Solid Waste Management

DESCRIPTION
Large volumes of solid waste are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. The solid waste management practice lists techniques to minimize the potential of storm water contamination from solid waster through appropriate storage and disposal practices.

PRIMARY USE
These practices should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

APPLICATIONS
The solid waste management practice for construction sites is based on proper storage and disposal practices by construction workers and supervisors. key elements of the program are education and modification of improper disposal habits. Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures:

- ☐ Targeted Solid Waste Materials
  - Paper and cardboard containers
  - Plastic packaging
  - Styrofoam packing and forms
  - Insulation materials (non–hazardous)
  - Wood pallets
  - Wood cuttings
  - Pipe and electrical cuttings
  - Concrete, brick, and mortar waste
  - Shingle cuttings and waste
  - Roofing tar
  - Steel (cuttings, nails, rust residue)
  - Gypsum board cuttings and waste
  - Sheathing cuttings and waste
  - Miscellaneous cutting and waste
  - Food waste
  - Demolition waste

Storage Procedures
- ☐ Wherever possible, minimize production of solid waste materials.
- ☐ Designate a foreman or supervisor to oversee and enforce proper solid waste procedures.
- ☐ Instruct construction workers in proper solid waste procedures.
- ☐ Segregate potentially hazardous waste from non–hazardous construction site debris.
- ☐ Keep solid waste materials under cover in either a closed dumpster or other enclosed trash container that limits contact with rain and runoff.
- ☐ Store waster materials away from drainage ditches, swales and catch basins.
- ☐ Do not allow trash containers to overflow.
- ☐ Do not allow waste materials to accumulate on the ground.
- ☐ Prohibit littering by workers and visitors.
- ☐ Police site daily for litter and debris.
- ☐ Enforce solid waste handling and storage procedures.

Disposal Procedures
- ☐ If feasible, segregate recyclable wastes from non–recyclable waste materials and dispose of properly.
- ☐ General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill).
- ☐ Use waste facilities approved by local jurisdiction.
- ☐ Runoff which comes into contact with unprotected waste shall be directed into structural treatment such as silt fence to remove debris.

Education
- ☐ Educate all workers on solid waste storage and disposal procedures.
- ☐ Instruct workers in identification of solid waste and hazardous waste.
- ☐ Have regular meetings to discuss and reinforce disposal procedures (incorporate in regular safety seminars).
- ☐ Clearly mark on all solid waste containers which materials are acceptable.

Quality Control
- ☐ Foreman and/or construction supervisor shall monitor on–site solid waste storage and disposal procedures.
- ☐ Discipline workers who repeatedly violate procedures.

Requirements
- ☐ Job–site waste handling and disposal education and awareness program.
- ☐ Commitment by management to implement and enforce Solid Waste Management Program.
- ☐ Compliance by workers.
- ☐ Sufficient and appropriate waste storage containers.
- ☐ Timely removal of stored solid waste materials.
- ☐ Possible modest cost impact for additional waste storage containers.
- ☐ Small cost impact for training and monitoring.
- ☐ Minimal overall cost impact.

LIMITATIONS
Only address non–hazardous solid waste.
One part of a comprehensive construction site management program.

Hazardous Waste Management

DESCRIPTION
The hazardous waste management BMP addresses the problem of storm water polluted with hazardous waste through spills or other forms of contact. The objective of the Management Program is to minimize the potential of stormwater contamination from common construction site hazardous wastes through appropriate recognition, handling, storage and disposal practices.

It is not the intent of this Management Program to supersede or replace normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job–site contamination should be immediately reported by regulatory authorities and protective actions taken. The General Permit requires reporting of significant spills to the National Response Center (NRC) at (800) 424–8802.

PRIMARY USE
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites which use or generate hazardous wastes. Many wastes such as fuel, oil, grease, fertilizer and pesticide are present at most construction sites.

INSTALLATION, APPLICATION AND DISPOSAL CRITERIA
The hazardous waste management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements of the management program are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures:

- ☐ Targeted Hazardous Waste Materials
  - Paints
  - Solvents
  - Stains
  - Wood preservatives
  - Cutting oils
  - Greases
  - Roofing tar
  - Pesticides
  - Fuels & lube oils
  - Lead based paints (Demolition)

Storage Procedures
- ☐ Wherever possible, minimize production of hazardous materials.
- ☐ Minimize generation of hazardous wastes on the job–site.
- ☐ Segregate potentially hazardous waste from non–hazardous construction site debris.
- ☐ Designate a foreman or supervisor to oversee hazardous materials handling procedures.
- ☐ Keep liquid or semi–liquid hazardous waste in appropriate containers (closed drums or similar) and under cover.

- ☐ Store waste materials away from drainage ditches, swales and catch basins.
- ☐ Use containment berms in fueling and maintenance areas and where the potential for spills is high.
- ☐ Ensure that adequate hazardous waste storage volume is available.
- ☐ Ensure that hazardous waste collection containers are conveniently located.
- ☐ Do not allow potentially hazardous materials to accumulate on the ground.
- ☐ Enforce hazardous waste handling and disposal procedures.
- ☐ Clearly mark on all hazardous waste containers which materials are acceptable for the container.

Disposal Procedures
- ☐ Regularly schedule hazardous waste removal to minimize on–site storage.
- ☐ Use only reputable, licensed hazardous waste haulers.

Education
- ☐ Instruct workers in identification of hazardous waste.
- ☐ Educate workers on potential dangers to humans and the environment from hazardous wastes.
- ☐ Instruct workers on safety procedures for common construction site hazardous wastes.
- ☐ Educate all workers on hazardous waste storage and disposal procedres.
- ☐ Have regular meetings to discuss and reinforce identification, handling and disposal procedures (incorporate in regular safety seminars).
- ☐ Establish a continuing education program to indoctrinate new employees.

Quality Assurance
- ☐ Foreman and/or construction supervisor shall monitor on–site hazardous waste storage and disposal procedures.
- ☐ Educate and if necessary, discipline workers who violate procedures.
- ☐ Ensure that the hazardous waste disposal contractor is reputable and licensed.

Requirements
- ☐ Job–site hazardous waste handling and disposal education and awareness program.
- ☐ Commitment by management to implement hazardous waste management practices.
- ☐ Compliance by workers.
- ☐ Sufficient and appropriate hazardous waste storage containers.
- ☐ Timely removal of stored hazardous waste materials.

Costs
- ☐ Possible modest cost impact for additional hazardous storage containers.
- ☐ Small cost impact for training and monitoring.
- ☐ Potential cost impact for hazardous waste collection and disposal by licensed hauler – actual cost depends on type of material and volume.

LIMITATIONS
This practice is not intended to address site–assessments and pre–existing contamination.
Major contamination, large spills and other serious hazardous waste incidents require immediate response from specialists.
Demolition activities and potential pre–existing materials, such as asbestos, are not addressed by this program. Site specific information on plans is necessary.
Contaminated soils are not addressed.
One part of a comprehensive construction site waste management program.

Lime Stabilization BMP

DESCRIPTION
Lime stabilization is used extensively in the North Central Texas region to stabilize pavement subbases for roadways/parking lots and other paved surfaces. Hydrated lime is applied to the soil and mixed through disking and other techniques, then allowed to cure. This practice will reduce the potential for runoff to carry lime offsite, where it may impact aquatic life through changing the pH balance of streams, ponds and other water bodies.

PRIMARY USE
This BMP consists of a series of techniques that should be implemented when lime is required for soil stabilization.

APPLICATIONS
Each of the techniques listed can be used under a variety of conditions. The engineer should determine the applicability of the technique based on site conditions such as available open space, quantity of area to be stabilized, proximity of nearby water courses and other BMP's employed at the site. The use of diversion dikes and interceptor swales (see appropriate fact sheets) to divert runoff away from areas to be stabilized can be used in conjunction with these techniques to reduce the impact of the lime.

DESIGN CRITERIA
- ☐ The contractor shall limit lime operations to that which can be thoroughly mixed and compacted by the end of each work day.
- ☐ No traffic other than water trucks and mixing equipment shall be allowed to pass over the spread lime until after completion of mixing.
- ☐ Areas adjacent and downstream of stabilized areas shall be roughened to intercept lime from runoff and reduce runoff velocity.
- ☐ Geotextile fabrics such as those used for silt fence should not be used to address lime since the grain size of lime is significantly smaller than the equivalent opening size of the fabric.
- ☐ For areas which phasing of lime operations is impractical, use of a curing seal such as Liquid Asphalt, Grade MC–250 or MC–800 applied at a rate of 0.15 gallons per square yard of surface can be used to protect the base.
- ☐ Use of sediment basins with a significant (>36 hour) drawdown time is encouraged for large stabilized areas (see Sediment Basin BMP).

Lime Stabilization BMP

LIMITATIONS
These techniques are part of an overall plan to reduce pollutants from an active construction site. In the case of pollution due to lime, prevention of contamination is the only effective method to address this pollutant. Proper application and mixing along with avoiding applications when there is a significant probability of rain will reduce lime runoff.

MAINTENANCE REQUIREMENTS
None.

Concrete Waste Management

DESCRIPTION
Concrete waste at construction sites comes in two forms; 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

PRIMARY USE
Concrete waste is present at most construction sites. This BMP should be utilized at sites in which concrete waste is present.

APPLICATIONS
A number of water quality parameters can be affected by introduction of concrete – especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste.

Current Unacceptable Waste Concrete Disposal Practices
- ☐ Dumping in vacant areas on the job–site.
- ☐ Illicit dumping off–jobsite.
- ☐ Dumping into ditches or drainage facilities.

Recommended Disposal Practices
- ☐ Avoid unacceptable disposal practices listed above.
- ☐ Develop pre–determined, safe concrete disposal areas.
- ☐ Provide a washout area with a minimum of 6 cubit feet of containment area volume for every 10 cubic yards of concrete poured.
- ☐ Never dump waste concrete illicitly or without property owners knowledge and consent.
- ☐ Treat runoff from storage areas through the use of structural controls as required.

Education
- ☐ Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- ☐ Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement
- ☐ The construction site manager or foreman must ensure that employees and pre–mix companies follow proper procedures for concrete disposal and equipment washing.
- ☐ Employees violating disposal or equipment cleaning directives must be re–educated or disciplined if necessary.

Demolition Practices
- ☐ Monitor weather and wind direction to ensure concrete dust is not entering drainage structures and surface waters.
- ☐ Where appropriate, construct sediment traps or other types of sediment detention devices downstream of demolition activities.

Requirements
- ☐ Use pre–determined disposal sites for waste concrete.
- ☐ Prohibit dumping waste concrete anywhere but pre–determined areas.
- ☐ Assign pre–determined truck and equipment washing areas.
- ☐ Educate drivers and operators on proper disposal and equipment cleaning procedures.

Costs
- ☐ Minimal cost impact for training and monitoring.
- ☐ Concrete disposal cost depends on availability and distance to suitable disposal areas.
- ☐ Additional costs involved in equipment washing could be significant.

LIMITATIONS
This concrete waste management program is one part of a comprehensive construction site waste management program.

"AS-BUILT PLAN BASED ON CONTRACTOR'S RECORD DRAWINGS"

OSTEOMED CORPORATION FACILITY
ADDISON, TEXAS

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY DENNIS A. HORTMAN, P.E. 72588 ON 05/13/02. IT IS NOT TO BE CONSIDERED A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE ENGINEERING PRACTICE ACT OFFICE. ANY UNAUTHORIZED ALTERATION OF A SEALED DOCUMENT IS A VIOLATION OF THE ENGINEERING PRACTICE ACT. THE RECORD COPY OF THIS DRAWING IS ON FILE AT HALFF ASSOCIATES, INC. DALLAS, TEXAS 9616 NORTHWEST PLAZA DRIVE, DALLAS, TEXAS 75225

Halff Associates, Inc.
ENGINEERS • ARCHITECTS • SCIENTISTS • PLANNERS • SURVEYORS
8616 NORTHWEST PLAZA DRIVE
DALLAS, TEXAS 75225
TEL (214) 346–6200
FAX (214) 739–0095

Project No: AVO # 20079
Issued: 05 / 13 / 02

Revisions:

No.	Date	Description

Drawn by: DD
Checked by: DJC

Sheet Title
EROSION CONTROL NOTES

Sheet Number
C1.3

#####FILE##### ###DATE### ###TIME###
5/20/2002 12:01 PM \\HALFFCLUSTER\ACT_SERVER\ACT_VOL1\ACT\LEGACY\AVO\20000\20079\dgn\07976001.dgn AM279