

## SECTION XXXX – CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

### Part 1 – GENERAL

#### 1.1 SUMMARY:

A. This section specifies diversion of Construction and Demolition (C&D) waste from the landfill.

1. Waste Management Goals: a minimum of 75% of the total project waste should be diverted from landfill, in order of preference 1) weight, 2) volume, whichever is most feasible to measure.
2. Provide contract documents, including a waste management plan, to show evidence of recycling, and reuse of recovered materials.
3. Inform Owner and architect where Construction and Demolition (C&D) Waste Management requirements could detrimentally impact C&D schedule.
4. Provide separate itemization of cost related to C&D Waste Management.
5. Effect optimum management of solid wastes via a materials management hierarchy.
6. The materials management hierarchy shall be: reduce, reuse, and recycle.
7. Prevent environmental pollution and damage.

B. Related Documents:

*[Additional relation section may be listed as well. The following is list of potential related sections. Edit to suit project]*

1. Document Number - Supplementary Instruction to Bidder-Resource Efficiency.
2. Document Number - Supplementary General Condition.
3. Document Number - Summary of the Work.
4. Document Number - Alternates, or
5. Document Number - Waste Management / Recycling Alternates.
6. Document Number - Regulatory Requirements.
7. Document Number - Definitions.
8. Document Number - Project Meetings.
9. Document Number - Submittals.
10. Document Number - Quality Control.
11. Document Number - Construction Facilities and Temporary Controls.
12. Document Number - Construction Waste Management.
13. Document Number - Materials and Equipment.
14. Document Number - Substitutions.
15. Document Number - Contract Close-out.
16. Document Number - Hazardous Materials Procedures.
17. Document Number - Hazardous Materials Management – Asbestos.
18. Document Number - Hazardous Materials Management – Lead.
19. Document Number - Hazardous Materials Management – PCB.
20. Document Number - Hazardous Materials Management – Hazardous Metals.
21. Document Number - Hazardous Materials Management – Mercury.
22. Document Number - Penalties and Incentives.
23. Document Number - IAQ

## 1.2 DEFINITIONS:

- A. Inert Fill – A permitted facility that accepts inert waste such as asphalt and concrete exclusively.
- B. Class III Landfill - A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.
- C. Construction and Demolition Waste – Including solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations.
1. Rubbish: Including both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, and bones.
  2. Debris: Including both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work.
- D. Weight Conversion Factor – It is the rate set forth in the standardized Weight Conversion Table XXXX approved by XXXX for the use in estimating the volume or weight of materials identified in the Waste Management Plan.
- E. Deconstruction - The process of removing existing building materials from renovation and demolition projects for the purposes of reuse, and recycling, in a efficient and safe manner possible.
- F. Divert – Using material for any purpose other than disposal in a landfill.
- G. Waste Materials – Large and small pieces of listed materials which are excess to contract requirements and generally include materials to be recycled and/or recovered from existing construction and items of trimmings, cuttings, and damaged goods resulting from new installations, which can be effectively used in the Work.
- H. Reuse – Using a material or product that is recovered from construction, renovation, or demolition activities.
- I. Recycling – The process of collecting and preparing recyclable materials in their original form or in manufacturing processes that do not cause the destruction/contamination of recyclable materials in a manner that precludes further use.
- J. Recovery – Any process that reclaims materials, substances, energy, or other products contained within or derived from waste on-site. It includes waste-to-energy, composting, and other processes.

K. Sources Separation – Sorting the recovered materials into specific material types with no or a minimum amount of contamination on site.

L. Time-Based Separation – Collecting waste during each phase of construction or deconstruction which results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.

M. Commingled or Off-site Separation – Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types in an off-site facility.

### 1.3 SUBMITTALS:

#### A. C&D Waste Management Plan

Before the start of demolition, submit a C&D waste management plan to the Owner and the architect for approval and it shall include the following:

1. Indicate how the Contractor proposes to recover at least 75% of the C&D wastes for reuse and recycling.
2. The C&D Waste Management Plan should coordinate the recovery effort with the construction, and renovation / demolition schedule.
3. Indicate compliance with section 1.5 QUALITY ASSURANCE.
4. Include a list of reuse facilities, recycling facilities and processing facilities that will be receiving the recovered materials (including take back by Owner or on-site auctions.)
5. If some of the materials will be donated or sold on-site auctions, describe the process and identify the organizations that may receive the materials.
6. Identify materials that are not recyclable or not recovered which will be disposed of in a landfill (or other means acceptable by the State of California and local ordinance and regulations) and explain why the materials are not recovered.
7. List the permitted landfill, or other permitted disposal facilities, that will be accepting the disposed waste materials.
8. Indicate instances or situations where compliance with the requirements of this specification do not apply or do not appear to be possible.
9. Identify each type of waste material to be reused or recycled and estimate the amount, by weight.
10. Provide estimate of time requirements for demolition and for the removal of valuable reusable items and materials.
11. Prepare building engineering survey and worker safety plan, assessment of building condition and all potential hazards.
12. Provide a C&D site management plan.
13. Provide final accounting of disposition of recovered materials upon completion of project for final payments.

#### B. C&D Waste Management Summary Reports

Provide the C&D Quality Manager with delivery receipts for the recovered materials and waste materials sent to the permitted recycling facilities, processing facilities, or landfill with the following information:

1. Name of firm accepting the recovered materials or waste materials
2. Specify type of facility (e.g. retail facility, recycler, processor, Class III landfill, MRF)
3. Location of the facility
4. Type of materials
5. Net weights (or volume) of each type of material
6. Date of delivery
7. Value of the materials or tipping fee paid

C. Application for Progress Payment

The following should be submitted with the Application for Progress Payment:

1. C&D Waste Management Summary Report as stated above in section 1.3 SUBMITTALS, B. C&D Waste Management Summary Reports, with the C&D Quality Manager approval on each of the report.
2. Prepare 3-ring binder with rebate information and product documentation as required for Owner to qualify for rebate program; submit binder with final closeout submittals.
3. Payment could be withheld until diversion goals are met. The Contractor is ultimately responsible for implementation of the C&D Waste Management Plan and achieving the diversion goals.
4. If at the end of the project the Contractor is able to divert more than the established minimum Waste Management Goal, the Contractor shall receive \$XXX for every 5% diverted above the minimum Waste Management Goal.

1.4 RECYCLING PROGRAM:

A. The recycling program could utilize one or a combination of any of the following common waste diversion strategies:

1. Sources Separation
2. Time-Based Separation
3. Commingled or Off-site Separation
4. Back haul of packaging
5. On-site sales auctions and removal.

B. Waste Material management hierarchy can be viewed as: reuse on-site, recycle on-site, reuse off-site, and recycle off-site.

C. Other innovative approaches to achieve the minimum diversion rate are encouraged and should be specified and described in the C&D Waste Management Plan.

D. Minimum diversion rate may be achieved by recovering and recycling the following materials: *[Edit to suit project.]*

1. Asphalt
2. Concrete and concrete blocks
3. Brick, tile and masonry materials

4. Ferrous metal
5. Non-ferrous metals: copper, aluminum ... etc
6. Untreated lumber
7. Plywood, OSB and particle board
8. Gypsum wallboard scrap
9. Paper and cardboard
10. Beverage containers
11. Insulation
12. Rigid foam
13. Glass
14. Carpet and pad
15. Trees and shrubs
16. Soil
17. Plumbing fixtures
18. Windows
19. Doors
20. Cabinets
21. Architectural fixtures
22. Millwork, paneling and other similar interior finishes
23. Electric fixtures, motors, switch gear and other similar equipment
24. HVAC equipment, duct work, control systems, switches and other similar equipment
25. Others as appropriate

1.5 **QUALITY ASSURANCE:**

A. Regulatory Requirements

Comply with applicable requirements of the State of California, local ordinances and regulations concerning management of construction, clearing, and inert materials.

B. Disposal Site, Recyclers and Waste Materials Processors

Use only facilities properly permitted by the State of California, and/or by local authorities where applicable.

C. Pre-C&D Waste Management Meeting

1. Prior to beginning work at the site, schedule and conduct a meeting to review the C&D Waste Management Plan and discuss procedures, schedules, coordination and specific requirements for waste materials recycling and disposal. Discuss coordination and interface between Contractor, sub-contractors, architect, engineers, project manager, Owner, and other C&D activities. Identify and resolve problems of compliance with requirements. Record minutes of the meeting, identifying conclusions reached and matters requiring further resolution. Maintain waste management as an agenda item at future construction meetings.
2. Attendees: Contractor and related contractor personnel associated with work of this section, including personnel in charge of the waste management program; C&D Quality Manager; architect; engineers; material and equipment suppliers where appropriate; and such additional Owner personnel as Owner deems appropriate.

3. Plan Revision: Make revisions to C&D Waste Management Plan agreed upon during the meeting and incorporate resolutions agreed to be made subsequent to the meeting. Submit revised plan to architect or the Owner personnel as Owner deems appropriate for approval.

D. Implementation

1. Designate an on-site party responsible for instructing workers and implementing the C&D Waste Management Plan.
2. Distribute copies of C&D Waste Management Plan to job site foreman and each subcontractor.
3. Include waste management and recycling in worker orientation.
4. Provide on-site instruction on appropriate separation, handling, recycling, and recovery methods to be used by all parties at the appropriate stages of the work at the site.
5. Also include discussion of waste management and recycling in regular job meeting and job safety meetings conducted during the course of work at the site.

E. The Contractor will be responsible for ensuring that the appropriate governmental entities are notified of the work.

F. Remove and relocate reusable materials to be reinstalled or retained in a manner to prevent damage or contamination.

G. Conduct construction and demolition in such a manner to minimize damage to trees, plants and natural landscape environment.

H. Arrange for adequate collection, and transportation to deliver the recovered materials to the approved recycling center or processing facility. Maintain records accessible to the architect or C&D Quality Manager for verification of diversion of recovered waste materials.

1.6 STORAGE AND HANDLING:

A. Site Storage

1. Remove materials for recycling and recovery from the work locations to approved containers or storage area as required. Failure to remove waste or recovered materials will be considered cause for withholding payment and termination of Contract.
2. Position containers for recyclable and recoverable waste materials at a designated location on the Project Site. If materials are sorted on site, also provide a sorting area and necessary storage containers.
3. Change-out loaded containers for empty containers, as demand requires.
4. If recovered materials are stored on-site for project duration provide adequate security from pilferage.

B. Handling

1. Deposit indicated recyclable, and recoverable materials in storage areas or containers in a clean (no mud, adhesive, solvents, petroleum contamination), debris-free condition. Do

not deposit contaminated materials into the containers until such time as such materials have been cleaned.

2. Insure all recovered materials are made safe for handling and storage.
3. If the contamination chemically combines with the material so that it cannot be cleaned, do not deposit into the recycle containers. In such case, request resolution by the C&D Quality Manager for disposal of the contaminated material. Directions from the C&D Quality Manager do not relieve the Contractor of responsibility for compliance with all legal and regulatory requirements for disposal, nor shall such directions cause a request for modification of the Contract.

#### 1.7 PROJECT CONDITIONS:

##### A. Environmental Requirements:

1. Transport recyclable and recoverable waste materials from the Work Area to containers and carefully deposit in the containers without excess noise and interference with other activities, to minimize noise and dust.
2. The Contractor shall ensure adequate erosion control and storm water control, if required, to prevent or minimize the negative impact to its surrounding environment.
3. Provide measures to insure the containment of lead-based paint and dust, nails, asbestos-based products and any biological contaminants that may affect environmental health and safety conditions.

##### B. Site Condition:

1. Signs and instructions should be clear, and easy to understand. All recycling containers should be clearly labeled and lists of acceptable and unacceptable materials will be posted throughout the site. Whenever possible, they should be in multiple-languages, especially in Spanish, and in graphic symbols.
2. The Contractor shall ensure the safety of all personnel involved in the C&D process.
3. A C&D site management plan shall be created including: work areas, materials processing areas, materials storage and disposal areas, worker hand-washing and changing stations, first aid and medical information.

## Part 2 – PRODUCTS

#### 2.1 SALVAGED AND REUSE MATERIALS:

The following material to be salvaged or reused *[Edit to suit project]*:

- A. Buildings: to be moved or relocated to XXXX.
- B. The following components and fixtures are collected for reuse *[Edit to suit project]*:
  1. Plumbing fixtures
  2. Windows
  3. Doors
  4. Cabinets
  5. Bricks

6. Millwork, paneling and other similar interior finishes
7. Electric fixtures, motors, switch gear and other similar equipment
8. HVAC equipment, duct work, control systems, switches and other similar equipment
9. Architectural fixtures
10. Others as appropriate

C. Wood collected for reuse is sorted by: *[Edit to suit project]:*

1. Type
2. Size, dimension
3. Protected from the ground, bending, and moisture

## 2.2 RECYCLED MATERIALS:

A. The following materials are collected for recycling *[Edit to suit project]:*

1. Asphalt
2. Concrete and concrete blocks
3. Tile and masonry materials
4. Ferrous metal
5. Non-ferrous metals: copper, aluminum ... etc
6. Untreated lumber
7. Plywood, OSB and particle board
8. Gypsum wallboard scrap
9. Paper and cardboard
10. Beverage containers
11. Insulation
12. Rigid foam
13. Glass
14. Carpet and pad
15. Trees and shrubs
16. Soil

## **Part 3 – EXECUTION**

N/A