Stormwater Pollution Prevention Plan (SWPPP)

For Construction Activities At:

TC Gailey Subdivision
2900 W 1400 S
Ogden, UT

SWPPP Prepared For:
Amber Mountain Developing
1243 E 6600 S
Uintah, UT 84405
Trevor Gailey
801-309-5968
tdgailey21@gmail.com

SWPPP Prepared By:
Cearley SWPPP Management
Michelle Cearley
3102 S 885 W
Syracuse, UT 84075
801-589-9806
michelle@cearleyinc.com

SWPPP Preparation Date:

11/18/2022

Estimated Project Start Date: 11/21/2022

Estimated Project Completion Date: 1/31/2023

UTRC60580

This SWPPP is intended to be a living document with tasks, goals, and BMPs added and deleted as new management practices arise, and other management practices are found to be ineffective.

Contents

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SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES

1.1 Operator(s) / Subcontractor(s)

Owner:

Amber Mountain Developing
1243 E 6600 S
Uintah, UT 84405
Trevor Gailey
801-309-5968
tdgailey21@gmail.com

Operator:

Keith Kap & Sons Excavating
Korey Kap
978 E South Weber Drive
S. Weber, UT 84405
(801) 725-2697
korey@kapexcavating.com

Subcontractor(s):

TBD

Emergency 24-Hour Contact:

Trevor Gailey
801-309-5968

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1.2 Stormwater Team

Stormwater Team

Name and/or Position, and Contact	Responsibilities	Completed Training Required by CGP Part 6.2	Read the CGP and Understand the Applicable Requirements
Amber Mountain Developing Trevor Gailey 801-309-5968 tdgailey21@gmail.com	Owner, SWPPP management decisions, including changes, BMP's, and documentation	☒ Yes ☐ No	☒ Yes Date: 11/1/22
Keith Kap & Sons Excavating Korey Kap 801- 725-2697 korey@kapexcavating.com	Operator, SWPPP management decisions, including changes, BMP's, and installation	☒ Yes ☐ No	☒ Yes Date: 5/1/2022
Reeves & Associates 5160 S 1500 W Riverdale, UT 84405 801-621-3100	Civil engineering	☐ Yes ☐ No	☐ Yes Date:
Michelle Cearley Cearley SWPPP Management 801-589-9806 michelle@cearleyinc.com	SWPPP writer, inspector, documentation	☒ Yes ☐ No	☒ Yes Date: 2/1/22

Stormwater Team Members Who Conduct Inspections Pursuant to CGP Part 4

Name and/or Position and Contact	Training(s) Received	Date Training(s) Completed	Non-EPA Training confirmation that it Satisfies the Minimum Elements of CGP Part 6.3.b
Michelle Cearley Cearley SWPPP Management 801-589-9806 michelle@cearleyinc.com	RSI, RSW, RSR, EPA SWPPP Writers Course	2/2019 7/2019 11/2022	☒ Principles and practices of erosion and sediment control and pollution prevention practices at construction sites ☒ Proper installation and maintenance of erosion and sediment controls and pollution prevention practices used at construction sites ☒ Performance of inspections, including the proper completion of required reports and documentation, consistent with the requirements of Part 4

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SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

2.1 Project/Site Information

Project Name and Address

Project/Site Name: TC Gailey Subdivision

Street/Location: 2900 W 1400 S

City: Ogden (Weber County)

State: Utah

ZIP Code: 84404

County or Similar Government Division: Weber County

Project Latitude/Longitude

Latitude: 41.241693 º N (decimal degrees)

Longitude: - 112.04950 º W (decimal degrees)

Latitude/longitude data source: ☒ Map ☐ GPS ☐ Other (please specify): _____

Horizontal Reference Datum: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84

Additional Site Information

Is your site located on Indian country lands, or on a property of religious or cultural significance to an Indian Tribe? ☐ Yes ☒ No

2.2 Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? **Unincorporated Weber County** ☒ Yes ☐ No

Are there any waters of the U.S. within 50 feet of your project's earth disturbances? ☐ Yes ☒ No

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For each point of discharge, provide a point of discharge ID (a unique 3-digit ID, e.g., 001, 002), the name of the first receiving water that receives stormwater directly from the point of discharge and/or from the MS4 that the point of discharge discharges to, and the following receiving water information, if applicable:

All discharges in Wasatch Peak Ranch eventually flow into Weber Lower Tributaries – 3. Water maps in Appendix A

Point of discharge	Receiving water	Is receiving water impaired? (on the CWA 303(d) list)	If yes, list the pollutants that are causing the impairment:	Has TMDL been completed?	Is receiving water designated as Tier 2, 2.5, or 3?
001-007	Weber River - 1	☒ Yes ☐No	Benthic Invertebrate Assessment	☐ Yes ☒No	☐ Yes ☒No

2.3 Nature of the Construction Activities

General Description of Project

TC Gailey subdivision is the development of 6 lots, irrigation basin, and irrigation access easement.

Typical business days and hours for the project: Monday – Friday 7 A.M. to 6 P.M.

Size of Construction Site

Size of Property	8.6 Acres
Total Area Expected to be Disturbed by Construction Activities	8.6 Acres
Maximum Area Expected to be Disturbed at Any One Time, Including On-site and Off-site Construction Support Areas	8.6 Acres

Type of Construction Site *(check all that apply):*

☒ Single-Family Residential ☐ Multi-Family Residential ☐ Commercial ☐ Industrial
☐ Institutional ☐ Highway or Road ☐ Utility ☐ Other

Will you be discharging dewatering water from your site? ☐ Yes ☒ No

Pollutant-Generating Activity	Pollutants or Pollutant Constituents
Excavation, Grading	Sediment Dust
Glue, adhesives	Polymers, epoxies, trash
Sanitary waste	Bacteria, heavy metal, PH, parasites, and viruses
Dumpsters/waste disposal	Trash, debris, fertilizer, sediment
Concrete washout	Heavy metals, PH,
Paving	Oil, PH
Fueling Vehicles	Heavy Metals, MTBE, benzene, ethyl benzene, toluene, xylene, Petroleum distillate, oil & grease, naphthalene
Leaks or broken hoses from equipment	Mineral oil, Coal oil, petroleum distillates, Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)
Cleaning solvents	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates
Stockpiles (if needed)	Sediment, dust
Line Flushing	Chlorine, Sediment

2.4 Sequence and Estimated Dates of Construction Activities

Timing/Dates on phasing is TBD based on permitting, scheduling, and material availability.

Phase I

- Site preparations for SWPPP: Install initial BMP's
- Grub and clear property

Phase II

- Install irrigation pipe in ditch
- Install underground utilities – Wet & Dry

Phase III

- Asphalt
- Final SWPPP stabilization and storm water management

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2.5 Authorized Non-Stormwater Discharges

List of Authorized Non-Stormwater Discharges Present at the Site

Authorized Non-Stormwater Discharge	Will or May Occur at Your Site?
Discharges from emergency fire-fighting activities	☐ Yes ☒ No
Fire hydrant flushings	☒ Yes ☐ No
Landscape irrigation	☐ Yes ☒ No
Water used to wash vehicles and equipment	☐ Yes ☒ No
Water used to control dust	☒ Yes ☐ No
Potable water including uncontaminated water line flushings	☒ Yes ☐ No
External building washdown (soaps/solvents are not used and external surfaces do not contain hazardous substances)	☐ Yes ☒ No
Pavement wash waters	☐ Yes ☒ No
Uncontaminated air conditioning or compressor condensate	☐ Yes ☒ No
Uncontaminated, non-turbid discharges of ground water or spring water	☐ Yes ☒ No
Foundation or footing drains	☐ Yes ☒ No
Uncontaminated construction dewatering water	☐ Yes ☒ No

2.6 Site Maps in Appendix A

- Vicinity Map
- SWPPP Maps
- Receiving Waters Maps

SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

3.1 Endangered Species Protection

Eligibility Criterion

☒ **Criterion C:** Discharges not likely to result in any short- or long-term adverse effects to ESA-listed species and/or designated critical habitat. ESA-listed species and/or designated critical habitat(s) under the jurisdiction of the USFWS and/or NMFS are likely to occur in or near your site's "action area," and you certify to EPA that your site's discharges and discharge-related activities are not likely to result in any short- or long-term adverse effects to ESA-listed threatened or endangered species and/or designated critical habitat. This certification may include consideration of any stormwater controls and/or management practices you will adopt to ensure that your discharges and discharge-related activities are not likely to result in any short- or long-term adverse effects to ESA-listed species and/or designated critical habitat. To certify your eligibility under this criterion, indicate 1) the ESA-listed species and/or designated habitat located in your "action area" using the process outlined in Appendix D of this permit; 2) the distance between the site and the listed species and/or designated critical habitat in the action area (in miles); and 3) a rationale describing specifically how short- or long-term adverse effects to ESA-listed species will be avoided from the discharges and discharge-related activities. (Note: You must include a copy of your site map from your SWPPP showing the upland and in-water extent of your "action area" with your NOI.)

☒ Check to confirm you have provided documentation in your SWPPP as required by CGP Appendix J.

Documentation: United Department of the Interior Fish & Wildlife

3.2 Historic Property Screening Process

Appendix E, Step 1

Do you plan on installing any stormwater controls that require subsurface earth disturbance, including, but not limited to, any of the following stormwater controls at your site?

Check all that apply below, and proceed to Appendix K, Step 2.

☐ Dike
☐ Berm
☐ Catch Basin
☐ Pond
☒ Constructed Site Drainage Feature (e.g., ditch, trench, perimeter drain, swale, etc.)
☐ Culvert
☐ Channel
☐ Other type of ground-disturbing stormwater control:

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Appendix E, Step 2

If you answered yes in Step 1, have prior professional cultural resource surveys or other evaluations determined that historic properties do not exist, or have prior disturbances at the site have precluded the existence of historic properties? ☒ YES ☐ NO

Prior use: Farmland

3.3 Safe Drinking Water Act Underground Injection Control Requirements

Do you plan to install any of the following controls? Check all that apply below.

- ☐ Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- ☐ Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow
- ☐ Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

SECTION 4: EROSION AND SEDIMENT CONTROLS AND DEWATERING PRACTICES

4.1 Natural Buffers or Equivalent Sediment Controls

Buffer Compliance Alternatives

Are there any receiving waters within 50 feet of your project's earth disturbances? ☐ YES ☒ NO

4.2 Controls

Controls will be installed prior to construction, and/or as needed. They will be inspected weekly by **Cearley SWPPP Management**. Maintenance will be done by **Keith Kap & Sons and Amber Mountain Developing**. BMP Instruction and Detail specifications located in Appendix M.

CGP Requirement & Location	Erosion, Sediment, Dewater Controls
Perimeter Controls (GCP 2.2.3)	Silt fence. Additional BMPs as needed
Sediment Track-Out (2.2.4 & 7.2.6.b.iii)	Restricted access, track out pads, clean-up sediments, street sweeping
Stockpiles or Land Clearing Debris Piles Comprised of Sediment or Soil (CGP 2.2.5 & 7.2.6)	Keep stockpile from drainage path or flow line, protect with a berm, water application to suppress dust
Minimize Dust CGP 2.2.6 & 7.2.6)	Water application, restricted access
Minimize Steep Slope Disturbances (CGP 2.2.7 & 7.2.6)	Protect existing vegetation, if possible, keep terracing to a minimum, line with jute mat as soon as feasible
Topsoil (CGP 2.2.8 & 7.2.6))	If feasible, stockpile and reuse
Soil Compaction (CGP 2.2.9 & 7.2.6)	Restrict vehicle access
Storm Drain Inlets (CGP 2.2.10 & 7.2.6.iv)	Combo guard, Wattles, filter fabric wrap or sandbags, direct flow away from inlets
Constructed Site Drainage Feature (CGP 2.2.11 & 7.2.6)	Direct flow to settle where erosion/run off is not caused evaporate, small dams, filter bags
Sediment Basins or Similar Impoundments (CGP Parts 2.2.12 & 7.2.6.b.v	N/A
Chemical Treatment (CGP 2.2.13 & 7.2.6.b.vi)	N/A
Dewatering Practices (CGP 2.4 & 7.2.6)	N/A
Site Stabilization (CGP 2.2.14 & 7.2.6.b.vii)	Surface roughing, asphalt

SECTION 5: POLLUTION PREVENTION CONTROLS

5.1 Potential Sources of Pollution

Construction Site Pollutants

Pollutant-Generating Activity	Pollutants or Pollutant Constituents	Location on Site or Reference Map
Excavation, Grading	Sediment Dust	Entire Site
Portable toilet	Bacteria, heavy metal, PH, parasites, and viruses	Refence SWPPP Map
Dumpsters/waste disposal	Trash, debris, fertilizer, sediment	Refence SWPPP Map
Concrete washout	Heavy metals, PH,	Refence SWPPP Map
Paving	Oil, PH	See Engineered Plans
Fueling Vehicles	Heavy Metals, MTBE, benzene, ethyl benzene, toluene, xylene, Petroleum distillate, oil & grease, naphthalene	As needed onsite
Leaks or broken hoses from equipment	Mineral oil, Coal oil, petroleum distillates, Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	NA
Cleaning solvents	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	No equipment cleaning allowed in project limits
Stockpiles (if needed)	Sediment, dust	See SWPPP Map in Appendix A
Line Flushing	Chlorine, Sediment	Drinking Water Lines
Pipe Work	Polymers, epoxies, trash	See Engineered Plans
Structure construction/ painting/cleaning	Nutrients, PH, trash, debris, other toxic chemicals	Building

5.2 Spill Prevention and Response

Rags and/or absorbent material will be kept on-site for immediate cleanup and remediation. Contaminated soil will not hose down or buried. A landfill or transfer station that is licensed to handle hazardous waste for disposal will be used.

Any discharges in 24 hours equal to or in excess of the reportable quantities listed in 40 CFR 117, 40 CFR 110, and 40 CFR 302 will be reported to the National Response Center and the Division of Water Quality (DWQ) as soon as practical after knowledge of the spill is known to the permittees. The permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and measures taken and/or planned to be taken to the Division of Water Quality (DWQ), 288 North 1460 West, P.O. Box 144870, Salt Lake City, Utah 84114-4870. The Storm Water Pollution Prevention Plan must be modified within14 calendar days of knowledge of the release to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

Agency	Phone Number
National Response Center	(800) 424-8802
Division of Water Quality (DWQ) 24-Hr Reporting	(801) 536-4123
Utah Department of Health (UDOH) 24-Hr Disaster Line	(866) 364-8824

Material	Media Released To	Reportable Quantity
Engine oil, fuel, hydraulic & brake fluid	Land	25 gallons
Paints, solvents, thinners	Land	100 lbs (13 gallons)
Engine oil, fuel, hydraulic & brake fluid	Water	Visible Sheen
Antifreeze, battery acid, gasoline, engine degreasers	Air, Land, Water	100 lbs (13 gallons)
Refrigerant	Air	1 lb

5.3 Specific Pollution Prevention Practices and Details

Controls will be installed prior to construction, and/or as needed. They will be inspected bi-weekly **Cearley SWPPP Management**. Maintenance will be done by **Keith Kap & Sons and Amber Mountain Developing**. BMP Instruction and Detail Specifications located in Appendix M.

CGP Requirement & Location	Pollution Prevention Controls
Equipment and vehicle fueling (CGP 2.3.1 & 7.2.6)	Spill kits, drip pans
Equipment and vehicle washing (CGP 2.3.2 & 7.2.6)	Will not be done on site
Building Materials, Building Products (CGP 2.3.3 & 7.2.6) Construction and Domestic Waste (CGP 2.3.3e)	Dumpsters, material staging areas
Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials (CGP 2.3.3b & 2.3.5)	N/A
Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals (CGP 2.3.3c)	Spill controls, if needed store 50 ft away drainage features & receiving waters and in proper containers
Hazardous or Toxic Waste (include paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) (CGP 2.3.3d)	Store in sealed containers, separate from construction waste, spill kit, clean up spills immediately, use manufacturers method of disposal
Sanitary Waste (CGP 2.3.3f)	Portable toilet
Washing of stucco, paint, concrete, form release oils, curing compounds, etc. (CGP 2.3.4 & 7.2.6)	Use leak-proof, adequately sized containers, do dispose of on ground
Concrete (CGP 2.3.4 & 7.2.6)	Properly construction washout pit, remove hardened concrete
Application of Fertilizers (CGP 2.3.5 & 7.2.6.x)	If fertilizer is needed for landscape manufacture instructions will be followed

SECTION 6: INSPECTION, MAINTENANCE, AND CORRECTIVE ACTION

6.1 Inspections, Personnel and Procedures

Site Inspection Schedule

Standard Frequency:
☐ Every 7 calendar days ☒ Every 14 calendar days and within 24 hours of either: ▪ A storm event that produces 0.25 inches or more of rain within a 24-hour period (including when there are multiple, smaller storms that alone produce less than 0.25 inches but together produce 0.25 inches or more in 24 hours), or ▪ A storm event that produces 0.25 inches or more of rain within a 24-hour period on the first day of a storm and continues to produce 0.25 inches or more of rain on subsequent days (you conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the last day of the storm that produces 0.25 inches or more of rain (i.e., only two inspections would be required for such a storm event)), or ▪ A discharge caused by snowmelt from a storm event that produces 3.25 inches or more of snow within a 24-hour period.

6.2 Record Keeping

All Records are to be kept for 3 years from final stabilization date.

	Inspections	Appendix D
-	Corrective Action Reports	Appendix E
-	Log of Changes	Appendix F
-	Delegation of Authority/Certifications/Agreements	Appendix G
-	Grading and Stabilization Activities Log	Appendix H
-	Training Logs	Appendix I

6.3 Corrective Action

Personnel Responsible for Corrective Actions:

Keith Kap & Sons Excavating
Trevor Gailey

6.4 Delegation of Authority

Duly Authorized Representative(s) or Position(s):

Michelle Cearley
Cearley SWPPP Management
3102 S 885 W
Syracuse, UT 84075
801-589-9806
michelle@cearleyinc.com

Delegation of Authority Form

This form is for use by permittees under the MPDES "General Permit for Storm Water Discharges Associated with Construction Activity". The owner/operator information and "site name" provided below must be the same as the information provided on the NOI and SWPPP Form. This form can be used for an additional and/or new SWPPP Administrator person/position not identified on the NOI Form.

Delegation of Authority

I, Trevor Gailey (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the MPDES "General Permit for Storm Water Discharges Associated with Construction Activity" (General Permit), at the TC Gailey Subdivision construction site. The designee is authorized to sign any reports, Storm Water Pollution Prevention Plan, and all other documents required by the General Permit.

Name of Person or Position: Michelle Cearley -SWPPP Managment

Owner/Operator: Michelle Cearley

Mailing Address: 3102 S 885 W

City, State, Zip Code: Syracuse, Ut 84075

Phone Number: 801-589-9806

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Part 4.15. of the General Permit, and that the designee above meets the definition of a "duly authorized representative" as set forth in Part 4.15.

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 gather and evaluate 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 submitted 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.

Name: Trevor Gailey

Title: Member manager

Signature: Trevor Gailey
Signer ID: QOIOJ6QJJ9...

Date: 11/08/2022

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6.5 Certification

Certification

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 submitted 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.

Name:	Trevor Gailey	Title:	Member manager
Signature:	Trevor Gailey Signer ID: QOIOJ6OJJ9...	Date:	11/08/2022
Company	Amber mountain developing LLC	Job	TC Gailey Subdivision

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SWPPP APPENDICES

Appendix A – Site Maps

Appendix B – 2022 CGP (https://www.epa.gov/npdes/2022-construction-general-permit-cgp)

Appendix C – NOI, EPA Authorization Email, Fugitive Dust Plan

Appendix D – Site Inspection Form

Appendix E – Corrective Action Log

Appendix F – SWPPP Amendment Log

Appendix G – Subcontractor Certifications/Agreements/Delegation of Authorities

Appendix H – Grading and Stabilization Activities Log

Appendix I – Training Documentation

Appendix J – Endangered Species Documentation

Appendix K – Historic Preservation Documentation

Appendix L – Rainfall Gauge Recording

Appendix M – Misc. Information & Documentation

Appendix N – BMP Instruction and Detail Specifications

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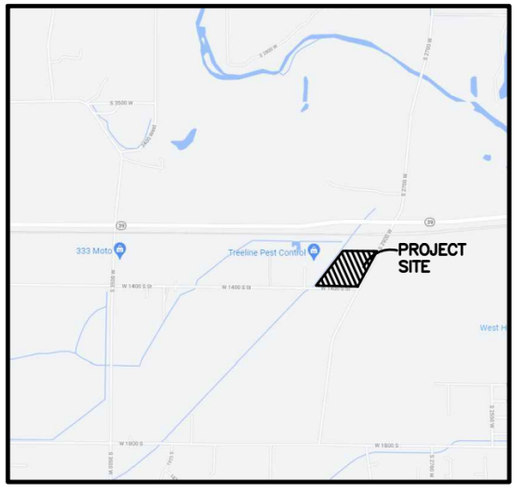
Appendix A – Site Maps



Vicinity Map
NOT TO SCALE

Beneficial Uses and Water Quality Assessment Map

utah automated geographic reference center

11/10/2022

Unit ID: UT16020102-001_00
AU_Type: River/Stream
Assessment Unit Name: Weber River-1
Unit Description: Weber River and tributaries from Great Salt Lake to Slaterville Diversion
Beneficial Uses: Use Class 2B = Infrequent Primary Contact Recreation (e.g. wading, fishing); Use Class 3C = Nongame Fishery/Aquatic Life; Use Class 3D = Waterfowl, Shore Birds and Associated Aquatic Life
RIVER_MILE: 108.6744
Watershed Management Unit: Weber River
2016 Assessment: 5: TMDL Required (Impaired 303d list)
Beneficial Use: Cause of Impairment: Use Class 3C (Non-game Fishery/Aquatic Life): Benthic Invertebrate Assessment; Use Class 3D (Waterfowl, Shorebirds, and Associated Aquatic Life): Benthic Invertebrate Assessment
TMDL Required: 303d Cause of Impairment: Benthic Invertebrate Assessment
TMDL Approved: Cause of Impairment: none
Aquatic Habitat Impairment: none
PROTECTED: Use Class 2B = Infrequent Primary Contact Recreation (e.g. wading, fishing), Use Class 3C = Nongame Fishery/Aquatic Life, Use Class 3D = Waterfowl, Shore Birds and Associated Aquatic Life
BLU_Ribbon: Weber River (from about 2200 S and 6000 West to Slaterville Diversion)
Anti-Degradation Category: Category 3 = water quality degradation may be allowed for non-Category 1 and 2 waters pursuant to antidegradation review
TMDL Information: null
MAPLABEL: UT16020102-001_00: Weber River-1
New_AUID: null
Perimeter: null
Area_m2: 130873584.21272293

Appendix B –2022 CGP

The 2022 CGP is available at: https://www.epa.gov/npdes/2022-construction-general-permit-cgp

Appendix C –NOI, EPA Authorization Email, Fugitive Dust Plan

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY
195 North 1950 West, P.O Box 144870, Salt Lake City, UT 84114-4870 (801)536-4300

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under the Construction General Permit (CGP) UPDES General Permit No. UTRC00000

NOI

Permit Information

Master Permit Number: UTRC00000

UPDES ID: UTRC06058

State/Territory to which your project/site is discharging: UT

Is your project/site located on federally recognized Indian Country Lands? No

Which type of form would you like to submit? Notice of Intent (NOI)

Have stormwater discharges from your project/site been covered previously under an UPDES permit? No

Has a Stormwater Pollution Prevention Plan (SWPPP) been prepared in advance of filling this NOI, as required? Yes

Owner/Operator Information

Owner Information

Owner: Amber Mountain Developing

Status of Owner: Private

Owner Mailing Address:

Address Line 1: 1243 E 6600 S

Address Line 2:

City: Uintah

ZIP/Postal Code: 84405

State: UT

Owner Point of Contact Information

First Name Middle Initial Last Name: Trevor Gailey

Title: Owner

Phone: 801-309-5968

Ext.:

Email: tdgailey21@gmail.com

Operator Information

Is the Operator Information the same as the Owner Information? No

Operator: Keith Kap & Sons Excavating

Operator Mailing Address:

Address Line 1: 978 E South Weber Drive

Address Line 2:

City: South Weber

ZIP/Postal Code: 84405

State: UT

Operator Point of Contact Information

First Name Middle Initial Last Name: Korey Kap

Title: Owner

Phone: 801-725-2697

Ext.:

Email: korey@kapexcavating.com

NOI Preparer Information

☐ **This NOI is being prepared by someone other than the certifier.**

Project/Site Information

Project/Site Name: TC Gailey Subdivision

Project Number:

Project/Site Address

Address Line 1: 2900 W 1400 SW

Address Line 2:

City: Ogden

ZIP/Postal Code: 84405

State: UT

County or Similar Division: Weber

Have you submitted a Fugitive Dust Control Plan to UT Division of Air Quality? Yes

Latitude/Longitude for the Project/Site

Coordinate System: Decimal Degrees

Latitude/Longitude: 41.241693°N, 112.304915°W

Estimated Project Start Date: 11/21/2022 **Estimated Project End Date:** 01/31/2023 **Total Area of Plot (in Acres):** 8.6

Estimated Area to be Disturbed (in Acres): 8.06

Proposed Best Management Practices

☑ **Silt Fence/Straw Wattle/Perimeter Controls**

☑ **Structural Controls (Berms, Ditches, etc.)**

Proposed Good Housekeeping Practices

☑ **Sanitary/Portable Toilet**

☑ **Washout Areas**

☑ **Garbage/Waste Disposal**

☑ **Non-Storm Water**

☑ **Track Out Controls**

☑ **Spill Control Measures**

Site Construction Types

☑ **Residential**

Site Activity Information

Municipal Separate Storm Sewer System (MS4) Operator Name: Weber County (Unincorporated Areas)

Receiving Water Body: Weber River 1

➔ This is known

What is the estimated distance to the nearest water body? 50 **Unit:** Feet

Is the receiving water designated as impaired? Yes

Will any part of the project area be located within 50 feet of any Water of the State? No

Does this project site have any other UPDES permits? No

Subdivision Information

Is this project involved in the development of a subdivision? Yes

Lot Number	Status
1	Active
2	Active
3	Active
4	Active
5	Active
6	Active

Certification Information

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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than 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. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other lawful action.

Certified By: Michelle Cearley

Certifier Title: Owner

Certifier Email: michelle@cearleyinc.com

Certified On: 11/10/2022 5:16 PM ET

Michelle Cearley

From: no-reply@epacdx.net
Sent: Thursday, November 10, 2022 3:18 PM
Subject: Utah Construction General Permit (CGP) Authorization for - TC Gailey Subdivision, UPDES Number: UTRC06058

STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER QUALITY 195 North 1950 West, P.O. Box 144870 Salt Lake City, Utah 84114-4870 (801)-536-4300		
UTAH DEPARTMENT of ENVIRONMENTAL QUALITY WATER QUALITY	**Authorization to Discharge under the Construction General Permit (CGP) for Storm Water Discharges Associated with Construction Activity**	**CGP**

The Utah Division of Water Quality (DWQ) is in receipt of the Notice of Intent (NOI) requesting coverage for TC Gailey Subdivision, 2900 W 1400 SW, Ogden, UT 84405 under the Construction General Permit for Storm Water Discharges (CGP). As of 11/10/2022, this facility is authorized to discharge storm water, provided that all discharges are in compliance with the requirements of the current CGP. This includes development and implementation of a storm water pollution prevention plan, conducting self-inspections, training, visual assessments of discharges, and potentially analytical monitoring. Please keep a copy of this Authorization to Discharge on site with your NOI.

An annual fee is required each calendar year to maintain coverage. If the fee is paid and the facility complies with the permit terms, then the coverage will remain effective until 11/09/2023. At that time the NOI will need to be re-certified and a new Authorization to Discharge will be issued.

Your electronic signature on the NOI form certifies that you have read, understood, and are implementing all of the applicable requirements. An important aspect of this certification requires that you have correctly determined whether you are eligible for coverage under this permit. This authorization does not represent a determination by DWQ regarding the validity of the information provided on the NOI. A copy of the NOI submission can be downloaded at this link: https://npdes-ereporting.epa.gov/net-cgp/api/public/v1/form/1603065/attachment/zip.

Site Details

UPDES Permit Number: UTRC06058

Project/Site Name: TC Gailey Subdivision

Project/Site Address: 2900 W 1400 SW, Ogden, UT 84405

Effective Date: 11/10/2022

Expiration Date: 11/09/2023

DEQ DUST
A SERVICE FROM UTAH.GOV

Review Plan

Applicant Information

EDIT

Applicant Type	Property Owner
Name	Amber Mountain Developing
Mailing Address	1243 E 6600 S
City	Uintah
State	Utah
Zip	84075
Phone	801-309-5968
Email	michelle@cearleyinc.com

Project Information

EDIT

Project Name	TC Gailey Subdivision
Address	2900 W 1400 S
City	Ogden
State	Utah
Zip	84405
County	Weber
Acreage	8.6

Point of Contact

EDIT

Name	Korey Kap
Company	Keith Kap & Sons
Address	978 E South Weber Drive
City	South Weber
State	Utah
Zip	84405
Phone	801-725-2697

BMP 01 Selections EDIT

01-01. Water backfill material to maintain moisture or to form crust.	01-01. Water backfill material to maintain moisture or to form crust.
01-02. Apply and maintain a chemical stabilizer to backfill material to form crust.	false
01-03. Cover (natural or synthetic) or enclose backfill material when not actively handling.	false
01-04. Empty loader bucket slowly and minimize drop height from loader bucket.	01-04. Empty loader bucket slowly and minimize drop height from loader bucket.
01-05. Dedicate water truck or large hose to backfilling equipment and apply water as needed.	01-05. Dedicate water truck or large hose to backfilling equipment and apply water as needed.
01-06. Mix moist soil with dry soil until the optimum moisture is reached.	false
01-07. Apply and mix water into the backfill material until optimum moisture is reached.	false

01-08. Apply and mix water and chemical solution into the backfill material until optimum moisture is reached.	false
01-09. Apply water and maintain disturbed soils in a stable condition.	01-09. Apply water and maintain disturbed soils in a stable condition.
01-10. Apply and maintain a chemical stabilizer on disturbed soils to form a crust.	false
01-11. Mix moist soil with dry soil until the optimum moisture is reached.	false
01-12. Dedicate water truck or large hose to equipment and apply water as needed.	01-12. Dedicate water truck or large hose to equipment and apply water as needed.
01-13. Not applicable	false

BMP 06 Selections EDIT

06-01. Pre-water and maintain surface soils in a stabilized condition.	06-01. Pre-water and maintain surface soils in a stabilized condition.
06-02. Apply and maintain a chemical stabilizer to surface soils.	false
06-03. Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut.	06-03. Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut. *
06-04. Apply water to depth of cut prior to subsequent cuts.	06-04. Apply water to depth of cut prior to subsequent cuts. *
06-05. Water disturbed soils to maintain moisture.	06-05. Water disturbed soils to maintain moisture.

06-06. Apply and maintain a chemical stabilizer on disturbed soils to form crust following fill and compaction.	false
06-07. Apply cover (natural or synthetic).	false

BMP 09 Selections EDIT

09-01. Limit disturbance of soils with the use of fencing, barriers, barricades, and/or wind barriers.	false
09-02. Limit vehicle mileage and reduce speed.	09-02. Limit vehicle mileage and reduce speed.
09-03. Apply water to stabilize disturbed soils. Soil moisture must be maintained such that soils can be worked without generating fugitive dust.	09-03. Apply water to stabilize disturbed soils. Soil moisture must be maintained such that soils can be worked without generating fugitive dust.
09-04. Apply and maintain a chemical stabilizer.	false
09-05. Use wind breaks.	false
09-06. Apply cover (natural or synthetic).	false

BMP 11 Selections EDIT

11-01. Apply and maintain water/chemical suppressant to operational areas and haul routes.	11-01. Apply and maintain water/chemical suppressant to operational areas and haul routes.
11-02. Limit vehicle mileage and speed.	11-02. Limit vehicle mileage and speed.
11-03. Use tarps or other suitable enclosures on haul trucks.	11-03. Use tarps or other suitable enclosures on haul trucks.

11-04. Apply water prior to transport	11-04. Apply water prior to transport
11-05. Clean wheels.	false
11-06. Sweep or water haul road.	11-06. Sweep or water haul road.

BMP 12 Selections

EDIT

12-01. Apply and maintain water on disturbed soils.	12-01. Apply and maintain water on disturbed soils.
12-02. Apply and maintain chemical stabilizer on disturbed soils.	false
12-03. Stabilize disturbed soils with vegetation or hydroseeding.	false
12-04. Apply synthetic cover to disturbed soils.	false
12-05. There are no soils adjacent to paving activities.	false

BMP 13 Selections

EDIT

13-01. Use water control to dust.	13-01. Use water control to dust.
13-02. Use a vacuum to collect dust.	false

BMP 18 Selections

EDIT

18-01. Clean trackout at the end of the work shift from paved surfaces to maintain dust control	false

18-02. Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day.	18-02. Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day.
18-03. Install gravel pad(s), clean, well-graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.	18-03. Install gravel pad(s), clean, well-graded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.
18-04. Install wheel shakers. Clean wheel shakers on a regular basis to maintain effectiveness.	false
18-05. Install wheel washers. Maintain wheel washers on a regular basis to maintain effectiveness.	false
18-06. Motorized vehicles will only operate on paved surfaces.	false
18-07. Install cattle guard before paved road entrance.	false
18-08. Clearly establish and enforce traffic patterns to route traffic over selected trackout control device(s).	false
18-09. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.	18-09. Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.

BMP 19 Selections

EDIT

19-01. Limit vehicle mileage and speeds.	19-01. Limit vehicle mileage and speeds.
19-02. Apply and maintain water on surface soils.	19-02. Apply and maintain water on surface soils.
19-03. Apply and maintain chemical stabilizers on surface soils.	false
19-04. Apply and maintain gravel on surface soils.	false
19-05. Supplement chemical stabilizers, water or aggregate applications as necessary.	false
19-06. Apply recycled asphalt (RAP) to surface soils.	false

BMP 20 Selections

EDIT

20-01. Pre-water surface.	20-01. Pre-water surface. *
20-02. Pre-water and maintain surface soils in a stabilized condition.	20-02. Pre-water and maintain surface soils in a stabilized condition.
20-03. Apply and maintain a chemical stabilizer to surface soils.	false
20-04. Limit mileage and speed.	20-04. Limit mileage and speed.
20-05. Apply and maintain water on excavated soil.	20-05. Apply and maintain water on excavated soil.
20-06. Apply and maintain chemical stabilizer on excavated soil.	false

BMP 21 Selections

EDIT

21-01. Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.	21-01. Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.
21-02. Apply and maintain a chemical stabilizer on surface soils where loaders, support equipment and vehicles will operate.	false
21-03. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.	21-03. Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Print this page for your records or save it as a PDF as specified by your browser or operating system.

By submitting this plan I agree to the following terms:

A. I am authorized, on behalf of the individual or company listed in Section 1, as Applicant, to apply for a Fugitive Dust Control Plan and to commit to all of the terms and conditions of the requested plan.

B. Construction activities will be limited to lands that the applicant either owns or is authorized to use for construction activities.

C. The applicant accepts responsibility for assuring that all contractors, subcontractors, and all other persons on the construction site covered by this plan, comply with the terms and conditions of the Fugitive Dust Control Plan.

D. I understand that any false material statement, representation or certification made in this application may invalidate the plan or cause me to be subject to enforcement action pursuant to Utah Code Ann. 19-2-115. E. Failure to comply with fugitive dust rules may result in compliance action and penalties up to $10,000 per violation/day.

✓ My plan is ready to be submitted. *****

Appendix D – Site Inspection Forms

Appendix E – Corrective Action Log

Appendix F – SWPPP Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	
		INSERT DATE	

Appendix G – Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the practices described in the SWPPP.

This certification is hereby signed in reference to the above-named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the EPA's Construction General Permit (CGP), at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, State, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix G of EPA's CGP, and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix G.

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 submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than 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.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Appendix H – Grading and Stabilization Activities Log

Date Grading Activity Initiated	Description of Grading Activity	Description of Stabilization Measure and Location	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE
INSERT DATE			INSERT DATE ☐ Temporary ☐ Permanent	INSERT DATE

Appendix I –Training Documentation

Employee Name	Organization	Date

Appendix J – Endangered Species Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331
https://fws.gov/office/utah-ecological-services

In Reply Refer To:
Project Code: 2023-0013851
Project Name: TC Gailey Subdivision

November 08, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
(801) 975-3330

Project Summary

Project Code: 2023-0013851
Project Name: TC Gailey Subdivision
Project Type: Stormwater Discharge with NPDES Permit
Project Description: 6 lot single family subdivision
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.242338849999996,-112.04982449842191,14z

Counties: Weber County, Utah

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2159	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American White Pelican *pelecanus erythrorhynchos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6886	Breeds Apr 1 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Franklin's Gull *Leucophaeus pipixcan* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Sage Thrasher *Oreoscoptes montanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

▪ probability of presence ▪ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of

certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency: Cearley SWPPP Management
Name: Michelle Cearley
Address: 3102 S 885 W
City: Syracuse
State: UT
Zip: 84075
Email michelle@cearleyinc.com
Phone: 8015899806

Appendix K – Historic Properties Documentation

Appendix L – Rainfall Gauge Recording

Use the table below to record the rainfall gauge readings at the beginning and end of each workday. An example table follows.

Month/Year			Month/Year			Month/Year		
Day	Start	End time	Day	Start	End time	Day	Start time	End time
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
9			9			9		
10			10			10		
11			11			11		
12			12			12		
13			13			13		
14			14			14		
15			15			15		
16			16			16		
17			17			17		
18			18			18		
19			19			19		
20			20			20		
21			21			21		
22			22			22		
23			23			23		
24			24			24		
25			25			25		
26			26			26		
27			27			27		
28			28			28		
29			29			29		
30			30			30		
31			31			31		

Example Rainfall Gauge Recording

April 2022			May 2022			June 2022		
Day	7:00 am	4:400 pm	Day	7:00 am	4:00 pm	Day	7:00 am	4:00 pm
1	--	--	1	0.2	0	1	0	0.4
2	--	--	2	0	0	2	0	0
3	0	0	3	0.1	0.3	3	--	--
4	0	0.3	4	0	0	4	--	--
5	0	0	5	0	0	5	0	0

In this example (for only partial months), 0.25-inch rainfall inspections would have been conducted on April 4 and June 1.

Appendix L – Misc. Information & Documentation

U.S. Fish and Wildlife Service
National Wetlands Inventory

Tc Gailey

November 9, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Powers Property Landscape Irrigation Calculations Monthly Water Allowance (gallons) = ETO x 1.0 x 0.62 x Area												
207,684	Landscape Area (Square Feet)											
Month	Jan	Feb	March	April	May	June	July(Peak)	August	Sept	Oct	Nov	Dec
ETO	0.0	0.0	0.0	3.4	4.6	5.4	6.2	5.6	3.7	2.3	0.0	0
Gallons Monthly	0.0	0.0	0.0	432,647	591,026	695,325	799,624	721,078	479,002	296,157	0.0	0
Gallons Weekly	0.0	0.0	0.0	108,162	147,757	173,831	199,906	180,269	119,750	74,039	0.0	0
Gallons Daily	0.0	0.0	0.0	14,422	19,701	22,430	25,794	23,261	15,967	9,872	0.0	0
Gallons Anually	4,014,858											

Lot Numbe sq. ft.

1	58,904	without pond
2	63,539	wihout pond
3	43,562	
4	43,562	
5	43,562	
6	43,562	
	296,691	Square Feet
	70%	Percent Estimated Landscape Area
Total	207,684	Irrigated Landscape Area

STAGE STORAGE TABLE						
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	CONIC TOTAL VOL. (cu. ft.)
4,247.10	0.00	N/A	N/A	0.00	N/A	0.00
4,248.00	4,448.92	0.90	1999.79	1999.79	1334.47	1334.47
4,249.00	14,891.12	1.00	9670.02	11669.81	9159.80	10494.27
4,250.00	26,000.57	1.00	20445.84	32115.65	20189.50	30683.77
4,250.60	30,112.48	0.60	16833.91	48949.57	16818.83	47502.60
4,251.00	31,834.03	0.40	12389.30	61338.87	12387.71	59890.31
4,251.60	311.79	0.60	9643.75	70982.62	7059.26	66949.57

Construction Notes:

1. ALL CONSTRUCTION IS TO CONFORM TO THE STANDARD DRAWINGS AND SPECIFICATIONS OF TAYLOR WEST WEBER WATER DISTRICT.

CULINARY WATER

W LAT – 1" POLY PIPE, 1" METER
FIRE HYD. – 6" PVC DR–18 C–900
W/12 – 12" C–900 PVC

STORM DRAIN

SD/15 – 15" RCP CLASS III STORM DRAIN

SECONDARY WATER

SW/3 – 3" SCH80 OR HDPE PER ASTM D–2241 (PURPLE PIPE)
SW/2 – 2" SCH80 OR HDPE PER ASTM D–2241 (PURPLE PIPE)

IRRIGATION

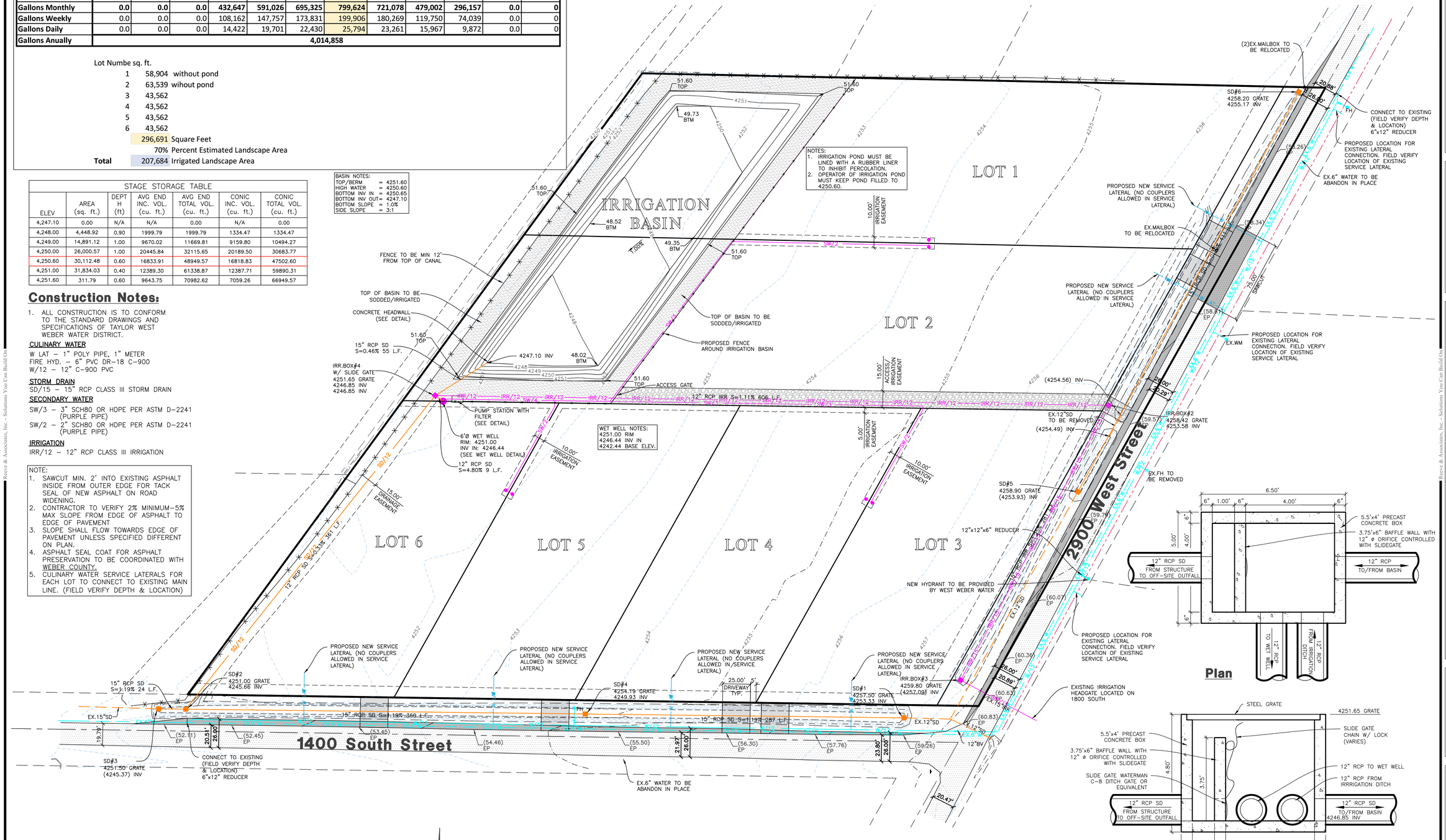
IRR/12 – 12" RCP CLASS III IRRIGATION

NOTE:
1. SAWCUT MIN. 2' INTO EXISTING ASPHALT INSIDE FROM OUTER EDGE FOR TACK SEAL OF NEW ASPHALT ON ROAD WIDENING.
2. CONTRACTOR TO VERIFY 2% MINIMUM–5% MAX SLOPE FROM EDGE OF ASPHALT TO EDGE OF PAVEMENT
3. SLOPE SHALL FLOW TOWARDS EDGE OF PAVEMENT UNLESS SPECIFIED DIFFERENT ON PLAN.
4. ASPHALT SEAL COAT FOR ASPHALT PRESERVATION TO BE COORDINATED WITH WEBER COUNTY.
5. CULINARY WATER SERVICE LATERALS FOR EACH LOT TO CONNECT TO EXISTING MAIN LINE. (FIELD VERIFY DEPTH & LOCATION)

BASIN NOTES:
TOP/BERM = 4251.60
HIGH WATER = 4250.60
BOTTOM INV IN = 4250.65
BOTTOM INV OUT = 4247.10
BOTTOM SLOPE = 1.0%
SIDE SLOPE = 3:1

NOTES:
1. IRRIGATION POND MUST BE LINED WITH A RUBBER LINER TO INHIBIT PERCOLATION.
2. OPERATOR OF IRRIGATION POND MUST KEEP POND FILLED TO 4250.60.

WET WELL NOTES:
4251.00 RIM
4246.44 INV IN
4242.44 BASE ELEV.



Plan

Section

irr.Box#4 Detail

SCALE: NONE

811 Know what's below. Call before you dig.

Notice:
THESE PLANS WERE CREATED UTILIZING COLORS FOR UTILITIES & OTHER INFRASTRUCTURE. IF PRINTED IN, OR COPIED TO BLACK & WHITE, SOME LINE WORK MAY NOT SHOW UP PROPERLY.

40 0 40 80 120
Scale: 1" = 40'

Reeve & Associates, Inc.
5160 SOUTH 1500 WEST, RIVERDALE, UTAH 84405
TEL: (801) 621-3100 www.reeve-assoc.com
LAND PLANNERS • CIVIL ENGINEERS • LAND SURVEYORS
TRAFFIC ENGINEERS • STRUCTURAL ENGINEERS • LANDSCAPE ARCHITECTS

REVISIONS

DATE	DESCRIPTION
2021.12.06	NF Added 2" Meter
2022.01.18	RB Added Pump Det.
2022.04.01	NF Taylor West Weber
2022.04.14	NF Utility Location
2022.05.03	NF Relocated Irrigation
2022.05.03	NF Weber County Comm
2022.07.20	NF Revised Irrigation

TC Gailey Subdivision

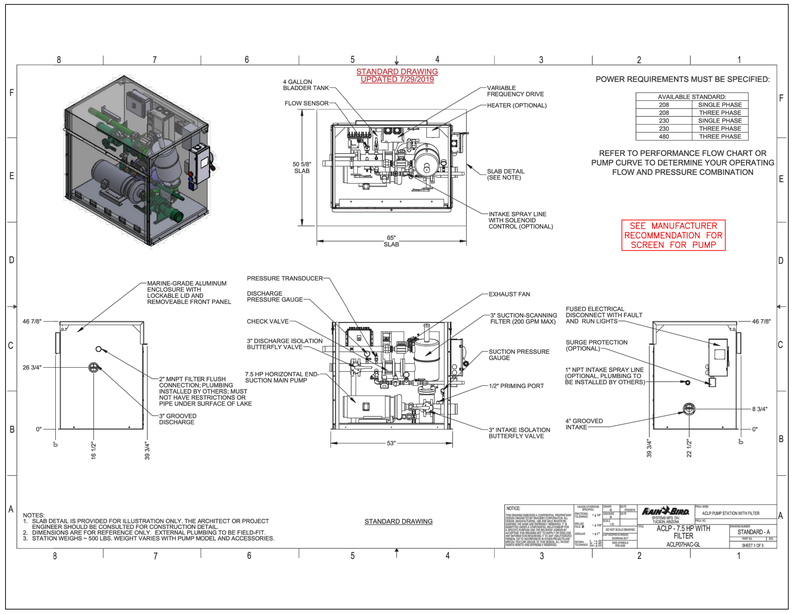
WEBER COUNTY, UTAH

Grading & Utility Plan

REGISTERED PROFESSIONAL ENGINEER
8338480
JEREMY A. DRAPER
07/20/2022
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: N. FICKLIN
Begin Date: NOVEMBER, 2021
Name: TC GAILEY SUBDIVISION
Number: 7713–01

3
8 Total Sheets



POWER REQUIREMENTS MUST BE SPECIFIED:

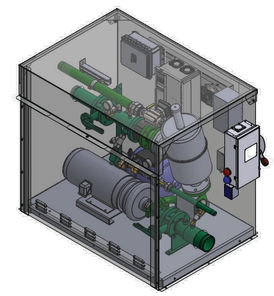
AVAILABLE STANDARD:	
208	SINGLE PHASE
208	THREE PHASE
230	SINGLE PHASE
230	THREE PHASE
480	THREE PHASE

REFER TO PERFORMANCE FLOW CHART OR PUMP CURVE TO DETERMINE YOUR OPERATING FLOW AND PRESSURE COMBINATION

SEE MANUFACTURER RECOMMENDATION FOR SCREEN FOR PUMP

NOTES:
1. SLAB DETAIL IS PROVIDED FOR ILLUSTRATION ONLY. THE ARCHITECT OR PROJECT ENGINEER SHOULD BE CONSULTED FOR CONSTRUCTION DETAIL.
2. DIMENSIONS ARE FOR REFERENCE ONLY. EXTERNAL PLUMBING TO BE FIELD-FIT.
3. STATION WEIGHS ~ 500 LBS. WEIGHT VARIES WITH PUMP MODEL AND ACCESSORIES.

STANDARD DRAWING



1. CLOSE-COUPLED, HORIZONTAL END-SUCTION PUMP WITH BRONZE IMPELLER AND TYPE 21 BUNA-N MECHANICAL SEAL FOR LONG PUMP LIFE.
2. NEMA-STANDARD FRAME, PREMIUM EFFICIENCY MOTOR WITH TOTALLY-ENCLOSED, FAN-COOLED CASE FOR SUPERIOR ENVIRONMENTAL PROTECTION.
3. ENERGY SAVING VARIABLE FREQUENCY DRIVE FEATURING INNOVATIVE RAIN BIRD PROGRAMMING, INCLUDING THE ABILITY TO CONTROL PUMP OPERATION VIA PRESSURE, FLOW, OR RELAY START INCLUDED STANDARD.
4. 0-250 PSI STAINLESS STEEL PRESSURE TRANSDUCER REGULATES PRESSURE AT A USER-DEFINED SETPOINT WHILE IRRIGATING. 2 1/2" LIQUID GLYCERIN-FILLED SUCTION AND DISCHARGE PRESSURE GAUGES ARE STANDARD.
5. INCLUDES JUNCTION BOX WITH AUTO-OFF-MANUAL SWITCH AND 24 VAC PUMP START RELAY STANDARD; 12 OR 6 VDC PUMP START RELAY OPTIONS ARE AVAILABLE.
6. FUSED ELECTRICAL DISCONNECT INCLUDES EXTERNAL RUN AND FAULT INDICATOR LIGHTS AND DISCONNECT HANDLE FOR ISOLATING POWER TO THE STATION.
7. STATION IS BUILT USING ROBUST SCHEDULE 40 PIPING WITH HIGHLY DURABLE POLYESTER POWDER-COATING INSIDE AND OUT, AND GROOVED CONNECTIONS FOR EASY MAINTENANCE AND SERVICEABILITY.
8. LUGGED BUTTERFLY INTAKE AND DISCHARGE ISOLATION VALVES STANDARD.
9. PUMP STATION IS CONTAINED IN A MARINE-GRADE ALUMINUM DECK AND ENCLOSURE, WITH VENTILATION FAN, LOCKABLE HINGED LID, AND REMOVABLE FRONT PANEL FOR EASE OF MAINTENANCE.

ISOMETRIC VIEW

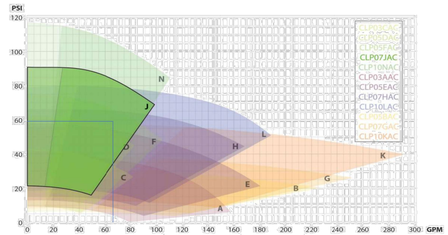
Pump Sizing Calculations

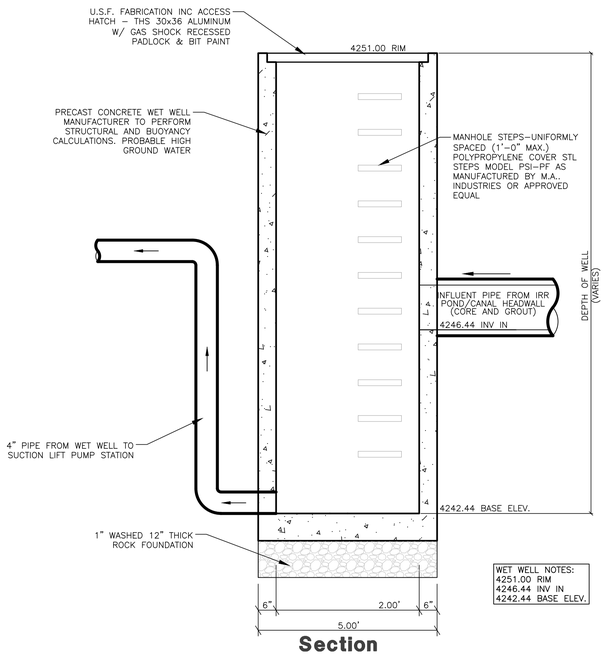
TC Gailey
7713-01 4/13/2022 JFL

The calculations are as follows:

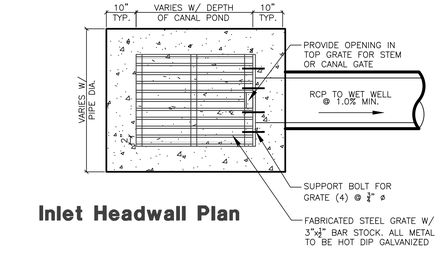
# OF LOTS	6		
ZONES PER LOT	1.5		
FLOW PER ZONE	33	gpm	
GOAL PRESSURE	50	psi =	115.5 ft of pressure head
TOTAL LENGTH	980.01	ft	
ROUGHNESS COEFFICIENT	150		
REQUIRED FLOW	66	gpm	(3 Lots running 1 zone each)
PROVIDED FLOW	**66.00**	**gpm**	
INSIDE HYDRAULIC DIAMETER	3	in	
HEAD LOSS PER 100 FT OF PIPE	0.2083(100/c)^1.852q^1.852/dh^4.8655		
	1.10	ft	
	10.77	ft of head loss	
WET WELL OUTLET EL.	4246.77	ft	
HIGH POINT EL.	4251.21	ft	
	4.44	ft of elevation head	
FILTER HEAD LOSS	5	ft	(Estimated)
Total Dynamic Head	**135.71**	**ft =**	**58.7 psi**
Velocity:	**3.0**	**ft/s**	

Rain Bird ACLP - 7.5 HP Pump Station

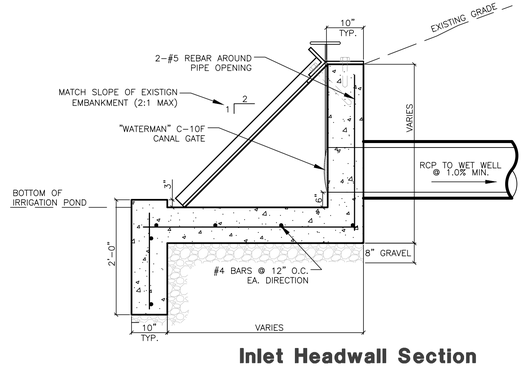




Section



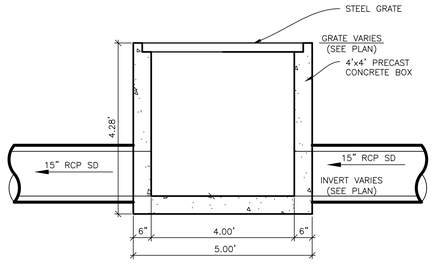
Inlet Headwall Plan



Inlet Headwall Section

Wet Well Details

SCALE: NONE



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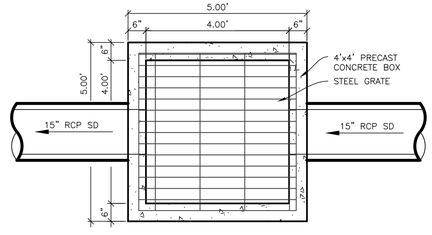

Plan

4'x4' Typical Storm Drain Detail

SCALE: NONE

Know what's below. Call before you dig.

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TEL: (801) 621-3100 www.reeve-assoc.com
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TRAFFIC ENGINEERS • STRUCTURAL ENGINEERS • LANDSCAPE ARCHITECTS

REVISIONS

DATE		DESCRIPTION
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2022.05.03	NF	Weber County Comm
2022.07.20	NF	Revised Irrigation

TC Gailey Subdivision

WEBER COUNTY, UTAH

Details

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
07/20/2022
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: N. FICKLIN
Begin Date: NOVEMBER, 2021
Name: TC GAILEY SUBDIVISION
Number: 7713-01

6
8 Total Sheets

Certified

under the direction of

The Utah Chapter of the American Public Works Association

and the

Utah Storm Water Committee

in coordination with the

State of Utah Department of Environmental Quality, Division of Water Quality

Michelle Cearley

has passed the competency examination, and met all further requirements,
to qualify as a

Registered Storm Water Inspector

M. Scott Bird, USWAC Chair

Feb 21, 2023

Expires

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Michelle Cearley

has passed the competency examination, and met all further requirements,
to qualify as a

Registered SWPPP Writer

M. Scott Bird, USWAC Chair

Jul 21, 2023

Expires

Appendix M – BMP Instruction & Detail Specs

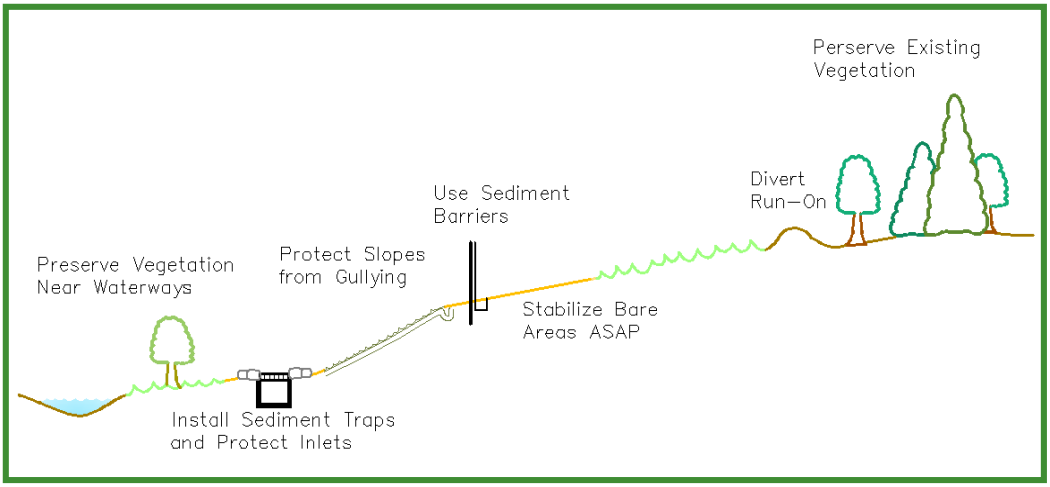
INTRODUCTION

Construction sites should be managed to minimize the pollution that can leave the site with storm water. Taking appropriate measures to reduce erosion, remove sediment, and manage construction materials and equipment will minimize storm water pollution.

Reducing soil erosion is a crucial aspect of storm water pollution prevention for construction sites. Reducing erosion is easier and less expensive than attempting to remove sediment from the storm water.

Contributions to an *increase* in erosion are:

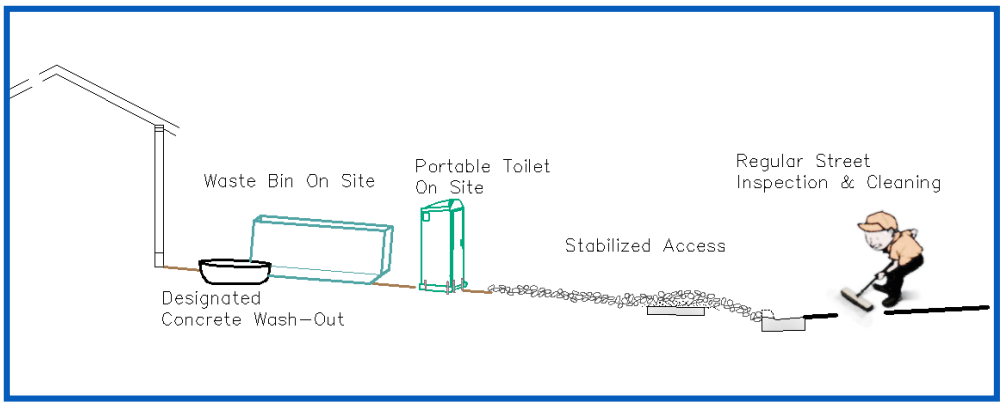
- Removing vegetation
- Exposing sub-soil to weathering
- Exposing sub-soil to vehicle traffic
- Re-shaping the land
- Allowing gullies to form and grow
- Longer/Steeper slopes



Steps must be taken to *minimize* these factors of erosion during and after construction.

Removing the sediment that does get into the storm water is also important to protect the storm drain system and waterways.

Managing construction material and equipment for pollution is important for any construction site, including building construction sites. There must be means for safe disposal of all types of waste. The tracking and washing of soil into the street must be prevented. Downstream storm water inlets should also be protected.



Regular inspection and proper maintenance of the site will help ensure the effectiveness of the BMPs in minimizing storm water pollution.

This manual includes Best Management Practices (BMPs) that are useful for reducing pollutants leaving construction sites, particularly those that may be discharged into the storm water systems. Implementing these measures is important because the water from the storm drain systems drains directly into the streams, usually untreated, then through the wetlands before entering the Great Salt Lake. Construction sites can be a significant source of pollution to the streams and wetlands, which can damage them and be detrimental to their role in our environment.

Not all possible BMPs are available from this menu. If you would like to use a BMP that is not included here, propose it to your local jurisdiction.

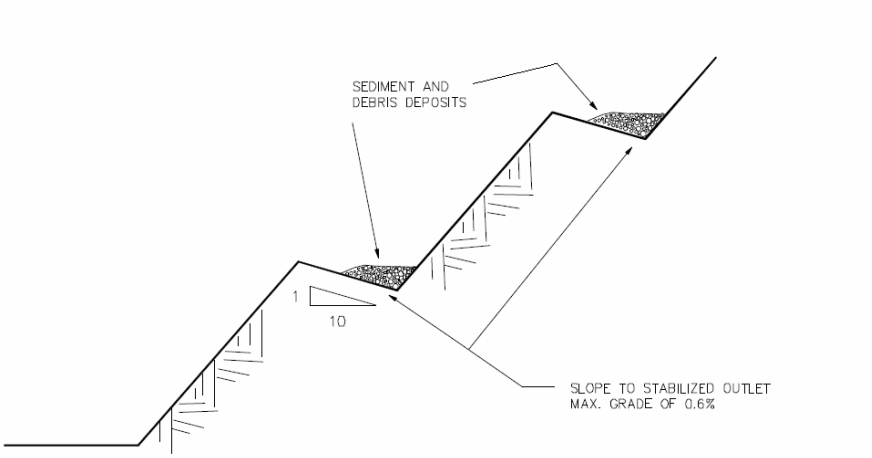
CONSTRUCTION

Best Management Practices

INDEX

		Waste and Material Management	Vehicle and Equipment Management	Stabilization	Runoff Diversion	Velocity Reduction	Sediment Removal
BE	Benching				✓		
BRF	Brush or Rock Filter						✓
BRRC	Building Repair, Remodeling, and Construction	✓					
CD	Check Dams				✓		
CESA	Contaminated or Erodible Surface Area			✓			
CM	Chemical Mulch			✓			
CP	Compaction			✓			
CR	Construction Road Stabilization			✓			
CST	Curb Sedimentation Trap						✓
CWM	Concrete Waste Management	✓					
DC	Dust Controls			✓			
DD	Diversion Dikes				✓		
DI	Drainage Isolation				✓		
EBB	Earth Berm Barrier	✓					
ECB	Erosion Control Blankets			✓			
EVWA	Equipment and Vehicle Washdown Area		✓				
FR	Fiber Rolls						✓
FS	Filter Strips			✓			
GM	Geotextiles and Mats			✓			
HM	Hydromulching			✓			
HWM	Hazardous Waste Management	✓					
IP-E	Inlet Protection - Excavated						✓
IP-GB	Inlet Protection - Gravel Bags						✓
IP-SB	Inlet Protection - Silt Bags						✓
IP-SF	Inlet Protection - Silt Fence or Straw Bale						✓
MS	Material Storage	✓					
MU	Mulching			✓			
OP	Outlet Protection					✓	
PEV	Preservation of Existing Vegetation			✓			
PT	Portable Toilet	✓					
SB	Sediment Basin						✓
SBB	Sand Bag Barrier						✓
SCE	Stabilized Construction Entrance			✓			
SCU	Spill Clean-Up	✓					
SD	Slope Drain				✓		
SF	Silt Fence						✓
SP	Seeding and Planting			✓			
SR	Surface Roughening					✓	
SS	Street Sweeping						✓
ST	Sediment Trap						✓
STB	Straw Bale Barrier						✓
TDS	Temporary Drains or Swales				✓		
TPS	Temporary and Permanent Seeding			✓			
TSC	Temporary Stream Crossing				✓		
VEC	Vehicle and Equipment Cleaning		✓				
VEF	Vehicle and Equipment Fueling		✓				
WD	Waste Disposal	✓					

BMP: Benching BE



DESCRIPTION:

Slope construction with benches spaced at regular intervals perpendicular to the slope which intercept and collect sheet flow and direct it to a stable outfall point.

APPLICATION:

- Unstabilized cut and fill slopes
- Large stockpiles
- Existing unstable slopes

INSTALLATION / APPLICATION CRITERIA:

- Benches should be formed as slope is constructed and graded to the outlet point
- Stabilized outlet with sediment controls should be in place prior to slope construction

LIMITATIONS:

- Construction slope design must accommodate benching
- Not appropriate for sandy or rocky soil
- Only effective if suitable outlet provided

MAINTENANCE:

- Inspect after major storm events and at least biannually; repair damaged areas
- Remove debris blocking water flow
- Inspect outlet, repair/replace sediment controls and remove sediment build up

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☒	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

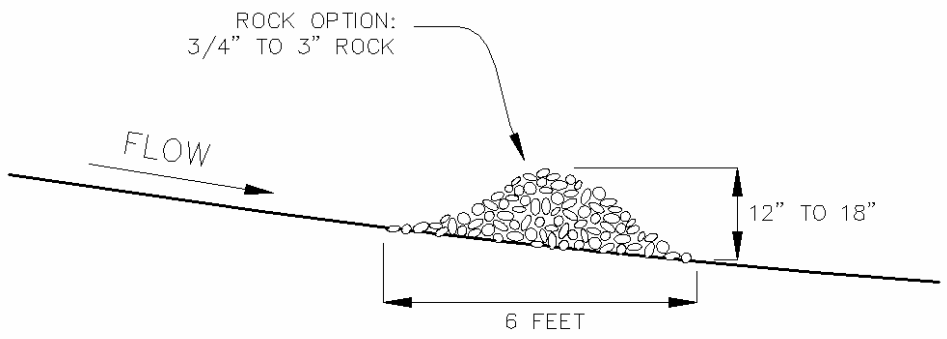
IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

1500 East 650 North
Fruit Heights, UT 84037

BMP: Brush or Rock Filter — BRF



DESCRIPTION:

A rock filter is made of rock 3/4" - 3" in diameter and placed along a level contour. A brush filter is composed of brush (usually obtained during the site clearing) wrapped in filter cloth and anchored to the toe of the slope. If properly anchored brush or rock filters may be used for sediment trapping and velocity reduction.

APPLICATION:

- As check dams across mildly sloped construction roads
- Below the ote od slopes
- Along the site perimeter
- In areas where sheet flow occurs
- Around temporary spoil areas
- At sediment traps or culvert/pipe outlets

INSTALLATION / APPLICATION CRITERIA:

- For rock filter, use larger rock and place in a staked, woven wire sheathing if placed where concentrated flows occur
- Install along a level contour
- Leave area behind berm where runoff can pond and sediment can settle
- Drainage areas should not exceed 5 acres

LIMITATIONS:

- Rock berms may be difficult to remove
- Removal problems limit their usefulness in landscaped areas
- Runoff will pond upstream of the filter, possibly causing flooding if sufficient space does not exist

MAINTENANCE:

- Inspect after each rainfall and at a minimum of once every two weeks
- If berm is damaged, reshape and replace lost/dislodged rock
- Remove sediment when depth reaches 1/3 of berm height or 1 ft

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

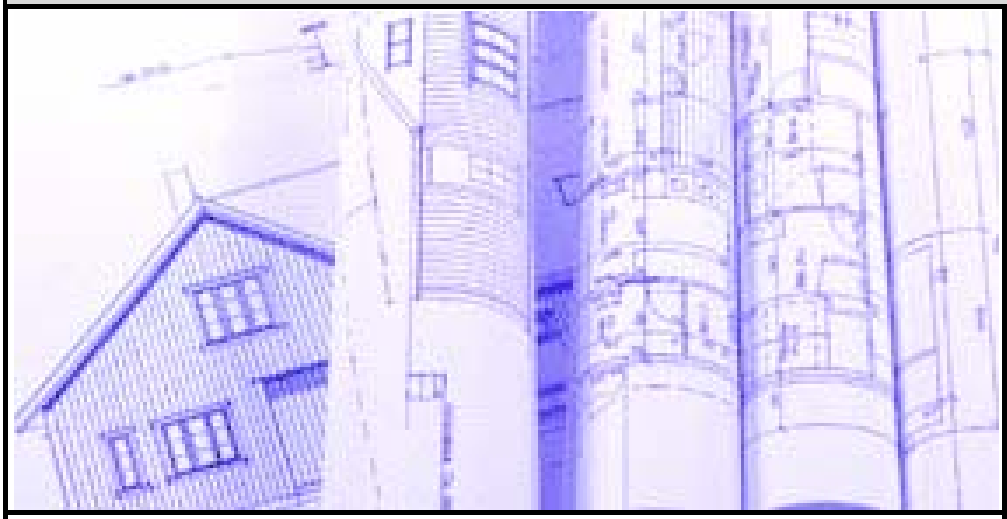
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Building Repair, Remodeling, and Construction BRRC



DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from building repair, remodeling and construction by using soil erosion controls, enclosing or covering building material storage areas, using good housekeeping practices, using safer alternative products, and training employees.

APPLICATION:

- Use soil erosion control techniques if bare ground is temporarily exposed
- Use permanent soil erosion control techniques if the remodeling clears buildings from an area that are not to be replaced

INSTALLATION / APPLICATION CRITERIA:

- Enclose painting operations consistent with local air quality regulations and OSHA
- Properly store materials that are normally used in repair and remodeling such as paints and solvents
- Properly store and dispose waste materials generated from the activity
- Maintain good housekeeping practices while work is underway

LIMITATIONS:

- This BMP is for minor construction only
- Hazardous waste that cannot be re-used or recycled must be disposed of by a licensed hazardous waste hauler
- Safer alternative products may not be available, suitable, or effective in every case
- Be certain that actions to help storm water quality are consistent with OSHA and air quality regulations

MAINTENANCE:

None

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☒	☐	☐	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

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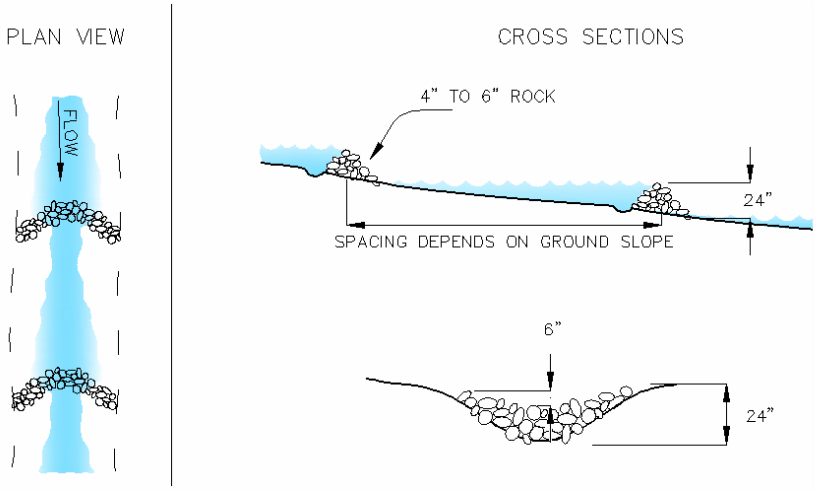
BMP: Check Dams CD



DESCRIPTION:

Small, temporary dams constructed across a drainage ditch to reduce velocity of concentrated storm water flows thereby reducing the erosion of the ditch.

APPLICATION:

- Temporary drainage paths
- Permanent drainage ways not yet stabilized
- Existing drainage paths receiving increased flows due to construction

INSTALLATION / APPLICATION CRITERIA:

- Prepare location of dam by removing any debris and rough grading any irregularities in channel bottom
- Place rocks by hand or with appropriate machinery; do not dump
- Space dams to make the base of the upstream dam the same elevation as the top of the next lower dam
- Construct dam with center lower to create a weir effect
- Construct 50% side slopes on dams

LIMITATIONS:

- Maximum recommended drainage area is 10 acres
- Maximum recommended height is 24"
- Do not use in running stream

MAINTENANCE:

- Inspect dams daily during prolonged rainfall after each major rain event and at a minimum of once every two weeks
- Remove any large debris and repair any damage to dam, channel or sideslopes
- Remove accumulated sediment when it reaches one half the height of the dam

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

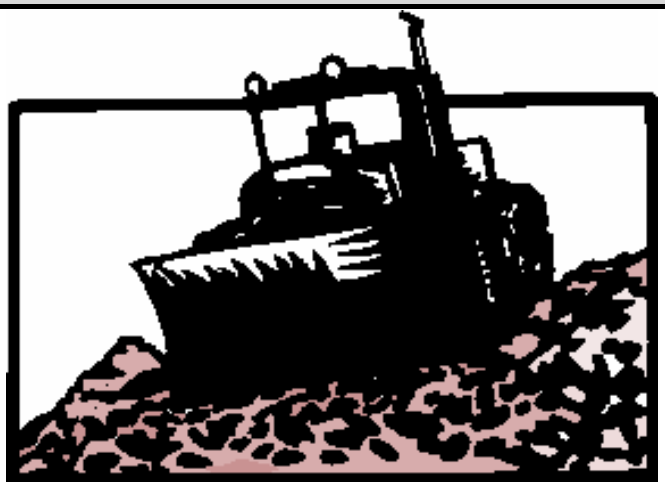
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Contaminated or Erodible Surface Areas — CESA



DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from contaminated or erodible surface areas by leaving as much vegetation on-site as possible, minimizing soil exposure time, stabilizing exposed soils, and preventing storm water runon and runoff.

APPLICATION:

This BMP addresses soils which are not so contaminated as to exceed criteria but the soil is eroding and carrrying pollutants off in the storm water.

INSTALLATION / APPLICATION CRITERIA:

Contaminated or erodible surface areas can be controlled by:
- Preservation of natural vegetation, revegitation, chemical stabilization, removal of contaminated soils or geosynthetics.

LIMITATIONS:

Disadvantages of preserving natural vegetation or re-vegetating include:
- Requires substantial planning to preserve and maintain the existing vegetation.
- May not be cost-effective with high land costs.
- Lack of rainfall and/or poor soils may limit the success of re-vegetated areas.

Disadvantages of chemical stabilization include:
- Creation of impervious surfaces.
- May cause harmful effects on water quality.
- Is usually more expensive than vegetative cover.

MAINTENANCE:

Maintenance should be minimal, except possibly if irrigation of vegetation is necessary.

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

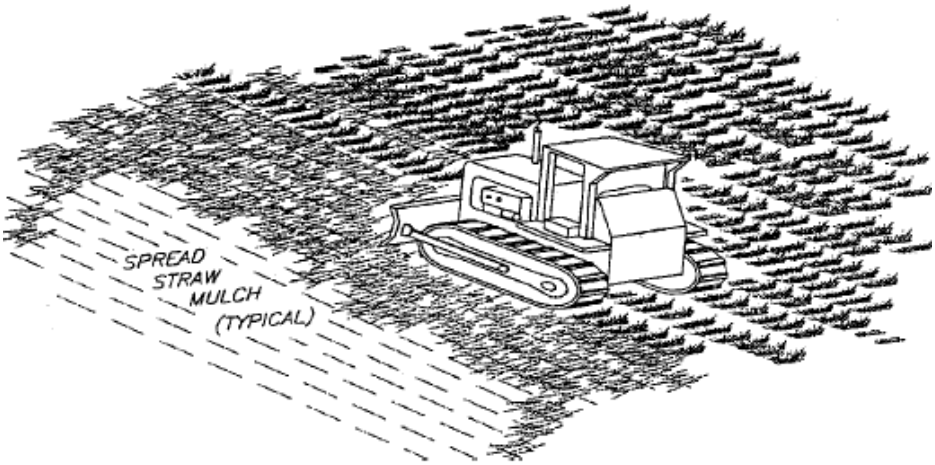
H	M	L	
☒	☐	☐	Sediment
☒	☐	☐	Nutrients
☒	☐	☐	Heavy Metals
☒	☐	☐	Toxic Materials
☒	☐	☐	Oil & Grease
☒	☐	☐	Floatable Materials
☒	☐	☐	Bacteria & Viruses
☒	☐	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Chemical Mulch CM



DESCRIPTION:

Applying materials such as vinyl, asphalt, plastics, or rubber on an unprotected slope to temporarily stabilize the slope.

APPLICATION:

- As a tacking agent to aid the stabilization of mulches (where matting is not used)
- As a short-term alternative in areas where temporary seeding practices cannot be used because of seasonal condition or climate
- On steep and rocky slopes where neither mechanical methods or mulches and protective netting can be effectively applied

INSTALLATION / APPLICATION CRITERIA:

- The application rates and procedures recommended by the manufacturer of a chemical stabilization product should be followed to prevent the products from forming ponds and from creating large areas where moisture cannot get through.
- For permanent application, chemical mulches (when used with seed and mulch) should be applied over wood fiber or straw mulch

LIMITATIONS:

- Chemical mulches can create impervious surfaces and impact water quality if not properly applied
- Some products may not be suitable for use near live streams

MAINTENANCE:

- Inspect at regular intervals and after each runoff-producing storm event or at a minimum of once every two weeks
- Replace chemical mulch as needed to ensure adequate level of coverage

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

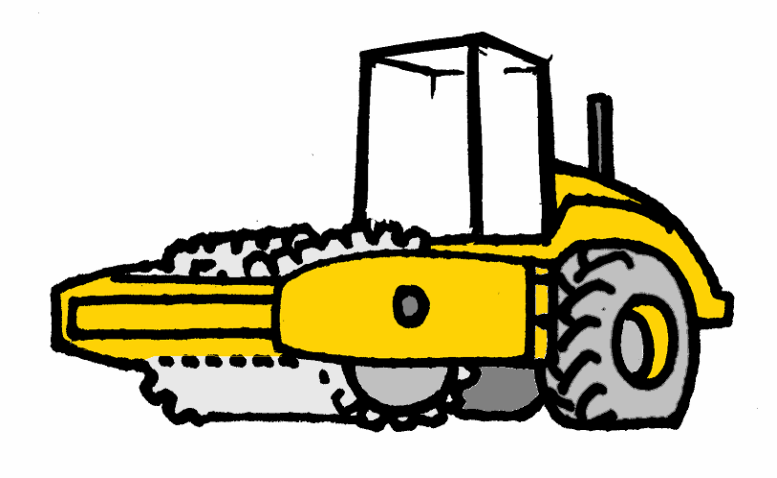
H	M	L	
☒	☐	☐	Sediment
☐	☒	☐	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Compaction CP



DESCRIPTION:

Use of rolling, tamping, or vibration to stabilize fill materials and control erosion by increasing the soil density. Increasing the density of soil improves soil strength, reduces long-term soil settlement, and provides resistance to erosion.

APPLICATIONS:

- Stabilize fill material placed around various structures.
- Improve soil in place as foundation support for roads, parking lots, and buildings.

INSTALLATION / APPLICATION CRITERIA:

- Make sure soil moisture content is at optimum levels.
- Use proper compaction equipment.
- Install sediment control and storm water management devices below compacted areas and runon interceptor devices above these areas. Drainage from compacted areas must be carefully planned to prodtect adjacent uncompacted soils.
- The surface of compacted areas should be scarified and seeded or mulched and seeded to increase the effectiveness of compaction.

LIMITATIONS:

- Compaction tends to increase runoff.
- Over-compaction will hamper revegitation efforts.

MAINTENANCE:

No maintenance required.

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

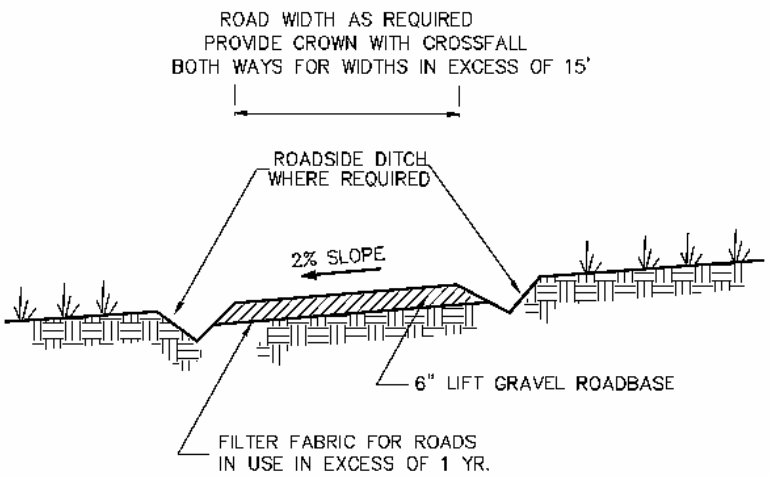
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☐	☒	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Construction Road Stabilization CR



DESCRIPTION:

Temporary stabilization of on-site roadway by placement of gravel roadbase.

APPLICATION:

- On-site roadways used daily by constructioin traffic (may not apply to gravelly type soils)
- Parking or staging areas susceptible to erosion due to traffic use

INSTALLATION / APPLICATION CRITERIA:

- Grade temporary access road with 2% cross fall, for two-way width provide crown
- Provide roadside ditch and outlet controls where required
- Place 6 inches of 2-inch to 4-inch crushed rock on driving area

LIMITATIONS:

- May require removal of gravel roadbase at completion of activities if final cover is not impervious
- May require controls for surface storm water runoff

MAINTENANCE:

- Inspect after major rainfall events and at a minimum of once every two weeks
- Place additional gravel as needed and repair any damaged areas
- Maintain any roadside drainage controls

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

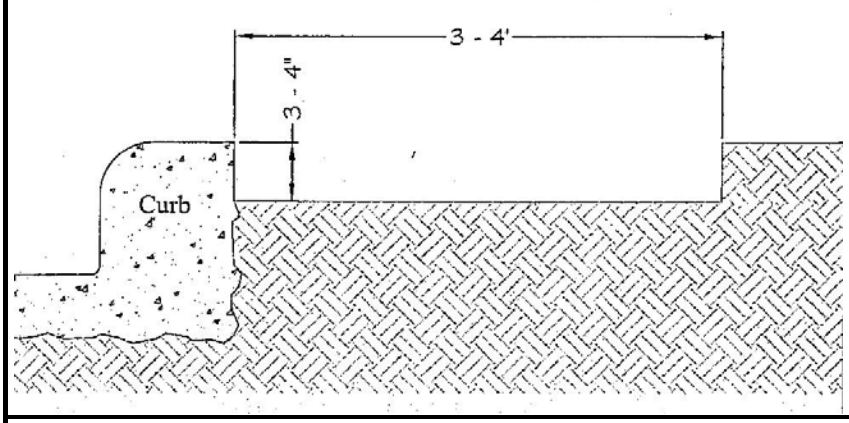
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Curb Sedimentation Trap — CST



DESCRIPTION:

A temporary sediment trap formed by excavation behind the curb.

APPLICATION:

- Interception of runoff containing sediment from the lot during construction
- Retain sediment on the lot during construction

INSTALLATION / APPLICATION CRITERIA:

- Excavate soil behind the curb to a depth of 3-4 inches
- Extend excavation 3-4 feet behind the curb to form sediment trap

LIMITATIONS:

No limitations

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of once every two weeks
- Remove accumulated sediment as it reaches 2/3 height of available storage
- May require additonal excavation if dirt from construction fills in the trap

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

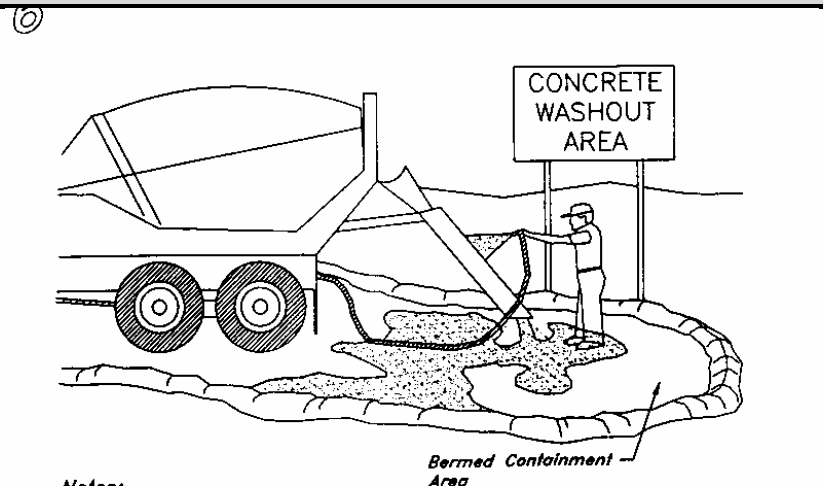
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☒	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☒	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Concrete Waste Management — CWM



DESCRIPTION:

Prevent or reduce the discharge of polllutants to storm water from concrete waste by conducting washout off-site, performing on-site washout ina designated area, and training employees and subcontractors.

APPLICATION:

This technique is applicable to all types of sites

INSTALLATION / APPLICATION CRITERIA:

- Store dry materials under cover, away from drainage areas
- Minimize excess mixing of fresh concrete, mortar or cement on site
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams
- Do not allow excess concrete to be dumped on-site, except in designated areas
- When washing concrete to remove fine particles and expose the aggregate, avoid creating runoff by draining the water within a bermed or level area (6" tall X 6' wide)
- Train employees and subcontractors in proper concrete waste management

LIMITATIONS:

- Off-site washout or concrete wastes may not always be possible

MAINTENANCE:

- Inspect subcontractors to ensure that concrete wastes are being properly managed
- If using a temporary pit, dispose of hardened concrete on a regular basis

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☒	☐	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

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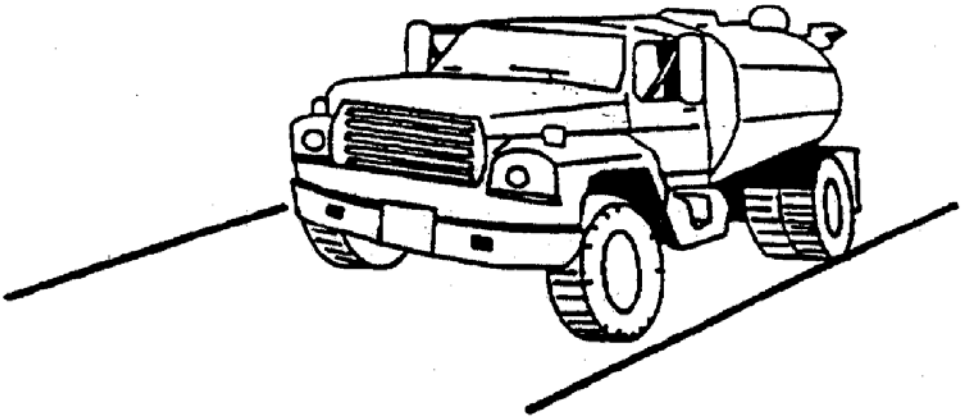
BMP: Dust Controls DC



DESCRIPTION:

Dust control measures are used to stabilize soil from wind erosion, and reduce dust by construction activities.

APPLICATION:

Dust control is useful in any process area, loading and unloading area, material handling agreas, and transfer areas where dust is generated. Street sweepin gis limited to areas that are paved.

INSTALLATION / APPLICATION CRITERIA:

- Mechanical dust collection systems are designed according to the size of dust particles and the amount of air to be processed. Manufacturers' recommendations should be followed for installation (as well as the design of the equipment.
- Two kinds of street sweepers are common: brush and vacuum. Vacuum sweepers are more efficient and work best when the area is dry.
- Mechanical equipment should be operated according to the manufacturers' recommendations and should be inspected regularly.

LIMITATIONS:

- More elaborate equipment may be impossible to maintain by plant personnel
- Is labor and equipment intensive and may not be effective for all pollutants (street sweepers)

MAINTENANCE:

If water sprayers are used, dust-contaminated waters should be collected and taken for treatment. Areas will probabley need to be resprayed to keep dust from spreading.

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

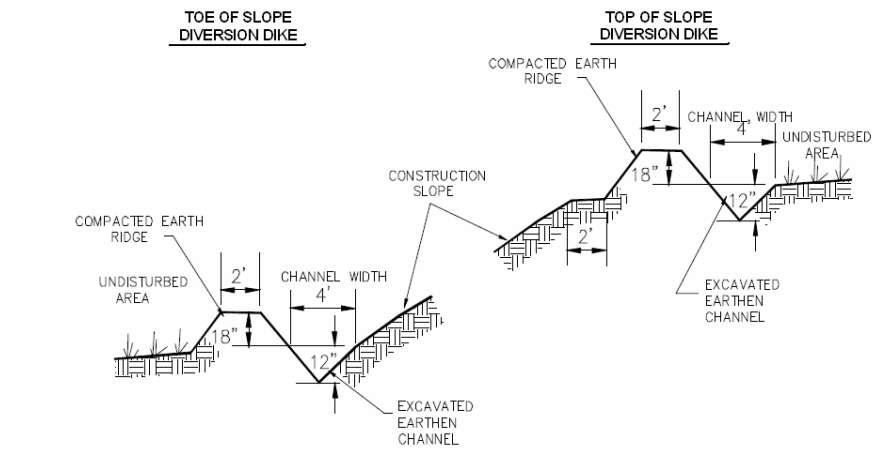
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Diversion Dike DD



DESCRIPTION:

A temporary sediment barrier and storm runoff conveyance consisting of an excavation channel and compacted earth ridge.

APPLICATION:

- Construct along top of construction slope to intercept upgradient runoff and convey around construction site
- Construct along toe of construction to divert sediment laden runoff
- Construct along midpoint of construction slope to intercept runoff and channel to controlled discharge point
- Construct around base of soil stockpiles to capture sediment
- Construct around perimeter of disturbed areas to capture sediment

INSTALLATION / APPLICATION CRITERIA:

- Clear and grub area for dike construction
- Excavate channel and place soil on downgradient side
- Shape and machine compact excavated soil to form ridge
- Place erosion protection (riprap, mulch) at outlet
- Stabilize channel and ridge ad required with mulch, gravel, or vegetative cover

LIMITATIONS:

- Recommended maximum drainage area of 5 acres
- Recommended maximum sideslopes of 2h:1v (50%)
- Recommended maximum slope of 1% on channel

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff breaching dike or eroding channel or sideslopes
- Check discharge point for erosion or bypassing of flows
- Repair and stabilize as necessary
- Inspect daily during vehicular activity on slope, check for and repair any traffic damage

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

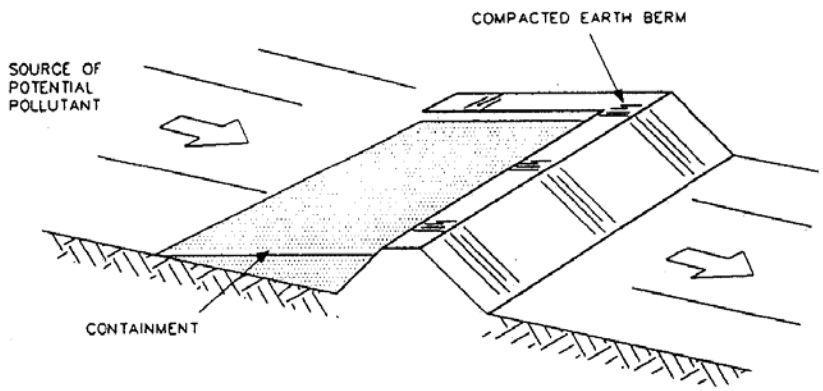
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Earth Berm Barrier — EBB



DESCRIPTION:

A temporary containment control constructed of compacted soil.

APPLICATION:

- Construct around waste and materials storage area
- Construct around staging and maintenance areas
- Construct around vehicle parking and servicing areas

INSTALLATION / APPLICATION CRITERIA:

- Construct an earthen berm down hill of the area to be controlled. The berm should surround fueling facilities and maintenance areas on three sides to provide containment
- Berm needs to sized for application and be compacted by compactor equipment

LIMITATIONS:

- Not effective on steep slopes
- Limits access to controlled area
- Personnel need to quickly respond to spills with remedial actions

MAINTENANCE:

- Observe daily for any non-stormwater discharge
- Look for runoff bypassing ends of berms or undercutting berms
- Repair or replace damaged areas of the berm and remove accumulated sediment
- Recompact soil around berm as necessary to prevent piping

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
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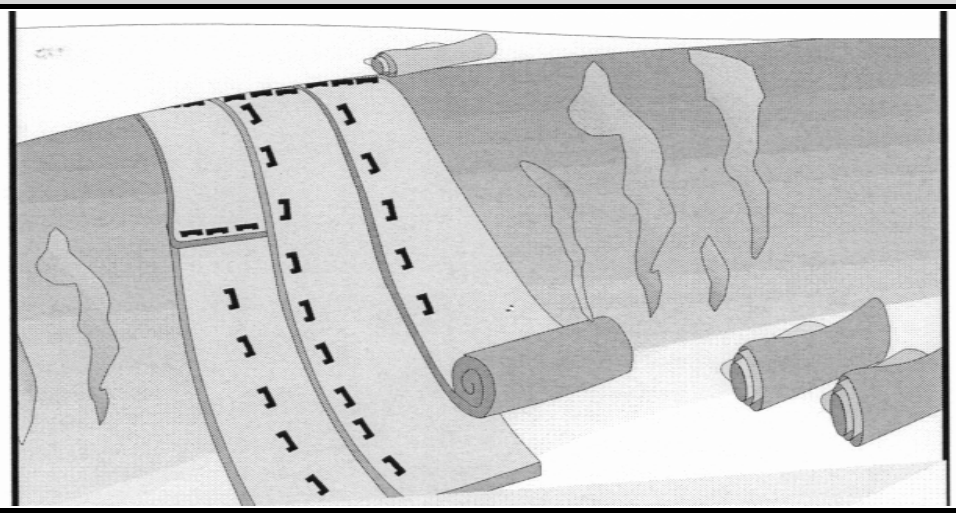
BMP: Erosion Control Blankets — ECB



DESCRIPTION:

Erosion control blankets are used on areas of high velocity runoff and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

APPLICATION:

- Where vegetation is likely to grow too slowly to provide adequate stabilization
- In areas subject to high winds where mulch would not be effective

INSTALLATION / APPLICATION CRITERIA:

- Install erosion control blankets parallel to the direction of the slope
- In ditches, apply in direction of the flow
- Place erosion control blankets loosely on soil-do not stretch
- Ends of blankets should be buried no less than six inches deep
- Staple the edges of the blanket at least every three feet - per manufacturers' specifications

LIMITATIONS:

- Not recommended in areas which are still under construction

MAINTENANCE:

- Check for erosion and undermining periodically, particulary after rainstorms
- Repair dislocations or failures immediately
- If washouts occur, reinstall after repairing slope damage
- Monitor until permanently stabilized

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
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☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
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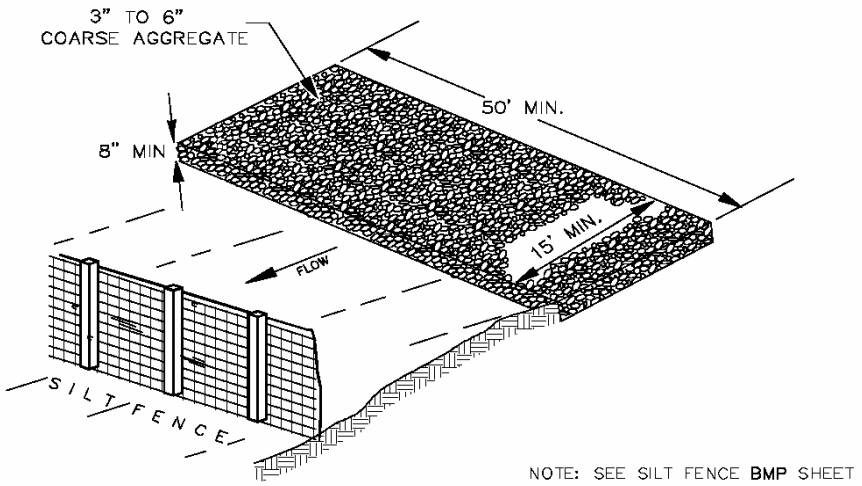
BMP: Equipment and Vehicle Wash Down Area EVWA



DESCRIPTION:

A stabilized pad of crushed stone for general washing of equipment and construction vehicles.

APPLICATION:

At any site where regular washing of vehicles and equipment will occur. May also be used as a filling point for water trucks limiting erosion caused by overflow or spillage of water.

INSTALLATION / APPLICATION CRITERIA:

- Clear and grub area and grade to provide maximum slope of 1%
- Compact subgrade and place filter fabric if desired (recommended for wash areas to remain in use for more than 3 months)
- Place coarse aggregate, 1 to 2-1/2 inches in size, to a minimum depth of 8 inches
- Install silt fence downgradient (see silt fence BMP information sheet)

LIMITATIONS:

Cannot be utilized for washing equipment or vehicles that may cause contamination of runoff such as fertilizer equipment or concrete equipment. Solely used to control sediment in wash water.

MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent area for sediment deposit and install additional controls as necessary
- Repair area and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate activities
- Maintain silt fence as outlined in specific silt fence BMP information sheet

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☒	☐	☐	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
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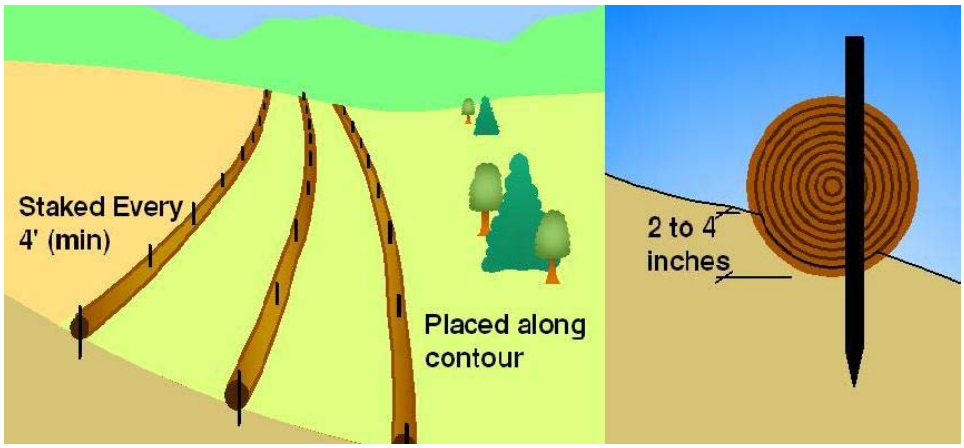
H = High **M =** Medium **L =** Low

BMP: Fiber Rolls FR



DESCRIPTION:

Commercial products can be made from various types of fibers and shavings that are rolled up and used as sediment barriers.

APPLICATION:

- Good for sites with long slopes, generally flatter than 10:1

INSTALLATION / APPLICATION CRITERIA:

- Must be trenched into the ground 2 to 4 inches
- Must be staked every 4 feet (maximum)
- Manufacturer's instructions must be followed for installation of product

LIMITATIONS:

- Not applicable for high velocity flows
- Only use for a time period within the expected life-span of the product (check with manufacturer)

MAINTENANCE:

- Must be checked to ensure that runoff does not run under or bypass the fiber rolls
- Sediment buildup must also be checked and excess sediment must be removed

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

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☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
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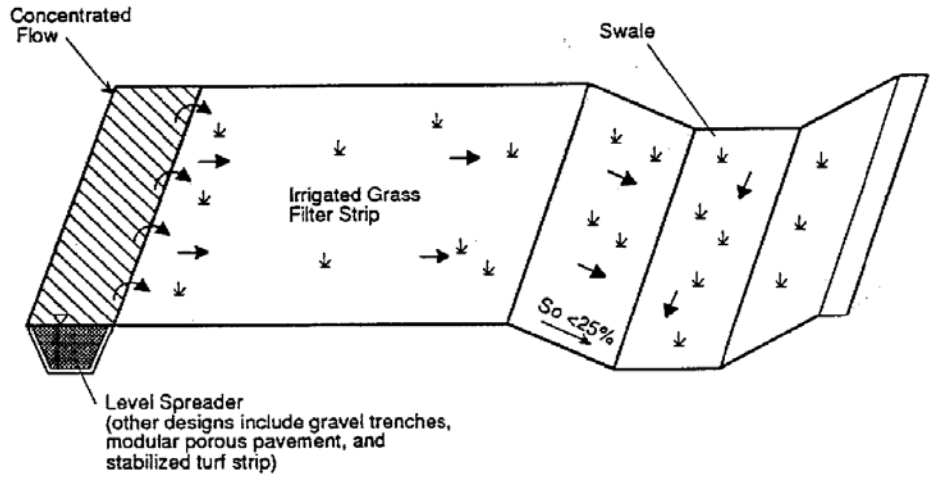
BMP: Filter Strips FS



DESCRIPTION:

Filter strips are 20-foot-wide strips of natural or planted vegetation around a construction site. They are designed to cause deposition of sediments within the vegetation layer.

APPLICATION:

- Suited for areas where the soils are well drained or moderately well drained
- Areas where the bedrock and the water table are well below the surface

INSTALLATION / APPLICATION CRITERIA:

- Make sure the vegetative cover is dense enough to protect underlying soil while causing sediment to settle
- Filter strip must be approximately 20 feet wide to function well
- The length should be approximately 50 to 75 feet. Where slopes become steeper the length of the strip must be increased.

LIMITATIONS:

- Only applicable in areas where vegetation is previously established or where sod is added
- Vegetated filter strips will not function well on steep slopes, in hilly areas, or in highly paved areas
- Sites with slopes of 15 percent or more may not be suitable for filtering storm water flows

MAINTENANCE:

- Check for channels and repair
- Provide rock aprons to aid in slowing flow if necessary
- Maintain vegetation at optimal height and thickness

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☒	☐	Nutrients
☐	☐	☒	Heavy Metals
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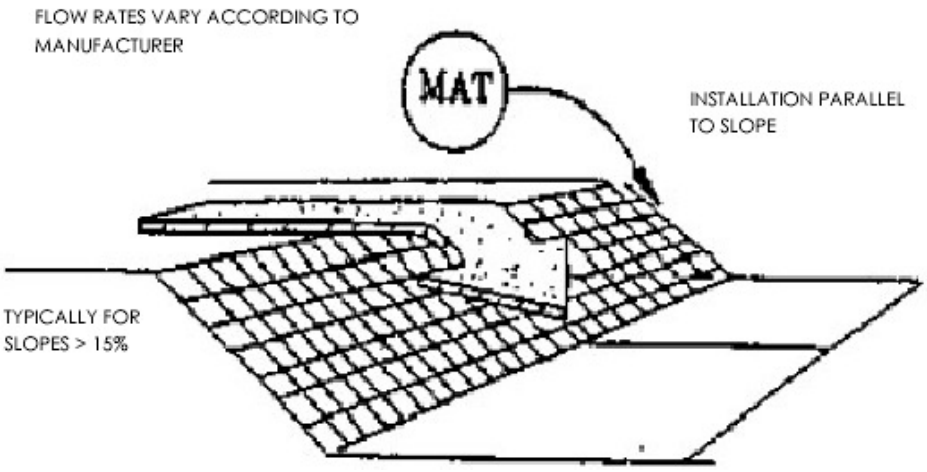
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Geotextiles and Mats GM



DESCRIPTION:

Mattings made of natural or synthetic material which are used to temporarily or permanently stabilize soil.

APPLICATION:

- Typically suited for post-construction site stabilization, but may be used for stabilization of highly erosive soils.
- Channels and Streams.
- Steep slopes.

INSTALLATION / APPLICATION CRITERIA:

- Mattings may be applied to disturbed soils and where existing vegetation has been removed.
- The following organic matting materials provide temporary protection until permanent vegetation is established, or when seasonal circumstances dictate the need for temporary stabilization until weather or construction delays are resolved: Jute mattings and straw mattings.
- The following synthetic mattings may be used for either temporary or post-construction stabilization, both with and without vegetation: excelsior matting, glass fiber matting, mulch matting
- Staples are needed to anchor the matting.

LIMITATIONS:

- Mattings are more costly than other BMP practices, limiting their use to areas where other BMPs are ineffective (e.g., channels, steep slopes).
- May delay seed germination, due to reduction in soil temperature.
- Installation requires experienced contractor to ensure soil stabilization and erosion protection.

MAINTENANCE:

- Inspect twice monthly and after significant rainfall.
- Re-anchor loosened matting and replace missing matting and staples as required.

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☒	☐	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Hydromulching HM

DESCRIPTION:

A combination of wood fiber mulch, processed grass, or hay or straw mulch and a tacking agent. It is made into a slurry, then applied to bare slopes or other bare areas to provide temporary stabilization.

APPLICATION:

- Small roadside slopes
- Large, relatively flat areas

INSTALLATION / APPLICATION CRITERIA:

- Legume seeds should be pellet inoculated with the appropriate bacteria.
- The seed should not remain in the hydromulcher tank for more than 30 minutes
- Wood fiber may be dyed to aid in uniform application
- Slurry should be uniformly applied until an adequate coverage is achieved
- The applicator should not be directed at on location for a long period of time; erosion will occur

LIMITATIONS:

- Will lose effectiveness after 1 year
- Can use only on physically stable slopes (at natural angle of repose, or less)

MAINTENANCE:

•Periodically inspect for damage caused by wind, water or human disturbance
•Promptly repair damaged areas

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☒	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Hazardous Waste Materials HWM

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste throughproper material use,waste disposal,and training of employees and subcontractors.

APPLICATION:

Many of the chemicals used on-site can be hazardous materials which become hazardous waste upon disposal. These wastes may include:

- Paints and Solvents; petroleum products such as oils, fuels, and grease; herbicides and pesticides; Acids for cleaning masonry; and concrete curing compounds

In addition, sites with existing structures may contain wastes which must be disposed of in accordance with Federal, State, and local regulations, including:

- Sandblasting grit mixed with lead, cadmium, or chromium-based paints; Asbestos; and PCB's

INSTALLATION / APPLICATION CRITERIA:

The following steps will help reduce storm water pollution from hazardous wastes:

- Use all of the product before disposing of the container
- Do not remove the original product label, it contains important safety and disposal information
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with Federal and State regulations.

LIMITATIONS:

Hazardous wastethat cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.

MAINTENANCE:

- Inspect hazardous waste receptacles and area regularly
- Arrange for regular hazardous waste collection

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
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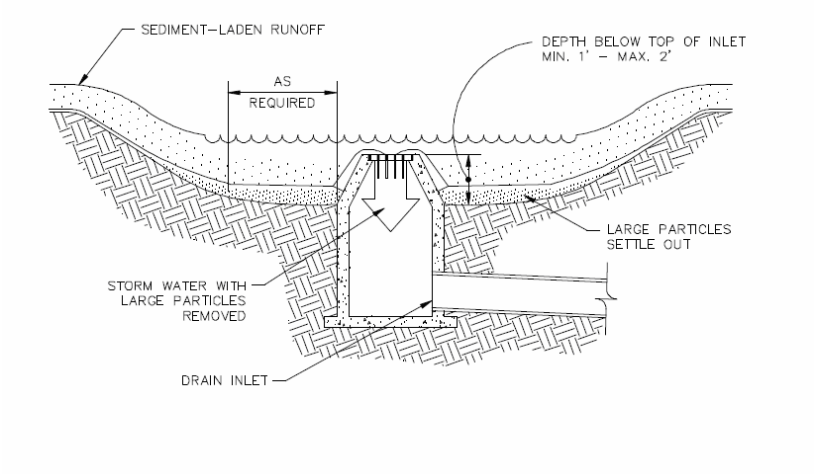
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Inlet Protection - Excavated IP-E



DESCRIPTION:

An area excavated around a storm drain inlet to impound water below the inlet.

APPLICATION:

- Construct at storm drainage inlets located downgradient of areas to be disturbed by construction (for inlets in paved areas see other information sheets for inlet protection)

INSTALLATION / APPLICATION CRITERIA:

- Provide upgradient sediment controls, such as silt fence during construction of inlet
- When construciton of inlet is complete, excavate adjacent area 1 to 2 feet lower than the grate elevation. Size of excavated area should be based on soil type and contributing acreage

LIMITATIONS:

- Recommended maximum contributing drainage area of one acre
- Limited to inlets located in open unpaved areas
- Requires flat area adjacent to inlet

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once monthly
- Remove accumulated sediment when it reaches one half of the excavated sump below the grate
- Repair side slopes as required

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
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H	M	L	
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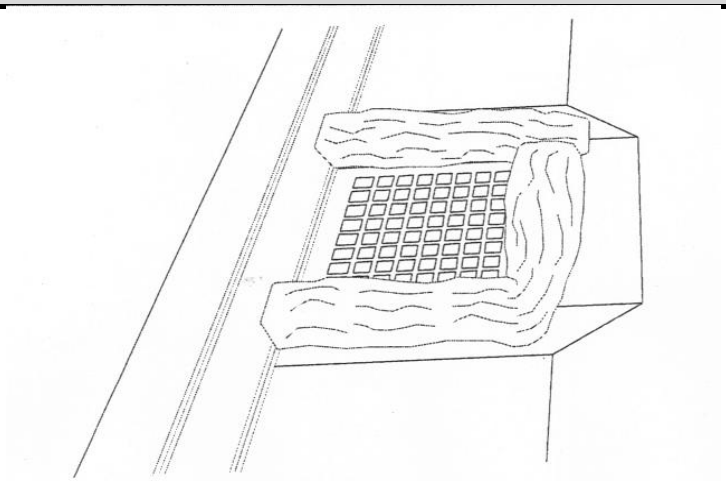
IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Inlet Protection - Gravel Bags IP-GB



DESCRIPTION:

Sediment barrier erected around storm drain inlet.

APPLICATION:

Construct at storm drainage inlets located down-gradient of areas to be disturbed by construction

INSTALLATION / APPLICATION CRITERIA:

- Provide up-gradient sediment controls, such as silt fence during construction of inlet
- When construction of curb and gutter and roadway is complete, install gravel filled bags around perimeter of inlet
- Fill to recommended levels to reduce splitting of bags

LIMITATIONS:

- Recommended maximum contributing drainage area of one acre
- Requires shallow sloped adjacent to inlet.

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once every 14 days.
- Remove accumulated sediment when it reaches half the height of the bag.
- Look for bypassing or undercutting and repair or realign as needed.
- Replace and clean up spilled gravel when bags split.

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
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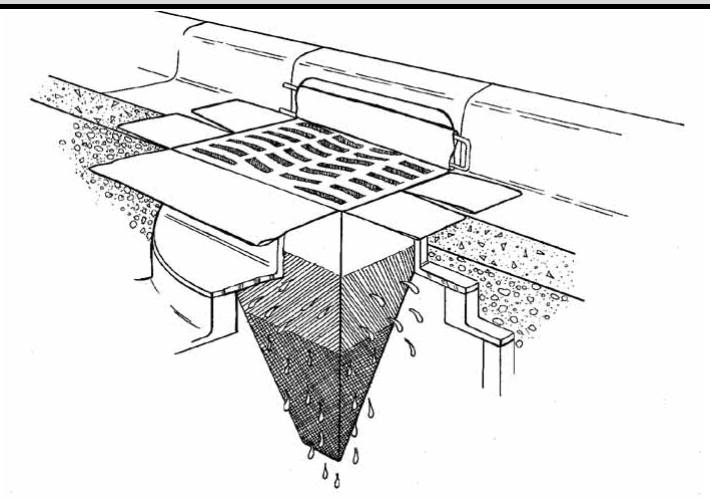
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☒	☐	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Inlet Protection- Silt Bags IP-SB



DESCRIPTION:

Collect and trap sediment and debris entering catch basins from either grated or curb inlets. Insert is made of fabric and is placed in the drain inlet around the perimeter of the grate. Runoff passes through the bag before discharging into the drain outlet pipe. Overflow holes are usually provided to pass larger flows without causing a backwater at the grate. Certain manufactured products include polymers intended to increase pollutant removal effectiveness.

APPLICATIONS:

- Storm drain inlet boxes

INSTALLATION / APPLICATION CRITERIA:

- Regular Maintenance is necessary
- Evaluation of the device chosen should be balanced with cost
- Hydraulic capacity controls effectiveness
- Most useful in small drainage areas (< 1 Acre)
- Ideal in combination with other BMP's

LIMITATIONS:

- Cost
- Maintenance required to prevent plugging and remain effective

MAINTENANCE:

Inspection after all storm events and as required between events

OBJECTIVES

- ☐ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

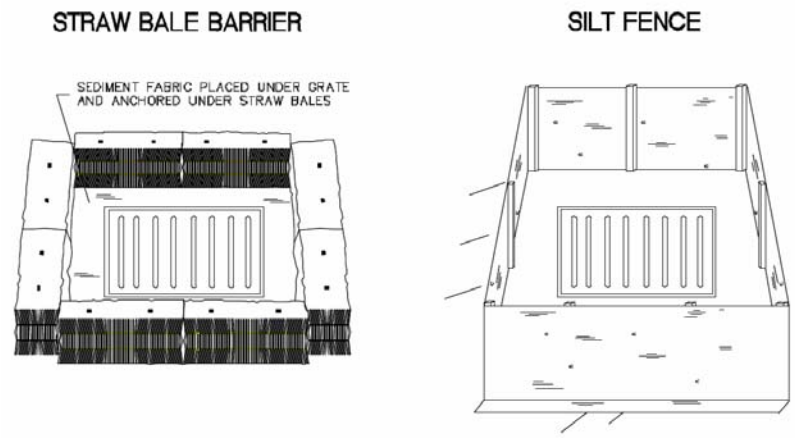
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☒	☐	☐	Maintenance
☐	☒	☐	Training
☐	☐	☒	Staffing
☒	☒	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Inlet Protection - Silt Fence or Straw Bale — IP-SF



DESCRIPTION:

Sediment barrier erected around storm drain inlet.

APPLICATION:

- Construct at storm drainage inlets located downgradient of areas to be disturbed by construction (for inlets in paved areas see other information sheets for inlet protection)

INSTALLATION / APPLICATION CRITERIA:

- Provide upgradient sedimant controls, such as silt fence during construction of inlet
- When construction of linet is complete, erect straw bale barrier or silt fence surrounding perimeter of inlet. Follow instructions and guidelines on individual BMP information sheets for straw bale barrier and silt fence construction

LIMITATIONS:

- Recommended maximum contributing drainage area of one acre
- Limited to inlets located in open unpaved areas
- Requires shallow slopes adjacent to inlet

MAINTENANCE:

- Inspect inlet protection following storm event and at a minimum of once every two weeks
- Remove accumulated sediment when it reaches 4" in depth
- Repair or realign barrier/fence as needed
- Look for bypassing or undercutting and recompact soil around barrier/fence as required

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

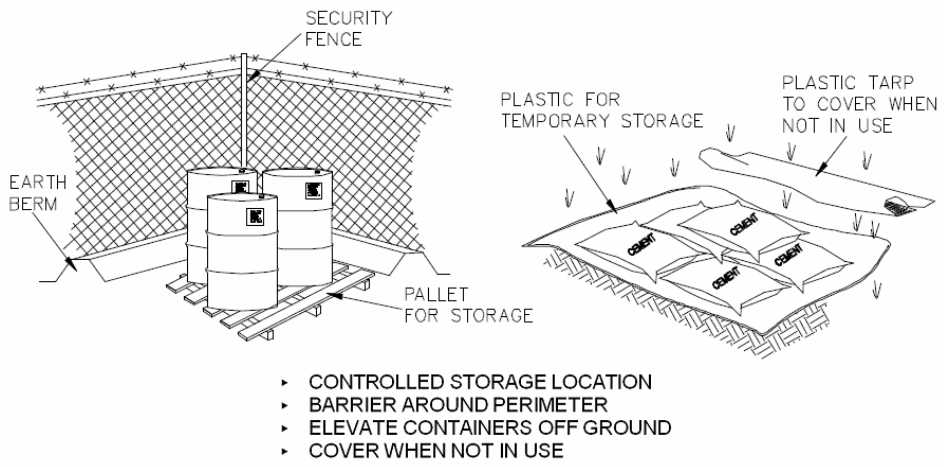
IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

ghts,

BMP: Materials Storage — MS



- CONTROLLED STORAGE LOCATION
- BARRIER AROUND PERIMETER
- ELEVATE CONTAINERS OFF GROUND
- COVER WHEN NOT IN USE

DESCRIPTION:

Controlled storage of on-site materials.

APPLICATION:

- Storage of hazardous, toxic, and all chemical substances
- Any construction site with outside storage of materials

INSTALLATION / APPLICATION CRITERIA:

- Designate a secured area with limited access as the storage location. Ensure no waterways or drainage paths are nearby
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around storage location for impoundment in the case of spills
- Ensure all on-site personnel utilize designated storage area. Do not store excessive amounts of material that will not be utilized on site
- For active use of materials away from the storage area ensure materials are not set directly on the ground and are covered when not in use. Protect storm drainage during use

LIMITATIONS:

- Does not prevent contamination due to mishandling of products
- Spill Prevention and Response Plan still required
- Only effective if materials are actively stored in controlled location

MAINTENANCE:

- Inspect daily and repair any damage to perimeter impoundment or security fencing
- Check materials are being correctly stored (i.e. standing upright, in labeled containers, tightly capped) and that no materials are being stored away from the designated location

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

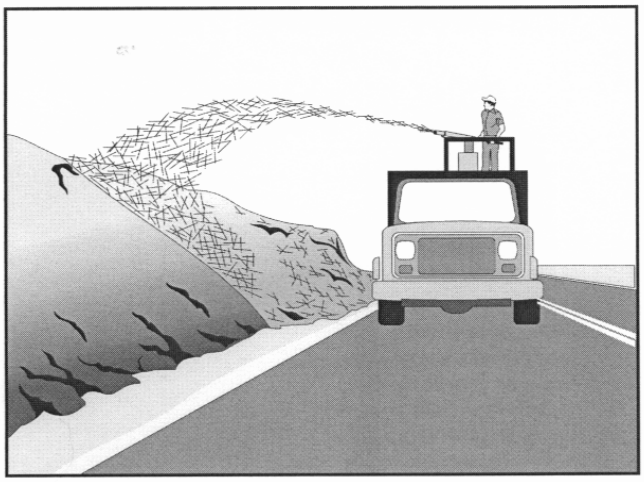
H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☒	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☒	☐	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: MULCHING MU



DESCRIPTION:

Placement of material such as straw, grass, woodchips, or wood fibers over open areas.

APPLICATION:

- Any exposed area to remain untouched longer than 14 days and that will be exposed less than 60 days (seed areas to be exposed in excess of 60 days)
- Areas that havebeen seeded
- Stockpiled soil materials

INSTALLATION / APPLICATION CRITERIA:

- Roughen area to receive mulch to create depressions that mulch material can settle into
- Apply mulch to required thickness and anchor as necessary
- Ensure material used is weed free and does not contain any constituents that will inhibit plant growth

LIMITATIONS:

- Anchoring may be required to prevent migration or mulch material
- Downgradient control may be required to prevent mulch material being transported to storm water system

MAINTENANCE:

- Inspect mulched areas after every rainfall event and at a minimum of monthly
- Replace mulch on any bare areas and reanchor as necessary
- Clean and replace downgradient controls as necessary

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

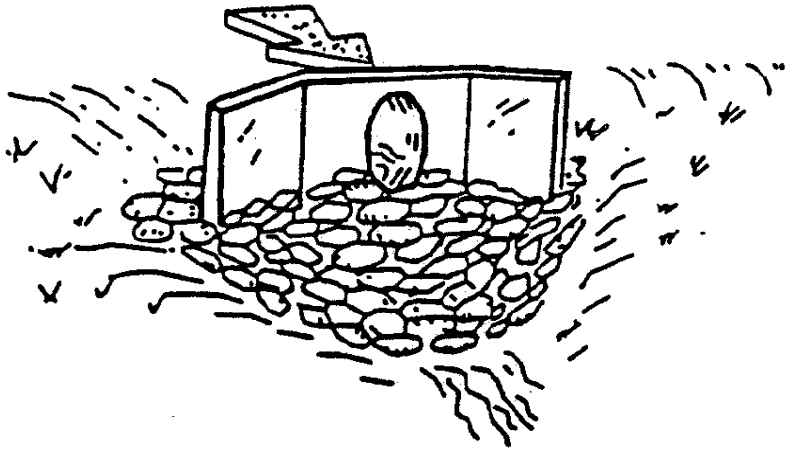
H	M	L	
☒	☐	☐	Sediment
☐	☒	☐	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Outlet Protection — OP



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

DESCRIPTION:

A rock outlet protection is a physical device composed of rock, or grouted riprap which is placed at the outlet of a pipe to prevent scour of the soil caused by high pipe flow velocities, and to absorb flow energy to produce nonerosive velocities.

APPLICATION:

- Wherever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach
- Rock outlet protection is best suited for temporary use during construction because it is usually less expensive and easier to install than concrete aprons or energy dissipators
- A sediment trap below the pipe outlet is recommended if runoff is sediment laden
- Permanent rock riprap protection should be designed and sized by the engineer as part of the culvert, conduit or channel design
- Grouted riprap should be avoided in areas of freeze and thaw because the grout will break up

INSTALLATION / APPLICATION CRITERIA:

- Rock outlet protection is effective when the rock is sized and placed properly. When this is accomplished, rock outlets do much to limit erosion at pipe outlets. Rock size should be increased for high velocity flows. Best results are obtained when sound, durable, angular rock is used.

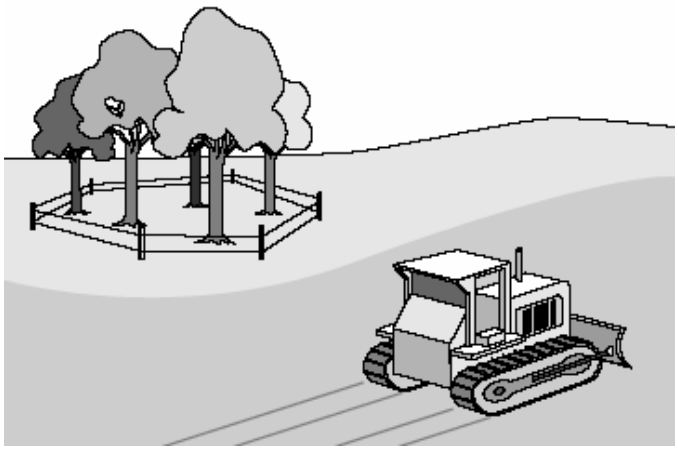
LIMITATIONS:

- Large storms often wash away the rock outlet protection and leave the area susceptible to erosion
- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock
- Outlet protection may negatively impact the channel habitat

MAINTENANCE:

- Inspect after each significant rain for erosion and/or disruption of the rock, and repair immediately
- Grouted or wire-tied rock riprap can minimize maintenance requirements

BMP: PEV



DESCRIPTION:

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs and/or grasses that serve as erosion controls.

APPLICATION:

This technique is applicable to all types of sites. Areas where preserving vegetation can be particularly beneficial are floodplains, wetlands, stream banks, steep slopes, and other areas where erosion controls would be difficult to establish, install, or maintain.

INSTALLATION / APPLICATION CRITERIA:

- Clearly mark, flag or fence vegetation or areas where vegetation should be preserved.
- Prepare landscaping plans which include as much existing vegetation as possible and state proper care during and after construction.
- Define and protect with berms, fencing, signs, etc. a setback area from vegetation to be preserved.
- Propose landscaping plans which do not include plant species that compete with the existing vegetation.
- Do not locate construction traffic routes, spoil piles, etc. where significant adverse impact on existing vegetation may occur.

LIMITATIONS:

- Requires forward planning by the owner/developer, contractor and design staff.
- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactorily for the planned development.
- May not be cost effective with high land costs.

MAINTENANCE:

- Inspection and maintenance requirements for protection of vegetation are low.
- Maintenance of native trees or vegetation should conform to landscape plan specifications.

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

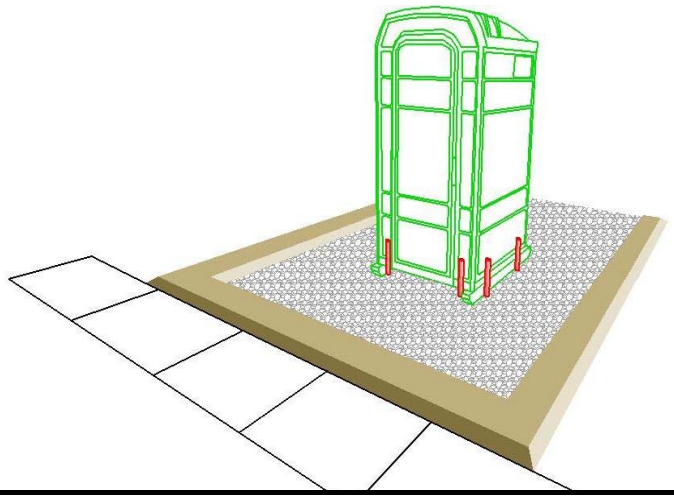
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☐	☒	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Portable Toilet — PT



DESCRIPTION:

Temporary on-site sanitary facilities for construction personnel.

APPLICATION:

All sites with no permanent sanitary facilities or where permanent facility is too far from activities.

INSTALLATION / APPLICATION CRITERIA:

- Locate portable toilets in a convenient locations throughout the site
- Prepare level, gravel surface and provide clear access to the toilets for servicing and for on-site personnel
- Construct earth berm perimiter (see Earth Berm Barrier Sheet), control for spill / leak protection.
- Anchor the portable toilet to prevent tipping

LIMITATIONS:

No limitations

MAINTENANCE:

- Portable toilets should be maintained in good working order by licensed service with daily observation for leak detection
- Regular waste collection should be arranged with licensed service
- All waste should be deposited in sanitary sewer system for treatment with appropriate agency approval

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

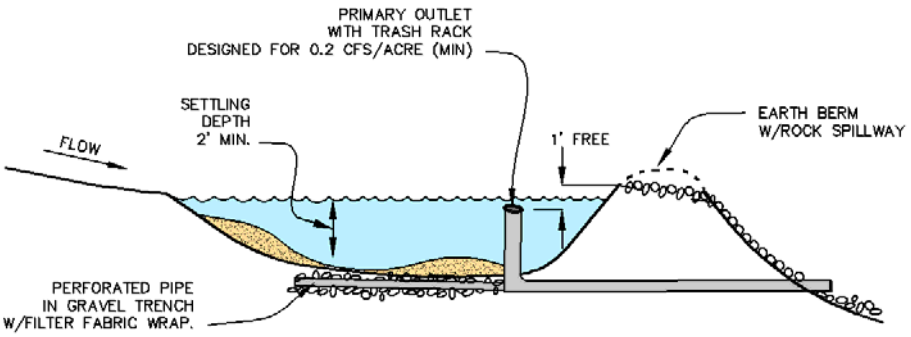
H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☒	☐	☐	Bacteria & Viruses
☒	☐	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Sediment Basin SB



DESCRIPTION:

A pond created by excavating or construction of an embankment, and designed to retain or detain runoff sufficiently to allow excessive sediment to settle.

APPLICATION:

- At the outlet of all disturbed watersheds 10 acres or larger
- At the outlet of smaller disturbed watersheds, as necessary
- Where post construction detention basins will be located

INSTALLATION / APPLICATION CRITERIA:

- Design basin for site specific location, maintian effective flow length 2 times width
- Excavate basin or construct compacted berm containment; ensure no downgradient hazard if failure should occur. (Provide minimum of 67 cy. per acre of drainage area.)
- Construct dewtering and outfall structure and emergency spillway with apron

LIMITATIONS:

- Should be sized based on anticipated runoff, sediment loading and drainage area size
- May require silt fence at outlet for entrapment of very fine silts and clays
- May require safety fencing to prevent public access
- Height restrictions for embankment regulated by Utah Division of Dam Safety

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of once every two weeks
- Repair any damage to berm, spillway or sidewalls
- Remove accumulated sediment as it reaches 2/3 height of available storage
- Check outlet for sedimentation/erosion of downgradient area and remediate as necessary. Install silt fence if sedimentation apparent

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

	H	M	L
Sediment	☒	☐	☐
Nutrients	☐	☐	☒
Heavy Metals	☐	☐	☒
Toxic Materials	☐	☒	☐
Oil & Grease	☐	☐	☒
Floatable Materials	☐	☒	☐
Bacteria & Viruses	☐	☐	☒
Other Waste	☐	☐	☒

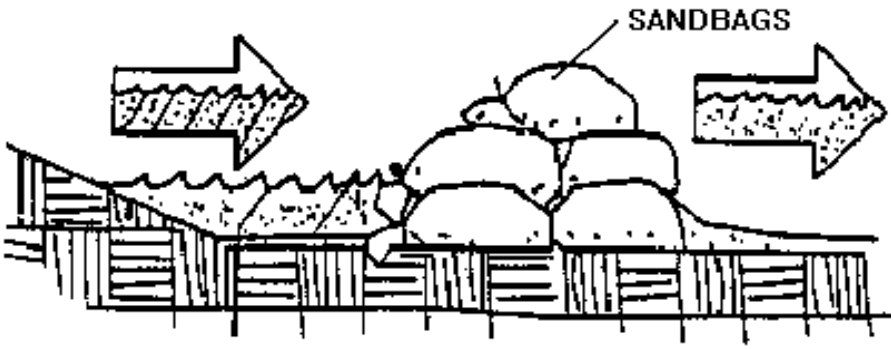
IMPLEMENTATION REQUIREMENTS

	H	M	L
Capital Costs	☒	☐	☐
O&M Costs	☐	☒	☐
Maintenance	☐	☒	☐
Training	☐	☐	☒
Staffing	☐	☐	☒
Administrative	☐	☐	☒

H = High **M =** Medium **L =** Low

ghts,

BMP: Sand Bag Barrier — SBB



DESCRIPTION:

Stacking sand bags along a level contour creates a barrier which detains sediment - laden water, ponding water upstream of the barrier and promoting sedimentation

APPLICATION:

- Along the perimeter of the site
- May be used in drainage areas up to 5 acres
- Along streams and channels
- Across swales with small catchments
- Around temporary spoil areas
- Below the toe of a cleared slope

INSTALLATION / APPLICATION CRITERIA:

- Install along a level contour
- Base of sand bag barrier should be at least 48" wide
- Height of sand bag barrier should be at least 18" high
- 4" PVC pipe may be installed between the top layer of sand bags to drain large flood flows
- Provide area behind barrier for runoff to pond and sediment to settle
- Place below the toe of a slope
- UV resistant bags should be used

LIMITATIONS:

- Sand bags are more expensive than other barriers, but also more durable
- Burlap should not be used

MAINTENANCE:

- Inspect after each rain and a minimum of once every two weeks
- Reshape or replace damaged sand bags immediately
- Remove buildup of sediment

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

	H	M	L
Sediment	☒	☐	☐
Nutrients	☐	☐	☒
Heavy Metals	☐	☐	☒
Toxic Materials	☐	☐	☒
Oil & Grease	☐	☐	☒
Floatable Materials	☐	☐	☒
Bacteria & Viruses	☐	☐	☒
Other Waste	☐	☐	☒

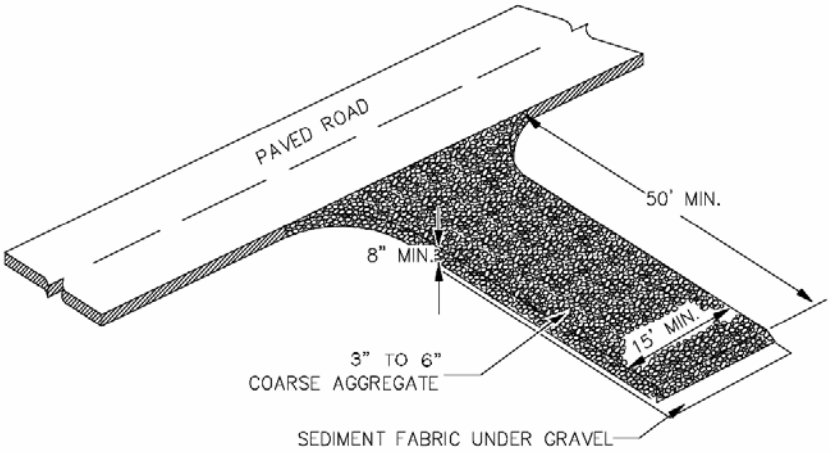
IMPLEMENTATION REQUIREMENTS

	H	M	L
Capital Costs	☒	☐	☐
O&M Costs	☐	☐	☒
Maintenance	☐	☐	☒
Training	☐	☐	☒
Staffing	☐	☐	☒
Administrative	☐	☐	☒

H = High **M =** Medium **L =** Low

Fruit Heights, UT 8403

BMP: Stabilized Construction Entrance SCE



DESCRIPTION:

A stabilized pad of crushed stone located where construction traffic enters or leaved the site from or to paved surface.

APPLICATION:

At any point of ingress and egress at a construction site where adjacent traveled way is paved. Generally applies to sites over 2 acres unless special conditions exist.

INSTALLATION / APPLICATION CRITERIA:

- Clear and grub area and grade to provide maximum slope of 2%
- Compact subgrade and place filter fabric if desired (recommended for entrances to remain for more than 3 months
- Place coarse aggregate, 3-6 inches in size, to a minimum depth of 8 inches

LIMITATIONS:

- Requires periodic top dressing with additional stones
- Should be used in conjuction with street sweeping on adjacent public right-of-way

MAINTENANCE:

- Inspect daily for loss of gravel or sediment buildup
- Inspect adjacent roadway for sediment deposit and clean by sweeping or shoveling
- Repair entrance and replace gravel as required to maintain control in good working condition
- Expand stabilized area as required to accommodate traffic and prevent erosion at driveways

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

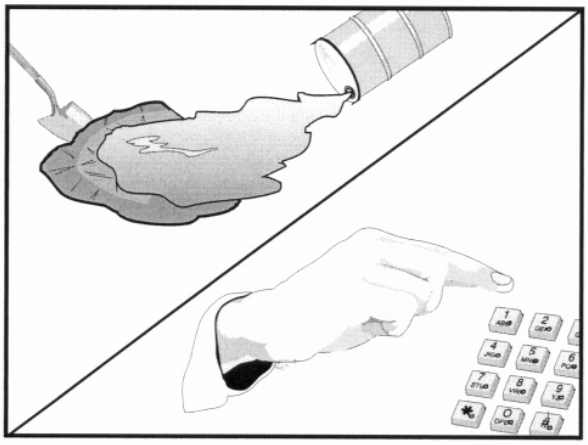
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Spill Clean-Up SCU



Standard Symbol

BMP Objectives

- ○ Soil Stabilization
- ○ Sediment Control
- ○ Tracking Control
- ○ Wind Erosion Control
- ● Non-Storm Water Management
- ● Materials and Waste Management

DESCRIPTION:

Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:

All sites

GENERAL:

- Store controlled materials within a storage area
- Educate personnel on prevention and clean-up
- Designate an Emergency Coordinator responsible practices and for providing spill response
- Maintain a supply of clean-up equipment on-site response agencies with phone numbers

METHODS:

- Clean-up spills/leaks immediately and remediate cause
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

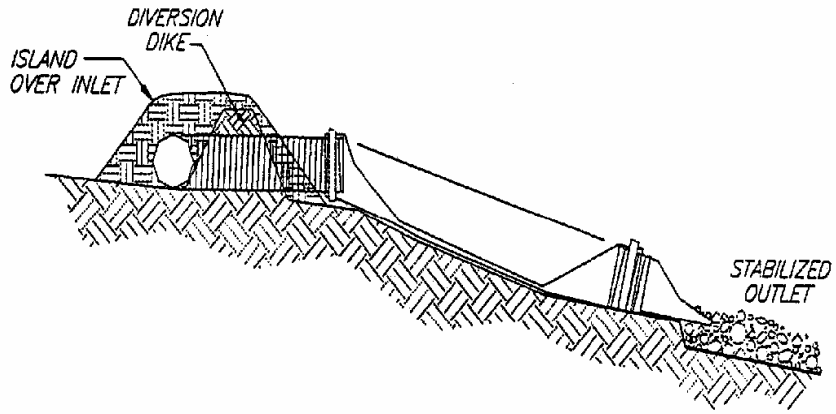
H	M	L	
☐	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☒	☐	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☐	☒	Maintenance
☒	☐	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Slope Drain SD



OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

DESCRIPTION:

A tempoarary pipe or lined channel that drains the top of a slope to a stable discharge point at the bottom of a slope without causing erosion.

APPLICATION:

- Where concentrated flow of surface runoff must be conveyed down a slope in order ro prevent erosion
- Emergency spillway for a sediment basin

INSTALLATION / APPLICATION CRITERIA:

- Secure inlet and surround with dikes to prevent gully erosion, and anchor pipe to slope
- Size to convey at least the peak of a 10-year storm event
- Stabilize outlet (See Outlet Protection BMP.)

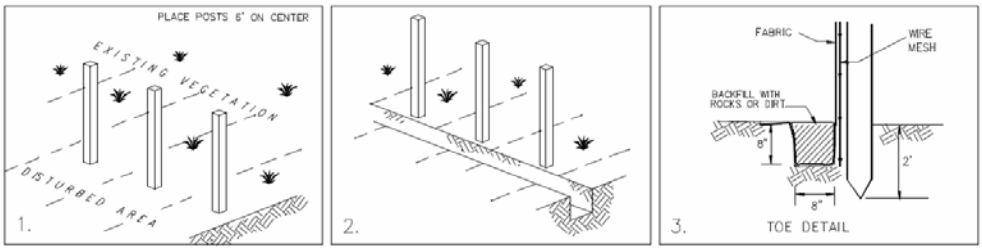
LIMITATIONS:

- Maximum drainage area per slope drain is 5 acres
- Clogged slope drains will force water around the pipe and cause slope erosion
- Dissipation of high flow velocities at the pipe outlet is required to avoid downstream erosion
- Failure can result in flooding and severe erosion

MAINTENANCE:

- Structure must be inspected weekly and after storms
- Inlet must be protected form undercutting and no water should circumvent the entry
- Outlet should not produce erosion; velocity dissipators must be maintained
- Pipe anchors must be checked to ensure that the pipe remains anchored to the slope

BMP: Silt Fence SF



DESCRIPTION:

A temporary sediment barrier consisting of entrenched filter fabric stretched across and secured to supporting posts.

APPLICATION:

- Perimeter control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet protection: place fence surrounding catch basins

INSTALLATION / APPLICATION CRITERIA:

- Place posts 6' apart on center along contour (or use preassembled unit) and drive 2' minimum into ground. Excavate an anchor trench immediately up gradient of posts
- Cut fabric to require width, unroll along length of barrier and drape over barrier. Secure fabric to mesh with twine, staples, or similar, with trailing edge extending into anchor trench
- Backfill trench over fabric to anchor
- Fabric must have 85% minimum sediment removal efficiency

LIMITATIONS:

- Recommended maximum drainage area of 0.5 acre per 100 feet
- Recommended maximum upgradient slope length of 150'
- Recommended maximum uphill grade of 2:1 (50%)
- Recommended maximum flow rate of 0.5 cfs
- Ponding should not be allowed behind fence

MAINTENANCE:

- Inspect immedialty after any rainfall and at least daily during prolonged rainfall
- Look for runoff bypassing ends of barriers or undercutting barriers
- Repair or replace damaged areas of the barrier and remove accumulated sediment
- Reanchor fence as necessary to prevent shortcutting
- Remove accumulated sediment when it reaches 1/2 the height of the fence

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

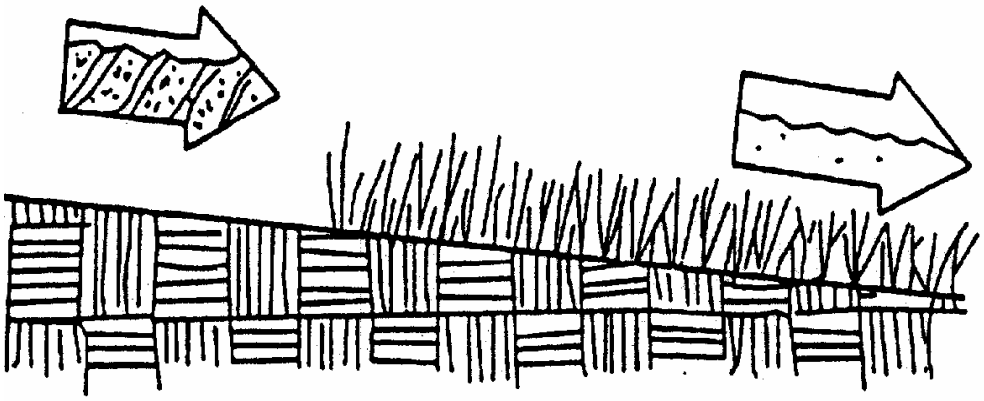
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Seeding and Planting SP



DESCRIPTION:

Seeding of grass and plantings of trees, shrubs, vines and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.

APPLICATION:

- Appropriate for site stabilization both during construction and post-construction
- Any graded/cleared areas where construction activities have ceased
- Open space cut and fill areas
- Steep slopes, spoil piles, vegetated swales, landscape corridors, stream banks. Use in conjunction with matting, mulch or blanketing where appropriate.

INSTALLATION / APPLICATION CRITERIA:

Type of vegetation, site and seedbed preparation, planting time, fertilization and water requirements should be considered for each application.

Grasses:

- Ground preparations: fertilize and mechanically stabilize the soil
- Tolerant of short-term temperature extremes and waterlogged soil composition
- Appropriate soil conditions: shallow soil base, good drainage, slope 2:1 or flatter
- Mowing, irrigating, and fertilizing are vital for promoting vigorous grass growth

Trees and Shrubs:

- Selection criteria: vigor, species, size, shape & wildlife food source
- Soil conditions: select species appropriate for soil, drainage & acidity
- Other factors: wind/exposure, temperature extremes, and irrigations needs

Vines and Ground Covers:

- Ground preparation: lime and fertilizer preparation
- Use proper seeding rates
- Appropriate soil conditions: drainage, acidity and slopes
- Generally avoid species requiring irrigation

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☒	☐	Nutrients
☐	☐	☒	Heavy Metals
☐	☒	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Surface Roughening — SR

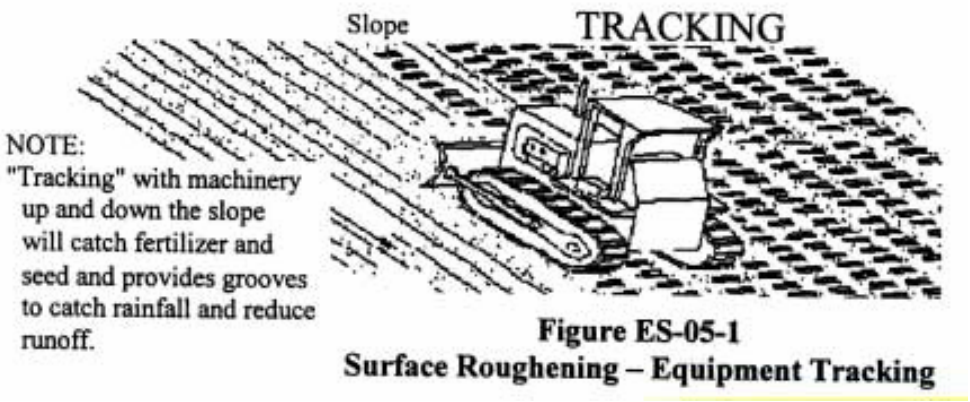


Figure ES-05-1
Surface Roughening – Equipment Tracking

DESCRIPTION:

Rough preparation of working areas leaving depressions and uneven surface. Depressions should be done parallel to contours.

APPLICATION:

- Surface roughening is appropriate for all construction that will not be receiving impervious cover within 14 days and that will be exposed less than 60 days (seed areas to be open in excess of 60 days)

INSTALLATION / APPLICATION CRITERIA:

- Surface should be left in rough condition during initial earthwork activity
- Surfaces that have become smoothed or compacted due to equipment traffic should be roughened by use of disks, spring harrows, teeth on front end loader, or similar, operating along the contours of the slope. Tracking (by crawler tractor driving up and down slope) may also be used to provide depressions parallel to contours
- Avoid compaction of soils during roughening as this inhibits plant growth and promotes storm water runoff. Limit tracked machinery to sandy soil
- Seed or mulch areas to be exposed in excess of 60 days
- Employ dust controls (see Dust Control Detail Sheet if appropriate)

LIMITATIONS:

- Will not withstand heavy rainfall
- Slopes steeper than 2:1 (50%) should be benched (see Benching Detail Sheet)

MAINTENANCE:

- Inspect following any storm event and at a minimum of weekly
- If erosion in the form of rills (small waterways formed by runoff) is evident, perform machine roughening of area
- For vegetated slopes reseed areas that are bare or have been reworked

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Street Sweeping SS

DESCRIPTION:

Prevent sediment from entering storm water by sweeping the streets near construction activities.

APPLICATION:

- Useful for any paved streets near construction sites where sediment is blown, tracked, or spilled onto the streets.

INSTALLATION / APPLICATION CRITERIA:

- The equipment used should be appropriate for the conditions. Vacuum sweepers work more effectively when the area is dry. Brush sweepers work better when the sediment is wet or stuck to the surface.
- Mechanical equipment should be operated and maintained according to the manufacturer's recommendations

LIMITATIONS:

- Is labor and equipment intensive
- May cause dust

MAINTENANCE:

- The street should be checked daily for any sediment deposits. Street sweeping should be implemented whenever sediment from construction activity is found on the streets

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

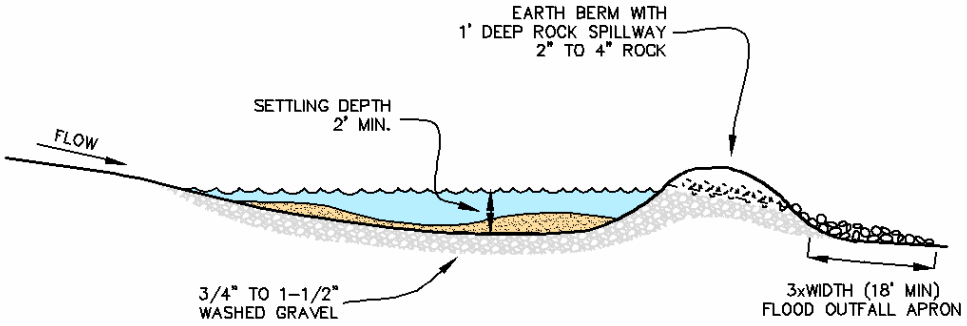
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☐	☒	Capital Costs
☐	☒	☐	O&M Costs
☒	☐	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Sediment Trap ST



DESCRIPTION:

A sediment trap is a small excavated or bermed area where runoff from small drainage areas is detained and sediment can settle.

APPLICATION:

- Temporary control for runoff from disturbed areas of less than 3 arcres
- Temporary control for discharge from diversion dike, surface benching, or other temporary drainage measures

INSTALLATION / APPLICATION CRITERIA:

- Design basin for site specific location
- Excavate basin or construct compacted berm containment
- Construct outfall spillway with apron
- Provide downstream silt fence if necessary

LIMITATIONS:

- Should be sized based on anticipated runoff, sediment loading and drainage area size
- May require silt fence at outlet for entrapment of very fine silts and calys

MAINTENANCE:

- Inspect after each rainfall event and at a minimum of once every two weeks
- Repair any damage to berm, spillway or sidewalls
- Remove accumulated sediment as it reaches 2/3 height of available storage
- Check outlet for sedimentation/erosion of downgradient area and remediate as necessary. Install silt fence if sedimentation apparent.

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

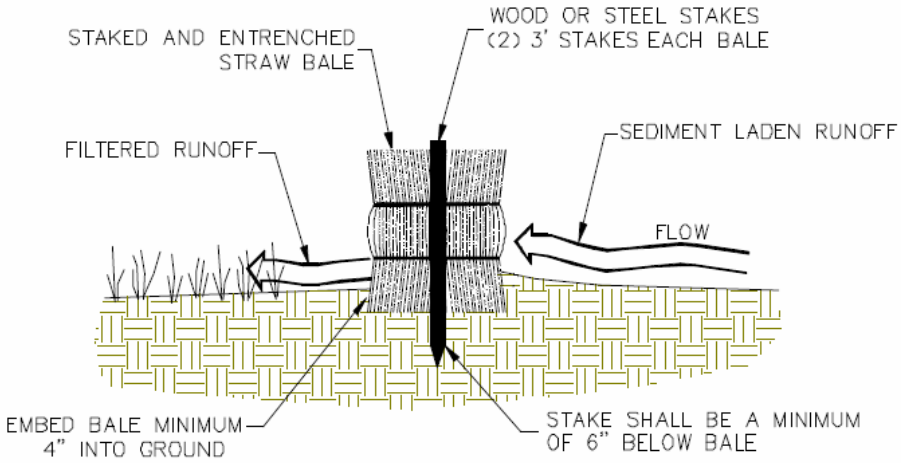
H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☒	☐	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☒	☐	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Straw Bale Barrier — SBB



DESCRIPTION:

Temporary sediment barrier consisting of a row of entrenched and anchored straw bales.

APPLICATION:

- Perimeter Control: place barrier at downgradient limits of disturbance
- Sediment barrier: place barrier at toe of slope or soil stockpile
- Protection of existing waterways: place barrier at top of stream bank
- Inlet Protection

INSTALLATION / APPLICATION CRITERIA:

- Excavate a 4" minimum deep trench along contour line, i.e., parallel to slope, removing all grass and other material that may allow underflow
- Place bales in trench with ends tightly abutting; fill any gaps by wedging loose straw into openings
- Anchor each bale and compact to prevent piping; backfill on uphill side to be built up 4" above ground at the barrier

LIMITATIONS:

- Recommended maximum area of 0.5 acre per 100' of barrier
- Recommended maximum upgradient slope length of 150 feet
- Recommended maximum uphill grade of 2:1 (50%)
- Maximum duristation of use is 6 months

MAINTENANCE:

- Inspect immediately after any rainfall and at least daily during prolonged rainfall
- Look for runoff bypassing ends of barriers or undercutting barriers
- Repair or replace damaged areas of the barrier and remove accumulated sediment
- Realign bales as necessary to provide continuous barrier and fill gaps
- Recompact soil around barrier as necessary to prevent piping

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

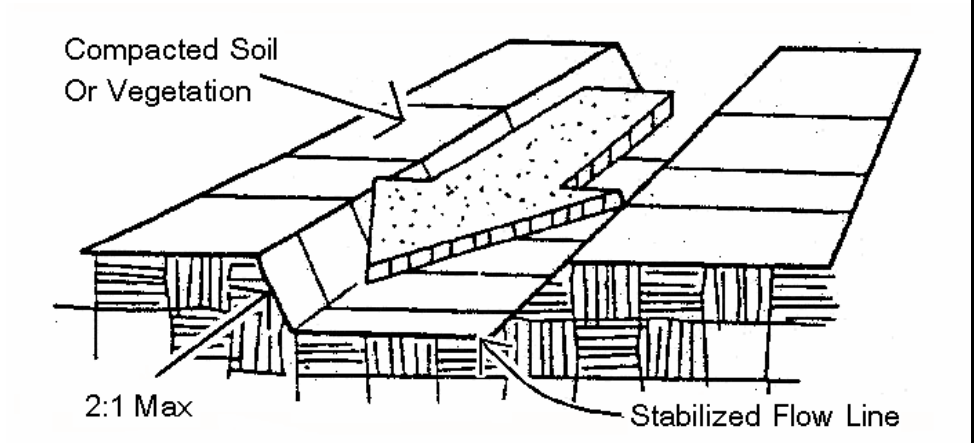
H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

DAVIS COUNTY STORM WATER COALITION

1500 East 650 North
Fruit Heights, UT 84037

BMP: Temporary Drains and Swales — TDS



DESCRIPTION:

Temporary drains and swales are used to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas.

APPLICATION:

- Temporary drains and swales are appropriate for diverting and upslope runoff around unstabilized or disturbed areas of the construction site
- Prevent slope failures. Prevent damage to adjacent property. Prevents erosion and transport of sediments into water ways. Increases the potential for infiltration. Diverts sediment-laden runoff into sediment basins or traps.

INSTALLATION / APPLICATION CRITERIA:

- Temporary drainage swales will effectively convey runoff and avoid erosion if built properly
- Size temporary drainage swales using local drainage design criteria. A permanent drainage channel must be designed by a professional engineer (see the local drainage design criteria for proper design)
- At a minimum, the drain/swale should conform to predevelopment drainage patterns and capacities
- Construct the drain/swale with an uninterrupted positive grade to a stabilized outlet. Provide erosion protection or energy dissipation measures if the flow out of the drain or swale can reach an erosive velocity

LIMITATIONS:

- Temporary drains and swales or any other diversion of runoff should not adversely impact upstream or downstream properties
- Temporary drains and swales must conform to local floodplain management requirements

MAINTENANCE:

- Inspect weekly and after each rain
- Repair any erosion immediately
- Remove sediment which builds up in the swale and restrcts its flow capacity

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☒	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☐	☒	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Temporary and Permanent Seeding — TPS

DESCRIPTION:

Temporary seeding-establishment of short term cover by application of rapidly germinating seed mix (alternatively hydroseeding may be utilized).
Permanent seeding-establishment of final term cover by application of perennial seed mix (alternatively sod may be utilized).

APPLICATION:

Disturbed areas that are at final grade and which will not be disturbed by continuing activities on site. Also areas that are not at final grade but which will be left untouched in excess of one year.

RECOMMENDED SEED MIX:

The recommended seed mix will be dependent on site specific information such as elevation, exposure, soils, water available and topography. Check with the County Extension Service for recommended mixes for site specific conditions:

Utah State University Extension Service
28 E. State Street (Room 20D)
Farmington, Utah 84025
Phone: (801) 451-3412

LIMITATIONS:

- Limited to areas that will not be subject to traffic or high usage
- May require irrigation and fertilizer which creates potential for impacting runoff quality
- May only be applied during appropriate planting season, temporary cover required until that time

INSTALLATION:

- Roughen soil to a depth of 2 inches. Add fertilizer, manure, topsoil as necessary
- Evenly distribute seed using a commonly accepted method such as; breast seeding, drilling, hydro-seeding
- Use a seed mix appropriate for soil and location that will provide rapid germination and growth. Check with County for recommended mix and application rate.
- Cover area with mulch if required due to steep slopes or unsuitable weather conditions

MAINTENANCE:

- Provide irrigation as required to establish growth and to maintain plant cover through duration of project
- Reseed as necessary to provide 75% coverage
- Remediate any areas damaged by erosion or traffic
- When 75% coverage is achieved inspect monthly for damage and remediate as necessary

OBJECTIVES

- ☐ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

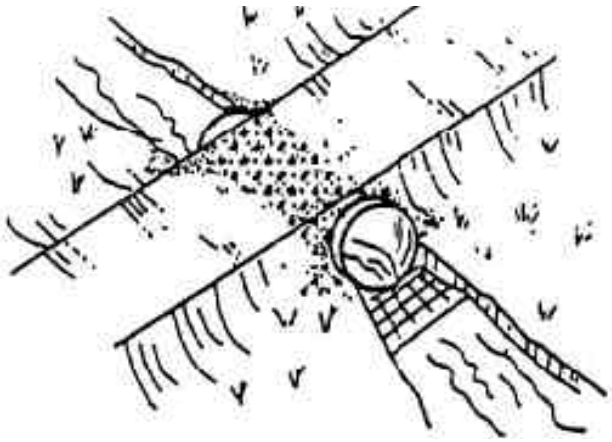
H	M	L	
☒	☐	☐	Sediment
☒	☐	☐	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☐	☒	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

H = High **M =** Medium **L =** Low

BMP: Temporary Stream Crossing — TSC



DESCRIPTION:

A temporary access stream crossing is a temporary culvert, ford or bridge placed across a waterway to provide access for construction purposes for a period of less than one year. Temporary access crossings are not intended to be used to maintain traffic for the general public.

APPLICATION:

- Temporary stream crossings should be installed at all designated crossings of perennial and intermittent streams on the construction site, as well as for dry channels which may be significantly eroded by construction traffic.

INSTALLATION / APPLICATION CRITERIA:

- Requires knowledge of stream flows and soil strength and should be designed under the direction of a Utah registered engineer with knowledge of both hydraulics and construction loading requirements for structures.

LIMITATIONS:

- May be expensive for a temporary improvement
- Requires other BMP's to minimize soil disturbance during installation and removal
- Fords should only be used in dry weather
- A Stream Alteration Permit may be required, contact the Utah Division of Water Rights before implemention

MAINTENANCE:

- Inspect weekly and after each significant rainfall, including assessment of foundations
- Periodically remove silt from crossings
- Replace lost aggregate from inlets and outlets of culverts

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☒ Minimize Disturbed Areas
- ☒ Stabilize Disturbed Areas
- ☒ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☒	☐	☐	Sediment
☐	☐	☒	Nutrients
☐	☐	☒	Heavy Metals
☐	☐	☒	Toxic Materials
☐	☒	☐	Oil & Grease
☐	☐	☒	Floatable Materials
☐	☐	☒	Bacteria & Viruses
☐	☐	☒	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☐	☒	☐	Capital Costs
☐	☐	☒	O&M Costs
☐	☒	☐	Maintenance
☐	☐	☒	Training
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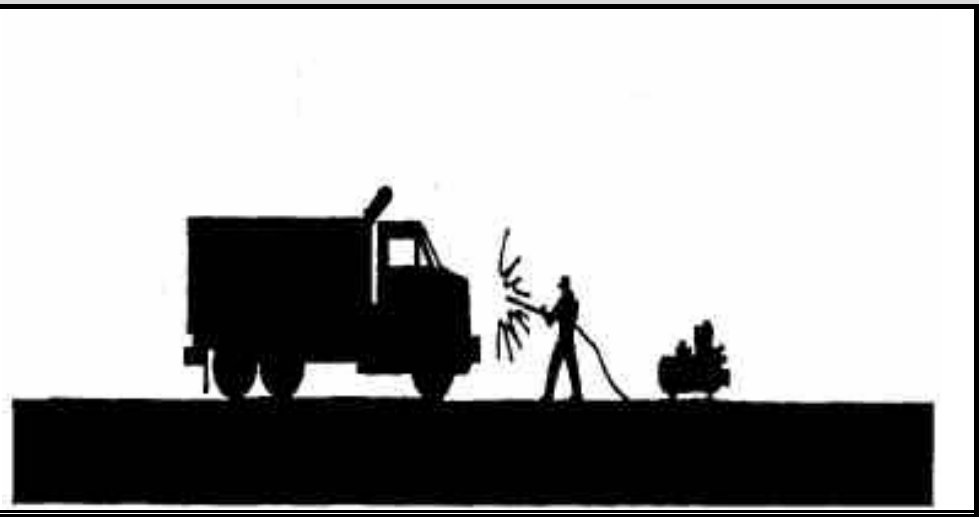
BMP: Vehicle And Equipment Cleaning VEC



DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning by using off-site facilities, washing in designated, contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees and subcontractors.

INSTALLATION / APPLICATION CRITERIA:

- Use off-site commercial washing businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water. If you wash large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated, bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area. Use phosphate-free biodegradable soaps. Educate employees and subcontractors on pollution prevention measures. Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations.

LIMITATIONS:

- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades
- Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

MAINTENANCE:

- Minimal, some berm repair may be necessary

OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☒ Control Site Perimeter
- ☒ Control Internal Erosion

TARGETED POLLUTANTS

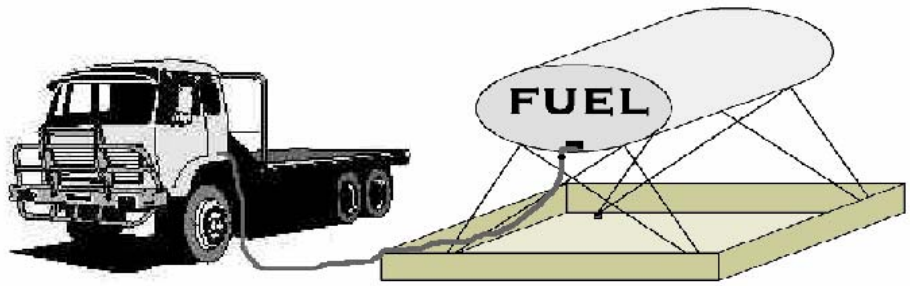
	H	M	L
Sediment	☐	☐	☒
Nutrients	☐	☐	☒
Heavy Metals	☐	☐	☒
Toxic Materials	☐	☒	☐
Oil & Grease	☐	☒	☐
Floatable Materials	☐	☐	☒
Bacteria & Viruses	☐	☐	☒
Other Waste	☐	☐	☒

IMPLEMENTATION REQUIREMENTS

	H	M	L
Capital Costs	☐	☒	☐
O&M Costs	☐	☐	☒
Maintenance	☐	☒	☐
Training	☐	☐	☒
Staffing	☐	☐	☒
Administrative	☐	☐	☒

H = High **M =** Medium **L =** Low

BMP: Vehicle And Equipment Fueling VEF



OBJECTIVES

- ☒ Housekeeping Practices
- ☐ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

	H	M	L
Sediment	☐	☐	☒
Nutrients	☐	☐	☒
Heavy Metals	☐	☐	☒
Toxic Materials	☐	☒	☐
Oil & Grease	☐	☒	☐
Floatable Materials	☐	☐	☒
Bacteria & Viruses	☐	☐	☒
Other Waste	☐	☐	☒

IMPLEMENTATION REQUIREMENTS

	H	M	L
Capital Costs	☐	☒	☐
O&M Costs	☐	☐	☒
Maintenance	☐	☒	☐
Training	☐	☒	☐
Staffing	☐	☐	☒
Administrative	☐	☐	☒

H = High **M =** Medium **L =** Low

DESCRIPTION:

Prevent fuel spills and leaks, and reduce their impacts to storm water by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

INSTALLATION / APPLICATION CRITERIA:

- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the run on of storm water and the runoff of spills. Discourage ”topping-off” of fuel tanks.
- Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Place a stockpile of spill cleanup materials where it will be readily accessible. Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all Federal and State requirements regarding stationary above ground storage tanks.(40 CF Sub. J) Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps forklifts, most vehicles should be able to travel to a designated area with little lost time. Train employees and subcontractors in proper fueling and cleanup procedures.

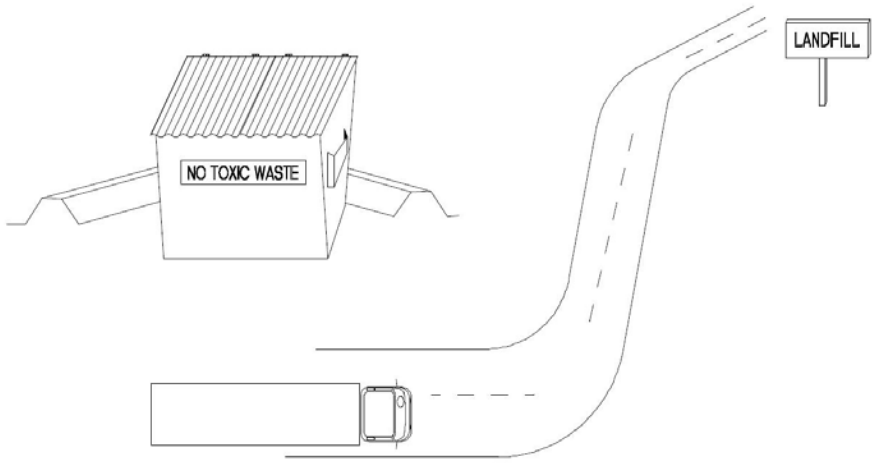
LIMITATIONS:

Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance

MAINTENANCE:

- Keep ample supplies of spill cleanup materials on-site
- Inspect fueling areas and storage tanks on a regular schedule

BMP: Waste Disposal WD



DESCRIPTION:

Controlled storage and disposal of solid waste generated by construction activities.

APPLICATION:

All construction sites

INSTALLATION / APPLICATION CRITERIA:

- Designate one or several waste collection areas with easy access for construction vehicles and personnel. Ensure no waterways or storm drainage inlets are located near the waste collection areas.
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around collection area for impoundment in the case of spills.
- Ensure all on site personnel are aware of and utilize designated waste collection area properly and for intended use only (e.g. all toxic, hazardous, or recyclable materials shall be properly disposed of separately from general construction waste).
- Arrange for periodic pickup, transfer and disposal of collected waste at an authorized disposal location. Include regular Porto-potty service in waste management activities.

LIMITATIONS:

- On-site personnel are responsible for correct disposal of waste

MAINTENANCE:

- Discuss waste management procedures at progress meetings
- Collect site trash daily and deposit in containers at designated collection areas
- Randomly check disposed materials for any unauthorized waste (e.g. toxic materials).

OBJECTIVES

- ☒ Housekeeping Practices
- ☒ Contain Waste
- ☐ Minimize Disturbed Areas
- ☐ Stabilize Disturbed Areas
- ☐ Protect Slopes/Channels
- ☐ Control Site Perimeter
- ☐ Control Internal Erosion

TARGETED POLLUTANTS

H	M	L	
☐	☐	☐	Sediment
☐	☐	☐	Nutrients
☐	☐	☐	Heavy Metals
☒	☐	☐	Toxic Materials
☐	☒	☐	Oil & Grease
☒	☐	☐	Floatable Materials
☐	☐	☐	Bacteria & Viruses
☒	☐	☐	Other Waste

IMPLEMENTATION REQUIREMENTS

H	M	L	
☒	☐	☐	Capital Costs
☒	☐	☐	O&M Costs
☐	☒	☐	Maintenance
☒	☐	☐	Training
☐	☐	☒	Staffing
☐	☐	☒	Administrative

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