

**Part 1            General**

**1.1                WASTE MANAGEMENT GOALS**

- .1        Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's waste management goal and Contractor's proposed Waste Reduction Work plan for Construction, Renovation and /or Demolition (CRD) waste to be project generated.
- .2        PWGSC's waste management goal: to divert a minimum 75 percent of total Project Waste from landfill sites. Prior to project completion provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced. The overall waste diversion goal for this project is determined by the criteria required to obtain the certification GreenGlobe 3.
- .3        Without being exhaustive, the list of following materials must, according to Waste Source Separation Program (WSSP): be salvaged and sent towards salvage sites for reuse or recycling when possible:
  - .1        Concrete
  - .2        Wood
  - .3        Masonry, cement, brick, stone, granite, marble
  - .4        Crushed Asphalt
  - .5        Metal
  - .6        Copper and steel
  - .7        Gypsum board
  - .8        Acoustical tiles
  - .9        Carboard
  - .10       Glass
  - .11       Electrical cabling
  - .12       ABS plastic Conduits
  - .13       Carpeting
  - .14       Mineral Wool
- .4        Minimize amount of non-hazardous solid waste generated by project and accomplish maximum source reduction, reuse and recycling of solid waste produced by CRD activities.
- .5        Protect environment and prevent environmental pollution damage.

## 1.2 REFERENCES

- .1 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 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
  - .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
  - .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
  - .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
    - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
    - .2 Returning reusable items including pallets or unused products to vendors.
  - .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
  - .11 Separate Condition: refers to waste sorted into individual types.
  - .12 Source Separation: act of keeping different types of waste materials separate beginning from the point they became waste.
  - .13 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.
  - .14 Waste Diversion Report: detailed report of final results, quantifying cumulative weights and percentages of waste materials reused, recycled and land filled over course of project. Measures success against Waste Reduction Work plan (WRW) goals and identifies lessons learned.
  - .15 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as co-ordinating required submittal and reporting requirements.

- .16 Waste Reduction Work plan (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. Waste Reduction Work plan (Schedule B) information acquired from Waste Audit.
- .2 Reference Standards:
  - .1 LEED Canada 2009 for Design and Construction Leadership in Energy and Environmental Design Green Building Rating System Reference Guide.
  - .2 Recyc-Québec
    - .1 Information Guide on recycling dry materials (édition 1999)
    - .2 Recycling construction and demolition solid waste materials (concrete, brick, wood, asphalt). Ways of doing outside of Québec (2010 edition)
  - .3 Regroupement des Récupérateurs et des Recycleurs de Matériaux de Construction et de Démolition du Québec (3RMCDQ)
  - .4 Canadian Construction Association (CCA)
    - .1 CCA 81-2001: A Best Practices Guide to Solid Waste Reduction.
  - .5 Public Works and Government Services Canada (PWGSC)
    - .1 2002 National Construction, Renovation and Demolition Non-Hazardous Solid Waste Management Protocol.
    - .2 CRD Waste Management Market Research Report (available from PWGSC's Environmental Services).
    - .3 Sustainable Development Strategy 2007-2009: Target 2.1 Environmentally Sustainable Use of Natural Resources.
      - .1 Real Property projects over \$1 million and in communities where industrial recycling is supported, implementation of CRD waste management practices will be completed, with waste materials being reused or recycled.
      - .2 Contractually ensure resources used in construction or maintenance are consumed and recovered in a sustainable manner.

### 1.3 DOCUMENTS

- .1 Post and maintain in visible and accessible area at job site, one copy of following documents:
  - .1 Waste Audit (Schedule A).
  - .2 Waste Reduction Work plan (Schedule B).
  - .3 Schedules A and B completed for project.

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

- .2 Prepare and submit following prior to project start-up:
  - .1 (1) copy and (1) electronic copy of completed Waste Audit (WA): Article 3.5.
  - .2 (1) copy and (1) electronic copy of completed Waste Reduction Work plan (WRW): Article 3.5.
- .3 Prepare and submit on bi-monthly basis, throughout project 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 Materials Tracking form .
  - .3 Written bi-monthly summary report detailing cumulative amounts of waste materials reused, recycled and land filled, and brief status of ongoing waste management activities.
- .4 Submit prior to final payment the following:
  - .1 Waste Diversion Report, indicating final quantities (in tons) 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 .
  - .2 Provide receipts, scale tickets, waybills, waste disposal receipts that confirm quantities and types of materials reused, recycled or disposed of and destination.

#### **1.5 WASTE AUDIT (WA)**

- .1 Prepare and submit WA (article 3.5) at least 10 days prior to project start-up.
- .2 Post on-site WA where contractor and sub-contractors are able to review content.

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

- .1 Prepare and submit WRW (article 3.5) at least 10 days prior to project start-up.
- .2 WRW identifies strategies to optimize diversion through reduction, reuse, and recycling of materials and comply with applicable regulations, based on information acquired from WA.
- .3 WRW should include but not limited to:
  - .1 Applicable regulations.
  - .2 Specific goals for waste reduction identify existing barriers and develop strategies to overcome them.
  - .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 Training plan for contractor and sub-contractors.

- .11 Methods to track and report results reliably.
- .12 Details on materials handling and removal procedures.
- .13 Recycler and reclaimer requirements.
- .14 Quantities of materials to be salvaged for reuse or recycled and materials sent to landfill.
- .15 Requirements for monitoring on-site wastes management activities.
- .4 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .5 Post WRW or summary where workers at site are able to review content.
- .6 Monitor and report on waste reduction by documenting total volume (in tons) and cost of actual waste removed from project .

#### **1.7 WASTE SOURCE SEPARATION PROGRAM (WSSP)**

- .1 As part of Waste Reduction Work plan, 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 sub-contractors and workers in handling and separation of materials for reuse and/or recycling.
- .7 Locate separated materials in areas which minimize material damage.
- .8 Clearly and securely label containers to identify types/conditions of materials accepted.
- .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.

#### **1.8 USE OF SITE AND FACILITIES**

- .1 Execute Work with minimal interference and disturbance to normal use of premises.
- .2 Maintain security measures established by facility provide temporary security measures approved by Departmental Representative.

## **1.9 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.

## **1.10 QUALITY ASSURANCE**

- .1 After award of Contract, a mandatory site examination will be held for this Project for Contractor and/or sub-contractors responsible for construction, renovation demolition/deconstruction waste management.
  - .1 Date, time and location will be arranged by Departmental Representative.
- .2 Waste Management Meeting: Waste Management Co-ordinator is to provide an update on status of waste diversion and management activities at each meeting. Written bi-monthly. Waste Diversion Report summary to be provided by Waste Management Coordinator.

## **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 do not become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed and salvaged materials from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .9 Separate and store materials produced during project in designated areas.
- .10 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 offsite 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 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner, into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.
  - .3 Total tonnage of waste generated.
  - .4 Total tonnage of waste reused or recycled.
  - .5 Reused or recycled waste destination.
- .4 Remove materials on-site as Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in the waste audit.

## **1.13 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 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.

### **3.2 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse or recycling.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

- .2 Source separate materials to be reused/recycled into specified sort areas.

**3.3 DIVERSION OF MATERIALS**

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

**3.4 WASTE DIVERSION REPORT**

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

**3.5 WASTE AUDIT (WA)**

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Plastics						
Material Description						
Off-cuts						
Warped Pallet Forms						
Plastic Packaging						
Cardboard Packaging						
Doors and Windows						
Material Description						
Painted Frames						
Glass						
Wood						
Metal						
Other						

**3.6 WASTE REDUCTION WORKPLAN (WRW)**

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

**3.7 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT**

Province	Address	General Inquires	Fax
Alberta	Alberta Environmental Protection Petroleum Plaza, South Tower 9915 - 108 th Street Edmonton AB T5K 2G8	403-427-2739	

	Alberta Special Waste Management Corporation Pacific Plaza, Suite 610 10909 Jasper Avenue NW Edmonton AB T5J 3L9	403-422-5029	403-428-9627
British Columbia	Ministry of Environment Lands and Parks 810 Blanshard Street, 4 th Floor Victoria BC V8V 1X4	604-387-1161	604-356-6464
	Waste Reduction Commission Soils and Hazardous Waste 770 South Pacific Blvd, Suite 303 Vancouver BC V6B 5E7	604-660-9550	604-660-9596
Manitoba	Manitoba Environment Building 2, 139 Tuxedo Avenue, Winnipeg, MB R3N 0H6	204-945-7100	
	The Clean Environment Commission 284 Reimer Avenue, Box 21420 Steinback MB R0A 2T3	204-326-2395	204-326-2472
New Brunswick	Department of the Environment 364 Argyle Street, Box 6000 Fredericton NB E3B 5H1	506-453-3700	506-453-3843
Newfoundland and Labrador	Department of Environment, Confederation Building, Box 8700 St. John's NL A1B 4J6	709-729-2664	709-729-1930
Northwest Territories	Department of Renewable Resources Scotia Centre Building, Box 21 5102 - 50 Avenue Yellowknife NT X1A 3S8	403-873-7420	403-873-0114
Nova Scotia	Department of the Environment 5151 Terminal Road, 5th Floor, Box 2107 Halifax NS B3J 3B7	902-424-5300	902-424-0503

Nunavut	Department of Sustainable Development Environmental Protection Service, Box 1000, Station 1195 Iqaluit NU X0A 0H0	867-975-5910	
Ontario	Ministry of Environment and Energy, 135 St. Clair Avenue West Toronto ON M4V 1P5	416-323-4321 800-565-4923	416-323-4682
	Environment Canada Toronto ON	416-734-4494	
Prince Edward Island	Department of Environmental Resources 11 Kent Street, 4th Floor, PO Box 2000 Charlottetown PE C1A 7N8	902-368-5000	902-368-5830
Québec	Ministère de l'Environnement et de la Faune, Siège social 150, boul, René-Lévesque Est Québec QC G1R 4Y1	418-643-3127 800-561-1616	418-646-5974
	Conseil de la conservation et de l'environnement 800, place d'Youville, 19e étage Québec QC G1R 3P4	418-643-3818	
Saskatchewan	Saskatchewan Environment and Resource Management 3211 Albert Street Regina SK S4S 5W6	306-787-2700	306-787-3941
Yukon	Yukon Renewable Resources PO Box 2703 Whitehorse YT Y1A 2C6	403-667-5683	403-667-3641

**END OF SECTION**