

Required Specifications: 01505 Construction Waste Management

Part I - General Information

A. WASTE MANAGEMENT DEFINITIONS

Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

Commingling: Mixing recyclable C/D material in one waste container. Materials Recovery Facilities (MRF) exist to sort and recycle commingled materials off-site.

Construction and Demolition Waste: Includes all non-hazardous solid wastes resulting from construction, renovations, alterations, repair, and demolition.

Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity or reactivity.

Material Recovery Facility (MRF): A processing facility designed to sort and separate recyclables based on market needs and material components.

Non-hazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitability, corrosiveness, toxicity, or reactivity.

Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

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

Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste. Can be conducted on-site (as in the grinding of concrete and reuse on-site).

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

Reuse: To reuse a construction waste material without altering its form on the Project site or elsewhere.

Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.

Sediment: Soil and other debris that has been eroded and transported by storm or well production runoff water.

Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste in order to reuse or recycle them.

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

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

Volatile Organic Compounds (VOCs): Chemical compounds common in and emitted by many building products over time through offgassing: solvents in paints and other coatings; wood preservatives; strippers and household cleaners; adhesives in particleboard, fiberboard, and some plywood; and foam insulation. When released, VOCs can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.

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

Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site. **The purpose of the plan is to ultimately prolong the useable life of waste materials and reduce the amount of material being landfilled.**

B. WASTE MANAGEMENT GOALS

Within the limits of the construction schedule, contract sum, and available materials, equipment, products and services, **the Owner has established that this Project shall generate the least amount of waste possible and employ processes that ensure the generation of as little waste as possible.** This expectation is consistent with:

1. The 1997 “Statement on Voluntary Measures to Reduce, Recover, and Reuse Building Construction Site Waste” released by the American Institute of Architects and the Associated General Contractors of America
2. Federal Executive Order 13101
3. EPA Comprehensive Procurement Guidelines (CPG)
4. North Carolina Executive Order 156—State Government Environmental Sustainability, Reduction of Solid Waste, and Procurement of Environmentally Preferable Products.

The Contractor shall develop, for the Architect's and owner's review, a **Waste Management Plan** for this Project consistent with these goals.

1. **Minimize the amount of C/D (construction and demolition) waste** initially generated by such methods as efficient use of materials, appropriate planning, proper storage, prevention of breakage and damage to materials, avoidance of excess packaging and source separation of waste.
2. Of the inevitable waste that is generated, as many of the **waste materials** as economically feasible **shall be reused, salvaged, or recycled**. Waste disposal in landfills shall be minimized. **Consistent with LEED criteria, the project goal is to reuse, salvage, or recycle a minimum of 50% of the wastes generated by weight on demolition/renovation projects and 75% on new construction.**
3. **Use recycled, salvaged, renewable and recyclable building materials.**

C. DRAFT WASTE MANAGEMENT PLAN

The Contractor shall provide, to the Owner and Architect, a Draft Waste Management Plan within 5 business days after receipt of Notice to Proceed or prior to any waste removal, whichever occurs sooner. **Consistent with Orange County ordinances and in order to achieve the waste diversion goals listed above, the Contractor may choose to separate waste and recyclables on-site or use a combination of source separation and a C/D sorting facility permitted by Orange County.** The Contractor will submit the draft and final plans electronically on forms provided by OWRR. See <http://facilities.unc.edu/design-guidelines/waste-reduction/> (C/D Forms and Printed Materials).

The Draft Waste Management Plan shall contain the following:

1. **Waste assessment:** An analysis of the proposed jobsite wastes to be generated, including types and estimated quantities. This includes salvageable materials as well as recyclables and trash.
 - a. **Materials for reuse in project:** (Designer modifies list as appropriate.)
 - 1) Slate roof
 - 2) Wood flooring
 - 3) Brick pavers
 - 4) Stone walls
 - 5) Architectural details
 - 6) Building equipment
 - 7) Program equipment
 - b. **Materials for reuse on campus: Contractor delivers to Owner.** (Designer lists materials here)
 - c. **Materials which must be recycled by law** (also see Section 01060 Regulatory Requirements):
 - 1) Beverage containers
 - 2) Cardboard
 - 3) Clean dimensional wood and pallets
 - 4) Scrap metal, including but not limited to metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze
 - 5) White goods
 - d. **Materials to be recycled (project specific):** Designer lists materials here.
 - e. **Suggested salvageable materials:** Designer lists materials here.
 - 1) Slate roof
 - 2) Wood flooring
 - 3) Brick pavers
 - 4) Stone walls
 - 5) Architectural details
 - 6) Building equipment
 - 7) Program equipment
 - f. **Other recyclable materials to be considered include** (but are not limited to):

- 1) Asphalt
- 2) Bricks
- 3) Ceiling tile
- 4) Concrete
- 5) Concrete Masonry Units (CMU)
- 6) Drywall
- 7) Paint
- 8) Plastic buckets

2. Landfill options: The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the estimated cost of disposing of all Project waste in the landfill(s). This estimate will be used as a baseline for recycling/salvage cost comparison.

3. Waste Diversion Economic Analysis: 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 landfilling) each material. "Net" means that the following have been subtracted from the cost of separating and recycling:

- a) revenue from the sale of recycled or salvaged materials
- b) landfill tipping fees saved due to diversion of materials from the landfill
- c) replacement value of materials reused in the project

For a list of markets and resources, see <http://facilities.unc.edu/design-guidelines/waste-reduction/> (C/D Resources and Links).

Also see Specification 02070 Selective Demolition for information regarding items to be salvaged.

D. FINAL WASTE MANAGEMENT PLAN

Once the Owner has determined which of the recycling options addressed in the Draft Waste Management Plan are acceptable, **the Contractor shall provide a Final Waste Management Plan within 5 business days.**

The Final Waste Management Plan shall contain the following:

1. **Contact information:** The name and contact information of who will be responsible for implementing the Solid Waste Management Plan.
2. **Meetings/instruction:** A description of the regular meetings to be held to address waste management.
3. **Waste assessment:** An analysis of the proposed jobsite wastes to be generated, including types and estimated quantities.
4. **Alternatives to landfilling:** A list of each material proposed to be salvaged, reused, or recycled during the course of the Project.
5. **Landfilling information:** The name of the landfill(s) where trash will be disposed of, the applicable landfill tipping fee(s), and the estimated quantity of waste to be landfilled.

6. **Materials Handling Procedures:** A description of the means by which any waste materials identified in items 4 and 5 above will be protected from contamination, and a description of the means to be employed in handling the above materials consistent with requirements for acceptance by designated facilities.
7. **Transportation:** A description of the means of transportation of recyclable materials and waste (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
8. **Cost estimate summary:** The estimated cost of implementing the final solid waste management plan, broken down by material.
9. **Copy of Orange County RRMO hauling license:** This license is required for any vehicle over 9000 lbs GVW hauling RRMO materials (see 01060). It must be renewed annually. Contact Orange County Solid Waste Management at 968-2800 ext. 163 for more info.

E. IMPLEMENTATION AND DOCUMENTATION OF WASTE MANAGEMENT PLAN

1. **Manager:** The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project. **This contact will notify OWRR immediately should any deviance from the Final Waste Management plan be necessary.**
2. **Distribution:** The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foremen, Subcontractors, the Owner, and the Architect.
3. **Instruction:** The Contractor shall 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.
4. **Separation facilities:** The Contractor shall designate 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.
5. **Hazardous wastes:** Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
6. **Documentation:** The Contractor shall submit with each Application for Progress Payment a **Summary of Waste Generated by the Project**. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The Summary shall be submitted on a form acceptable to the Owner and shall contain the following information. For electronic forms see <http://facilities.unc.edu/design-guidelines/waste-reduction/> (C/D Forms and Printed Materials).

a) Disposal information:

- i. amount (in tons or cubic yards) of material landfilled from the Project
- ii. identity of the landfill
- iii. total amount of tipping fees paid at the landfill

- iv. total disposal cost (including transportation and container rental)
- v. weight tickets, manifests, receipts, and invoices (attach copies)

b) Recycling information:

- i. amount (in tons or cubic yards)
- ii. date removed from the jobsite
- iii. receiving party
- iv. transportation cost
- v. amount of any money paid or received for the recycled or salvaged material
- vi. net total cost or savings of salvage or recycling each material
- vii. manifests, weight tickets, receipts, and invoices (attach copies)

c) Reuse and salvage information:

- i. list of items salvaged for reuse on project or campus
- ii. amount (in tons or cubic yards)
- iii. receiving party or storage location
- iv. net savings (avoided tip fee and cost difference of item purchased new)

7. **Revenues:** Revenues or other savings obtained from recycled, reused, or salvaged materials shall accrue to contractor unless otherwise noted in the contract documents