BAYSWATER
EXPLORATION & PRODUCTION, LLC

GARNET 21-K PAD SWMP SUPPLEMENT

Contents

Article I. Introduction

Location Information

This document provides site-specific information for the Garnet 21-K Pad Form 2A as the Garnet 21-K Pad OGDP. The information in this document relates specifically to the time during the construction, drilling, and completion, and production of the twenty-four (24) proposed horizontal wells on this location.

The proposed location is rangeland located North of WCR 78 between WCR 29 and WCR 31 using an existing access onto WCR 78. The Pad will be in NWSE Section 21, Township 7 North, Range 66 West zoned AG within Weld County's Near-Urban Planning Area. A 1041 WOGLA was filed as 1041WOGLA20-0093 on 2/18/2021 and approved at hearing on 4/23/2021.

The proposed Pad will be approximately 13 acres, reduced to 6 acres after interim reclamation. The working pad surface will be 9.2 acres. The Pad is on Parcel 070721000040 owned by the City of Thornton. The location is currently used for farming.

The proposed production facility equipment for the Garnet 21-K Pad will be located within the Working Pad Surface adjacent to the wells and will consist of oil tanks, water tanks, multi-use tanks, separators, meters, Instrument Air System, enclosed combustion devices (ECD), gas compressors, Gas Lift, LACT Units, Scrubbers, Sumps, Water Transfer Skid, and proposed electrical and/or solar equipment.

Phase	Duration (days)	Estimated Start Date
Construction	30	1st Quarter (March) 2022
Drilling	150	2nd Quarter (April) 2022
Completion	180	3rd Quarter (September) 2022
Flowback	60	1st Quarter (February) 2023
Production	25 Years	3rd Quarter (April) 2023
Interim Reclamation	10	4th Quarter (April) 2048*

**or the first favorable growing season.*

Article II. Supplemental Site Information

Soil Description

- As included in Field-Wide SWMP as 2.0. SITE DESCRIPTION. d:

Runoff characteristics are based on site topography, soil type, and soil/vegetative cover. The facilities will be constructed on land with little topographic variability and the potential for soil loss due to topography is minimal. The elevation in this Project Area ranges from 4,556 ft. to 5,279 ft. The soils map can be found in **Appendix B.** Soil data acquired from Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey, available online and accessed March 31, 2015.

Vegetation Description

- As included in Field-Wide SWMP as 2.0. SITE DESCRIPTION. e:

Within the Project Area, native vegetation consists primarily of developed open space/low/medium/high intensity, deciduous/evergreen/mixed forest, open water, shrub/scrub, herbaceous, hay/pasture, cultivated crops, barren land, woody wetlands, and emergent herbaceous wetland. Vegetative cover ranges from 15% to 65%. In the event of disturbance, vegetation percent cover for each site in **Appendix D** will be determined from surrounding, undisturbed areas upon initial inspection. The vegetation map can be found in **Appendix B.**

Known Weed Infestations

- None known.

Non-stormwater discharges

- As Included in Field-Wide SWMP as 2.0. SITE DESCRIPTION. g:

Non-stormwater discharges are not expected from the anticipated projects covered by this SMWP. There are no municipal discharge outfalls within the Project Area. Storm culverts and diversion ditches in close proximity to construction activities associated with this Project Area are detailed on the site-specific diagrams located in Appendix D.

Receiving waters

- As Included in Field-Wide SWMP as 2.0. SITE DESCRIPTION. h:

The Project area covered by CDPHE permit COR400369 includes the Cache La Poudre Subbasin (USGS Hydrologic Unit Code [HUC] 10190007), the Lone Tree-Owl Sub-basin (HUC 10190008), the Crow Sub-basin (HUC 10190009), and the Middle South Platte-Cherry Creek Sub-basin (HUC 10190003), which are part of the South Platte Basin (HUC 101900). The ultimate receiving water is the South Platte River.

According to the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center, the annual average total precipitation for Greeley (station USC00053553) is approximately 14.69 inches.

CDPS Permit

- As referenced in Field-Wide SWMP: PERMIT COR400000.

Operator Stormwater Manager

- As included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. a:

Stormwater management involves several entities within Bayswater as well as an outside consultant. This SWMP was prepared on behalf of Bayswater by Kleinfelder, Inc. However, the implementation and execution of the SWMP will be conducted by Bayswater or their designee. The authorized officer(s) for this SWMP are listed below:

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Article III. Stormwater Management Control Measures

Potential Pollution Sources

- Included in Field-Wide SWMP as 2.0. SITE DESCRIPTION. f.

The most common source of pollution from project construction and development is sediment, which can be carried away from the work site with stormwater runoff and possibly impact the water quality of a receiving stream. Clearing, grading, and altering previously undisturbed land may increase the rate of soil erosion over pre-disturbance rates. Potential pollution sources associated with construction, development, and production activities includes:

- Sediment resulting from erosion of soil stockpiles and other areas cleared of vegetation;
- Leakage of fuels and lubricants from equipment and spills from fueling or equipment failures during earth moving activities and storage of equipment on site;
- Trash and debris resulting from clearing activities, construction materials, and worker activity;
- Construction material storage areas, if improperly stored, or exposed to stormwater;
- Fugitive dust due to road use;
- Off-site vehicle tracking; and
- Temporary portable toilet services for construction workers.

Petroleum products are used in project construction to power or lubricate equipment and may include fuel, gear oil, hydraulic oil, brake fluid, and grease. Designated areas for storing of petroleum products are detailed on the site-specific diagrams located in **Appendix D**.

Other potential pollution sources within the construction site include debris from lay down areas, residue from equipment cleaning and maintenance, and solid waste generated from land clearing operations and human activity (e.g., trees, brush, paper, trash, etc.).

Pollution Prevention

- Included in Field-Wide SWMP as Included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. c, pages 12-15.

Structural and Non-Structural Practices

- As Included in Field-Wide SWMP as Included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. c.1) and 2).

Structural Practices for Erosion and Sediment Control
There are a number of structural practices that may be used on the project including: earthen berms, fiber rolls, diversion ditches (lined and unlined), check dams, culvert outlet protection, temporary slope drains, and sediment traps. Structural BMPs practices are located on the Stormwater Site Diagram.

Non-Structural Practice for Erosion and Sediment Control
Non-structural erosion and sediment control BMPs that may be used include techniques such as phasing construction, minimizing disturbance to existing vegetation, preservation of natural vegetation, re-establishing/replacing vegetation, mulching, rolled erosion control products, surface roughening, and land grading. Non-structural BMPs practices are located on the Stormwater Site Diagram.

Erosion Controls

- Please see BMP below for site-specific Erosion Control BMP.

Vehicle Tracking Control

- As included in Field-Wide SWMP as Included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. c.6).

Vehicle tracking controls (VTCs) are used to reduce the potential for sediment to leave a construction area. Given the majority of roads in the area are dirt or gravel, off-site tracking is not anticipated to be a problem. If tracking does become an issue, VTCs will be implemented. VTCs may include, but are not limited to, asphalt- or rock-armored entrances or utilizing street sweeping operations to control tracking of sediment onto adjacent paved roads.

Materials handling and Spill prevention

- Included in Field-Wide SWMP as Included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. c.4) on pages 15-18.

Management of Waste Material

- Included in Field-Wide SWMP as Included in Field-Wide SWMP as 4.0. STORMWATER MANAGEMENT PLANS. b.3):

There is a low potential for contaminated soils to contribute pollutants to stormwater discharges. Areas of contaminated soils will be identified through regular inspections. If found, contaminated soils will be excavated and disposed at an appropriate facility. Soil sampling will be conducted upon completion of excavation and removal activities to ensure contaminated soils have been removed.

Article IV. Site-Specific Construction and Stormwater/Erosion Control Measures

Initial Construction Layout Drawings

- Please see attached Grading Plan sheets.

Interim Reclamation and Production Areas Construction Layout Drawings

- Please see attached Grading Plan sheets.

Article V. Inspections and Maintenance Procedures

Training

- Please see BMP below for site-specific training BMP.

Scope of Inspections

- As included in Field-Wide SWMP as 6.0. INSPECTION AND MAINTENANCE C) 1 on page 27:

The construction site perimeter, all disturbed areas, designated haul roads, material and waste storage areas exposed to precipitation, locations where stormwater has the potential to discharge offsite, and locations where vehicles exit the site will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. During the inspection, the operator, or their designee, will:

- Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges;
- Determine if there are new potential sources of pollutants;
- Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges; and
- Identify all areas of noncompliance with the Permit requirements and, if necessary, implement corrective actions.

State and Local Inspection Requirements

- All inspections shall be in accordance with the Colorado Department of Public Health and Environment's CDPS General Permit for Stormwater Discharges Associated with Construction Activity, and the Colorado Oil and Gas Conservation Commission (COGCC) 304.c.15 and 1002.f rules and requirements.

- Also included in Field-Wide SWMP as 6.0. INSPECTION AND MAINTENANCE C) 2 on pages 27-28.

Inspection Procedures and Frequency

- Included in Field-Wide SWMP as 6.0. INSPECTION AND MAINTENANCE a) and b) on pages 25-27.

Reporting and Recordkeeping Requirements

- Included in Field-Wide SWMP as CDPHE Stormwater General Permit Part II: Standard Permit Conditions L. on pdf pages 59-61.

Article VI. Site-Specific Construction and Stormwater/Erosion Control BMP

- A Leak Detection and Repair ("LDAR") program along with an audio, visual, olfactory ("AVO") program is planned for this location as part of an overall leak and spill detection program.
- All areas compacted by drilling and subsequent oil and gas operations which are no longer needed following completion of such operations will be cross-ripped during interim reclamation prior to seeding. Compaction alleviation operations will be undertaken when the soil moisture at the time of ripping is below thirty-five percent (35%) of field capacity. Ripping will be undertaken to a depth of eighteen (18) inches unless bed rock is encountered at a shallower depth.
- All segregated soil horizons removed from crop lands will be replaced to their original relative positions and contour and will be tilled adequately to re-establish a proper seedbed and treated as needed for erosion control and invasive species prevention. Any perennial forage crops that were present before disturbance will be reestablished.
- Any areas reclaimed that will not be returned to farming operations will be planted with the recommended Weld County seed mix.
- Bayswater will install stormwater controls, constructed in a manner that is consistent with good engineering practices, that will prevent offsite migration of sediment/contaminant, into the nearby sensitive areas.
- Gas, oil, and water gathering lines will be co-located to minimize potential of erosion associated with construction of any pipeline(s).
- Operator shall install stormwater controls, constructed in a manner that is consistent with good engineering practices, that will prevent offsite migration of sediment/contaminant, into the nearby sensitive areas. Stormwater controls shall be installed prior to construction activities.
- Operator will be responsible for segregating the topsoil, backfilling, re-compacting any backfill, reseeding, and re-contouring the surface of any disturbed area so as not to interfere with Owner's operations and will reclaim such area to be returned to preexisting conditions as best as possible with control of all weeds.
- Operator will stabilize the topsoil stockpiles utilizing vehicle tracking perpendicular to slope angle for short term stabilization and drill seed/crimped straw mulch application for longer term stabilization measures to suppress fugitive dust caused solely by wind.
- Stabilization and revegetation will be performed as part of interim reclamation.
- Stormwater controls shall be installed prior to construction activities.
- Stormwater inspection will be performed at least every 7 days during well production and every 30 days after interim reclamation.
- The stormwater system for the Garnet 21-K Pad includes one detention pond with an outlet structure.
- Spill prevention and response are addressed in training of employees and contractor personnel on at least an annual basis.

BAYSWATER EXPLORATION & PRODUCTION, LLC
STORMWATER MANAGEMENT PLAN
PERMIT COR400000
WELD COUNTY, COLORADO

REVISED AUGUST 2019

A Report Prepared for:

Bayswater Exploration & Production, LLC
730 17th Street, Suite 500
Denver, Colorado 80202

BAYSWATER EXPLORATION & PRODUCTION, LLC
STORMWATER MANAGEMENT PLAN
WELD COUNTY, COLORADO

Kleinfelder Job No. 116192

Prepared by:

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Staff Professional II

Reviewed by:

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TABLES

FIGURES

APPENDICES

Table 1. Amendments to Stormwater Management Plan

Amendments to the Stormwater Management Plan			
Date:	**Editor:**	**Section Edited**	**Changes made to Stormwater Management Plan:**
04/06/2011	Derek Veazey	Throughout	Updates to reflect new locations
04/18/2012	Carrie Gudorf	Throughout	Updates to reflect new locations and locations which have been stabilized and are no longer active as part of this permit.
09/12/2012	Carrie Gudorf	Throughout	Updates to reflect new locations and locations which have been stabilized and are no longer active as part of this permit.
10/22/2012	Carrie Gudorf	Throughout	Updates to reflect stormwater locations which are active, and close out locations which are inactive with the CDPHE stormwater permit.
09/13/2013	James Ford	Throughout	Updates to reflect stormwater locations which are active, and close out locations which are inactive with the CDPHE stormwater permit.
12/06/2013	Brad Baum	Throughout	Revise SWMP to cover the four fields in which Bayswater currently operates, including the new Adena Field.
03/26/2015	James Ford	Throughout	Terminate permit area COR03A627 from SWMP. Renumbered Figures.
07/15/2015	James Ford	Throughout	Terminate permit area COR03G876. Expanded permit area COR03G949. Renumbered Figures. Added an appendix for former permit areas and renumbered subsequent appendices.
09/05/2018	James Ford	Throughout	Terminate permit area COR03L564 and update applicable information to reflect the termination of permit area. Remove information associated with former permits COR03A627 and COR03G876 due to terminations occurring more than three years ago. Update local contact information.
08/21/2019	James Ford	Throughout	Update applicable information as required by the new CDPHE General Permit COR400000.

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.

SIGNATURE **DATE**

Donald W. Barbula
Vice President of Operations
Bayswater Exploration & Production, LLC

1.0 INTRODUCTION

This Stormwater Management Plan (SWMP) was written to comply with the Colorado Department of Public Health and Environment (CDPHE) General Permit COR400000 (the "Permit"), which provides authorization to discharge stormwater associated with new and large construction activities. An operator who intends to seek coverage under the Permit must prepare a SWMP for the construction activity. The primary objective of this SWMP is to identify pollutants with the potential to leave the construction site in stormwater runoff and identify Best Management Practices (BMPs) that, when implemented, will meet the terms and conditions of the Permit by minimizing or reducing the pollution of waters of the State of Colorado.

Bayswater Exploration & Production, LLC (Bayswater) obtained coverage under the general stormwater permit COR030000 and prepared this SWMP for construction activities in accordance with the requirements of the Permit. Effective April 1, 2019, CDPHE updated the General Permit from COR030000 to COR400000. All existing COR030000 permits as of March 31, 2019 were automatically transferred to the new COR400000 permit.

This SWMP addresses construction activities in accordance with the requirements of the Permit. This SWMP addresses development of oil and gas resources, including the construction of well pads, central tank batteries, associated access roads, and other linear projects, in Weld County, Colorado.

This SWMP was prepared in accordance with good engineering, hydrologic, and pollution control practices. It is intended to be a dynamic document that will be updated, as needed, to address planned development, new disturbances, and other changes needed to manage stormwater and protect surface water quality. Please refer to the Permit in Appendix A for specific CDPHE requirements.

2.0 SITE DESCRIPTION

This SWMP is intended to be a field-wide plan covering construction projects associated with Bayswater's oil and gas development in Weld County, Colorado. **Figure 1** in **Section 3.0** shows the location and extent of the field and **Table 2** lists the discharge permit certification number and other pertinent data associated with the field covered by this plan. The total area covered by this plan and the associated field is expected to be approximately 519 square miles. Please refer to **Appendix D** for specific pads covered by this SWMP.

It is anticipated construction projects will occur concurrently in the field. Site specific BMP diagrams for active sites associated with the discharge permit are included in **Appendix D**. This SWMP will be updated regularly, with new sites added prior to construction and sites removed once they meet interim reclamation requirements.

Table 2. Specific Areas of Project

Project Area	CDPHE Discharge Permit Number	Counties Covered by Discharge Permit	Approximate Discharge Permit Area (acres)
Galeton	COR400369	Weld	332,041
		Total Area	332,041

In February 2015 the Spindle Well System (COR03A627) discharge permit was terminated. In June 2015 the North Greeley Exploration (COR03G876) discharge permit was terminated. Since these permit terminations were more than three years ago, records are no longer required per the Permit COR400000 Part II O. 1. and can be discarded if desired.

In July 2018 the Adena Field (COR03L564) permit was terminated. Records associated with this permit area are required to be maintained for a period of at least three years following termination of permit coverage.

Please refer to the electronic files or the July 2015 SWMP amendment for Site Specific BMP Diagrams and Inspection Reports for the former Adena Field (COR03L564), Spindle Well System (COR03A627) and North Greeley Exploration (COR03G876) permit areas.

In July 2015, the Galeton (COR03G949) permit area was expanded to cover the area located between the Larimer / Weld County border and US-85. Please refer to **Appendix D** for records of inspections at facilities associated with the Galeton (COR03G949) discharge permit area.

a) NATURE OF CONTSRUCTION ACTIVITIES

The Project Area are located on privately-owned lands in northeastern Colorado in Weld County. The current development plan for the field includes ongoing construction of well pads, central tank batteries, associated access roads, and other linear projects.

b) PROPOSED SEQUENCE FOR MAJOR ACTIVITY

The development phase includes construction of well pads, central tank batteries, associated access roads, and other linear projects. Bayswater's development of their assets began in the Fall of 2010 and is currently ongoing.

Typically, oil and gas production begins after the construction of the well pad, drilling and development of the well, and installation of production equipment. A well can produce for many years. Interim reclamation begins once the final installation of the oil and gas wells and associated production equipment on a well pad is complete. Final reclamation begins after production has ceased, the well is plugged and abandoned and all equipment is removed with final restoration of the site dependent on weather conditions.

Construction and Development

During the construction and development phase, the construction areas will be cleared and grubbed. Stormwater inspections begin once the soil or vegetation is disturbed. Temporary or permanent on-site perimeter erosion and sediment control BMPs will be installed as appropriate (i.e.; before, during, and after all grading activities and development).

Well pads, central tank batteries, and access roads will be constructed using conventional cut and fill earth-moving techniques for the majority of the construction activities. Typical pad surfaces will be approximately 350 feet long by 350 feet wide. Specific construction dimensions may vary depending on the nature of the project and site specific conditions.

In areas disturbed by construction, topsoil will be stripped and stockpiled near the site. Soil materials will be managed so erosion and sediment transport are minimized. Nearby drainages will be protected by appropriate BMPs. Any stockpiled excess cut-material or topsoil will be segregated during construction and appropriate erosion and sediment control BMPs will be utilized to minimize sediment transport during temporary storage.

Sequencing of construction activities will progress as rapidly as practicable to minimize the amount of time portions of the site are disturbed. Inactive areas will be stabilized to reduce erosion potential, slow runoff velocity, and promote infiltration and will be temporarily seeded where applicable. All BMPs will be installed in a phased approach as outlined in accordance with **Table 3** in **Section 4.0** of this plan.

Production

During the Production Phase, appropriate BMPs will be maintained and remain in place during the Production Phase. Disturbed areas will be graveled, surface hardened, or vegetated to a uniform individual plant density of at least 70% of pre-existing conditions prior to being removed from CDPHE permit coverage. Upon removal from CDPHE permit coverage, the site will be placed in the Colorado Oil and Gas Conservation Commission (COGCC) Post-Construction Stormwater Program in accordance with the COGCC 1000-Series Rules.

Final Reclamation

After construction and development is complete and production activities cease, the well(s) are typically plugged and abandoned and all equipment is removed in preparation for final reclamation activities. During final reclamation, all segregated soil horizons shall be replaced to their original relative positions and contour as near as practicable to achieve erosion control and long-term stability, and shall be tilled adequately in order to establish a proper seedbed. Reclaimed areas will then be tracked, seeded, and mulched according to the standard details provided in **Appendix C**.

Final seeding of the reclaimed area will be done in the spring or fall depending on the completion time of the reclamation and weather conditions permitting. If soil or vegetation is disturbed during final reclamation activities, the site will be placed back under Permit coverage and stormwater inspections will resume until a uniform vegetative cover has been established with an individual plant density of at least 70% of pre-existing conditions. If soil or vegetation is not disturbed during final reclamation activities, the site will remain part of the COGCC Post-Construction Stormwater Program in accordance with the COGCC 1000-Series Rules.

Following completion of final reclamation, a qualified stormwater manager will inspect reclaimed areas to ensure revegetation has been successful. If revegetation is not successful, spot revegetation or other remedial actions will be implemented to assure compliance with the Permit.

c) ESTIMATED TOTAL AREA OF SITE AND EXPECTED DISTURBANCE

The total area of disturbance and construction site boundary for a typical well pad and associated access road will be approximately 5 acres per site. The expected disturbance for other projects will depend upon the nature of the project. Please refer to **Appendix D** for site specific information.

d) SOILS AND EXISTING POTENTIAL FOR SOIL EROSION

Runoff characteristics are based on site topography, soil type, and soil/vegetative cover. The facilities will be constructed on land with little topographic variability and the potential for soil loss due to topography is minimal. The elevation in this Project Area ranges from 4,556 ft. to 5,279 ft. The soils map can be found in **Appendix B.** Soil data acquired from Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey, available online and accessed March 31, 2015.

e) EXISTING VEGETATION AND PERCENT GROUND COVER

Within the Project Area, native vegetation consists primarily of developed open space/low/medium/high intensity, deciduous/evergreen/mixed forest, open water, shrub/scrub, herbaceous, hay/pasture, cultivated crops, barren land, woody wetlands, and emergent herbaceous wetland. Vegetative cover ranges from 15% to 65%. In the event of disturbance, vegetation percent cover for each site in **Appendix D** will be determined from

surrounding, undisturbed areas upon initial inspection. The vegetation map can be found in **Appendix B.** Vegetation data was acquired from the following sources:

1) Homer, C., Huang, C., Yang, L., Wylie, B., and Coan M., (2004). Development of a 2001 National Land Cover Database for the United States. Photogrammetric Engineering and Remote Sensing, 70, 829 - 840.

2) Jin, S., Yang, L., Xian, G., Danielson, P., Fry, J., and Homer C., (2011). A multi-index integrated change detection method for updating the National Land Cover Database (In Preparation).

3) Nowak, D. J., & Greenfield, E. J., (2010). Evaluating the National Land Cover Database tree canopy and impervious cover estimates across the conterminous United States: A comparison with photo-interpreted estimates. Environmental Management, 46, 378 - 390.

4) Wickham, J. D., Stehman S. V., Fry, J. A., Smith, J. H., & Homer, C. G., (2010). Thematic accuracy of the NLCD 2001 land cover for the conterminous United States. Remote Sensing of Environment, 114, 1286 - 1296.

5) Xian, G., Homer, C., and Fry, J., (2009). Updating the 2001 National Land Cover Database land cover classification to 2006 by using Landsat imagery change detection methods. Remote Sensing of Environment, 113, 1133-1147.

6) Xian, G., and Homer C., (2010). Updating the 2001 National Land Cover Database impervious surface products to 2006 using Landsat imagery change detection methods. Remote Sensing of Environment, 114, 1676-1686.

f) POTENTIAL POLLUTION SOURCES

The most common source of pollution from project construction and development is sediment, which can be carried away from the work site with stormwater runoff and possibly impact the water quality of a receiving stream. Clearing, grading, and altering previously undisturbed land may increase the rate of soil erosion over pre-disturbance rates.

Potential pollution sources associated with construction, development, and production activities includes:

- Sediment resulting from erosion of soil stockpiles and other areas cleared of vegetation;
- Leakage of fuels and lubricants from equipment and spills from fueling or equipment failures during earth moving activities and storage of equipment on site;
- Trash and debris resulting from clearing activities, construction materials, and worker activity;
- Construction material storage areas, if improperly stored, or exposed to stormwater;

- Fugitive dust due to road use;
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- Temporary portable toilet services for construction workers.

Petroleum products are used in project construction to power or lubricate equipment and may include fuel, gear oil, hydraulic oil, brake fluid, and grease. Designated areas for storing of petroleum products are detailed on the site specific diagrams located in **Appendix D**.

Other potential pollution sources within the construction site include debris from lay down areas, residue from equipment cleaning and maintenance, and solid waste generated from land clearing operations and human activity (e.g., trees, brush, paper, trash, etc.).

g) NON-STORMWATER DISCHARGES

Non-stormwater discharges are not expected from the anticipated projects covered by this SMWP. There are no municipal discharge outfalls within the Project Area. Storm culverts and diversion ditches in close proximity to construction activities associated with this Project Area are detailed on the site-specific diagrams located in **Appendix D**.

h) RECEIVING WATERS

The Project area covered by CDPHE permit COR400369 includes the Cache La Poudre Sub-basin (USGS Hydrologic Unit Code [HUC] 10190007), the Lone Tree-Owl Sub-basin (HUC 10190008), the Crow Sub-basin (HUC 10190009), and the Middle South Platte-Cherry Creek Sub-basin (HUC 10190003), which are part of the South Platte Basin (HUC 101900). The ultimate receiving water is the South Platte River.

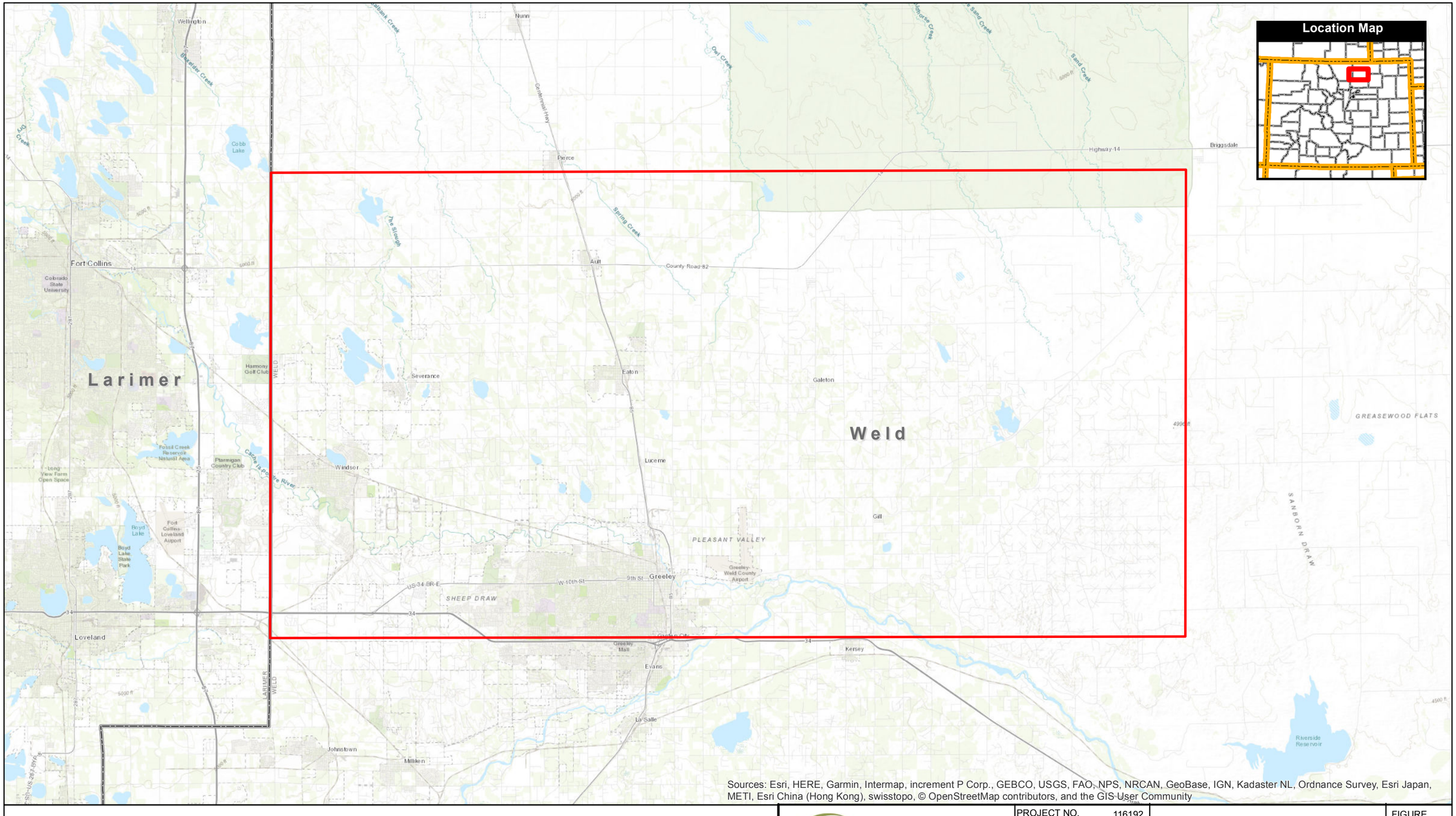
According to the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center, the annual average total precipitation for Greeley (station USC00053553) is approximately 14.69 inches.

Receiving waters adjacent to each site, if present, are detailed on the site-specific diagrams located in **Appendix D**. Where feasible, a 50-foot vegetation buffer, or equivalent control measure, will be provided around adjacent receiving waters.

Stream crossings, if present, are detailed on the site-specific diagrams located in **Appendix D**.

3.0 SITE MAPS

Figure 1 shows the location and extent of the Project area where Bayswater has ongoing active construction.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

0 2 4 Miles

N

Legend

COR400369, Galeton Project Area

County Boundary

Base Map: ESRI Online Map

KLEINFELDER
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PROJECT NO.	116192
DRAWN:	07/31/2019
DRAWN BY:	A.Leonard
CHECKED BY:	J. Ford
FILE NAME:	AdenaField_Boundary_1A.mxd

Bayswater Exploration & Production, LLC

Galeton Project Area
CDPHE Permit COR400369
Weld County, Colorado

FIGURE
1

4.0 STORMWATER MANAGEMENT PLANS

a) STORMWATER MANAGEMENT PLAN ADMINSTRATOR

Stormwater management involves several entities within Bayswater as well as an outside consultant. This SWMP was prepared on behalf of Bayswater by Kleinfelder, Inc. However, the implementation and execution of the SWMP will be conducted by Bayswater or their designee. The authorized officer(s) for this SWMP are listed below:

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Production & Facilities
Bayswater Exploration & Production, LLC
rkaminky@bayswater.us
Cell (303) 746-5195

b) IDENTIFICATION OF POTENTIAL POLLUTANT SOURCES

Potential pollutant sources will be inspected on a regular basis and include:

1) All disturbed and stored soils

There is a moderate potential for disturbed and stored soils to contribute pollutants to stormwater discharges. As part of the regular stormwater inspections, all disturbed and

stored soils will be monitored to ensure sediment transport is not occurring. BMPs may be installed and maintained in areas with disturbed and stored soils.

2) Vehicle tracking of sediments

There is a low potential for vehicle tracking of sediments to contribute pollutants to stormwater discharges. Most of the county roads within the Project area are not paved. BMPs may be installed in areas where county roads are paved and potential for vehicle tracking of sediments may become moderate.

3) Management of contaminated soils

There is a low potential for contaminated soils to contribute pollutants to stormwater discharges. Areas of contaminated soils will be identified through regular inspections. If found, contaminated soils will be excavated and disposed at an appropriate facility. Soil sampling will be conducted upon completion of excavation and removal activities to ensure contaminated soils have been removed.

4) Loading and unloading operations

There is a low potential for loading and unloading operations to contribute pollutants to stormwater discharges because BMPs (i.e.; active and passive BMPs) will be installed or implemented prior to any loading and unloading activities.

5) Outdoor storage activities (building materials, fertilizers, and chemicals)

There is a low potential for outdoor storage activities to contribute pollutants to stormwater discharges. No fertilizers or building materials will be kept on-site. Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters.

6) Vehicle and equipment maintenance and fueling

There is a low potential for vehicle and equipment maintenance and fueling to contribute pollutants to stormwater discharges. Limited vehicle and equipment maintenance and fueling is expected to occur at the project facilities. On-site maintenance and fueling will be done in designated areas cleared of vegetation and located away from any drainage areas.

7) Significant dust or particulate generating processes

There is a moderate potential for dust or particulate generating processes to contribute pollutants to stormwater discharges due to the arid environment. During summer months, winds can pick up dust and sediment produced during construction activities or by moving vehicles and deposit it along or in waterways. However, areas of disturbed soils will be

stabilized and areas needed during the Production phase of operations will be hard surfaced after construction operations are completed.

8) Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.

There is a moderate potential for routine maintenance activities to contribute pollutants to stormwater discharges due to the amount of vehicle activity during drilling and production operations. However, fertilizers, pesticides, and detergents will not be kept on-site and fueling will be done in designated areas cleared of vegetation, located away from any drainage areas, and using equipment with appropriate BMPs (e.g., drip pans).

9) On-site waste management practices (waste piles, liquid wastes, etc.)

There is a low potential for on-site waste management practices to contribute pollutants to stormwater discharges. Waste piles will be contained using BMPs to minimize sediment transport. Spill Prevention, Control, and Countermeasure (SPCC) Plans were prepared for the tank batteries to address liquid wastes and storage areas. In addition, Bayswater requires all drilling and workover contractors operating on company leases to have a written SPCC plan for their operations as required by 40 CFR 112.3 (a)(1). The contractor's plans must be implemented before drilling or workover operations are initiated.

10) Concrete truck/equipment washing, including the concrete truck chute and associates fixtures and equipment

There is a very low potential for concrete truck/equipment washing to contribute pollutants to stormwater discharges because concrete equipment washing is not scheduled as part of the Project. If concrete washing does occur, control measures designed for concrete washouts will be implemented. This includes washout waste discharged to the ground as authorized by the Permit and washout waste from concrete trucks and masonry operations contained on site. The washing activities must not contribute pollutants to stormwater runoff or receiving waters. Discharges that may reach groundwater must flow through soil that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in the Permit. The concrete washout location shall be not be located in an area where shallow groundwater may be present.

11) Dedicated asphalt and concrete batch plants

There is no potential for dedicated asphalt and concrete batch plants to contribute pollutants to stormwater discharges as there are no asphalt or concrete batch plants associated with the Project area.

12) Non-industrial waste sources such as worker trash and portable toilets

There is a low potential for non-industrial waste sources to contribute pollutants to stormwater discharges. Dumpsters for worker trash will be maintained on site and portable toilets will be staked and located in a safe area where the potential of accidental tipping is reduced. Dumpsters and portable toilets will only be on-site during the Construction and Development phases of operations.

13) Other areas or procedures where potential spills can occur

Spills may occur from vehicles (e.g., oil and produced water transports) accessing each site during construction and daily activities. Observations for soil staining will be conducted during the routine inspections. SPCC Plans was prepared for the tank batteries and covers each facility that addresses storage and spill procedures. In addition, Bayswater requires all drilling and workover contractors operating on company leases to have a written SPCC plan for their operations as required by 40 CFR 112.3 (a)(1). The contractor's plans must be implemented before operations are initiated.

c) BEST MANAGEMENT PRACTICES FOR POLLUTION PREVENTION

The selection of erosion and sediment control BMPs is contingent upon site specific conditions (e.g., construction, vegetation, precipitation, and evaporation). The objective of erosion and sediment controls is to minimize the release of sediments. This can be accomplished through the use of structural and/or nonstructural controls. The types and locations of structural BMPs for oil and gas production and/or processing facilities and associated access roads are shown on the Stormwater Site Diagrams, which are included behind the appropriate field tab in **Appendix D**.

1) Structural Practices for Erosion and Sediment Control

There are a number of structural practices that may be used on the project including: earthen berms, fiber rolls, diversion ditches (lined and unlined), check dams, culvert outlet protection, temporary slope drains, and sediment traps. Structural BMPs practices are located on the Stormwater Site Diagram.

2) Non-Structural Practice for Erosion and Sediment Control

Non-structural erosion and sediment control BMPs that may be used include techniques such as phasing construction, minimizing disturbance to existing vegetation, preservation of natural vegetation, re-establishing/replacing vegetation, mulching, rolled erosion control products, surface roughening, and land grading. Non-structural BMPs practices are located on the Stormwater Site Diagram.

3) Phased BMP Implementation

BMPs are generally implemented in four phases at the sites – construction, development, production, and reclamation. **Table 3** lists BMPs that may be used during each phase of the project. Stormwater runoff from all disturbed areas and soil storage areas for all phases of construction, for which stabilization is not implemented, will flow to at least one control measure to minimize sediment discharge.

If control measures are located outside of the site boundary, but are utilized by the operator for compliance with the Permit and not under the direct control of the operator, the SWMP will include a documented use agreement between the operator and the owner/operator of the control measure.

Construction

The Construction Phase will begin with the clearing and grubbing of all necessary areas to construct the access road and well pad. The operator shall separate and store soil horizons separately from one another. To the extent practicable, the top six feet (for cropland) and the top soil horizon or six inches (whichever is deeper for non-cropland) will be separated and stockpiled for subsequent reclamation based upon noted changes in physical characteristics such as organic content, color, texture, density, or consistency. The facilities and associated access roads will be constructed utilizing standard cut and fill techniques. This phase will typically only last for several days and be completed once the final grade has been achieved.

Structural sediment control BMPs will be installed around the limits of disturbance to prevent sediment from leaving the construction site. These BMPs will be installed prior to starting any earthwork activities. Structural BMPs will be maintained during construction to the standards outlined in the BMP Details located in **Appendix C**.

Development

The Development Phase will begin when the final grade has been achieved for the oil and gas production and/or processing facilities and associated access roads. Activities during this phase will include installation of facilities and buildings associated with oil and gas production and/or processing. This phase may last anywhere from a couple weeks to several months. All ground disturbing activities will be conducted on the working surface of the construction site during the development phase.

This phase will include setting up all facilities on site required to support a well pad. Various types of equipment will be mobilized to the site during this phase as construction advances. Production and processing facilities, including processing equipment, piping, and storage tanks will be installed on the working pad surface.

During development, all structural BMPs used for sediment control during the construction phase will be maintained or be replaced, and additional BMPs will be installed as needed.

Possible BMPs include lined and unlined diversion ditches, check dams, temporary slope drains, fiber rolls, culvert outlet protection, sediment traps, and earthen berms.

Depending on site conditions, a variety of erosion control practices may be necessary to stabilize areas of disturbed soil that have not been surface hardened. Seed and mulch or erosion control blankets should be applied to disturbed areas such as topsoil stockpiles and cut and fill slopes. Slopes may also be tracked to provide surface roughening.

Roads built to access the facilities may require diversion ditches, culverts, culvert outlet protection, and other structural BMPs to contain sediment. The road surface may be periodically graded depending on the traffic volume and frequency of storm and melting events.

Production

During the Production Phase, appropriate BMPs will be maintained and remain in place during the Production Phase. Disturbed areas will be graveled, surface hardened, or vegetated to a uniform individual plant density of at least 70% of pre-existing conditions prior to being removed from CDPHE permit coverage. Upon removal from CDPHE permit coverage, the site will be placed in the COGCC Post-Construction Stormwater Program in accordance with the COGCC 1000-Series Rules.

Final Reclamation

After construction and development is complete and production activities cease, the well(s) are typically plugged and abandoned and all equipment is removed in preparation for final reclamation activities. If soil or vegetation is disturbed during final reclamation activities, the site will be placed back onto the Permit and stormwater inspections will resume until a uniform vegetative cover has been established with an individual plant density of at least 70% of pre-existing conditions. If soil or vegetation is not disturbed during final reclamation activities, the site will remain part of the COGCC Post-Construction Stormwater Program in accordance with the COGCC 1000-Series Rules.

All segregated soil horizons shall be replaced to their original relative positions and contour as near as practicable to achieve erosion control and long-term stability, and shall be tilled adequately in order to establish a proper seedbed. Reclaimed areas will then be tracked, seeded, and mulched.

After final reclamation, the site will be inspected while the vegetation is being established. Spot-seeding and maintenance to other BMPs may be done. After uniform vegetative cover has been established with an individual plant density of at least 70% of pre-existing conditions on all reclaimed areas, the site will be considered stabilized and inspections will cease. Structural BMPs, if present, may be removed after these conditions have been met.

Seeding can be conducted at any time of the year; however, the middle of winter and the middle of summer can be problematic. If applied in the winter, seed will lie dormant and will be in place to grow as soon as spring arrives accompanied by warmer temperatures and moisture from precipitation or snowmelt. However, seed cannot be applied when there is more than an inch of snow on the ground. If seed is applied in the middle of summer, extreme heat and limited moisture will reduce effectiveness. Therefore, the recommended times for seeding are spring (after snowmelt begins, but generally mid-March to mid-June) and fall (generally from late-August until the first heavy snow). See **Appendix C**.

Table 3. BMPs Used During Each Project Phase

Construction	Development	Production	Reclamation
Check Dams	Check Dams	Check Dams	Check Dams
Culvert Outlet Protection	Culvert Outlet Protection	Culvert Outlet Protection	Culvert Outlet Protection
Diversion Ditch (Lined and Unlined)	Diversion Ditch (Lined and Unlined)	Diversion Ditch (Lined and Unlined)	Diversion Ditch (Lined and Unlined)
Dust Control	Dust Control	Dust Control	Dust Control
Earthen Berms	Earthen Berms	Earthen Berms	Earthen Berms
Fiber Roll	Fiber Roll	Fiber Roll	Fiber Roll
Sediment Trap	Sediment Trap	Sediment Trap	Sediment Trap
Surface Roughening	Surface Roughening	Surface Roughening	Surface Roughening
Temporary Slope Drains	Temporary Slope Drains	Temporary Slope Drains	Temporary Slope Drains
Land Grading			Land Grading
Re-vegetation			Re-vegetation
Erosion Control Blanket			Erosion Control Blanket
Mulching			Mulching
Slope Stabilization			Slope Stabilization

4) Materials Handling and Spill Prevention

Spills at the construction site can be largely prevented through proper training and the conscientious efforts of construction personnel during the performance of routine activities. Efforts should be made to refuel equipment away from drainages and waterways. If possible, attempts should be made to use the same location for refueling activities, such as a designated equipment refueling/staging area. If a release of a hazardous substance does occur during construction activities, construction personnel will take appropriate action to minimize the impact of the spill through the use of absorbent

material stored at the construction site. Absorbent material may consist of clay, sawdust, straw, kitty litter, booms, absorbent pads, or other suitable materials.

A list of all potentially toxic or hazardous chemicals used during the project will be maintained and kept on-site. Warning labels must be attached to all potentially toxic or hazardous chemicals. Safety Data Sheets (SDS) and other safety information will be on file and accessible during all periods in which the chemicals are used or stored. Construction site personnel must follow spill prevention and control practices as outlined in the SPCC plan developed for each site.

In addition to maintaining an inventory of potentially toxic, hazardous materials and associated safety information, the following materials management practices will be followed:

- Materials will be handled in accordance with Occupational Safety and Health Administration (OSHA) requirements and manufacturers' instructions;
- Chemicals regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) will be reported and handled in accordance with relevant regulations;
- Materials stored at the construction site will be covered or otherwise protected from the elements;
- The quantity of fuel and lubricants stored on the construction site will be limited to the amount that is reasonable to support the specific construction or maintenance activity;
- Bulk storage areas for materials not consumed daily will be enclosed and protected from the elements and contained in a manner to prevent release to the environment;
- Petroleum products and fertilizers will be stored at separate facilities or isolated by impermeable barriers;
- If stored on-site, hypochlorite and other chlorine compounds will be stored separately from other materials and kept dry; and
- General construction site debris will be stored in trash containers and removed from the job site on a regular basis to prevent overflowing.

Lubricant, hydraulic, and miscellaneous oils and solvents will be stored in 55-gallon or smaller containers, where feasible. Pollutants from petroleum products used during construction activities adhere easily to soil particles and other surfaces. In case of a spill or leak, soils contaminated with petroleum products will be contained and removed to a proper disposal site. Proposed soil erosion and sediment control practices will aid in retention of spills or leaks. Use of secondary containment and drip pans will reduce the likelihood of spills or leaks contacting the ground. Proposed maintenance and safe storage practices will reduce the chance of petroleum products contaminating on-site soils and drainages. Oily wastes such as crankcase oil, cans, rags, and paper containing oils will be placed in proper receptacles and disposed of or recycled. Additional sources of

petroleum contamination are leaks from equipment and vehicles. Routine daily inspections will be conducted to identify leaks and initiate corrective actions, if needed.

The following guidelines for storing petroleum products will be used:

- All product containers will be clearly labeled;
- Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters;
- Drums will be kept off the ground within secondary containment and stored under cover, if needed;
- Emergency spill response procedures will be available on-site and personnel trained in handling spills will be on-call at all times;
- Spill cleanup and containment materials (e.g., absorbent materials, shovels, etc.) will be easily accessible. Spills will be cleaned-up in a timely manner and reported as required in accordance with applicable regulations; and
- Contaminated materials will be properly stored on site until they can be disposed of in accordance with applicable regulations.

Storage areas and containers will be regularly monitored for leaks and repaired or replaced as necessary. Workers will be reminded about proper storage and handling of materials during safety meetings.

In the event of a release of fuel, lubricant, coolant, or any other chemical, efforts will be made to stop the release. Spilled fluids will be cleaned up as soon as possible. All contaminated soils and spent/used clean-up materials shall be containerized in drums or dumpsters and stored on site until appropriate disposal methods have been identified. The necessary repairs will be made to the equipment to prevent a continued release of potential pollutants.

Contact Michelle Schuster at (720) 255-6459 or Ryan Sokolowski at (720) 822-2276 to report any spills over five gallons.

Spills of any size that impact or threaten to impact waters of the State of Colorado must be immediately reported to the CDPHE Emergency Management Program Hotline at (877) 518-5608. Spills that impact or threaten to impact a surface water intake must be reported to the emergency contact for that facility immediately after discovery. In addition, any release of oil or chemical to navigable water must be immediately reported to the National Response Center at (800) 424-8802.

According to the Permit, the permittee shall orally report the following circumstances within twenty-four hours from the time the permittee becomes aware of the circumstances,

and shall mail the Division a written report containing the information requested within five working days after becoming aware of the following circumstances:

- Circumstances leading to any noncompliance that may endanger health or the environment regardless of the cause of the incident;
- Circumstances leading to any unanticipated bypass that exceeds any effluent limitations in the permit; and
- Circumstances leading to any upset that causes an exceedance of any effluent limitation in the permit.

5) Dedicated Concrete or Asphalt Batch Plants

No concrete or asphalt batch plants are included as part of this project.

6) Vehicle Tracking Controls

Vehicle tracking controls (VTCs) are used to reduce the potential for sediment to leave a construction area. Given the majority of roads in the area are dirt or gravel, off-site tracking is not anticipated to be a problem. If tracking does become an issue, VTCs will be implemented. VTCs may include, but are not limited to, asphalt- or rock-armored entrances or utilizing street sweeping operations to control tracking of sediment onto adjacent paved roads.

7) Waste Management and Disposal

Construction will generate various other wastes, possibly including the following:

- Vegetation from clearing operations;
- Trash and debris from construction materials and workers; and
- Sanitary sewage.

Each of these wastes will be managed so as to not contribute to stormwater pollution. Vegetation may be piled along the toe of fill slopes to provide additional sediment control or be hauled off-site. Construction trash and debris will be collected in containers and hauled off-site for disposal in suitable landfills.

8) Groundwater and Stormwater Dewatering

Groundwater and stormwater dewatering is not anticipated as part of this project. If groundwater is encountered during construction activities, a groundwater dewatering permit will be acquired from CDPHE and monitoring will be conducted in accordance with the permit requirements.

5.0 FINAL STABILIZATION AND LONG-TERM STOMRWATER MANAGEMENT

a) FINAL STABILIZATION PRACTICES

For new disturbances, structural BMPs will be installed prior to, during, and immediately following construction, as practicable, with consideration given to safety, access, and ground conditions at the time of construction.

Final stabilization after interim reclamation is defined as when all disturbed areas have been either built on, paved, or stabilized as unpaved surfaces as needed for operation of the facility, well pad, or road has occurred. All segregated soil horizons are replaced to their original relative positions and contour as near as practicable to achieve erosion control and long-term stability and tilled adequately in order to establish a proper seedbed. A uniform vegetative cover must be established with a density of at least 70% percent of pre-disturbance levels or equivalent permanent, physical erosion reduction methods must be implemented.

Final stabilization after final reclamation is defined as when the wells are plugged and abandoned, all equipment is removed, and all segregated soil horizons are replaced to their original relative positions and contour as near as practicable to achieve erosion control and long-term stability and tilled adequately in order to establish a proper seedbed. A uniform vegetative cover must be established with an individual plant density of at least 70% of pre-existing conditions on all reclaimed areas. Once these conditions are met, structural BMPs must be removed.

For sites located in cropland, final stabilization will include replacing all segregated soil horizons to their original relative positions and contour as near as practicable to achieve erosion control and long-term stability and tilled adequately in order to establish a proper seedbed. Any perennial forage crops present before disturbance will be re-established.

b) SEED MIX APPLICATION AND SOIL STABILIZATION

Final stabilization practices for obtaining a vegetative cover will include selecting a seed mix and application methods, soil preparation and amendments when necessary, implementing soil stabilization practices, and utilizing appropriate sediment control BMPs, as needed, until final stabilization is achieved. Areas not required for production operations will be re-graded to reduce cut and fill slopes and re-seeded. The seeding and stabilization practices may include drill- or broadcast-seeding, mulching and crimping, erosion control matting, or hydroseeding. The BMPs may be modified as needed to ensure site reclamation and stabilization leading to a uniform vegetative cover with an individual plant density of at least 70% of pre-existing conditions.

c) ACHIEVING FINAL STABILIZATION

Re-vegetation will be accomplished by seeding using broadcast, drilling, or other appropriate method approved by Bayswater or the landowner. Final stabilization may also be achieved by grading or returning disturbed areas to cropland by re-establishing perennial forage crops.

6.0 INSPECTION AND MAINTENANCE

a) INSPECTION PROGRAM

To meet requirements of the Permit, inspection and maintenance of erosion and sediment controls must occur during the Project. Continued inspection and maintenance is required for specific structures after construction is completed. The inspection program will be implemented as follows:

- A qualified stormwater manager familiar with the SWMP and control measures will conduct the inspections.
- Inspections will start within 7 calendar days of commencement of ground disturbing activities at a site.
- Inspections will cover these areas of the construction site:
- Construction site perimeter;
- All disturbed areas;
- Designated haul roads;
- Material and waste storage areas exposed to precipitation;
- Locations where stormwater has the potential to discharge offsite; and
- Locations where vehicles exit the site.
- A log of inspections will be kept with the SWMP either at the construction site or, for Field Permit Coverage, at a location in close proximity to the site and approved by the Division.
- Sediment and erosion control BMPs will be inspected for evidence of deterioration, need for maintenance, under-cutting, and buildup of sediment.
- Following each inspection, the SWMP will be updated as soon as possible if one or more of the following items apply;
- A change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;
- The SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the Permit conditions;
- Control measures identified in the SWMP are no longer necessary and are removed; and/or
- Corrective actions are taken onsite that result in a change to the SWMP.
- A signed inspection report summarizing the information present in Part I.D.5.C. will be prepared and placed into the SWMP. Inspection reports will be retained for at least 3 years from the date that permit coverage expires or is terminated;
- Actions taken to modify any stormwater control measure will be recorded and maintained with the SWMP. Once adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report shall be signed indicating the site is in compliance. An updated diagram will accompany each report; and
- Deficiencies found that are associated with the SPCC Plan will be noted on the stormwater inspection paperwork.

b) MINIMUM INSPECTION SCHEDULE

A thorough inspection will be made at least every 7 calendar days or every 14 calendar days and within 24 hours after the end of any precipitation or snowmelt event causing surface erosion (i.e., a post-storm inspection). Provided the timing is appropriate, post-storm inspections may be used to fulfill the 14 day inspection requirement. The following conditional modifications to this minimum inspection schedule are allowed:

1) Discharges to Outstanding Waters

Site inspections must be conducted once every 7 calendar days for sites that discharge to a water body designed as an Outstanding Water by the Water Quality Control Commission.

2) Post-Storm Event Inspections at Temporarily Idle Sites

If no construction activities occur immediately following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection will be documented in the inspection record. Routine inspections will still be conducted at least once every 14 calendar days.

3) Inspections at Completed Sites/Areas

When the site or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met

For sites, or portions of sites, that meet the following criteria but are awaiting establishment of a vegetative ground cover and final stabilization has not yet been achieved, an inspection will be conducted at least once every 30 days and post-storm event inspections are not required. This reduced inspection schedule is allowed *only* if:

- All construction activities resulting in ground disturbance are complete;
- All activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- The SWMP has been amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this subsection.

4) Winter Conditions Inspections Exclusion

Inspections will not be performed at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This exception is applicable *only* during the period where melting conditions do not exist and applies to the routine 7 day, 14 day, and 30 day inspections, as well as post-storm-event inspections. The following information will be documented in the inspection record for use of this exclusion:

- Dates when snow cover existed;
- Date when construction activities ceased and
- Date melting conditions began.

c) INSPECTION REQUIREMENTS

1) Inspection Scope

The construction site perimeter, all disturbed areas, designated haul roads, material and waste storage areas exposed to precipitation, locations where stormwater has the potential to discharge offsite, and locations where vehicles exit the site will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters. During the inspection, the operator, or their designee, will:

- Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges;
- Determine if there are new potential sources of pollutants;
- Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges; and
- Identify all areas of noncompliance with the Permit requirements and, if necessary, implement corrective actions.

2) Inspection Report/Records

A record will be kept of inspections. Inspection reports will identify any incidents of noncompliance with the terms and conditions of the Permit and a diagram will accompany each report. Copies of the inspection reports shall be retained with the SWMP (**Appendix D**) either at the site or, for Field Permit Coverage, at a location in close proximity to the site and approved by the Division during construction, development, production, and final reclamation operations and for a minimum of 3 years from the date that permit coverage expires or is terminated. All reports will be provided to the Administrator upon request. The inspection reports will include:

- The inspection date;

- Name and title of the personnel conducting the inspection;
- Weather conditions at the time of inspection;
- Phase of construction at the time of inspection;
- Estimated acreage of disturbance at the time of inspection;
- Location of discharges of sediment or other pollutants from the site;
- Location of control measures needing maintenance;
- Location and identification of inadequate control measures;
- Location and identification of additional control measures are needed that were not in place at the time of inspection;
- Description of the minimum inspection frequency utilized when conducting each inspection;
- Deviations from the minimum inspection schedule;
- After adequate corrective action and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a signed statement as required by Part I.A.3.f of the Permit.

d) REQUIRED ACTIONS FOLLOWING SITE INSPECTIONS

Where site inspections note the need for BMP maintenance activities, BMPs will be maintained in accordance with the SWMP. The repair, replacement, or installation of new BMPs that are determined as necessary during site inspections to address ineffective or inadequate BMPs will be conducted as described below. Guidelines for specific BMP installation and maintenance are included in **Appendix C**.

e) BMP MAINTENANCE

All erosion and sediment control practices and other protective measures identified in the SWMP will be maintained in effective operating condition. Proper selection and installation of BMPs and installation of comprehensive inspection and maintenance procedures should be adequate to meet this condition. BMPs that are not adequately maintained in accordance with good engineering, hydrologic, and pollution control practices, including removal of collected sediment outside the acceptable tolerances of the BMPs and preparation for post-construction stormwater control, are considered no longer operating effectively and will be addressed. A specific timeline for implementing maintenance procedures is not included in the Permit because BMP maintenance is intended to be proactive, not responsive. Observations resulting in BMP maintenance activities can be made during a site inspection or during general observations of site conditions. The BMP maintenance standards are outlined in the BMP details located in **Appendix C.**

If it is infeasible to repair BMPs immediately after discovering a deficiency, the following must be documented and kept with the SWMP:

- Describe why it is infeasible to initiate the repair immediately; and
- Provide a schedule for repairing the BMP and returning it to an effective operating condition as soon as possible.

f) REPLACEMENT OF FAILED BMPS

An adequate site assessment will be performed as part of a comprehensive inspection and maintenance procedures to assess the adequacy of BMPs at the site and the necessity of changes to those BMPs to assure continued effective performance. Where BMPs have failed, resulting in noncompliance with the Permit, they must be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants. When new BMPs are installed or replaced with different BMPs, the SWMP must be updated.

If it is infeasible to replace or install additional BMPs immediately after discovering a deficiency, the following must be documented and kept with the SWMP:

- Describe why it is infeasible to initiate the replacement or instillation immediately; and
- Provide a schedule for replacing or installing the BMP and returning it to an effective operating condition as soon as possible.

Appendix A.
CDPHE Stormwater General Permit

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
Water Quality Control Division

CDPS GENERAL PERMIT

STORMWATER DISCHARGES ASSOCIATED WITH

CONSTRUCTION ACTIVITY

AUTHORIZATION TO DISCHARGE UNDER THE

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

In compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), this permit authorizes the discharge of stormwater associated with construction activities (and specific allowable non-stormwater discharges in accordance with Part I.A.1. of the permit) certified under this permit, from those locations specified throughout the State of Colorado to specified waters of the State.

Such discharges shall be in accordance with the conditions of this permit. This permit specifically authorizes the facility listed on the certification to discharge in accordance with permit requirements and conditions set forth in Parts I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

This permit becomes effective on April 1, 2019, and shall expire at midnight March 31, 2024.

Issued and signed this 1st day of November 2018.

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Ellen Howard Kutzer, Permits Section Manager
Water Quality Control Division

Permit History
Originally signed and issued October 31, 2018; effective April 1, 2019.

Table of Contents

Part I
Note: At the first mention of terminology that has a specific connotation for the purposes of this permit, the terminology is electronically linked to the definitions section of the permit in Part I.E.

A. COVERAGE UNDER THIS PERMIT

1. Authorized Discharges

   This general permit authorizes permittee(s) to discharge the following to state waters: stormwater associated with construction activity and specified non-stormwater associated with construction activity. The following types of stormwater and non-stormwater discharges are authorized under this permit:

   a. Allowable Stormwater Discharges

      i. Stormwater discharges associated with construction activity.

      ii. Stormwater discharges associated with producing earthen materials, such as soils, sand, and gravel dedicated to providing material to a single contiguous site, or within ¼ mile of a construction site (i.e. borrow or fill areas)

      iii. Stormwater discharges associated with dedicated asphalt, concrete batch plants and masonry mixing stations (Coverage under this permit is not required if alternative coverage has been obtained.)

   b. Allowable Non-Stormwater Discharges

      The following non-stormwater discharges are allowable under this permit if the discharges are identified in the stormwater management plan in accordance with Part I.C. and if they have appropriate control measures in accordance with Part I.B.1.

      i. Discharges from uncontaminated springs that do not originate from an area of land disturbance.

      ii. Discharges to the ground of concrete washout water associated with the washing of concrete tools and concrete mixer chutes. Discharges of concrete washout water must not leave the site as surface runoff or reach receiving waters as defined by this permit.

      iii. Discharges of landscape irrigation return flow.

   c. Emergency Fire Fighting

      Discharges resulting from emergency firefighting activities are authorized by this permit.

2. Limitations on Coverage

   Discharges not authorized by this permit include, but are not limited to, the discharges and activities listed below. Permittees may seek individual or alternate general permit coverage for the discharges, as appropriate and available.

   a. Discharges of Non-Stormwater

Discharges of non-stormwater, except the authorized non-stormwater discharges listed in Part I.A.1.b., are not eligible for coverage under this permit.

b. Discharges Currently Covered by another Individual or General Permit

c. Discharges Currently Covered by a Water Quality Control Division (division) Low Risk Guidance Document

3. Permit Certification and Submittal Procedures

a. Duty to apply
The following activities shall apply for coverage under this permit:

i. Construction sites that will disturb one acre or more; or

ii. Construction sites that are part of a common plan of development or sale; or

iii. Stormwater discharges that are designated by the division as needing a stormwater permit because the discharge:

(a) Contributes to a violation of a water quality standard; or

(b) is a significant contributor of pollutants to state waters.

b. Application Requirements
To obtain authorization to discharge under this permit, applicants applying for coverage following the effective date of the renewal permit shall meet the following requirements:

i. Owners and operators submitting an application for permit coverage will be co-permittees subject to the same benefits, duties, and obligations under this permit.

ii. Signature requirements: Both the owner and operator (permittee) of the construction site, as defined in Part I.E., must agree to the terms and conditions of the permit and submit a completed application that includes the signature of both the owner and the operator. In cases where the duties of the owner and operator are managed by the owner, both application signatures may be completed by the owner. Both the owner and operator are responsible for ensuring compliance with all terms and conditions of the permit, including implementation of the stormwater management plan.

iii. Applicants must use the paper form provided by the division or the electronic form provided on the division's web-based application platform when applying for coverage under this permit.

iv. The applicant(s) must develop a stormwater management plan (SWMP) in accordance with the requirements of Part I.C. The applicant(s) must also certify that the SWMP is complete, or will be complete, prior to commencement of any construction activity.

v. The applicant(s) must submit a complete, accurate, and signed permit application electronically, by mail or hand delivery to the division at least 10 days prior to the commencement of construction activity except that construction activities that are in response to a public emergency related site shall apply for coverage no later than 14 days after the commencement of construction activities. The provisions of this part in no way remove a violation of the Colorado Water Quality Control Act if a point source discharge occurs prior to the issuance of a CDPS permit.

vi. The application must be signed in accordance with the requirements of Part IA. Applications submitted by mail or hand delivered should be directed to:

Colorado Department of Public Health and Environment
Water Quality Control Division
Permits Section, WQCD-PS-B2
4300 Cherry Creek Drive South
Denver, CO 80246

vii. The applicant(s) must receive written notification that the division granted permit coverage prior to conducting construction activities except for construction activities that are in response to a public emergency related site

c. Division Review of Permit Application

Within 10 days of receipt of the application, and following review of the application, the division may:

i. Issue a certification of coverage;

ii. request additional information necessary to evaluate the discharge;

iii. delay the authorization to discharge pending further review;

iv. notify the applicant that additional terms and conditions are necessary; or

v. deny the authorization to discharge under this general permit.

d. Alternative Permit Coverage

i. Division Required Alternate Permit Coverage:
The Division may require an applicant or permittee to apply for an individual permit or an alternative general permit if it determines the discharge does not fall under the scope of this general permit. In this case, the Division will notify the applicant or permittee that an individual permit application is required.

ii. Permittee Request for alternate permit coverage:
A permittee authorized to discharge stormwater under this permit may request to be excluded from coverage under this general permit by applying for an individual permit. In this case, the permittee must submit an individual application, with reasons supporting the request, to the Division at least 180 days prior to any discharge. When an individual permit is issued, the permittee's authorization to discharge under this permit is terminated on the effective date of the individual permit.

e. Submittal Signature Requirements

Documents required for submittal to the division in accordance with this permit, including applications for permit coverage and other documents as requested by the division, must include signatures by both the owner and the operator, except for instances where the duties of the owner and operator are managed by the owner.

Signatures on all documents submitted to the division as required by this permit must meet the Standard Signatory Requirements in Part II.K. of this permit in accordance with 40 C.F.R. 122.41(k).

i. Signature Certification
Any person(s) signing documents required for submittal to the Division must make the following 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 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."

f. Compliance Document Signature Requirements
Documents which are required for compliance with the permit, but for which submittal to the division is not required unless specifically requested by the division, must be signed by the individual(s) designated as the Qualified Stormwater Manager, as defined in Part I.E.

i. Any person(s) signing inspection documents required for compliance with the permit must make the following statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

g. Field Wide Permit Coverage for Oil and Gas Construction
At the discretion of the division, a single permit certification may be issued to a single oil and gas permittee to cover construction activity related discharges from an oil and gas field at multiple locations that are not necessarily contiguous.

h. Permit Coverage without Application
Qualifying Local Program: When a small construction site is within the jurisdiction of a qualifying local program, the owner and operator of the construction activity are authorized to discharge stormwater associated with small construction activity under this general permit without the submittal of an application to the division. Sites covered by a qualifying local program are exempt from the following sections of this general permit:

Part I.A.3.a.; Part I.A.3.b.; Part I.A.3.c.; Part I.A.3.d.; Part I.A.3.g.; Part I.A.3.i.; Part I.A.3.j.; Part I.A.3.k.

Sites covered by a qualifying local program are subject to the following requirements:

i. Local Agency Authority: This permit does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm drain systems or other water courses within their jurisdiction.

ii. Permit Coverage Termination: When a site under a Qualifying Local Program is finally stabilized, coverage under this permit is automatically terminated.

iii. Compliance with Qualifying Local Program: Qualifying Local Program requirements that are equivalent to the requirements of this permit are incorporated by reference. Permittees authorized to discharge under this permit, must comply with the equivalent requirements of the Qualifying Local Program that has jurisdiction over the site as a condition of this permit.

iv. Compliance with Remaining Permit Conditions. Requirements of this permit that are in addition to or more stringent than the requirements of the Qualifying Local Program apply in addition to the requirements of the Qualifying Local Program.

v. Written Authorization of Coverage: The division or local municipality may require any permittee within the jurisdiction of a Qualifying Local Program covered under this permit to apply for, and obtain written authorization of coverage under this permit. The permittee must be notified in writing that an application for written authorization of coverage is required.

i. Permittee Initiated Permit Actions

Permittee initiated permit actions, including but not limited to modifications, contact changes, transfers, reassignments, and terminations, shall be conducted following division guidance and using appropriate division-provided forms.

j. Sale of Residence to Homeowner

Residential construction sites only: The permittee may remove residential lots from permit coverage once the lot meets the following criteria:

i. the residential lot has been sold to the homeowner(s) for private residential use;

ii. a certificate of occupancy, or equivalent, is maintained on-site and is available during division inspections;

iii. the lot is less than one acre of disturbance;

iv. all construction activity conducted on the lot by the permittee is complete;

v. the permittee is not responsible for final stabilization of the lot; and

vi. the SWMP was modified to indicate the lot is no longer part of the construction activity.

If the residential lot meets the criteria listed above then activities occurring on the lot are no longer considered to be construction activities with a duty to apply and maintain permit coverage. Therefore, the permittee is not required to meet the final stabilization requirements and may terminate permit coverage for the lot.

k. Permit Expiration and Continuation of Permit Coverage

Authorization to discharge under this general permit shall expire at midnight on March 31, 2024. While Regulation 61.4 requires a permittee to submit an application for continuing permit coverage 180 days before the permit expires, the division is requiring that permittees desiring continued coverage under this general permit must reapply at least 90 days in advance of this permit expiration. The Division will determine if the permittee may continue to discharge stormwater under the terms of the general permit. An individual permit may be required for any facility not reauthorized to discharge under the reissued general permit.

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued and remain in force and effect. For permittees that have applied for continued permit coverage, discharges authorized under this permit prior to the expiration date will automatically remain covered by this permit until the earliest of:

i. An authorization to discharge under a reissued permit, or a replacement of this permit, following the timely and appropriate submittal of a complete application requesting authorization to discharge under the new permit and compliance with the requirements of the new permit; or

ii. The issuance and effect of a termination issued by the Division; or

iii. The issuance or denial of an individual permit for the facility's discharges; or

iv. A formal permit decision by the Division not to reissue this general permit, at which time the Division will identify a reasonable time period for covered dischargers to seek coverage under an alternative general permit or an individual permit. Coverage under this permit will cease when coverage under another permit is granted/authorized; or

v. The Division has informed the permittee that discharges previously authorized under this permit are no longer covered under this permit.

B. EFFLUENT LIMITATIONS

1. Requirements for Control Measures Used to Meet Effluent Limitations

The permittee must implement control measures to minimize the discharge of pollutants from all potential pollutant sources at the site. Control measures must be installed prior to commencement of activities that may contribute pollutants to stormwater discharges. Control measures must be selected, designed, installed and maintained in accordance with good engineering, hydrologic and pollution control practices. Control measures implemented at the site must be designed to prevent pollution or degradation of state waters.

a. Stormwater Pollution Prevention

The permittee must implement structural and/or nonstructural control measures that effectively minimize erosion, sediment transport, and the release of other pollutants related to construction activity.

i. Control Measures for Erosion and Sediment Control

Control measures for erosion and sediment control may include, but are not limited to, wattles/sediment control logs, silt fences, earthen dikes, drainage swales, sediment traps, subsurface drains, pipe slope drains, inlet protection, outlet protection, gabions, sediment basins, temporary vegetation, permanent vegetation, mulching, geotextiles, sod stabilization, slope roughening, maintaining existing vegetation, protection of trees, and preservation of mature vegetation. Specific non-structural control measures must meet the requirements listed below.

Specific control measures must meet the requirements listed below.

(a) Vehicle tracking controls shall either be implemented to minimize vehicle tracking of sediment from disturbed areas, or the areas where vehicle tracking occurs shall meet subsection Part I.B.1.a.i(b);

(b) Stormwater runoff from all disturbed areas and soil storage areas for which permanent or temporary stabilization is not implemented, must flow to at least one control measure to minimize sediment in the discharge. This may be accomplished through filtering, settling, or straining. The control measure must be selected, designed, installed and adequately sized in accordance with good engineering, hydrologic and pollution control practices. The control measure(s) must contain or filter flows in order to prevent the bypass of flows without treatment and must be appropriate for stormwater runoff from disturbed areas and for the expected flow rate, duration, and flow conditions (i.e., sheet or concentrated flow);

(c) Outlets that withdraw water from or near the surface shall be installed when discharging from basins and impoundments, unless infeasible.

(d) Maintain pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet of receiving waters as defined by this permit, unless infeasible.

(e) Soil compaction must be minimized for areas where infiltration control measures will occur or where final stabilization will be achieved through vegetative cover.

(f) Unless infeasible, topsoil shall be preserved for those areas of a site that will utilize vegetative final stabilization.

(g) Minimize the amount of soil exposed during construction activity, including the disturbance of steep slopes.

ii. Practices for Other Common Pollutants

(a) Bulk storage, 55 gallons or greater, for petroleum products and other liquid chemicals must have secondary containment, or equivalent protection, in order to contain spills and to prevent spilled material from entering state waters.

(b) Control measures designed for concrete washout waste must be implemented. This includes washout waste discharged to the ground as authorized under this permit and washout waste from concrete trucks and masonry operations contained on site. The permittee must ensure the washing activities do not contribute pollutants to stormwater runoff, or receiving waters in accordance Part I.A.1.b.ii. Discharges that may reach groundwater must flow through soil

that has buffering capacity prior to reaching groundwater, as necessary to meet the effluent limits in this permit, including Part I.B.3.a. The concrete washout location shall be not be located in an area where shallow groundwater may be present and would result in buffering capacity not being adequate, such as near natural drainages, springs, or wetlands. This permit authorizes discharges to the ground of concrete washout waste.

iii. Stabilization Requirements
The following requirements must be implemented for each site.

(a) Temporary stabilization must be implemented for earth disturbing activities on any portion of the site where ground disturbing construction activity has permanently ceased, or temporarily ceased for more than 14 calendar days. Temporary stabilization methods may include, but are not limited to, tarps, soil tackifier, and hydroseed. The permittee may exceed the 14-day schedule when either the function of the specific area of the site requires it to remain disturbed, or, physical characteristics of the terrain and climate prevent stabilization. The SWMP must document the constraints necessitating the alternative schedule, provide the alternate stabilization schedule, and identify all locations where the alternative schedule is applicable on the site map.

(b) Final stabilization must be implemented for all construction sites. Final stabilization is reached when all ground surface disturbing activities at the construction site are complete; and, for all areas of ground surface disturbing activities, either a uniform vegetative cover with an individual plant density of at least 70 percent of pre-disturbance levels is established, or equivalent permanent alternative stabilization methods are implemented. The division may approve alternative final stabilization criteria for specific operations.

(c) Final stabilization must be designed and installed as a permanent feature. Final stabilization measures for obtaining a vegetative cover or alternative stabilization methods include, but are not limited to, the following as appropriate:

(1) Seed mix selection and application methods;

(2) Soil preparation and amendments;

(3) Soil stabilization methods (e.g., crimped straw, hydro mulch or rolled erosion control products);

(4) Appropriate sediment control measures as needed until final stabilization is achieved;

(5) Permanent pavement, hardscape, xeriscape, stabilized driving surfaces;

(6) Other alternative stabilization practices as applicable;

(d) The permittee(s) must ensure all temporary control measures are removed from the construction site once final stabilization is achieved, except when the control measure specifications allow the control measure to be left in place (i.e., bio-degradable control measures).

b. Maintenance

The permittee must ensure that all control measures remain in effective operating condition and are protected from activities that would reduce their effectiveness. Control measures must be maintained in accordance with good engineering, hydrologic and pollution control practices. Observations leading to the required maintenance of control measures can be made during a site inspection, or during general observations of site conditions. The necessary repairs or modifications to a control measure requiring routine maintenance, as defined in Part I.E., must be conducted to maintain an effective operating condition. This section is not subject to the requirements in Part I.B.1.c. below.

c. Corrective Actions

The permittee must assess the adequacy of control measures at the site, and the need for changes to those control measures, to ensure continued effective performance. When an inadequate control measure, as defined in Part I.E., is identified (i.e., new or replacement control measures become necessary), the following corrective action requirements apply. The permittee is in noncompliance with the permit until the inadequate control measure is replaced or corrected and returned to effective operating condition in compliance with Part I.B.1. and the general requirements in Part I.B.3. If the inadequate control measure results in noncompliance that meets the conditions of Part II.L., the permittee must also meet the requirements of that section.

i. The permittee must take all necessary steps to minimize or prevent the discharge of pollutants, until a control measure is implemented and made operational and/or an inadequate control measure is replaced or corrected and returned to effective operating condition. If it is infeasible to install or repair of control measure immediately after discovering the deficiency, the following must be documented and kept on record in accordance with the recordkeeping requirements in Part II.

(a) Describe why it is infeasible to initiate the installation or repair immediately; and

(b) Provide a schedule for installing or repairing the control measure and returning it to an effective operating condition as soon as possible.

ii. If applicable, the permittee must remove and properly dispose of any unauthorized release or discharge (e.g., discharge of non-stormwater, spill, or leak not authorized by this permit.) The permittee must also clean up any contaminated surfaces to minimize discharges of the material in subsequent storm events.

2. Discharges to an Impaired Waterbody

a. Total Maximum Daily Load (TMDL)

If the permittee's discharge flows to or could reasonably be expected to flow to any water body for which a TMDL has been approved, and stormwater discharges

associated with construction activity were assigned a pollutant-specific Wasteload Allocation (WLA) under the TMDL, the division may:

i. ensure the WLA is implemented properly through alternative local requirements, such as by a municipal stormwater permit; or

ii. notify the permittee of the WLA and amend the permittee's certification to add specific effluent limits and other requirements, as appropriate. The permittee may be required to do the following:

(a) under the permittee's SWMP, implement specific control measures based on requirements of the WLA, and evaluate whether the requirements are met through implementation of existing stormwater control measures or if additional control measures are necessary. Document the calculations or other evidence demonstrating that the requirements are expected to be met; and

(b) if the evaluation shows that additional or modified control measures are necessary, describe the type and schedule for the control measure additions or modifications.

iii. Discharge monitoring may also be required. The permittee may maintain coverage under the general permit provided they comply with the applicable requirements outlined above. The division reserves the right to require individual or alternate general permit coverage.

3. General Requirements

a. Discharges authorized by this permit shall not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard, including narrative standards for water quality.

b. The division may require sampling and testing, on a case-by-case basis, in the event that there is reason to suspect that the SWMP is not adequately minimizing pollutants in stormwater or in order to measure the effectiveness of the control measures in removing pollutants in the effluent. Such monitoring may include Whole Effluent Toxicity testing.

c. The permittee must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts and other local agencies including applicable requirements in Municipal Stormwater Management Programs developed to comply with CDPS permits. The permittee must comply with local stormwater management requirements, policies and guidelines including those for erosion and sediment control.

d. All construction site wastes must be properly managed to prevent potential pollution of state waters. This permit does not authorize on-site waste disposal.

e. This permit does not relieve the permittee of the reporting requirements in 40 CFR 110, 40 CFR 117 or 40 CFR 302. Any discharge of hazardous material must be handled in accordance with the division's Noncompliance Notification Requirements (see Part II.L. of the permit).

C. STORMWATER MANAGEMENT PLAN (SWMP) REQUIREMENTS

1. SWMP General Requirements

   a. A SWMP shall be developed for each construction site covered by this permit. The SWMP must be prepared in accordance with good engineering, hydrologic and pollution control practices.

      i. For public emergency related sites a SWMP shall be created no later than 14 days after the commencement of construction activities.

   b. The permittee must implement the provisions of the SWMP as written and updated, from commencement of construction activity until final stabilization is complete. The division may review the SWMP.

   c. A copy of the SWMP must be retained onsite or be onsite when construction activities are occurring at the site unless the permittee specifies another location and obtains approval from the division.

2. SWMP Content

   a. The SWMP, at a minimum, must include the following elements.

      i. Qualified Stormwater Manager. The SWMP must list individual(s) by title and name who are designated as the site's qualified stormwater manager(s) responsible for implementing the SWMP in its entirety. This role may be filled by more than one individual.

      ii. Spill Prevention and Response Plan. The SWMP must have a spill prevention and response plan. The plan may incorporate by reference any part of a Spill Prevention Control and Countermeasure (SPCC) plan under section 311 of the Clean Water Act (CWA) or a Spill Prevention Plan required by a separate CDPS permit. The relevant sections of any referenced plans must be available as part of the SWMP consistent with Part I.C.4.

      iii. Materials Handling. The SWMP must describe and locate all control measures implemented at the site to minimize impacts from handling significant materials that could contribute pollutants to runoff. These handling procedures can include control measures for pollutants and activities such as, exposed storage of building materials, paints and solvents, landscape materials, fertilizers or chemicals, sanitary waste material, trash and equipment maintenance or fueling procedures.

      iv. Potential Sources of Pollution. The SWMP must list all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the site. This shall include, but is not limited to, the following pollutant sources:

         (a) disturbed and stored soils;

         (b) vehicle tracking of sediments;

         (c) management of contaminated soils;

         (d) loading and unloading operations;

(e) outdoor storage activities (erodible building materials, fertilizers, chemicals, etc.);

(f) vehicle and equipment maintenance and fueling;

(g) significant dust or particulate generating processes (e.g., saw cutting material, including dust);

(h) routine maintenance activities involving fertilizers, pesticides, herbicides, detergents, fuels, solvents, oils, etc.;

(i) on-site waste management practices (waste piles, liquid wastes, dumpsters);

(j) concrete truck/equipment washing, including washing of the concrete truck chute and associated fixtures and equipment;

(k) dedicated asphalt, concrete batch plants and masonry mixing stations;

(l) non-industrial waste sources such as worker trash and portable toilets.

v. Implementation of Control Measures. The SWMP must include design specifications that contain information on the implementation of the control measure in accordance with good engineering hydrologic and pollution control practices; including as applicable drawings, dimensions, installation information, materials, implementation processes, control measure-specific inspection expectations, and maintenance requirements.

The SWMP must include a documented use agreement between the permittee and the owner or operator of any control measures located outside of the permitted area, that are utilized by the permittee's construction site for compliance with this permit, but not under the direct control of the permittee. The permittee is responsible for ensuring that all control measures located outside of their permitted area, that are being utilized by the permittee's construction site, are properly maintained and in compliance with all terms and conditions of the permit. The SWMP must include all information required of and relevant to any such control measures located outside the permitted area, including location, installation specifications, design specifications and maintenance requirements.

vi. Site Description. The SWMP must include a site description which includes, at a minimum, the following:

(a) the nature of the construction activity at the site;

(b) the proposed schedule for the sequence for major construction activities and the planned implementation of control measures for each phase. (e.g.: clearing, grading, utilities, vertical, etc.);

(c) estimates of the total acreage of the site, and the acreage expected to be disturbed by clearing, excavation, grading, or any other construction activities;

(d) a summary of any existing data used in the development of the construction site plans or SWMP that describe the soil or existing potential for soil erosion;

(e) a description of the percent of existing vegetative ground cover relative to the entire site and the method for determining the percentage;

(f) a description of any allowable non-stormwater discharges at the site, including those being discharged under a division low risk discharge guidance policy;

(g) a description of areas receiving discharge from the site. Including a description of the immediate source receiving the discharge. If the stormwater discharge is to a municipal separate storm sewer system, the name of the entity owning that system, the location of the storm sewer discharge, and the ultimate receiving water(s); and

(h) a description of all stream crossings located within the construction site boundary.

vii. Site Map. The SWMP must include a site map which includes, at a minimum, the following:

(a) construction site boundaries;

(b) flow arrows that depict stormwater flow directions on-site and runoff direction;

(c) all areas of ground disturbance including areas of borrow and fill;

(d) areas used for storage of soil;

(e) locations of all waste accumulation areas, including areas for liquid, concrete, masonry, and asphalt;

(f) locations of dedicated asphalt, concrete batch plants and masonry mixing stations;

(g) locations of all structural control measures;

(h) locations of all non-structural control measures;

(i) locations of springs, streams, wetlands and other state waters, including areas that require pre-existing vegetation be maintained within 50 feet of a receiving water, where determined feasible in accordance with Part I.B.1.a.i.(d).; and

(j) locations of all stream crossings located within the construction site boundary.

viii. Final Stabilization and Long Term Stormwater Management. The SWMP must describe the practices used to achieve final stabilization of all disturbed areas at the site and any planned practices to control pollutants in stormwater discharges that will occur after construction operations are completed. Including but not limited to, detention/retention ponds, rain gardens, stormwater vaults, etc.

ix. Inspection Reports. The SWMP must include documented inspection reports in accordance with Part ID.

3. SWMP Review and Revisions

Permittees must keep a record of SWMP changes made that includes the date and identification of the changes. The SWMP must be amended when the following occurs:

a. a change in design, construction, operation, or maintenance of the site requiring implementation of new or revised control measures;

b. the SWMP proves ineffective in controlling pollutants in stormwater runoff in compliance with the permit conditions;

c. control measures identified in the SWMP are no longer necessary and are removed; and

d. corrective actions are taken onsite that result in a change to the SWMP.

For SWMP revisions made prior to or following a change(s) onsite, including revisions to sections addressing site conditions and control measures, a notation must be included in the SWMP that identifies the date of the site change, the control measure removed, or modified, the location(s) of those control measures, and any changes to the control measure(s). The permittee must ensure the site changes are reflected in the SWMP. The permittee is noncompliant with the permit until the SWMP revisions have been made.

4. SWMP Availability

A copy of the SWMP must be provided upon request to the division, EPA, and any local agency with authority for approving sediment and erosion plans, grading plans or stormwater management plans within the time frame specified in the request. If the SWMP is required to be submitted to any of these entities, the submission must include a signed certification in accordance with Part I.A.3.e., certifying that the SWMP is complete and compliant with all terms and conditions of the permit.

All SWMPs required under this permit are considered reports that must be available to the public under Section 308(b) of the CWA and Section 61.5(4) of the CDPS regulations. The permittee must make plans available to members of the public upon request. However, the permittee may claim any portion of a SWMP as confidential in accordance with 40 CFR Part 2.

D. SITE INSPECTIONS

Site inspections must be conducted in accordance with the following requirements. The required inspection schedules are a minimum frequency and do not affect the permittee's responsibility to implement control measures in effective operating condition as prescribed in the SWMP. Proper maintenance of control measures may require more frequent inspections. Site inspections shall start within 7 calendar days of the commencement of construction activities on site.

1. Person Responsible for Conducting Inspections

The person(s) inspecting the site may be on the permittee's staff or a third party hired to conduct stormwater inspections under the direction of the permittee(s). The permittee is responsible for ensuring that the inspector is a qualified stormwater manager.

2. Inspection Frequency

Permittees must conduct site inspections in accordance with one of the following minimum frequencies, unless the site meets the requirements of Part ID.3

a. At least one inspection every 7 calendar days. Or

b. At least one inspection every 14 calendar days, if post-storm event inspections are conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Post-storm inspections may be used to fulfill the 14-day routine inspection requirement.

c. When site conditions make the schedule required in this section impractical, the permittee may petition the Division to grant an alternate inspection schedule. The alternative inspection schedule may not be implemented prior to written approval by the division and incorporation into the SWMP.

3. Inspection Frequency for Discharges to Outstanding Waters

Permittees must conduct site inspections at least once every 7 calendar days for sites that discharge to a water body designated as an Outstanding Water by the Water Quality Control Commission.

4. Reduced Inspection Frequency

The permittee may perform site inspections at the following reduced frequencies when one of the following conditions exists:

a. Post-Storm Inspections at Temporarily Idle Sites
For permittees choosing to combine 14-day inspections and post-storm-event-inspections, if no construction activities will occur following a storm event, post-storm event inspections must be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delay of any post-storm event inspection must be documented in the inspection record. Routine inspections must still be conducted at least every 14 calendar days.

b. Inspections at Completed Sites/Areas
When the site, or portions of a site are awaiting establishment of a vegetative ground cover and final stabilization, the permittee must conduct a thorough inspection of the stormwater management system at least once every 30 days. Post-storm event inspections are not required under this schedule. This reduced inspection schedule is allowed if all of the following criteria are met:

i. all construction activities resulting in ground disturbance are complete;

ii. all activities required for final stabilization, in accordance with the SWMP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and

iii. the SWMP has been amended to locate those areas to be inspected in accordance with the reduced schedule allowed for in this paragraph.

c. Winter Conditions Inspections Exclusion

Inspections are not required for sites that meet all of the following conditions: construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This inspection exception is applicable only during the period where melting conditions do not exist, and applies to the routine 7-day, 14-day and monthly inspections, as well as the post-storm-event inspections. When this inspection exclusion is implemented, the following information must be documented in accordance with the requirements in Part II:

i. dates when snow cover existed;

ii. date when construction activities ceased; and

iii. date melting conditions began.

5. Inspection Scope

a. Areas to be Inspected
When conducting a site inspection the following areas, if applicable, must be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters:

i. construction site perimeter;

ii. all disturbed areas;

iii. designated haul routes;

iv. material and waste storage areas exposed to precipitation;

v. locations where stormwater has the potential to discharge offsite; and

vi. locations where vehicles exit the site.

b. Inspection Requirements

i. Visually verify whether all implemented control measures are in effective operational condition and are working as designed in their specifications to minimize pollutant discharges.

ii. Determine if there are new potential sources of pollutants.

iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges.

iv. Identify all areas of non-compliance with the permit requirements and, if necessary, implement corrective action in accordance with Part IB.1.c.

c. Inspection Reports
The permittee must keep a record of all inspections conducted for each permitted site. Inspection reports must identify any incidents of noncompliance with the terms and conditions of this permit. Inspection records must be retained in accordance with Part II.O. and signed in accordance with Part I.A.3.f. At a minimum, the inspection report must include:

i. the inspection date;

ii. name(s) and title(s) of personnel conducting the inspection;

iii. weather conditions at the time of inspection;

iv. phase of construction at the time of inspection;

v. estimated acreage of disturbance at the time of inspection

vi. location(s) of discharges of sediment or other pollutants from the site;

vii. location(s) of control measures needing maintenance;

viii. location(s) and identification of inadequate control measures;

ix. location(s) and identification of additional control measures are needed that were not in place at the time of inspection;

x. description of the minimum inspection frequency (either in accordance with Part I.D.2., I.D.3. or I.D.4.) utilized when conducting each inspection.

xi. deviations from the minimum inspection schedule as required in Part I.D.2.;

xii. after adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the report shall contain a statement as required in Part I.A.3.f.

E. DEFINITIONS

For the purposes of this permit:

(1) Bypass - the intentional diversion of waste streams from any portion of a treatment facility in accordance with 40 CFR 122.41(m)(1)(i) and Regulation 61.2(12).

(2) Common Plan of Development or Sale - A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related. The Division has determined that "contiguous" means construction activities located in close proximity to each other (within ¼ mile). Construction activities are considered to be "related" if they share the same development plan, builder or contractor, equipment, storage areas, etc. "Common plan of development or sale" includes construction activities that are associated with the construction of field wide oil and gas permits for facilities that are related.

(3) Construction Activity - Ground surface disturbing and associated activities (land disturbance), which include, but are not limited to, clearing, grading, excavation, demolition, installation of new or improved haul roads and access roads, staging areas, stockpiling of fill materials, and borrow areas. Construction does not include routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Activities to conduct repairs that are not part of routine maintenance or for replacement are construction activities and are not routine maintenance. Repaving activities where underlying and/or surrounding soil is exposed as part of the repaving operation are considered construction activities. Construction activity is from initial ground breaking to final stabilization regardless of ownership of the construction activities.

(4) Control Measure - Any best management practice or other method used to prevent or reduce the discharge of pollutants to state waters. Control measures include, but are not limited to, best management practices. Control measures can include other methods such as the installation, operation, and maintenance of structural controls and treatment devices.

(5) Control Measure Requiring Routine Maintenance - Any control measure that is still operating in accordance with its design and the requirements of this permit, but requires maintenance to prevent a breach of the control measure. See also inadequate control measure.

(6) Dedicated Asphalt, Concrete Batch Plants and Masonry Mixing Stations – are batch plants or mixing stations located on, or within ¼ mile of, a construction site and that provide materials only to that specific construction site.

(7) Final Stabilization - The condition reached when all ground surface disturbing activities at the site have been completed, and for all areas of ground surface disturbing activities where a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

(8) Good Engineering, Hydrologic and Pollution Control Practices: are methods, procedures, and practices that:
   a. Are based on basic scientific fact(s).
   b. Reflect best industry practices and standards.
   c. Are appropriate for the conditions and pollutant sources.
   d. Provide appropriate solutions to meet the associated permit requirements, including practice based effluent limits.

(9) Inadequate Control Measure - Any control measure that is not designed or implemented in accordance with the requirements of the permit and/or any control measure that is not implemented to operate in accordance with its design. See also Control Measure Requiring Routine Maintenance.

(10) Infeasible – Not technologically possible, or not economically practicable and achievable in light of best industry practices.

(11) Minimize - reduce or eliminate to the extent achievable using control measures that are technologically available and economically practicable and achievable in light of best industry practice.

(12) Municipality - A city, town, county, district, association, or other public body created by, or under, State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of CWA (1987).

(13) Municipal Separate Storm Sewer System (MS4) - A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

   a) owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to state waters;

      i. designed or used for collecting or conveying stormwater;
      ii. are not a combined sewer; and
      iii. are not part of a Publicly Owned Treatment Works (POTW). See 5 CCR 1002-61.2(62).

(14) Municipal Stormwater Management Program - A stormwater program operated by a municipality, typically to meet the requirements of the municipalities MS4 discharge certification.

(15) Operator - The party that has operational control over day-to-day activities at a project site which are necessary to ensure compliance with the permit. This party is authorized to direct individuals at a site to carry out activities required by the permit.(e.g. the general contractor)

(16) Owner - The party that has overall control of the activities and that has funded the implementation of the construction plans and specifications. This is the party with ownership of, a long term lease of, or easements on the property on which the construction activity is occurring (e.g., the developer).

(17) Permittee(s) - The owner and operator named in the discharge certification issued under this permit for the construction site specified in the certification.

(18) Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point source does not include irrigation return flow. See 5 CCR 102-61.2(75).

(19) Pollutant - Dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal or agricultural waste. See 5 CCR 1002-61.2(76).

(20) Presentation of credentials – a government issued form of identification, if in person; or (ii) providing name, position and purpose of inspection if request to enter is made via telephone, email or other form of electronic communication. A Permittee's non-response to a request to enter upon presentation of credentials constitutes a denial to such request, and may result in violation of the Permit.

(21) Process Water - Any water which, during manufacturing or processing, comes into contact with or results from the production of any raw material, intermediate product, finished product, by product or waste product.

(22) Public Emergency Related Site - a project initiated in response to an unanticipated emergency (e.g., mud slides, earthquake, extreme flooding conditions, disruption in essential public services), for which the related work requires immediate authorization to avoid imminent endangerment to human health or the environment, or to reestablish essential public services.

(23) Qualified Stormwater Manager - An individual knowledgeable in the principles and practices of erosion and sediment control and pollution prevention, and with the skills to assess conditions at construction sites that could impact stormwater quality and to assess the effectiveness of stormwater controls implemented to meet the requirements of this permit.

(24) Qualifying Local Program - A municipal program for stormwater discharges associated with small construction activity that was formally approved by the division as a qualifying local program.

(25) Receiving Water - Any classified or unclassified surface water segment (including tributaries) in the State of Colorado into which stormwater associated with construction activities discharges. This definition includes all water courses, even if they are usually dry, such as borrow ditches, arroyos, and other unnamed waterways.

(26) Severe Property Damage - substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 CFR 122.41(m)(1)(ii).

(27) Significant Materials - Include, but not limited to, raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the permittee is required to report under section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

(28) Small Construction Activity - The discharge of stormwater from construction activities that result in land disturbance of equal to, or greater than, one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan ultimately disturbs equal to, or greater than, one acre and less than five acres.

(29) Spill - An unintentional release of solid or liquid material which may pollute state waters.

(30) State Waters - means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

(31) Steep Slopes: where a local government, or industry technical manual (e.g., stormwater BMP manual) has defined what is to be considered a “steep slope”, this permit’s definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 3:1 or greater.

(32) Stormwater - Precipitation runoff, snow melt runoff, and surface runoff and drainage. See 5 CCR 1002-61.2(103).

(33) Total Maximum Daily Loads (TMDLs) -The sum of the individual wasteload allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. For the purposes of this permit, a TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes WLAs, LAs, and must include a margin of safety (MOS), and account for seasonal variations. See section 303(d) of the CWA and 40 C.F.R. 130.2 and 130.7.

(34) Upset - an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation in accordance with 40 CFR 122.41(n) and Regulation 61.2(114).

F. MONITORING

The division may require sampling and testing, on a case-by-case basis. If the division requires sampling and testing, the division will send a notification to the permittee. Reporting procedures for any monitoring data collected will be included in the notification.

If monitoring is required, the following applies:

1. the thirty (30) day average must be determined by the arithmetic mean of all samples collected during a thirty (30) consecutive-day period; and

2. a grab sample, for monitoring requirements, is a single “dip and take” sample.

G. Oil and Gas Construction

Stormwater discharges associated with construction activities directly related to oil and gas exploration, production, processing, and treatment operations or transmission facilities are regulated under the Colorado Discharge Permit System Regulations (5 CCR 1002-61), and require coverage under this permit in accordance with that regulation. However, references in this permit to specific authority under the CWA do not apply to stormwater discharges associated with these oil and gas related construction activities, to the extent that the references are limited by the federal Energy Policy Act of 2005.

Part II: Standard Permit Conditions

A. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Water Quality Control Act and is grounds for:

a. enforcement action;

b. permit termination, revocation and reissuance, or modification; or

c. denial of a permit renewal application.

B. DUTY TO REAPPLY

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain authorization as required by Part I.A.3.k. of the permit.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

A permittee must take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. PROPER OPERATION AND MAINTENANCE

A permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit. This requirement can be met by meeting the requirements for Part I.B., I.C., and I.D. above. See also 40 C.F.R. § 122.41(e).

F. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. The permittee request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. Any request for modification, revocation, reissuance, or termination under this permit must comply with all terms and conditions of Regulation 61.8(8).

G. PROPERTY RIGHTS

In accordance with 40 CFR 122.41(g) and 5 CCR 1002-61, 61.8(9):

1. The issuance of a permit does not convey any property or water rights in either real or personal property, or stream flows or any exclusive privilege.

2. The issuance of a permit does not authorize any injury to person or property or any invasion of personal rights, nor does it authorize the infringement of federal, state, or local laws or regulations.
3. Except for any toxic effluent standard or prohibition imposed under Section 307 of the Federal act or any standard for sewage sludge use or disposal under Section 405(d) of the Federal act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 318, 403, and 405(a) and (b) of the Federal act. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 61.8(8) of the Colorado Discharge Permit System Regulations.

H. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the division, within a reasonable time, any information which the division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the division, upon request, copies of records required to be kept by this permit in accordance with 40 CFR 122.41(h) and/or Regulation 61.8(3)(q).

I. INSPECTION AND ENTRY

The permittee shall allow the division and the authorized representative, upon the presentation of credentials as required by law, to allow for inspections to be conducted in accordance with 40 CFR 122.41(i), Regulation 61.8(3), and Regulation 61.8(4):

1. to enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
2. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit;
3. at reasonable times, inspect any monitoring equipment or monitoring method required in the permit; and
4. to enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect or investigate, any actual, suspected, or potential source of water pollution, or any violation of the Colorado Water Quality Control Act. The investigation may include: sampling of any discharges, stormwater or process water, taking of photographs, interviewing site staff on alleged violations and other matters related to the permit, and assessing any and all facilities or areas within the site that may affect discharges, the permit, or an alleged violation.

The permittee shall provide access to the division or other authorized representatives upon presentation of proper credentials. A permittee’s non-response to a request to enter upon presentation of credentials constitutes a denial of such request, and may result in a violation of the permit.

J. MONITORING AND RECORDS

1. Samples and measurements taken for the purpose of monitoring must be representative of the volume and nature of the monitored activity.

2. The permittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date the permit expires or the date the permittee's authorization is terminated. This period may be extended by request of the division at any time.

3. Records of monitoring information must include:
   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

4. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit.

K. SIGNATORY REQUIREMENTS

1. Authorization to Sign:

   All documents required to be submitted to the division by the permit must be signed in accordance with the following criteria:

   a. For a corporation: By a responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means:

      i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

      ii. the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

   b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

   c. For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes

      i. (i) the chief executive officer of the agency, or

ii. (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. (e.g., Regional Administrator of EPA)

2. Electronic Signatures

For persons signing applications for coverage under this permit electronically, in addition to meeting other applicable requirements stated above, such signatures must meet the same signature, authentication, and identity-proofing standards set forth at 40 CFR § 3.2000(b) for electronic reports (including robust second-factor authentication). Compliance with this requirement can be achieved by submitting the application using the Colorado Environmental Online Service (CEOS) system.

3. Change in Authorization to Sign

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be submitted to the division, prior to the re-authorization, or together with any reports, information, or applications to be signed by an authorized representative.

L. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall give advance notice to the division, in writing, of any planned physical alterations or additions to the permitted facility in accordance with 40 CFR 122.41(l) and Regulation 61.8(5)(a). Notice is required only when:

a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.41(a)(1).

2. Anticipated Non-Compliance

The permittee shall give advance notice to the division, in writing, of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. The timing of notification requirements differs based on the type of non-compliance as described in subparagraphs 5, 6, 7, and 8 below.

3. Transfer of Ownership or Control

The permittee shall notify the division, in writing, ten (10) calendar days in advance of a proposed transfer of the permit. This permit is not transferable to any person except after notice is given to the division.

a. Where a facility wants to change the name of the permittee, the original permittee (the first owner or operators) must submit a Notice of Termination.

b. The new owner or operator must submit an application. See also signature requirements in Part II.K, above.

c. A permit may be automatically transferred to a new permittee if:

i. The current permittee notifies the Division in writing 30 calendar days in advance of the proposed transfer date; and

ii. The notice includes a written agreement between the existing and new permittee(s) containing a specific date for transfer of permit responsibility, coverage and liability between them; and

iii. The division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue the permit.

iv. Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15, have been met.

4. Monitoring reports

Monitoring results must be reported at the intervals specified in this permit per the requirements of 40 CFR 122.41(l)(4).

5. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule in the permit, shall be submitted on the date listed in the compliance schedule section. The fourteen (14) calendar day provision in Regulation 61.8(4)(n)(i) has been incorporated into the due date.

6. Twenty-four hour reporting

In addition to the reports required elsewhere in this permit, the permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances:

a. Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident;

b. Circumstances leading to any unanticipated bypass which exceeds any effluent limitations in the permit;

c. Circumstances leading to any upset which causes an exceedance of any effluent limitation in the permit;

d. Daily maximum violations for any of the pollutants limited by Part I of this permit. This includes any toxic pollutant or hazardous substance or any pollutant specifically identified as the method to control any toxic pollutant or hazardous substance.

e. The division may waive the written report required under subparagraph 6 of this section if the oral report has been received within 24 hours.

7. Other non-compliance

A permittee must report all instances of noncompliance at the time monitoring reports are due. If no monitoring reports are required, these reports are due at least annually in accordance with Regulation 61.8(4)(p). The annual report must contain all instances of non-compliance required under either subparagraph 5 or subparagraph 6 of this subsection.

8. Other information

Where a permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Permitting Authority, it has a duty to promptly submit such facts or information.

M. BYPASS

1. Bypass not exceeding limitations

The permittees may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.M.2 of this permit. See 40 CFR 122.41(m)(2).

2. Notice of bypass

a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, the permittee must submit prior notice, if possible at least ten days before the date of the bypass. ee 40 CFR §122.41(m)(3)(i) and/or Regulation 61.9(5)(c).

b. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass in accordance with Part II.L.6. See 40 CFR §122.41(m)(3)(ii) .

3. Prohibition of Bypass

Bypasses are prohibited and the division may take enforcement action against the permittee for bypass, unless:

i. the bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;

ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

iii. proper notices were submitted to the division.

N. UPSET

1. Effect of an upset

An upset constitutes an affirmative defense to an action brought for noncompliance with permit effluent limitations if the requirements of Part II.N.2. of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review in accordance with Regulation 61.8(3)(j).

2. Conditions necessary for demonstration of an Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that

a. an upset occurred and the permittee can identify the specific cause(s) of the upset;

b. the permitted facility was at the time being properly operated and maintained; and

c. the permittee submitted proper notice of the upset as required in Part II.L.6.(24-hour notice); and

d. the permittee complied with any remedial measure necessary to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition to the demonstration required above, a permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

3. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

O. RETENTION OF RECORDS

1. Post-Expiration or Termination Retention

Copies of documentation required by this permit, including records of all data used to complete the application for permit coverage to be covered by this permit, must be

retained for at least three years from the date that permit coverage expires or is terminated. This period may be extended by request of EPA at any time.

2. On-site Retention

   The permittee must retain an electronic version or hardcopy of the SWMP at the construction site from the date of the initiation of construction activities to the date of expiration or inactivation of permit coverage; unless another location, specified by the permittee, is approved by the division.

P. REOPENER CLAUSE

1. Procedures for modification or revocation

   Permit modification or revocation of this permit or coverage under this permit will be conducted according to Regulation 61.8(8).

2. Water quality protection

   If there is evidence indicating that the stormwater discharges authorized by this permit cause, have the reasonable potential to cause or contribute to an excursion above any applicable water quality standard, the permittee may be required to obtain an individual permit, or the permit may be modified to include different limitations and/or requirements.

Q. SEVERABILITY

The provisions of this permit are severable. If any provisions or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

R. NOTIFICATION REQUIREMENTS

1. Notification to Parties

   All notification requirements, excluding information submitted using the CEOS portal, shall be directed as follows:

   a. Oral Notifications, during normal business hours shall be to:
      Clean Water Compliance Section
      Water Quality Control Division
      Telephone: (303) 692-3500

   b. Written notification shall be to:
      Clean Water Compliance Section
      Water Quality Control Division
      Colorado Department of Public Health and Environment
      WQCD-WQP-B2
      4300 Cherry Creek Drive South
      Denver, CO 80246-1530

S. RESPONSIBILITIES

1. Reduction, Loss, or Failure of Treatment Facility

   The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

T. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 (Oil and Hazardous Substance Liability) of the CWA.

U. Emergency Powers

Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

V. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data which has been declared confidential by the permittee, and which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the Water Quality Control Commission or the division, but shall be kept confidential. Any person seeking to invoke the protection of of this section shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

W. Fees

The permittee is required to submit payment of an annual fee as set forth in the 2016 amendments to the Water Quality Control Act. Section 25-8-502 (1.1) (b), and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. seq., C.R.S.1973 as amended.

X. Duration of Permit

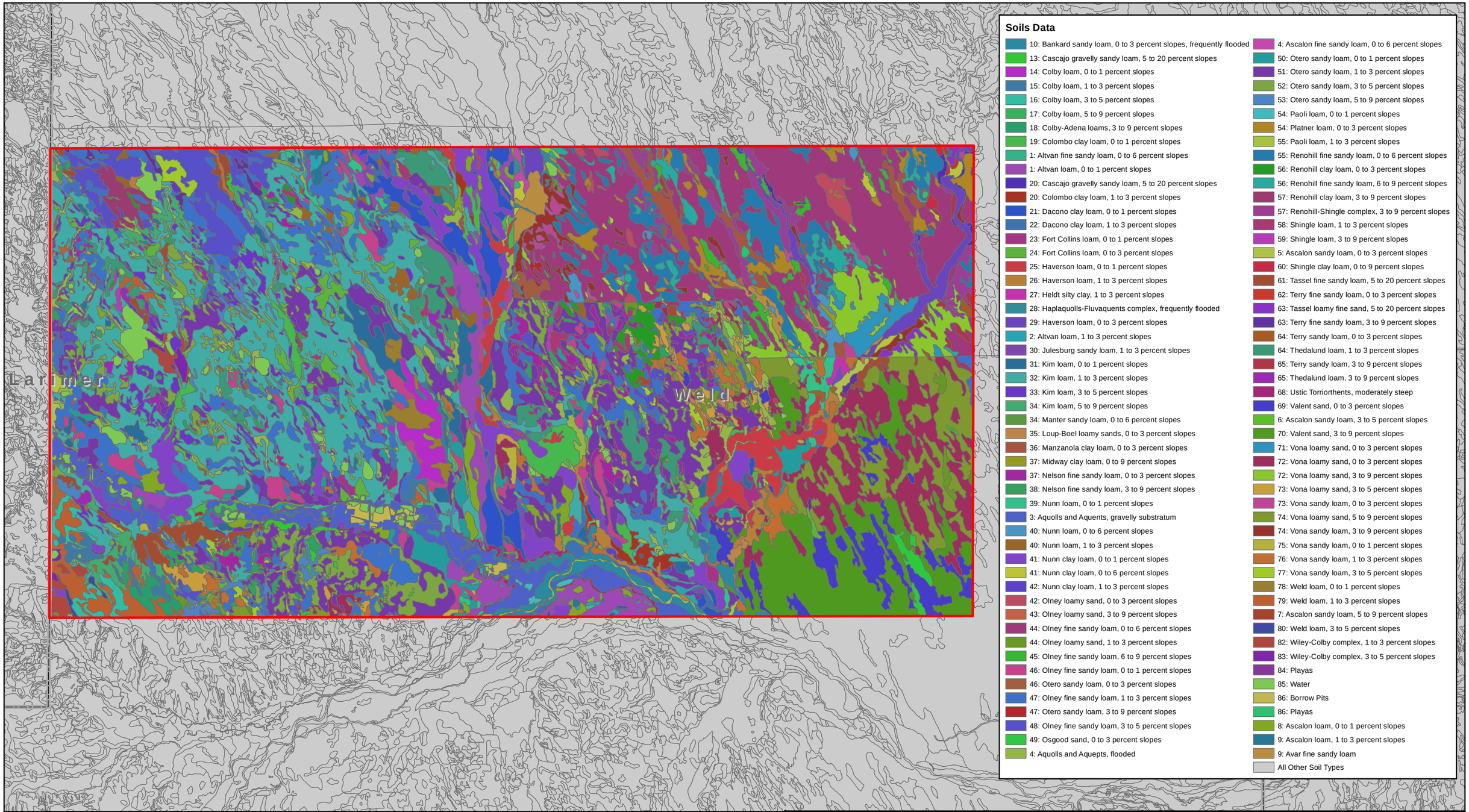
The duration of a permit shall be for a fixed term and shall not exceed five (5) years. If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least ninety (90) calendar days before this permit expires. Filing of a timely and complete application shall cause the expired permit to continue in force to the effective date of the new permit. The permit's duration may be extended only through administrative extensions and not through interim modifications. If the permittee anticipates there will be no discharge after the expiration date of this permit, the division should be promptly notified so that it can terminate the permit in accordance with Part I.A.3.i.

Y. Section 307 Toxics

If a toxic effluent standard or prohibition, including any applicable schedule of compliance specified, is established by regulation pursuant to Section 307 of the Federal Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the discharge permit, the division

shall institute proceedings to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition

Appendix B.
Soil and Vegetation Maps



Soils Data

- 10: Bankard sandy loam, 0 to 3 percent slopes, frequently flooded
- 13: Cascajo gravelly sandy loam, 5 to 20 percent slopes
- 14: Colby loam, 0 to 1 percent slopes
- 15: Colby loam, 1 to 3 percent slopes
- 16: Colby loam, 3 to 5 percent slopes
- 17: Colby loam, 5 to 9 percent slopes
- 18: Colby-Adena loams, 3 to 9 percent slopes
- 19: Colombo clay loam, 0 to 1 percent slopes
- 1: Altvan fine sandy loam, 0 to 6 percent slopes
- 1: Altvan loam, 0 to 1 percent slopes
- 20: Cascajo gravelly sandy loam, 5 to 20 percent slopes
- 20: Colombo clay loam, 1 to 3 percent slopes
- 21: Dacono clay loam, 0 to 1 percent slopes
- 22: Dacono clay loam, 1 to 3 percent slopes
- 23: Fort Collins loam, 0 to 1 percent slopes
- 24: Fort Collins loam, 0 to 3 percent slopes
- 25: Haverson loam, 0 to 1 percent slopes
- 26: Haverson loam, 1 to 3 percent slopes
- 27: Heldt silty clay, 1 to 3 percent slopes
- 28: Haplaquolls-Fluvaquents complex, frequently flooded
- 29: Haverson loam, 0 to 3 percent slopes
- 2: Altvan loam, 1 to 3 percent slopes
- 30: Julesburg sandy loam, 1 to 3 percent slopes
- 31: Kim loam, 0 to 1 percent slopes
- 32: Kim loam, 1 to 3 percent slopes
- 33: Kim loam, 3 to 5 percent slopes
- 34: Kim loam, 5 to 9 percent slopes
- 34: Manter sandy loam, 0 to 6 percent slopes
- 35: Loup-Boel loamy sands, 0 to 3 percent slopes
- 36: Manzanola clay loam, 0 to 3 percent slopes
- 37: Midway clay loam, 0 to 9 percent slopes
- 37: Nelson fine sandy loam, 0 to 3 percent slopes
- 38: Nelson fine sandy loam, 3 to 9 percent slopes
- 39: Nunn loam, 0 to 1 percent slopes
- 3: Aquolls and Aquents, gravelly substratum
- 40: Nunn loam, 0 to 6 percent slopes
- 40: Nunn loam, 1 to 3 percent slopes
- 41: Nunn clay loam, 0 to 1 percent slopes
- 41: Nunn clay loam, 0 to 6 percent slopes
- 42: Nunn clay loam, 1 to 3 percent slopes
- 42: Olney loamy sand, 0 to 3 percent slopes
- 43: Olney loamy sand, 3 to 9 percent slopes
- 44: Olney fine sandy loam, 0 to 6 percent slopes
- 44: Olney loamy sand, 1 to 3 percent slopes
- 45: Olney fine sandy loam, 6 to 9 percent slopes
- 46: Olney fine sandy loam, 0 to 1 percent slopes
- 46: Otero sandy loam, 0 to 3 percent slopes
- 47: Olney fine sandy loam, 1 to 3 percent slopes
- 47: Otero sandy loam, 3 to 9 percent slopes
- 48: Olney fine sandy loam, 3 to 5 percent slopes
- 49: Osgood sand, 0 to 3 percent slopes
- 4: Aquolls and Aquepts, flooded
- 4: Ascalon fine sandy loam, 0 to 6 percent slopes
- 50: Otero sandy loam, 0 to 1 percent slopes
- 51: Otero sandy loam, 1 to 3 percent slopes
- 52: Otero sandy loam, 3 to 5 percent slopes
- 53: Otero sandy loam, 5 to 9 percent slopes
- 54: Paoli loam, 0 to 1 percent slopes
- 54: Platner loam, 0 to 3 percent slopes
- 55: Paoli loam, 1 to 3 percent slopes
- 55: Renohill fine sandy loam, 0 to 6 percent slopes
- 56: Renohill clay loam, 0 to 3 percent slopes
- 56: Renohill fine sandy loam, 6 to 9 percent slopes
- 57: Renohill clay loam, 3 to 9 percent slopes
- 57: Renohill-Shingle complex, 3 to 9 percent slopes
- 58: Shingle loam, 1 to 3 percent slopes
- 59: Shingle loam, 3 to 9 percent slopes
- 5: Ascalon sandy loam, 0 to 3 percent slopes
- 60: Shingle clay loam, 0 to 9 percent slopes
- 61: Tassel fine sandy loam, 5 to 20 percent slopes
- 62: Terry fine sandy loam, 0 to 3 percent slopes
- 63: Tassel loamy fine sand, 5 to 20 percent slopes
- 63: Terry fine sandy loam, 3 to 9 percent slopes
- 64: Terry sandy loam, 0 to 3 percent slopes
- 64: Thedalund loam, 1 to 3 percent slopes
- 65: Terry sandy loam, 3 to 9 percent slopes
- 65: Thedalund loam, 3 to 9 percent slopes
- 68: Ustic Torriorthents, moderately steep
- 69: Valent sand, 0 to 3 percent slopes
- 6: Ascalon sandy loam, 3 to 5 percent slopes
- 70: Valent sand, 3 to 9 percent slopes
- 71: Vona loamy sand, 0 to 3 percent slopes
- 72: Vona loamy sand, 0 to 3 percent slopes
- 72: Vona loamy sand, 3 to 9 percent slopes
- 73: Vona loamy sand, 3 to 5 percent slopes
- 73: Vona sandy loam, 0 to 3 percent slopes
- 74: Vona loamy sand, 5 to 9 percent slopes
- 74: Vona sandy loam, 3 to 9 percent slopes
- 75: Vona sandy loam, 0 to 1 percent slopes
- 76: Vona sandy loam, 1 to 3 percent slopes
- 77: Vona sandy loam, 3 to 5 percent slopes
- 78: Weld loam, 0 to 1 percent slopes
- 79: Weld loam, 1 to 3 percent slopes
- 7: Ascalon sandy loam, 5 to 9 percent slopes
- 80: Weld loam, 3 to 5 percent slopes
- 82: Wiley-Colby complex, 1 to 3 percent slopes
- 83: Wiley-Colby complex, 3 to 5 percent slopes
- 84: Playas
- 85: Water
- 86: Borrow Pits
- 86: Playas
- 8: Ascalon loam, 0 to 1 percent slopes
- 9: Ascalon loam, 1 to 3 percent slopes
- 9: Avar fine sandy loam
- All Other Soil Types

0 2.5 5 Miles

N

Legend

COR400369, Galeton Project Area

County Boundary

Base Map: ESRI Online Map

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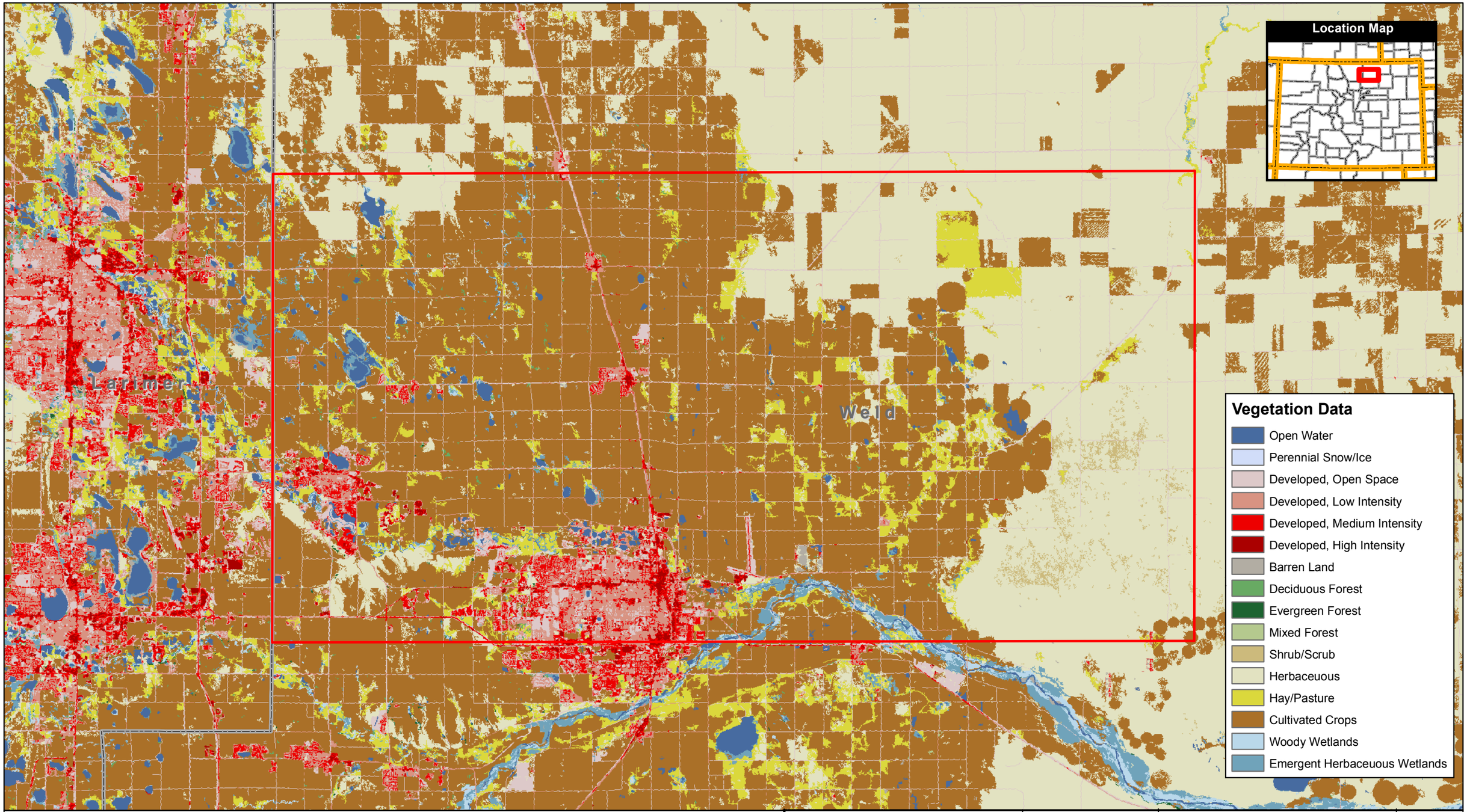
PROJECT NO.	116192
DRAWN:	07/31/2019
DRAWN BY:	A.Leonard
CHECKED BY:	J. Ford
FILE NAME:	AdenaField_Soils_2A_v2.mxd

Bayswater Exploration & Production, LLC

Soils Map
Galeton Project Area
CDPHE Permit COR400369
Weld County, Colorado

FIGURE 2



0 2.5 5 Miles

N

Legend

COR400369, Galeton Project Area

County Boundary

Base Map: ESRI Online Map

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PROJECT NO.	116192
DRAWN:	07/31/2019
DRAWN BY:	A.Leonard
CHECKED BY:	J. Ford
FILE NAME:	AdenaField_LandCover_3A.mxd

Bayswater Exploration & Production, LLC

Vegetation Map
Galeton Project Area
CDPHE Permit COR400369
Weld County, Colorado

FIGURE
3

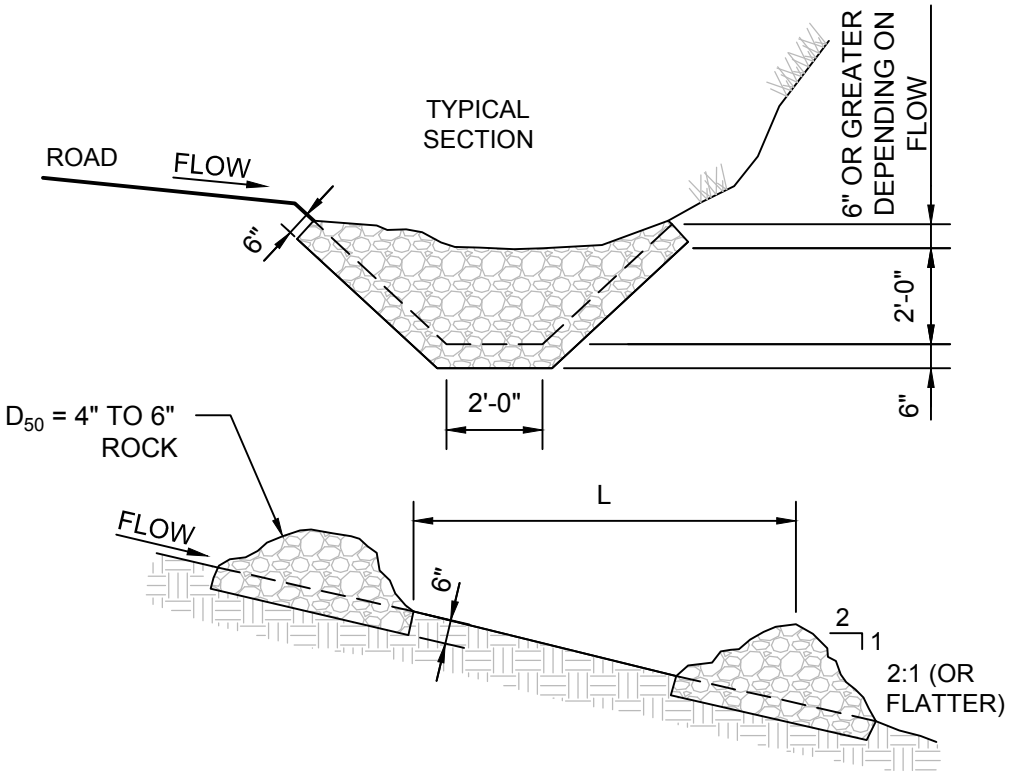
Appendix C.
Stormwater Best Management Practices

CHECK DAMS

Definition: Check dams are small temporary dams constructed within a diversion ditch. Check dams can be constructed using gravel, rock (in a gabion basket, filter sock, or contained within wire mesh), sandbags, gravel bags, earth with erosion control blanketing, straw bales, or fiber rolls, and are used to slow the velocity of concentrated flow in a channel and thus reduce erosion. As a secondary function, check dams can also be used to catch sediment from the channel itself or from the contributing drainage area as stormwater runoff flows through or over the structure.

Criteria for Maintenance: Sediment, large debris, and trash should be removed. The center of a check dams should always be lower than its edges. If erosion or heavy flow causes the edge of a dam to fall to a height equal to or below the height of the center, repairs will be made.

Maintenance Procedures: Check dams will be maintained by removing sediment when depth reaches one-third of the check dams height. Check dams will be re-moved when they are no longer needed or when required by the inspector. Check dams used in roadside v-dithes will be removed in late fall and reinstalled in early spring to accommodate snow removal operations.



INSTALLATION NOTES:

1. ROCK SHALL BE HAND PLACED.
2. CENTER SHALL BE SLIGHTLY DEPRESSD TO ALLOW OVER TOPPING WITHOUT INUNDATING ROAD.
3. TOP OF CHECK DAM SHALL BE THE SAME ELEVATION AS THE TOE OF THE CHECK DAM DIRECTLY UPSTREAM.
4. CHECK DAMS CAN BE CONSTRUCTED USING PILED ROCK, ROCK IN A GABION BASKET, FILTER SOCK OR GRAVEL BAG.
5. DIMENSIONS ARE APROXIMATE. FEILD CONDITIONS WILL DETERMINE ACTUAL DIMENSIONS OF STRUCTURES.

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CHECK DAM

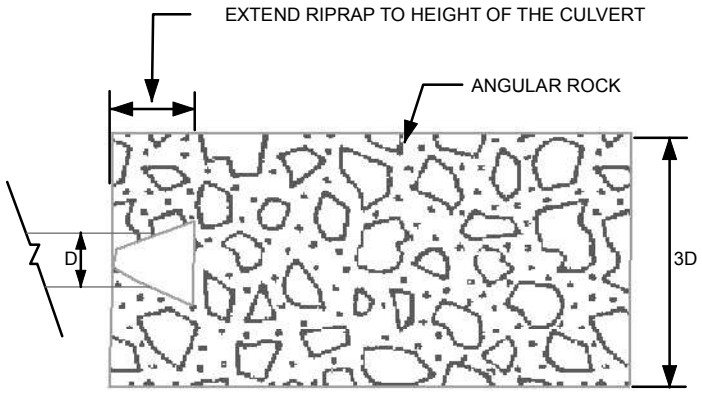
STORMWATER
BMP DETAILS

Culvert Outlet Protection

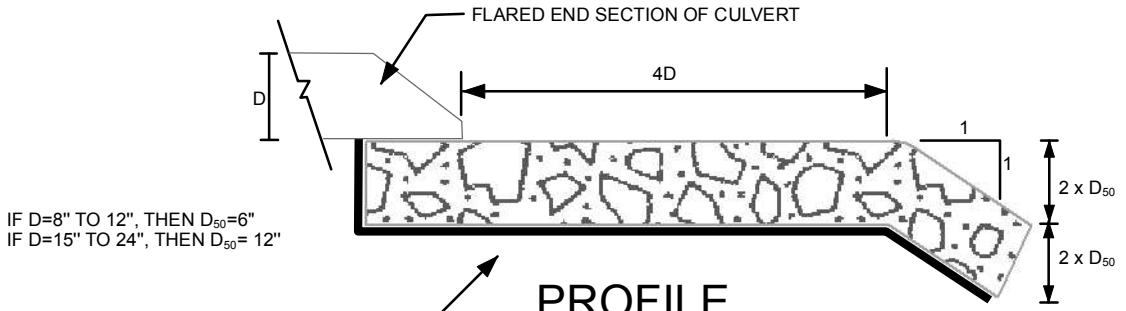
Definition: Riprap is an erosion-resistant layer made up of stones, rock, or boulders. Riprap will reduce the velocity of stormwater flows, dissipate hydraulic energies, and provide an erosion-resistant lining at culvert outlets to protect against scouring and undercutting.

Criteria for Maintenance: Inspect riprap at culvert outlets for damage or dislodged stones. If displacement occurs, the riprap will be replaced or repaired.

Maintenance Procedures: Where sediment has filled the rip-rap, the sediment will be removed and incorporated into the project area at locations designated by the inspector. Anything that is found to reduce the effectiveness of the culvert or culvert outlet protection should be repaired immediately and more riprap will be added if necessary.



PLAN
NOT TO SCALE



PROFILE
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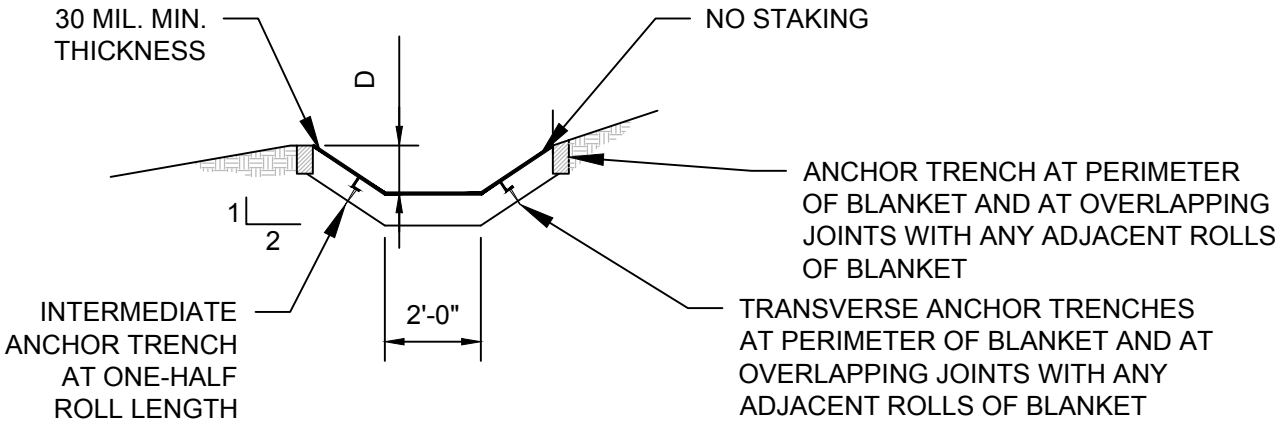
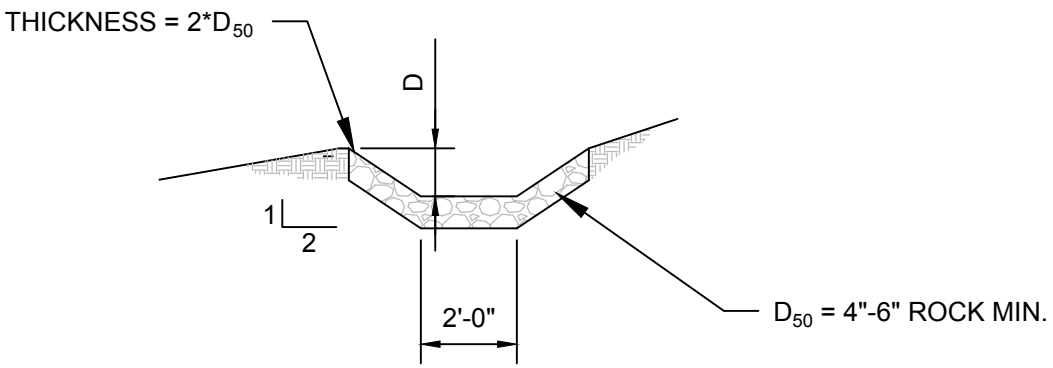
CULVERT OUTLET PROTECTION

STORMWATER
BMP DETAILS



SYNTHETIC-LINED DITCH

Not to Scale



RIPRAP-LINED DITCH

Not to Scale

DITCH INSTALLATION NOTES:

1. EARTH DIKES AND SWALES INDICATED ON SITE DIAGRAM PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTRUBING ACTIVITIES IN PROXIMITY.
2. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
3. D=12" TYPICAL, BUT MAY NEED TO BE DEEPER, DEPENDING ON OFF-SITE FLOW.

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DIVERSION DITCH - LINED

STORMWATER
BMP DETAILS

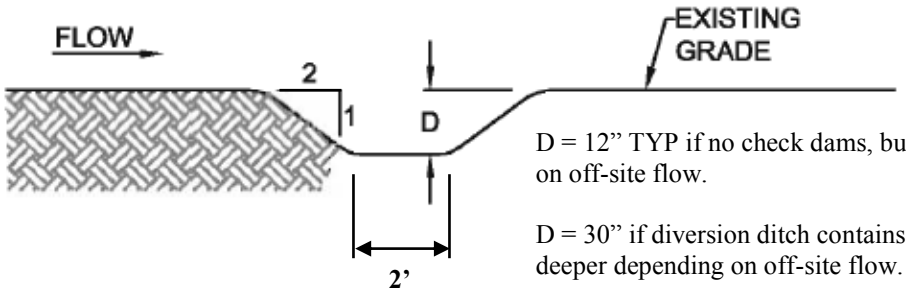
Diversion Ditch

✦ **Definition:** A diversion ditch is a drainage channel of parabolic or trapezoidal cross-section with a supporting ridge on the lower side that is constructed across the slope. A diversion ditch can be used to:

- prevent off-site runoff from entering a disturbed area (run-on control)
- prevent runoff from leaving a construction site or disturbed area
- prevent flows from eroding slopes or interfereing with the establishment of vegetation
- direct runoff or run-on to a water detention area or to a sediment trapping structure
- transport run-on over a pipeline to prevent erosion

Criteria for Maintenance: Channels should be cleared of sediment and repairs made when necessary, especially areas that have washed out. Diversion ditch capacity, ridge height, and outlet elevations must be maintained, especially if high sediment yielding areas are above the diversion ditch. Energy dissipation (e.g., riprap) should be considered in high velocity areas.

Maintenance Procedures: Maintenance personnel shall establish a routine cleanout schedule. Sediment shall be redistributed as necessary to maintain



D = 12" TYP if no check dams, but may need to be deeper depending on off-site flow.

D = 30" if diversion ditch contains check dams, but may need to be deeper depending on off-site flow.

Note: Dimensions are approximate. Field conditions will determine actual dimensions of ditch.

TYPICAL SECTION
NOT TO SCALE

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DIVERSION DITCH

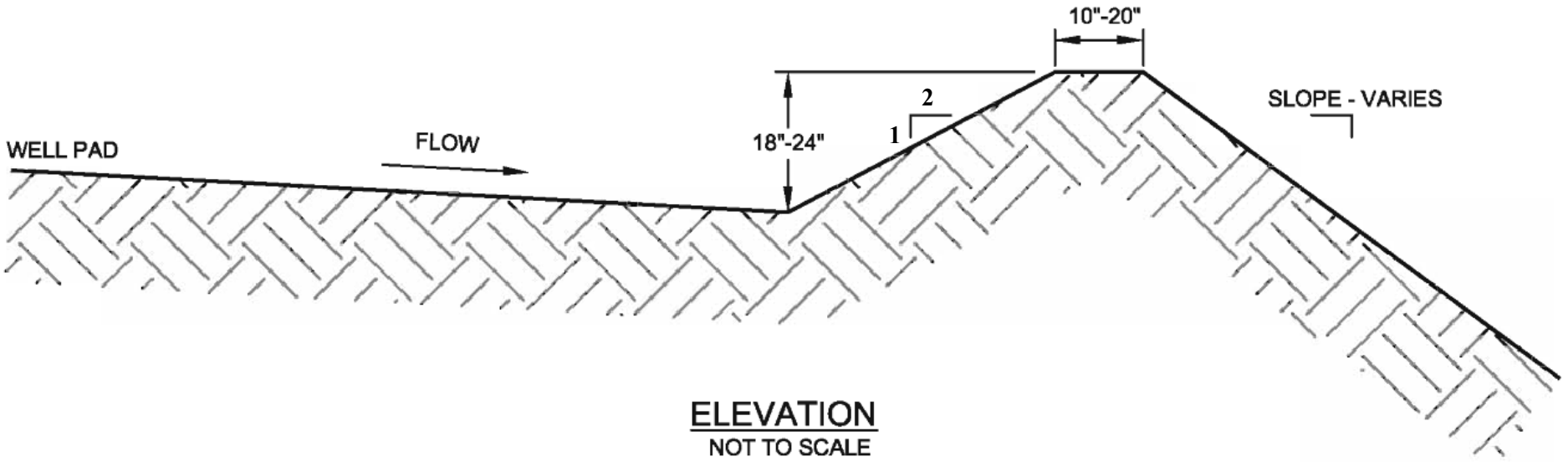
STORMWATER
BMP DETAILS

Berms

Definition: A berm is a ridge of compacted soil around the edge of a well pad or at the top or base of a slope to contain or divert surface runoff. Berms may be constructed from either excavated topsoil or subsoil. The purpose of a berm is to control runoff velocity, divert on-site surface runoff to a sediment trapping device, and/or divert clean water away from disturbed areas.

Criteria for Maintenance: Berms should be inspected for evidence of erosion or deterioration to ensure continued effectiveness. Berms should be maintained at the original height.

Maintenance Procedures: Any decrease in height due to settling, erosion, or damage which impacts the effectiveness of the BMP, should be repaired immediately.



ELEVATION
NOT TO SCALE

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EARTHEN BERM

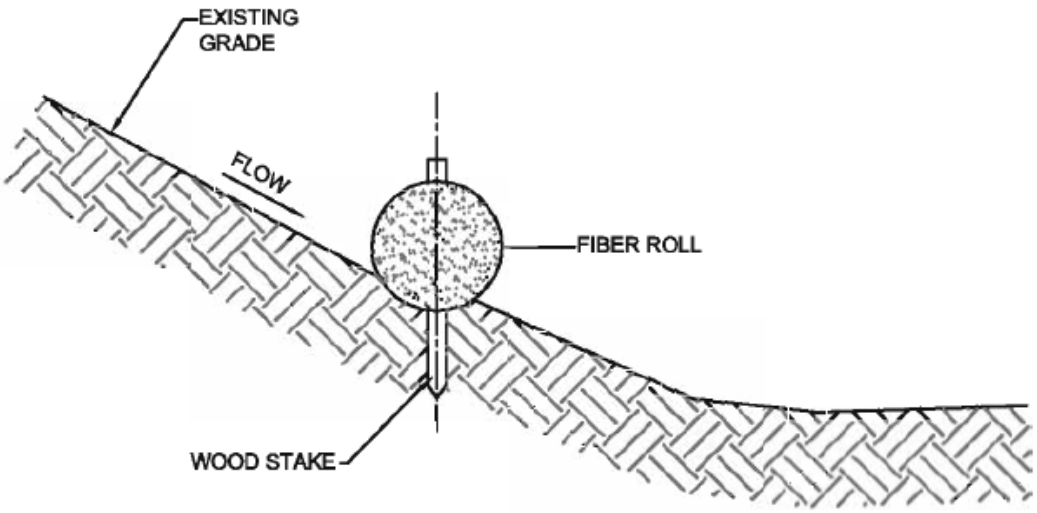
STORMWATER
BMP DETAILS

Fiber Roll

Definition: A fiber roll consists of wood excelsior, rice or wheat straw, or coconut fibers that is rolled or bound into a tight tubular roll and placed on the toe and face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow and provide removal of sediment from the runoff. Fiber rolls may also be used along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow, down -slope of exposed soil areas, around temporary stockpiles, and along the perimeter of a project.

Criteria for Maintenance: When sediment build up reaches ½ the height of the fiber roll, the sediment will be removed. Repair damaged or rotting fiber rolls. Inspect for undercutting beneath fiber rolls.

Maintenance Procedures: Remove sediment build up. Replace fiber rolls as necessary. As fiber rolls become worn out or are no longer needed, they may be allowed to naturally degrade in the field.



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FIBER ROLL

STORMWATER
BMP DETAILS

DESCRIPTION

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.

Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

APPROPRIATE USES

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged; however, hydromulching should not be performed near waterways.

Do not apply mulch during windy conditions.

DESIGN AND INSTALLATION

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.

Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).

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Mulching

Source: Urban Drainage and Flood Control District,
Urban Storm Drainage Criteria Manual Volume 3 , November 2010
With Modifications

On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.

Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.

Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch.

Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times.

Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

MAINTENANCE AND REMOVAL

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

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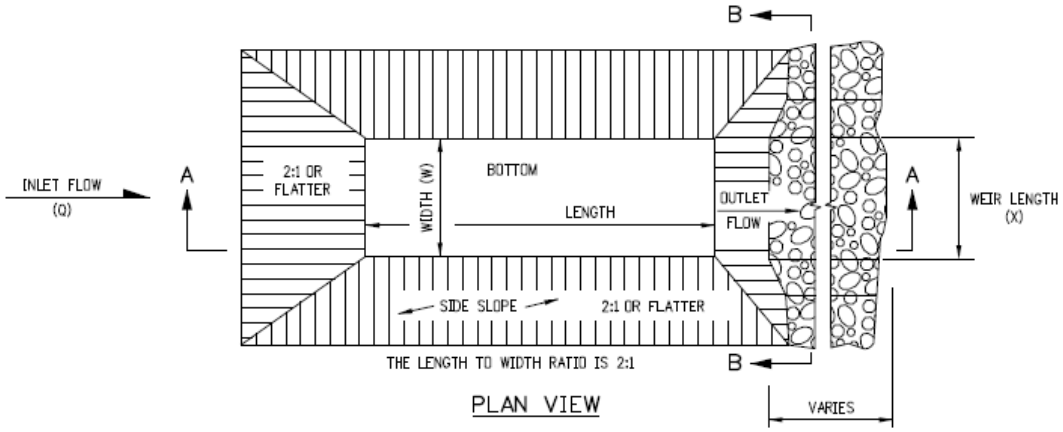
Mulching

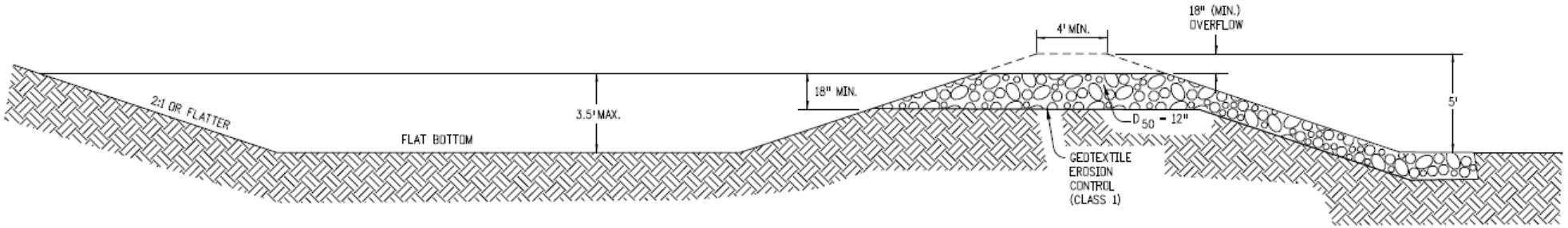
Source: Urban Drainage and Flood Control District,
Urban Storm Drainage Criteria Manual Volume 3 , November 2010
With Modifications



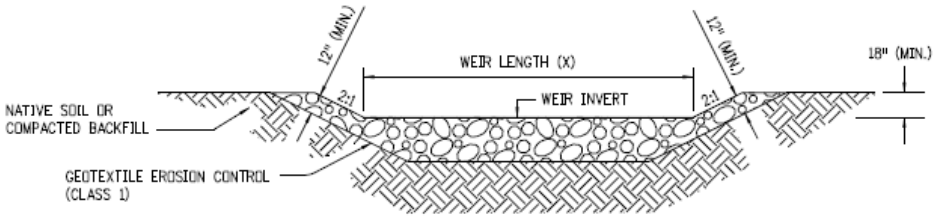
PLAN VIEW

NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.



SECTION A-A



SECTION B-B

DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

WEIR LENGTH TABLE

Source: Colorado Department of Transportation
Standard Plan No. M-208-1
Sheet No. 11 of 12

SEDIMENT TRAP

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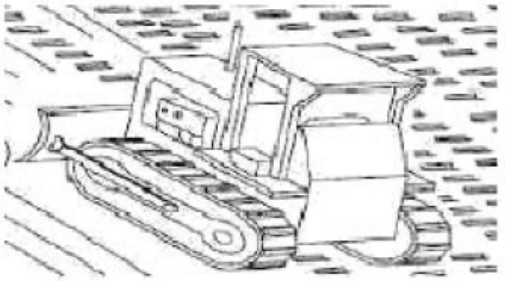
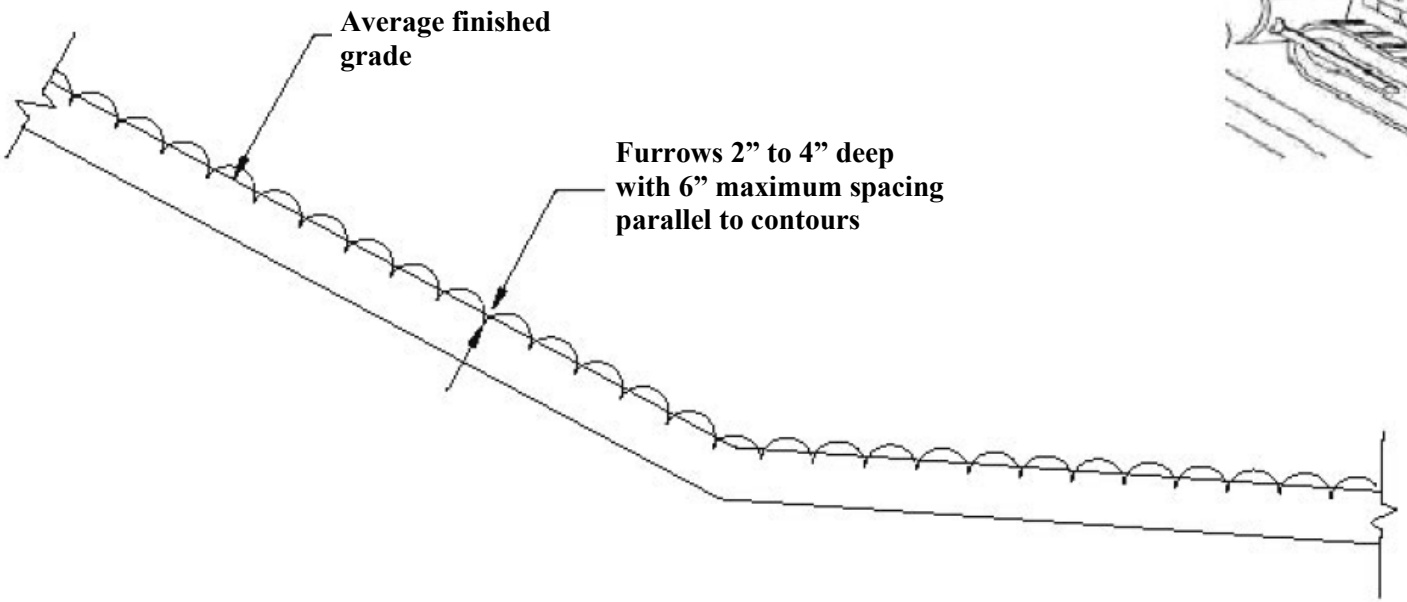
SEDIMENT TRAP

STORMWATER
BMP DETAILS

Installation Notes:

1. Disturbed surfaces shall be roughened using ripping or tilling equipment on the contours or tracking up and down the slope using equipment treads.





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SURFACE ROUGHENING

STORMWATER
BMP DETAILS

DESCRIPTION

Temporary seeding can be used to stabilize disturbed areas that will be inactive for an extended period. Permanent seeding should be used to stabilize areas at final grade that will not be otherwise stabilized. Effective seeding includes preparation of a seedbed, selection of an appropriate seed mixture, proper planting techniques, and protection of the seeded area with mulch, geotextiles, or other appropriate measures.

Photograph TS/PS -1. Equipment used to drill seed. Photo courtesy of Douglas County.

APPROPRIATE USES

When the soil surface is disturbed and will remain inactive for an extended period (typically 30 days or longer), proactive stabilization measures should be implemented. If the inactive period is short-lived (on the order of two weeks), techniques such as surface roughening may be appropriate. For longer periods of inactivity, temporary seeding and mulching can provide effective erosion control. Permanent seeding should be used on finished areas that have not been otherwise stabilized.

Local governments may have their own seed mixes and timelines for seeding. Check jurisdictional requirements for seeding and temporary stabilization.

DESIGN AND INSTALLATION

Effective seeding requires proper seedbed preparation, selection of an appropriate seed mixture, use of appropriate seeding equipment to ensure proper coverage and density, and protection with mulch or fabric until plants are established.

Drill seeding is the preferred seeding method. Hydroseeding is not recommended except in areas where steep slopes prevent use of drill seeding equipment, and even in these instances it is preferable to hand seed and mulch. Some jurisdictions do not allow hydroseeding or hydromulching.

Seedbed Preparation

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overlot grading can result in loss of topsoil, resulting in poor quality subsoils at the ground surface that have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other soil amendments and rototill them into the soil to a depth of 6 inches or more.

Temporary and Permanent Seeding	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

Prior to seeding, ensure that areas to be revegetated have soil conditions capable of supporting vegetation. Overlot grading can result in loss of topsoil, resulting in poor quality subsoils at the ground surface that have low nutrient value, little organic matter content, few soil microorganisms, rooting restrictions, and conditions less conducive to infiltration of precipitation. As a result, it is typically necessary to provide stockpiled topsoil, compost, or other soil amendments and rototill them into the soil to a depth of 6 inches or more.

Topsoil should be salvaged during grading operations for use and spread on areas to be revegetated later. Topsoil should be viewed as an important resource to be utilized for vegetation establishment, due to its water-holding capacity, structure, texture, organic matter content, biological activity, and nutrient content. The rooting depth of most native grasses in the semi-arid Western United States is 6 to 18 inches. At a minimum, the upper 6 inches of topsoil should be stripped, stockpiled, and ultimately respread across areas that will be revegetated.

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Temporary and Permanent Seeding

Source: Urban Drainage and Flood Control District,
Urban Storm Drainage Criteria Manual Volume 3 , November 2010
With Modifications

Where topsoil is not available, subsoils should be amended to provide an appropriate plant-growth medium. Organic matter, such as well digested compost, can be added to improve soil characteristics conducive to plant growth. Other treatments can be used to adjust soil pH conditions when needed. Soil testing, which is typically inexpensive, should be completed to determine and optimize the types and amounts of amendments that are required.

If the disturbed ground surface is compacted, rip or rototill the surface prior to placing topsoil. If adding compost to the existing soil surface, rototilling is necessary. Surface roughening will assist in placement of a stable topsoil layer on steeper slopes and allow infiltration and root penetration to greater depth.

Prior to seeding, the soil surface should be rough and the seedbed should be firm, but neither too loose nor compacted. The upper layer of soil should be in a condition suitable for seeding at the proper depth and conducive to plant growth. Seed-to-soil contact is the key to good germination.

Seed Mix For Temporary Vegetation

To provide temporary vegetative cover on disturbed areas which will not be paved, built upon, or fully landscaped or worked for an extended period (typically 30 days or more), plant an annual grass appropriate for the time of planting and mulch the planted areas. Suitable annual grasses are listed in Table TS/PS-1.

Seed Mix For Permanent Revegetation

To provide vegetative cover on disturbed areas that have reached final grade, a perennial grass mix should be established. Permanent seeding should be performed promptly (typically within 14 days) after reaching final grade. One of the perennial grass mixes appropriate for site conditions and growth season listed in Table TS/PS-2 can be used. The pure live seed (PLS) rates of application recommended in these tables are considered to be absolute minimum rates for seed applied using proper drill-seeding equipment.

If desired for wildlife habitat or landscape diversity, shrubs such as rubber rabbitbrush *(Chrysothamnus nauseosus),* fourwing saltbush *(Atriplex canescens)* and skunkbrush sumac *(Rhus trilobata)* could be added to the upland seed mixes at 0.25, 0.5 and 1 pound PLS/acre, respectively. In riparian zones, planting root stock of such species as American plum *(Primus americana),* woods rose *(Rosa woodsii),* plains cottonwood *(Populus sargentii),* and willow *(Populus spp.)* may be considered. On non-topsoiled upland sites, a legume such as Ladak alfalfa at 1 pound PLS/acre can be included as a source of nitrogen for perennial grasses.

Seeding dates for the highest success probability of perennial species are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

TABLE TS/PS-1
MINIMUM DRILL SEEDING RATES FOR VARIOUS TEMPORARY ANNUAL GRASSES

Species[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	Planting Depth (inches)
1. Oats	Cool	35-50	1 -2
2. Spring wheat	Cool	25-35	1 -2
3. Spring barley	Cool	25-35	1 -2
4. Annual ryegrass	Cool	10-15	1/2
5. Millet	Warm	3-15	1/2 - 3/4
6. Sudangrass	Warm	5-10	1/2 - 3/4
7. Sorghum	Warm	5-10	1/2 - 3/4
8. Winter wheat	Cool	20-35	1 -2
9. Winter barley	Cool	20-35	1 -2
10. Winter rye	Cool	20-35	1 -2
11. Triticale	Cool	25-40	1 -2

a. Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.
Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.
b. See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.
c. Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

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TABLE TS/PS-2
MINIMUM DRILL SEEDING RATES FOR PERENNIAL GRASSES

Common Name[a]	Botanical Name	Growth Season"	Growth Form	Seeds/ Pound	Pounds of PLS/ acre
Alakali Soil Seed Mix					
Alkali sacaton	*Sporobolus airoides*	Cool	Bunch	1,750,000	0.25
Basin wildrye	*Elymus cinereus*	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Jose tall wheatgrass	*Agropyron elongatum 'Jose'*	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.75**
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	*Agropyron cristatum 'Ephraim'*	Cool	Sod	175,000	2.0
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	7.0
Total					**15.5**

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TABLE TS/PS-2
MINIMUM DRILL SEEDING RATES FOR PERENNIAL GRASSES (CONT.)

High Water Table Soil Seed Mix					
Meadow foxtail	*Alopecurus pratensis*	Cool	Sod	900,000	0.5
Redtop	*Agrostis alba*	Warm	Open sod	5,000,000	0.25
Reed canarygrass	*Phalaris arundinacea*	Cool	Sod	68,000	0.5
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Pathfinder switchgrass	*Panicum virgatum 'Pathfinder'*	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	*Agropyron elonga-tum 'Alkar'*	Cool	Bunch	79,000	5.5
Total					**10.75**
Transition Turf Seed Mix[c]					
Ruebens Canadian bluegrass	*Poa compressa 'Ruebens'*	Cool	Sod	2,500,000	0.5
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	*Loliumperenne 'Citation'*	Cool	Sod	247,000	3.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Total					**7.5**

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Source: Urban Drainage and Flood Control District,
Urban Storm Drainage Criteria Manual Volume 3 , November 2010
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TABLE TS/PS-2
MINIMUM DRILL SEEDING RATES FOR PERENNIAL GRASSES (CONT.)

Common Name[a]	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	*Bouteloua gracilis*	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	*Schizachyrium scoparium 'Camper'*	Warm	Bunch	240,000	1.0
Prairie sandreed	*Calamovilfa longifolia*	Warm	Open sod	274,000	1.0
Sand dropseed	*Sporobolus cryptandrus*	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**10.25**
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass[d]	*Agropyron cristatum 'Ephraim'*	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	*Agropyron intermedium 'Oahe'*	Cool	Sod	115,000	5.5
Vaughn sideoats gramae	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.5**

a. All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

b. See Table TS/PS-3 for seeding dates.

c. If site is to be irrigated, the transition turf seed rates should be doubled.

d. Crested wheatgrass should not be used on slopes steeper than 6H to IV. Can substitute 0.5lbs PLS of blue grama for the 2.0lbs PLS of Vaughn sideoats grama.

Temporary and Permanent Seeding

Source: Urban Drainage and Flood Control District,
Urban Storm Drainage Criteria Manual Volume 3 , November 2010
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TABLE TS/PS-3
SEEDING DATES FOR ANNUAL AND PERENNIAL GRASSES

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**Warm**	**Cool**	**Warm**	**Cool**
January 1-March 15			✓	✓
March 16-April 30	4	1,2,3	✓	✓
May 1-May 15	4		✓	
May 16-June 30	4,5,6,7			
July 1-July 15	5,6,7			
July 16-August 31				
September 1-September 30		8,9,10,11		
October 1-December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching Standard Detail for additional guidance.

MAINTENANCE AND REMOVAL

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

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Temporary and Permanent Seeding

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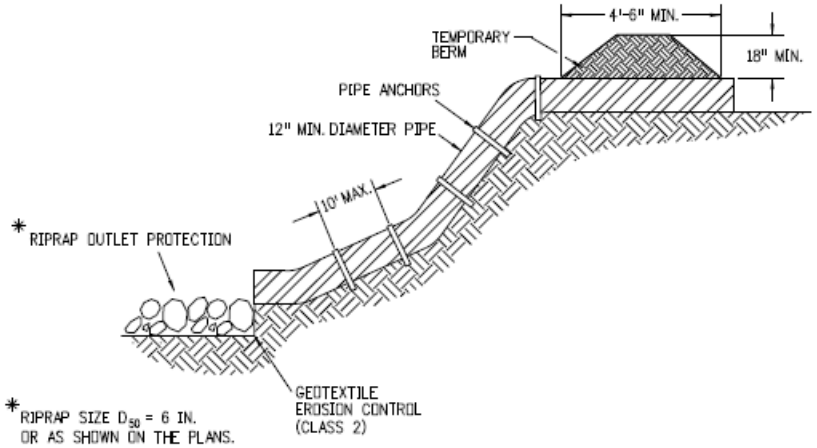
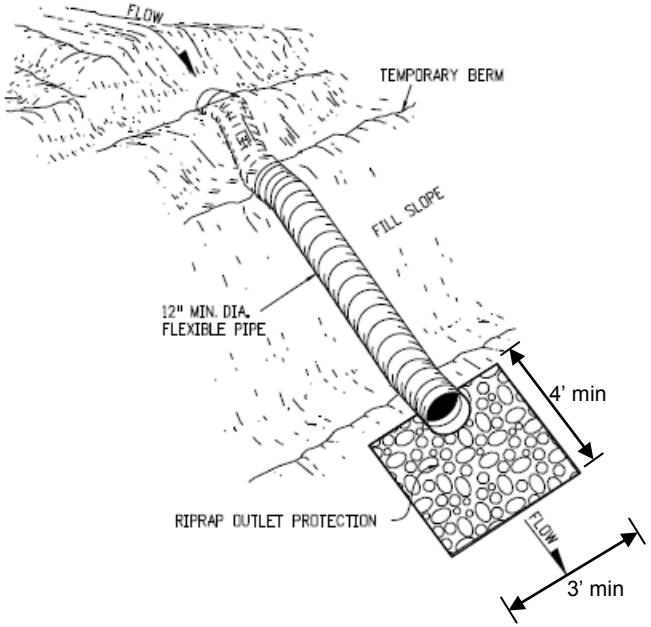


TEMPORARY SLOPE DRAIN

ANCHOR SIZE VARIES ACCORDING TO PIPE SIZE.



Source: Colorado Department of Transportation
Standard Plan No. M-208-1
Sheet No. 9 of 12

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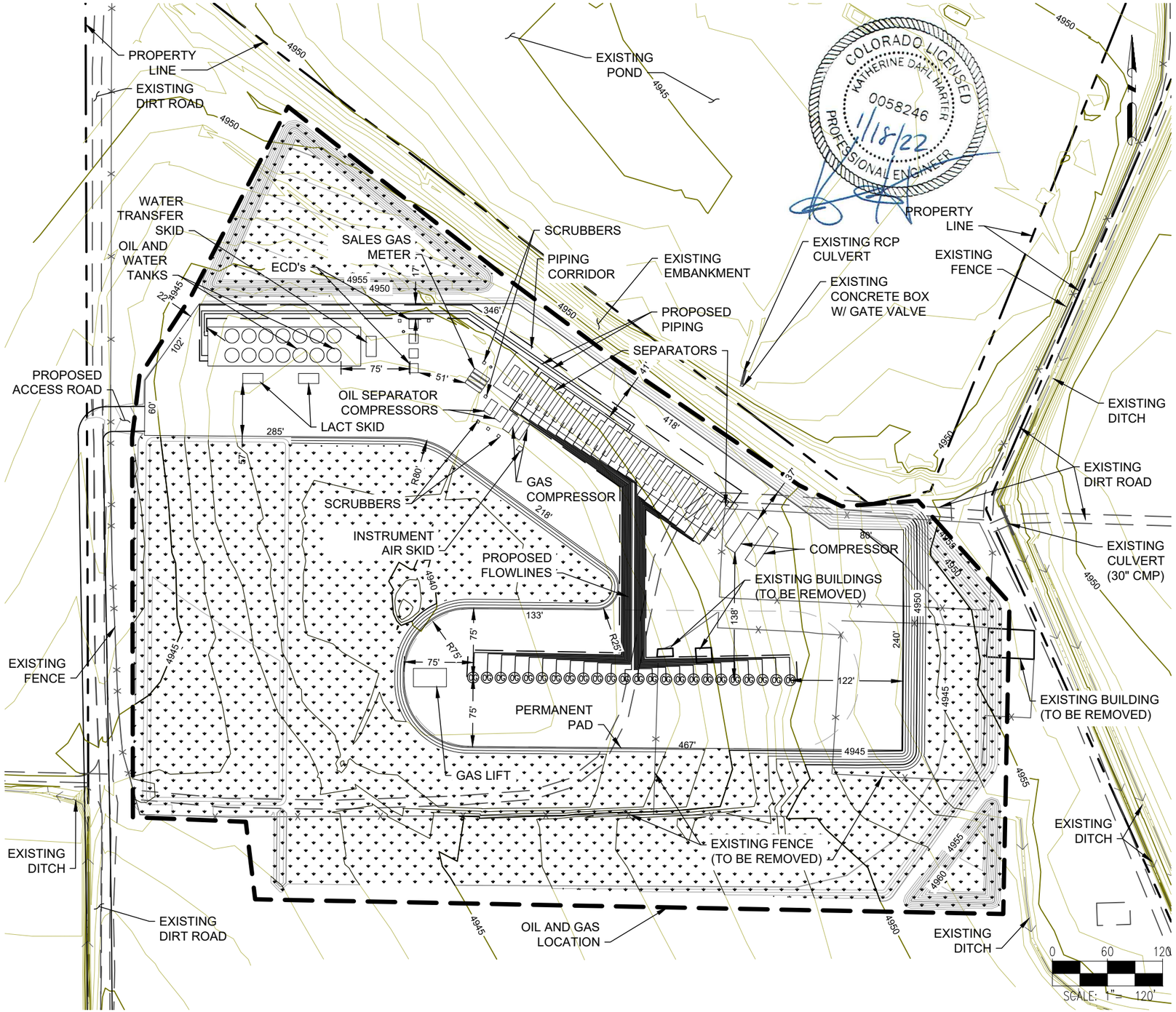
TEMPORARY SLOPE DRAIN

STORMWATER
BMP DETAILS

Appendix D.
COR400369 Permit Area Site Specific BMP Diagrams and Inspection Reports

Please refer to additional binders for BMP diagrams and inspection reports

GARNET 21-K PAD
GRADING PLAN



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0058246
1/18/22
PROFESSIONAL ENGINEER

SITE QUANTITIES

TOTAL CUT FOR SITE (BANK)	13,613	CY
TOTAL FILL FOR SITE	15,482	CY
NET IMPORT MATERIAL	1,869	CY
RECLAIMED AREA	7.5	ACRES
PERMANENT DISTURBANCE AREA	5.5	ACRES
OIL & GAS LOCATION AREA	13.0	ACRES

LEGEND:

RECLAIMED AREA

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PREPARED FOR:
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BAYSWATER EXPLORATION & PRODUCTION, LLC
730 17TH ST, SUITE 500
DENVER, CO 80202
(303) 893-2503

SHEET NAME: INTERIM-RECLAMATION LAYOUT

SURFACE LOCATION
GARNET 21-K PAD
NW 1/4 SE 1/4 SECTION 21, T7N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	DATE	REVISION DESCRIPTION	INT.
0	10/12/21	ISSUED FOR CONSTRUCTION	AMS
1	11/01/21	ISSUED FOR CONSTRUCTION	RMC
2	1/18/22	ISSUED FOR CONSTRUCTION	AMS
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FIELD DATE: 04-29-2020
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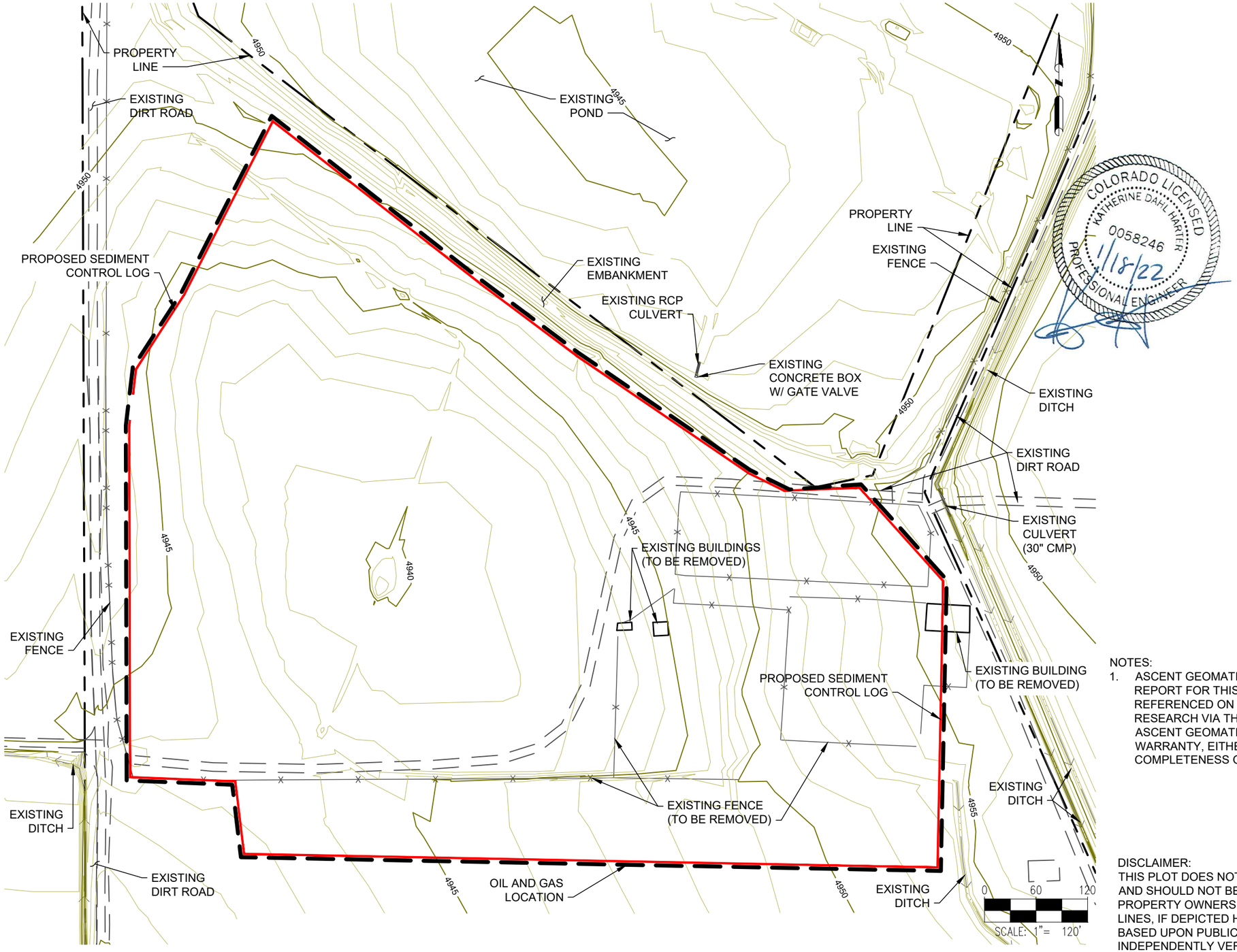
GARNET 21-K PAD
GRADING PLAN



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SHEET NAME: EROSION & SEDIMENT CONTROL PLAN - INITIAL

SURFACE LOCATION
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NW 1/4 SE 1/4 SECTION 21, T7N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

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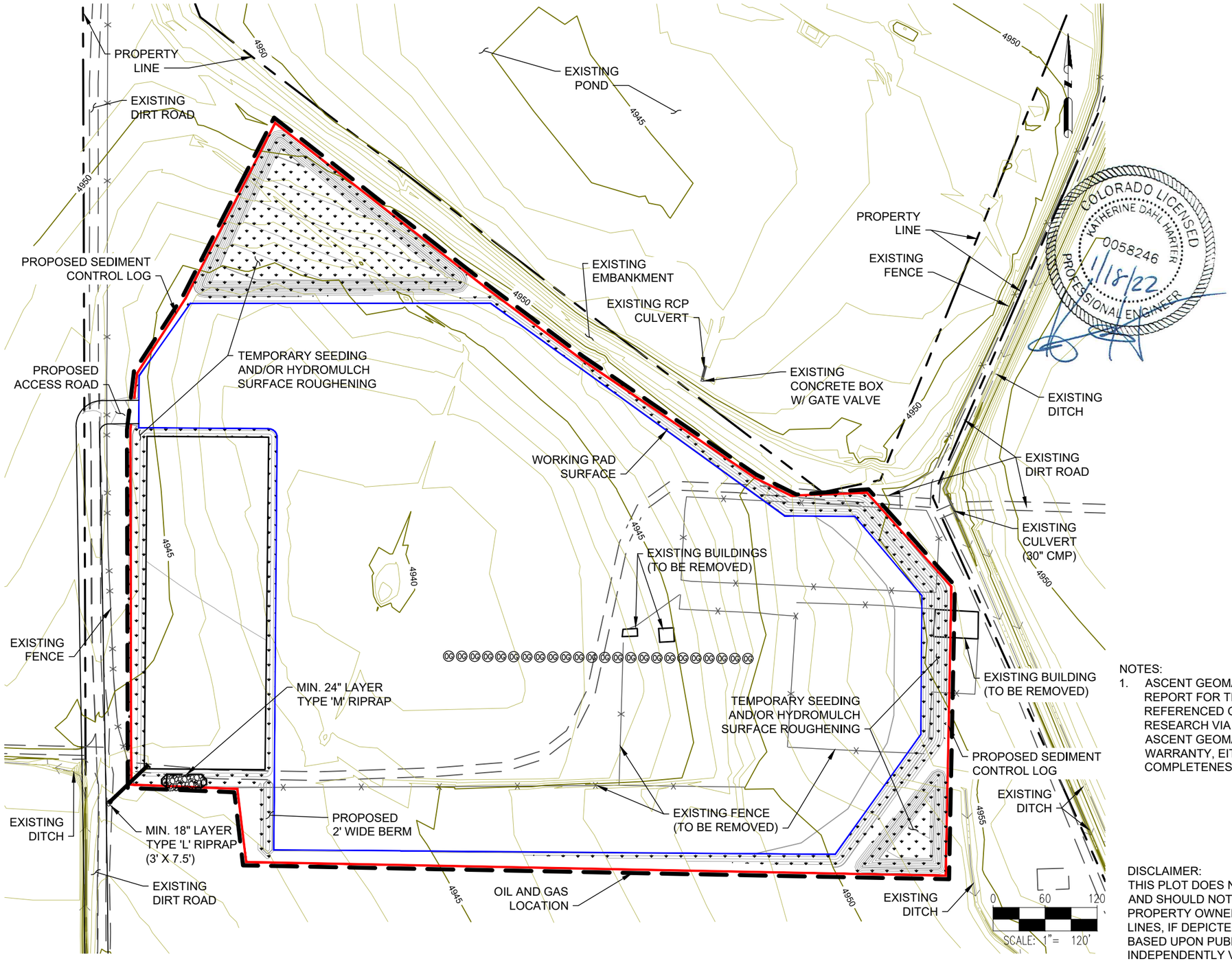
GARNET 21-K PAD
GRADING PLAN



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SURFACE LOCATION
GARNET 21-K PAD
NW 1/4 SE 1/4 SECTION 21,
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WELD COUNTY, COLORADO

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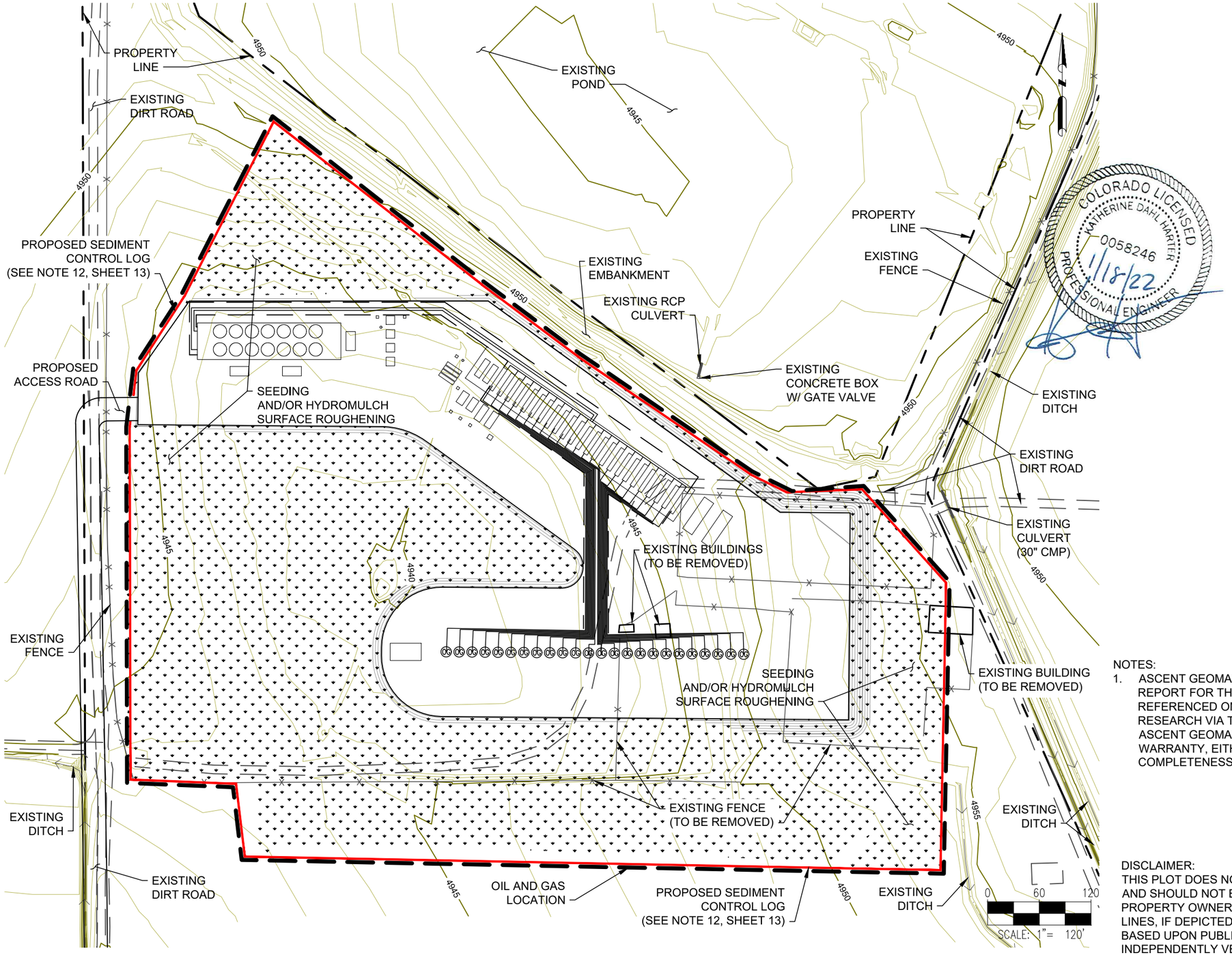

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SHEET NAME: EROSION & SEDIMENT CONTROL PLAN - FINAL

SURFACE LOCATION
GARNET 21-K PAD
NW 1/4 SE 1/4 SECTION 21,
T7N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	DATE	REVISION DESCRIPTION	INT.
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1	11/01/21	ISSUED FOR CONSTRUCTION	RMC
2	1/18/22	ISSUED FOR CONSTRUCTION	AMS
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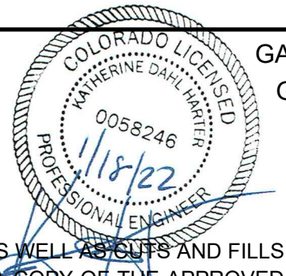

GARNET 21-K PAD
GRADING PLAN

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM WELD COUNTY PUBLIC WORKS.
3. CLEARING, GRUBBING, AND TOPSOIL STRIPPED SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THE E&S PLAN.
4. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
5. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN.
6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY WELD COUNTY PUBLIC WORKS.
7. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
8. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
9. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
10. ALL SEDIMENT REMOVED FROM BMPS SHALL BE PLACED WITHIN THE RIGHT-OF-WAY EXCEPT IN WETLAND AREAS OR AS OTHERWISE DESCRIBED IN THE PLAN DRAWINGS.
11. AREAS WHICH ARE TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
12. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
13. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
14. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
15. UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
16. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
17. IF EARTH DISTURBANCE ACTIVITIES ARE TO CEASE FOR MORE THAN 4 DAYS, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS. ACCESS AREAS THAT CONTINUE TO BE DISTURBED WILL BE STABILIZED ONCE ACTIVITY IS COMPLETE.
18. AT STREAM CROSSINGS, 50' BUFFER AREAS SHOULD BE MAINTAINED. ON BUFFERS, CLEARING, SOD DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.
19. MULCH WITH NETTING OR EROSION CONTROL MATS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER AND WITHIN 100' OF SPECIAL PROTECTION WATERS OR 50' OF SURFACE WATERS.
20. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.

ASCENT GEOMATICS SOLUTIONS
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PREPARED FOR:

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SHEET NAME: EROSION & SEDIMENT CONTROL NOTES

SURFACE LOCATION
GARNET 21-K PAD
NW 1/4 SE 1/4 SECTION 21,
T7N, R66W, 6TH P.M.
WELD COUNTY, COLORADO

REV.	DATE	REVISION DESCRIPTION	INT.
0	10/12/21	ISSUED FOR CONSTRUCTION	AMS

FIELD DATE: 04-29-2020
DRAWING DATE: 10-12-2021
DRAFTED BY: AMS
SHEET NO. 13 OF 16