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| **Section Cover Page** |
|  **Section 01 74 19****2016-06-16 Waste Management and Disposal** |
| Refer to “LEED Notes and Credits” page for additional guidance for LEED projects.Include this Section for new building and major renovations **unless** the work of the Contract:.1 is excluded by the Department’s policy on LEED, or.2 the Department has determined that the work of this Contract is not to attain a LEED rating. |

Use this section to specify project waste management functions necessary for attaining Construction Waste Management credits within the Canada Green Building Council (CaGBC) LEED Canada Rating System.

This Master Specification Section contains:

.1 This Cover Page

.2 Specification Section Text:

1. Summary

2. Waste Management Goals

3. Related Requirements

4. References

5. Definitions

6. Documents

7. Use of Site and Facilities

8. Submittals

9. Applications for Progress Payments

10. Storage, Handling and Protection

11. Scheduling

12. Resources

13. Waste Management Plan

14. Cost/Revenue Analysis Work Plan

15. Materials Source Separation Program

16. Waste Audit

17. Demolition Waste Audit

18. Waste Resources

19. Disposal of Wastes

20. Fires

21. Application

22. Waste Management and Materials Source Separation Plans & Implementation

23. Use of Site and Facilities

24. Scheduling

25. Selective Demolition

26. Cleaning

27. Diversion of Materials

.3 eForm Attachments:

.1 [AI/MS Form 01 74 19B-A eForm](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf) – Waste Mangement Plan
(<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf>)

.2 [AI/MS Form 01 74 19B-B eForm](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf) – Cost/Revenue Analysis Work Plan
(<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf>)

**LEED Notes:**

.1 The primary purpose of this Section is to assist in the timely and accurate collection of waste management and disposal information required for CaGBC LEED credits.

.2 LEED Submittals include at Letter Template signed by the architect or owner, and may require a copy of the Waste Management Plan if an audit is requested by CaGBC.

.3 Section 02 41 19, Selective Demolition refers back to this section for methods of handling waste, salvageable and recyclable materials.

.4 Also use this section to specify for prudent waste management on projects that are not attaining LEED certification.

.5 Calculations can be done by weight (tonnes) or volume (m3) but must be consistent throughout.

**LEED Credits:**

The primary purpose of this Section is to assist in the timely and accurate collection of waste management and disposal information required for CaGBC LEED credits.

**.1 LEED Credit MR 2 – Construction Waste Management**

The minimum percentages for waste diversion are 50% for one point and 75% for two points.

Headings are included for convenience only, to provide a standard structure and framework for the identification of requirements.

Headings should be added if requirements noted in the Canada Green Building Council (CaGBC) LEED Canada reference guides identify additional options beneficial to the project.

**END OF DATA SHEET**

1. SUMMARY

.1 This section includes general requirements and procedures for compliance with the Construction Waste Management credit within Canada Green Building Council (CaGBC) LEED Canada 2009 Rating System:

.1 Waste Management Goals.

.2 Waste Management Plan.

.3 Implementation of Construction Waste Management.

.4 Documentation.

## 2. WASTE MANAGEMENT GOALS

.1 This Project shall generate the least amount of waste possible and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

.2 Prior to start of Work, conduct meeting with the Province to review and discuss Project Waste Management Plan and Goals.

.3 Province's Waste Management Goal: [50] [75] [         ] percent of total Project Waste to be diverted from landfill sites. Provide the Province with documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

.4 Develop a Waste Management Plan for this Project and submit to the Consultant for review in accordance with Section 01 33 23 – Shop Drawings, Product Data and Samples.

.5 Accomplish maximum control of solid construction waste.

.6 Preserve environment and prevent pollution and environment damage.

.7 Minimize waste disposal in landfills.

.8 Submit Waste Management Plan for this Project to the Province for review.

3. RELATED requirements

.1 [Summary of Work] [Section 01 11 00].

.2 [Project Coordination] [Section 01 31 13].

.3 [Project Meetings] [Section 01 31 19].

.4 [Construction Schedules] [Section 01 32 16].

.5 [Shop Drawings, Product Data and Samples] [Section 01 33 23].

.6 [LEED Submittal Forms] [Section 01 32 16].

.7 [Environmental Procedures ]Section 01 35 20].

.8 [LEED Requirements] [Section 01 35 18].

.9 [Regulatory Requirements] [Section 01 41 00].

.10 [Building Demolition] [Section 02 41 16].

.11 [Selective Demolition] [Section 02 41 19].

.12 [ ] [ ]

4. REFERENCES

.1 Canada Green Building Council (CaGBC):

Website: [www.cagbc.org](http://www.cagbc.org)

|  |  |  |
| --- | --- | --- |
| .1 | LEED Canada 2009 Rating System | LEED Canada for New Construction and Major Renovations. LEED Canada for Core and Shell Development. |

5. Definitions

.1 Definitions as written below are supplementary to all laws, statutes, and regulations effective in Alberta. Where definitions conflict, laws, statutes, and regulations take precedence over the definitions below.

.2 Class III: non-hazardous waste - construction renovation and demolition waste.

.3 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.

.4 Construction and Demolition Waste: Solid wastes typically including but not limited to, building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

.5 Cost/Revenue Analysis Work Plan (CRAW): Based on information from WMP, and intended as financial tracking tool for determining economic status of waste management practices.

***SPEC NOTE: Demolition Waste Audits are associated with demolition projects. Delete if not required.***

.6 Demolition Waste Audit (DWA): relates to actual waste generated from project.

.7 Hazardous: Exhibiting the characteristics of hazardous substances including, but not limited to, ignitability, corrosiveness, toxicity or reactivity.

.8 Inert Fill: inert waste - exclusively asphalt and concrete.

.9 Materials Source Separation Program (MSSP): Consists of a series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.10 Non-hazardous: Exhibiting none of the characteristics of hazardous substances, including, but not limited to, ignitability, corrosiveness, toxicity, or reactivity.

.11 Non-toxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

.12 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and processed into a new product for reuse by others.

.13 Recycle: To provide a use for a thing that would otherwise be disposed of or dealt with as waste, including collecting, transporting, handling, storing, sorting, separating, AND processing, but does not include the application of waste to land or the use of thermal destruction process.

To remove a waste material from the Project site to another site for treatment or processing into a new product for reuse by others.

.14 Recycling: The process of sorting, cleansing, treating and reconstituting materials that would otherwise be discarded as trash for the purpose of reusing the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.15 Return: To give back reusable items or unused products to vendors for credit.

.16 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.

.17 Salvage: To reuse a construction material that would otherwise be trash on a construction site other than the Project site.

.18 Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

.19 Separate Condition: refers to waste sorted into individual types.

.20 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

.21 Toxic: Poisonous to humans either immediately or after a long period of exposure.

.22 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

.23 Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes trash, salvageable, returnable, recyclable, and reusable material.

.24 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule-A.

.25 Waste Management Plan (WMP): A Project-related plan for the collection, transportation, and final disposition of the waste generated at the construction site. The purpose of the plan is to ultimately reduce the amount of material being landfilled. The Plan involves measuring and estimating the quantity and composition of waste, and identifying reasons for waste generation including and any operational factors. Then, based on this information, address opportunities for reduction, reuse, salvaging, or recycling of materials.

.26 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

6. DOCUMENTS

.1 Maintain at job site, one copy of following documents:

***SPEC NOTE: Demolition Waste Audits are associated with demolition projects. Delete if not required.***

.1 Waste Audit.

.2 Waste Management Plan.

.3 Material Source Separation Plan.

.4 Schedules completed for project.

***SPEC NOTE: Delete the following if there is no demolition.***

[.5 Demolition Waste Audit].

7. USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to site.

.2 Provide temporary security measures.

8. SUBMITTALs

.1 Submit requested submittals in accordance with Section 01 33 23 - Shop Drawings, Product Data and Samples.

.2 Submit a Draft copies of plan[s] for review within ten (10) days after receipt of Letter of Bid Acceptance, or prior to any waste removal, whichever occurs sooner.

.1 Submit two (2) copies of completed Waste Management Plan (WMP).

.1 Form [01 74 19B-A eForm.pdf](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf) (<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf>) showing estimated generation rates specific to the Work and proposed method and facilities for disposal as following:

.1 Landfill options.

.2 Alternatives to Landfill.

.3 Estimated cost/revenue from the sale of recycled or salvaged materials and landfill tipping fees saved due to diversion of materials from the landfill.

.2 Submit two (2) copies of Cost/Revenue Analysis Workplan (CRAW).

.1 Include Form 01 74 19B-A appended to this Section.

.2 List of activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.3 Plan of implementation.

.4 Site/floor plans of areas needed for MSSP showing bins, pallets, or other necessary containment for waste and separated waste materials.

.3 Submit [2] [          ] copies of completed Demolition Waste Audit (DWA):

.1 Include Form 01 74 19B-A.

.4 If requested submit weigh-bills, invoices and other documentation confirming that all materials have been hauled to the required locations.

.3 Prior to Interim Acceptance of the Work, provide the following submittals:

.1 Submit two copies of completed Waste Management Plan: Form [01 74 19B-A eForm.pdf](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf) (<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_A_eForm.pdf>)

.2 Submit two copies of completed Cost/Revenue Analysis Workplan (CRAW): Form [01 74 19B-B eForm.pdf](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf) (<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf>

.4 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.

.1 Failure to submit could result in hold back of final payment.

.2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled[, co‑mingled and separated off‑site or disposed of.

.3 For each material reused, sold or recycled from project, include amount [in tonnes] [quantities by number, type and size of items] and the destination.

.4 For each material land filled or incinerated from project, include amount [in tonnes] [\_\_\_] of material and identity of landfill, incinerator or transfer station.

9. APPLICATIONS FOR PROGRESS PAYMENTS

.1 Submit with each Application for Progress Payment a Summary of Waste Generated by the Project:

***SPEC NOTE: Delete Demolition Waste Audit below if there is no demolition.***

.1 Waste Management Plan project update on Form 01 74 19B-A, and a Waste Audit on Form 01 74 19B.

.2 Submit the following information on a form acceptable to the Province:

.1 The amount in tonnes or m3 of material land filled from the Project,

.2 The identity of the landfill, and

.3 The total disposal cost. Include manifests, weight tickets, receipt, and invoices.

.3 For each material recycled, reused, or salvaged from the Project, the amount tonnes or m3, the date removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling each material.

.2 Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment.

10. STORAGE, HANDLING AND PROTECTION

.1 Store materials to be reused, recycled and salvaged in locations as directed by the Province.

.2 Unless specified otherwise, materials for removal become Contractor's property.

.3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.4 Prevent contamination of materials to be recycled and salvaged and handle materials consistent with requirements for acceptance by designated facilities.

.5 Where materials must be co-mingled, take to a processing facility for separation off site.

.6 Control surface drainage from damaging or effecting mechanical or electrical components.

11. SCHEDULING

.1 Coordinate work with other activities at site to ensure timely and orderly progress of the work.

12. RESOURCES

.1 Information on recyclers specializing in specific categories of materials may be obtained during normal office hours from:

Alberta Environment

Construction, Renovation and Demolition Waste Reduction

Recycling Branch

Recycle Info Line

Phone:  (780) 427‑6982 or 1-800-463-6326

.2 Contractor is responsible for obtaining information packets relevant to all of the above listed programs prior to starting work on the Project, and confirming the facilities ability to accept waste from the Project.

.3 Document work methods, recycled materials, alternate disposal methods that qualify for tax credits, rebates, and other savings.

***SPEC NOTE: Delete the following sentence if project is not attaining LEED certification.***

### .4 LEED Canadian Green Building Council (CGBC), LEED Canada 2009 Rating System, LEED Canada for New Construction and Major Renovations. LEED Canada for Core and Shell Development.

13. WASTE MANAGEMENT PLAN

.1 Draft Plan shall contain the following:

.1 Analysis of the proposed jobsite waste expected to be generated, including types and quantities.

.2 Landfill options: The name of the landfill where trash will be disposed of, the applicable landfill tipping fees, and the projected cost of disposing of all Project waste in the landfill.

.3 Alternatives to Landfill: A list of each material proposed to be salvaged, reused, or recycled during the course of the Project, the proposed local market for each material, and the estimated net cost savings or additional costs resulting from separating and recycling versus landfill each material; "Net" means that the following have been subtracted from the cost of separating and recycling:

.1 Revenue from the sale of recycled or salvaged materials, and

.2 Landfill tipping fees saved due to diversion of materials from the landfill.

.4 WRW should include but not be limited to:

.1 Destination of materials listed.

.2 Deconstruction/disassembly techniques and sequencing.

.3 Schedule for deconstruction/disassembly.

.4 Location.

.5 Security.

.6 Protection.

.7 Clear labelling of storage areas.

.8 Details on materials handling and removal procedures.

.9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

.5 The list of these materials is to include, at minimum, the following materials:

.1 Cardboard.

.2 Clean dimensional wood.

.3 Beverage containers.

.4 Land clearing debris.

.5 Aggregate including: concrete, asphalt, and masonry.

.6 Metals from banding, steel stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.

.7 Gypsum board.

.8 Plastic buckets; waste can be reduced by using plastic lined cardboard dry packed materials instead of premixed moist packed materials where this option is available.

.9 Carpet and carpet pad trim.

.10 Paint.

.11 Plastic sheeting and packaging, where recycling programs are available.

.12 Rigid plastic foam insulation, where recycling programs are available.

.13 If project is a major renovation, this list would be expanded to include common reusable and resalable items such as (but not limited to): beams, finishing work, appliances, fixtures, metal objects, doors, etc.)

.2 Resources for Development of Waste Management Plan: The following sources may be useful in developing the Draft Waste Management Plan:

.1 Transporters and Markets: Investigate local transporters and markets for recyclable materials, and incorporate into Waste Management Plan.

.3 Final Waste Management Plan: Once the Province has determined which of the recycling options addressed in the draft Waste Management Plan are acceptable, submit, within ten (10) calendar days a Final Waste Management Plan, containing the following:

.1 Analysis of the proposed jobsite waste to be generated, including types and quantities.

.2 Landfill options: Name of the landfill where trash will be disposed of, applicable landfill tipping fees, and the projected cost of disposing of all Project waste in landfill.

.3 Alternatives to Landfill: A list of waste materials from the Project that will be separated for reuse, salvage, or recycling.

.4 Meetings: A description of regular meetings to be held to address waste management, refer to Section 01 31 19 Project Meetings.

.5 Materials Handling Procedures: A description of the means by which any waste materials identified in will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.

.6 Transportation: A description of the means of transportation of recyclable materials, whether materials will be site-separated and self-hauled to designated centres, or whether mixed materials will be collected by a waste hauler and removed from the site, and destination of materials.

**14. COST/REVENUE ANALYSIS WORKPLAN (CRAW)**

.1 Just before Interim Acceptance of the Work is issued, prepare CRAW:

Form [01 74 19B-B eForm.pdf](http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf) (<http://www.infrastructure.alberta.ca/Content/docType486/Production/01_74_19B_B_eForm.pdf>

15. MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by the Province.

.2 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.3 Provide containers to collect reusable and recyclable materials.

.4 Locate containers in locations, to facilitate collection of materials without hindering daily operations.

.5 Locate separated materials in areas that will minimize material damage.

***SPEC NOTE: Individual containers for each material type to be separated is a convenient method by which proper source separation efforts can be achieved.***

.6 Collect, handle, store on‑site, and transport off‑site, salvaged materials in separate condition.

.1 Transport to [approved and authorized recycling facility] [to users of material for recycling].

.7 Collect, handle, store on‑site, and transport off‑site, salvaged materials in combined condition.

.1 Ship material[s] to [site operating under Certificate of Approval] [premises of the Province].

.2 Materials must be immediately separated into required categories for reuse or recycling.

***SPEC NOTE: If the Province has completed the Audit delete this Article.***

16. WASTE AUDIT (WA)

***SPEC NOTE: Waste Audit (WA) determines the baseline for Waste Management Plan. Audit those elements which generate waste.***

.1 Conduct WA prior to [project start‑up] [                  ].

17. DEMOLITION WASTE AUDIT (DWA)

***SPEC NOTE: The primary objective of a Demolition Waste Audit (DWA) is to determine the quantities of reusable and recyclable structure materials and quantities of materials to be disposed of.***

.1 Prepare DWA prior to project start‑up.

***SPEC NOTE: A sample document, Demolition Waste Audit (DWA): Schedule D, is included with this Section. Edit to suit project requirements.***

.2 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

18. WASTE RESOURCES

.1 Province of Alberta – Ministry of Environment

 <http://aep.alberta.ca/waste/waste-management/default.aspx>

19. DISPOSAL OF WASTES

.1 Burying of trash and waste materials on site is prohibited.

.2 Disposal of any waste, volatile materials, mineral spirits, oil, paint thinner, into the ground, waterways, storm or sanitary sewers is prohibited.

.3 Keep records of construction waste including:

.1 Number and size of bins.

.2 Waste type of each bin.

.3 Total tonnage generated.

.4 Tonnage reused or recycled.

.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material‑by‑material basis as identified in pre‑demolition material audit.

20. FIRES

.1 Fires or burning of trash and waste on site is not permitted.

21. APPLICATION

.1 Do work in compliance with reviewed WMP.

.2 Handle waste materials whether landfilled, reused, salvaged, recycled, or otherwise disposed of, in accordance with appropriate regulations and codes.

22. WASTE MANAGEMENT AND MATERIALS SOURCE SEPARATION PLANS IMPLEMENTATION

.1 Prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.2 Identify opportunities for reduction, reuse, and recycling (3Rs) of materials. Describe management of waste.

.3 Post the work plan or summary where workers at site are able to review its content.

.4 Manager: Designate an on-site individual responsible for instructing workers and overseeing and documenting results of the Waste Management Plan and Source Separation Plan for the Project.

.5 Distribution: Distribute copies of the Waste Management Plan and Source Separation Plan to the Job Site Foreman, each Subcontractor, the Province, and the Consultant.

.6 Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.

.7 Separation facilities: Lay out and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.

.8 Hazardous wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

.9 On-site sale of salvaged, recovered, reusable, recyclable materials to the public is not permitted.

.10 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition. Transport to authorized recycling facility or to users of material for recycling.

.11 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition. Ship materials to site operating under Certificate of Approval. Materials must be immediately separated into required categories for reuse of recycling.

## 23. USE OF SITE AND FACILITIES

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

.2 [Maintain security measures established by existing facility] [provide temporary security measures approved by the Province.

24. SCHEDULING

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

25. SELECTIVE DEMOLITION

***SPEC NOTE: LEED: The following paragraphs are required for specifying LEED Requirements.***

***SPEC NOTE: LEED: The following paragraph is the requirement for LEED Credit MR 1.1.***

.1 Reuse of Building Elements: this project has been designed to result in end of project rates for reuse of building elements as follows: do not demolish building elements beyond what is indicated on Drawings without approval by the Province.

.2 Building Structure and Shell: [55] [75] [95] percent.

***SPEC NOTE: LEED: The following is the requirement for LEED Credit MR 1.2.***

.3 Interior Non-Shell Elements: [50] [         ] percent.

26. 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.

27. DIVERSION OF MATERIALS

.1 From the following list, separate materials from general waste stream and stockpile in separate piles or containers as reviewed by the Province, and consistent with applicable fire regulations.

.1 Mark containers or stockpile areas.

.2 Provide instruction on disposal practices.

**END OF SECTION**