

## City of Mississauga

### Fire Station 123

Project #12229  
3050 The Collegeway,  
Mississauga, Ontario, Canada

## Construction Tender

### ARCHITECTURAL

### ADDENDUM No. 03

Friday, July 5, 2024

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## 1. GENERAL INSTRUCTIONS

- .1 The following information supplements and/or supersedes the bid documents issued.
- .2 This Addendum forms part of the *Contract Documents* and is to be read, interpreted and coordinated with all other parts. The cost of all contained herein is to be included in the contract price.
- .3 The following revisions supersede the information contained in the original drawings and specifications issued for the named project to the extent referenced and shall become part thereof. Acknowledge receipt of this Addendum by inserting its number and date on the Tender Form. Failure to do so may subject the bidder to disqualification.

## 2. AFFECTED SECTIONS OF THE PROJECT MANUAL

### .1 Revisions

- .i *Refer to 00 01 10 - Table of Contents*  
*Replace section in its entirety with 00 01 10 - Table of Contents issued as part of this addendum.*
- .ii *Refer to 01 10 00 - General Instructions*  
*Replace section in its entirety with 01 10 00 - General Instructions issued as part of this addendum.*
- .iii *Refer to 01 74 19 - Waste Management and Disposal*  
*Replace section in its entirety with Section 01 74 19 - Waste Management and Disposal issued as part of this addendum.*
- .iv *Refer to 01 78 36 - Warranties*  
*Replace section in its entirety with 01 78 36 - Warranties issued as part of this addendum.*
- .v *Refer to 31 25 05 - Erosion and Sedimentation Control*  
*Replace section in its entirety with 31 25 05 - Erosion and Sedimentation Control issued as part of this addendum.*

### .2 Deletions

- .i *None.*

### .3 Additions

- .i *Insert Section 01 35 18 - General Sustainability Requirements*
- .ii *Insert Section 01 60 13 - Sustainable Product Requirements*
- .iii *Insert Section 01 60 13A - Material Submittal Form*
- .iv *Insert Section 01 60 13B - Emissions Submittal Form*
- .v *Insert Section 31 25 00.1 - Erosion and Sedimentation Control Schedules*

## 3. AFFECTED ARCHITECTURAL DRAWINGS

*None part of this Addendum*

## END OF ARCHITECTURAL ADDENDUM No. 03

## VOLUME 1

### DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 01	<i>Project Manual Title Page</i>	A
00 01 03	<i>Document Responsibility and Project Directory</i>	A
00 01 10	<i>Table of Contents</i>	A
00 01 15	<i>List of Drawings</i>	A
00 30 00	<i>Information Available for Review</i>	A

### DIVISION 01 - GENERAL REQUIREMENTS

01 10 00	<i>General Instructions</i>	A
01 10 00.01	<i>Digital Data Disclaimer</i>	A
01 21 13	<i>Cash Allowances</i>	A
01 25 13	<i>Product Substitution Procedures</i>	A
01 25 13.01	<i>Request for Substitution Form</i>	A
01 26 00	<i>Contract Modification Procedures</i>	A
01 26 13	<i>Requests for Interpretation</i>	A
01 29 00	<i>Payment Procedures</i>	A
01 29 73	<i>Schedule of Values</i>	A
01 30 50	<i>Interference Drawings</i>	A
01 31 13	<i>Coordination</i>	A
01 31 19	<i>Project Meetings</i>	A
01 31 46	<i>Field Engineering</i>	A
01 32 00	<i>Construction Progress Documentation</i>	A
01 33 00	<i>Submittals &amp; Procedures</i>	A
01 35 18	<i>General Sustainability Requirements</i>	A
01 35 29	<i>Health, Safety and Emergency Response</i>	A
01 41 00	<i>Regulatory Requirements</i>	A
01 42 13	<i>Abbreviations and Acronyms</i>	A
01 45 00	<i>Quality Control</i>	A
01 50 00	<i>Temporary Facilities and Controls</i>	A
01 56 26	<i>Temporary Fencing and Barriers</i>	A
01 60 00	<i>Product Requirements</i>	A
01 60 13	<i>Sustainable Product Requirements</i>	A
01 60 13A	<i>Material Submittal Form</i>	A
01 60 13B	<i>Emissions Submittal Form</i>	A
01 73 29	<i>Cutting and Patching</i>	A
01 74 13	<i>Progressive Cleaning</i>	A
01 74 19	<i>Waste Management and Disposal</i>	A

01 77 00	<i>Contract Closeout Procedures and Submittals</i>	A
01 78 23	<i>Operation and Maintenance Manuals</i>	A
01 78 36	<i>Warranties</i>	A
01 78 39	<i>As-Built Documents</i>	A
01 79 00	<i>Demonstration and Training</i>	A
01 81 21	<i>Energy Efficiency Requirements</i>	A
01 91 13	<i>General Commissioning Requirements</i>	Cx
01 91 26.13	<i>Integrated Systems Testing of Fire Protection and Life Safety Systems</i>	E

#### **DIVISION 02 – EXISTING CONDITIONS**

02 05 50	<i>Environmental Procedures - Soil Management</i>	O
	<i>Environmental Site Management and Compliance Environmental Requirements and Submittals</i>	O
02 41 13	<i>Selective Site Demolition</i>	A

#### **DIVISION 03 – CONCRETE**

03 10 00	<i>Concrete Forming and Accessories</i>	S
03 20 00	<i>Concrete and Masonry Reinforcing</i>	S
03 30 00	<i>Cast-in-place Concrete</i>	S
03 35 00	<i>Concrete Floor Finishing</i>	A
03 35 43	<i>Polished Concrete Finish</i>	A

#### **DIVISION 04 – MASONRY**

04 05 00	<i>Masonry Procedures</i>	A
04 05 13	<i>Mortar and Grout for Masonry</i>	A
04 05 19	<i>Masonry Reinforcement and Connectors</i>	A
04 05 23	<i>Masonry Accessories</i>	A
04 21 13	<i>Brick Masonry Units</i>	A
04 22 00	<i>Concrete Unit Masonry</i>	A

#### **DIVISION 05 – METALS**

05 12 23	<i>Structural Steel for Buildings</i>	S
05 21 00	<i>Steel Joist Framing</i>	S
05 31 00	<i>Steel Decking</i>	S
05 41 13	<i>Wind Load-Bearing Cold-Formed Metal Framing</i>	A
05 50 00	<i>Metal Fabrications</i>	A
05 50 01	<i>Post Guard Bollard Covers</i>	A

#### **DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES**

06 10 53	<i>Rough Carpentry</i>	A
06 16 13	<i>Insulating Sheathing</i>	A
06 40 00	<i>Architectural Woodwork</i>	A

#### **DIVISION 07 - THERMAL AND MOISTURE PROTECTION**

07 05 23	<i>Air Tightness Testing</i>	A
07 13 26	<i>Self-Adhering Sheet Waterproofing</i>	A
07 21 00	<i>Thermal Insulation</i>	A
07 26 13	<i>Above-Grade Vapour Barrier</i>	A
07 26 16	<i>Below-Grade Vapour Barrier</i>	A
07 27 00	<i>Air Barrier Systems</i>	A
07 44 63.02	<i>Building-Integrated PV Cladding Panels</i>	A
07 44 63.04	<i>Faced-Honeycomb Composite Panel - Metal</i>	A
07 52 16	<i>Styrene-Butadiene-Styrene (SBS) Modified Bituminous Membrane Roofing</i>	A
07 62 00	<i>Sheet Metal Flashing</i>	A
07 72 33	<i>Roof Hatch</i>	A
07 84 00	<i>Firestopping and Smoke Seals</i>	A
07 92 00	<i>Joint Sealants</i>	A

#### **DIVISION 08 – OPENINGS**

08 12 13	<i>Hollow Metal Frames</i>	A
08 13 13	<i>Hollow Metal Doors</i>	A
08 14 16	<i>Flush Wood Doors</i>	A
08 31 13	<i>Access Doors and Frames</i>	A
08 35 13	<i>Four-Fold Metal Doors</i>	A
08 36 18	<i>Sectional Overhead Metal Doors</i>	A
08 41 00	<i>Aluminum Framed Glazing Systems</i>	A
08 41 23	<i>Fire Rated Glass and Framing Systems</i>	A
08 71 00	<i>Door Hardware</i>	H
08 71 00.01	<i>Door Hardware Schedule</i>	H
08 71 13	<i>Automatic Door Operators</i>	A
08 80 00	<i>Glass and Glazing</i>	A
08 87 00	<i>Applied Films</i>	A
08 87 26	<i>Bird Control Film</i>	A
08 91 19	<i>Louvres</i>	A

#### **DIVISION 09 – FINISHES**

09 22 00	<i>Metal Supports for Gypsum and Cement Board</i>	A
09 29 00	<i>Gypsum and Cement Board</i>	A

09 31 00	<i>Tiling</i>	A
09 51 23	<i>Acoustical Tile Ceiling Systems</i>	A
09 62 90	<i>Tactile Attention Indicators</i>	A
09 65 13	<i>Resilient Base and Accessories</i>	A
09 65 19	<i>Resilient Tile Flooring</i>	A
09 65 66	<i>Resilient Athletic Flooring</i>	A
09 67 23	<i>Epoxy Flooring</i>	A
09 91 00	<i>Painting</i>	A

#### **DIVISION 10 – SPECIALTIES**

10 11 00	<i>Visual Display Units</i>	A
10 14 53	<i>Traffic Signage</i>	A
10 14 19	<i>Dimensional Letter Signage</i>	A
10 26 13	<i>Corner Guards</i>	A
10 28 00	<i>Washroom Accessories and Janitor Accessories</i>	A
10 44 16	<i>Fire Extinguishers</i>	M
10 56 29	<i>Storage Racks</i>	A
10 51 13	<i>Prefinished Metal Lockers</i>	A
10 75 16	<i>Ground Set Flagpoles</i>	A

#### **DIVISION 11 – EQUIPMENT**

11 11 36	<i>Vehicle Charging Equipment</i>	E
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#### **DIVISION 12 – FURNISHINGS**

12 24 13	<i>Roller Window Shades</i>	A
12 35 53	<i>Stainless Steel Countertops</i>	A
12 36 61.16	<i>Solid Surfacing Countertops</i>	A

#### **DIVISION 13 – SPECIAL CONSTRUCTION**

13 48 00	<i>Sound, Vibration, and Seismic Control</i>	A
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#### **DIVISION 32 - EXTERIOR IMPROVEMENTS**

31 11 00	<i>Clearing and Grubbing</i>	A
31 23 00	<i>Excavation and Backfill</i>	A
31 23 13	<i>Site Grading</i>	A
31 25 05	<i>Erosion and Sedimentation Control</i>	A
31 25 05.01	<i>Erosion and Sedimentation Control Schedules</i>	A

**REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR FULL SCOPE OF REQUIREMENTS.**

**DIVISION 32 - EXTERIOR IMPROVEMENTS**

32 01 90	<i>Temporary Tree and Plant Protection and Trimming</i>	A
32 16 13	<i>Concrete Curbs and Pavements</i>	A
32 17 23	<i>Traffic Markings</i>	A
32 31 32	<i>Wood Composite Fencing And Gates</i>	L
32 33 00	<i>Site Furnishings</i>	L
32 91 19.13	<i>Topsoil Placement and Grading</i>	L
32 92 23	<i>Sodding</i>	L
32 93 10	<i>Trees, Shrubs and Ground Cover Planting</i>	L

**REFER TO CIVIL AND LANDSCAPE DRAWINGS FOR FULL SCOPE OF REQUIREMENTS.**

**DIVISION 33 – UTILITIES**

**REFER TO CIVIL DRAWINGS FOR FULL SCOPE OF REQUIREMENTS.**

## VOLUME 2

### DIVISION 20 – MECHANICAL

20 05 00	<i>Common Work Results for Mechanical</i>	M
20 05 10	<i>Mechanical Work General Instructions</i>	M
20 05 13	<i>Common Motor Requirements for Mechanical Equipment</i>	M
20 05 13.13	<i>Variable Frequency Drives for Mechanical Equipment</i>	M
20 05 17	<i>Sleeves and Sleeve Seals for Mechanical Piping</i>	M
20 05 19	<i>Meters and Gauges for Mechanical Systems</i>	M
20 05 29	<i>Hangers and Supports for Mechanical Piping and Equipment</i>	M
20 05 33	<i>Heat Tracing for Mechanical Piping</i>	M
20 05 48.13	<i>Vibration Controls for Mechanical Systems</i>	M
20 05 48.16	<i>Seismic Controls for Mechanical Systems</i>	M
20 05 53	<i>Identification for Mechanical Piping and Equipment</i>	M
20 05 93	<i>Testing, Adjusting, and Balancing for Mechanical Systems</i>	M
20 07 00	<i>Mechanical Systems Insulation</i>	M

### DIVISION 21 FIRE SUPPRESSION

21 13 00	<i>Fire-Suppression Sprinkler Systems</i>	M
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### DIVISION 22 PLUMBING

22 05 69	<i>Facility Plumbing Services</i>	M
22 08 00	<i>Commissioning of Plumbing</i>	M
22 11 00	<i>Facility Water Distribution</i>	M
22 11 23	<i>Domestic Water Pumps</i>	M
22 13 00	<i>Facility Sanitary Sewerage</i>	M
22 14 26.19	<i>Facility Trench Drains</i>	M
22 33 43	<i>Heat Pump Domestic Water Heaters</i>	M
22 42 00	<i>Commercial Plumbing Fixtures</i>	M
22 45 00	<i>Emergency Plumbing Fixtures</i>	M
22 47 00	<i>Drinking Fountains and Water Coolers</i>	M

### DIVISION 23 HEATING, VENTILATION AND AIR CONDITIONING

23 08 00	<i>Commissioning of HVAC</i>	M
23 11 23	<i>Facility Natural-Gas Piping</i>	M
23 21 00	<i>Hydronic Piping and Pumps</i>	M
23 23 00	<i>Refrigerant Piping</i>	M
23 30 00	<i>HVAC Air Distribution</i>	M
23 33 19	<i>Duct Silencers</i>	M

23 34 00	<i>HVAC Fans</i>	<i>M</i>
23 35 16	<i>Engine Exhaust Systems</i>	<i>M</i>
23 52 13	<i>Electric Boilers</i>	<i>M</i>
23 72 00	<i>Air-to-Air Energy Recovery Equipment</i>	<i>M</i>
23 81 26	<i>Split-System Air-Conditioners</i>	<i>M</i>
23 81 29	<i>Variable Refrigerant Flow HVAC Systems</i>	<i>M</i>
23 82 39.19	<i>Wall and Ceiling Unit Heaters</i>	<i>M</i>
23 83 16.16	<i>In-Floor Radiant-Heating Hydronic Piping</i>	<i>M</i>

## **DIVISION 24**

*Section Not Used*

## **DIVISION 25 – INTEGRATED AUTOMATION**

25 05 01	<i>Automatic Control Systems</i>	<i>M</i>
25 05 02	<i>Building Automation System</i>	<i>M</i>
25 08 00	<i>Commissioning of Integrated Automation</i>	<i>Cx</i>
25 56 50	<i>Integrated Automation Control of Electrical Lighting Systems</i>	<i>E</i>
25 96 00	<i>Integrated Automation Control Sequences for Electrical Systems</i>	<i>E</i>

## **DIVISION 26 – ELECTRICAL**

26 05 00	<i>Common Work Results for Electrical</i>	<i>E</i>
26 05 19	<i>Low-Voltage Electrical Power Conductors and Cables</i>	<i>E</i>
26 05 23	<i>Control-Voltage Electrical Power Cables</i>	<i>E</i>
26 05 26	<i>Grounding and Bonding for Electrical Systems</i>	<i>E</i>
26 05 29	<i>Hangers and Supports for Electrical Systems</i>	<i>E</i>
26 05 33.13	<i>Conduit for Electrical Systems</i>	<i>E</i>
26 05 33.16	<i>Boxes for Electrical Systems</i>	<i>E</i>
26 05 43	<i>Underground Ducts and Raceways for Electrical Systems</i>	<i>E</i>
26 05 44	<i>Sleeves and Sleeve Seals for Electrical Raceways and Cabling</i>	<i>E</i>
26 05 44.13	<i>Firestopping for Electrical Systems</i>	<i>E</i>
26 05 48.13	<i>Vibration Controls for Electrical Systems</i>	<i>E</i>
26 05 48.16	<i>Seismic Controls for Electrical Systems</i>	<i>E</i>
26 05 53	<i>Identification for Electrical Systems</i>	<i>E</i>
26 05 73.16	<i>Coordination Studies</i>	<i>E</i>
26 05 73.19	<i>Arc-Flash Hazard Analysis</i>	<i>E</i>
26 05 83	<i>Wiring Connections</i>	<i>E</i>
26 08 00	<i>Commissioning of Electrical Systems</i>	<i>Cx</i>
26 08 32.16	<i>Performance Checklist for Natural-Gas Generators</i>	<i>E</i>
26 08 36	<i>Performance Checklist for Automatic Transfer Switches</i>	<i>E</i>

26 08 50	<i>Commissioning of Lighting</i>	<i>E</i>
26 09 19	<i>Enclosed Contactors</i>	<i>E</i>
26 09 43	<i>Network Lighting Controls</i>	<i>E</i>
26 21 16	<i>Low-Voltage Underground Electrical Service Entrance</i>	<i>E</i>
26 21 16.01	<i>Alectra Utilities Electrical Service Details</i>	<i>E</i>
26 22 13	<i>Low-Voltage Distribution Transformers</i>	<i>E</i>
26 24 13	<i>Switchboards</i>	<i>E</i>
26 24 16	<i>Panelboards</i>	<i>E</i>
26 27 13	<i>Electricity Metering</i>	<i>E</i>
26 27 16	<i>Electrical Cabinets and Enclosures</i>	<i>E</i>
26 27 26	<i>Wiring Devices</i>	<i>E</i>
26 28 13	<i>Fuses</i>	<i>E</i>
26 28 16.02	<i>Molded Case Circuit Breakers</i>	<i>E</i>
26 28 16.16	<i>Enclosed Switches</i>	<i>E</i>
26 31 00	<i>Photovoltaic Collectors</i>	<i>E</i>
26 32 13.16	<i>Gas-Engine-Driven Generator Sets</i>	<i>E</i>
26 36 23.13	<i>Bypass-Isolation Automatic Transfer Switches</i>	<i>E</i>
26 43 13	<i>Surge Protective Devices for Low-Voltage Electrical Power Circuits</i>	<i>E</i>
26 51 19	<i>LED Interior Lighting</i>	<i>E</i>
26 52 13.13	<i>Emergency Lighting</i>	<i>E</i>
26 52 13.16	<i>Exit Signs</i>	<i>E</i>
26 56 13	<i>Lighting Poles and Standards</i>	<i>E</i>
26 56 19	<i>LED Exterior Lighting</i>	<i>E</i>

## **DIVISION 27 – COMMUNICATIONS**

27 05 13.01	<i>Bell Canada Communications Services</i>	<i>T</i>
27 05 26	<i>Grounding and Bonding for Communications Systems</i>	<i>T</i>
27 05 28	<i>Pathways for Communications Systems</i>	<i>E</i>
27 05 28.51	<i>Pathways for Public Address System</i>	<i>T</i>
27 05 28.61	<i>Pathways for Access Control and Intrusion Detection</i>	<i>T</i>
27 05 28.63	<i>Pathways for Video Surveillance</i>	<i>T</i>
27 05 28.91	<i>Pathways for Fire Station Alerting and Traffic Pre-Emption Systems</i>	<i>T</i>
27 05 29	<i>Hangers and Supports for Communications Systems</i>	<i>T</i>
27 05 36	<i>Cable Trays for Communications Systems</i>	<i>T</i>
27 05 44	<i>Sleeves and Sleeve Seals for Communications Pathways and Cabling</i>	<i>T</i>
27 05 53	<i>Identification for Communications Systems</i>	<i>T</i>
27 10 00	<i>Structured Cabling</i>	<i>T</i>
27 15 01.19	<i>Fire Alarm Communications Conductors and Cables</i>	<i>E</i>

## **DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

28 08 46	<i>Commissioning of Fire Detection and Alarm</i>	<i>E</i>
28 46 13	<i>Fire-Alarm Systems</i>	<i>E</i>
28 46 15	<i>Fire-Alarm System Sequences of Operation</i>	<i>E</i>
28 46 21.12	<i>Fire-Alarm Control Units</i>	<i>E</i>
28 46 21.22	<i>Fire-Alarm Remote Annunciators</i>	<i>E</i>
28 46 21.24	<i>Supervising Station Alarm Systems Communications Equipment</i>	<i>E</i>
28 46 25	<i>Fire-Alarm System Accessories</i>	<i>E</i>
28 46 31	<i>Fire-Alarm Initiating Devices</i>	<i>E</i>
28 08 46	<i>Commissioning of Fire Detection and Alarm</i>	<i>E</i>
28 46 13	<i>Fire-Alarm Systems</i>	<i>E</i>
28 46 15	<i>Fire-Alarm System Sequences of Operation</i>	<i>E</i>
28 46 21.12	<i>Fire-Alarm Control Units</i>	<i>E</i>
28 46 21.22	<i>Fire-Alarm Remote Annunciators</i>	<i>E</i>
28 46 21.24	<i>Supervising Station Alarm Systems Communications Equipment</i>	<i>E</i>
28 46 25	<i>Fire-Alarm System Accessories</i>	<i>E</i>
28 46 31.18	<i>Carbon Monoxide Detection Sensors</i>	<i>E</i>
28 46 31.26	<i>Residential Smoke and Carbon Monoxide Alarms</i>	<i>E</i>
28 46 31.31	<i>Fire-Alarm Manual Initiating Devices</i>	<i>E</i>
28 46 31.41	<i>Fire-Alarm Supervisory Signal Initiating Devices</i>	<i>E</i>
28 46 41	<i>Fire-Alarm Notification Appliances</i>	<i>E</i>
28 46 51	<i>Fire-Alarm Supervised Interface Hardware</i>	<i>E</i>
28 46 51.08	<i>Fire-Alarm Supervised Interface Hardware for Openings</i>	<i>E</i>
28 46 51.23	<i>Fire-Alarm Supervised Interface Hardware for HVAC Systems</i>	<i>E</i>

## **APPENDICES**

Appendix E1	<i>City of Mississauga Telecommunications Cabling Standards v1.4 June 2023</i>	<i>O</i>
Appendix E2	<i>City of Mississauga General Data Network Guidelines and Responsibilities June 2023</i>	<i>O</i>
Appendix E3	<i>Motorola Mach Alert Fire Station Alerting System Documentation</i>	<i>O</i>
Appendix M1	<i>City of Mississauga Master Specification for Energy Management Control Systems (EMCS) Rev.1-2021-04-05</i>	<i>O</i>

**END OF SECTION**

## 1 GENERAL

### 1.1. General Instructions

- 1.1.1. Read and be governed by conditions of the *Contract Documents*, including Sections of Division 1.

### 1.2. Section Includes

- 1.1. General Instructions
- 1.2. Section Includes
- 1.3. Language Of The Contract
- 1.4. The Contract Documents
- 1.5. Laws, Notices, References, Standards And Regulations
- 1.6. Permits, Deposits And Responsibilities
- 1.7. Project Coordination And Responsibility
- 1.8. Examination Of The Place Of The Work, Documents, Surfaces And Conditions
- 1.9. Quantity Of Items
- 1.10. Standards And Codes
- 1.11. Schedule Of Values
- 1.12. Discrepancies And Clarifications
- 1.13. Setting Out The Work And Field Engineering
- 1.14. Protection And Damages Of Property And Work
- 1.15. Fires And Smoking
- 1.16. Documents At The Place Of The Work
- 1.17. Concealed Services
- 1.18. Trademark And Labels
- 1.19. Waste Audits/Plans For Waste Reduction
- 1.20. Interferences
- 1.21. *Not In Contract Items, Items Supplied By Owner, And By Others*
- 1.22. Seismic Design And Requirements
- 1.23. Electronic Files

### 1.3. Language of the Contract

- 1.3.1. The use of the words "include" or "including", or variations thereof, within the *Contract Documents* is not limiting.

### 1.4. The Contract Documents

- 1.4.1. The *Contract Documents* have been arranged into various divisions, sections, drawings, and schedules for the purpose of presenting the *Work* in a logical and organized form and to enable ease of reference and interpretation, and are not intended to be an arrangement of precise and independent *Subcontractors*, or jurisdiction of responsibility for the various parts of the *Work*. The *Contractor* shall be solely responsible for coordinating the execution of the *Work* of this *Contract* in accordance with the requirements of the *Contract Documents*.
- 1.4.2. As a result, the Consultant shall not be required to decide on questions arising with regard to agreements or contracts between the Contractor and Subcontractors or Suppliers, nor to the extent of the parts of the Work assigned thereto.
- 1.4.3. Further, no extra will be allowed as a result of the failure to coordinate and allocate the Work such that the Work is Provided in accordance with the Contract Documents.
- 1.4.4. The Contract Documents may specify, indicate, or schedule requirements that exceed the requirements of the Ontario Building Code, other applicable codes, requirements of Authorities Having Jurisdiction, and standards cited in the Contract Documents. In such cases, the requirements specified, indicated, or scheduled in the Contract Documents shall govern.

- 1.4.5. This section coordinates, relates, and governs the Work of other sections of the specifications.

**1.5. Laws, Notices, References, Standards and Regulations**

- 1.5.1. The Ontario Building Code - Ontario Regulation 332/12, including amendments, shall govern the Work.
- 1.5.2. Comply with codes, by-laws, and regulations of Authorities Having Jurisdiction over the Place of the Work. Codes and regulations form an integral part of the Contract Documents.
- 1.5.3. It shall be the responsibility of the Contractor to give the required notices and comply with the laws, bylaws, ordinances, rules, regulations, codes, and orders of all Authorities Having Jurisdiction, which are or become in force during the performance of the Work, and which relate to:
- 1.5.3.1. The Work.
  - 1.5.3.2. The preservation of the public health;
  - 1.5.3.3. Environmental protection; and/or,
  - 1.5.3.4. Construction safety.
- 1.5.4. Contractor shall arrange for inspection, testing and acceptance of the Work required by the Authorities Having Jurisdiction. Be responsible for necessary preparations, provisions and pay costs.
- 1.5.5. It is the responsibility of the Contractor to schedule notifications and inspections required by Authorities Having Jurisdiction such that notifications can be properly received and that inspections can be properly undertaken without causing a delay in the Work. The Contractor, at no additional cost to the Owner, shall be solely responsible for any delay in the Work caused by failure to properly schedule required notifications and inspections.
- 1.5.6. The Contractor shall Provide to the chief building official or the registered code agency, where a registered code agency is appointed under the Ontario Building Code Act in respect of the construction to which the notice relates, the required notices set out in Division C - Part 1 Sentence 1.3.5.1(2) and Sentence 1.3.5.2 of the Ontario Building Code, O. Reg. 332/12 as amended. The Contractor shall be present at each site inspection by an inspector or registered code agency as applicable under Division C - Part 1 Sentence 1.3.5.2 of the Ontario Building Code.
- 1.5.6.1. It is the responsibility of the Contractor to schedule notifications to the chief building official or the registered code agency such that the inspection pertaining to the notifications can be made within the time frame as required under Division C – Part 1 Sentence 1.3.5.3 of the Ontario Building Code, O. Reg. 332/12 as amended, without causing a delay in the Work. The Contractor, at no additional cost to the Owner, shall be solely responsible for any delay in the Work caused by failure to properly schedule required notifications and inspections.
- 1.5.7. Without limiting the foregoing, wherever bylaws, codes, or standards are quoted in the Contract Documents, they shall be taken to mean the latest edition, including all revisions, amendments, or supplements, at the time of the Contract, unless an earlier edition is specifically quoted. If more than one bylaw, code, or standard is quoted for a given Product, material or method, the latest edition of the most stringent shall govern.
- 1.5.8. Wherever reference is made to “manufacturer’s instructions” or “manufacturer’s recommendations”, it shall mean printed instructions or recommendations, received directly from the referenced manufacturer. It shall also be taken to mean the latest edition of such instructions or recommendations.
- 1.5.9. The Contractor shall be responsible for any delay in the progress of the Work due to a violation of any legislated requirements, and shall take the necessary steps to avoid delay in the final completion of the work, and such steps will not be considered or approved as changes in the Work.

### **1.6. Permits, Deposits and Responsibilities**

- 1.6.1. Owner shall apply and pay for the Building Permit only.
- 1.6.2. All permits, licenses, certificates, and the like, other than the Building Permit, where required for the Work, shall be applied for, paid for, and obtained by the Contractor.
- 1.6.3. Contractor shall obtain all permits required to execute Work on municipal rights of way. Obtain damage deposits for sidewalks, roads and services.
- 1.6.4. The Contractor shall pay for any deposit for clean-up of mud-tracking onto roadways, and for the repair of any damage to roadways adjacent to the Place of the Work as may be required by the Authorities Having Jurisdiction.

### **1.7. Project Coordination and Responsibility**

- 1.7.1. The Contractor shall coordinate the progress of the Work, mobilization areas of the Place of the Work, progress schedules, submittals, access to and use of the Place of the Work and facilities subject to any restrictions and conditions in accordance with the Contract Documents, reports and records, and any other processes, events, work, approvals, inspections and testing as may be required for the complete, proper and seamless execution of the Work.
- 1.7.2. The Contractor shall be solely responsible for ensuring that the complete Contract Documents are distributed to, or otherwise made available for review by, all Subcontractors and suppliers as required for the complete and proper and informed coordination and execution of the Work. Failure in this regard will be the sole responsibility of the Contractor and will not be accepted as a justification for a change in the Work and no change in the Work will be approved therefore.
- 1.7.3. The Contractor is required to employ a competent supervisor and necessary assistants who shall be in attendance at the Place of the Work at all times throughout the progress of the Work when work is being performed. The Contractor, through the supervisor, shall maintain good order and discipline among the Contractor's employees engaged on the Work, and among any Subcontractors engaged on the Work.
- 1.7.4. The responsibility as to which Subcontractor provides the required materials or articles, and/or builds-in articles, rests solely with the Contractor unless otherwise explicitly stated in the Contract Documents or directed by the Consultant.
- 1.7.5. The Contractor shall ensure that Subcontractors shall give the Contractor, in writing, instructions and information regarding their requirements as related to other parts of the Work.
- 1.7.6. There shall be cooperation at all times between Subcontractors as required for the proper execution of the Work. The Contractor shall ensure that Subcontractors supply others with the necessary accessories for building-in where required.
- 1.7.7. There shall be cooperation at all times with any representatives of any Inspection and Testing Companies (as may be retained by the Owner) during the performance of their duties.
- 1.7.8. The Contractor shall ensure that each Subcontractor shall report to the Consultant and the Contractor, in writing, any defects of surface or work, prepared by other Subcontractors, that adversely affects the work of their trade. Commencement of work shall imply acceptance of the prepared work otherwise.
- 1.7.9. The Contractor shall ensure that each Subcontractor, upon completion of their work, removes any equipment, surplus materials, and debris resulting from their work. Each Subcontractor shall also, and at its own expense, make good any damage to the work of another Subcontractor as a result of its own work. The definition of what constitutes "damage" shall be at the sole discretion of the Consultant.

### **1.8. Examination of the Place of the Work, Documents, Surfaces and Conditions**

- 1.8.1. Examine the Place of the Work and investigate matters relating to the nature of the Work, means of access and egress, obstacles, rights and interests of other parties which may be interfered with during the execution of the Work, conditions and limitations including obstructions, existing structures or facilities, local conditions, actual levels, character and

- nature of the Work, documents related to existing building or buildings, as applicable and when available, and other consideration which may affect performance of the Work.
- 1.8.2. Examine the extent of Work to be performed and matters which are referred to in the Contract Documents prior to start of the Work.
  - 1.8.3. Examine Work to which Work is to be applied, anchored or connected, and relevant as-built conditions.
  - 1.8.4. Each Work operation following on a previous Work operation of a differing Subcontractor, as in the case of finishing and surfacing Work, shall include a thorough examination of the condition of the previous Work. Conditions found unacceptable, either for the commencement of the new Work or its satisfactory completion, shall be reported in writing to the Consultant.
  - 1.8.5. Do not commence Work until unsatisfactory conditions are corrected. Commencement of Work implies acceptance of surfaces, tolerances, and conditions and existing conditions will not be accepted as a contributing factor to subsequent failure or acceptability of the Work.

### **1.9. Quantity of Items**

- 1.9.1. Where a component, device, item or part of materials or equipment is referred to in the singular number, such reference shall require the provision of as many components, devices, items or parts of material or equipment necessary to complete the Work.

### **1.10. Standards and Codes**

- 1.10.1. Contract forms, codes, specifications, standards, manuals and installation, application and maintenance instructions referred to in these specifications, unless otherwise specified, amended or date suffixed, shall be latest published editions at Contract date.

### **1.11. Schedule of Values**

- 1.11.1. The schedule of values specified under GC 5.2 shall include line items identifying full costs for the following:
  - 1.11.1.1. Preparation and submission of closeout submittals in accordance with the requirements of Section 01 77 00.

### **1.12. Discrepancies and Clarifications**

- 1.12.1. Advise Consultant of discrepancies discovered in requirements of the Contract Documents and request clarification in written form.
- 1.12.2. Advise Consultant when clarifications are required pertaining to meaning or intent of requirements of Contract Documents and request clarification from Consultant in written form.
- 1.12.3. Do not proceed with related Work until written clarification is provided by Consultant.
- 1.12.4. Failure to notify Consultant shall result in Contractor incurring responsibility for resulting deficiencies and expense at no additional cost to the Owner.
- 1.12.5. Written instructions issued by Consultant for the purpose of clarification, implicitly supersede applicable and relevant aspects of the Contract Documents irrespective of whether or not these documents are explicitly or specifically cited in clarification requests or clarification instructions.

### **1.13. Setting out the Work and Field Engineering**

- 1.13.1. The Contractor shall assume full responsibility for and execute complete layout of the Work to required locations, lines and elevations.
- 1.13.2. Verify all grades, lines, levels, and dimensions as indicated or otherwise provided, and report errors or inconsistencies to the Consultant before commencing work, or as soon as discovered.
- 1.13.3. Upon completion of foundation work, Provide an accurate survey showing the location of the foundations on the Site, the foundation wall dimensions, and the gross floor area of the Foundation Plan. The survey shall be prepared by a surveyor who is a Registered

- Ontario Land Surveyor acceptable to the Owner and the Consultant. The cost of the survey shall be part of the Contract Price.
- 1.13.4. Surveys and Survey Requirements:
- 1.13.4.1. Surveyor shall be an Ontario Land Surveyor, acceptable to the Owner and the Consultant.
- 1.13.4.2. Locate, confirm, and protect control points prior to starting Work. Preserve permanent reference points throughout the Work.
- 1.13.4.3. Establish two permanent benchmarks on Site, referenced to established benchmarks by survey control points. Record locations, with horizontal and vertical data in the Project Record Documents described under Section 01 77 00 Project Closeout.
- 1.13.4.4. Establish lines and levels, locate and lay out by instrumentation.
- 1.13.5. The Contractor shall Provide all Subcontractors with, and be responsible for, all levels and dimensions they require. The Contractor to notify all Subcontractors that such levels and dimensions must be obtained from the Contractor only.
- 1.13.6. The Contractor shall maintain a complete and accurate log of control and survey work as it progresses.
- 1.13.7. Upon completion of foundations and major site improvements, have prepared a certified survey showing dimensions, locations, angles, and elevations of the work completed.
- 1.13.8. As the work progresses, the Contractor shall be responsible for laying-out the exact locations of walls as a guide to the Subcontractors.
- 1.13.9. The Contractor to ensure that all pipes, service lines and ducts are concealed. Any exceptions to this should be noted on the drawings. Advise the Consultant in advance of the installation or fabrication of items where conditions are such that the installation or fabrication will be exposed.

#### **1.14. Protection and Damages of Property and Work**

- 1.14.1. The *Contractor* shall ensure provision of adequate protection of materials, property, and work from damage and staining and to ensure protection of adjacent materials and work of Subcontractors to prevent damage. Any party responsible for damage to the work of another, shall make good such damage to the satisfaction of the Consultant at no additional cost to the Owner. The cost for such making good will not be considered or approved as a change in the Work.
- 1.14.2. Maintain access and surrounding areas to the Place of the Work free from soiling and debris resulting from the Work. Make good any soiling and remove any and all debris caused as a result of the Work to the satisfaction of the Owner and the Consultant.
- 1.14.3. All damage to existing sidewalks, fences, structures, curbs, services, roadways, parking and asphalt areas, grounds, sodding, trees, or other items on, or adjacent to, the Place of the Work, including mud tracks, deemed by the Consultant as being damaged due to the performance of the Work, shall be made good by the Contractor to the satisfaction of the Consultant at no additional cost to the Owner. The cost for such making good will not be considered or approved as a change in the Work.
- 1.14.4. Abide by municipal requirements for maintaining sidewalks and roads in proper condition throughout the course of the Work. Provide a flag-person as required for the safe ingress and egress of vehicles to and from the Place of the Work.
- 1.14.5. Floors and roofs shall not be over-loaded by accumulated materials. Place proper supports and braces as required to safely disseminate any temporary loading.

#### **1.15. Fires and Smoking**

- 1.15.1. Fires are not permitted at the Place of the Work.
- 1.15.2. Explosives shall not be used in the execution of the Work and are not permitted at the Place of the Work.
- 1.15.3. Precautions shall be taken to avoid fire by spontaneous combustion. Remove combustible and non-combustible waste at regular intervals and/or when directed by the Consultant or the Owner.

### **1.16. Documents at the Place of the Work**

- 1.16.1. Maintain at the Place of the Work, one copy of each of following:
- 1.16.1.1. Contract Documents including drawings, specifications, addenda, and other modifications to the Contract.
    - (1) The Issued for Tender (IFT) version of the Contract Documents shall be the version retained at the Place of the Work. The IFC version shall be prepared by the Consultant and provided to the Contractor.
    - (2) Drawings & Specifications "Issued for Construction" are complementary to the Contract Documents. To the best of our knowledge they are an accurate representation of documented revisions. In the case of any discrepancy, omission or conflict between the "Issued for Construction" documents and the Contract Documents, the Contractor is to promptly bring it to the attention of the architect."
    - (3) In cases of dispute, the original signed version, of the Contract Documents, including addenda issued, shall govern over the IFC version.
  - 1.16.1.2. 'Reviewed' or 'Reviewed as Modified' shop drawings.
  - 1.16.1.3. Construction and submittal schedules.
  - 1.16.1.4. Supplemental Instructions, Notices of Change, Change Orders, and Change Directives.
  - 1.16.1.5. Inspection and Testing Reports.
  - 1.16.1.6. Consultant's field review reports and deficiency reports.
  - 1.16.1.7. Reports by Authorities Having Jurisdiction.
  - 1.16.1.8. Building and other applicable permits, and related permit documents.
  - 1.16.1.9. Substantial Performance Procedure issued by Consultant to Contractor
  - 1.16.1.10. Daily log including:
    - (1) Number of Workers actively Working at the Place of the Work by each subcontract.
    - (2) Subcontractors Working at the Place of the Work.
    - (3) Parts of the Work being Worked on.
    - (4) Working hours Worked at the Place of the Work.
    - (5) Activities with intermittent progress.
    - (6) Time lost and explanation for such time lost.
    - (7) Difficulties (Work scheduled to start but did not with the reason why, delays, labour inefficiencies, labour shortage).
    - (8) Products and materials delivered.
    - (9) Equipment mobilized and/or demobilized.
    - (10) Demolition conditions.
    - (11) Start and finish date of each part of the Work.
    - (12) Site specific information as required by Owner.
  - 1.16.1.11. As-built drawings recording as-built conditions, instructions, changes for structure, equipment, wiring, plumbing, and the like, as called for in Section 01 77 00 and Divisions 21, 22, and 23 and Divisions 26, 27, and 28, prior to being concealed.
- 1.16.2. Make above material available to *Consultant* upon request.

### **1.17. Concealed Services**

- 1.17.1. Conceal wiring, conduit, pipes and ductwork in finished areas, unless otherwise indicated.

### **1.18. Trademark and Labels**

- 1.18.1. Trademarks and labels, including applied labels, shall not be visible in finished work in finished areas, unless otherwise accepted or indicated by Consultant.

- 1.18.2. The exceptions to this requirement are trademarks and labels which are essential to identify materials, systems, assemblies, and equipment for maintenance and replacement purposes, and for life safety, fire resistance and temperature rise ratings.

#### **1.19. Waste Audits/Plans for Waste Reduction**

- 1.19.1. Comply with requirements of Authorities Having Jurisdiction.
- 1.19.2. Deliver to nearest appropriate depot materials accepted for recycling by Region or Municipality having jurisdiction over the Place of the Work, including but not limited to cardboard, paper, plastic, aluminum, steel, and glass. Deliver to nearest appropriate depot scrap and excess gypsum wallboard for recycling of this material. Costs for this Work are included in the Contract Price.

#### **1.20. Interferences**

- 1.20.1. Coordinate placement of equipment to ensure that components will be properly accommodated within spaces provided prior to commencement of the Work.
- 1.20.2. Take complete responsibility for remedial Work that results from failure to coordinate aspects of Work prior to its fabrication/installation.
- 1.20.3. Ensure that accesses and clearance required by Authorities Having Jurisdiction and/or for easy maintenance of equipment are provided in layout of equipment and services; notify Consultant if indicated clearances are in conflict.
- 1.20.4. Prepare coordination and interference drawings in accordance with Section 01 33 00.

#### **1.21. Not In Contract Items, Items Supplied by Owner, and By Others**

- 1.21.1. NIC (Not In Contract) shall be used to designate various items of **material and** equipment that require coordination for installation although are not Provided as part of the Work.
- 1.21.2. SBO (Supplied by Owner) shall be used to designate various items of **material and** equipment that will be supplied by the Owner for installation by the Contractor as part of the Work.
- 1.21.3. Install items indicated as supplied by Owner (SBO) during the Work. Coordinate shipping and delivery with the Owner. Store items supplied by Owner at the Place of the Work and protect from damage. Install completely, and leave in full operating condition, in accordance with manufacturer's directions.
- 1.21.4. **By Others shall be used to designate work of another subcontractor under the same contract, and not work by another contractor under a separate contract. Any work noted as such in the Contract Documents shall be part of the scope of Work. General Contractor is responsible for coordination of material and equipment to ensure a complete and operational building is provided under this scope of Work.**

#### **1.22. Seismic Design and Requirements**

- 1.22.1. Design building components, assemblies and systems of the Work, as applicable, to meet seismic requirements pertinent to the location of the Place of the Work in accordance with the Ontario Building Code and comply with requirements of Authorities Having Jurisdiction.
- 1.22.2. Post-Disaster Building: Conform to Ontario Building Code requirements for building classification,
- 1.22.3. 'Post Disaster Building'. Elements of structures, non-structural components and equipment shall be designed in accordance with Ontario Building Code requirements for seismic design, connections, and seismic restraint for 'Post-Disaster Buildings'.
- 1.22.4. Vibrating equipment shall receive seismically designed vibration isolation. Only non-vibrating equipment are permitted to be secured to the structure. Structural connection shall be by means of direct connection to the structure by bolting, using rigid seismic restraints, or taught cable restraints. Connection to structure shall occur only at locations capable of withstanding the forces applied.
- 1.22.5. The proposed connections and general design of Products, equipment and systems shall be described in shop drawing format with identification and location of forces imposed on the structure. The shop drawings shall be stamped by a Professional Engineer licensed

to practice in the Place of the Work and have the appropriate understanding of the issues at hand. The shop drawings shall be submitted for review to the Consultant prior to putting the Work in hand. The Consultant shall review these shop drawings for loads imposed on the structure.

- 1.22.6. Professional Engineer responsible for preparation of seismic engineered submittal shall review the Work and shall submit letters of general conformity for those parts of the Work in accordance with engineered submittal requirements of Section 01 33 00.

### **1.23. Electronic Files**

- 1.23.1. Electronic files (CAD) will not be released until Electronic Files Transfer Form, appended to this section, has been completed and returned to the Consultant. Requests for release of electronic files for Structural, Mechanical, Electrical, Civil or Landscape will require to be completed on their release forms upon request.
- 1.23.1.1. Subcontractors and Suppliers requiring AutoCAD files shall make arrangements with the Contractor. The Consultant will not Provide AutoCAD files directly to Subcontractors or Suppliers.
- 1.23.1.2. The Consultant will require a copyright waiver, and/or CAD data disclaimer, and/or BIM data disclaimer to be signed by the Contractor prior to delivery of such AutoCAD files.
- (1) Copies of each of these disclaimers are appended to this section for reference.
- 1.23.2. The Consultant or other Consultants/subconsultants may charge a fee for providing the electronic files as indicated in the CAD data disclaimer or otherwise at the Consultant's or other Consultant's/Subconsultant's discretion.
- 1.23.2.1. Payment, where required, shall be made directly to the other Consultant/Subconsultant, and not through the Prime Consultant.
- 1.23.3. CAD files shall only be released once payment has been made as stipulated on Electronic Files Transfer Form.

## **2 PRODUCTS**

Not applicable.

## **3 EXECUTION**

Not applicable.

**END OF SECTION**

## 1 GENERAL

### 1.1. GENERAL REQUIREMENTS

- 1.1.1. Read and be governed by conditions of the *Contract Documents*, including sections of Division 1.

### 1.2. SECTION INCLUDES

- .1 1.1. General Requirements
- .2 1.2. Section Includes
- .3 1.3. Summary
- .4 1.4. Sustainability Requirements
- .5 1.5. References
- .6 3.1. Shop Drawing Submission And Review

### 1.3. SUMMARY

- 1.3.1. The project is required to comply with the City of Mississauga's Corporate Green Building Standard (CGB). The Contractor, sub-contractors, suppliers and manufacturers are required to participate as indicated to fully comply with the Corporate Green Building Standard (CGB).

### 1.4. SUSTAINABILITY REQUIREMENTS

- 1.4.1. The Contractor and the Sub Contractors shall fully understand the project's sustainability requirements as listed in the following sections:
- 1.4.1.1. 01 60 13 Low Impact Product Requirements
  - 1.4.1.2. 01 60 13 A Material Submittal Form
  - 1.4.1.3. 01 60 13 B Emissions Submittal Form
  - 1.4.1.4. 01 74 19 Construction Waste Management
  - 1.4.1.5. 31 25 05 Erosion and Sedimentation Control
  - 1.4.1.6. 31 25 05.01 Erosion and Sedimentation Control Schedules

### 1.5. REFERENCES

- 1.5.1. City of Mississauga. Corporate Green Building Standard Program Manual 2022:  
1.5.2. <https://www.mississauga.ca/publication/corporate-green-building-standard/#:~:text=The%20Corporate%20Green%20Building%20Standard,New%20Const ruction%20and%20Major%20Renovation>

## 2 PRODUCTS

Not applicable.

## 3 EXECUTION

### 3.1. SHOP DRAWING SUBMISSION AND REVIEW

- 3.1.1. The Contractor and Sub Contractors shall refer to 01 60 13 Low Impact Product Requirements. Ensure that each shop drawing submission is submitted along with completed Material Submittal Forms and Emissions Submittal Forms and supporting documents as applicable.
- 3.1.2. Shop drawings of equipment with refrigerants should note refrigerant type, total refrigerant charge, cooling capacity and equipment life.
- 3.1.3. Shop drawings for energy-related equipment shall note efficiency parameters.
- 3.1.4. Shop drawings of electric vehicle supply equipment (EVSE) shall demonstrate compliance with the following:
- 3.1.4.1. Provide a Level 2 charging capacity (208 – 240 volts) or greater.
- 3.1.5. Shop drawings of exterior lights shall demonstrate that they are all "Dark Sky compliant."
- 3.1.6. Shop drawings of energy sub-meters shall demonstrate compliance with the following:

- 3.1.6.1. Meters must be permanently installed, record at intervals of one hour or less, and transmit data to a remote location.
- 3.1.6.2. Electricity meters must record both consumption and demand. Whole-building electricity meters shall record the power factor, if appropriate.
- 3.1.6.3. The data collection system must use a local area network, building automation system, wireless network, or comparable communication infrastructure.
- 3.1.6.4. The system must be capable of storing all meter data for at least 36 months.
- 3.1.6.5. The data must be remotely accessible.
- 3.1.6.6. All meters in the system must be capable of reporting hourly, daily, monthly, and annual energy use.

**END OF SECTION**

## **1 GENERAL**

### **1.1. GENERAL REQUIREMENTS**

- 1.1.1. Read and be governed by conditions of the Contract Documents, including Sections of Division 1.

### **1.2. SECTION INCLUDES**

- .1 1.1. General Requirements
- .2 1.2. Section Includes
- .3 1.3. Summary
- .4 1.4. Sustainability Requirements
- .5 1.5. References Sustainability Requirements
- .6 1.6. Definitions
- .7 1.7. Action Submittals
- .8 2.1. Low-Emitting Materials
- .9 2.2. Environmentally Preferred Products

### **1.3. SUMMARY**

- 1.3.1. The Contractor and sub-contractors shall select sustainable and healthy building materials in accordance with the City of Mississauga's Corporate Green Building Standard (CGB) requirements and achieve at least level 1 of Feature M1 Low Impact Materials.
- 1.3.2. This section describes CGB requirements for construction product and material selection and shop drawing review processes.
- 1.3.3. Sub-contractors shall provide completed Material Submittal Forms and Emissions Submittal Forms for all relevant products and materials when submitting their shop drawings.

### **1.4. SUSTAINABILITY REQUIREMENTS**

- 1.4.1. Refer to Section 01 35 18 for General Sustainability Requirements.

### **1.5. REFERENCES SUSTAINABILITY REQUIREMENTS**

- 1.5.1. City of Mississauga. Corporate Green Building Standard Program Manual 2022:
- 1.5.2. <https://www.mississauga.ca/publication/corporate-green-building-standard/#:~:text=The%20Corporate%20Green%20Building%20Standard,New%20Construction%20and%20Major%20Renovation>
- 1.5.2.1. M1. Low Impact Materials
- 1.5.3. The Canadian VOC Concentration Limits for Architectural Coatings.
- 1.5.4. California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings.
- 1.5.5. California 93120.
- 1.5.6. California AB1953 standard.
- 1.5.7. ASTM B813 2010.
- 1.5.8. ASTM B828 2002.
- 1.5.10. SCAQMD – South Coast Air Quality Management District.
- 1.5.10.1. Rule 1113: Architectural Coatings (June 3, 2011).
- 1.5.10.2. Rule 1168: Adhesive and Sealant Applications (July 1, 2005).

### **1.6. DEFINITIONS**

- 1.6.1. Bio-Based Materials: Materials that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials shall be tested using ASTM D 6866 and be legally harvested, as defined by the exporting and receiving country.
- 1.6.2. CDPH Standard Method v1.1: California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from

- Indoor Sources Using Environmental Chambers, v. 1.1–2010, for the emissions testing and requirements of products and materials.
- 1.6.3. Building Exterior: a structure's primary and secondary weatherproofing system, including waterproofing membranes and air- and water-resistant barrier materials, and all building elements outside that system
  - 1.6.4. Building Interior: everything inside a structure's weatherproofing membrane.
  - 1.6.5. Chain-of-Custody (COC): A procedure that tracks a product from the point of harvest or extraction to its end use, including all successive stage of processing, transformation, manufacturing, a distribution.
  - 1.6.6. Chain-of-Custody Certificates: Certificates signed by manufacturers and fabricators certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001.
  - 1.6.7. Cradle-to-Gate Assessment: analysis of a product's partial life cycle, from resource extraction (cradle) to the factory gate (before it is transported for distribution and sale). It omits the use and the disposal phases of the product.
  - 1.6.8. Composite Wood and Agrifiber: Products made of wood particles and/or plant material pressed and bonded with adhesive or resin such as particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores.
  - 1.6.9. Corporate Sustainability Report: A third-party verified report that outlines the environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain.
  - 1.6.10. Environmental Product Declaration (EPD): An independently verified report based on life-cycle assessment studies that have been conducted according to a set of common rules for each product category and peer-reviewed.
    - 1.6.10.1. Product-Specific Declaration: A product with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.
    - 1.6.10.2. Industry-Wide (Generic) EPD: Provide products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
    - 1.6.10.3. Product-Specific Type III EPD: A product with a third-party certification, including external verification, in which the manufacturer is explicated recognized by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
  - 1.6.11. Extended Producer Responsibility (EPR): Measures undertaken by the maker of a product to accept its own and sometimes other manufacturers' products as postconsumer waste at the end of the products' useful life.
  - 1.6.12. Health Product Declaration Open Standard (HPD): A standard format for reporting product content and associated health information for building products and materials.
  - 1.6.13. Indoor Air Quality (IAQ) Management Plan: Plan developed by the Contractor to provide a healthy indoor environment for workers and building occupants during construction. Plan must meet or exceed the recommendations of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction."
  - 1.6.14. Leadership Extraction Practices: Products that meet at least one of the responsible extraction criteria, which include: extended producer responsibility; bio-based materials; FSC wood products; materials reuse; recycled content; and other USGBC approved programs.
  - 1.6.15. Material Cost: The dollar value of materials being provided to the site, after Contractor mark-ups, including transportation costs, taxes, fees, and shop labor, but excluding field equipment and field labor costs.
  - 1.6.16. Materials Reuse: Reuse includes salvaged, refurbished, or reused products.
  - 1.6.17. Multi-Attribute Optimization: Third party certified products that demonstrate impact reduction below industry average in at least three of the following six categories: global

- warming potential; stratospheric ozone depletion; acidification; eutrophication; tropospheric ozone creation; nonrenewable resource depletion.
- 1.6.18. Recycled Content: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost.
- 1.6.18.1. "Postconsumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
- 1.6.18.2. "Preconsumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.
- 1.6.19. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 100 miles from the Project site.
- 1.6.20. Volatile Organic Compounds (VOC) Emissions Test: Refer to CDPH Standard Method v1.1 definition.
- 1.6.21. Interior Floor Finish: all the layers applied over a finished subfloor or stairs, including stair treads and risers, ramps, and other walking surfaces. Interior finish excludes building structural members, such as beams, trusses, studs, or subfloors, or similar items. Interior finish also excludes nonfull spread wet coatings or adhesives.
- 1.6.22. Interior Wall and Ceiling Finish: all the layers comprising the exposed interior surfaces of buildings, including fixed walls, fixed partitions, columns, exposed ceilings, and interior wainscoting, paneling, interior trim or other finish applied mechanically or for decoration, acoustical correction, surface fire resistance, or similar purposes.
- 1.6.23. Life-Cycle Assessment: an evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14040–2006 and ISO 14044–2006.
- 1.6.24. Product (permanently installed building product): an item that arrives on the project site either as a finished element ready for installation or as a component to another item assembled on-site. The product unit is defined by the functional requirement for use in the project; this includes the physical components and services needed to serve the intended function of the permanently installed building product. In addition, similar product within a specification, each contributes as a separate product.
- 1.6.25. Raw Material: the basic substance from which products are made, such as concrete, glass, gypsum, masonry, metals, recycled materials (e.g., plastics and metals), oil (petroleum, polylactic acid), stone, agrifiber, bamboo, and wood.
- 1.6.26. Recycled Content: defined in accordance with the International Organization of Standards document ISO 14021 – Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling).
- 1.6.27. Salvaged Material: a construction component recovered from existing buildings or construction sites and reused. Common salvaged materials include structural beams and posts, flooring, doors, cabinetry, brick, and decorative items.
- 1.6.28. Wood: plant-based materials that are eligible for certification under the Forest Stewardship Council. Examples include bamboo and palm (monocots) as well as hardwoods (angiosperms) and softwoods (gymnosperms)

## **1.7. ACTION SUBMITTALS**

- 1.7.1. Forms And Supporting Documents:
- 1.7.1.1. Sub-contractors shall include all of the following when submitting shop drawings for review. Identify all relevant products that will be supplied / used. All products and materials shall be reviewed by the Sustainability consultant before they are purchased.
- (1) Fully completed Material Forms (01 60 13A) for all products. (i.e. HVAC shop drawing must include all associated adhesives, sealants, insulation, coatings, etc.)
  - (2) Fully completed Emission Forms (01 60 13B) for all of the following: interior paints, coatings, adhesives, sealants, flooring (including sub-

- flooring), composite wood (including built-in cabinetry), and any architectural woodwork.  
 (3) Supporting documentation demonstrating compliance.

## 2 PRODUCTS

### 2.1. LOW-EMITTING MATERIALS

- 2.1.1. Sub-contractors shall meet the threshold level of compliance with VOC content standards for all of the following categories.

**Table 1: Low Emitting Materials Requirements**

Category	Threshold	Criteria
Hard surface flooring:	100%	FloorScore certified
Composite wood products:	100%	SCAQMD VOC
Interior paints, coatings, adhesives, and sealants (wet-applied on site only):	100%	No urea-formaldehyde

2.1.2. VOC Content Evaluation

- 2.1.2.1. Demonstrate that the product meets the VOC content limits outlined in one of the applicable standards and methylene chloride and perchloroethylene were not intentionally added. Statement of product compliance must be made by the manufacturer or a USGBC-approved third-party. Any testing must follow the test method specified in the applicable regulation. If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.
- 2.1.2.2. All interior paints and coatings wet-applied on-site shall meet the following:
- (1) California Air Resource Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings
  - (2) South Coast Air Quality Management District (SCAQMD) Rule 1113, effective February 5, 2016
- 2.1.2.3. All adhesives and sealants wet-applied on-site shall meet the following:
- (1) SCAQMD Rule 1168, October 6, 2017.

**Table 2: California Resources Board (CARB) 2007 & SCAQMD Rule 1113 (Effective February 5, 2016)**

Product Type:	Allowable VOC Content (g/L):
Aluminum roof coatings	400
Basement specialty coatings	400
Bituminous roof coatings	50
Bituminous roof primers	350
Bond Breaker	350
Clear wood finishes - Varnish	275
Clear wood finishes – Sanding Sealer	275
Clear wood finishes - Lacquer	275
Colorant – Architectural Coatings, excluding IM coatings	50
Colorant – Solvent Based IM	600
Colorant - Waterborne IM	50
Concrete – Curing compounds	100
Concrete – Curing compounds for roadways & bridges	350
Concrete surface retarder	50

Driveway Sealer	50
Dry-fog coatings	50
Faux finishing coatings - Clear topcoat	100
Faux finishing coatings – Decorative Coatings	350
Faux finishing coatings - Glazes	350
Faux finishing coatings - Japan	350
Faux finishing coatings – Trowel applied coatings	50
Fire-proof coatings	150
Fire resistive coatings	350
Flat coatings	50
Floor coatings	50
Form release compounds	100
Graphic arts (sign) coatings	150
High temperature coatings	420
Industrial maintenance coatings	100
Industrial maintenance coatings – High temperature IM coatings	420
Industrial maintenance coatings – Non-sacrificial anti-graffiti coatings	100
Industrial maintenance coatings – Zinc rich IM primers	100
Low solids coatings	120
Magnesite cement coatings	450
Mastic coatings	100
Metallic pigmented coatings	150
Multi-color coatings	250
Non-flat coatings	50
Non flat - High gloss coatings	150
Pre-treatment wash primers	420
Primers, sealers and undercoaters	100
Reactive penetrating sealers	350
Recycled coatings	250
Roof coatings	50
Roof coatings, aluminum	100
Roof primers, bituminous	350
Rust preventative coatings	100
Stone consolidant	450
Sacrificial anti-graffiti coatings	50
Shellac- Clear	730
Shellac - Opaque	550
Shellac – Pigmented	550
Specialty primers, sealers, and under coaters	100
Stains	100
Stains, interior	250
Stone consolidants	450
Swimming pool coatings – repair	340
Swimming pool coatings – other	340
Traffic Coatings	100
Tub and tile refinish coatings	420
Waterproofing membranes	250
Waterproofing sealers	100
Waterproofing concrete/masonry sealers	100
Wood Coatings	275
Wood preservatives	350

Low solids coatings	120
Zinc-rich primers	340

Table 3: SCAQMD Rule 1168 (Effective October 6, 2017)

Product Type	VOC Limit
<b>Adhesives for Architectural Applications</b>	<b>g/L</b>
Building envelope membrane adhesive	250
Carpet pad adhesives	50
Ceramic glass, porcelain, & stone tile adhesive	65
Cove base adhesives	50
Dry wall and panel adhesives	50
Multi - purpose construction adhesives	70
Roofing - single ply roof membrane adhesive	250
Roofing all other roof adhesives	250
Rubber floor adhesives	60
Structural glazing adhesives	100
Structural wood member adhesive	140
Subfloor adhesive	50
VCT and asphalt tile adhesives	50
Wood flooring adhesive	100
All other indoor floor covering adhesives	50
All other outdoor floor covering adhesives	50
<b>Substrate Specific Applications</b>	<b>g/L</b>
Metal substrate - specific adhesives	30
Plastic foam substrate - specific adhesives	50
Porous material (except wood) substrate - specific adhesives	50
Wood substrate - specific adhesives	30
Fiberglass substrate - specific adhesives	80
Reinforced plastic composite substrate - specific adhesives	200
<b>Sealants for Architectural Applications</b>	<b>g/L</b>
Clear, paintable, and immediately water - resistant sealant	250
Foam insulation	250
Grout	250
Roadway sealant	250
Non- staining plumbing putty	250
Potable water sealant	250
Roofing - single ply roof membrane sealant	450
Roofing - all other roof sealants	300
All other architectural sealants	50
Marine deck sealant	760
All other sealants	420
<b>Specialty Applications</b>	<b>g/L</b>
Computer diskette manufacturing	350
Contact adhesive	80
Edge glue adhesive	250
ABS welding cement	325
ABS to PVC transition cement	510
CPVC welding cement	490
PVC welding cement	510
All other plastic cement welding cements	100

Rubber Vulcanization Adhesive	250
Special purpose contact adhesive	250
Thin metal laminating adhesive	780
Tire tread adhesive	100
Top and trim adhesive	250
Waterproof resorcinol glue	170
All other adhesives	250
<b>Adhesive Primers</b>	<b>g/L</b>
Plastic adhesive primers	550
Pressure sensitive adhesive primers	250
Traffic marking tape adhesive primers	150
Vehicle glass adhesive primers	250
All other adhesive primers	250
<b>Sealant Primers</b>	<b>g/L</b>
Architectural non- porous sealant primer	250
Architectural porous sealant primer	775
Modified bituminous sealant primer	500
Marine deck sealant primer	760
All other sealant primers	750
<b>Other</b>	<b>g/L</b>
Other adhesives, adhesive bonding primers, adhesive primers, or any other primers	250

Table 4: Canadian VOC Concentration Limits for Architectural Coatings

Product Type	VOC Limit
Antenna coating	530
Thermoplastic rubber coating and mastic	550
Metallic pigmented coating	500
Bituminous roof primer	350
Any other bituminous roof coating	300
Non- bituminous roof coating	250
Calcimine recoater	475
Bond breaker	350
Concrete curing compound	350
Concrete surface retarder	780
Form release compound	250
Dry fog coating	400
Extreme high durability coating	800
Faux finish	350
Fire resistant coating	350
Fire retardant coating, clear	650
Fire retardant coating, opaque	350
Floor enamel	250
Any other opaque floor coating for application to surfaces that may be subject to foot traffic	250
Flow coating	650
Graphic arts coating	500
Temperature- indicator safety coating	550
Any other high temperature coating	420
Impacted immersion coating	780
Any other industrial maintenance coating	340
Shellac, clear	730
Shellac, opaque	550

Clear brushing lacquer	680
Any other lacquer, including lacquer sanding sealers	550
Any other sanding sealer	350
Conversion varnish	725
Conjugated oil varnish for sealing wood	450
Any other varnish	350
Low solids coating	120
Mastic texture coating	300
Multi-coloured coating	250
Nuclear coating	450
Pre- treatment wash primer	420
Specialty primer, sealer or undercoater	350
Waterproofing sealer for concrete or masonry	400
Any other waterproofing sealer	250
Any other primer, sealer or undercoater	200
Quick- dry enamel	250
Recycled coating	350
Rust preventive coating	400
Interior wiping stain	250
Exterior wood stain, clear or semi- transparent	250
Any other stain, including lacquer stains	250
Swimming pool coating	340
Traffic marking coating	450
Any other flat coating	100
Any other non flat coating	150
Any other high gloss coating	250

2.1.3. Composite Wood Evaluation

2.1.3.1. For all composite wood (as defined by the California Air Resource Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation) installed within the building's weatherproofing membrane, demonstrate that products have no urea formaldehyde.

2.1.4. Flooring

2.1.4.1. Demonstrate that all flooring products are FloorScore certified. This includes:

- (1) Cementitious Flooring,
- (2) Ceramic,
- (3) Cork Flooring,
- (4) Flooring Adhesives,
- (5) Hardwood Engineered and Bamboo Flooring,
- (6) Laminate Flooring,
- (7) Linoleum,
- (8) Polymeric Flooring,
- (9) Porcelain,
- (10) Raised Flooring,
- (11) Rubber Flooring,
- (12) Underlayments,
- (13) Vinyl Composite Tile (VCT),
- (14) Vinyl Sheet Flooring,
- (15) Vinyl Tile and Luxury Vinyl Tile (LVT),
- (16) Wall Base,
- (17) Stair Treads, and
- (18) Accessories.

**2.2. ENVIRONMENTALLY PREFERRED PRODUCTS**

2.2.1. Demonstrate that the following thresholds are met:

Table 4: Environmentally Preferred Products Requirements

Category	Threshold	Criteria
Cement replacement in concrete:	≥ 20%	Pre-consumer recycled content (fly ash)
Rebar:	≥ 75%	Post consumer recycled content
Structural steel & metal deck:	≥ 80%	Post consumer recycled content
Wood products:	≥ 75%	FSC certified
All products:	≥ 20 EPDs	Environmental Product Declarations

- 2.2.2. Concrete used at this project must include at least 20% fly ash content. Provide a manufacturer’s letter and calculations demonstrating compliance.
- 2.2.3. Rebars used at this project must have at least 75% post consumer recycled content. Provide a manufacturer’s letter demonstrating compliance.
- 2.2.4. Structural steel and metal decks used at this project must have at least 80% post consumer recycled content. Provide a manufacturer’s letter demonstrating compliance.
- 2.2.5. At least 75% (by cost) of wood products used at this project must be FSC certified. Provide a copy of the FSC certificate as well as the final invoice showing cost and chain of custody numbers.
- 2.2.6. The project shall use at least 20 different permanently installed materials from at least 5 different manufacturers that meet one of the following:
  - 2.2.6.1. Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one quarter (1/4) of a product for the purposes of credit achievement calculation.
  - 2.2.6.2. Products with industry-wide third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator are valued as one half (1/2) of a product for purposes of credit achievement calculation. Environmental product declarations must conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
  - 2.2.6.3. Products with third-party certification (Type III), including external verification in which the manufacturer is explicitly recognized as the participant by the program operator are valued as one whole product for purposes of credit achievement calculation. Environmental product declarations must conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope.

**3 EXECUTION**

Not Applicable

**END OF SECTION**

## Material Submittal Form

General contractor shall complete the following steps:

- 1) Complete this form for all products in Divisions 3 ~ 10, 31 and 32. Refer to 01 60 13 Sustainable Product Requirements.
- 2) Complete ***one form for each product***. There are five tables in this form.
- 3) Attach product-specific supporting documentation demonstrating compliance.
  1. *When submitting shop drawings, include completed Material and Emission Forms and backup documents for all relevant products. (i.e. HVAC shop drawing includes all associated adhesives, sealants, insulation, coatings, etc.)*
  2. *Note that all products and materials shall be reviewed by the Consultant **before they are purchased**.*

**Table 1: Product Information**

Fully complete the table below:

<u>Fully</u> complete the table below:	
<div style="border: 1px solid black; height: 25px; margin-bottom: 5px;"></div> Product Name	<div style="border: 1px solid black; height: 25px; margin-bottom: 5px;"></div> Manufacturer Name
\$ <div style="border: 1px solid black; width: 80%; height: 25px; display: inline-block;"></div>	<div style="border: 1px solid black; width: 80%; height: 25px; display: inline-block;"></div>
Total Material Cost (exclude labor, transport.)	Specification Section #
Is it installed within the building's weatherproofing membrane (e.g. inside of the building)? If the product is a part of the weatherproofing membrane, select no.	Yes / No
Provide a short description of application and use (e.g., adhesive for carpet):	

**Table 2: Contact Information**

Fully complete the table below:

<u>Fully</u> complete the table below:	
<div style="border: 1px solid black; height: 25px; margin-bottom: 5px;"></div> Submitted By (Company)	<div style="border: 1px solid black; height: 25px; margin-bottom: 5px;"></div> Submitted By (Contact Name)
<div style="border: 1px solid black; width: 80%; height: 25px; display: inline-block;"></div>	<div style="border: 1px solid black; width: 80%; height: 25px; display: inline-block;"></div>
Contact Phone Number	Contact Email

**Table 3: Environmental Product Declarations (EPDs)**

Complete this table for all products and materials with environmental product declarations.		
EPD Types	Select all that apply:	Documentation Attached?
Product Specific EPD	<input type="checkbox"/> Conforms to ISO 14044	<input type="checkbox"/> Yes
	<input type="checkbox"/> Conforms to ISO 14025	
	<input type="checkbox"/> Conforms to EN 15804 or ISO 21930	
Industry Wide (Generic) EPD	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes

**Table 4: Recycled Content**

Complete this table for concrete, rebars, structural steel, and metal decks.				
Product Type	<input type="checkbox"/> Concrete	<input type="checkbox"/> Rebar	<input type="checkbox"/> Structural Steel	<input type="checkbox"/> Metal Deck
Leadership Extraction Practices	Recycled Content:	Documentation Attached?		
Is the cement replacement in the concrete $\geq$ 20%?	<input type="checkbox"/> Yes _____%	<input type="checkbox"/> Yes		
Is the post-consumer recycled content in the rebars $\geq$ 75%?	<input type="checkbox"/> Yes _____%	<input type="checkbox"/> Yes		
Is the post-consumer recycled content in the structural steel $\geq$ 80%?	<input type="checkbox"/> Yes _____%	<input type="checkbox"/> Yes		
Is the post-consumer recycled content in the metal deck $\geq$ 75%?	<input type="checkbox"/> Yes _____%	<input type="checkbox"/> Yes		

**Table 5: Wood (Interior and Exterior)**

Complete this table for all interior and exterior wood:		
Requirement	Criteria	Complete the following:
FSC Certified Wood Content	Is at least 75% of the wood FSC certified?	<input type="checkbox"/> Yes
	Provide the following:	Chain of Custody #: _____
		Certified Content by Weight: _____ %
	Provide an invoice including the vendor's CoC certificate code, % FSC mix, and FSC product value when available (after purchased).	<input type="checkbox"/> Yes, I understand.
	Supporting documentation attached?	<input type="checkbox"/> Yes

**END OF SECTION**

## Emissions Submittal Form

General contractor shall complete the following steps:

- 1) Complete this form if the product is any of the following: interior paints, coatings, adhesives, sealants, hard surface flooring (including sub-flooring), composite wood (including built-in cabinetry), and architectural woodwork..
- 2) Complete ***one form for each product***. There are five tables in this form.
- 3) Attach product-specific supporting documentation demonstrating compliance.
  1. *When submitting shop drawings, include completed Material and Emission Forms and backup documents for all relevant products. (i.e. HVAC shop drawing includes all associated adhesives, sealants, insulation, coatings, etc.)*
  2. *Note that all products and materials shall be reviewed by the Consultant **before they are purchased.***

**Table 1: Product Information**

Fully complete the table below:

<u>Fully</u> complete the table below:	
<input style="width: 95%; height: 25px;" type="text"/> Product Name	<input style="width: 95%; height: 25px;" type="text"/> Manufacturer Name
\$ <input style="width: 95%; height: 25px;" type="text"/> Total Material Cost (exclude labor, transport.)	<input style="width: 95%; height: 25px;" type="text"/> Specification Section #
Is it installed within the building's weatherproofing membrane (e.g. inside of the building)? If the product is a part of the weatherproofing membrane, select no.	Yes / No
Provide a short description of application and use (e.g., adhesive for carpet):	<input style="width: 100%; height: 100%;" type="text"/>

**Table 2: Contact Information**

Fully complete the table below:

<u>Fully</u> complete the table below:	
<input style="width: 95%; height: 25px;" type="text"/> Submitted By (Company)	<input style="width: 95%; height: 25px;" type="text"/> Submitted By (Contact Name)
<input style="width: 95%; height: 25px;" type="text"/> Contact Phone Number	<input style="width: 95%; height: 25px;" type="text"/> Contact Email

**Table 3: Interior Paints, Coatings, Adhesives and Sealants (Applied On-Site ONLY)**

VOC Content Requirements	
Regulation (Refer to Section 01 60 13 – VOC Content Requirements)	<input type="checkbox"/> SCAQMD Rule 113 <input type="checkbox"/> SCAQMD Rule 1168 <input type="checkbox"/> CARB 2007 <input type="checkbox"/> Canadian VOC Concentration Limits for Architectural Coatings
Category (e.g., Architectural Coating, Carpet Adhesive, etc.)	
VOC Limit (Refer to Section 01 60 13 – VOC Content Requirements)	g/L
Actual VOC Content of the Product	g/L
Backup documents attached?	<input type="checkbox"/> Yes

**Table 4: Interior Paints, Coatings, Adhesives and Sealants (Applied On-Site ONLY)**

General Emissions Requirements	
Check "Yes" if the product: <ul style="list-style-type: none"> <li>is inherently non-emitting (e.g., stone, ceramic, powder-coated metals, plated/anodized metal, glass, concrete, clay brick, and unfinished/untreated solid wood flooring);</li> </ul> AND <ul style="list-style-type: none"> <li>includes no integral organic based surface coatings, binders or sealants.</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Type of the flooring:	<input type="checkbox"/> Cementitious Flooring <input type="checkbox"/> Raised Flooring <input type="checkbox"/> Ceramic <input type="checkbox"/> Rubber Flooring <input type="checkbox"/> Cork Flooring <input type="checkbox"/> Underlayments <input type="checkbox"/> Flooring Adhesives <input type="checkbox"/> Vinyl Composite Tile (VCT) <input type="checkbox"/> Hardwood Engineered <input type="checkbox"/> Vinyl Sheet Flooring <input type="checkbox"/> Bamboo Flooring <input type="checkbox"/> Vinyl Tile and Luxury Vinyl Tile (LVT) <input type="checkbox"/> Laminate Flooring <input type="checkbox"/> Wall Base <input type="checkbox"/> Linoleum <input type="checkbox"/> Stair Treads <input type="checkbox"/> Polymeric Flooring <input type="checkbox"/> Flooring Accessories <input type="checkbox"/> Porcelain
FloorScore Certified?	<input type="checkbox"/> Yes
Backup documents attached?	<input type="checkbox"/> Yes

**Table 5: Composite Wood**

General Emissions Requirements	
The composite wood product has no urea formaldehyde.	<input type="checkbox"/> Yes
Is the product reused or salvaged?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Backup documents attached?	<input type="checkbox"/> Yes

**END OF SECTION**

## 1 GENERAL

### 1.1 GENERAL INSTRUCTIONS

- 1.1.1. Read and be governed by conditions of the *Contract Documents*, including sections of Division 1.

### 1.2. SECTION INCLUDES

- .1 1.1 General Instructions
- .1 1.2. Section Includes
- .2 1.3. Summary
- .3 1.4. Definitions
- .4 1.5. Performance Requirements
- .5 1.6. Action Submittals
- .6 1.7. Informational Submittals
- .7 1.8. Quality Assurance
- .8 1.9. Waste Management Plan
- .9 1.10. Project Meetings
- .10 3.1. Plan Implementation
- .11 **3.2. Performance Requirements**
- .12 3.3. Salvaging Demolition Waste
- .13 3.4. Recycling Demolition And Construction Waste, General
- .14 3.5. Recycling Demolition Waste
- .15 3.6. Recycling Construction Waste
- .16 3.7. Disposal Of Waste
- .17 **3.8. Waste Tracking & Reporting**

### 1.3. SUMMARY

- 1.3.1. Section includes administrative and procedural requirements for the following:
- 1.1.1.1. Salvaging nonhazardous demolition and construction waste.
  - 1.1.1.2. Recycling nonhazardous demolition and construction waste.
  - 1.1.1.3. Disposing of nonhazardous demolition and construction waste.

### 1.4. DEFINITIONS

- 1.4.1. Alternative Daily Cover (ADC): Cover material other than soil placed on the surface of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging.
- 1.4.2. Commingled Waste: Single-stream recycling of material waste, considered as one material waste stream unless diversion rates can be provided by the recycling facility for specific materials.
- 1.4.3. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging. Hazardous materials are not included.
- 1.4.4. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations. Hazardous materials are not included.
- 1.4.5. Disposal: Removal off-site of demolition and construction waste and subsequent deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- 1.4.6. Diversion: To remove, or have removed, from the site for recycling, reuse, salvage, or return of materials that might otherwise be sent to a landfill. Diversion from landfill does not include burning, incinerating, thermally destroying waste, or waste-to-energy processes.
- 1.4.7. Return: To send back reusable or unused products to vendors or manufacturers.
- 1.4.8. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

- 1.4.9. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- 1.4.10. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.
- 1.4.11. Segregation: To place similar waste materials together for collection in a designated site area, trash bin, or roll-off container.
- 1.4.12. Waste: Waste includes salvageable, returnable, recyclable and reusable material as well as material sent to landfill or incineration facilities. Hazardous materials are not included.
- 1.4.13. Waste Management Plan: A project-specific plan for the collection, transportation, recycling, salvage, and disposal of waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material that is disposed of in landfills or incineration facilities.
- 1.4.14. Waste Material Stream: A flow of materials from a job site into markets for building materials, comprised of a material category (or mixture of several material categories) combined with a diversion method. A material stream must constitute at least five percent (by weight or volume) of total diverted materials for the Project. Examples include source separated materials sent to specific recycling facilities, commingled waste sent to a mixed-waste recycling facility, deconstructed materials sent back to a manufacturer as part of a take-back program, or salvaged materials reused on site.
- 1.4.15. Waste-To-Energy: The conversion of non-recyclable waste materials into usable heat and/or fuel through a variety of processes such as combustion, not including the combustion of wood into wood-derived fuel.

## 1.5. PERFORMANCE REQUIREMENTS

- 1.5.1. Project Diversion Goals: The Owner has established a goal to achieve the following total end-of-Project waste diversion rates (by weight or volume) of total non-hazardous solid waste generated by the demolition and construction Work:
  - 1.5.1.1. Required: Minimum **90 percent diversion rate by weight**
  - 1.5.1.2. Target: 95 percent diversion
- 1.5.2. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, as applicable to the Work:

## 1.6. ACTION SUBMITTALS

- 1.6.1. Waste Management Plan: Submit plan prior to mobilization on site.
  - 1.6.1.1. Waste generated by on-site workers, such as plastic and metal beverage containers.
  - 1.6.1.2. All fluorescent lamps, HID lamps, and mercury-containing thermostats removed from the site shall be recycled.
- 1.6.2. Alternative Daily Cover: Alternative Daily Cover (ADC) may not be included as diverted material used to meet Project diversion rate goals.
- 1.6.3. Waste Management Plan: The Contractor shall be responsible for the development and implementation of a Construction Waste Management Plan for the Project.
  - 1.6.3.1. Final Construction Waste Management Plan: The plan shall contain the following:
    - (1) Estimate of the total proposed jobsite waste to be generated, including types and quantities.
    - (2) Proposed alternatives to Landfilling: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed destination for each material, and the projected amount (by weight or CY)
    - (3) Materials handling procedures: A description of the means by which any waste materials identified in Performance Requirements above will be separated (either sorted on-site or commingled on-site and sorted off-site) and protected from contamination, and the means to be employed in

recycling the above materials consistent with the requirements for acceptance by recycling processors to be utilized.

- (4) If waste materials are sorted and separated on-site, include anticipated sizes and quantity of containers, container labeling, and location(s) on the Project site.
  - (5) List of documentation to be provided in Progress Reports.
  - (6) Identification of material streams, as defined in the Section.
- 1.6.3.2. Prior to request for Substantial Completion, provide final approved Waste Management Plan and summary table indicating site-separated waste, by diverted material type, that indicates the total percentage of construction waste diverted from landfill and the identified waste material streams.

## **1.7. INFORMATIONAL SUBMITTALS**

- 1.7.1. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit a monthly Waste Management Report including a current Waste Tracking Form. Contractor may use their own Waste Tracking Form format or a sample form can be provided upon request. Include the following information:
- 1.7.1.1. Project title, name of company completing report, and dates of period covered by the report
  - 1.7.1.2. Report on the disposal of all jobsite waste, including:
    - (1) Recycled materials. For each material stream, provide the following:
      - (A) Amount (in tonnes or cubic metres)
      - (B) Dates removed from the jobsite
      - (C) Receiving Party
    - (2) Reused or salvaged materials. For each material stream, provide the following:
      - (D) Amount (in tonnes or cubic metres)
      - (E) Description of intended or actual use
      - (F) Market value of materials
    - (3) Landfilled materials. Provide the following:
      - (G) Amount (in tonnes or cubic metres)
      - (H) Dates removed from the jobsite
      - (I) Identity of the transfer station or landfill
    - (4) Gross total quantity of waste generated during the period.
    - (5) Include a breakdown of diverted waste for each of the identified waste material streams and major material categories as follows:
      - (J) Concrete
      - (K) Steel or Metals
      - (L) Wood
      - (M) Gypsum Wallboard
      - (N) Crushed Asphalt
      - (O) Masonry
      - (P) Cardboard
      - (Q) Blue box
    - (6) Provide the quantity of land clearing debris and excavation soil. Note that these categories do not qualify as diverted waste.
    - (7) Provide the name and location of the recycling or disposal facility that accepted the material.
    - (8) Provide the percentage of total diverted waste generated as a percentage of total waste for the current period and cumulative project-to-date.
  - 1.7.1.3. Records:
    - (1) Legible copies of on-site logs, weight tickets and receipts. Receipts shall be from recycling, processing and/or disposal site operators who can legally accept the materials for the purpose of reuse, recycling or disposal.
    - (2) If mixed construction and demolition waste is sorted off-site, provide a letter from the processor stating that reported quantities will reflect actual

- project values, and not average percentage of mixed C&D waste they recycle. Subcontractor shall save such original documents (as above) for the life of the project plus seven (7) year(s).
- (3) Records of salvaged materials donated to charitable organizations. Indicate whether organization is tax-exempt.
- 1.7.1.4. Waste Reduction Final Report: Submit final report prior to the final Application for Payment.
- 1.7.2. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- 1.7.2.1. Exclude excavation soil, land clearing debris and hazardous material.
- 1.7.2.2. Calculations may be performed using either weight or volume, but shall be done consistently throughout the duration of the Project. Where exact materials weights or volumes are not available, use the following Conversion Factors:
- (1) .1 Cardboard 59 kg/m<sup>3</sup>
  - (2) .2 Gypsum wallboard 297 kg/m<sup>3</sup>
  - (3) .3 Mixed waste 208 kg/m<sup>3</sup>
  - (4) .4 Rubble 831 kg/m<sup>3</sup>
  - (5) .5 Steel 593 kg/m<sup>3</sup>
  - (6) .6 Wood 178 kg/m<sup>3</sup>
- 1.7.3. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- 1.7.4. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- 1.7.5. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- 1.7.6. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- 1.7.7. Records of Returns: Indicate receipt and acceptance by vendors or manufacturers who have accepted waste materials as part of their take-back programs. Include receipts.
- 1.7.8. Records of Commingled Waste: If mixed construction and/or demolition waste will be commingled on-site and separated, sorted, and diverted off-site, provide monthly summaries of diversion rates from Recycler/Processor based on one of the following:
- 1.7.8.1. Project-specific diversion rate based on actual measurement of each component waste material. Note that visual inspection is not an acceptable method of evaluation for documenting this percentage.
- 1.7.8.2. If Recycler/Processor provides facility-wide aggregated, annual averaged diversion rates in lieu of Project-specific diversion rates, provide documentation that the Recycler/Processor's method of recording and calculating these rates is regulated by a local or state government authority.
- 1.7.9. Qualification Data: For refrigerant recovery technician (if applicable).
- 1.7.10. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

## **1.8. QUALITY ASSURANCE**

- 1.8.1. Waste Management Coordinator Qualifications: Experienced, with a record of successful waste management coordination of projects with similar requirements.
- 1.8.2. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- 1.8.3. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

- 1.8.4. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
  - 1.8.4.1. Review and discuss waste management plan including responsibilities of waste management coordinator.
  - 1.8.4.2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 1.8.4.3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 1.8.4.4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 1.8.4.5. Review waste management requirements for each trade.
- 1.8.5. Project Meetings: The Waste Management Plan and implementation shall be discussed at the following meetings:
  - 1.8.5.1. Pre-construction meeting.
  - 1.8.5.2. Regular job-site meetings.
  - 1.8.5.3. Sub-contractor job-site coordination meetings.

## **1.9. WASTE MANAGEMENT PLAN**

- 1.9.1. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- 1.9.2. Waste Identification: Indicate all anticipated types and quantities of demolition, site clearing, and construction waste generated by the Work, including identifying at least five (5) materials streams targeted for diversion on the Project. Include estimated quantities and assumptions for estimates.
- 1.9.3. Waste Reduction Work Plan: For each waste material stream, list the means of disposal and whether it will be diverted (salvaged, recycled, and/or reused) or sent to landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, identification or receiving facilities, and handling and transportation procedures.
  - 1.9.3.1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 1.9.3.2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 1.9.3.3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 1.9.3.4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 1.9.3.5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 1.9.3.6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
  - 1.9.3.7. Alternative Daily Cover: Include a statement affirming that alternative daily cover or other excluded materials were not included in calculations used to meet Project diversion rate goals.

### **1.10. PROJECT MEETINGS**

- 1.10.1. Waste management plans and implementation shall be discussed at the following meetings:
  - 1.10.1.1. Pre-construction meeting
  - 1.10.1.2. Regular job-site meetings
  - 1.10.1.3. Subcontractor toolbox meetings

## **2 PRODUCTS (NOT USED)**

### **3 EXECUTION**

#### **3.1. PLAN IMPLEMENTATION**

- 3.1.1. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
  - 3.1.1.1. Comply with operation, termination, and removal requirements in Section 01 50 00 "Temporary Facilities and Controls."
  - 3.1.1.2. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
  - 3.1.1.3. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
    - (1) Distribute waste management plan to everyone concerned within three days of submittal return.
    - (2) Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
  - 3.1.1.4. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
    - (1) Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
    - (2) Comply with Section 01 50 00 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
  - 3.1.1.5. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by distance determined by the Architect or more.

#### **3.2. PERFORMANCE REQUIREMENTS**

- 3.2.1. Sub-contractors are responsible for managing waste generated through their work in alignment with the Construction & Demolition Waste Management Plan and meeting the project's goal: achieving at least 90% diversion rate (by weight).
- 3.2.2. The Contractor shall ensure that the Construction & Demolition Waste Management Plan is distributed to all sub-contractors and waste companies before their work begins.
- 3.2.3. The Contractor to ensure that the project's waste management objectives are communicated during site orientations. All sub-contractors must have access to the plan at all times.
- 3.2.4. The Contractor shall ensure that waste and recycling bins are clearly labeled and maintained to avoid contamination and designate space in accessible locations for clean sorting and diverting of waste. When contamination is identified, corrective actions must be taken immediately.
- 3.2.5. The Contractor and sub-contractors shall protect surface drainage, utility services, storm sewers, and sanitary sewers from damage and blockage.
- 3.2.6. The Contractor shall track on-site crushing of asphalt, concrete, and masonry for infill or aggregate as they are considered on-site waste diversion. When possible, weight of the reused material must be tracked (or estimated) and recorded.

- 3.2.7. The Contractor shall track any hazardous waste materials generated on-site. Hazardous waste will not be included in the project's waste tracking, though it needs to be tracked separately. Hazardous materials must be safely removed and disposed of according to local hazardous waste management rules and requirements.
- 3.2.8. All sub-contractors must collect, separate and dispose of waste (including hazardous wastes) as described in the Construction & Demolition Waste Management Plan. Waste must be sorted in a clean area to prevent waste stream contamination. After sorting, construction waste must be put in the correct waste or recycling bins.

### **3.3. SALVAGING DEMOLITION WASTE**

- 3.3.1. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
  - 3.3.1.1. Clean salvaged items.
  - 3.3.1.2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
  - 3.3.1.3. Store items in a secure area until installation.
  - 3.3.1.4. Protect items from damage during transport and storage.
  - 3.3.1.5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- 3.3.2. Salvaged Items for Sale and Donation: Not permitted on Project site, unless otherwise indicated.
- 3.3.3. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
  - 3.3.3.1. Salvage items indicated on the drawings.
  - 3.3.3.2. Clean salvaged items.
  - 3.3.3.3. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
  - 3.3.3.4. Store items in a secure area until delivery to Owner.
  - 3.3.3.5. Transport items to Owner's storage area off-site, designated by Owner.
  - 3.3.3.6. Protect items from damage during transport and storage.
- 3.3.4. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- 3.3.5. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- 3.3.6. Plumbing Fixtures: Separate by type and size.
- 3.3.7. Lighting Fixtures: Separate lamps by type and protect from breakage.
- 3.3.8. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

### **3.4. RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL**

- 3.4.1. General: Recycle paper and beverage containers used by on-site workers.
- 3.4.2. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.
- 3.4.3. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- 3.4.4. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
  - 3.4.4.1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - (1) Inspect containers and bins for contamination and remove contaminated materials if found.

- (2) Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
- (3) Stockpile materials away from construction area. Do not store within drip line of remaining trees.
- (4) Store components off the ground and protect from the weather.
- (5) Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

### **3.5. RECYCLING DEMOLITION WASTE**

- 3.5.1. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- 3.5.2. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
- 3.5.3. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
- 3.5.4. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- 3.5.5. Metals: Separate metals by type.
  - 3.5.5.1. Structural Steel: Stack members according to size, type of member, and length.
  - 3.5.5.2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- 3.5.6. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- 3.5.7. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- 3.5.8. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
- 3.5.9. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- 3.5.10. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
  - 3.5.10.1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- 3.5.11. Carpet Tile: Remove debris, trash, and adhesive.
  - 3.5.11.1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- 3.5.12. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- 3.5.13. Conduit: Reduce conduit to straight lengths and store by type and size.

### **3.6. RECYCLING CONSTRUCTION WASTE**

- 3.6.1. Packaging:
  - 3.6.1.1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 3.6.1.2. Polystyrene Packaging: Separate and bag materials.
  - 3.6.1.3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 3.6.1.4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- 3.6.2. Wood Materials:
  - 3.6.2.1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
  - 3.6.2.2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
  - 3.6.2.3. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

- (1) Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

### **3.7. DISPOSAL OF WASTE**

- 3.7.1. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 3.7.1.1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 3.7.1.2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 3.7.1.3. Burning: Do not burn waste materials.
  - 3.7.1.4. Disposal: Remove waste materials from Owner's property and legally dispose of them.

### **3.8. WASTE TRACKING & REPORTING**

- 3.8.1. All demolition and construction waste shall be tracked and recorded.
- 3.8.2. Waste Contractor shall provide monthly waste summaries along with waste weigh tickets and invoices associated with each haul to the Sustainability Consultant and the Contractor. Excavated soil and land-clearing debris is excluded. Weight must be reported in kilograms. The summaries must include:
  - 3.8.2.1. Waste Generated (kg), Waste Diverted (kg) and % Diverted
  - 3.8.2.2. Date of Removal and Weight Ticket #
  - 3.8.2.3. Waste Type and End-Use (Recycled, Landfill, Reduced, Donated, etc.)
  - 3.8.2.4. Destination and Waste Hauler
- 3.8.3. Materials destined for alternative daily cover (ADC) shall be tracked and reported as waste (not reported as recycled) in the monthly waste summaries.
- 3.8.4. Waste Contractor shall provide end-use letters outlining the materials that will be diverted/recycled/re-used and the methods that they will be collected, hauled/transported, processed and used (including destination of materials) to the Sustainability Consultant and the Contractor. The letter should include current date, project name and address and should cover the following information at a minimum:
  - 3.8.4.1. What materials are coming to their facility?
  - 3.8.4.2. How do they process each material?
  - 3.8.4.3. Where does each material go after processing? What are they used for?
- 3.8.5. Waste Contractor shall provide a construction waste declaration including the final diversion rate and end use letters.

**END OF SECTION**

## 1 GENERAL

### 1.1. GENERAL REQUIREMENTS

- 1.1.1. Read and be governed by conditions of the *Contract Documents*, including sections of Division 1.

### 1.2. SECTION INCLUDES

- .1 1.1. General Requirements
- .2 1.2. Section Includes
- .3 1.3. Warranties
- .4 1.4. Extended Warranties
- .5 **1.5. Guarantees**

### 1.3. WARRANTIES

- 1.3.1. Refer to GC 12.3 of the Agreement between *Owner* and *Contractor* for the Warranty Periods provisions, and as follows:
- 1.3.1.1. Warranties shall commence at date of Substantial Performance of the Work.
  - 1.3.1.2. Submit warranties for applicable items, signed by the applicable company responsible for each warranty.
  - 1.3.1.3. Submit warranties on form approved by Owner including, but not limited to, the following information:
    - (1) Name and address of Project.
    - (2) Warranty commencement date (date of Substantial Performance of the Work).
    - (3) Duration of warranty.
    - (4) Clear indication of what is being warranted and what remedial action will be taken under warranty.
    - (5) Authorized signature and seal of company providing each warranty.
- 1.3.2. Owner shall be named in manufacturer's Product warranties. Submit on relevant Product manufacturer's standard warranty or guarantee form.
- 1.3.3. The Owner will give prompt notice in writing to the Consultant of any defects noted during the warranty periods(s) and the Consultant shall notify the Contractor promptly requesting him to remedy such defects.
- 1.3.4. A minimum of 30 Working Days prior to the expiration of the Warranty Period stipulated in Contract between Owner and Contractor, the Owner, the Consultant and the Contractor shall conduct an inspection of the Work. The Contractor shall promptly remedy any defects due to faulty materials or workmanship.
- 1.3.5. Use of permanent heating system for temporary heat shall not affect requirement that all warranties start on the date specified in Article A-15 of the Agreement between Owner and Contractor.
- 1.3.6. Prior to application for Substantial Performance of the Work, the Contractor shall formally assign to the Owner all extended warranties given by Subcontractors for their Work on the project and such Subcontractors shall be formally advised of the assignment.

### 1.4. EXTENDED WARRANTIES

- 1.4.1. Extended warranties shall be in accordance with the *Contract* and as follows:
- 1.4.1.1. Where specifically identified in the Contract Documents, extended warranties shall be furnished by individual manufacturer for particular product / system / assembly or by Subcontractor for a particular product/system/assembly/section of the specifications.
  - 1.4.1.2. Extended warranties shall include for proper performance of the portion of the Work as defined by the scope of the applicable specification section to the extent that the design and Contract Documents permit such performance.
  - 1.4.1.3. Extended warranties shall be provided by Subcontractor unless warranty is specified to be provided by product manufacturer.

- 1.4.1.4. The Owner shall promptly give the warrantor notice in writing of observed defects and deficiencies which occur during the warranty period.
- 1.4.1.5. Extended warranties shall commence at date of Substantial Performance of the Work.
- 1.4.1.6. Extended warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranty do not relieve Contractor of obligations under requirements of the Contract Documents.
- 1.4.1.7. Submit extended warranty on warrantor's standard form specifically endorsed by the warrantor to the Owner and shall include the following information:
  - (1) Name and address of Project.
  - (2) Warranty commencement date (date of Substantial Performance of the Work).
  - (3) Warranty period.
  - (4) Specific warranty terms as required in applicable portion of Contract Documents.
  - (5) Name and title of authorized signing officer and seal of warrantor.

## **1.5. GUARANTEES**

- 1.5.1. The following is a summary of the guarantees (in number of years) required by the contract. Refer to individual specification's sections for additional information on warranties. In the event an extended warranty is listed in the specific Section, that section will have precedence over this list. If no extended warranty is listed, this list will govern:
  - 1.5.1.1. Entire Building, General Contract: 1 Year
  - 1.5.1.2. Paving: 2 Years
  - 1.5.1.3. Finish Carpentry & Millwork: 2 Years
  - 1.5.1.4. Caulking (installer's) 2
  - 1.5.1.5. Caulking (manufacturer's) 10
  - 1.5.1.6. Aluminum Windows & Window Walls (manufacturer's): 5 Years
  - 1.5.1.7. Faced-Honeycomb Composite Panel: 25 Years
  - 1.5.1.8. Building-Integrated PV Cladding Panels: 25 Years
  - 1.5.1.9. Metal Doors & Frames: 2 Years
  - 1.5.1.10. Aluminum Doors: 2 Years
  - 1.5.1.11. Four Fold Doors: 3 Years
  - 1.5.1.12. Glazed Sealed Units: 10 Years
  - 1.5.1.13. Mirrors: 5 Years
  - 1.5.1.14. Finish Hardware: 3 Years
  - 1.5.1.15. Panic Devices & Power Door Operators: 5 Years
  - 1.5.1.16. Door Closers: 10 Years
  - 1.5.1.17. Acoustic Ceilings: 2 Years
  - 1.5.1.18. Built Up Roofing (installation): 2 Years
  - 1.5.1.19. Built Up Roofing (manufacturer's): 15 Years
  - 1.5.1.20. Sheet Metal Flashing: 5 Years
  - 1.5.1.21. Concrete Floor Sealer: 3 Years
  - 1.5.1.22. Polished Concrete: 3 Years
  - 1.5.1.23. Epoxy Flooring: 3 Years
  - 1.5.1.24. Millwork: 2 Years
  - 1.5.1.25. Painting: 2 Years
  - 1.5.1.26. Sheet flooring: 5 Years
  - 1.5.1.27. Ceramic Tiling: 3 Years
  - 1.5.1.28. Landscaping & Sod: 2 Years

**2 PRODUCTS** - Not applicable.

**3 EXECUTION** - Not applicable.

**END OF SECTION**

## **1 GENERAL**

### **1.1. GENERAL REQUIREMENTS**

- 1.1.1. Read and be governed by conditions of the Contract *Documents*, including sections of Division 1.

### **1.2. SECTION INCLUDES**

- .1 1.1. General Requirements
- .2 1.2. Section Includes
- .3 1.3. Section Includes
- .4 1.4. Related Sections
- .5 1.5. Conformance
- .6 1.6. References
- .7 1.7. Objectives
- .8 1.8. Description Of Work
- .9 1.9. Kick-Off Meeting
- .10 1.10. Submittals
- .11 3.1. Esc Plan Implementation
- .12 3.2. Procedures
- .13 3.3. Inspections & Maintenance
- .14 3.4. Removal Of Products

### **1.3. SECTION INCLUDES**

- 1.3.1. Overview of erosion and sedimentation control requirements and procedures.

### **1.4. RELATED SECTIONS**

- 1.4.1. Section 31 22 13 – Site Grading  
1.4.2. Section 31 23 33.01– Excavation, Trenching and Backfilling

### **1.5. CONFORMANCE**

- 1.5.1. Comply with the approved Erosion and Sediment Control Plan.  
1.5.2. Sediment control measures shall be as indicated on drawings, as required by site features, or as directed by the Contract Administrator. All sediment control measures shall be constructed before any other construction activity and shall remain until construction is complete or as directed by the Contract Administrator.  
1.5.3. All erosion and sediment control measures are to be regularly inspected and maintained, as required, to the satisfaction of the Contract Administrator.  
1.5.4. During all construction phases, mud tracking control, consisting of flushing and sweeping roads, is to be provided for all roads, as warranted, in accordance with the Erosion and Sediment Control Plan.  
1.5.5. Contractor shall ensure that all conditions of the AHJ are observed and compliance is maintained at all times.

### **1.6. REFERENCES**

- 1.6.1. U.S. Environmental Protection Agency, Office of Water. "Chapter 3: Sediment and Erosion Control" and Chapter 4: Other Controls". Document No. EPA 832-R-92-005 Storm Water Management for Construction Activities. 1992.  
1.6.2. Canada Green Building Council. "Sustainable Sites Prerequisite 1: Erosion & Sedimentation Control". Leadership in Energy and Environmental Design Reference Package for New Construction & Major Renovations (LEED Canada-NC) Version 1.0 2004.

## 1.7. OBJECTIVES

- 1.7.1. Prevent the loss of soil from the construction site resulting from storm water runoff, wind erosion, and construction activities.
- 1.7.2. Prevent the sedimentation of storm sewers and receiving waters.
- 1.7.3. Prevent air pollution caused by dust and particulate matter.
- 1.7.4. Meet or exceed the requirements of LEED Canada-NC Version 1.0 Sustainable Sites Prerequisite 1 "Erosion & Sedimentation Control" which specifies compliance with EPA832/R-92-005 (September 1992), Storm Water Management for Construction Activities, Chapter 3, or local erosion and sedimentation control standards and codes, whichever is more stringent.

## 1.8. DESCRIPTION OF WORK

- 1.8.1. Erosion and sedimentation control activities shall include:
  - 1.8.1.1. Implementing erosion and sedimentation control measures shown on the drawings and described in this Section
  - 1.8.1.2. Installing erosion and sedimentation control products in accordance with manufacturer instructions and the prescribed installation procedures in the referenced EPA document
  - 1.8.1.3. Supervising on site erosion and sedimentation control activities on a daily basis
  - 1.8.1.4. Coordinating erosion and sedimentation control tasks with subcontractors to ensure timely and orderly progress of the work
  - 1.8.1.5. Conducting erosion and sedimentation control inspections and making necessary repairs
  - 1.8.1.6. Maintaining an erosion and sedimentation control inspection log to document observations, deficiencies and corrective actions
  - 1.8.1.7. Preparing erosion and sedimentation control documentation and submittals as detailed herein
  - 1.8.1.8. Reporting erosion and sedimentation control progress to the Consultant

## 1.9. KICK-OFF MEETING

- 1.9.1. Prior to mobilization on-site, the Contractor shall hold a kick-off meeting with the Contract Administrator to review erosion and sedimentation control requirements. This meeting shall include a review of:
  - 1.9.1.1. Erosion and sedimentation control objectives
  - 1.9.1.2. Erosion and sedimentation control requirements and procedures
  - 1.9.1.3. Erosion and sedimentation control documentation and submittals

## 1.10. SUBMITTALS

- 1.10.1. Erosion And Sedimentation Control Plan Development:
  - 1.10.1.1. The Contractor shall develop a written Erosion and Sedimentation Control Plan and provide it to the Sustainability Consultant for review before construction starts. It shall identify:
    - .1 Details and locations of the environmental constraints including maps, reports, approvals and permits.
    - .2 An established communication protocol to ensure effective reporting and compliance.
    - .3 Responsible parties and personnel assigned to each relevant task as well as agency / enforcement contacts.
    - .4 All ESC measures necessary to comply with the Erosion and Sedimentation Control Guideline for Urban Construction.
    - .5 Construction drawings (e.g., ESC drawing by Civil Engineer) detailing the ESC devices installed, which is updated though the construction period.
    - .6 The framework for the inspection, maintenance including the need for repair and recording keeping procedures during all stage of construction.
    - .7 Timing restrictions

- .8 Reporting requirements
- 1.10.1.2. The Contractor (or designated sub-contractor) shall develop a Spill Control and Response Plan per the Erosion and Sedimentation Control Guideline for Urban Construction.
- 1.10.1.3. The Contractor (or designated sub-contractor) shall ensure that the plan is implemented throughout construction and the project fully complies with the Erosion and Sedimentation Control Guideline for Urban Construction. Erosion and sedimentation control measures shall remain until final landscaping is complete.
- 1.10.2. Schedule E1 – ESC Inspection and Photograph Checklist
  - 1.10.2.1. Using the checklist for reference, conduct an inspection of all erosion and sedimentation control measures implemented onsite each week and following any significant storm event (0.5 inches of precipitation or greater).
  - 1.10.2.2. Inspections shall commence when the site is “disturbed” (i.e. when site work begins) and carry through until final landscaping is complete.
  - 1.10.2.3. Provide a minimum of 3 digital photographs of each ESC measure implemented on-site. Record the date each photograph was taken in the checklist. Photographs are required at the following occasions:
    - .1 Immediately following installation,
    - .2 In-situ and,
    - .3 At the end of construction or prior to removal, whichever comes first
  - 1.10.2.4. Coordinate photo requirements with the Contract Administrator.
  - 1.10.2.5. Submit the completed checklist and accompanying photos to the Contract Administrator after construction and prior to Contractor demobilization.
- 1.10.3. Schedule E2 – ESC Inspection Log
  - 1.10.3.1. Complete the log on a weekly basis. The log shall commence when the site is “disturbed” (i.e. when site work begins) and carry through until final landscaping is complete.
  - 1.10.3.2. The inspection log shall be completed for each inspection and must document:
    - .1 Deficiencies related to the measures listed in Schedule E1 – ESC Inspection and Photograph Checklist and,
    - .2 Corrective actions taken to remedy the deficiencies
    - .3 Each deficiency must be initialed and each log signed after all corrective measures have been completed and documented.
    - .4 Submit an up-to-date copy of the ESC Inspection Log to the Consultant on a monthly basis.
    - .5 Submit a compilation of the completed logs to the Consultant after construction and prior to Contractor demobilization.

## 2 PRODUCTS

NOT USED

## 3 EXECUTION

### 3.1. ESC PLAN IMPLEMENTATION

- 3.1.1. The Contractor (or designated sub-contractor) shall ensure that all ESC controls required for this project by the ESC plan remain in effective operating condition until final landscaping.
- 3.1.2. The Contractor (or designated sub-contractor) shall install erosion and sedimentation controls as required per the Erosion and Sedimentation Control Plan and in accordance with manufacturer instructions, engineering best practices and the prescribed installation procedures in the referenced Erosion and Sedimentation Control Guideline for Urban Construction. They must be installed by the time each phase of earth-disturbance has begun unless not feasible. Install downgradient sediment controls (i.e. buffers, perimeter controls, exit point controls, storm drain inlet protection, etc.) that control discharges from

land-disturbing activities. Following the initial controls installation, all other stormwater controls shown in the ESC plan must be installed and made operational as soon as conditions on the site allow.

### 3.2. PROCEDURES

- 3.2.1. The Contractor to identify and implement appropriate ESC measures as required per the Erosion and Sedimentation Control Guideline for Urban Construction and the Civil Engineer's ESC drawings. Example measures include the following:
- 3.2.2. Installation
  - 3.2.2.1. Install erosion and sedimentation control products as per this Section and Civil drawings.
  - 3.2.2.2. Install erosion and sedimentation control products in accordance with manufacturer instructions and the prescribed installation procedures in the referenced EPA document and as described in the ESC Plan drawing.
- 3.2.3. General Practices
  - 3.2.3.1. Site Arrangement
    - .1 All construction trailers and equipment shall be positioned to reduce the disturbance of the site. They shall be located close to the current phase of construction to minimize traffic damage to the site.
  - 3.2.3.2. Stabilized Construction Entrance (SCE)
    - .1 Construct a SCE before construction begins at every point where traffic leaves the site and enters onto a public road and/or any unpaved entrance/exit location where there is a risk of transporting mud or sediment onto paved roads.
    - .2 The SCE must be at least 3.65m wide, with room for two vehicles to pass at high traffic areas, and constructed of 50mm dia. clear stone, 150mm dia. rip rap, and filter fabric with the following characteristics:
      - (A) Grab Tensile Strength: 220lbs
      - (B) Elongation Failure: 60%
      - (C) Mullen Burst Strength: 430lbs
      - (D) Puncture Strength: 125lbs
      - (E) Equivalent Opening: Size 40-80 (US std Sieve)
    - .3 Material Stockpiling
      - (A) If material that has been stockpiled and will not be used within 14 days, it must be stabilized using one of the following measures:
        - (a) Temporary Seeding
        - (b) Tarps
        - (c) Compaction
        - (d) Surface Roughening
- 3.2.4. Stabilization Practices
  - 3.2.4.1. Temporary Seeding
    - .1 Use temporary seeding to reduce soil erosion by stabilizing areas disturbed by construction that will not be brought to final grade within 30 days.
    - .2 Areas that may require temporary seeding include, but may not be limited to soil stock piles, dikes, dams and sides of sediment basins and traps.
    - .3 Species used for temporary seeding must be fast growing, native or adapted, not require permanent irrigation and not be invasive.
    - .4 Till/loosen compacted soil prior to planting seed.
  - 3.2.4.2. Permanent Seeding
    - .1 Apply permanent seeding to any graded or cleared area as specified on the landscaping plan.
    - .2 Plant native grass, tree and shrub species in favourable growth conditions. For areas outside of construction activity, plant species within three (3) weeks of construction start.

- .3 Species shall not require permanent irrigation after the first two years or fertilizers containing phosphorus. Species must not be invasive.
  - .4 Use topsoil on areas where topsoil has been removed, where the soil is dense or impermeable, or where mulching and fertilizers alone cannot improve soil quality. Make topsoil layers at least 2 inches deep, or similar to the existing topsoil depth.
- 3.2.5. Structural Practices
- 3.2.5.1. Silt Fence
- .1 Construct posts with a filter fabric media to remove sediment from storm water volumes flowing through the fence.
  - .2 The lower edge of the fence is to be vertically trenched and covered by backfill.
  - .3 Filter fabric should be a pervious sheet of polypropylene, nylon, polyester, polyethylene, or equivalent and have the following characteristics:
    - (A) Filtering Efficiency: 75%-85% (minimum)
    - (B) Tensile Strength at 20% (maximum) Elongation: Standard Strength = 30 lb/linear in. (min.), Extra Strength = 50 lb/linear in. (min.)
    - (C) Slurry Flow Rate: 0.3 gal/ft<sup>2</sup>/min (min.)
- 3.2.6. Outlet Protection
- 3.2.6.1. Install stone, riprap, concrete aprons, paved sections, or settling basins at all pipe, interceptor dike, swale, or channel section outlets where the velocity of flow may cause erosion or pools at the outlet of an erosion and sedimentation control measure.
- 3.2.7. Inlet Protection
- 3.2.7.1. Install straw bales, stone, concrete masonry units and stone, filter fabric, or silt fences around catch basins and manhole covers to prevent silting of inlets, storm drainage systems, or receiving channels.
- 3.2.8. Surface Roughening
- 3.2.8.1. Create horizontal grooves, depressions, or steps that run parallel to the contour of the land.
- 3.2.8.2. Use surface roughening on all slopes, as soon as possible after the vegetation has been removed.
- 3.2.8.3. Methods of surface roughening are stair-step grading, grooving (using disks, spring harrows, or teeth on a front-end loader), and tracking (driving a crawler tractor up and down a slope, leaving the cleat imprints parallel to the slope contour).
- 3.2.9. Treatment Chemicals: the Contractor shall notify the Sustainability Consultant before using polymers, flocculants or other treatment chemicals.
- 3.2.9.1. Comply with local requirements affecting the use of treatment chemicals.
- 3.2.9.2. Use conventional erosion and sediment controls prior to and after the application of treatment chemicals. Chemicals may only be applied where treated stormwater is directed to a sediment control prior to discharge.
- 3.2.9.3. Select appropriate treatment chemicals suited to the types of soils likely to be exposed during construction discharged to locations where chemicals will be applied, and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or area.
- 3.2.9.4. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures or provide equivalent measures.
- 3.2.9.5. Use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the provider/supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

- 3.2.9.6. Ensure that all persons who handle and use treatment chemicals at the construction site are provided with appropriate, product-specific training that cover proper dosing requirements.
- 3.2.10. Recommended measures to be implemented during dewatering:
  - 3.2.10.1. Do not discharge ground water or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate controls. Uncontaminated, non-turbid dewatering water may be discharged without being routed to a control.
  - 3.2.10.2. Do not discharge visible floating solids or foam.
  - 3.2.10.3. Use an oil-water separator or suitable filtration device that is designed to remove oil, grease, or other products if dewatering water is found to contain these materials.
  - 3.2.10.4. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.
  - 3.2.10.5. At all points where dewatering water is discharged, comply with velocity dissipation requirements per the local requirements (if any).
  - 3.2.10.6. With backwash water, either haul it away for disposal or return it to the beginning of the treatment process.
  - 3.2.10.7. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacture's specifications.
- 3.2.11. For any stockpiles or land clearing debris composed, do the following:
  - 3.2.11.1. Ensure that piles are located outside of any natural buffers and physically separated from other stormwater controls installed.
  - 3.2.11.2. Protect stockpiles from contact with stormwater, including run-off. A temporary perimeter sediment barrier should be implemented if needed.
  - 3.2.11.3. If the stockpile is to be idle, provide cover or temporary stabilization to avoid direct contact with precipitation and provide protection from the wind to limit sediment discharge and dust generation. Measures could include seeding vegetation or laying and securing tarps.
  - 3.2.11.4. Minimize the dust generation through the appropriate application of water or other dust suppression techniques.
  - 3.2.11.5. Minimize the disturbances to steep slopes by implementing standard erosion and sediment control practices, such as by phasing disturbances to these areas and using stabilization practices designed to be used on steep grades.
  - 3.2.11.6. Preserve native topsoil on the site where possible.
- 3.2.12. In areas where final vegetative stabilization will occur or where infiltration practices will be installed:
  - 3.2.12.1. Restrict vehicle and equipment use to avoid soil compaction.
  - 3.2.12.2. Use techniques that condition the soils to support vegetative growth as applicable prior to seeding or planting areas of exposed soil that have been compacted.
- 3.2.13. Pollution Prevention
  - 3.2.13.1. Design, install, and maintain effective pollution prevention measures in order to prevent the discharge of pollutants.
  - 3.2.13.2. Eliminate the following pollutant discharges from the project site.
    - .1 Wastewater from washout of concrete, unless managed by an appropriate control.
    - .2 Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials, unless managed by an appropriate control.
    - .3 Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
    - .4 Soaps, solvents, or detergents used in vehicle and equipment washing.

- .5 Toxic or hazardous substances from a spill or other release.
- 3.2.14. Ensure that all pollution prevention controls installed in accordance with this Part remain in effective operating condition and are protected from activities that would reduce their effectiveness.
- 3.2.15. If controls need to be replaced, repaired, or maintained, make necessary repairs or modifications.
- 3.2.16. When fueling and maintaining equipment or vehicles, provide an effective means of eliminating the discharge of spilled or leaked chemicals including fuel, form the area where these activities will take place.
  - 3.2.16.1. Ensure adequate supplies are available at all times to handle spills, leaks and disposal of used liquids.
  - 3.2.16.2. Use drip pans and absorbents under or around leaky vehicles.
  - 3.2.16.3. Dispose of or recycle oil and oily wastes in accordance with other federal, state, tribal, or local requirements.
  - 3.2.16.4. Clean up spills or contaminated surfaces immediately, using dry clean up measures where possible, and eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.
  - 3.2.16.5. Do not clean surfaces by hosing the area down.
- 3.2.17. When washing equipment or vehicles, do the following.
  - 3.2.17.1. Provide an effective means of minimizing the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing.
  - 3.2.17.2. Provide either cover to prevent soaps, detergents or solvents from coming into contact with rainwater or a similarly effective means designed to prevent the discharge of pollutants from these areas.
  - 3.2.17.3. Do not discharge toxic or hazardous substances from a spill or other release. In the event of an emergency pollution incident, notify federal and provincial/territorial authorities. Record the release, the circumstances leading to the release and the date of the release.

### **3.3. INSPECTIONS & MAINTENANCE**

- 3.3.1. The Contractor shall ensure that the ESC measures are properly installed, well maintained and functioning as intended on a daily basis.
- 3.3.2. The Contractor (or designated sub-contractor) shall inspect all erosion and sedimentation controls in accordance with the referenced Erosion and Sedimentation Control Guideline for Urban Construction at least:
  - 3.3.2.1. on a weekly basis
  - 3.3.2.2. after every rainfall event
  - 3.3.2.3. after significant snowmelt events
  - 3.3.2.4. daily during extended rain or snowmelt periods
- 3.3.3. Greater frequency of monitoring requirements may be required for areas immediately adjacent to soil stockpiles, excavations, dewatering locations, protected features / areas, and locations where site runoff discharges into a receiving watercourse, water body, or municipal sewer system.
- 3.3.4. During inactive construction periods, where the site is left alone for 30 days or longer, monthly inspections are required.
- 3.3.5. Post construction monitoring may be required to ensure the restoration, stabilization and required monitoring of construction features / habitats is established.
- 3.3.6. Documentation of all instructions should be kept on site for a minimum of one year after the development is substantially completed.
- 3.3.7. Provide and update marked up construction drawings (e.g., ESC drawing by Civil Engineer) detailing the ESC devices installed on a regular basis (e.g., when ESC strategies and locations are changed, etc.). Identify high risk areas on these drawings and evaluate routinely.
- 3.3.8. The Contractor (or designated sub-contractor) shall monitor the condition of all ESC measures on site and take photos of all relevant ESC measures, deficiencies, and/or

corrective actions taken. Complete an ESC Inspection Log during inspections. The draft ESC Inspection Log should be provided by the Contractor and reviewed by the Sustainability Consultant prior to construction.

- 3.3.8.1. Identify and document all necessary repairs or modifications and take corrective actions immediately or within 48 hours of the inspection if the problem does not require significant repair or replacement or if the problem can be corrective through routine maintenance.
- 3.3.8.2. Record all corrective actions made (timing, description, photos etc.).
- 3.3.9. The Contractor (or designated sub-contractor) shall submit completed inspection logs and photographs to the Sustainability Consultant monthly.
- 3.3.10. Using Schedule E1 – ESC Inspection and Photograph Checklist for reference, inspect all erosion and sedimentation control measures at least once each week and following any significant storm event (0.5 inches of precipitation or greater).
- 3.3.11. All erosion and sedimentation control measures must be maintained in good working order. If maintenance or repairs are identified they must be completed within 24 hours.
- 3.3.12. Schedule E2 – ESC Inspection Log (1.8.2) must be completed for each inspection.
- 3.3.13. Inspection procedures specified below summarize the EPA document and shall be followed in conjunction with details, drawings, and manufacturer requirements.
  - 3.3.13.1. Stabilized Construction Entrance: Apply additional gravel as required, remove sediments and other materials from all areas to minimize clogging. Keep
  - 3.3.13.2. adjacent public roadway(s) free of sediment.
  - 3.3.13.3. Material Stockpile: Inspect for effective prevention of runoff and erosion.
  - 3.3.13.4. Temporary Seeding: If plants do not grow quickly or thick enough to prevent erosion, reseed the area as soon as possible. Keep seeded areas adequately moist. If irrigation is required, over-watering shall be avoided. Phosphorus-containing fertilizers are not to be used.
  - 3.3.13.5. Permanent Seeding: Inspect for sufficient growth and water conditions. Replant areas as per installation instructions (refer to 3.1.3) if cover does not provide erosion control.
  - 3.3.13.6. Silt Fence: Silt fence to be inspected for depth of sediment, tears, loose fabric attachment at the fence posts, channel erosion beneath fence, sagging or collapse and to ensure the fence posts are firmly in the ground. Built up sediment is to be removed from silt fence when it has reached one-third the height of the fence. Repair such that fence is in original installation condition.
  - 3.3.13.7. Outlet Protection: Inspect outlet for erosion and pooling of water. Necessary repairs to be made as required to reduce exit velocity of runoff. If a riprap apron is used, inspect for riprap displacement and damage to filter fabric.
  - 3.3.13.8. Inlet Protection: Inspect that measures are in original installed condition. Ensure measures are effectively trapping sediment. Remove accumulated sediment and debris when it reaches ½ the design depth of the trap. Repair protection measures as required.
  - 3.3.13.9. Surface Roughening: Inspect for small eroded watercourses, as little as a few inches deep, or washout of roughened grading. Fill, regrade, and reseed immediately.

#### **3.4. REMOVAL OF PRODUCTS**

- 3.4.1. Erosion and sedimentation control measures shall be maintained and inspected until final landscaping is complete.

**END OF SECTION**

**SCHEDULE A: EROSION AND SEDIMENTATION CONTROL (ESC)  
 Inspection Checklist**

Project Name: \_\_\_\_\_

Completed By: \_\_\_\_\_

Date: \_\_\_\_\_

**During Construction:** Complete this checklist on a weekly basis as per Section 31 25 00. For each measure, check the "OK" box if there are no repairs or maintenance required; check the "Not OK" box if attention is required as per the inspection/maintenance procedures in the specification. For all measures marked as "Not OK", the Inspection Log must be completed. List the measures that are deficient in the "Deficiencies" column on the Log, and record the maintenance performed. Submit both the checklist and the log to the Consultant on a monthly basis after all maintenance activities have been completed and recorded.

OK	Not OK	Location of Site	Measure
		Around site perimeter	Preservation of Natural Vegetation (Describe):
		Around site perimeter	Slit Fence
		Vehicular entrance to the site	Stabilized Construction Entrance
			Temporary Seeding
			Permanent Seeding
			Sod Stabilization
			Mulching
			Inlet Protection
		Around Site Perimeter	Interceptor Dike and Swale
			Outlet Protection
			Check Dams

**SCHEDULE B: EROSION AND SEDIMENTATION CONTROL (ESC)  
 Weekly Inspection Log**

Log Start Date: \_\_\_\_\_

Log End Date: \_\_\_\_\_

Log Complete By: \_\_\_\_\_

Project Name: \_\_\_\_\_

Company: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Inspection Date	General Observations (I.e. Seasonal Conditions)	Location and Deficiency of ESC Measure	Corrective Measures	Initials

I hereby certify that the information provided is complete, correct, and complies with the requirements of EPA Best Management Practices:

Signature	Title	Date

**END OF SECTION**