

**STORM WATER POLLUTION PREVENTION PLAN
FOR CONSTRUCTION**

FOR

PROJECT NAME

SALT LAKE CITY INTERNATIONAL AIRPORT

Prepared for

Your Company Name

October 9, 2009

Prepared by

*Your Company Name Here
Your Company Address Here*

Airport Project Number Here
SWP3

Storm Water Pollution Prevention Plan for Construction Activities

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Your Signature Here

Print Your Name and Title Here

SITE CONTACT INFORMATION

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Revision Schedule

This **Storm Water Pollution Prevention Plan (SWP3/SWPPP)** should be revised and updated to address changes in site conditions, new or revised government regulations, and additional on-site storm water pollution controls as directed by the Airport or DWQ.

All revisions to the SWP3 must be documented on the SWP3 Revision Documentation Form, which should include the information shown below. The authorized contractor representative who approves the SWP3 should be an individual at or near the top of the contractor's management organization, such as the president, vice president, construction manager, site supervisor, or environmental manager. The signature of this representative attests that the SWP3 revision information is true and accurate. Previous authors and facility representatives are not responsible for the revisions.

SWP3 Revision Documentation Form

Number	Date	Author	Company Representative Signature
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**APPENDIX B STANDARDS AND SPECIFICATIONS FOR SELECTED
BMP'S**

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FIGURES AND DRAWINGS

Following Report

Figures

- 1 Site Topography Map
- 2 Storm water Site Map

Drawings

- C1.1 Title
- C2.11 ESC Details and Notes
- C2.12 ESC Details
- C2.13 Pond Plan
- C2.14 Pond Sections and Details

Delete the figures and drawing titles above in red and replace them with your own figures and drawings.

1 CONSTRUCTION ENVIRONMENTAL SUMMARY

In this section you should name the contractor, locate the site, give a description of the site and discuss the environmental impact the project will have on the surrounding area. The SWP3 is designed to eliminate these impacts so describe in general terms how the plan addresses potential problems. Remember that the public has legal access to this document! The description below is only an example so you should delete the text and this box and create your own summary.

1.1 Summary

Beginning in early 2000, ABC Homes of Hometown, Washington is starting the first phase of a two-phased construction project (Your Development Company) located on NE 11th Street between 12th Avenue NE and 10th Avenue NE in Hometown, Washington (Washington County). The 33.6-acre site is a former horse ranch (Equestrian Hills) and will ultimately support over 100 single-family homes.

The site is sensitive environmentally because it slopes westward draining directly to an unnamed stream designated as a Class 2 water body. This stream flows north by northwest to NE 24th Street, and then is channeled west to a recently restored stream project along NE 24th Street in the Quarry Valley, discharging finally to the Quarry River. Storm water discharged from the Your Development Company will therefore directly impact salmon and other aquatic species existing in this drainage basin.

Because of the environmental sensitivity of the construction site, extra protective measures have been established to ensure there is no adverse impact to water quality in the surrounding area. This *Storm water Pollution Prevention Plan* details all of the protective environmental measures, which will be employed during construction of the project.

Perhaps most innovative and protective of all measures designed for use is the storm water treatment system which treats all storm water collected during construction to produce clear, clean, and non-toxic water for discharge into the drainage basin stream. Designed as an integrated *Best Management Practice* (BMP) to complement the other BMP's described in this plan, the storm water treatment system provides a fail-safe method for ensuring only clean water leaves the site.

1.1.1 Project Description

Describe total project area, proposed impervious area, proposed areas to be disturbed, and total volumes of proposed cuts/fill.

1.1.2 Existing Site Conditions

Describe the existing topography and drainage on the site.

1.1.3 Adjacent Areas

Describe adjacent areas that may be affected by the runoff of sediment-contaminated water. Include streams, canals, wetlands, residential areas, roads or any other areas. If none, so indicate. Describe the downstream drainage path leading from the site to the receiving body of water.

1.1.4 Critical Areas

Describe critical areas that are on or adjacent to the site. Most often critical areas will be protected bodies of water, Endangered Species habitat, public right of ways on streams or lakes, etc. Describe any special requirements for working in or near critical areas. If none, indicate this.

1.1.5 Soils

Describe on-site soils using soil name(s), soil mapping unit, erodability, settleability, depth, texture and soil structure or any other information that may be critical as it relates to runoff potential.

1.1.6 Erosion Problem Areas

Describe areas of the site where erosion problems are anticipated. If none, indicate this.

1.1.7 Construction Phasing

Describe the construction sequence and phasing, if proposed. Construction phasing in the contract documents may be used. If none, indicate this.

1.1.8 Construction Schedule

Provide a construction schedule. If wet season land disturbance is proposed, describe the activities and construction restraints when working in or near environmentally sensitive areas. Construction schedule submitted to the Project Engineer may be used.

1.1.9 Engineering Calculations

Provide the design calculations for the sizing of sediment ponds, sediment traps, diversions, conveyance channels, storm water detention facilities and storm water treatment facilities. If none are used, indicate reasons.

2 INTRODUCTION

2.1 Storm water Pollution Prevention Plan Requirements

You can use the following text in this section as-is with the exceptions noted.

This Storm water Pollution Prevention Plan (SWP3) was developed consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Storm water Permit for Construction Activities (see Appendix A for a copy of the general permit). [Contractor should attach a copy of the permit he has received from DWQ.](#)

The Plan, properly implemented, should result in the discharge of water to the environment without the violation of Water Quality Standards.

2.2 Purpose

The purpose of this SWP3 is to:

- Describe best management practices (BMP's) to minimize erosion and sediment runoff at the site
- Identify, reduce, eliminate, or prevent the pollution of storm water
- Prevent violations of surface water quality or groundwater quality standards

2.3 SWP3 Organization

You can use this section as-is with the exception noted.

This plan consists of a detailed narrative section and the appendices, which contain illustrations, maps, and drawings. The narrative section includes descriptions of potential pollution problems associated with site features, and then discusses the selection of specific pollution prevention BMP's to reduce or eliminate the threat of causing pollution during the actual construction project. The illustrations, maps, and drawings in the appendices show the site location, topography, sensitive environmental receptors, placement of BMP's, and BMP specifications and performance expectations.

If you are planning to perform water treatment on this project you may need regulatory approval. Check with your state environment department to determine the requirements for a water treatment permit.

The narrative section of this plan is organized in numbered sections around the 12 elements of a typical SWP3 listed below:

1. Mark project clearing limits
2. Establishing the construction entrance(s)
3. Storm water detention
4. Selection and installation of sediment controls
5. Soil stabilization
6. Slope protection
7. Drain inlet protection
8. Storm water outlet protection
9. Chemical spill prevention and response
10. Site Storm water Treatment
11. BMP maintenance
12. Project management

In the narrative section, each of the above elements will be discussed in relation to the specific conditions at the development. BMP's for each element will be screened, resulting in selection of those BMP's deemed most appropriate for use. Specifications and engineering drawings of the selected BMP's are referenced at the end of each section and can be found in Appendix B.

If any of the 12 elements are not used, delete them and renumber the list.

3 CLEARING LIMITS

3.1 Site Plans

Figure 1 is a map of the site showing all natural drainages associated with the area. Figure 2 is the Storm water Site Map showing any surface water in the area and showing placement of all relevant storm water BMP's such as detention basins, storm drains, spill kit locations, storm water treatment system location, etc

3.2 Marking Clearing Limits

Prior to beginning earth-disturbing activities, including clearing and grading, all clearing limits, easements, setbacks, sensitive areas and their buffers, trees and drainage courses will be clearly marked to prevent environmental damage both on and off site.

You can keep this section as-is but include any site-specific special considerations in section 3.3 below. If no special considerations are needed, indicate this under 3.3.

3.3 Special Consideration

Special consideration will be given to the boundary of the drainage basin on the west end of the site.

3.4 Selected BMP's

Delete any BMP listed below that does not apply to this project.

- BMP C101: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: Plastic or Metal Fence
- BMP C104: Stake and Wire Fence

4 CONSTRUCTION ACCESS

4.1 Site Access

In section 4.1 describe the site access and how it will be stabilized. See example paragraph below. The rest of this section can be used as-is.

The main construction access will be established at the southeast corner of the site just off 16th Street. All construction vehicles exiting the site will be limited to this access. The access will be stabilized with quarry spalls, crushed rock, or asphalt to prevent tracking sediment onto 16th Street.

4.2 Street Cleaning

You can use this section as is or modify it to fit your needs.

If sediment is accidentally transported on to the street it will be removed from the street surface on a daily basis. Sediment will be shoveled and/or swept from the street and disposed of in a manner, which prevents contamination with storm water or surface water (e.g., covered soil stockpile). In addition, a street sweeper may be used to maintain clean roads on an as-needed basis.

4.3 Wheel Wash

You can use this section as is or modify it to fit your needs.

Based on site conditions and time of year, a temporary truck wheel wash station may be constructed to ensure control of sediment at the construction exit point. The wheel wash system (if needed) will be constructed on the site at a location just prior to where trucks leave the site access and enter the street. The system will consist of an asphalt-lined wash pond for immersing the truck tires as the truck drives through and a small settling pond for settling suspended sediment in wash water cycled out of the system. Wash water may be reused after settling, infiltrated onsite, or transported off site for disposal. Accumulated sediments will be collected periodically, stockpiled for dewatering, then reused onsite.

4.4 Selected BMP's

Delete any BMP that does not apply to this project.

- BMP C105: Stabilized Construction Entrance
- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

5 STORM WATER DETENTION

5.1 Primary Storm water Detention System

This section will have to be rewritten according to the specifics of your site. Use the example language below for ideas on how to complete this section. The basic idea is to describe the design criteria for the stormwater detention basin as well as describing where the basin will be located and how water will flow into and out of the basin.

The construction site slopes significantly from east to west. The site is drained by a small stream forming a gully bordering the site to the west (Figures 1 & 2). All storm water contaminated with sediment or otherwise affected by construction activities will be directed to a main storm water detention/treatment facility located in the southwest corner of the site (Drawing C2.13).

Figure 1 should be a map of the entire site. Figure 2 should show any surface water in the area and placement of all relevant stormwater BMP's such as detention basins, storm drains, spill kit locations, stormwater treatment system location, etc.

The detention facility will consist of three separate water storage chambers designed to accommodate efficient treatment (see Section 11 – Storm water Treatment). The capacity of the detention ponds will be adequate to contain the volume of storm water generated in a 100-year, 7-day design storm without discharging to the stream. Because the site will be developed in two phases, the actual design storm capacity will be nearly double during the first phase as only half the site will be disturbed and runoff from the undisturbed portion will be allowed to drain to the stream rather than the detention pond system.

All ditches and other water conveyances draining construction-active areas to the detention system will be stabilized with rock, matting, or other stabilizing method with check dams placed as needed to reduce water velocities and settle out sediment prior to entering the detention ponds. Temporary sediment traps may also be installed as needed to further reduce sediment loads in water draining from construction areas.

5.2 Run-on Bypass

If water runs onto your site it is advantageous to reroute it so you don't have water flowing through the construction site potentially causing erosion and degrading water quality. This section describes how this water will be handled.

Clean storm water run-on draining from the up gradient, undisturbed eastern portion of the site will be collected prior to entering the construction areas and diverted to the western stream via enclosed pipe. This water will be routinely monitored to ensure only clean water is discharged to the stream. If the water becomes contaminated, it will be routed to the detention system for treatment.

5.3 Selected BMP's

Add Drawings C2.13 and C2.14 referenced below with your project detention basin drawings. Delete any drawings not needed for this project.

See Detention Pond Plan and Sections, Drawings **C2.13, C2.14**

Delete any BMP that does not apply to this project.

- BMP C240: Temporary Sediment Trap
- BMP C122: Nets and Blankets
- BMP C204: Pipe Slope Drains
- BMP C207: Check Dams

6 SEDIMENT CONTROLS

6.1 Site Sediment Control System

In this example project we are using stormwater treatment to capture all sediment in stormwater leaving the site. If you are doing treatment you can leave this section as-is. Otherwise describe the detention pond as the primary sediment control system.

Before being discharged from the construction site, sediment-contaminated storm water will be processed in the storm water treatment system. Clean water bypassing the site will be routed directly to the receiving stream. Sediment ponds and traps, vegetated buffer strips, sediment barriers or filters, dikes, and other BMP's intended to trap sediment on site will be constructed as one of the first steps in grading. These BMP's will be installed before other land-disturbing activities take place.

6.2 Selected BMP's

Delete any BMP that does not apply to this project.

- BMP C230: Straw Bale Barrier
- BMP C231: Brush Barrier
- BMP C232: Silt Fence
- BMP C233: Vegetative Strip
- BMP C240: Sediment Trap
- BMP C241: Temporary Sediment Pond
- BMP C250: Construction Storm water Chemical Treatment

7 SOIL STABILIZATION

This section can be used as-is with the exception of referencing specific drawings. Delete any BMP's that do not apply to this project.

This section describes the stabilization and structural BMP's that will be implemented to minimize erosion and transport of sediment from the project site into receiving waters.

7.1 Soil Stabilization

Stabilization BMP's to be implemented at this site include:

- **Soil Covering.** All exposed soils will be stabilized with vegetation or covered prior to the onset of the rainy season. The primary stabilization method used will be covering soils with an approved matting and/or hydroseeding. This will be done on all slopes as well as drainage ditches, swales, and exposed flat surfaces as deemed necessary by the erosion and sediment control lead. Virtually all exposed soils will be stabilized to protect surface water quality. Areas of the project, which have not been properly stabilized by vegetation by the onset of the wet season, will be covered with transparent plastic sheeting to prevent sediment transport. Plastic sheeting will also be used as an emergency BMP to cover previously stabilized areas, which begin to erode. Loose straw and mulch covers are not to be used as they may be washed into drainage structures.
- **Stockpile Covering.** All temporary soil stockpiles will be covered with plastic. Long-term stockpiles will be compacted and hydroseeded prior to the onset of wet weather. Clean runoff from covered or stabilized stockpiles will be collected in solid wall drainage pipe and conveyed to a surface water drainage structure.
- **Polymer Soil Treatment.** Smaller areas of the site may be actively worked throughout the wet season to support the installation of utilities. These smaller areas of exposed soils may be temporarily stabilized with the application of a granular anionic polyacrylamide (PAM). PAM may be applied as an aqueous solution (0.5 pounds per 1,000 gallons of water) or as a granular solid evenly dispersed over the surface of soils using a seed spreader (3 to 5 pounds of PAM per acre).
- **Maintenance of Existing Vegetation.** Existing and new vegetation will be maintained to the maximum extent practicable to prevent the contamination of

storm water with sediment. Vegetated areas beginning to show signs of erosion or soil transport will be covered with plastic sheeting and the clean runoff conveyed to a storm water drain.

- **Outlet Protection.** Adequate energy dissipation, erosion control, and soil stabilization measures (e.g., rock or other energy dissipation techniques) will be provided for all point source discharges of storm water, including run-on discharges and outlets from onsite discharges.
- **Inlet protection.** All existing storm drain inlets, including those made operable during the project, will be properly protected and maintained using approved inlet protection devices.

7.2 Structural BMP's

Structural BMP's. Structural BMP's are practices designed to divert flows from exposed soil, store storm water runoff, and limit runoff and the discharge of pollutants from exposed areas of the project. The goal of structural BMP's on this project is to protect receiving water downstream of the site from turbid water, phosphorus, sediment, oil, and other contaminants, which may mobilize in storm water flows.

- **Temporarily Modified Catchment Structures.** Catch basins, manholes, vaults and swales may have to be modified on a temporary basis so that dirty water can be intercepted before leaving the site. This may be done in several different ways generally resulting in temporarily blocking an outlet structure and installing a pump to transfer the storm water inflow to a settling, infiltration, or treatment system. Automatic float level controllers built into the pump prevent the pump from running dry and conserve power use.
- **Drainage Swales, Ditches, and Check Dams.** Swales and ditches will be used on a permanent and temporary basis to convey storm water in a way that minimizes the potential for contamination by sediment. Because some sediment will always be present in storm water, check dams will be used in swales and ditches to reduce the velocity of the water and allow some settling of larger particles.
- **Temporary Slope Drains.** In some cases unstable slopes will be temporarily covered with plastic to prevent erosion and to protect water quality. When soil is disturbed downstream of the covered slope the slope drainage must be conveyed around the soil to prevent erosion. This can be done by collecting the slope runoff at the toe of the slope and piping it directly to the nearest drain. Solid-wall flexible drainpipe and sandbags are commonly used to create temporary slope drains.

- **Sedimentation Swales and Ponds.** Temporary and permanent swales and small detention ponds will be used as necessary to reduce the velocity of runoff and enhance particle settling.
- **Infiltration/Dispersal Systems.** On sites with substantial areas of vegetation and/or porous soils, it may be advantageous to install an infiltration/dispersal system for the disposal of site storm water. This system is comprised of a pump, conveyance piping, and dispersal piping. It is best to follow topographical contours when installing the dispersal piping to avoid ponding and channeling. Dirty water should be allowed to gravity settle at least 24 hours before dispersal to avoid clogging the infiltration area with sediment. Also, observe the dispersal area frequently when discharging water to prevent over-saturation of soils.

8 SLOPE PROTECTION

8.1 General Practices

This section can be used as-is unless you want to add any slope protection information specific to your project. Remember, slopes are especially prone to erosion and runoff can seriously degrade receiving water quality.

Cut and fill slopes on this project have been designed and will be constructed so as to minimize erosion. Soil types have been analyzed and considered for their potential to erode also. In addition, slope runoff velocities will be reduced by terracing, creating diversions, and surface contouring.

Upslope drainage and uncontaminated run-on water from off-site will be intercepted at the top of the slope and diverted around the active construction area. Down slope flows will be contained in pipes, slope drains, and/or stabilized channels.

8.2 Possible BMP's

Delete any BMP that does not apply to the\is project.

- BMP C130: Surface Roughening
- BMP C131: Gradient Terraces
- BMP C200: Interceptor Dike and Swale
- BMP C201: Grass-Lined Channels
- BMP C204: Pipe Slope Drain
- BMP C205: Subsurface Drains
- BMP C206: Level Spreader
- BMP C207: Check Dams

9 DRAIN INLET PROTECTION

This section addresses protecting storm drains from draining dirty water runoff. If you can seal the drain without causing flooding during wet weather that is the best solution. Otherwise install catch basin inserts and keep the area as clean as possible.

9.1 Existing Storm Drains

Existing storm drain inlets will be protected to prevent storm water from entering without first being filtered or treated to remove sediment.

9.2 Newly Constructed Storm Drains

All storm drain inlets made operable during construction will be protected to prevent storm water from entering without first being filtered or treated to remove sediment.

9.3 Possible BMP

- BMP C220: Storm Drain Inlet Protection

10 STORM WATER OUTLET PROTECTION

If your project discharges water to receiving water, this section discusses how to protect the area around the outlet from erosion. If you are using infiltration or some other means for disposal of water delete the text in this section and write not applicable (explain why it is not applicable).

10.1 Treatment System Outlet to Stream

The treatment system will discharge treated storm water to the small stream located just west of the site. At the point where treated water enters the stream, outlet protection will be provided using riprap channel lining or other armoring material to prevent erosion of the stream bank.

10.2 Street Drainage to Stream

Storm water will be cleaned of sediment and other pollutants and drained from the site. At the point where road runoff enters the stream, outlet protection will be provided using riprap channel lining or other armoring material to prevent erosion of the streambank.

10.3 Bypass Drainage to Stream

Bypass storm water will be piped or slope-drained offsite. At the point where bypass runoff enters the receiving water, outlet protection will be provided using riprap channel lining or other armoring material to prevent erosion of the stream bank.

10.4 Suggested BMP's

Delete any BMP that does not apply.

- BMP C202: Riprap Channel Lining
- BMP C209: Outlet Protection

11 SPILL PREVENTION AND RESPONSE

This section is mandatory. You can keep it as-is but address any high-liability construction work such as stream crossings, bridge building, structural foundations in water, etc. Also, don't forget to include the Emergency Phone Numbers form and Spill Report form directly after this section (or substitute your own). This section may be used in place of Form 9 in the Special Provisions section of the Contract Documents. If this is done, note it on Form 9.

Consistent with the general permit requirements, all potential pollutants other than sediment will be handled and disposed of in a manner that does not cause contamination of storm water. Non-sediment pollutants that may be present during construction activities include:

- Petroleum products including fuel, lubricants, hydraulic fluids, and form oils
- Polymer used for soil stabilization
- Water treatment chemicals (coagulant, acid, sodium bicarbonate)
- Concrete
- Paints
- Asphalt
- Fertilizers

These materials, and other materials used during construction with the potential to impact storm water, will be stored, managed, used, and disposed of in a manner that minimizes the potential for releases to the environment and especially into storm water.

Emergency contacts for the project will be posted at the project office and are included at the end of this section.

11.1 General Materials Handling Practices

The following general practices will be used throughout the project to reduce the potential for spills.

- Potential pollutants will be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practicable, material storage areas should not be located near storm drain inlets and should be equipped with covers, roofs, or secondary containment as needed to prevent storm water from contacting stored materials. Chemicals that are not compatible (such as sodium bicarbonate and hydrochloric acid) shall be stored in segregated areas so that spilled materials cannot combine and react.

- Materials disposal will be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
- Materials no longer required for construction will be removed from the site as soon as practicable.
- Adequate garbage, construction waste, and sanitary waste handling and disposal facilities will be provided to the extent necessary to keep the site clear of obstruction and BMP's clear and functional.

11.2 Specific Materials Handling Practices

- All pollutants, including waste materials and demolition debris, that occur on-site during construction will be handled in a way that does not contaminate storm water.
- All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored on site will be covered and contained and protected from vandalism.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, will be conducted under cover during wet weather and on an impervious surface to prevent the release of contaminants onto the ground. Materials spilled during maintenance operations will be cleaned up immediately and properly disposed of.
- Wheel wash water will be settled and discharged on site by infiltration. Wheel wash water will not be discharged to the storm water system or the storm water treatment system.
- Application of agricultural chemicals, including fertilizers and pesticides, will be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Manufacturers' recommendations will be followed for application rates and procedures.
- pH-modifying sources will be managed to prevent contamination of runoff and storm water collected on site. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

11.3 Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on site and prevent their release into receiving waters.

If a spill of pollutants threatens storm water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The site superintendent will be notified immediately when a spill, or the threat of a spill, is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping facilities and entering the receiving waters, facility personnel will respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing materials and equipment for spill response and cleanup will be maintained at the site. Each spill kit **may** contain:
 - Oil absorbent pads (one bale)
 - Oil absorbent booms (40 feet)
 - 55-gallon drums (2)
 - 9-mil plastic bags (10)
 - Personal protective equipment including gloves and goggles
- If an oil sheen is observed on surface water (e.g., settling ponds, detention pond, swales), absorbent pads and/or booms will be applied to contain and remove the oil. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- The site superintendent, or his designee, will be responsible for completing the spill reporting form and for reporting the spill to the appropriate state or local agency (see Forms at the end of this section).
- Facility personnel with primary responsibility for spill response and cleanup will receive training from the site superintendent. This training will include identifying the location of spill kits and other spill response equipment and the use of spill response materials.

- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

11.4 Notification

In the event of a spill, make the appropriate notification(s) consistent with the following procedures:

Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion must be reported immediately by telephone to Airport Control Center at 801-575-2401, the National Response Center Hotline at (800) 424-8802, and the Utah Division of Emergency Response and Remediation at 801-538-6170.

- Any oil, hazardous substance, or hazardous waste release which exceeds the reportable quantity must be reported immediately by telephone to Airport Control Center at 801-575-2401, the National Response Center Hotline at (800) 424-8802, and the Utah Division of Emergency Response and Remediation at 801-538-6170.
- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the Airport Control Center at 801-575-2401, the National Response Center Hotline at (800) 424-8802, and the Utah Division of Emergency Response and Remediation at 801-538-6170.
- Any release of a hazardous substance that may be a threat to human health or the environment must be reported to the Airport Control Center at 801-575-2401 and the Utah Division of Emergency Response and Remediation at 801-538-6170 immediately upon discovery.

12 STORM WATER TREATMENT

The following storm water management protocol has been developed to describe the elements involved in performing wet season storm water management at your construction project during winter grading. The overall purpose for providing effective storm water management is to clean sediment contaminated construction water before discharging it into natural vegetation for bio-filtration and/or infiltration.

12.1 Storm Water Collection System

During all phases of construction and grading the contractor will provide storm water collection and conveyance systems to collect and direct sediment contaminated water to temporary sediment traps as needed to prevent offsite discharge of sediment laden storm water. Construction will occur in phases as much as practicable to avoid unnecessarily exposing vegetated areas of the site. Clean storm water, generated from stabilized and undisturbed portions of the site, will be collected and conveyed to stabilized discharge areas whenever necessary to avoid contact with disturbed portions of the site. All conveyance and collection systems will be constructed consistent with State and local BMP requirements.

12.2 Temporary Sediment Traps

During construction, sediment contaminated storm water will be conveyed to temporary sediment traps, as designed by the project engineer and shown on the temporary erosion and sediment control (TESC) plan. The sediment traps will gravity-settle large particles down to silt size particles. Considering subsurface soil types, it is unlikely that gravity settling alone will remove all suspended particles. If settled storm water does not meet state water quality standards, the storm water will be managed by chemical treatment.

An experienced expert in storm water treatment will perform chemical treatment. Many of the chemicals utilized for this type of treatment (polymers) can be environmentally hazardous.

12.3 Monitoring Chemical Treatment System

As with all effective BMP's, the chemical treatment system requires regular monitoring to assure the overall effectiveness of storm water management. The key monitoring requirements of the chemical treatment water management system include:

- **Sediment Trap Monitoring**

All sediment traps should be visually monitored at least daily during the wet season or as needed to monitor the level and quality of water within the sediment traps. The site operator will designate site personal to routinely monitor the level of the sediment trap such that the water level is not allowed to reach levels approaching discharge. The sediment traps will also be monitored weekly or as needed for sediment accumulation, functionality, and for other required maintenance. In the event of abnormal conditions, site personal will immediately report the information to the site superintendent for resolution.

- **Pump and Mechanical System Monitoring**

The pump or pumps that operate the storm water management system require routine monitoring to ensure the continual performance of the system. The contractor will follow all manufactures recommended inspection and maintenance procedures throughout the life of the project. During the wet season, site personal will monitor pump systems for correct operation, adequate power supply, and correct float level control operation. Severe storm events may require more frequent inspections, especially if pumps rely on utility-supplied power. The contractor will have available onsite or within reasonable distance to site 24-hour-a-day available backup equipment including but not limited to a pump and generator. In the event of mechanical equipment failure, the site operator will immediately take all necessary actions to replace any malfunctioning components so as to restore the original capacity of the water management system.

- **Water Quality Monitoring**

Water quality monitoring will be performed to demonstrate that the water management process is working properly, to document the quality of water discharged to the stream, and to document the background water quality of the stream. The effectiveness of the water management system will be monitored on a daily basis, recorded on the Water Management Log form, and reported to regulatory authorities as needed.

12.4 pH Adjustment

The most likely pH upset condition will be high pH resulting from concrete contamination. Acid or dry ice (CO₂) will be required to neutralize the high pH. Begin recirculating the water in the basin to be neutralized while slowly adding acid (dry ice). Acid (dry ice) quantity will be calculated based on a sample test neutralization.

Caution! Hydrochloric and sulfuric acids are powerful acids, which can cause serious, permanent damage to human skin and eyes. See Material Safety Data Sheets in Appendix D. Goggles, gloves, and protective clothing are mandatory when handling acid. An eye wash unit is stationed in the job trailer. Acid must always be stored, moved, and dispensed in the secondary unit containment provided. No more than 5 gallons of acid will be stored on site at any time.

Check pH in the treatment basin frequently after incremental additions of acid or dry ice to ensure the pH is not over-adjusted. Adjust the pH to 7.0 to 7.5. Once the desired pH has been achieved, let the basin settle briefly and check the pH again.

A low pH condition may be treated by adding a 20 percent sodium bicarbonate solution as above. Check the pH after incremental additions of sodium bicarbonate. The sodium bicarbonate quantity may be calculated based on a simple jar test to determine the correct amount for size of the pond.

13 BMP MAINTENANCE

Use this section as-is and don't forget to insert Tables 1 and 2 and the Checklist directly after this section.

All temporary and permanent erosion and sediment control BMP's will be maintained and repaired as needed to assure continued performance of their intended function. All maintenance and repair will be conducted in accordance with BMP's. Recommended BMP maintenance requirements are listed in Tables 1 and 2 included in this section. Following Tables 1 and 2 is a BMP Inspection Checklist for use in routine inspections of the construction site.

All temporary erosion and sediment control BMP's will be removed within 30 days after final site stabilization is achieved or after the temporary BMP's are no longer needed. Trapped sediment will be removed or stabilized on site. Disturbed soil areas resulting from removal of BMP's or vegetation will be permanently stabilized as soon as possible.

14 PROJECT MANAGEMENT

This section should discuss how the SWP3 will be integrated into your project, who will be responsible for implementing and maintaining the plan and how the plan will be communicated to others working on the site. You may use the sections as-is or you may need to add project-specific information in the sections below.

Implementation and management of the environmental aspects of this project under the SWP3 are the responsibilities of the prime contractor. Communication between all parties performing work on the site is essential for proper implementation of the SWP3. The prime contractor, utility installation contractor, and grading contractor should all be familiar with the SWP3 and their responsibilities under the plan. To help delegate these responsibilities the following outline has been provided:

14.1 Phasing of Construction

The project has been planned at this point in two phases to reduce the environmental impact of mass grading. Phase one will result in the development of approximately one half (south half) of the site. During this time the north half will remain with existing vegetative cover. Once the south phase is nearing completion the north phase will begin. From the beginning of construction until the completion of phase two, the storm water treatment system will remain operational to purify storm water impacted by construction activities.

14.2 Seasonal Work

The storm water treatment system has been designed to allow for work on the project during the winter months without impacting the water quality in the drainage basin to the west of the site. While not seasonal, some construction activities may need to be postponed if scheduled during ongoing storm events. Activities such as grading and trenching in areas directly adjacent to the drainage basin during rainstorms could easily result in sediment-contaminated storm water reaching the stream. This work would therefore be performed within a window of dry weather predicted on the basis of weather reports.

14.3 Training

The contractor will provide onsite training to key personnel responsible for compliance with the SWP3. The contractor's superintendent and project manager will be familiarized with the major elements of the plan. Construction workers and others at the site will be given appropriate training information at the conclusion of site safety meetings or on an as-needed basis.

14.4 Pre-construction Conference

One or more pre-construction meetings may be held with an explicit agenda item addressing the SWP3.

14.5 Coordination with Utilities and other Contractors

All contractors providing services on the project which may cause storm water pollution will be given a copy of the SWP3 and appropriate training regarding storm water pollution prevention by the prime contractor.

14.6 Subcontractor Oversight

Subcontractor oversight to ensure compliance with the SWP3 will be provided by the prime contractor's superintendent or project manager.. Informal, on-the-job tailgate training will be the first level of communication followed by onsite observation of training compliance. Non-compliance with SWP3 policies will trigger a more intensive training session to correct the problem(s). Chronic non-compliance with SWP3 policies may require the intervention of local and/or state regulatory personnel.

14.7 Monitoring/Reporting

Water quality conditions at the site will be monitored by a qualified technician and water quality reports submitted to the proper regulatory authorities on a regular basis. Additional reports such as erosion and sediment control inspections will be the responsibility of the prime contractor or a designated consultant. Spill reports will be completed and submitted by the prime contractor on the project.

14.8 SWP3 Update

The SWP3 will be updated as requested by DWQ or the Salt Lake City Department of Airports.

FIGURES

Include Figure 1 here (Site Topographic Map)

Storm Water Pollution Prevention Plan for Construction Activities

Include Figure 2 here (Storm water Site Map)

DRAWINGS

Include here appropriate engineering drawings such as temporary detention basins, tire wash, construction entrance/exit or any other drawings prepared specifically for the project.

Storm Water Pollution Prevention Plan for Construction Activities

APPENDIX A

UPDES STORM WATER PERMIT

[Include a copy of your permit](#)

Name of Organization

APPENDIX B

**STANDARDS AND SPECIFICATIONS
FOR SELECTED BMP'S**

Storm Water Pollution Prevention Plan for Construction Activities

APPENDIX C

MATERIAL SAFETY DATA SHEETS

Name of Organization

Storm Water Pollution Prevention Plan for Construction Activities

Emergency Phone Numbers

Fire, Police, Ambulance		575-2405
Owner:		
General Contractor	Office: Site	
	Mobile #	
Subcontractors		
Sub #1)	Office:	
Sub #2		
Sub #3		
Sub #4		
Airport Contact	Control Center	575-2405
Utah Division of Water Quality		538-6146

Spill Report Form

LOCATION: _____	
_____	Date: _____ Time: _____
Regulatory agencies notified (date, time, person, agency, and how): _____ _____ _____	
Material spilled: _____	
Quantity spilled: _____	
Source: _____	
Cause: _____ _____	
Extent of injuries (if any): _____ _____	
Adverse environmental impact (if any): _____ _____	
Immediate remedial actions taken at time of spill: _____ _____	
Measures taken or planned to prevent recurrence: _____ _____ _____	
Additional comments: _____ _____ _____ _____	
This report prepared by: _____	_____ (Signature)
_____	_____

Table 1

BMP Maintenance and Inspection Schedule
(Source Control BMP's)

Your Company Name

BMP Designation	BMP Name	Recommended Maintenance	Recommended Schedule of Maintenance
C101	Preserving Natural Vegetation	Inspect flagged areas to make sure flagging has not been removed. If tree roots have been exposed or injured, recover and/or seal them.	Daily
C102	Buffer Zones	Inspect the area frequently to make sure flagging remains in place and the area remains undisturbed.	Daily
C103	Plastic or Metal Fence	If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.	Daily
C104	Stake and Wire Fence	If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.	Daily
C105	Stabilized Construction Entrance and Tire Wash	Quarry spalls (or hog fuel) shall be added if the pad is no longer in accordance with the specifications. If the rock (or hog fuel) entrance is not working to keep streets clean, then install wheel wash, sweep streets, or wash streets if wash water can be collected.	Daily
C106	Wheel Wash	Wheel wash water shall not be discharged into a storm drain or the site's storm water collection system. Use closed-loop recirculation, land application, or discharge to sanitary sewer (by permit).	Daily
C107	Const. Road Stabilization	Inspect stabilized areas regularly, especially after large storm events. Add rock (hog fuel), gravel, etc. as needed to maintain a stable surface which won't erode.	Daily
C120	Temporary & Permanent Seeding	Re-seed areas failing to establish 80% cover within one month (during growing season). If re-seeding is ineffective, use sodding or nets/blankets. Eroded areas shall be corrected, re-planted, and irrigated as required.	Inspect to ensure growth weekly
C121	Mulching	Maintain specified thickness of mulch cover. Eroded areas must be corrected and re-mulched. Drainage problems must be corrected.	Weekly and following storms

Storm Water Pollution Prevention Plan for Construction Activities

BMP Designation	BMP Name	Recommended Maintenance	Recommended Schedule of Maintenance
C122	Nets and Blankets	Inspect to ensure good contact with ground and no erosion of soils. Replace damaged material and re-staple where required. Correct erosion problems immediately.	Weekly and following storms
C123	Plastic Covering	Replace torn sheets and repair open seams. Replace deteriorated plastic sheets. Dispose of plastic when no longer needed.	Weekly
C124	Sodding	If sod is unhealthy correct problem. If sod can't be established seed area and use net or blanket to stabilize soils.	Weekly and following storms
C125	Top Soiling	Inspect stockpiles regularly, especially after large storm events. Stabilize areas that have eroded.	Weekly and following storms
C126	Polyacrylamide Application	Reapply PAM to actively worked soils at 48-hr. intervals not to exceed 7 application per month. Reapply PAM to undisturbed soils at 2-month intervals.	Daily
C130	Surface Roughening	Seed roughened surfaces as soon as possible. Re-grade and re-seed any areas beginning to erode.	Weekly and following storms
C131	Gradient Terraces	Maintenance should be performed as needed.	Annually and following large storm events
C140	Dust Control	Re-apply dust control measures as necessary to keep dust to a minimum.	Daily during dry weather

Table 2

BMP Maintenance and Inspection Schedule
(Runoff, Conveyance, and Treatment BMP's)

Your Company Name

BMP Designation	BMP Name	Recommended Maintenance	Recommended Schedule of Maintenance
C200	Interceptor Dike & Swale	Inspect to insure structural integrity. Repair as needed	Weekly and following storms
C201	Grass-Lined Channels	During growth period, inspect grass after rainstorms. Remove accumulated sediments. Inspect outlets to prevent scouring and erosion.	Weekly and following storms
C202	Riprap Channel Lining	Inspect to ensure underlain soils are not eroding. Inspect for slippage on slopes.	Weekly and following storms
C204	Pipe Slope Drains	Check inlets for undercutting and outlets for erosion after rainstorms. Inspect pipe for damage. Check pipe for clogging debris.	Weekly and following storms
C205	Subsurface Drains	Check to ensure drains are not clogged with sediment or plant roots. Prevent heavy truck traffic from crushing piping.	Monthly
C206	Level Spreader	Check to ensure proper functioning after rainstorms. Prevent traffic from crossing the spreader. Repair if damaged.	Weekly and following storms
C207	Check Dams	Remove sediment when one half the sump depth. Check for erosion around edges of dams.	Weekly and following storms
C209	Outlet Protection	Inspect and repair as needed. Add rock as needed. Clean energy dissipator if sediment builds up.	Weekly and following storms
C220	Storm Drain Inlet Protection	Replace clogged filter fabric. Clean sediment from stone filters. Do not wash collected sediments into storm drains – remove to soil stockpile.	Weekly and following storms
C230	Straw Bale Barrier	Inspect daily during rainy periods. Check for undercutting, end runs, and damaged bales. Remove accumulated sediment when one half the barrier height.	Daily during prolonged rainy periods.
C231	Brush Barrier	Inspect daily during rainy periods. Check for undercutting, end runs, and damaged sections. Remove accumulated sediment.	Weekly and following storms

Storm Water Pollution Prevention Plan for Construction Activities

BMP Designation	BMP Name	Recommended Maintenance	Recommended Schedule of Maintenance
C232	Silt Fence	Repair damaged fencing immediately. Intercept concentrated flows and reroute. Remove sediment accumulations at 6-inches. Replace deteriorated fencing material. Properly dispose of used fencing.	Weekly and following storms
C233	Vegetated Strip	Re-seed damaged areas immediately. Install sod to replace eroded vegetation. Reroute concentrated flows through vegetated strip	Weekly and following storms
C240	Sediment Trap	Remove sediment when it reaches a depth of one foot. Repair damage to trap embankments and slopes.	Weekly and following storms
C241	Sediment Pond	Remove sediment when it reaches a depth of one foot. Repair damage to pond embankments and slopes.	Weekly and following storms
C250	Storm water Chemical Treatment	See Monitoring in Section 11	As required

Erosion and Sediment Control Inspection Form Erosion Prevention

Inspector(s): _____ Date: _____

Site Name and Location: _____

Current Weather Conditions: _____ Last 24 Hours: _____

BMP Designation	O.K.	Not O.K.	BMP Condition, Corrective Action, General Notes
Construction Access Trackout? Street Clean?			
Soil Stabilization Signs of Erosion: Gullies? Slope Failures? Rills?			
Slope Protection Plastic Condition? Grass Growing? Hydroseed Condition? Matting?			
Perimeter Control Clearing Limits Marked? Silt Fences? Swales?			
Conveyances Stable Ditches? Check Dams Intact? Sand Bags? Slope Drains?			
TESC Management Revisions Required?			
Water Management Infiltration System? Clean and Dirty Water Separated? Offsite Water Bypassing?			
Outlet Protection Stabilized?			

Erosion and Sediment Control Inspection Form

Sediment Control

BMP Designation	O.K	Not O.K.	BMP Condition, Corrective Action, General Notes
Storm water Detention And Monitoring			
BMP Maintenance			
Inlet Protection			
Dust Control			
Spill Prevention			
Condition of Discharge Water			
Comments: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____			