal activities must comply with Federal and Municipal regulations. Dispose of lead waste in sealed double thickness 6 ml bags or leak proof drums. Label containers with appropriate warning labels.

.4 Provide manifests describing and listing waste created. Transport containers by approved means to licensed landfill for burial.

1.8 EXISTING CONDITIONS

.1 Reports and information pertaining to lead based paint to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification.

1.9 SCHEDULING

.1 Not later than two days before beginning Work on this Project notify the following in writing, where appropriate:

.1 Provincial Ministry of Labour.

.2 Disposal Authority.

.2 Inform sub trades of presence of lead-containing materials identified in Existing Conditions.

.3 Provide Departmental Representative copy of notifications prior to start of Work.

.4 Hours of Work: work may be conducted during normal working hours.

Part 2 Products

2.1 MATERIALS

.1 Polyethylene: 0.15 mm unless otherwise specified; in sheet size to minimize joints.

.2 FR polyethylene: 0.15 mm woven fibre reinforced fabric bonded both sides with polyethylene.

.3 Tape: fibreglass - reinforced duct tape suitable for sealing polyethylene under dry conditions and wet conditions using amended water.

.4 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for trapping residual lead paint residue.

.5 Lead waste containers: metal or fibre type acceptable to dump operator with tightly fitting covers and 0.15 mm sealable polyethylene liners.

.1 Label containers with pre-printed bilingual cautionary Warning Lead clearly visible when ready for removal to disposal site.

Part 3 Execution

3.1 SUPERVISION

.1 Approved Supervisor must remain within Lead Work Area during disturbance, removal, or other handling of lead based paints.

3.2 PREPARATION

.1 Remove and wrap items to be salvaged or reused, and transport and store in area specified by Departmental Representative.

.2 Work Area:

.1 Shut off and isolate HVAC system to prevent dust dispersal into other building areas. Conduct smoke tests to ensure duct work is airtight.

.2 Pre-clean fixed casework, and equipment within work areas, using HEPA vacuum and cover with polyethylene sheeting sealed with tape.

.3 Clean work areas using HEPA vacuum. If not practicable, use wet cleaning method. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum.

.4 Seal off openings, corridors, doorways, windows, skylights, ducts, grilles, and diffusers, with polyethylene sheeting sealed with tape.

.5 Cover surfaces in the work area with FR polyethylene drop sheets.

.6 At point of access to work areas install warning signs in both official languages in upper case "Helvetica Medium" letters reading as follows where number in parentheses indicates font size to be used:

.1 CAUTION LEAD HAZARD AREA (25 mm).

.2 NO UNAUTHORIZED ENTRY (19 mm).

.3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm).

.4 BREATHING LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm).

.7 Maintain emergency and fire exits from work areas, or establish alternative exits satisfactory to Authority having jurisdiction.

.8 Where water application is required for wetting lead containing materials, provide temporary water supply by use of appropriately sized hoses for application of water as required.

.9 Provide electrical power and shut off for operation of powered tools and equipment. Provide 24 volt safety lighting and ground fault interrupter circuits on power source for electrical tools, in accordance with applicable CSA Standard. Ensure safe installation of electrical lines and equipment.

.3 Worker Decontamination Enclosure System:

.1 Worker Decontamination Enclosure System includes Equipment and Access Room and Clean Room, as follows:

.1 Equipment and Access Room: construct between exit and work areas, with two curtained doorways, one to the rest of suite, and one to work area. Install waste receptor and storage facilities for workers' shoes and protective clothing to be re-worn in work areas. Build large enough to accommodate specified facilities, equipment needed, and at least one worker allowing sufficient space to change comfortably.

.2 Clean Room: construct with curtained doorway to outside of enclosures. Provide lockers or hangers and hooks for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly.

.4 Construction of Decontamination Enclosures:

.1 Construct framing for enclosures or use existing rooms. Line enclosure with polyethylene sheeting and seal with tape, apply two layers of FR polyethylene on floor.

.2 Construct curtain doorways between enclosures so when people move through or waste containers and equipment are moved through doorway, one of two closures comprising doorway always remains closed.

.5 Separation of Work Areas from Occupied Areas

.1 Barriers between Work Area and occupied area to be constructed as follows:

.1 Construct floor to ceiling lumber stud framing, cover with polyethylene sheeting and seal with duct tape.

.2 Cover plywood with polyethylene sheeting and sealed with duct tape.

.6 Maintenance of Enclosures:

.1 Maintain enclosures in clean condition.

.2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately.

.3 Visually inspect enclosures at beginning of each work day.

3.3 LEAD - BASE PAINT ABATEMENT

.1 Removal of lead based paint to be performed by scraping or sanding using non-powered hand tools and by manual demolition of lead-painted building components.

.2 Place FR polyethylene sheeting on the ground below the work area prior to commencement of demolition activities.

.3 Remove lead based paint from the brick wallin small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers for transport.

.4 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to Staging Area.

.5 After completion of stripping work, wire brush and wet sponge surface from which lead based paint has been removed to remove visible material. During this work keep surfaces wet.

.6 Place lead containing in sealable labelled containers for transport.

.7 After completion of demolition clean up work area by HEPA vacuuming. During this work keep surfaces wet.

3.4 INSPECTION

.1 Perform inspection to confirm compliance with specification and governing authority requirements. Deviations from these requirements not approved in writing by Departmental Representative will result in work stoppage, at no cost to Owner.

.2 Departmental Representative will inspect work for:

.1 Adherence to specific procedures and materials.

.2 Final cleanliness and completion.

.3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.5 FINAL CLEANUP

.1 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum equipment.

.2 Place polyethylene, tape, cleaning material, clothing, and other contaminated waste in plastic bags and sealed labelled waste containers for transport.

.3 Clean-up Work Areas, Equipment and Access Room, and other contaminated enclosures.

.4 Clean-up sealed waste containers and equipment used in Work and remove from work areas, via Container and Equipment Decontamination Enclosure System, at appropriate time in cleaning sequence.

.5 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 Common requirements for masonry cleaning, repair and conservation work above grade.

1.02 REFERENCES

.1 Canadian Standards Association (CSA International), latest editions.

.1 CSA A179, Mortar and Grout for Unit Masonry.

.2 CSA-A371, Masonry Construction for Buildings.

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Safety Data Sheets (SDS).

1.03 SUBMITTALS

.1 Submit documents and samples in accordance with Section 01 33 00 - Submittal Procedures and as specified in related Sections.

.2 Product Data: submit manufacturer's printed product literature, specifications and data sheet for each product:

.1 Indicate date of manufacture of product and shelf life.

.2 Submit two copies of WHMIS SDS - Safety Data Sheets.

.3 Samples; submit:

.1 Submit samples for all mortar types and in quantity and size in accordance with CSA A179M.

.2 Submit test reports to show that properties are appropriate to particular mortar mixes.

.3 Mock-up: provide colour matched samples on building for final acceptance of materials.

.4 .Scheduling.

.1 Submit dates indicating critical stages in masonry work.

.5 Manufacturer's Instructions.

.1 Submit manufacturer's installation instructions.

.6 Test Reports.

.1 Submit certified test reports showing compliance of materials with specified performance characteristics and physical properties.

1.04 DEFINITIONS

.1 Raking: the removal of loose/deteriorated mortar from a masonry joint until sound mortar is reached.

.2 Repointing: filling and finishing of masonry joints from which mortar is missing or has been raked out.

.3 Tooling: finishing of masonry joints using tool to provide final contour.

1.05 QUALITY ASSURANCE - EXECUTION

.1 Perform work in accordance with established procedures for historic masonry conservation and The Standards and Guidelines for the Conservation of Historic Places in Canada, published by Parks Canada.

.2 Refer also to requirements noted in Section 01 35 91 – Heritage Protective Measures.

.3 Perform work under direction of the Departmental Representative, where required.

.1 Provide demonstrated, specialized, skilled and competent trades persons who shall have extensive experience in all types of specified work. The skills of individuals will be subject to review and acceptance by the Departmental Representative. Review will include production of basic mock-ups for all types of work specified.

.2 Provide a list of the proposed workers a minimum one week prior to commencement of the work.

.3 No workers shall be changed during the progress of the work without written acceptance by the Departmental Representative.

.4 All workers shall be required to demonstrate competence levels to the satisfaction of the Departmental Representative, before being permitted to work on the building.

1.06 QUALITY ASSURANCE – MOCK-UPS

.1 Construct mock-ups under supervision of the Departmental Representative to demonstrate a full understanding of specified procedures, techniques and formulations are achieved before work commences.

.2 Construct mock-ups to illustrate:

.1 Each type of repair procedure including raking out of mortar and repointing. Meet environmental requirements for mortar curing. Location and extent to be determined on site.

.2 Paint removal on brick work.

.3 Mock-up will be used:

.1 To judge workmanship, substrate preparation, operation of equipment and material application.

.2 For testing to determine compliance with performance requirements.

.3 Quality and degree of finish required.

.4 Construct mock-up where indicated by Departmental Representative.

.1 All mock-ups indicated above will be in same location.

.2 Coordinate and sequence activities in such a way to allow review of multiple mock-ups by Departmental Representative in a single session. Schedule mock-up reviews in such a way to minimize the number of site visits required.

.5 Allow 3 business days for inspection of mock-up by Departmental Representative before proceeding with work.

.6 Repeat mock-up until satisfactory results are obtained to satisfaction of Departmental Representative.

.7 When accepted by Departmental Representative in writing, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.

1.07 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 – Common Product Requirements.

.2 Deliver materials to job site in dry condition.

.3 Storage and Protection:

.1 Keep materials dry until use except where wetting of bricks is specified. Protect from freezing and contamination.

.2 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

.4 Do not use materials which have exceeded manufacturer's recommended shelf life.

1.08 WASTE MANAGEMENT AND DISPOSAL

.1 Refer to Section 01 00 10 – General Instructions, Waste Management and Disposal.

1.09 ENVIRONMENTAL REQUIREMENTS

.1 Execute all mortar work when ambient temperature is between 10 and 27 degrees Celsius and Relative Humidity (RH) is greater than 50 % during installation.

.2 When ambient conditions do not meet requirements prescribed herein, provide enclosure system around curing area to ensure that stated environmental conditions are maintained for curing period. Take precautions to avoid overheating masonry. Provide data log and measure temperature and humidity level for the duration of the work.

.3 Submit enclosure system for approval from Departmental Representative in accordance with Section 01 33 00 – Submittal Procedures.

.4 Cold weather installation requirements:

.1 Ambient air and substrate temperatures shall be maintained between 10 and 30 degrees C for 48 hours before and maintained for 21 days following the application of mortars.

.2 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.3 Provide fuel and/or electrical power and heat generating devices to maintain air and substrates at a minimum of 10 degrees C temperature.

.4 Provide monitoring electronic thermometers that can register low and high temperatures during any selected period of time. Placement of thermometers and frequency of observations shall be directed by Departmental Representative. It is anticipated that 24 temperature readings per day (1 per hour) will be required, at several locations throughout the scaffold.

.5 Submit temperature recordings on a regular basis as requested by Departmental Representative.

.6 Maintain uniform temperature within enclosures. Temperature variations within the enclosure shall not be sufficient to cause damage to work or to impede or accelerate drying and or curing of the work.

.7 Prepare and maintain temperature of mortar between 10 and 27 degrees Celsius until used.

.8 Store cements and sands for immediate use within heated enclosure. Allow these materials to reach minimum temperature of 10 degrees Celsius (that is equilibrium with air temperature in enclosure).

.9 Heat water to minimum of 20 degrees Celsius and maximum of 25 degrees Celsius:

.10 At time of use temperature of mortar to be minimum of 10 degrees Celsius and maximum of 27 degrees Celsius.

.5 Do not mix cement with water or with sand or with water-sand mixtures having higher temperature than 25 degrees Celsius.

1.10 EXISTING CONDITIONS

.1 Report in writing, to Departmental Representative, areas of deteriorated masonry revealed and not conforming to specified requirements of the Work.

.2 Obtain Departmental Representative's approval and instructions of repair and replacement of masonry units before proceeding with Work.

.3 Location restrictions for items embedded in exterior walls: place anchors, fasteners and metallic items required to be embedded in brick.

1.11 DOCUMENTATION

.1 Photographic Record: Prior to any work involving heritage materials, photograph the following:

.1 General view of the work.

.2 Detail shots of each heritage item showing condition and appearance at commencement of work.

.3 Location and date of photo must be clearly identified on each photo. Use of erasable portable whiteboards is recommended.

.4 Photograph quality: Well-illuminated, properly exposed, sharply focused, and free of motion blur. Resolution: Minimum 3264 x 2448, or 8MP.

.5 Include copy of photographs on portable digital storage media, with minimum compression loss.

.6 Provide 227 x 184 mm photographs in archival mountings assembled in a binder and submitted in 3 copies to the Departmental Representative.

1.12 WORK SEQUENCE

.1 Document existing conditions.

.2 Repointing, where required.

.3 Clean masonry.

PART 2 PRODUCTS

2.01 SOURCE QUALITY CONTROL

.1 Retain purchase orders, invoices, suppliers test certificates and documents to prove that materials used in contract meet requirements of specification.

.2 Produce above upon request by Departmental Representative and allow free access to sources where materials were procured.

2.02 MATERIALS

.1 Mortars

.1 General: use one and same manufacture and supplier for sources of each mortar material for entire project.

.2 Appropriately sized buckets for mortar mixing: 7.5L (2 gallon); 13L (3.5 gallon); and 19L (5gallon).

.3 Clean rags.

.4 Stopwatches for measuring mortar mixing times.

.5 Repointing protection: a 6 mil polyethylene sheet; burlap fabric; a supporting structure to secure polyethylene-burlap curtain the proper distance from the wall during curing.

.6 Vicat Cone penetrometer for measuring mortar consistency, model no. H-3133.

.7 Pointing mortar: proprietary manufactured mortar mix of Type S hydrated lime and hydraulic cement and well-graded sand to CSA A179-04.

.2 Chemical Paint Stripper: neutral ph-stripping compound.

.3 Brush or rollers

.4 Water: potable, clean and free from contaminants. Pre-treat water having high iron or other metal content to prevent staining.

.5 Water cleaning and rinsing equipment

.1 Use water pumps fitted with accurate pressure regulators and gauges capable of being preset and locked at maximum required levels.

.2 Use air compressors equipped with on-line oil filters to avoid spraying oil onto masonry.

.3 Use gun equipped with pressure gauge at nozzle end.

.4 Use plastic or non-ferrous metal piping and fittings.

.5 Use nozzles that give nebulized droplet spray.

.6 Use spray heads equipped with fan type nozzles having spray tips of between 15 and 25 degrees.

.7 Equipment flow rate and pressure: 18 to 30 l/min at 35 to 400 kPa.

.8 Equip with heaters to provide 80 degrees Celsius rinse water.

.6 Masking materials: type to approval of Departmental Representative

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.02 PROTECTION

.1 Take necessary safety measures to protect workers and environment from silica and lead contamination during removal of mortar, and cutting and removing of masonry. Refer to Designated Substances Survey for specific information and recommendations.

.2 Take necessary precautions to ensure that existing brickwork is not damaged during work. Provide protection of these elements. Submit protection measures to Departmental Representative for approval.

.3 Ensure workers are informed of hazards and trained in procedures prior to commencing work.

.4 Masonry cleaning protections:

.1 Mask or seal vents and openings, to prevent water entry.

.2 Mask materials adjacent to treatment areas.

.3 Prevent spray beyond application area.

.4 Protect plants, gardens, shrubs from excessive watering and chemicals.

.5 Ensure workers wear eye, head, and face protection, and protective gloves, coveralls, boots and filter mask to MSHA/NIOSH standard.

.6 Protect cleaned surfaces which are to be painted from contact with rain and snow.

.7 Protect rainwater leaders, eaves troughs and gutters from being blocked by residue.

.8 Protect finished Work from damage until acceptance by Departmental Representative.

.9 Protect adjacent Work from spread of dust and dirt beyond work areas.

3.03 REPOINTING PREPARATION

.1 Inspect site with Departmental Representative and verify extent and location of mortar types prior to commencing installation.

.2 Support:

.1 Construct shoring, cradling, and temporary framing work including centering to support structure parts during removal and resetting operations, in accordance with approved drawings. Drawings to be stamped and signed by engineer experienced with historic masonry structures and registered in Province of Ontario.

.2 Leave work in safe condition when work is not in progress.

.3 Take utmost care not to damage historic fabric. Make good any damage.

.4 Seal and protect openings, doors, windows, and adjacent areas to prevent damage and spread of construction dust, water or other materials into the building.

.5 Cover sills and projecting courses where required with rigid protection, secured into joints, for duration of work.

.6 Prevent hoists or construction equipment from bearing directly against masonry or roof. Provide lumber or plywood with padding of sufficient thickness to prevent damage.

.7 Obtain Departmental Representative's approval prior to proceeding, for:

.1 Extent and type of masonry to be replaced repaired.

.2 Methodology and tools to be employed before commencing work.

.8 Determine precise exterior wall thicknesses at each level of building by drilling minimal size pilot holes. Repair and make good holes to match existing condition.

3.04 REPOINTING – GENERAL

.1 Perform work in accordance with CSA-A371 and approved mock-ups.

.2 Tool and compact using jointing tool to force mortar into joint.

.3 Use suitable approved jointing tool to finish joints.

.4 Obtain Departmental Representative's approval prior to proceeding, for:

.1 Condition of raked-out joints prior to commencing repointing operations.

.2 Methods to prevent materials entering or penetrating wall cavities of building.

.5 Raking:

.1 Rake joints free of deteriorated and loose mortar, dirt and other undesirable material.

.2 Clean joints back for the full specified depth, removing all mortar on the masonry surfaces to a square surface of existing mortar at back of joint.

.3 Clear out all loose particles and leave ready for inspection.

.4 Depth of raking: Clean joints to full depth of deteriorated mortar but in no case to less than 20 mm.

.6 Repointing:

.1 Soak burlap in a bucket just prior to commencing repointing. Wring excess water. Pre-wet enough burlap to cover the area to be repointed

.2 Cut a 6 mil polyethylene sheet to the size of the area to be repointed.

.3 Set up a burlap and polyethylene "curtain" in front of the wall, pre-wet, and raised into temporary position ready for dropping at the end of front-pointing procedure to serve a curing protection. Burlap is to be hung such that when it falls, it will be a minimum of 100mm from the masonry surface. The polyethylene sheet is hung over the burlap to prevent rapid moisture evaporation from wall and burlap.

.4 Repointing will only proceed after approval is given by the Departmental Representative.

.5 Immediately prior to pointing, thoroughly wet joints to control absorption.

.6 Allow water to soak into masonry and mortar. Leave surface wet and free of standing water.

.7 Completely fill with mortar.

.8 If surface of masonry units has worn rounded edges keep pointing back from surface to keep same width of joint. Avoid feather edges. Pack mortar solidly into voids and joints with positive adhesion to contact surfaces.

.9 Keep masonry damp while pointing is being performed.

.10 Pointing in freezing weather is not permitted.

.11 At initial set, finish joints with stippling action using a short stout bristle brush to compact joint. Produce textured finish, exposing aggregate. Do not project mortar beyond arrises or feather mortar.

.12 Finish joints to a weather-struck profile to match existing joints at south elevation.

.13 Remove excess mortar from masonry face before it sets. Finish jointing neatly.

.14 The face of joint should be finished by tamping with a stiff “churning” type brush. This will provide an “aged” or weathered look to the finished joints. Smooth slicked finish to front-pointed joints will not be accepted and will be cut out and completed to satisfaction of the Departmental Representative.

.15 Do not directly mist or wet front pointing mortar once it has been placed, cut, tamped, and finished with the churn brush.

.16 Drop pre-hung, pre wetted and temporarily raised burlap “curtain” and polyethylene sheet, 100 to 50 mm from the wall face, moistened with light misting nozzle attached to a hose. Be certain that misting is not so forceful that it penetrates the burlap and wets the front pointed joints.

.17 Maintain burlap and polyethylene sheet in wetted state for 7 days, 24 hours a day. Provide a temporary structure for securing the burlap-polyethylene curtain such that it remains a uniform 50-100mm distance from the wall. Simply tying the burlap ends to the scaffold is not acceptable.

.18 Provide full protection from direct sun, wind and temperatures below 10 degrees C during and after completion of all work involving mortars for up to 3 weeks after mortar work completion.

3.05 MASONRY CLEANING

.1 General:

.1 Proceed with cleaning upon written approval by Departmental Representative concerning tested cleaning methods and approved mock-ups.

.2 Perform cleaning using nozzle type and size, working pressures, working distance from wall, rate, concentration and dwell times and level of clean as determined by reviewed test sample.

.3 Clean without damaging masonry unit. Adjust nozzle size, pressure, working distance and rate of clean, to suit varying characteristics of substrates.

.4 Direct run-off to containers.

.2 Removal of paint from brick masonry:

.1 Refer to manufacturer’s instructions for exterior applications..

.2 Prepare surface by scraping or pressure rinsing to remove all peeling and or loose coatings. Let surface dry thoroughly.

.3 Surface and air temperatures should be between 4 degree Celcius and 29 degree Celcius during application.

.4 Apply using a solvent-resistant brush or roller. Apply product to between 3 mm to 6 mm thick to dry surface.

.5 Let the application dwell 15-60 minutes or until coating “lifts” or shows signs of dissolving. Periodic agitation with a stiff bristle brush improves penetration. Some coatings may require multiple applications or increased dwell times.

.6 Remove stripper and residue with pressure-water rinse. Heated water may improve stripping efficiency.

.7 Clean stripped surfaces if required.

.8 Clean tools and equipment with high-flash aromatic naphtha or similar solvent. Cleaning with water may be sufficient if material has not dried.

3.06 GENERAL CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

.3 Refer also to Section 01 74 11 - Cleaning.

3.07 PROTECTION

.1 At end of each working day, cover unprotected work with waterproof membranes. Membranes should extend to 0.5 m over surface area of work and be tightly installed to prevent finished work from drying out too rapidly.

.2 Protect masonry and other work from marking and impact damage. Protect completed work from mortar droppings. Use non-staining coverings.

.3 Maintain protection for minimum three weeks.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 Metal railings and posts for the front porch ramp and rear entrance.

1.02 REFERENCES

.1 American Society for Testing and Materials International (ASTM), latest revisions.

.1 ASTM A167, Standard Specification for Stainless and Heat Resisting Chromium-Nickel Steel Plate, Sheet and Strip.

.2 ASTM A644, Terminology Relating to Iron Castings.

.3 ASTM 653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized), or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.

.4 ASTM A536, Standard Specification for Ductile Iron Castings.

.2 Canadian Standards Association (CSA)

.1 CAN/CSA G40.20/G40.21 04, General Requirements for Rolled or Welded Structural Quality Steel.

.2 CSA W59 03, Welded Steel Construction (Metal Arc Welding).

1.03 ADMINISTRATIVE REQUIREMENTS

.1 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

.2 Coordination: Supply to concrete, masonry and/or other Sections, materials requiring setting and/or building-in in concrete, masonry or other trades. This includes inserts, anchors, frames, sleeves, etc. Verify locations of said materials.

1.04 SUBMITTALS

.1 Test Reports: Provide certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Product Data: Submit manufacturer's printed product literature, specifications and data sheets.

.3 Shop Drawings:

.1 Provide shop drawings for each item showing the finished appearance, construction details, materials, finishes, connections and fastenings of each item.

.2 Underline, ring or otherwise point up any deviation from the specification or drawings.

.3 Clearly show and describe all items; sections, dimensions, erection details, anchors and fastenings, cuts and drilled holes, connection and jointing details.

.4 Shop drawings for handrails and support members shall bear the seal and signature of a licensed Ontario Professional Structural Engineer responsible for their design.

.5 Where structural / miscellaneous shapes and sizes, including shapes and sizes of hangers, bracing and anchors, are indicated on Architectural drawings, it is the responsibility of the Metal Fabrications Subcontractor's structural engineer to review these shapes and sizes and confirm that they are adequate to support the loads anticipated. Consult with Departmental Representative regarding loading allowed by building structure. Subcontractor's structural engineer shall stamp and sign each shop drawing ensuring that the assemblies are provided in accordance with the engineer's design.

.4 Samples: Duplicate samples of 300 mm square sheet, 300 mm long members of each finished architectural metal work. Show each combination of mechanical and chemical treatments to be used on alloy. Prepare samples on metal of same alloy and gauge to be used for work. Show typical welds, fasteners, screws, mitres, and anticipated joints for compatible finish.

1.05 DELIVERY, STORAGE AND HANDLING

.1 Coordinate deliveries to comply with construction schedule and arrange ahead for strategic off-the-ground, covered storage locations. Do not load areas beyond the designed limits.

.2 Handle and store metal materials at job site in a manner to prevent damage to other materials, to existing buildings or property.

.3 Handle components with care, and provide protection for surfaces against marring or other damage. Ship and store members with cardboard or other resilient spacers between surfaces. Use lifting chokers of material which will not damage surface of steel members.

.4 Use strippable coatings or wrappings to protect exposed surfaces of prefinished metal work which does not receive site finishing. Use materials recommended by finishers or manufacturers of metals, to ensure that method is sufficiently protective, easily removed, and harmless to the finish.

.5 Tag metal fabrications, including associated anchor bolts, sleeves, and bases, or otherwise mark for ease of identification at project site.

1.06 PROJECT CONDITIONS

.1 Field Measurements: Take measurements at the site to assure proper fitting, fabrication, and erection of the work. Check dimensions in the field, whether or not shown, upon which the accurate fitting together and building-in of the metal fabrication work may depend or which affects the proper installation of the work of others.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Stainless steel pipe and mountings, to ASTM A312.

.2 Aluminum and aluminum-alloy extruded bar, rods, wire, shapes and tubes: to ASTM B 221M. Aluminum welding wire: to AWS-A5.10/A5.10M.

.3 Aluminum finishes: Type, Architectural Class 1, Designation A44, clear (natural) anodic coating, 0.7 mil minimum thickness.

.4 Aluminum perforated panels, clear (natural) anodic coating

.5 Welding: to CSA W59.

.6 Fasteners: nuts, screws, bolts and washers to be type 304 stainless steel, to be flush countersunk.

2.02 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof headed screws on items requiring assembly by screws or as indicated.

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

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

PART 3 EXECUTION

3.01 METAL SHAPE FABRICATION

.1 Fabricate metal shape work as shown and to reviewed shop drawings. Gauges to be dimensioned to suit work.

3.02 INSTALLATION

.1 Install metal work to reviewed shop drawings.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide anchorage as detailed on reviewed shop drawings.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Replace any item damaged during installation that cannot be repaired to Departmental Representative’s satisfaction, at no cost to Owner.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 Repair of exterior door jambs, trimwork and thresholds.

.2 Replication of exterior baluster and porch post profiles

.3 Construction of new exterior trimwork, facings, guardrails and newel posts

.4 Replication of interior trimwork and casings

1.02 RELATED SECTIONS

.1 Section 09 91 00 - Painting

1.03 REFERENCES

.1 Architectural Woodwork Manufacturers Association of Canada (AWMAC), latest editions

.1 Architectural Woodwork Quality Standards Illustrated

.2 Canadian Standards Association (CSA International), latest edition

.1 CAN/CSA-O141, Softwood Lumber.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Safety Data Sheets (SDS).

.4 National Lumber Grading Authority (NLGA), latest edition

.1 NLGA Standard Grading Rules for Canadian Lumber.

1.04 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 epoxy consolidant and patching compound, adhesives and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit duplicate 300 mm long samples of replicated trimwork.

.2 Submit duplicate 300 mm long sample of rail profiles.

.4 Shop Drawings:

.1 Submit large scale drawings of wood splices connections showing details of layout, materials, and construction.

.2 Submit shop drawings for woodwork items to be replicated.

.5 Mock-ups:

.1 Construct mock-up in accordance with Section 01 33 00 - Submittal Procedures.

.2 Construct mock-up demonstrating:

.1 Dismantling of existing balusters and posts

.2 Epoxy consolidation and patching of decorative woodwork.

.3 Dutchman repair of decorative woodwork.

.4 Replacement of a decorative woodwork element.

.3 Notify Departmental Representative 5 working days in advance of mock-up preparation.

.4 When accepted, mock-up demonstrates minimum standard for this work.

.5 Mock-up may remain as part of finished work.

1.05 QUALITY ASSURANCE

.1 Qualifications:

.1 Carry out wood repairs work of this section using skilled tradespersons trained and experienced in rehabilitation and installation of wood repairs.

.2 Competent worker: equipped with tools and equipment necessary to carry out work in a traditional manner.

.3 Contractor's Field Supervision and Crew Qualifications: maintain full-time supervisor/foreperson on job site during times work is in progress. Supervisor must have experience in wood repairs similar in nature and scope to specified work.

.1 Shop crew makeup: trade qualified journeyperson carpenters and registered apprentices in the ratio of no more than one to one (at least one journeyperson to one apprentice).

.4 Only workers accepted by Departmental Representative during mock-ups will be authorized to perform Work of this section.

1.06 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals..

.2 Record Documentation:

.1 Submit assembled documentation in the form of a Conservation Report to document every step of the restoration process from examination of existing conditions to reinstallation. Locate interventions by type for each façade and room.

1.07 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Refer to Section 01 35 91 – Heritage Protective Measures for documentation, packing, crating and transportation to and from shop of salvaged heritage materials to be re-used.

.3 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.4 Storage and Handling Requirements:

.1 Storage area designated by Departmental Representative.

.2 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

1.08 AMBIENT CONDITIONS

.1 Adhesive repair and consolidation and patching:

.1 Maintain temperature of elements to be repaired at between 21 degrees C and 24 degrees C throughout its thickness and for 48 hours after repairing.

.1 Wood within 75 mm of the repair is to be within the temperature range at the time of application. Shade the mixing and application area from direct sunlight.

.2 Provide temporary closure and equipment necessary to maintain temperatures specified.

.3 Undertake work under conditions of relative humidity at same level as operational requirements of end product.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Solid wood with a moisture content not exceeding 10%, in accordance with:

.1 National Hardware Lumber Association

.2 AWMAC requirements, custom grade wood with specified moisture content.

.3 Species: Douglas fir, quarter cut with edge grain to the weather, grade ‘C’ select, quarter-sawn, free of holes, insect damage and defects.

.2 Dowels: Hardwood lumber to National Hardwood Lumber Association (NHLA) requirements, size 9.5 mm diameter, length as designed, with moisture content to maximum 10 %.

.3 Fastener: nails, wood screws, wood pegs, wood pins, wood glues; brass or stainless steel 300 series; size to suit application.

.4 Adhesives:

.1 Adhesive shall be a two part epoxy formulated specifically for exterior architectural wood work repairs, with a proven track record of minimum 20 years.

.2 Adhesive shall have superior adhesive and cohesive strength.

.5 Epoxy Repair system:

.1 The epoxy system, namely both the consolidant and the patching compound, shall be by the same manufacturer and shall be a system formulated specifically for exterior architectural wood work repairs, with a proven track record of a minimum of 25 years and compatible with a linseed oil based paint system.

.2 Consolidant shall consist of a two parts and patching compound shall consist of a four parts, mixed immediately before use.

.3 Flexibility of the cured patching compound is important for compatibility with woodwork. It shall be possible to take a cured sample of both the consolidant and patching compound, 100 mm in diameter, by 4-5 mm. thick, and to bend them double and for them to return to their former shape without breaking.

.4 Fumed silica: fumed silica or equal may be used to thicken the patch to enhance tooling and application.

2.02 TOOLS

.1 Turpentine.

.2 Masking material: polyethylene to CAN/CGSB 51.34, minimum 0.15 mm thick (6 mils)

2.03 SHOP FABRICATION

.1 All fabrication to conform to AWMAC QSI Premium Grade and to reviewed shop drawings.

.2 All faces and edges are to be finished as indicated.

.3 Nail heads of finishing nails and press screws into countersunk holes. Holes to be filled with wood fill, then sanded until a smooth surface is obtained.

2.04 FINISHING

.1 All architectural woodwork shall be finished in accordance with Section 09 91 00 – Painting.

PART 3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable.

.1 Visually inspect substrate.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

.2 Stop work and report immediately to Departmental Representative conditions relevant to this contract not described in drawings: evidence of deficiencies, fungal or insect attack which may affect the scope of work and durability of the finished product.

3.02 PREPARATION

.1 Protection of in-place conditions:

.1 Protect repair area and existing finishes and materials adjacent to repair area from damage during the Work by covering or masking.

.2 Dismantling:

.1 Throughout course of deconstruction pay close attention to connections and material assemblies. Employ workmanship and procedures which minimize damage to materials and equipment.

.2 Ensure workers and subcontractors are trained to carry out work in accordance with appropriate deconstruction techniques for heritage materials.

.3 Prior to removal, document and photograph woodwork as per Section 01 35 91 – Heritage Protective Measures.

.4 Dismantle exterior woodwork, to be salvaged as indicated on drawings.

.3 Surface Preparation:

.1 Remove paint in accordance with Section 09 91 00 – Painting.

.4 Verify proposed repair type and area with Departmental Representative prior to starting work.

3.03 PACKING AND CRATING

.1 Pack and transport existing wood elements to the shop as per Section 01 35 91 – Heritage Protective Measures.

3.04 APPLICATION OF CONSOLIDANT

.1 Remove dirt, loose friable material prior to application. Remove loose fragments and blow out dust.

.2 Obtain approval from Departmental Representative of preparation work prior to proceeding with installation.

.3 Protect the prepared area; wood to be treated with epoxy must be dry and have moisture content of less than 18%.

.4 Apply mixture by pouring and brushing onto the wood surface until prepared area is fully saturated. The applicator bottle can be used to inject into drilled holes or larger openings in the wood. Consolidant will readily follow grain of wood. For vertical surfaces drill small holes in wood on angle to hold consolidant. Apply wood consolidant while absorption continues.

.5 Apply liberally to prepared area but not beyond. Do not allow consolidant to touch adjacent areas, materials or building components. Repeat application 4 to 6 times over an 8 hour period or until surfaces do not accept more consolidant. Allow approximately 1 hour between applications.

.6 Protect until epoxy has cured. Keep treated area out of direct sunlight and at temperatures above 15 degrees C until cured. Shade treated area for minimum of 8 hours following application.

3.05 APPLICATION OF PATCH

.1 Apply epoxy patching compound with a putty knife, trowel or similar tool.

.2 Apply patch only to prepared cavities or checks previously encapsulated with epoxy consolidant. Do not apply in thicknesses greater than 38 mm or in any one area exceeding one litre at one time. Allow epoxy to set before applying additional layers.

.3 In certain situations, where the outside corner has been abraded away, the patch material shall be mixed at a low viscosity and cast to form the desired shape. Use clear packing tape as a release on the form.

.4 Plane, tool and sand surfaces smooth and remove all excess on the surface so that the epoxy is limited to voids and is not applied as a surface coating.

.5 For best results, allow 15-20 minutes of standing time after application before roughly shaping and moulding.

.6 Let filler cure 36-72 hours, depending on temperature. Cured epoxy can be worked and tooled similar to real wood.

.7 Sanding can generally take place within 24-48 hours. Premature sanding will gum up sand paper. Always sand with wood grain.

.8 In the process of tooling and sanding, remove excess epoxy to expose sound wood surface where possible.

.9 Restore original profile and ensure proper fit of wood components:

3.06 DUTCHMAN REPAIR

.1 Prepare damaged area of existing parent wood component for Dutchman repair.

.2 Cut back damaged wood as indicated minimum 6 mm beyond the last evidence of damage.

.3 Splice Dutchman repair piece into parent wood component.

.4 Set Dutchman repair piece in bed of adhesive. Do not attach to adjacent wood component.

.1 Apply adhesive evenly to both surfaces and clamp.

.2 Avoid adhesive drippings. Remove drips and splashes immediately.

.3 Remove hard cured adhesive evident in completed work.

.1 Obtain approval of removal methods from Departmental Representative.

.5 Clamp repair piece in place until adhesive has set. Protect repair piece and other wood components from pressure marks.

.6 Fasten larger repair piece to parent wood component with screws, size to suit. Countersink screw and fill hole with wood plug. Avoid using surface fasteners

.7 Ensure joints are tight and visible only on close inspection.

.8 Exterior exposed joints should be weather tight, bevelled for moisture drainage to exterior.

3.07 REPLICATION OF INDIVIDUAL COMPONENTS

.1 Layout joints and pieces as per existing approved mock-ups.

.2 Shape repair piece, to match size and profile of existing according to approved sample and shop drawings.

.3 Trial fit joints before fastening in place. Adjust as necessary to ensure close accurate fit with adjacent surfaces.

.4 Select dowel length to suit application, glue in place, and trim prior to sanding as required.

3.08 CLEANING

.1 Refer to Section 01 74 11 – Cleaning.

3.09 PROTECTION

.1 Cover completed work not enclosed or sheltered with waterproof covering. Anchor securely in place.

3.10 SCHEDULE

.1 Refer to drawings.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCES

.1 CSA International, latest editions

- .1 CSA B111, Wire Nails, Spikes and Staples.
- .2 CSA O121, Douglas Fir Plywood.
- .3 CSA O141, Softwood Lumber.
- .4 CSA O151, Canadian Softwood Plywood.
- .5 CAN/CSA-0325.0, Construction Sheathing
- .6 CAN/CSA-Z809, Sustainable Forest Management.

.2 National Lumber Grades Authority (NLGA), latest edition.

- .1 Standard Grading Rules for Canadian Lumber.

1.02 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, OSB, and wood-based composite panel construction sheathing identification: by grade mark in accordance with applicable CSA standards.

1.03 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

- .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect wood from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

1.04 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 00 10 - General Instructions, Waste Management.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Lumber: unless specified otherwise, SPF softwood, S4S, moisture content 19% or less in accordance with following standards:

- .1 CAN/CSA-O141.
- .2 NLGA Standard Grading Rules for Canadian Lumber.
- .3 CAN/CSA-Z809 or FSC or SFI certified.

.2 Porch decking: SPF softwood, moisture content 19% or less. Construction grade or better to CAN/CSA O141. Thickness and width to match existing decking or as indicated. Machine ends and edges to match existing profiles.

.3 Furring, blocking, nailing strips, grounds, rough bucks, cants, curbs, fascia backing and sleepers: SPF No. 2 or better grade.

.4 Plywood: to CSA O325, 19mm thick & 25mm thick.

.5 Board and dimension sizes: Select Structural or better grade.

2.02 ACCESSORIES

.1 Fasteners: stainless steel 300 series. Wood screws: size to suit or as indicated.

.2 Nails, spikes and staples: to CSA B111.

.3 Explosive actuated fastening devices not permitted.

PART 3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify conditions of existing substrates are acceptable for rough carpentry installation.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

3.02 INSTALLATION

.1 Comply with requirements of OBC, supplemented by the following paragraphs.

.2 Install new porch deck boards and wood stair structure as required, and as indicated on drawings to suit new construction.

.3 Install furring and blocking as required to space-out and support facings, fascia, siding and other work.

.4 Use member sizes to match existing where required to replace unserviceable wood components.

.5 Install members true to line, levels and elevations, square and plumb.

.6 Construct continuous members from pieces of longest practical length.

.7 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.8 Use screws for wood porch decking and stairs.

.9 Countersink bolts where necessary to provide clearance for other work.

3.03 CLEANING

.1 Refer to Section 01 74 11 – Cleaning.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Section Includes:

.1 New service counter and veneer plywood for reception vestibule.

.2 New service counter window opening

.3 New wood door frames

1.2 RELATED REQUIREMENTS

.1 Section 08 80 00 – Glazing

1.3 REFERENCES

.1 The Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC) shall apply and by reference are made a part of this specification.

.2 Canadian Standards Association (CSA International), latest revisions.

.1 CSA B111, Wire Nails, Spikes and Staples.

.2 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CSA O121, Douglas Fir Plywood.

.4 CAN/CSA, Softwood Lumber.

.5 CSA O151, Canadian Softwood Plywood.

.6 CAN/CSA-O325.0, Construction Sheathing.

.3 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber.

.4 Hardwood, Plywood and Veneer Association (HPVA)

.1 Quality Standards, latest edition.

1.4 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood identification: by grade mark in accordance with applicable CSA standards.

.3 Plywood, OSB and wood based composite panel construction sheathing identification: by grademark in accordance with applicable CSA standards.

.4 Fabricate all work (construction, finishes and other requirements) of this Section to QSI Premium Grade as defined in the Quality Standards Illustrated, latest edition(QSI).

.5 Single Source Responsibility for “Products”: Obtain each type “Product” from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

.6 Contractor: a company with minimum five (5) years successful performance in quality architectural woodwork similar to that specified for this project.

.7 Workers abilities:

.1 Work shall be performed by personnel having a minimum of five (5) years recent experience in architectural woodwork of the type specified.

.8 Departmental Representative:

.1 Work shall be reviewed by the Departmental Representative.

1.5 WORK RESULTS

.1 Materials and procedures specified in this Section shall serve as basis for submittals.

.2 Contractor is responsible for any damage to or loss of heritage materials occurring as a result of site, handling, transport and/or storage activities.

.3 Ensure materials, equipment and procedures do not affect the existing structure.

.4 Apply methods that minimize the risk of damage to heritage materials.

1.6 SUBMITTALS

.1 Submittals shall meet requirements of Section 01 33 00 – Submittals.

.2 Submit proof of Contractor’s experience in architectural woodwork of similar complexity.

.3 Submit proof of workers experience in architectural woodwork of similar complexity.

.4 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Submit copies of WHMIS MSDS - Material Safety Data Sheets.

.5 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions, including storage, handling and Project conditions.

.6 Samples:

.1 Submit duplicate 300 x 300 mm samples of wood veneer plywood

.2 Submit duplicate 300 x 300 mm samples of solid wood for woodwork

.7 Shop Drawings:

.1 Submit complete shop drawings for all woodwork as indicated to be furnished.

1.7 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle products using means and methods to prevent damage, deterioration and loss, including theft.

.2 Deliver, store and handle products in accordance with protective measures outlined in Section 01 61 00 – Common Product Requirements.

.1 Schedule delivery to minimize long term storage at site and to prevent overcrowding of construction spaces.

.2 Store products at site to facilitate inspection and measurement of quantity or counting of units.

.3 Store heavy materials to prevent endangering supporting construction.

1.8 PROTECTION

.1 Prior to work, isolate work area from adjacent areas.

.2 If required, protective barriers shall be constructed as indicated and to requirements of Section 01 35 91 – Heritage Protective Measures. Have Departmental Representative review protective barriers prior to commencement of work.

.3 At completion, re-install protective barriers where indicated.

1.9 CLEANING

.1 At completion, remove extra materials, tools and rubbish and leave area clean and ready for inspection.

.2 Where required, install heritage protections as indicated when directed by Heritage Departmental Representative.

PART 2 PRODUCTS

2.1 MATERIALS

.1 Solid wood with a moisture content not exceeding 8%, in accordance with:

- .1 National Hardware Lumber Association
- .2 AWMAC requirements, custom grade wood with specified moisture content.
- .3 Species: to match existing

.2 Veneer faced plywood:

- .1 Decorative hardwood plywood to specified AWMAC AWS requirements for grade specified for exposed surfaces:
  - .1 Veneer species: to match existing wood wainscoting
  - .2 Matching: Book matched
  - .3 Core: Combination core
  - .4 Thickness: as noted on Drawings
  - .5 Bond: Type II
  - .6 Grain direction: as noted on Drawings.

2.2 ACCESSORIES

.1 Fastenings and Hardware: to conform to CSA B111

- .1 Stainless steel
- .2 Wood screws: steel, conforming to CSA B35.4, type and size as required for use.

2.3 SHOP FABRICATION FOR WOODWORK

.1 All fabrication to conform to AWMAC QSI Premium Grade and to reviewed shop drawings.

.2 All faces and edges are to be finished as indicated.

.3 Nail heads of finishing nails and press screws into countersunk holes. Holes to be filled with wood fill, then sanded until a smooth surface is obtained.

PART 3 EXECUTION

3.1 INSTALLATION

.1 Install members and panels to plumb line, levels and elevations.

.2 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.3 Countersink bolts where necessary to provide clearance for other work.

.4 Construct continuous members from pieces of the longest practical length. Match existing material that is being replaced.

.5 Install temporary bracing where required for the work of this Section and remove when on longer needed.

.6 Do not cut or drill structural members other than as indicated on drawings without the written approval of the Departmental Representative.

.7 Construct and install window opening as per shop drawings.

.8 Install glazing as per Section 08 80 00 – Glazing.

.9 Install woodwork at location as shown on drawings. Position accurately, level, plumb straight.

.10 Fasten and anchor woodwork securely.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 New exterior and interior wood doors and wood frames.

1.02 REFERENCES

.1 The Quality Standards of the Architectural Woodwork Manufacturers Association of Canada (AWMAC) shall apply and by reference are made a part of this specification.

.2 National Hardwood Lumber Association (NHLA).

.1 Rules for the Measurement and Inspection of Harwood and Cypress, latest revision.

.3 Hardwood, Plywood and Veneer Association

.1 Quality Standards, latest edition.

1.03 QUALITY ASSURANCE

.1 Single Source Responsibility for “Products”: Obtain each type “Product” from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

1.04 WORK RESULTS

.1 Materials and procedures specified in this Section shall serve as basis for submittals.

.2 Contractor is responsible for any damage to or loss of heritage materials occurring as a result of site, handling, transport and/or storage activities.

.3 Ensure materials, equipment and procedures do not affect the existing structure.

.4 Apply methods that minimize the risk of damage to heritage materials.

1.05 SUBMITTALS

.1 Submittals as per Section 01 33 00 - Submittal Procedures.

.2 Shop Drawings:

.1 Shop drawings shall be submitted in electronic format as a PDF or DWF file. Scanned drawings will only be accepted if legible. Illegible drawings will be rejected.

.2 Shop drawings shall define the division of responsibility between different trades. Shop drawings shall show materials, methods of construction and attachment or anchorage, erection diagrams, connections and other details necessary to complete the work. Shop drawings shall show cross references to drawings and specifications.

.3 Make shop drawings accurately to a scale sufficiently large to show pertinent features of the item to be supplied and the method of connection to the work including attachments, reinforcing, and anchorage land location of exposed fastenings.

.4 The Contractor and/or Subcontractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work.

.3 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Submit copies of WHMIS MSDS - Material Safety Data Sheets.

.4 Manufacturer's Instructions:

.1 Submit manufacturer's installation instructions, including storage, handling and Project conditions.

.5 Manufacturer’s Warranty:

.1 Submit manufacturer’s warranty documents for review.

1.06 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle products using means and methods to prevent damage, deterioration and loss, including theft.

.2 Schedule delivery to minimize long term storage at site and to prevent overcrowding of construction spaces.

.3 Store products at site to facilitate inspection and measurement of quantity or counting of units.

.4 Store heavy materials to prevent endangering supporting construction.

1.07 PROJECT CONDITIONS

.1 Temperature, Humidity, Ventilation and Lighting:

.1 Provide heating facilities to maintain ambient air and substrate temperatures above 15 degrees C for 24 hours before, during and after work completion.

.2 Coordinate use of existing ventilation system with General Contractor and ensure its operation as required.

.3 Provide temporary ventilating and heating equipment where permanent facilities are not available or supplemental ventilating and heating equipment if ventilation and heating from existing system is inadequate to meet minimum requirements.

.4 Provide minimum lighting level of 700 Lux on work surfaces.

.5 The relative humidity shall be maximum 25% in winter and 60% in summer.

1.08 PROTECTION

.1 Prior to work, isolate work area from adjacent areas.

.2 Maintain in good condition protections to heritage materials not part of work; if unprotected heritage materials not part of work are found in work area, install protective barriers to requirements of Departmental Representative.

.3 At completion, re-install protective barriers where indicated. Follow procedures described in Section 01 35 91 – Heritage Protective Measures.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Wood flush doors: Solid core to CAN/CSA-0132.2.1

.1 Solid particleboard core: stile and rail frame bonded to particleboard core with wood lock blocks and special solid wood blocking, 5-ply construction.

.2 Face Panels: Hardwood, veneer grades, Grade 1 (premium) birch species.

.3 Adhesive: Type 1 (waterproof) for interior doors.

.2 Glazing: as per Section 08 80 00 - Glazing

.3 Paint finish: as per Section 09 91 00 – Painting.

2.02 FABRICATION

.1 Doors:

.1 Vertical edge strips to match face veneer.

.2 Prepare doors for glazing where indicated. Provide hardwood species to match face veneer glazing stops with mitred corners.

.3 Refer to Section 08 80 00 – Glazing for installation of door glazing.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue, installation instructions, and data sheets.

3.02 INSTALLATION OF DOORS

.1 Install frames where indicated and as per reviewed shop drawings. Install softwood blocking as required.

.2 Install doors and glazing in accordance with manufacturer's printed instructions.

.3 Install hardware as per Section 08 71 00 - Door Hardware.

.4 Adjust doors and hardware to ensure it is functioning freely and properly.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCE STANDARDS

.1 American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA)

.1 ANSI/BHMA A156.1, American National Standard for Butts and Hinges.

.2 ANSI/BHMA A156.2, Bored and Preassembled Locks and Latches.

.3 ANSI/BHMA A156.4, Door Controls - Closers.

.4 ANSI/BHMA A156.10, Power Operated Pedestrian Doors.

.5 ANSI/BHMA A156.13, Mortise Locks and Latches Series 1000.

.6 ANSI/BHMA A156.15, Release Devices - Closer Holder, Electromagnetic and Electromechanical.

.7 ANSI/BHMA A156.18, Materials and Finishes.

.8 ANSI/BHMA A156.19, Power Assist and Low Energy Power - Operated Doors.

1.02 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 door hardware and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Identify each sample by label indicating applicable specification paragraph number, brand name and number, finish and hardware package number.

.4 After approval samples will be returned for incorporation in Work.

.4 Hardware List:

.1 Submit contract hardware schedule.

.2 Indicate specified hardware, including make, model, material, function, size, finish and other pertinent information.

.5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

.6 Manufacturer's Instructions: submit manufacturer's installation instructions.

1.03 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for door hardware for incorporation into manual.

1.04 MAINTENANCE MATERIAL SUBMITTALS

.1 Extra Stock Materials:

.2 Supply maintenance materials in accordance with Section 01 78 00 - Closeout Submittals

.3 Tools:

.1 Supply 2 sets of wrenches for door closers and locksets.

1.05 QUALITY ASSURANCE

.1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.06 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Package items of hardware including fastenings, separately or in like groups of hardware, label each package as to item definition and location.

.4 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect door hardware from nicks, scratches, and blemishes.

.3 Protect prefinished surfaces.

.4 Replace defective or damaged materials with new.

PART 2 PRODUCTS

2.01 HARDWARE ITEMS

.1 Use one manufacturer's products only for similar items.

2.02 DOOR HARDWARE

.1 Locks and latches:

.1 Bored and preassembled locks and latches: to ANSI/BHMA A156.2, designed for function and keyed as stated in Hardware Schedule.

.2 Lever handles: plain design.

.3 Escutcheons: square

.4 Normal strikes: box type, lip projection not beyond jamb.

.5 Cylinders: key into keying system as directed.

.2 Butts and hinges:

.1 Butts and hinges: to ANSI/BHMA A156.1, designated by letter A and numeral identifiers, followed by size and finish, listed in Hardware Schedule, finished to 603 zinc plated.

.2 Pivots: to ANSI/BHMA A156.17, designated by letter K and numeral identifiers listed in Hardware Schedule, finished to 603 zinc plated.

.3 Door Closers and Accessories:

.1 Door controls (closers): to ANSI/BHMA A156.4, designated by letter C and numeral identifiers listed in Hardware Schedule, sized to suit door size, finished to 603 zinc plated.

.2 Door controls - overhead holders: to ANSI/BHMA A156.8, designated by letter C and numeral identifiers listed in Hardware Schedule, finished to 603 zinc plated.

.3 Closer/holder release devices: to ANSI/BHMA A156.15, designated by letter C and numeral identifiers listed in hardware schedule, finished to 603 zinc plated.

.4 Door Operators:

.1 Power-operated pedestrian doors: to ANSI/BHMA A156.10.

.2 Power assist and low energy power operated doors: to ANSI/BHMA A156.19.

.5 Auxiliary locks and associated products: to ANSI/BHMA A156.5, designated by letter E and numeral identifiers listed in Hardware Schedule, finished to 603 zinc plated.

.1 Dead bolt, type mortise, single keyed, keyed into keying system as directed.

.2 Cylinders: type Rim, finished to 603 zinc plated, for installation in dealocks provided with special doors as listed in Hardware schedule. Key into keying system as directed.

.6 Thresholds: sized to suit, aluminum, clear anodized finish

.7 Weatherstripping:

.1 Head and jamb seal:

.1 Extruded aluminum frame and nylon brush insert, clear anodized finish.

.2 Door bottom seal:

.1 Extruded aluminum frame and nylon brush sweep, clear anodized finish, recessed in door bottom.

.8 Barrier Free Pneumatic Door Operator, wireless:

.1 Pneumatically assisted door closer, single-door system, complete with actuators, control boxes, pneumatic tubing and compressed air source.

.2 Control boxes: complete with electric strike relay, in location as directed by Departmental Representative

.3 Wireless receiver, in location as directed by Departmental Representative

.4 Actuation of operators by push buttons

.5 Provision of wireless remote door release.

2.03 FASTENINGS

.1 Use only fasteners provided by manufacturer. Failure to comply may void warranties and applicable licensed labels.

.2 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.3 Exposed fastening devices to match finish of hardware.

.4 Use fasteners compatible with material through which they pass.

2.04 KEYING

.1 Doors to be great grand master keyed. Prepare detailed keying schedule in conjunction with Departmental Representative. Key doors to same rooms or areas alike.

.2 Supply keys in duplicate for every lock in this Contract.

.3 Supply 3 master keys for each master key or grand master key group.

.4 Stamp keying code numbers on keys and cylinders.

.5 Supply construction cores.

.6 Hand over permanent cores and keys to Departmental Representative.

PART 3 EXECUTION

3.01 INSTALLATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Supply metal door and frame manufacturers with complete instructions and templates for preparation of their work to receive hardware.

.3 Supply manufacturers' instructions for proper installation of each hardware component.

.4 Where door stop contacts door pulls, mount stop to strike bottom of pull.

.5 Use only manufacturer's supplied fasteners.

.1 Use of "quick" type fasteners, unless specifically supplied by manufacturer, is unacceptable.

.6 Remove construction cores when directed by Departmental Representative.

.1 Install permanent cores and ensure locks operate correctly.

3.02 ADJUSTING

.1 Adjust door hardware, operators, closures and controls for optimum, smooth operating condition, safety and for weather tight closure.

.2 Lubricate hardware, operating equipment and other moving parts.

.3 Adjust door hardware to ensure tight fit at contact points with frames.

3.03 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

3.04 DEMONSTRATION

.1 Maintenance Staff Briefing:

.1 Proper care, cleaning, and general maintenance of projects complete hardware.

.2 Description, use, handling, and storage of keys.

.3 Use, application and storage of wrenches.

.2 Demonstrate operation, operating components, adjustment features, and lubrication requirements.

3.05 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by door hardware installation.

3.06 SCHEDULE

.1 Refer to door schedule drawing for schedule.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

.1 Section Includes:

.1 New security glazing for service counter

.2 New glazing for doors

1.2 RELATED REQUIREMENTS

.1 Section 06 40 00 – Architectural Woodwork

.2 Section 08 80 00 - Glazing

1.3 REFERENCES

.1 American National Standards Institute (ANSI), latest revision.

.1 ANSI Z97.1, Standard for Safety Glazing Materials Used in Buildings.

.2 American Society for Testing and Materials (ASTM International), latest revision.

.1 ASTM D2240, Test Method for Rubber Property - Durometer Hardness.

.2 ASTM E84, Test Method for Surface Burning Characteristics of Building Materials.

.3 ASTM C1281, Standard Specification for Preformed Tape Sealants for Glazing Applications.

.3 Canadian General Standards Board (CGSB), latest revision.

.1 CAN/CGSB-12.1, Tempered or Laminated Safety Glass.

.2 CAN/CGSB-12.3, Flat, Clear Float Glass.

.3 CAN/CGSB-12.8, Insulating Glass Units.

.4 Flat Glass Manufacturers Association (FGMA).

.1 FGMA Glazing Manual – latest revision.

.5 Glass Association of North American (GANA)

.1 GANA Glazing Manual.

.2 GANA Laminated Glazing Reference Manual.

1.4 SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet.

.2 Submit copies of WHMIS MSDS - Material Safety Data Sheets.

.3 Manufacturer’s Warranty:

.1 Submit manufacturer’s warranty documents for review.

.4 Samples:

.1 Submit duplicate samples of each type material / item required, showing full range of colours, textures, finishes, and other variations related to visual characteristics expected in finished work.

.2 Submit glass samples in 200 x 200 mm size.

.3 Submit glazing tape in 300 mm lengths.

.4 Submit 100 mm long setting blocks.

1.5 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration and loss, including theft.

.2 Deliver, store and handle products in accordance with protective measures outlined in Section 01 35 91 – Heritage Protective Measures.

.1 Schedule delivery to minimize long term storage at site and to prevent overcrowding of construction spaces.

.2 Coordinate delivery with installation time ensuring minimum holding time for flammable, hazardous, easily damaged items, or items sensitive to deterioration, theft and other losses.

.3 Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

.4 Inspect products upon delivery ensuring compliance with Contract Documents, and ensuring products are undamaged and properly protected.

.5 Store products at site to facilitate inspection and measurement of quantity or counting of units.

.6 Store heavy materials to prevent endangering supporting construction.

.7 Store products subject to damage by elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

.3 Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.

1.6 MAINTENANCE DATA

.1 Provide maintenance data for incorporation into Data binders specified in Section 01 77 00 – Closeout Submittals.

.2 Provide maintenance data including cleaning instructions.

1.7 AMBIENT CONDITIONS

.1 Ambient Requirements:

.1 Install glazing when ambient temperature is 10 degrees C minimum. Maintain ventilated environment for 24 hours after applications.

.2 Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

PART 2 PRODUCTS

2.1 GENERAL TO ALL GLASS PRODUCTS

.1 Glass edges must be cut straight, free of nicks or other imperfections that may alter its mechanical resistance. The following conditions are considered unacceptable:

.1 V grooves and edge crushing;

.2 Shark's teeth of height exceeding half of glass pane thickness;

.3 Height of Walner lines (serration hackle) exceeding one quarter of glass pane thickness or presence of chips in glass edge;

.4 Edge flare exceeding one eighth of glass pane thickness;

.5 Beveled cuts of which deviation exceeds one quarter of glass pane thickness;

.6 Surface chips with length and/or width exceeding 6 mm.

2.2 GLAZING

.1 Glazed screen for security counter:

.1 Laminated glass: to CAN/CGSB-12.1, Type 1 – tempered, Class B, Category ll, transparent, seamed edges where exposed

.2 Glazing for doors:

.1 Tempered glass, to CAN/CGSB-12.1, Type 2 – tempered, Class B, Category II, transparent for exterior doors, frosted for interior doors.

2.3 ACCESSORIES:

.1 Setting blocks: Neoprene or EPDM, 80-90 Shore A durometer hardness to ASTM D2240, to suit glazing method, glass light weight and area.

.2 Spacer shims: Neoprene, 50-60 Shore A durometer hardness to ASTM D2240, 75 mm long x one half height of glazing stop x thickness to suit application. Self adhesive on one face.

.3 Glazing tape: Preformed, to ASTM C1281, 10-15 Shore A durometer hardness to ASTM D2240; coiled on release paper; size to suit; colour as selected by Departmental Representative

.5 Security film: 7mil single ply

PART 3 EXECUTION

3.1 EXAMINATION

.1 Verify that openings for glazing are correctly sized and within tolerance.

.2 Verify that surfaces of glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

3.2 PREPARATION

.1 Clean contact surfaces with solvent and wipe dry.

.2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.

.3 Prime surfaces scheduled to receive sealant.

3.3 GLAZING OF WOOD DOORS

.1 Supply new glass where required and of type indicated.

.2 Set glass on setting blocks sized and placed to industry standards.

.3 Cut glazing tape to length and set against permanent stops, flush with sight line. Seal corners by butting tape.

.4 Push glazing against tape with sufficient pressure to attain full contact at perimeter of glass unit.

.5 Place glazing tape on glazing unit with tape flush with sight line.

.6 Install stops supplied by door fabricator.

3.4 GLAZING FOR SERVICE WINDOW

.1 Perform work in accordance with GANA Glazing Manual and GANA Laminated Glazing Reference Manual for glazing installation methods.

.2 Cut glazing tape to length and set against permanent stops, projecting 1.6 mm above sight line.

.3 Place setting blocks at ¼ points, with edge block maximum 150 mm from corners.

.4 Rest glazing on setting blocks and push against tape for full contact at perimeter of frame.

.5 Install security film on surface 2 to edge of glass as per manufacturer’s specifications.

.6 Place glazing tape on free perimeter of glazing in same manner described.

.7 Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.

.8 Knife trim protruding tape.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 Gypsum board assemblies for new reception vestibule.

1.02 RELATED SECTIONS

.1 Section 08 14 00 – Wood Doors and Frames

.2 Section 09 03 91 – Painting

1.03 REFERENCES

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

.1 ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials

.2 ASTM C1396 – Standard Specification for Gypsum Board

1.04 QUALITY ASSURANCE

.1 Install work level to tolerance of 3mm in 3000 mm.

1.05 SUBMITTALS

.1 Submittals shall meet requirements of Section 01 33 00 – Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer’s printed literature, specifications and data sheet.

.2 Submit copies of WHIMS MSDS – Material Safety Data Sheets.

.3 Manufacturer’s Instructions:

.1 Submit manufacturer’s installation instructions, including storage, handling and Project conditions.

.4 Manufacturer’s Certificates: Certify products meet or exceed specified requirements

.5 Shop drawings indicating:

.1 Gypsum Assemblies:

Type of Gypsum panels supplied, surface finish, components, size, spacing and location of structural supports, connections and location of fastenings.

.1 Assembly installation details, showing attachment methods, joints, corners, intersections with adjacent materials, closures, openings and other critical conditions.

1.06 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration and loss, including theft.

.2 Deliver, store and handle products in accordance with protective measures outlined in Section 01 61 00 – Common Product Requirements.

.3 Exercise care in unloading gypsum board materials shipment to prevent damage.

.4 Storage and Handling Requirements:

.1 Store gypsum board assemblies materials level flat off ground, in a dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect gypsum board assemblies from nicks, scratches, and blemishes.

.3 Protect gypsum board from direct exposure to rain, snow, sunlight, or other excessive weather conditions.

.4 Protect ready mix joint compounds from freezing, exposure to extreme heat and direct sunlight.

.5 Protect from weather, elements and damage from construction operations.

.6 Handle gypsum boards to prevent damage to edges, ends or surfaces.

.7 Replace defective or damaged materials with new.

1.07 SEQUENCING AND SCHEDULING

.1 Coordinate Work of this Section with electrical work. Refer to drawings.

1.08 AMBIENT CONDITIONS

.1 Maintain temperature 10 °C minimum, 21 °C maximum for 48 hours prior to and during application of gypsum boards and joint treatment, and for 48 hours minimum after completion of joint treatment.

.2 Apply board and joint treatment to dry, clean, frost free surfaces.

.3 Ventilation: ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

PART 2 MATERIALS

.1 Gypsum board: ASTM C1396, regular, 12mm thick, ends square cut, square edged base layer and taper edged face layer

.2 Nails: to ASTM C514

.3 Casing beads, corner beads: 0.48 mm hot dipped galvanized steel, perforated flanges, designed to be concealed with joint compound; one piece length per location.

.4 Joint and laminating compounds: as recommended by gypsum board manufacturer, high bond, low shrinkage and asbestos-free.

.5 Joint tape: 50 mm wide reinforced tape.

PART 3 EXECUTION

3.01 INSTALLATION

.1 Do application and finishing of gypsum board to ASTM C 840 except where specified otherwise.

.2 Do application of gypsum sheathing to ASTM C 1280

.3 Install work level to tolerance of 1:1200

.4 Apply gypsum board after bucks, anchors, blocking, sound attenuation and electrical work have been approved.

.5 Apply gypsum board to wood framing using screw fasteners. Maximum spacing of 300mm on centre.

- .1 Apply gypsum board vertically or horizontally, providing sheet lengths that will minimize end joints.
- .2 Install gypsum board with face side out.
- .3 Do not install damaged or damp boards.
- .4 Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.

.6 Fill joints, casing beads, corner beads, screwholes and depressions on gypsum board surfaces exposed to view to provide smooth seamless surfaces and square neat corners.

.7 Apply joint compounds and reinforcing tapes in accordance with manufacturer's specifications.

.8 Fill joints and apply joint compounds by three-coat method. Apply cover coat 175 mm wide, level coat 250 mm wide, and skim coat 300 mm wide.

.9 Embed reinforcing tape in a cover coat of joint compound. Apply level coat of joint compound when cover coat has dried. Apply skim coat of compound when level coat has dried.

.10 Feather edges of compounds into surfaces of gypsum boards. After skim coat has dried for at least 24 hours sand to leave smooth for decoration. Do not sand paper face of gypsum board.

.11 At internal corners: First fill gaps between boards with joint compound. Imbed creased reinforcing tape into a thin coat of joint compound applied 50 mm wide at each side of corner. Apply cover coat. Apply skim coat to one side of joint, and when dry apply skim coat to other side.

.12 At external corners: Fill to nose of corner bead with joint compound and sand smooth.

.13 At screwheads and nailheads: Fill holes and depressions with a two coat application of joint compound and sand smooth.

.14 Finish gypsum board joints above finished ceiling with tape and first coat of joint compound.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 Section includes:

.1 Non-slip vinyl flooring for new reception vestibule.

1.02 REFERENCES

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

.1 ASTM F 1303, Standard Specification for Sheet Vinyl Floor Covering with Backing.

.2 South Coast Air Quality Management District (SCAQMD)

.1 SCAQMD Rule 1113-[13], Architectural Coatings.

.2 SCAQMD Rule 1168-[A2011], Adhesive and Sealant Applications.

1.03 SUBMITTALS

.1 Submittals shall meet requirements of Section 01 33 00 – Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer’s printed literature, specifications and data sheet.

.2 Submit copies of WHIMS MSDS – Material Safety Data Sheets.

.3 Manufacturer’s Instructions:

.1 Submit manufacturer’s installation instructions, including storage, handling and Project conditions.

.4 Manufacturer’s Certificates: Certify products meet or exceed specified requirements

.5 Samples:

.1 Submit duplicate 300 x 300 MM ample pieces of sheet material

.6 Shop drawing:

.1 Submit seaming plan and details

1.04 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Deliver, store and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration and loss, including theft.

.2 Deliver, store and handle products in accordance with protective measures outlined in Section 01 61 00 – Common Product Requirements.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect materials from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

1.05 AMBIENT CONDITIONS

.1 Maintain air temperature and structural base temperature at flooring installation area above 20 degrees for 48 hours before, during and 48 hours after installation.

PART 2 MATERIALS

.1 Sheet vinyl with slip-retardant wear layer and backing to ASTM F1913

.1 Pattern and colour to be confirmed by Departmental Representative.

.2 Thickness: 2 mm

.2 Vinyl Weld Rod:

.1 Provide solid color vinyl weld rod as produced by manufacturer and intended for heat welding of seams. Color shall be compatible with field color of flooring and as per Departmental Representative.

.3 Primers and adhesives: of types recommended by resilient flooring manufacturer for specific material on applicable substrate, above grade.

.4 Metal edge strips: extruded aluminum, smooth stainless steel with lip to extend under floor finish, shoulder flush with top of adjacent floor finish.

PART 3 EXECUTION

3.01 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for resilient sheet flooring installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

3.02 PREPARATION

.1 Ensure subfloor free of dust, solvents, varnish, paint, wax, oil, grease, sealers, release agents, curing compounds, residual adhesive.

.2 Provide high ventilation rate, with maximum outside air, during installation, and for 48 to 72 hours after installation. If possible, vent directly to outside. Do not let contaminated air recirculate through district or whole building air distribution system. Maintain extra ventilation for at least 1 month following building occupation.

3.03 APPLICATION: FLOORING

.1 Install underlayment, as per manufacturer’s instructions

.2 Install flooring as per manufacturer’s instructions.

.1 Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.

.2 Scribe, cut, and fit or flash cove to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.

.3 Adhere flooring to the subfloor without cracks, voids, raising and puckering at the seams. Roll with a 100-pound (45.36 kilogram) roller in the field areas. Hand-roll flooring at the perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.

.4 Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.

.5 Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

.6 Prepare heat-welded seams with special routing tool supplied for this purpose and heat weld with vinyl welding rod in seams. Use methods and sequence of work in conformance with written instructions of the flooring manufacturer. Finish all seams flush and free from voids, recesses, and raised areas.

3.04 CLEANING

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

3.05 PROTECTION

.1 Protect new floors from time of final set of adhesive until final review.

.2 Prohibit traffic on floor for 48 hours after installation.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

.1 This section includes all labour, materials, tools and other equipment to complete work, including but not limited to surface preparation of wood materials, priming, and back-priming of wood materials before assembly, and painting of concealed areas and exterior surfaces.

.1 Exterior:

.1 Porch: wood decking, posts, railings, stairs, ramp, and trimwork.

.2 Wood doors.

.2 Interior:

.1 Painting of drywall partitions

.2 Painting of interior wood doors and trimwork

1.02 RELATED SECTIONS

.1 Section 06 40 00 – Architectural Woodwork

.2 Section 09 21 16 – Gypsum Board Assemblies

1.03 REFERENCES

.1 The Master Painters Institute (MPI), latest editions

.1 Architectural Painting Specifications Manual by MPI including Identifiers, Evaluation, Systems, Preparation and Approved Product list.

.2 Maintenance Repainting Manual, Master Painters Institute (MPI), including Identifiers, Evaluation, Systems, Preparation and Approved Product List.

.2 Ontario Painting Contractors Association (OPCA); Architectural Painting Specification Manual.

1.04 SCHEDULING

.1 Submit work schedule for various stages of painting to Departmental Representative for approval review. Submit schedule minimum of 48 hours in advance of proposed operations.

.2 Obtain written authorization from Departmental Representative for changes in work schedule.

.3 Schedule repainting operations to prevent disruption by other trades if applicable.

1.05 ACTION AND INFORMATION SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for paints and coating products and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit triplicate100 x 200 mm "draw-downs" of each paint/varnish formula type and colour specified on applicable materials for Departmental Representative's review prior to commencement of the work.

.2 Colours and finishes to be selected by Departmental Representative.

.3 When approved, samples shall become acceptable standard of quality for appropriate on-site surface with one of each sample retained on-site.

.4 Provide WHMIS Safety Data Sheets (SDS) for paints and coating materials to be used.

.5 Photographic Documentation:

.1 Submit photographs of existing conditions, prior to commencing work, in accordance with Section 02 41 13 – Selective Site Demolition.

.2 Submit photographs for each of the following stage of the work, for site and shop work, with separate submittals at each stage:

.3 Submit photographs for each of the aforementioned stage of the work, for mock-ups, with separate submittals for each mock-up.

1.06 CLOSEOUT SUBMITTALS

.1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 – Closeout Submittals.

.2 Provide records of products used. List products in relation to finish system and include following:

.1 Product name, type and use (i.e. materials and location).

.2 Manufacturer's product number.

.3 Colour code numbers.

.4 MPI Environmentally Friendly classification system rating.

.5 Manufacturer's Safety Data Sheets.

1.07 QUALITY ASSURANCE

.1 Conform to latest MPI requirements for exterior repainting work including cleaning, preparation and priming.

.2 Materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, glazing putty, linseed oil and solvents) to be from a single manufacturer for each system used.

.3 Mock ups:

.1 Provide mock-up in accordance with Section 01 33 00 – Submittal Procedures.

.2 Prepare and repaint designated surface or item to requirements specified herein, with specified paint or coating showing selected colours, number of coats, gloss/sheen, textures and workmanship to MPI Maintenance Repainting Manual standards for review and approval.

.3 When approved, repainted surface and/or item shall become acceptable standard of finish quality and workmanship for similar on-site exterior painting work.

.4 Prepare the work described in this section:

.1 On one area of exterior wood trim 1800 mm long. Include all aspects of surface preparation including paint removal to bare wood and finish painting.

.5 Provide additional mock-ups on-site for review by Departmental Representative if initial tests prove unsatisfactory.

.6 Provide Departmental Representative five working days notice prior to undertaking work.

.7 Approved mock-up may be incorporated into final work.

.8 Allow 72 hours for inspection of mock-up by Departmental Representative before proceeding with paint work.

1.08 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver and store materials in manufacturers' original container with labels intact.

.3 Ensure dry delivery and storage of materials and equipment at site.

.4 Store materials and equipment in a well-ventilated place between 10 degrees C and 32 degrees C, and protect from direct sun.

.5 Keep areas used for storage, cleaning and preparation, clean and orderly to approval of Departmental Representative. After completion of operations, return areas to clean condition to approval of Departmental Representative.

.6 Remove paint materials from storage only in quantities required for same day use.

.7 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

1.09 WASTE MANAGEMENT AND DISPOSAL

.1 Separate, dispose and recycle waste materials in accordance with Section 01 00 10 - General Instructions, Waste Management.

1.10 PROJECT CONDITIONS

.1 Surface preparation work and painting shall be performed in favourable weather conditions as defined herein. Ambient air and substrate temperature shall be between 10 degrees C to 30 degrees C and the manufacturer's prescribed limits.

.2 Wood being prepared must have a moisture content below 10% by weight. Protect area from moisture until final painting is complete and cured.

.3 Protect exterior surfaces from moisture and water as necessary from time of preparation until the final coats of paint have sufficiently dried to be unaffected by moisture and/or water.

.4 Use of a heated enclosure around the work area is acceptable.

.5 Mask or otherwise protect surrounding or adjacent historic fabric from all activities associated with this work. No fastenings associated with hoarding or other protection shall be installed in historic material without prior approval of Departmental Representative.

.6 Ventilate enclosed spaces in accordance with Section 01 51 00 – Temporary Facilities and Controls.

.7 Prevent dust associated with these activities from spreading beyond the immediate work area.

.8 Do not paint during or immediately following foggy, rainy or frosty weather, nor when the temperature is expected to go below 10 degrees C before the coating is dry, in excessively humid or windy weather, or on damp surfaces (wood maximum 10% moisture).

.9 Protect until paint is dry or until weather conditions are suitable.

.10 Schedule painting operations such that surfaces exposed to direct, intense sunlight are scheduled for completion during early morning. Linseed oil based paint is best applied in direct sunlight.

.11 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

1.11 MAINTENANCE

.1 Extra Materials:

.1 Provide maintenance materials in accordance with Section 78 00 – Closeout Submittals.

.2 Provide two - four litre cans of each type and colour of finish coating. Identify type and colour in relation to established colour schedule and finish system.

PART 2 PRODUCTS

2.01 MATERIALS

.1 Latex, paint, exterior woodwork:

.1 Exterior latex paint.

.2 Alkyd primer, by same manufacturer as paint.

.2 Anti-slip skid-resistant wood coating:

.3 Latex, paint, interior woodwork and drywall:

.1 Latex primer-sealer

.2 Latex finish coats, eggshell finish

.4 Cleaning solution: as per manufacturer’s recommendations.

2.02 COLOURS

.1 Departmental Representative will provide Colour Schedule after Contract award.

.2 Colour schedule will be based upon selection of four colours.

2.03 MIXING AND TINTING

.1 Perform colour tinting operations prior to delivery of paint to site. On-site tinting of painting materials is allowed only with Departmental Representative's written permission.

.2 Mix paste, powder or catalyzed paint mixes in accordance with manufacturer's written instructions.

.3 Add thinner to paint as per manufacturer's recommendations.

.4 Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.

2.04 PAINT SYSTEMS

.1 Exterior decorative woodwork:

.1 Primer: 2 coats of alkyd primer

.2 Finish: 2 coats of latex paint, colour to be confirmed, semi-gloss finish.

.3 Wood to be sanded to a smooth finish prior to priming and sanded between coats where required to insure smooth finished top coat.

.2 For wood porch, deck and stairs: Additional coat of anti-slip coating, as per manufacturer’s instructions.

.3 Interior paint system for drywall and woodwork:

.1 One coat latex primer-sealer

.2 Two coats of acrylic latex paint

.4 Paint stripper: non-flammable and odourless stripper

2.05 TOOLS

.1 Brush: natural bristle brushes of size and shape to suit application.

.2 Rags: micro fibre rags

.3 Mechanical tools without sharp edges.

.4 Scouring pad: plastic mesh.

.5 Scrub brushes: natural fibre bristle or soft plastic type.

.6 Plastic tubs.

.7 Measuring cups.

.8 Professional rollers

.9 Infrared paint stripper

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.02 PROTECTION

.1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore such surfaces as directed by Departmental Representative.

.2 Protect general public around the building.

.3 Removal of surface mounted equipment, fittings and fastenings to be done prior to undertaking painting operations. Store items and re-install after painting is completed.

.4 To avoid spontaneous combustion remove any and all oil soaked rags from the site each day and soak rags in water and discard.

3.03 PREPARATION (PAINT REMOVAL) FOR WOOD ELEMENTS

.1 Prepare surfaces as per manufacturer's recommendations unless otherwise specified.

.2 For disassembled and salvaged wood components:

.1 Remove dirt and organic soiling from the surface.

.2 Remove paint to bare wood in shop by the careful use infrared stripping guns, followed by scraping and sanding.

.3 Once stripped, sand wood surfaces using 120 grit sandpaper.

.4 Dispose of rags in accordance with paint stripper manufacturer's instructions and local by-laws.

.3 For wood elements restored in situ:

.1 Remove dirt and organic soiling from the surface.

.2 Remove paint in situ to bare wood by the use of an infrared stripper, scraping and sanding.

.3 Once stripped, sand wood surfaces using 120 grit sand paper.

.4 Dispose of rags in accordance with paint stripper manufacturer's instructions and local by-laws.

.4 Neatly remove any existing caulking.

.5 Perform wood repairs as required, as per Section 06 03 40 – Historic – Wood Repair.

.6 Cleaning and prepare surfaces to be repainted in accordance with WPI Maintenance Repainting Manual requirements. Refer to MPI Manual with regard to specific requirements and as follows:

.1 Remove dust, dirt, and surface debris by brushing, wiping with dry, clean cloths or compressed air.

.2 Clean all other surfaces with linseed oil soap using scouring pad.

.3 Rinse thoroughly with clean potable water as directed by manufacturer taking care not to over soak. Let dry 24 hours.

.7 Allow surfaces to drain completely and to dry thoroughly. Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents before priming and between applications of remaining coats. Touch-up, spot prime, and apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.

.8 Do not apply paint until prepared surfaces have been accepted by Departmental Representative.

.9 Keep all surfaces dry until painting is complete.

.10 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects from previous painting (i.e. runs and sags) that are visible from distance up to 1000mm.

3.04 APPLICATION – WOODWORK - EXTERIOR

.1 Method of application to be as approved by Departmental Representative. Conform to manufacturer's application instructions unless specified otherwise.

.2 Apply paint by brush only on wood elements.

.3 Brush Application:

.1 Apply paint in a uniform layer using brush and/or roller of types suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush out runs and sags, and over-lap marks

.5 Remove runs, sags and brush marks from finished work and repaint.

.4 Use dipping, sheepskins or daubers when no other method is practical in places of difficult access and when specifically authorized by Departmental Representative.

.5 Apply paint coats in a continuous manner and allow surfaces to dry and cure between coats for minimum time period as recommended by manufacturer. Minimum dry film thickness of coats not less than that recommended by manufacturer. Repaint thin spots or bare areas before next coat of paint is applied.

.6 Sand and dust between coats to remove visible defects.

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.

.8 Apply anti-slip coating for wood porch decking, wood ramp decking and wood porch stairs, as per manufacturer’s instructions.

3.05 APPLICATION – INTERIOR WOODWORK AND DYRWALL SURFACES

.1 Do not perform work unless substrates are acceptable and until heating, ventilation, lighting and completion of work of other Sections are acceptable for applications of products.

.2 Do work by skilled tradesman, to manufacturer's directions. Apply paint only when dust-free conditions prevail. Results shall be even, uniform in sheen, colour and texture; free from brush or roller marks, or other defects.

.3 Apply paint by brush or roller.

.1 Apply paint in uniform layer using brush and/or roller type suitable for application.

.2 Work paint into cracks, crevices and corners.

.3 Paint surfaces and corners not accessible to brush using spray, daubers and/or sheepskins. Paint surfaces and corners not accessible to roller using brush, daubers or sheepskins.

.4 Brush and/or roll out runs and sags, and over-lap marks. Rolled surfaces free of roller tracking and heavy stipple.

.5 Remove runs, sags and brush marks from finished work and repaint.

.4 Apply coats of paint continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.

.6 Sand and dust between coats to remove visible defects.

.7 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as projecting ledges.

.8 Do not paint over fire rating labels on doors and frames and over identification labels on mechanical and electrical equipment.

3.06 CLEANING

.1 Proceed in accordance with Section 01 74 11 – Cleaning.

.2 Remove paint where spilled, splashed, splattered or sprayed as work progresses using means and materials that are not detrimental to affected surfaces.

.3 Keep work area free from unnecessary accumulation of tools, equipment, surplus materials and debris.

.4 Clean equipment and dispose of wash water used for water borne materials, solvents used for oil based materials as well as cleaning and protective materials (e.g. rags, drop cloths, and masking papers), paints, thinners, paint removers/strippers in accordance with the safety requirements of authorities having jurisdiction and as specified.

.1 Clean brushes and tools with soap from same line as paint manufacturer.

3.07 PROTECTION OF COMPLETED WORK

.1 Protect area where paint has been applied.

.2 On completion of specified work remove surplus materials, tools and equipment and debris on work area; leave clean and tidy to complete satisfaction of Departmental Representative.

END OF SECTION