

CONSTRUCTION SITES – ENVIRONMENTAL PROTECTION

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

Introduction

The myriad of environmental regulations, which when taken in total are designed to protect the quality of the land, water, and air. Many of these regulations apply to construction site activities. In many cases, several different regulations may impact a single activity or task. For example, regulations impacting on-site storage of gasoline or diesel in portable tanks that is used to fuel construction equipment may include, but is not limited to:

- Nebraska Title 153 (storage of fuels in above ground storage tanks), and associated National Fire Protection Association (NFPA) codes incorporated by reference. These regulations are administered by the State Fire Marshal.
- Nebraska Title 126, *Rules and Regulations Pertaining to the Management of Wastes*; Chapter 18, *Releases of Oil or Hazardous Substances*).
- 40 CFR 112, *Oil Pollution Prevention Regulations* (sometimes referred to as Spill Prevention Control and Countermeasures).
- Nebraska Title 119, *Rules and Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination System*.
- 40 CFR 80 (Regulation of fuels and additives under the Clean Air Act).

The above example demonstrates that air, water, and land environmental regulations, as well as fire and life safety regulations may impact operations at construction sites. Large construction sites (e.g., those that disturb greater than one acre) are subject to certain permitting requirements pursuant to the Clean Water Act. As part of the permitting process, a site-specific storm water pollution prevention plan (SWPPP) must be developed and implemented. Among other things, the SWPPP must include those Best Management Practices (BMPs) that will be used at the site to prevent construction activities from having a negative impact on nearby water bodies. Although developed under the auspice of storm water pollution prevention, BMPs also help to address (but are not a substitute for compliance with all administrative and substantive requirements of any particular regulation) other regulatory concerns besides water quality.

A detailed discussion of regulatory requirements is beyond the scope of this SOP. Rather, this SOP is intended to provide the campus-wide community with an overview of environmental concerns that can apply to land development, construction, and/or renovation sites and the types of Best Management Practices (BMPs) that may be used to minimize environmental hazards. Often, a single BMP is driven by many different

regulations. For the purposes of this SOP, it is sufficient simply to understand that the purpose of any BMPs is to protect the quality of the environment (air, land, and/or water), and each may be based on one or more regulatory drivers.

Common Construction Site Best Management Practices (BMPs)

The following table, adapted from information provided by the United States Environmental Protection Agency, includes a list of some of commonly used construction site BMPs. Not all BMPs will be used at all sites, and not all potential BMPs appropriate for a given site appear in the list. This list is intended to enhance awareness of items/conditions that could, if not adequately protected/maintained, lend to adverse environmental impacts and/or compliance issues.

| General refuse and construction/demolition waste | |
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| Designate trash and bulk waste-collection areas on-site. | Clean up litter and debris from the construction site every day. |
| Recycle materials whenever possible (e.g., paper, wood, concrete, metal, and oil). | Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to further minimize the likelihood of contaminated discharges. |
| Sanitary and septic waste | |
| Provide restroom facilities on-site. | Maintain clean restroom facilities and empty porta-johns regularly (must be pumped by a licensed hauler, not discharged to the site). |
| Provide secondary containment pans under porta-johns, where possible. | Provide tie-downs or stake downs for porta-johns in areas of high winds |
| Hazardous and special wastes and materials | |
| Segregate and designate hazardous materials (i.e., paint, adhesives, etc.) and waste storage areas. Consult with EHS prior to generating hazardous waste on-site. | Provide for secondary containment of all hazardous materials and wastes stored on-site. Arrange for off-site transport and treatment of hazardous wastes at a licensed facility and only in coordination/consultation with EHS. |
| Inspect all containers of hazardous waste at least weekly to ensure container integrity. | Label all containers with appropriate descriptive wording to describe the contents. Keep containers securely closed. |
| Fueling and fleet/construction vehicles | |
| All fuel storage tanks stored on-site must have secondary containment (either integral or external to the AST). They may also require a permit. | Vehicles should be regularly inspected for leakage of fluids and promptly repaired. Spilled or leaked material and contaminated soils should be containerized for proper off-site disposal. |
| Report releases of hazardous substances, including oils, fuels, greases, lubricants, chemicals, etc. to EHS. | Maintain appropriately sized and equipped spill kits on site. |
| Use vehicles and equipment in a manner that prevents damage to erosion and sediment control devices. | |
| Construction site entrances and roads | |
| Identify, clearly mark, and implement stabilizing measures at one or two locations where vehicles will enter and exit the site. | Stabilize temporary roads by paving, and/or placement of large crushed rock, stone pads, or concrete. |
| If wash down or hose systems are used to remove mud from construction vehicles, divert run-off to a sediment trap. | As necessary, clean/sweep streets near the construction zone. |
| Ensure that the exit is at least 50 feet long | Replenish or replace aggregate if it becomes |

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| (generally, the length of two dump trucks) and graded so runoff does not enter the adjacent street. | clogged with sediment. |
| Diversion ditches or berms | |
| Divert run-on and run-off away from disturbed areas. | Ensure that the diversion is protected from erosion, using vegetation, geotextiles, or other appropriate BMPs. |
| Divert sediment-laden water to a sediment-trapping structure. | Inspect diversions and berms, including any outlets, regularly and after each rainfall. |
| Remove accumulated sediment. | |
| Temporary seeding | |
| Seed and mulch area (the mulch provides temporary erosion protection by protecting the soil surface, moderating temperature, and retaining moisture while seeds germinate and grow). | Water regularly, if needed, to ensure quick growth. |
| Maintain backup BMPs, such as silt fence or settling ponds. | |
| Slope protection | |
| Use rolled erosion-control products on slopes steeper than 3 to 1 (horizontal to vertical) and in swales or long channels. | Trench the top of the blanket in to prevent run-off from flowing under the blanket. |
| Overlap the lower end of the top mat over the top of the downslope mat to ensure that run-off stays on top of the blankets and mats. | Install silt fence or fiber rolls to help control erosion on moderate slopes and install on level contours spaced at 10- to 20-foot intervals. |
| Staple blankets and mats according to specifications. | Periodically inspect for signs of erosion or failure, and repair as necessary. Continue inspecting until vegetation is established. |
| Storm drain inlet protection | |
| Storm drain inlet protection should be used not only for storm drains within the active construction project, but also for storm drains outside the project area that might receive storm water discharges from the project. | Install inlet protection as soon as storm drain inlets are installed and before land disturbance activities begin in areas with existing storm drain systems. |
| Design inlet protection to handle the volume of water from the area being drained. | Use in conjunction with other erosion prevention and sediment control BMPs— remember, inlet protection is a secondary BMP! |
| Inspect inlets frequently and after each rainfall. Remove accumulated sediment from around the device and check and remove any sediment that might have entered the inlet. | Replace or repair the inlet protection if it becomes damaged. |
| Perimeter control- Silt fences | |
| Install on the downslope perimeter of the project (it is often unnecessary to surround the entire site with silt fence). Sediment barriers can be used. | Use silt fence or fiber rolls to protect stream buffers, riparian areas, wetlands, or other waterways. Don't install in ditches, channels, or other areas of concentrated flow. |
| Trench in the silt fence on the uphill side (6 inches deep by 6 inches wide). | Install stakes on the downhill side of the fence or roll. |
| Curve the end of the silt fence or fiber roll up-gradient to help it contain run-off. | Do not install by running up and down a slope or hill. |
| Do not use silt fence or fiber rolls alone in areas that drain more than ¼ acre per 100 feet of fence. | Replace the silt fence or roll where it is worn, torn, or otherwise damaged. |

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| Remove sediment when it reaches 1/3 of the height of the fence or 1/2 the height of the fiber roll. | Retrench or replace any silt fence or roll that is not properly anchored to the ground. |
| Sediment traps or basins | |
| Use a sediment basin for common drainage locations that serve an area with 10 or more acres disturbed at any one time. | Design to provide storage for the volume of run-off from the drainage area for at least a 2-year, 24-hour storm (or 3,600 cubic feet of storage per acre drained, which is enough to contain 1 inch of runoff, if the 2-year, 24-hour calculation has not been performed). |
| Locate at low-lying areas of the site and on the down-gradient side of bare soil areas where flows converge. Do not put sediment traps or basins in or immediately adjacent to flowing streams or other waterways. | Where a large sediment basin is not practical, use smaller sediment basins or sediment traps (or both). |
| Dewatering | |
| Pump muddy water from excavated areas to a temporary or permanent sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground. | Never discharge muddy water into storm drains, streams, lakes, or wetlands unless the sediment has been removed before discharge and dewatering permits, if applicable, have been obtained from NDEQ. |
| Stockpiles | |
| Temporary stockpiles must be seeded, covered, or surrounded by properly installed silt fence, or have other controls in place to ensure material does not migrate from the designated stockpile area. | Stockpiles should never be placed on paved surfaces. Storage piles should not be placed in close proximity or up-slope from storm sewer inlets. |