# PART 1 - GENERAL

## 1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Salvaging nonhazardous demolition and construction waste.
   2. Recycling nonhazardous demolition and construction waste.
   3. Disposing of nonhazardous demolition and construction waste.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 018113 “Sustainable Design Requirements” as applicable.

## 1.2 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of at least 95-percent by weight (minimum allowable) of total waste generated by the Work.

B. Salvage/Recycle Requirements: Salvage and recycle as much nonhazardous demolition and construction waste as possible including, as applicable, the following materials:
   1. Demolition Waste:
      a. Asphaltic Concrete Paving.
      b. Concrete.
      c. Concrete Reinforcing Steel.
      d. Brick.
      e. Concrete Masonry Units.
      f. Plywood and Oriented Strand Board.
      g. Wood Paneling.
      h. Wood Trim.
      i. Structural and Miscellaneous Steel.
      j. Rough Hardware.
      k. Roofing.
      l. Insulation.
      m. Doors and Frames.
      n. Door Hardware.
      o. Windows.
      p. Glazing.
      q. Metal Studs.
      r. Gypsum Board.
      s. Acoustical Tile and Panels.
      t. Carpet.
      u. Carpet Pad.
      v. Demountable Partitions.
      w. Equipment.
      x. Cabinets.
      y. Plumbing Fixtures.
      z. Piping.
      aa. Supports and Hangers.
      bb. Valves.
      cc. Sprinklers.
      dd. Mechanical Equipment.
      ee. Refrigerants.
      ff. Electrical Conduit.

gg. Copper Wiring.
hh. Lighting Fixtures.
ii. Lamps.
jj. Ballasts.
kk. Electrical Devices.
ll. Switchgear and Panelboards.
mm. Transformers.

2. Construction Waste:
   a. Site-Clearing Waste.
   b. Masonry and CMU.
   c. Lumber.
   d. Wood Sheet Materials.
   e. Wood Trim.
   f. Metals.
   g. Roofing.
   h. Insulation.
   i. Carpet.
   j. Gypsum Board.
   k. Piping.
   l. Electrical Conduit.
   m. Packaging: Regardless of salvage/recycle goal specified above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
      1) Paper.
      2) Cardboard.
      3) Boxes.
      4) Plastic Sheet and Film.
      5) Polystyrene Packaging.
      6) Wood Crates.
      7) Plastic Pails.

1.3 SUBMITTALS

A. Waste Management Plan: Submit three copies of plan within 30-days of date established for the Notice to Proceed.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include separate reports for demolition and construction waste. Including the following information:
   1. Material category.
   2. Generation point of waste.
   3. Total quantity of waste in tons.
   4. Quantity of waste salvaged, both estimated and actual in tons.
   5. Quantity of waste recycled, both estimated and actual in tons.
   6. Total quantity of waste recovered (salvaged plus recycled) in tons.
   7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
   8. Location and name of recycling and processing facility or landfill.
   9. For commingled materials provide the annual reporting rate for that facility confirming that it is over 75%.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Record of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Record of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. LEED Submittal: LEED letter template for Credit MRc2, signed by General Contractor tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

I. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.

J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.4 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: LEED Accredited Professional by US Green Building Council.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having Jurisdiction.

D. Waste Management Conference: Conduct conference at Project site. Review methods and procedures related to waste management including, but not limited to, the following:
   1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
   2. Review requirements for documenting quantities of each type of waste and its disposition.
   3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
   4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
   5. Review waste management requirements for each trade.

1.5 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction

waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
   1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
   2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
   3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
   4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
   5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
   6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing the waste management plan. Include the following:
   1. Total quantity of waste.
   2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
   3. Total cost of disposal (with no waste management).
   4. Revenue from salvaged materials.
   5. Revenue from recycled materials.
   6. Savings in hauling and tipping fees by donating materials.
   7. Savings in hauling and tipping fees that are avoided.
   8. Handling and transportation costs. Include cost of collection containers for each type of waste.
   9. Net additional cost or net savings from waste management plan.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by the DSA. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
   1. Distribute waste management plan to everyone concerned within three days of submittal return.
   2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:
   1. Clean salvaged items.
   2. Pack or crate items after cleaning. Identify contents of containers.
   3. Store items in a secure area until installation.
   4. Protect items from damage during transport and storage.
   5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional.

B. Salvaged Items for Sale and Donation: Not permitted on Project Site.

C. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: Refer to http://www.sandiego.gov/environmental-services/recycling/cd/index.shtml for City of San Diego permitted waste haulers and processing facilities.

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to General Contractor.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
      a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store with drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off University property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
   1. Pulverize concrete to maximum 1-1/2-inch (38-mm) size.
   2. Crush concrete for use as satisfactory soil for fill or subbase.

C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
   1. Clean and stack undamaged, whole masonry units on wood pallets.

D. Wood Materials: Sort and stack members according to size, type of member, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

E. Metals: Separate metals by type.
   1. Structural Steel: Stack members according to size, type of member, and length.
   2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

F. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other materials. Remove and dispose of fasteners.

G. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
   1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

H. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
   1. Store clean, dry carpet pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

I. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

J. Plumbing Fixtures: Separate by type and size.

K. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

L. Lighting Fixtures: Separate lamps by type and protect from breakage.

M. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

N. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:
1. Cardboard boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallet into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:
1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having Jurisdiction.
1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off University property and legally dispose of them.

END OF SECTION