

Part 1 General

1.1 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss Waste Management Plan and Goals.
- .2 Waste Management Goal is 75 percent of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste
- .4 Preserve environment and prevent pollution and environment damage.

1.2 REFERENCES

- .1 Environmental Protection Act, R.S.O. 1990, Chapter E.19.
- .2 R.R.O. 1990, Regulation 347, Amended to O. Reg. 326/03 Waste Management.
- .3 Ontario Regulation 102/94 - Waste Audits and Waste Reduction Work Plans.
- .4 Ontario Regulation 103/94 - Industrial, Commercial and Institutional Source Separation Programs.
- .5 Environmental Quality Act (Q-2).
- .6 Regulation respecting solid waste (Q-2, r.3.2).
- .7 Regulation respecting hazardous materials (Q-2, r.15.2).

1.3 DEFINITIONS

- .1 Approved/Authorized recycling facility: waste recycler approved by applicable provincial authority or other users of material for recycling approved by the Departmental Representative.
- .2 Class III: non-hazardous waste - construction renovation and demolition waste.
- .3 Construction, Renovation and/or Demolition (CRD) Waste: Class III solid, non-hazardous waste materials generated during construction, demolition, and/or renovation activities
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 Waste Source Separation Program (WSSP): implementation and co-ordination of ongoing activities to ensure designated waste materials will be sorted into pre-defined categories and sent for recycling and reuse, maximizing diversion and potential to reduce disposal costs.
- .6 On-site: at bridge location or Contractor's facilities/storage area located at a reasonable distance from the bridge site (within 10 km).

- .7 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .8 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .9 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .10 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .11 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .12 Separate Condition: refers to waste sorted into individual types.
- .13 Source Separation: act of keeping different types of waste materials separate beginning from the point they became waste.
- .14 Waste Audit (WA): detailed inventory of estimated quantities of waste materials that will be generated during construction, demolition, deconstruction and/or renovation. Involves quantifying by volume/weight amounts of materials and wastes that will be reused, recycled or landfilled. Refer to Schedule A.
- .15 Waste Diversion Report: detailed report of final results, quantifying cumulative weights and percentages of waste materials reused, recycled and landfilled over course of project. Measures success against Waste Reduction Workplan (WRW) goals. Refer to Schedule C.
- .16 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating required submittal and reporting requirements.
- .17 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials generated by project. Specifies diversion goals, implementation and reporting procedures, anticipated results and responsibilities. Refer to Schedule B.

1.4 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Audit (Schedule A).
 - .2 Waste Reduction Workplan (Schedule B).
 - .3 Waste Source Separation Program.
 - .4 Schedules A, and B completed for project.

1.5 SUBMITTALS

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

- .2 Prepare and submit following prior to project start-up:
 - .1 Submit copy of completed Waste Audit (WA): Schedule A.
 - .2 Submit copy of completed Waste Reduction Workplan (WRW): Schedule B.
 - .3 Submit copy of Waste Source Separation Program (WSSP).
- .3 Prepare and submit prior to each progress payment, or at intervals agreed to by Departmental Representative the following:
 - .1 Receipts, scale tickets, waybills, and/or waste disposal receipts that show quantities and types of materials reused, recycled, or disposed of.
 - .2 Updated Waste Reduction Work Plan (Schedule B).
 - .3 Updated Waste Materials Tracking Worksheet (Schedule D).
 - .4 Written summary report detailing cumulative amounts of waste materials reused, recycled and landfilled, and brief status of ongoing waste management activities.
- .4 Submit prior to final payment the following:
 - .1 Waste Diversion Report, indicating final quantities by material types salvaged for reuse, recycling or disposal in landfill and recycling centres, re-use depots, landfills and other waste processors that received waste materials (See Schedule C).
 - .2 Provide receipts, scale tickets, waybills, waste disposal receipts that confirm quantities and types of materials reused, recycled or disposed of and destination.

1.6 WASTE AUDIT (WA)

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

1.7 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare and submit WRW prior to project start-up.
- .2 WRW should include but not limited to:
 - .1 Applicable regulations.
 - .2 Specific goals for waste reduction.
 - .3 Destination of materials identified.
 - .4 Deconstruction/disassembly techniques and schedules.
 - .5 Methods to collect, separate, and reduce generated wastes.
 - .6 Location of waste bins on-site.
 - .7 Security of on-site stock piles and waste bins.
 - .8 Protection of personnel, sub-contractors.
 - .9 Clear labelling of storage areas.
 - .10 Methods to track and report results reliably (Schedule D).
 - .11 Details on materials handling and removal procedures.

- .12 Quantities of materials to be salvaged for reuse or recycled and materials sent to landfill.
- .13 Requirements for monitoring on-site wastes management activities.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Identify opportunities for reduction, reuse, and recycling of materials.
- .6 Post WRW or summary where workers at site are able to review content.
- .7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .8 Monitor and report on waste reduction by documenting total volume of actual waste removed from project (Schedule B).

1.8 WASTE SOURCE SEPARATION PROGRAM (WSSP)

- .1 As part of Waste Reduction Workplan, prepare WSSP prior to project start-up.
- .2 WSSP will detail methodology and planned on-site activities for separation of reusable and recyclable materials from waste intended for landfill.
- .3 Provide list and drawings of locations that will be made available for sorting, collection, handling and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide sufficient on-site facilities and containers for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .5 Locate containers to facilitate deposit of materials without hindering daily operations.
- .6 Provide training for workers in handling and separation of materials for reuse and/or recycling.
- .7 Locate separated materials in areas which minimizes material damage.
- .8 Clearly and securely label containers to identify types/conditions of materials accepted and assist workers in separating materials accordingly.
- .9 Monitor on-site waste management activities by conducting periodic site inspections to verify: state of signage, contamination levels, bin locations and condition, personnel participation, use of waste tracking forms and collection of waybills, receipts and invoices.
- .10 On-site sale of salvaged materials is not permitted unless authorized in writing by Departmental Representative and provided that site safety regulations and security requirements are adhered to.
- .11 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility or to users of material for recycling.
- .12 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

- .1 Ship materials to site operating under Certificate of Approval.
- .2 Materials must be immediately separated into required categories for reuse or recycling.

1.9 WASTE DIVERSION REPORT

- .1 At completion of Project, prepare written Waste Diversion Report indicating quantities of materials reused, recycled or disposed of (Schedule C) as well as the following:
 - .1 Identify final diversion results and measure success against goals from Waste Reduction Workplan.
 - .2 Compare final quantities/percentages diverted with initial projections in Waste Audit and Waste Reduction Workplan and explain variances.
 - .3 Supporting documentation.
 - .4 Waybills and tracking forms.
 - .5 Description of issues and resolutions.

1.10 WASTE PROCESSING SITES

- .1 Contractor is responsible to research and locate waste diversion resources and service providers. Salvaged materials are to be transported off site to approved and/or authorized recycling facilities or to users of material for recycling.
- .2 Provincial Ministry Offices from which information pertaining to reuse and recycle centers, and waste processing sites may be obtained are as follows:
 - .1 Province of Ontario
 - .1 Ministry of Environment
Ottawa District Office
2430 Don Reid Dr.
Ottawa, Ontario, K1H 1E1.
Telephone: 613-521-3450.
Fax: 613-521-5437.
 - .2 Province of Quebec
 - .1 Le ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques
Direction régionale de l'Outaouais
98 rue Lois
Gatineau, Quebec, J8Y 3R7.
Telephone: 819-772-3434.
Fax: 819-772-3952.

1.11 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect structural components not removed and salvaged materials from movement or damage.
- .4 Support affected structures. If safety is endangered, cease operations and immediately notify Departmental Representative.
- .5 Protect surface drainage and electrical from damage and blockage.
- .6 Separate and store materials produced during dismantling of structures in designated areas.
- .7 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Obtain waybills, receipts and/or scale tickets for separated materials removed from site.
 - .4 Materials reused on-site are considered to be diverted from landfill and as such are to be included in all reporting.

1.12 DISPOSAL OF WASTES

- .1 Any materials not being reused or recycled shall be sent to a provincially approved waste disposal facility.
- .2 Do not bury rubbish or waste materials.
- .3 Do not dispose of waste, volatile materials, mineral spirits, oil, or paint thinner into waterways, storm, or sanitary sewers.
- .4 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .5 Remove materials from site as Work progresses.
- .6 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in the waste audit.

1.13 USE OF SITE AND FACILITIES

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

1.14 SCHEDULING

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 SELECTIVE DEMOLITION

- .1 Do not demolish bridge beyond what is indicated on Drawings without approval by Departmental Representative.

3.2 APPLICATION

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

3.3 CLEANING

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

3.4 DIVERSION OF MATERIALS

- .1 On-site sale of salvaged, recovered, reusable, and recyclable materials is not permitted.
.2 Containers must be covered with a tarpaulin before they are hauled out of the job site.
.3 Construction and Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Concrete	100	
Rebar	100	
Asphalt	100	
Steel	100	
Non-hazardous waste from lead based paint removal (spent material from lead based paint removal that is tested to be non-leachate toxic)	100	
Electrical Cables	100	
Formwork	100	
Earth Excavation	100	

3.5 WASTE AUDIT (WA)

- .1 Schedule A – Sample Waste Audit (WA) Worksheet.

- .2 Complete the WA, and identify and quantify any additional materials anticipated to enter the waste stream.

(1) Material Category	(2) Material Quantity (unit)	(3) Estimated Waste (%)	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Concrete				Demolition of concrete median		
Rebar				Demolition of concrete median		
Asphalt				Removals along median demolition		
Steel				Structural Steel Retrofit		
Non-hazardous waste from lead based paint removal (spent material from lead based paint removal that is tested to be non-leachate toxic)				Surface preparation for coating		
Electrical Cables				Electrical works		
Formwork				Reconstruction of median		
Earth Excavation				Excavation works		

3.6 WASTE REDUCTION WORKPLAN (WRW)

- .1 Schedule B: Sample WRW Worksheet
- .2 Complete the WRW and focus only on non-hazardous waste materials. Identify and quantify any additional materials anticipated to enter the waste stream. Confirm and complete schedule.
- .3 Manage hazardous wastes separately in accordance with Section 01 14 25 – Designated Substances, and Section 02 83 10 – Lead-Base Paint Abatement – Minimum Precautions.
- .4 Use the worksheet in Schedule D to track the waste generation and diversion during the project.

(1) Material Category	(2) Person(s) Responsible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units)		(5) Recycled Amount (unit)		(6) Material(s) Destination
			Projected	Actual	Projected	Actual	
Concrete							
Rebar							
Asphalt							
Steel							
Non-hazardous waste from lead based paint							

removal (spent material from lead based paint removal that is tested to be non-leachate toxic)							
Electrical Cables							
Formwork							
Earth Excavation							

3.7 WASTE DIVERSION REPORT

.1 Schedule C: Sample Waste Diversion Report Worksheet

(1) Material Category	(2) Reused Amount (unit)	(3) Recycled Amount (unit)	(4) Final Destination and End-Use of Diverted Materials	(5) Landfilled Amount (unit)	(6) Total Amount (unit)	(7) Diversion Rate (%)
Concrete						
Rebar						
Asphalt						
Steel						
Non-hazardous waste from lead based paint removal (spent material from lead based paint removal that is tested to be non-leachate toxic)						
Electrical Cables						
Formwork						
Earth Excavation						

3.8 WASTE MATERIAL TRACKING

1 Schedule D: Sample Waste Material Tracking Worksheet

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3.9 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT**.1 Government Chief Responsibility for the Environment:**

Province	Address	General Inquires	Fax
Federal	Environment Canada Gatineau QC National Office	819-997-2800 1-800-668-6767	819-994-1412
Ontario	Ministry of Environment, 135 St. Clair Avenue West Toronto ON M4V 1P5	416-325-4000 1 800-565-4923	416-323-4682
Québec	Le ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques, Siège social 150, boul, René- Lévesque Est Québec QC G1R 4Y1	418-521-3830 1-800-561-1616	418-646-5974

END OF SECTION