APPENDIX G

NON-STORM WATER POLLUTION CONTROL BMPS

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DEWATERING AND PONDED WATER MANAGEMENT – NS-1

Dewatering and ponded water management applies to areas where storm water has collected in low spots, trenches or other depressions and needs to be removed to proceed with construction activities or for vector control. All dewatering discharge activities must be conducted in accordance with local agency (i.e., local sewerage agency or other applicable agency) permit requirements.

Construction Specifications:

- Ponded storm water shall be settled or filtered for sediment removal prior to discharge.
- Water from trench or excavation dewatering shall be tested if required by applicable permits and discharged in accordance with permit provisions.
- For clean ponded storm water, dewatering discharges (without permit requirements), and authorized non-storm water discharges, use one of the following methods for discharge / disposal as allowable by local requirements / agencies and approved by the Project Superintendent. Water shall be clean and free of significant sediment, surfactants, or other pollutants.
    - Reduce sediment discharge by pumping water from the top of ponded areas using a floating or raised hose.
    - Use water where possible for construction activities such as compaction and dust control and landscape irrigation. If used for these applications, ensure that the water will infiltrate and not run-off from the land to storm drain systems, to creek beds (even if dry) or to receiving waters.
    - Infiltrate to an appropriate landscaped, vegetated or soil area. Note: Infiltration may be prohibited in accordance with local requirements.
    - Discharge to an on-site temporary sediment pond.
    - Discharge to the storm drain system. Water from dewatering must not contain significant sediments or other pollutants and discharge must be in accordance with local permits.
- Alternatively, a vacuum truck may be used to remove the water and haul it to an authorized discharge location.
- If a permit is required, provide temporary onsite storage (Baker tanks, etc.) of water removed from trenches, excavations, etc., until a permit to discharge is obtained.
- If a permit is obtained for discharge to a storm drain or sanitary sewer system, conduct all dewatering discharge activities in accordance with permit requirements.

Inspection and Maintenance:

- Inspect pumps, hoses and all equipment before use. Monitor dewatering operations to ensure it does not cause offsite discharge or erosion.
- Inspect routinely, when applicable activities are under way.

PAVING OPERATIONS CONTROLS – NS-2

In order to reduce the potential for the transport of pollutants in storm water runoff from paving operations, paving shall not take place within 72 hours of a predicted significant (>0.10") storm event. If paving does occur within 72 hours of a significant storm event, catch basin filters or other appropriate BMPs shall be utilized to trap hydrocarbons.

Construction Specifications:

- Protect storm drain inlets near work and down gradient of work areas during saw cutting, paving, or grinding operations.
- Saw-cut slurry shall be shoveled, vacuumed and removed from site.
- Paving materials and machinery shall be stored away from storm drains and water bodies and secondary containment will be used to catch drips, leaks or spills where applicable.
- If onsite mixing is planned then an area shall be designed for conducting the mixing. This area shall be paved or made impervious (e.g., plastic or wood sheeting) and be located away from storm drain inlets or watercourses.
- Minimize overspray of tackifying emulsions or placement of other paving materials beyond the limits of the area to be paved.
- Use dry methods to clean equipment and conduct cleaning in accordance with the BMP on "Vehicle and Equipment Cleaning."
- Material use and stockpiles shall be managed in accordance with BMPs on "Material Use" and "Stockpile Management."
- Collect and remove all broken asphalt and concrete or excess materials, recycle when feasible and dispose of materials in accordance with local, state, and federal requirements.
- Do not apply asphalt, concrete paving, seal coat, tack coat, slurry seal or fog seal if rain is expected during the application or curing period.
- Avoid if possible, transferring, loading, or unloading paving materials near storm drain inlets or watercourses. If not possible, use BMP on Storm Drain Inlet Protection.

Inspection and Maintenance:

- Inspect and maintain equipment and machinery routinely to minimize leaks and drips.
- Inspect inlet protection measures routinely.

TEMPORARY EQUIPMENT BRIDGE – NS-3

Temporary Equipment Bridges are temporary structures placed across a waterway that allow vehicles to cross the waterway during construction without entering the water, and eliminate erosion caused by the vehicles. Note: Temporary Equipment Bridges may require U.S. Army Corps of Engineers 404 permit and various state level approvals. Temporary equipment bridges must be designed properly to avoid flow backups that could result in washouts and scouring, increasing the pollutant loads.

This BMP presents three types of temporary stream crossings:

1. Culverts – Used on perennial and intermittent streams.

2. Fords – Appropriate during the dry season in arid areas. Used on dry washes and ephemeral streams. Avoid use on perennial streams.

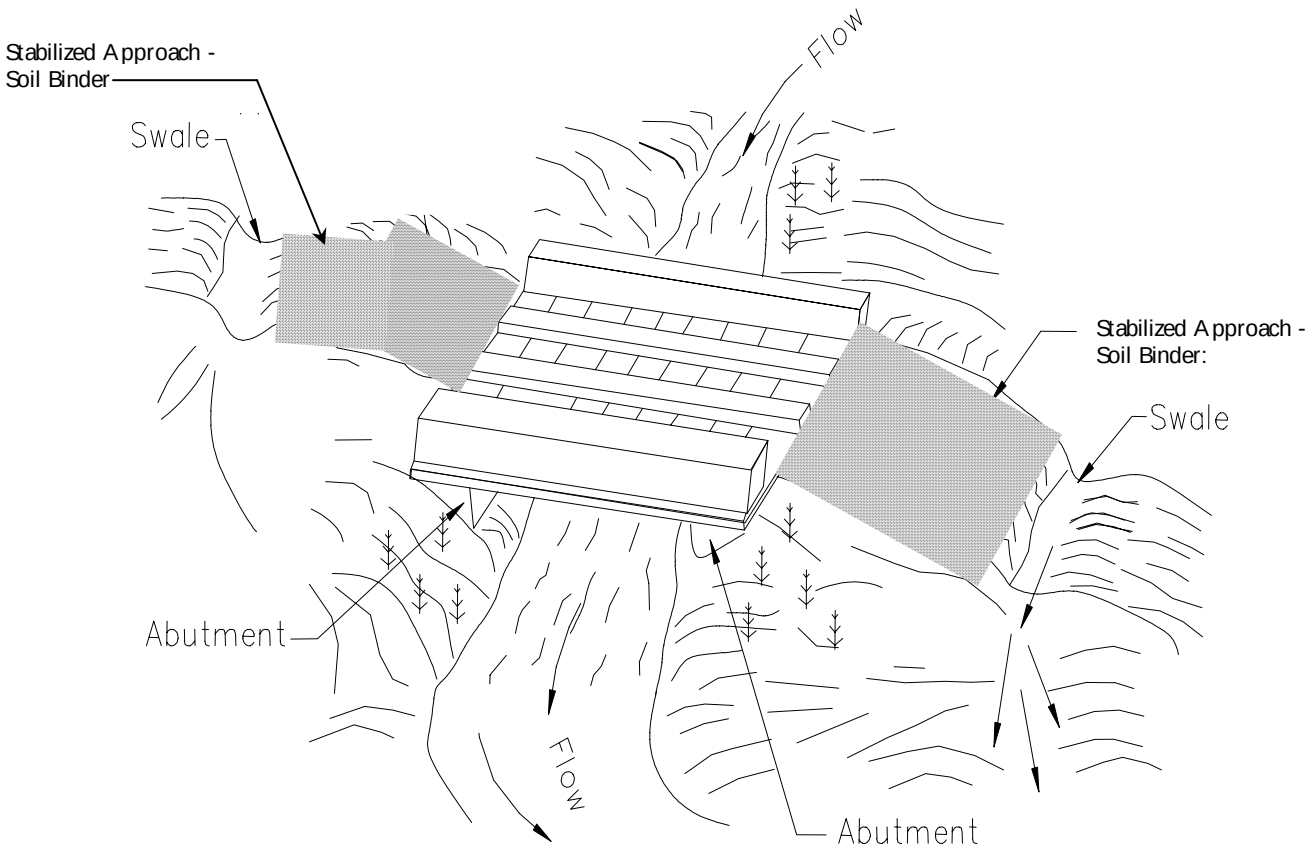
3. Bridges – Appropriate for streams with high flow velocities, steep gradients and/ or where temporary restrictions in channel are not allowed.

Construction Specifications:

- Location of the temporary stream crossing should address:
  - Site selection where erosion potential is low.
  - Areas where the side slopes from pipeline right-of-way will not spill into the side slopes of the crossing.
- Design and installation requires knowledge of stream flows and soil strength. Designs should be prepared under direction of and approved by a registered civil engineer. Both hydraulic and construction loading requirements shall be considered with the following:
  - Provide stability in the crossing and adjacent areas to withstand the design flow. The design and safety factor shall be selected based on careful evaluation of the risks due to over topping, flow backups, or washout.
  - Install sediment basins immediately downstream of crossings to capture sediments. See BMP SC-9, Temporary Sediment Basins.
  - Avoid oil or other potentially hazardous waste materials for surface treatment.
- Construction consideration shall include:
  - Stabilize construction right-of-way, adjacent work area and stream bottom against erosion.
  - Schedule construction during dry periods to minimize stream disturbance and reduce costs.
- Specific consideration for the three types of stream crossing include:
  - Culverts: Relatively easy to construct and able to support heavy equipment loads.
  - Fords: Least expensive of the crossing with maximum load limits.
  - Bridges: Generally more expensive to design and construct, but provides the least disturbance of the stream bed and constriction of the waterway flows.
  - Temporary ford is not appropriate if construction will continue through rainy season, if thunderstorms are likely, or is the stream is perennial.
- Installation may require dewatering or temporary diversion of the stream. See BMP NS-1, Dewatering and BMP RC-9, Instream Diversion.

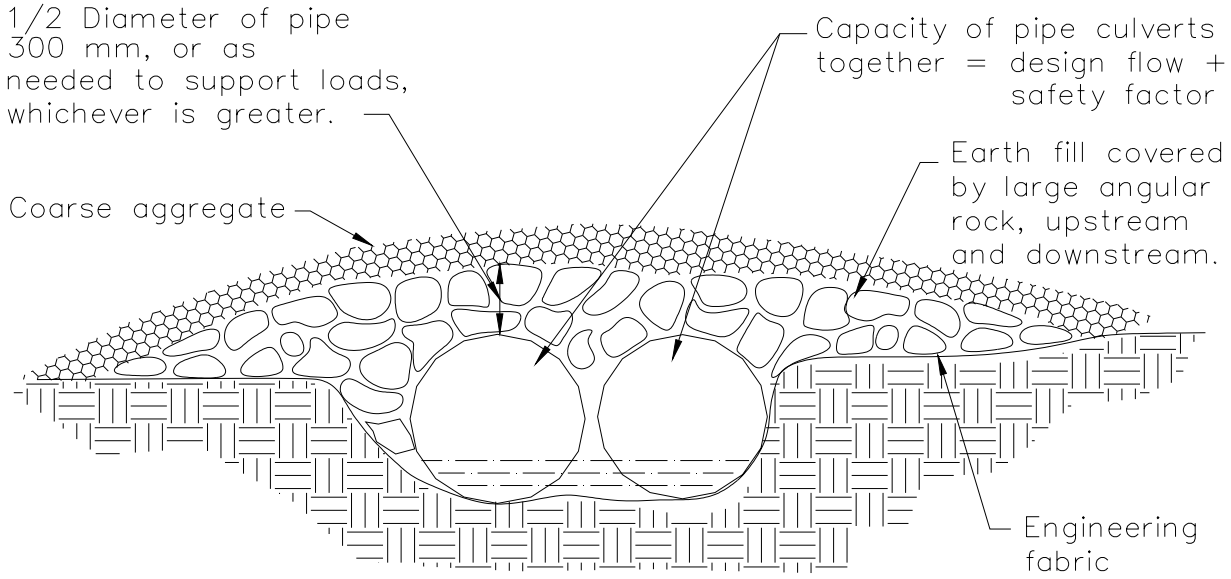
Inspection and Maintenance:

- Maintenance provisions should include:
  - Periodic removal of silt behind ford, in culverts, and under bridges.
  - Replacement of lost aggregate from inlets and outlets of culverts.
  - Removal of temporary crossing promptly when it is no longer needed.
- Inspection, at a minimum, should occur weekly and after each significant rainfall, including:
  - Check for blockage in the channel, sediment buildup in culverts or behind ford, or trapped debris.
  - Check for erosion of abutments, channel scour, riprap displacement, or piping in the soil.
  - Check for structural weakening of the temporary crossing, such as cracks, and undermining of foundations and abutments.

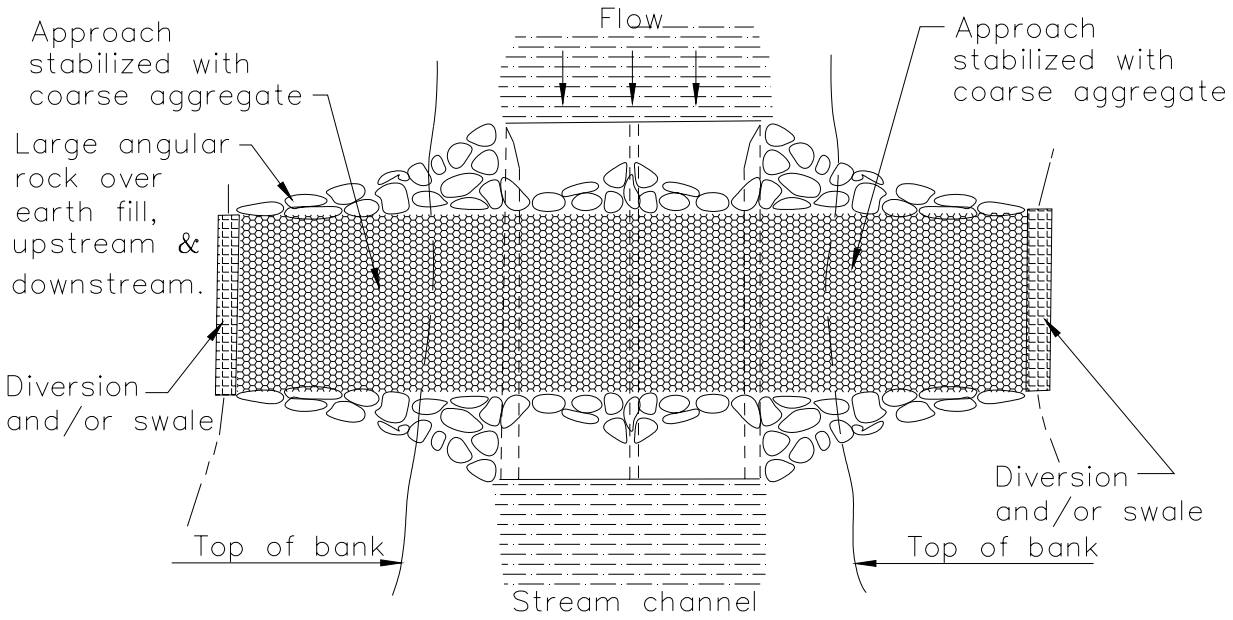


NOTE:
Surface flow of road diverted by swale and/or dike.

TYPICAL BRIDGE CROSSING
NOT TO SCALE

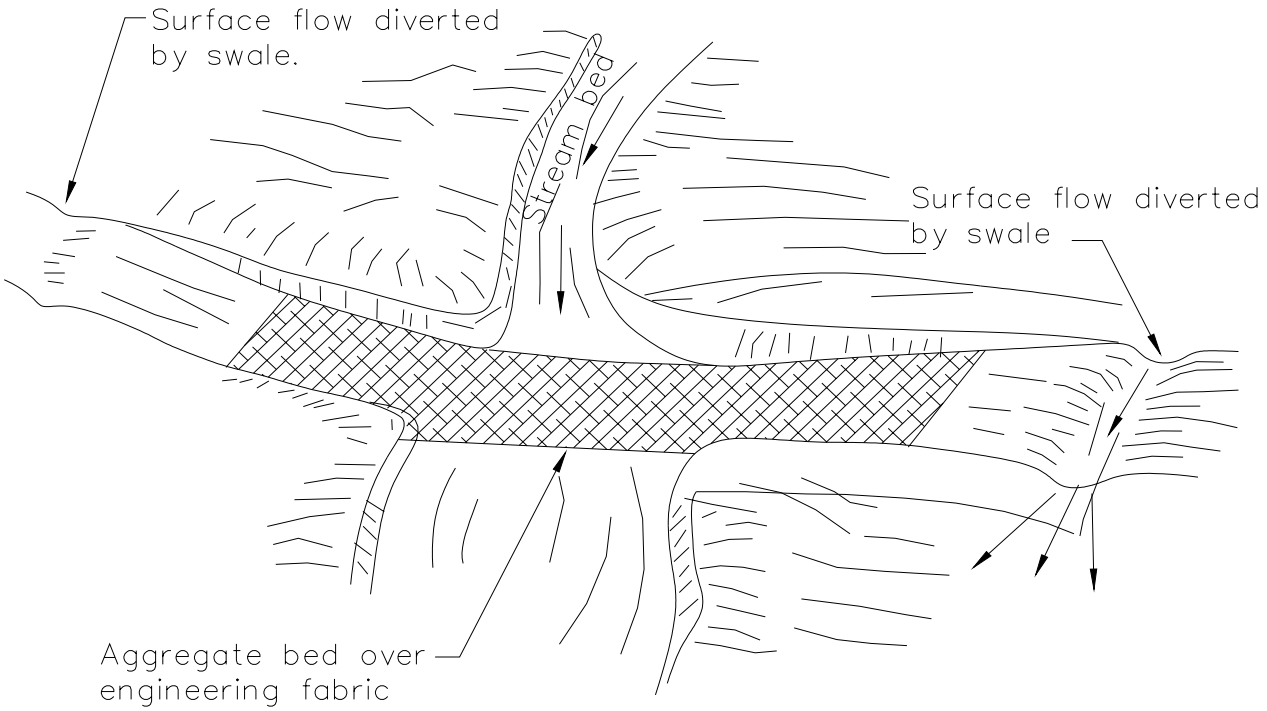


ELEVATION

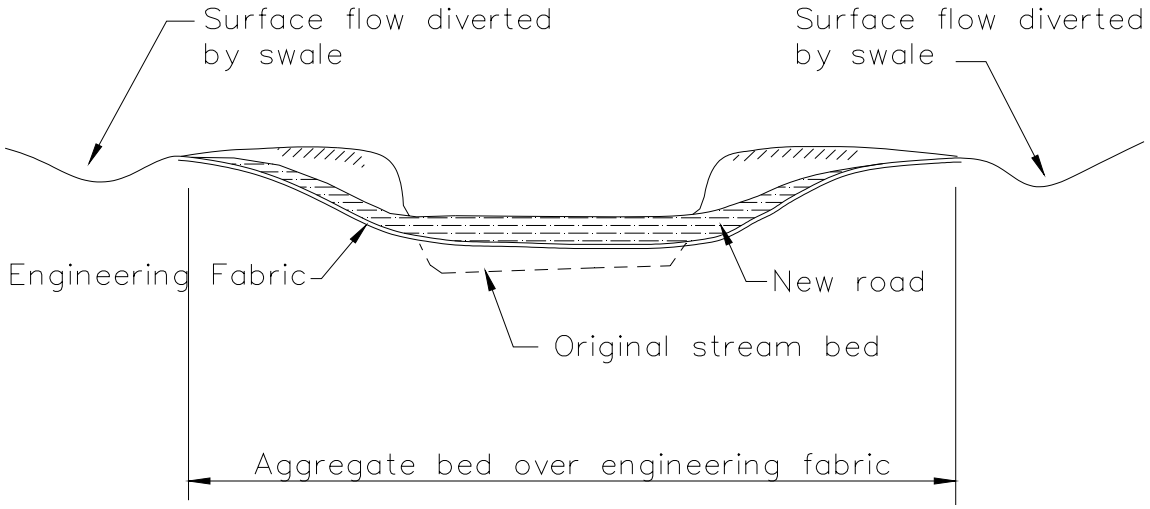


PLAN VIEW

TYPICAL CULVERT CROSSING
NOT TO SCALE



Aggregate approch
1:5 (V:H) Maximum slope on road



TYPICAL FORD CROSSING
NOT TO SCALE

ILLICIT CONNECTION / ILLEGAL DISCHARGE – NS-4

Illicit connections to the storm drain system and wastes discharged illegally at the site can cause and contribute to water quality impacts. The below procedures and practices are designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents.

Construction Specifications:

Planning

- Inspect site before beginning the job for evidence of illicit connections or illegal dumping or discharges.
- Inspect site regularly during project execution for evidence of illicit connections or illegal dumping or discharges.
- Observe site perimeter for evidence or potential of illicitly discharged or illegally dumped material, which may enter the job site.

Identification of illicit connections and illegal dumping or discharges.

- Solids Look for debris, or rubbish piles. Solid waste dumping often occurs on roadways with light traffic loads or in areas not easily visible from the traveled way.
- Liquids – signs of illegal liquid dumping or discharge can include:
    - Visible signs of staining or unusual colors to the pavement or surrounding adjacent soils.
    - Pungent odors coming from the drainage systems.
    - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes.
    - Abnormal water flow during the dry weather season.
- Urban Areas - Evidence of illicit connections or illegal discharges is typically detected at storm drain outfall locations or at manholes. Signs of an illicit connection or illegal discharge can include:
    - Abnormal water flow during the dry weather season.
    - Unusual flows in sub-drain systems used for dewatering.
    - Pungent odors coming from the drainage systems.
    - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes.
    - Excessive sediment deposits, particularly adjacent to or near active off-site construction projects.
- Rural Areas - Illicit connections or illegal discharges involving irrigation drainage ditches are detected by visual inspections. Signs of an illicit discharge can include:
    - Abnormal water flow during the dry weather season.
    - Non-standard junction structures.
    - Broken concrete or other disturbances at or near junction structures.

Reporting

- Notify the Project Superintendent of any illicit connections and illegal dumping or discharge incidents at the time of discovery.

VEHICLE AND EQUIPMENT CLEANING – NS-5

Construction Specifications:

- Vehicles and equipment should be washed off site at a controlled wash facility when at all possible.
- Use “dry cleaning methods” such as wiping down whenever possible rather than water washing vehicles on site.
- If cleaning must be conducted on-site, it shall be conducted in a dedicated area with the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses.
  - Paved with concrete or asphalt, or stabilized with an aggregate base.
  - Bermed to contain wash waters and to prevent run-on and runoff.
  - Configured wash area with a sump to allow collection and disposal of wash water.
  - Discharges wash water to a sanitary or process waste sewer (where permitted), or to a dead end sump. Wash waters shall not be discharged to storm drains or watercourses.
  - Used only when necessary.

Additionally, when cleaning vehicles or equipment with water.

- Use as little water as possible. High pressure sprayers may use less water than a hose, and should be considered.
- Use positive shutoff valve to minimize water usage.
- Do not use solvents or detergents to clean vehicles or equipment on site.
- Do not permit steam cleaning on site.

Inspection and Maintenance:

- Inspect and clean work areas regularly to limit wind blow debris and pollutants transported by storm water.

VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE – NS-6

Vehicles and heavy machinery are a potential source of pollutants such as petroleum products, antifreeze, and exhaust and waste oil containing heavy metals. Pollutants may enter storm water runoff by means of direct contact with machine ports and by contact with spills on surfaces and the ground. The following control measures can help prevent contact of these potential pollutants with storm water and ground surfaces.

Construction Specifications:

Fueling **-** On site vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. When fueling must occur on site, the contractor shall select and designate an area to be used, subject to approval. Vehicle and equipment fueling (including fueling of handheld equipment) shall be conducted in accordance with the following:

- Away from storm drain inlets, drainage facilities, or watercourses.
- On a paved surface where practical.
- Within a bermed area to prevent run-on, runoff, and to contain spills.
- Store portable fuel containers for hand held equipment in a tub or equivalent device to avoid spills and leaks.
- Use secondary containment techniques for fueling of handheld or portable equipment, such as drain pans or drop cloths to catch spills or leaks.
- All fueling shall be conducted with the fueling operator in attendance at all times.
- Use vapor recovery nozzles to help control drips and reduce air pollution and nozzles equipped with automatic shutoff features to prevent overtopping fuel tank.
- Signage that fuel tanks should not be “topped off.”
- An adequate supply of spill clean up materials shall be readily accessible to all fueling activities.

Maintenance - Maintenance of large equipment shall be conducted within designated maintenance yards in order to enable careful management. During minor routine maintenance, drip pans shall be placed under vehicles and equipment. All on site vehicles shall be monitored for leaks and shall receive preventive maintenance to reduce leakage.

Only necessary maintenance required for the proper functioning of handheld equipment and portable generators/compressors is allowed onsite. Drop clothes, trays or an equivalent method shall be used underneath handheld and portable equipment to avoid leaking fluids, fuels, oils, or grease onto the ground. Do not overspray aerosols to the ground or other rain-exposed surfaces. Clean up spills immediately and dispose of waste properly.

Fuel and Vehicle Storage **-** Fuel storage shall be conducted in accordance with applicable local, state, and federal regulations and in accordance with the BMP for “Hazardous Materials and Waste Management.” Vehicles and equipment shall be stored in designated, bermed vehicle storage areas (such as dedicated storage areas or fueling and maintenance areas) when possible, or off of paved areas to the extent practical. During long periods (typically more than one month) of storage, and when otherwise necessary drip pans shall be placed under vehicles and equipment that are prone to leakage. Plastic tarps shall be placed over exposed equipment when not in use for long periods (>3 mos.) to prevent contact with storm water. All on site vehicles shall be monitored for leaks and shall receive preventive maintenance to reduce leakage.

Inspection and Maintenance:

- Check to ensure adequate supply of spill cleanup materials is available.
- Perform routine inspections of designated maintenance, cleaning, and fueling areas.
- Report all spills immediately to the project Superintendent.
- Service sumps regularly.

MATERIAL DELIVERY AND STORAGE CONTROLS – NS-7

Many materials used in construction can contribute pollutants to storm water runoff. Examples of such materials include soil, vehicle fuels, oils, antifreeze, paints/coatings, pressure treated lumber, dry wall, fertilizers, pesticides, and herbicides.

Construction Specifications:

- All construction materials shall be delivered to and stored in designated areas or designated staging areas at the construction site.
- Material storage areas shall be placed near construction site entrances to the extent practicable, away from storm drain inlets, culverts and surface water bodies.
- Designated storage areas shall be kept clean, well organized, and litter-free.
- Any materials being stored that could release pollutants by wind or runoff transport shall be protected by overhead cover, secondary containment, tarpaulins, visqueen/plastic sheeting or other appropriate method prior to rainfall or periods of high wind. Where feasible, store materials indoors (e.g., container storage or garages/buildings under construction, where work is being conducted.
- Any chemicals, drums or bagged materials not stored in a covered location, shall be stored on pallets, and when possible in secondary containment.
- Secondary containment shall be provided for liquids.
- Secondary containment areas shall be covered, where feasible, to prevent accumulation of rainwater.
- Construction materials shall be stored in a manner to prevent or minimize contact with storm water.
- The main loading, unloading, and access areas shall be located away from storm drain inlets and channels.
- Enclosures or flow barriers (berms) shall be constructed around designated storage areas to prevent storm water flows from entering storm drains or receiving waters, and to control the discharge of sediments and other pollutants.
- Deliveries shall be scheduled in a manner that reduces the time for onsite storage of potentially polluting materials prior to use and minimize the number of material drop locations.
- Fuels shall be stored in accordance with the BMP for “Vehicle and Equipment Fueling, Maintenance, and Storage.”
- Hazardous materials shall be stored in accordance with the BMP for “Hazardous Material and Waste Management.”

Inspection and Maintenance:

- Inspect material storage areas routinely for compliance with the above practices.

MATERIAL USE – NS-8

Apply this BMP when the following materials are used or prepared on site: pesticides and herbicides; fertilizers and soil amendments; detergents; petroleum products such as fuel, oil, and grease; asphalt and other concrete components; plaster; hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds; mastic, pipe wrap, primers, and paint; concrete compounds; welding material; and other materials that may be detrimental if released to the environment.

Construction Specifications:

- Materials shall be used in accordance with manufacturer directions and in a manner to reduce or eliminate release of pollutants
- An accurate, up-to-date inventory of materials delivered and stored on-site shall be kept by each contractor.
- Reduce or eliminate use of hazardous materials on site when practical. Use safer, recycled and/or less hazardous products when practical.
- Use materials only where and when needed to complete the construction activity.
- Recycle residual paints, solvents, non-treated lumber, and other materials.
- Do not remove the original product label; it contains important safety and disposal information.
- Use the entire product before disposing of the container.
- Keep an ample supply of spill clean up material near use areas. Instruct employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall unless sufficient time has been allowed for them to dry or cure.

Inspection and Maintenance:

- Spot check employees and subcontractors monthly throughout the job to ensure appropriate practices are being employed.

STOCKPILE MANAGEMENT – NS-9

Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, sand, and paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub-base or pre-mixed aggregate, asphalt binder (so called "cold mix" asphalt) and pressure treated wood.

Construction Specifications:

All Stockpiles

- If feasible, locate stockpiles a minimum of 50 feet away from inlets, drainage courses, or water bodies.
- Keep stockpiles organized and surrounding areas clean.
- Protect storm drain inlets, drainage courses, and receiving waters from stockpiles, using drain inlet protection and perimeter sediment controls as appropriate.
- Implement dust control practices as appropriate to prevent wind erosion of stockpiled material.
- Temporary stockpiles not removed or used by the end of one workday must be managed in accordance with this BMP and in all cases protected prior to rainfall.

Stockpiles of soil, Portland cement, sand, mulch, concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate sub-base

- Protect stockpiles with a perimeter sediment barrier such as berms, sediment fences, fiber rolls, sand/gravel bags, or straw bale barriers year round.
- Stockpiles should additionally be covered or stabilized as necessary during significant forecasted storm events (> 0.25 inches), prolonged periods of rain, and to protect from wind erosion.
- Soil stockpiles may be returned to the excavation if rain is forecast.
- Topsoil stockpiles should be low n height (ideally <1 meter) and flat and be used within 6 months to promote healthy soil organisms and microbes. Stockpiles not used within 6 months should be reseeded with a species that is mycorrhizal dependent to avoid the development of anaerobic conditions in the stockpile.. In addition, topsoil stockpiles can be turned periodically to keep organisms alive for larger stockpiles and during extremely hot weather.

Stockpiles of "cold mix" or other pollutants easily transported in storm water (cement, lime, and other caustic amendments):

- Stockpiles shall be placed on plastic or comparable material at all times.
- Stockpiles shall be covered with plastic or comparable material prior to the onset of significant rain (> 0.10 inches).

Bagged Materials

- Bagged materials shall be placed on pallets at all times and under cover (plastic sheeting, indoors, etc.) prior to the onset of significant rain (>0.10 inches).

Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammoniacal copper, zinc, and arsenate:

- "Stockpiles" of treated wood shall be covered with plastic or comparable material prior to the onset of significant rain (>0.25 inches).

Inspection and Maintenance:

- Inspect stockpiles regularly and repair and/or replace covers, and perimeter controls as needed.

SPILL PREVENTION AND CONTROL PROCEDURES – NS-10

Spills and leaks can be significant sources of storm water pollutants and are, in *most* cases, avoidable.

Construction Specifications:

- The Contractor shall prepare a site/project specific spill response plan that identifies the type and location of products or wastes on the site with spill potential, the location of spill cleanup materials, storm drains or sensitive areas that require immediate response, personnel responsible for spill response and notifications, and spill cleanup procedures.
- Avoiding spills and leaks is preferable to cleaning them up after they occur. Heavy equipment (e.g., bulldozers and other grading equipment) and vehicles should be inspected daily (or as often as possible) for leaks and should be repaired as necessary. Use secondary containment and drip pans for vehicle fueling, maintenance, and storage (See BMP for "Vehicle and Equipment Fueling, Maintenance, and Storage."
- Despite precautions, spills may still occur at the site. Spills (of liquid or dry materials) should never be cleaned up by hosing off the area. In the event that spills occur they should be controlled as follows:
- Any fuel products, lubricating fluids, grease or other products and/or waste released from vehicles, equipment, or operations shall be collected and disposed of in accordance with state, federal and local laws.
- If the spill has occurred during a rain event, the area will be covered as quickly as possible. The spill will be cleaned up as soon as possible during or after cessation of rain.
- Spill cleanup materials will be stored near potential spill areas (e.g., painting, vehicle maintenance areas).
- **Minor Spills:** Minor spills typically involve small quantities of oil, gasoline, paint, etc. that can be controlled by the first responder at the discovery of the spill. Control of minor spills involves:

    1. Contain the spill immediately.
    2. Recover spilled materials (if possible).
    3. Clean the contaminated area and dispose of contaminated materials.

- **Medium-Sized Spills**: Medium-sized spills still can be controlled by the first responder, along with the aid of other personnel such as laborers, foremen, etc. This response may require the cessation of other activities. Spills should be cleaned up immediately, as follows:

    1. Notify the project foreman immediately. The foreman/superintendent is responsible for any necessary notifications (fire department etc.).
    2. Contain the spread of the spill (using sand bags or other barriers) immediately.
    3. If the spill has occurred on a paved or impermeable surface, clean it up using dry methods (absorbent materials, cat litter, and/or rags). Contain the spill by encircling it with absorbent materials.
    4. If the spill has occurred on an unpaved or permeable surface, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
    5. If the spill has occurred during a rain event, cover/contain the area if possible.

- **Significant/Hazardous Spills:** For large spills or spills involving hazardous materials that cannot be controlled by project personnel, the following steps should be taken:

    1. The Foreman should notify the Project Superintendent immediately and follow up with a written incident report.
    2. The Project Superintendent will notify local emergency response personnel by dialing 911. In addition, the Project Superintendent will notify the appropriate County officials. It is the Project Superintendent's responsibility to have all of the emergency phone numbers at the construction site.
    3. The Project Superintendent will also notify the Oregon DEQ.

4. For spills of federal Reportable Quantity (as established under 40 CFR Parts 110, 117, or 302), the Project Superintendent will notify the National Response Center by telephone at (800) 424-8802 within 24 hours. Within 14 days, the Project Superintendent will submit a written description of the release to EPA Region 10, including the date and circumstances of the incident and steps taken to prevent another release.
5. Retain the services of a Spill Cleanup Contractor or HazMat Team immediately. Construction personnel should not attempt to clean up the spill until the appropriate and qualified staff has arrived at the site.
6. Other agencies that may need to be contacted include the local fire department, Oregon Department of Transportation, etc.

Inspection and Maintenance:

- Inspect work and material storage areas routinely for adequate containment to avoid uncontrolled releases.

SOLID WASTE MANAGEMENT – NS-11

Construction Specifications:

- Broom cleaning of paved areas of the site and of paved public areas is preferred. Use of water for cleaning is prohibited unless approved on a project specific basis by the owner. If approved, wash water shall not be discharged to the storm sewer and shall be collected, contained and disposed of appropriate (see bullet below regarding liquid wastes).
- There shall be designated temporary waste storage areas on the site.
- Designated waste storage areas shall be contained within earthen berms or provided with other perimeter protection to prevent run-on to and run-off from the area.
- Non-hazardous construction wastes (e.g., vegetation, trash, and construction debris) shall be collected from throughout the site once a day and before storm events and deposited at the designated waste storage areas.
- When practical, wastes shall be stored within covered, water-tight dumpsters and/or containers that prevent exposure to rain and prevent loss of wastes when it's windy.
- Dumpsters shall not be hosed out on the construction site. Any required dumpster cleaning will be done off-site by the trash hauling contractor.
- Any waste containers constructed on-site (not prefabricated) shall be inspected prior to use and inspected regularly to verify integrity.
- Any wastes stored in open containers or waste piles shall be covered prior to significant forecasted rain (0.25").
- All waste materials shall be removed from the storage areas on a weekly basis or more frequently if capacity is reached and disposed or recycled in accordance with all Federal, state, and local regulations.
- Any solid waste that accumulates at erosion and sediment control devices will be removed ASAP.
- Liquid wastes shall be managed in accordance with the BMP for "Liquid Waste Management."

HAZARDOUS MATERIALS AND WASTE MANAGEMENT – NS-12

Construction Specifications:

Hazardous Materials

- Storage of hazardous materials on site shall be minimized. Any hazardous materials used during construction shall be containerized and kept closed during work activities.
- Hazardous material storage shall conform to all applicable local, state and federal requirements.
- Hazardous materials shall be stored in sealed containers within an enclosed container or a bermed and permanently covered storage area. Lids alone shall not be considered adequate cover.
- Dedicated areas of the construction site shall be designated for hazardous material delivery and storage. Designated storage areas will be placed near construction site entrances, to the extent practical, and away from drain inlets, culverts and surface water bodies.
- Designated storage areas shall be kept clean and well organized.
- The following types of materials shall be stored in accordance with these provisions: fertilizers, herbicides, pesticides, detergents, oil, grease, glues, paints, solvents, curing compounds materials, and other similar materials that could be considered potential pollutants in storm water discharge.
- Fuel shall be stored and managed in accordance with the BMP for "Vehicle and Equipment Fueling, Maintenance, and Storage."
- Regular inspections of storage areas shall be conducted to monitor inventory and check for leaking containers.

Hazardous Wastes

- Hazardous wastes and containers shall be placed in a designated hazardous waste storage area that is permanently covered and has an impermeable bottom surface surrounded by secondary containment to minimize the mixing of wastes with storm water and to prevent the direct release of liquid waste to storm water. Temporary storage and removal of hazardous wastes from the site shall be in accordance with all applicable state and federal laws.
- Wastes shall be segregated and recycled where feasible (e.g., paints, solvents, used oil, batteries, anti-freeze). Wastes shall not be mixed since this can cause potentially dangerous chemical reactions, make recycling impossible and complicate disposal.
- Covered waste bins shall be designated for the disposal of all empty hazardous waste product (e.g., paints, solvents, glues, petroleum products, exterior finishes, pesticides, fertilizers, etc.) containers. The original product label shall not be removed as it contains important safety and disposal information.
- Toxic wastes and chemicals shall not be disposed of in dumpsters designated for construction debris.
- If any asbestos is discovered in the demolished materials, asbestos removal and disposal shall be performed by a licensed contractor or licensed subcontractor trained in asbestos removal. All removal and disposal shall be done in accordance with state and federal regulations. Any asbestos wastes stored on-site prior to removal shall be stored within dumpsters (roll-offs) covered with tarps or other appropriate method to prevent contact with rain and minimize exposure to wind.
- Employees and subcontractors shall be trained on proper storage practices.

CONTAMINATED SOIL MANAGEMENT – NS-13

A number of practices occurring during construction may lead to contamination of soils. For example, leaks and spills of petroleum products from leaking vehicles and routine vehicle and equipment maintenance can cause soil contamination.

Construction Specifications:

- All soils contaminated by construction activities must be removed and disposed of correctly.
- In the event that soil contamination is suspected but not confirmed, the contractor will obtain samples for analysis by a certified analytical laboratory.
- Decisions regarding soil removal and disposal will be based on the results of the analysis.
- No soils contaminated by construction activities shall be buried or otherwise disposed of on site.
- Areas of historic contamination shall be managed in accordance with approved remediation work plans or equivalent documents.
- Containment shall be provided around areas of historic contamination or soils contaminated by construction activities (not yet removed) to eliminate run-on to and off-site discharges from these areas and associated non-visible pollutant monitoring requirements. Containment zones shall consist of earthen berms, excavated diversion channels, or over-excavation in the area of concern to create a “bath-tub.”
- Contaminated soils may be temporarily stored in accordance with applicable local, state and federal regulations. At a minimum soils shall be stored on a contained, impervious surface and be covered prior to proper disposal.

CONCRETE MANAGEMENT – NS-14

Concrete trucks and transfer chutes will be washed-out on-site utilizing a concrete washout to collect all wash water and concrete waste. The washout area will be located away from storm drains, open ditches or water bodies. Signs will be posted throughout the jobsite, directing crews and concrete trucks to concrete washouts. Upon completion of the concrete work, the Contractor shall break up, remove, and haul away or reuse on site solid concrete that has accumulated in the washout.

Construction Specifications:

Material Use:

- Install storm drain protection at any down-gradient inlets that may be impacted by the activity. See the BMP on "Storm Drain Inlet Protection."
- Do not place concrete during rain (precipitation that is sufficient to cause local runoff) or within 18 hours of forecasted rain.
- Place stoppers on concrete truck chutes during travel onsite to manage potential dribbling of concrete material.
- Minimize amount of curing compound and form oil used and do not overspray onto a non-target surface.
- Sandblasting: Use shrouds where necessary to contain waste from sandblasting. Conduct work in accordance with applicable air quality standards. Collected debris for proper disposal ASAP and prior to rain events.
- Minimize the amount of water used during coring/drilling or saw cutting. During wet coring or saw cutting, use a shovel or wet vacuum to lift the cooling water / slurry from the pavement. Additionally, if wet vacuuming is not adequate to capture wastewater from the activity, sand bag barriers or other containment shall be used.
- If concrete residue remains after drying, the area shall be swept up and residue removed to avoid contact with storm water or entering a storm drain or water body via the wind.
- The sweepings shall be collected and returned to the aggregate stockpile or disposed in the trash and not washed into the street or storm drain.
- Washing of fresh concrete shall be avoided, unless runoff can be drained to a bermed or level area, away from storm drain inlets and channels.
- Acid washing of concrete shall be minimized. Where required, acid wash shall be directed into a collection area lined with visqueen. Residuals shall be collected and properly disposed of as hazardous waste.
- Handling of wet concrete, such as moving a pumper chute or transporting material in a wheelbarrow from the delivery truck, must be performed in a controlled manner to prevent drips and spills outside the target pour area. Minimize water use.
- Concrete drips, spills, over pours, and equipment rinse water landing on rain-exposed outside of any BMP device must be collected and have the surface cleaned and waste disposed of properly prior to the end of the workday or before the next rain event. Concrete-laden equipment implements (e.g., crane buckets) must be stored on top of heavy mil plastic until dry. Used forms that are not immediately placed into a haul truck when removed from foundations must also be temporarily staged over plastic sheeting or an equivalent until rinsed, wiped, or dried or until hauled offsite.

Waste Management:

- **Do not discharge concrete residue or particulate matter into a storm drain inlet or watercourse**.
- Excess concrete shall not be dumped on-site.
- The following options shall be used for concrete truck chute and/or pump and hose washout:
    - **Concrete Washouts:** Washout stations can be a plastic lined temporary pit or bermed area designed with sufficient volume to completely contain all liquid and waste concrete materials plus enough capacity for rainwater. The designated area shall be located away from storm drain inlets, or watercourses. New washouts shall be constructed as needed to provide sufficient

washout capacity on-site. Wastes other than concrete (i.e., trash, paint wastes etc.) shall not be disposed of in the washout.

- **Washout in Trench:** Manually rinse the concrete truck chute into the trench itself.
- **Bucket Washout:** Manually rinse the chute into a wheelbarrow, plastic bucket or pail, and then empty the bucket into the concrete truck barrel or on top of the placed concrete.

Inspection and Maintenance:

- Responsible personnel shall ensure that all concrete truck drivers are instructed about project practices when the trucks arrive on site.
- Clean out designated washout areas as needed or at a minimum when the washout is 75 percent full to maintain sufficient capacity throughout the project duration.
- Any designated onsite washout areas shall be cleaned out and all debris removed upon project completion. Dispose of concrete waste according to the BMP on "Solid Waste Management."
- Inspect routinely, when applicable activities are underway to ensure that concrete washout does not overflow and that freeboard is adequate to contain concrete and rain.

SANITARY WASTE MANAGEMENT –NS-15

- All sanitary wastes shall be collected and managed through the use of portable toilet facilities.
- Portable toilets shall be placed on a level surface and to the extent practical, a safe distance away from paved areas and away from storm drains.
- Portable toilets shall be provided with secondary containment.
- If placed in an area of high winds, portable toilets shall be secured to the ground to prevent blowing over.
- Portable toilets shall be transported to and from the construction site by a licensed contractor.
- No sanitary wastes shall be disposed of on site (e.g., to on-site storm drains, burial, etc.).
- Care shall be taken during pump-out to avoid spillage. If spillage occurs it shall be cleaned up immediately.

LIQUID WASTE MANAGEMENT – NS-16

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by products, residuals, or wastes, such as:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredging spoils
- Other non-storm water liquid discharges not permitted by separate permits.

Separate BMPs should also be referenced for the following onsite liquid wastes:

- Dewatering operations
- Liquid hazardous wastes, or
- Concrete slurry residue

Construction Specifications:

- Vehicle and equipment cleaning using water is discouraged on site.
- Drilling residue and drilling fluids should be disposed of in accordance with appropriate requirements at an approved disposal site.
- Wastes generated as part of an operational procedure, such as water-laden dredged material and drilling mud, should be contained and not allowed to flow into drainage channels or receiving waters.
- Contain non-hazardous liquid wastes in a controlled area, such as a lined holding pit, lined sediment basin, roll-off bin, or portable tank.
- Containment devices must be of sufficient quantity or volume to completely contain the liquid wastes generated and any addition volume based on anticipated rainfall.
- Do not locate containment areas or devices where accidental release of the contained liquid can threaten health or safety, or discharge to watercourses, storm drain system, or to a receiving water.
- Capture all liquid wastes running off a surface that has the potential to affect the storm drainage system. Examples are: wash water and rinse water from cleaning walls or pavement.
- If the liquid waste is sediment laden, use a sediment trap or capture in a containment device and allow sediment to settle.
- Disposal of liquid wastes are subject to specific laws and regulations, or to requirements of other permits secured for the construction project.

Maintenance and Inspection:

- Remove deposited solids from containment areas and containment systems as needed, and at the completion of the project.
- Inspect containment areas and containment systems routinely for damage, and repair as needed.

TRAINING AND SIGNAGE – NS-17

When properly trained, site personnel are more capable of managing materials properly, preventing spills, and implementing control practices efficiently and correctly. Personnel at all levels shall be trained in the components and goals of the permit.

Construction Specifications:

The following measures shall be followed to ensure the ESCP is effectively implemented, BMP inspections are performed, BMP maintenance and repair are performed, and appropriate records are prepared and retained:

- Before beginning construction activities and periodically during construction, appropriate personnel shall receive training to implement the ESCP effectively, perform BMP inspections, perform BMP maintenance and repair, and keep records. Non-storm water discharges and general contractor activity BMPs shall also be covered during training. An appropriate forum for training would be "tailgate meetings" or safety meetings that focus generally on the components and goals of the ESCP, and specifically on the implementation, inspection, and maintenance of the storm water pollution control BMPs. Training shall be documented by the contractor.
- Individuals responsible for overseeing, revising, and amending the ESCPs shall also document their training.
- All appropriate new employees and contractors shall be trained by staff familiar with the ESCP requirements before they shall be permitted to work at the site. Contractors shall be responsible for informing their subcontractors about ESCP requirements.
- BMP drawings, trade water quality guidelines, fact sheets, or other specifications shall be copied and distributed to contractors and site personnel engaged in the activity in question and/or installation/maintenance of BMPs.
- Signs shall be placed throughout the job site that convey critical information storm water pollution prevention information such as:
    - Job Site Clean-Up Required Everyday
    - Directions to and identification of concrete and paint wash outs
    - Erosion and Sediment Control Plan in Effect