

STORMWATER MANAGEMENT PLAN
ROLLING HILLS RANCH PUD GRADING
EL PASO COUNTY, COLORADO
CDPHE PERMIT _____

Item Numbers refer to SWMP Checklist

Item 1. Add Qualified Stormwater Manager and Contractor information to cover/title sheet. If unknown, add a placeholder to be updated prior to the pre-construction meeting:

STORMWATER MANAGER

Name: _____

Company: _____

Address: _____

CONTRACTOR

Name: _____

Company: _____

Address: _____

Prepared For:

GTL DEVELOPMENT, INC.

3575 Kenyon Street
San Diego, CA 92110

September 2019

Qualified Stormwater Manager:

Bret Haycock
NAME

Site Supervisor
POSITION

Prepared By:
Tech Contractors
11886 Stapleton Dr
Falcon, CO 80831
719.495.7444

PCD Project No.: PUD-SP-119 & SF-19-023

Table of Contents

1.0 INTRODUCTION	1
1.1.a. Site Description	1
1.1.b. Proposed Sequence of Major Activities.....	2
1.1.c. Project Location and Estimates of Area to be Disturbed	2
1.1.d. Data Source for Site CM Plans and Soil Data	4
1.1.e. Existing Vegetative Cover	4
1.1.f. Potential Pollution Sources.....	5
1.1.g. Allowable Non-Stormwater Discharges	6
1.1.h. Receiving Waters	6
1.2 Adjacent Construction Activities & Land Use	7
1.3 Threatened and Endangered Species	7
1.4 Historic and Preservation Sites	7
1.5 Offsite CM's.....	8
1.6 Upstream Run-on Potential	8
1.7 Responsibilities	8
2.0 SOURCES OF INFORMATION	8
3.0 CONTROL MEASURES FOR STORMWATER CONTROL	9
3.1 STRUCTURAL CONTROL MEASURES.....	9
3.2 NON-STRUCTURAL CONTROL MEASURES.....	11
4.0 FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT	15
5.0 INSPECTIONS AND PREVENTATIVE MAINTENANCE	16
5.1 INSPECTIONS.....	16
5.2 PREVENTATIVE MAINTENANCE	17
6.0 DEVIATIONS FROM THE PLAN	18
7.0 REFERENCES	18

Appendices were not provided with the SWMP for review.
Will review during next submittal.

APPENDICES

APPENDIX A	Colorado Discharge Permit/Application
APPENDIX B	Site Map/Lot Ownership
APPENDIX C	Approved Grading and Erosion Control Plans
APPENDIX D	Selected CONTROL MEASURES from Drainage Criteria Manual – Vol. 2
APPENDIX E	Inspection Tracking Form
APPENDIX F	Inspection Form
APPENDIX G	Spill Reporting Form
APPENDIX H	Notice of Transfer and Acceptance of Terms of a Stormwater Discharge General Permit Certification Notice of Reassignment of Permit Coverage for a Portion of a Permitted Area and General Permit Application Amendment of Permit Coverage Application Inactivation Notice for Construction Stormwater Discharge General Permit Certification
APPENDIX I	Training Sign-in Sheet
APPENDIX J	Additional Notes
APPENDIX K	Plan Deviations Recording Form

STORMWATER MANAGEMENT PLAN CONTENTS CHECKLIST

Stormwater Management Plan Contents	SWMP Page # or Location
Site Description	
A description of construction activity.	Section 1.0
The proposed sequence for major activities.	Section 1.1, Section 3.1, and Appendices B and C
Estimates of the total area of the site and the area of the site that is expected to undergo clearing, excavation, or grading.	Section 1.1 and Appendices B and C
A description of the soil, soil erosion potential, or the quality of any discharge from the site.	Section 1.1
The location and description of any other potential pollution sources, such as vehicle fueling, storage of fertilizers or chemicals, etc.	Section 1.1, Section 5.0, and Appendix G
The location and description of any anticipated non-stormwater components of the discharge, such as springs and landscape irrigation return flow.	Section 1.1
The name of the receiving water(s) and the location of any outfall or, if the discharge is to a municipal separate storm sewer, the name of that system, the location of the storm sewer discharge, and the ultimate receiving water(s).	Section 1.1, and Appendices A, B, and C
Site Map	
Construction Site Boundaries.	Appendix B and Figure 1
All areas of disturbance.	Appendix B
Areas of cut and fill.	Appendix B
Areas used for storage of building materials, soils or wastes.	Appendix B
Location of any dedicated asphalt or concrete batch plants.	Not Applicable – no dedicated asphalt or concrete batch plants proposed on this site.
Location of major erosion control facilities or structures.	Appendix C
Springs, streams, wetlands, and other surface waters.	Section 1.1, Figure 1, Appendices B and C
Boundaries of 100-year flood plains, if determined.	Figure 1, Appendix C
Drainage ponds for each outfall.	Appendices B and C
Surface water bodies (including dry water courses).	Figure 1 and Appendices B and C
Existing and planned structural stormwater pollution control measures.	Section 1.1, Appendix C
Areas where industrial activities take place.	Not Applicable – no industrial activities are planned on this site.
Paved and unpaved areas where the runoff coefficient may be different.	Appendix C
CONTROL MEASURES (CM) for Stormwater Pollution Prevention	
Structural	Section 3.1 and Appendix C
Non-structural	Section 3.2 and Appendix C

Stormwater Management Plan Contents	SWMP Page # or Location
<i>Materials Handling and Spill Prevention</i>	
The intensity of the activity.	Section 3
The size of the area over which the activity takes place, the surface type, and other physical characteristics such as slope.	Section 1.1, Section 3, Appendices B and C
Ability of product storage and loading/unloading facilities to contain spills and leaks.	Section 3 and Appendix C
The construction and toxicity of materials which can be expected to be found in the site's stormwater runoff.	Section 3.2.1
The contamination of storage facilities with the substances being stored.	Section 3.2.1
Notification procedures to be used in the event of an accident.	Section 3.2.3, Appendices E and G
Instructions for clean-up procedures.	Section 3.2.3, Appendix E
Provisions for absorbents to be made available for use in fuel areas.	Section 3.2.3, Appendix E
Prohibition of the washing of concrete trucks and other equipment into the storm drainage system.	Section 3.2.1
<i>Final Stabilization and Long Term Stormwater Management</i>	
A description of measures used to achieve final stabilization	Section 4.0
<i>Other Controls</i>	
A description of other measures to control pollutants in stormwater discharges, including plans for waste disposal and limiting off site soil tracking.	Appendix E
Records of spills, leaks, overflows, including time and date, weather conditions, etc.	Appendices E and G
Implementation of specific items in the SWMP	Appendices F, G, H, I, J and K
Training events involving materials handling and storage.	Appendix I
Contacts with regulatory agencies and personnel.	Appendices E and J
Notes of employee activities, contact, notifications, etc.	Appendix J
Maintenance and repair of stormwater management controls.	Appendices C, F, J and K
Preventative maintenance activities.	Appendices F and J
Inspection activities.	Appendix F
<i>Inspection and Maintenance</i>	
A description of procedures to inspect and maintain in good and effective operating condition the vegetation, erosion and sediment control measures and other protective measures identified in the SWMP	Section 5.0 and Appendix F
Identification of equipment, sediment and erosion controls, and site areas that should be inspected.	Section 5.0 and Appendices C, F, J and K
Appropriate and timely maintenance, repair, or replacement of control measures and equipment.	Section 5.0 and Appendices F, J and K
Maintenance of complete records on inspections, equipment, and systems.	Section 5.0 and Appendices F, J and K

1.0 INTRODUCTION

Rolling Hills Ranch PUD Grading is located in the unincorporated portion of the County of El Paso and State of Colorado. GTL Development, Inc. is grading this land for single family homes and selling the individual lots to home builders to construct the single family homes over a portion of the permit area. This report will identify the areas to be covered under the current permit and to update and track the CONTROL MEASURES (CM) to be used until final stabilization is reached. This document is the Stormwater Management Plan (SWMP). Rolling Hills Ranch PUD Grading, a single family residential development, was permitted through the State of Colorado Discharge Permit System-Permit _____. The application and permit can be found in Appendix A.

Rolling Hills Ranch PUD Grading is a single family residential development project containing 16 lots to be graded in its entirety and developed and platted over three separate phases, Rolling Hills Ranch Filings 1, 2, & 3. The project scope includes homebuilding construction consistent with prairie style building where roads, sidewalks and curbs as well as utility stub-ins are completed at the time of home construction. Surrounding the project are vacant land, completed home sites sold to private homeowners, parks, open space and tract areas maintained by the Meridian Service Metropolitan District.

The project is located in El Paso County, CO and is within the Geick Ranch Drainage Basin.

This report can be found at 11886 Stapleton Dr, Peyton 80831, the administrator is Bret Haycock.

1.1.a. Site Description

Historically, ranching dominated the area surrounding Meridian Ranch; however, currently urbanization has occurred in the general vicinity. Most notably, urbanization is occurring to the north with Latigo Trails, to the south in the Woodmen Hills Subdivision, to the east in Four Way Ranch, to the west in the Falcon Hills subdivision, and to the northwest in the Paint Brush Hills subdivision.

The total project site is approximately 253 acres. Rolling Hills Ranch PUD Grading is located between north of Rex Road east of the Estates at Meridian Ranch Filing 3; with unplatted vacant land to the east and north. The project site is approximately 12 miles northeast of the City of Colorado Springs, 3 miles north of the town of Falcon and immediately north of the Falcon High School in an unincorporated portion of El Paso County and State of Colorado. The property is located in Sections 19 and 20, Township 12 South, Range 64 West, of the 6th Principal Meridian.

The project is divided into the following areas: approximately 140 acres for residential use, 48 acres right of way, and 65 acres of landscape/open space/drainage. The residential area will contain 725 single family homes. The landscaping area is to be improved with planting areas, sidewalk trail and irrigated sod area.

1.1.b. Proposed Sequence of Major Activities

Construction for Rolling Hills Ranch PUD Grading will occur over multiple years through several phases to full buildout. Stage 1 will be the over-lot grading of the development area. Stage 2 consists of the construction and installation of the underground utilities including the watermain, sanitary sewer system, storm drainage system and other dry utilities and the construction of the surface improvements to include the streets, curb and gutter, and sidewalks. Stage 3 consists of the constructing the single family homes and final landscaping. The individual home builders will be responsible for permitting and the CM associated with each residential lot upon transfer of land title and ownership of said lot(s). Meridian Service Metro District (MSMD) to be named at the time of plat is responsible for all of the open space and landscape tracts throughout the PUD development.

Item 6. update schedule

Stage	Description	Control Measures	Begin Date	End Date
Stage 1	Overlot Grading	Perimeter Control Swale Checks as needed Surface Roughening	January 2020	June 2020
Stage 2	Underground utilities Surface Improvements	Perimeter Control Inlet Protection	June 2020	December 2020
Stage 3	Home Construction	Inlet Protection Individual Lot Perimeter Control	September 2020	
Final Stabilization	Permit Close	Final Stabilization Permanent Measures	September 2021	

Temporary sediment basins must be installed prior to any soil disturbance. Add installation to schedule.

1.1.c. Project Location and Estimates of Area to be Disturbed

The total project site is approximately 252 acres with approximately 252 acres disturbed. Rolling Hills Ranch PUD Grading is located between north of Rex Road east of the Estates at Meridian Ranch Filing 3; with unplatted vacant land to the east and north. The project site is approximately 12 miles northeast of the City of Colorado Springs, 3 miles north of the town of Falcon and immediately north of the Falcon High School in an unincorporated portion of El Paso County and State of Colorado. The property is located in Sections 19 and 20, Township 12 South, Range 64 West, of the 6th Principal Meridian.

A general location map is Figure 1.

Latitude: 38°59'58" N

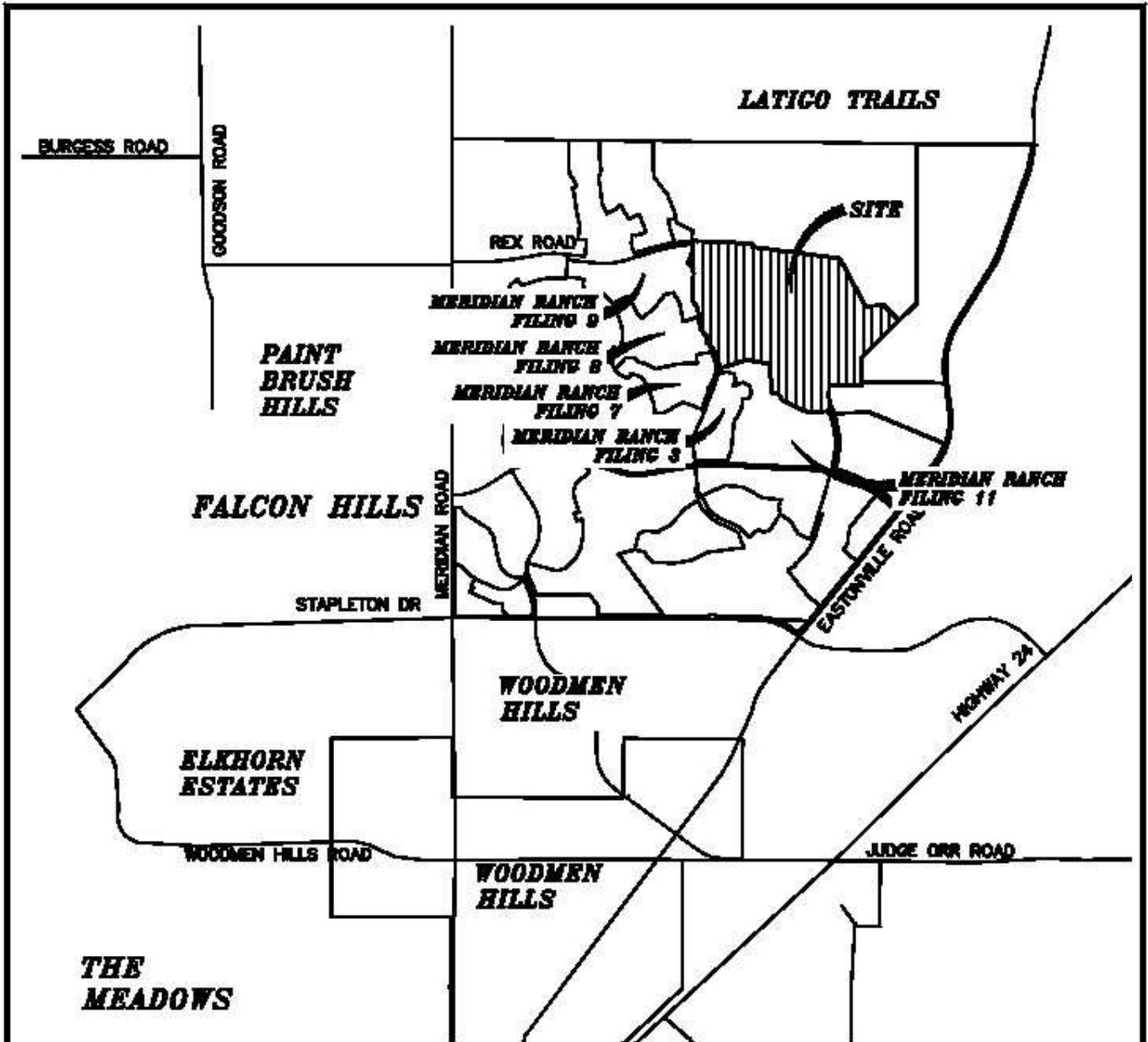
Longitude: 104°34'41"W

There are no planned offsite borrow or disposal activities associated with this site.

Should offsite disturbance occur or become necessary, the SWMP and site map shall be amended by the SWMP Administrator.

Offsite Control Measures: may include but are not limited to; curb socks and inlet protection, detention basins, street sweeping etc. Offsite CM are detailed later in this SWMP.

Approximate limits of disturbance are indicated on exhibits found in Appendix B and C of this SWMP.



N.T.S.

**MERIDIAN RANCH
ROLLING HILLS RANCH**

VICINITY MAP

FIGURE 1

**TECH CONTRACTORS
11886 STAPLETON DRIVE
FALCON, CO 80831**

TELEPHONE: 719.485.7444
FAX: 719.485.2457

1.1.d. Data Source for Site CM Plans and Soil Data

The National Resources Conservation Service (NRCS) soil survey records indicate that the service area is predominately covered by soils classified in the Columbine (65 ac.) and Stapleton series (188 ac.). These series are categorized in the Hydrological Soil Groups A & B.

The Columbine (19) gravelly sandy loam is a deep, well-drained to excessively drained soil formed in coarse textured material on alluvial terraces, fans and flood plains. Permeability of this soil is very rapid. Available water capacity is low to moderate, surface runoff is slow, and the hazard of erosion is slight to moderate. The Columbine series is categorized as a Hydrological Soil Group A.

This soil is used mainly for grazing livestock, for wildlife habitat and for home sites. The main limitation of this soil for urban development is a hazard of flooding in some areas.

The Stapleton (83) sandy loam is a deep, non-calcareous, well-drained soil formed in alluvium derived from arkosic bedrock on uplands. Permeability of this soil is rapid. Available water capacity is moderate, surface runoff is slow, and the hazard of erosion and soil blowing is moderate. The Stapleton series is categorized as a Hydrological Soil Group B.

This soil is suited to habitat for open land and rangeland wildlife. The main limitation of this soil for urban development is frost-action potential.

Typically, these soils are well-drained, gravelly sandy loams that form on alluvial terraces and fans and exhibit high permeability and low available water capacity with depth to bedrock greater than 6 feet.

1.1.e. Existing Vegetative Cover

Existing vegetation in surrounding areas consists of a mixture of native prairieland grasses and weeds with coverage similar to that found in surrounding areas at approximately 50% density.

Table 1 - Onsite Vegetation

Type of Grass/Vegetation	Approximate Density %	Site Coverage (Total = 100%)
Native Grass/Weeds	60% Native Cover 0% on re-seed areas	90
Brush	0	0
Trees	0	0
No Vegetation – Soil	0	10
No Vegetation – Pavement/Structure	0	0
Rock	0	0

Areas not planned for road or home construction will be seeded to establish permanent vegetation while the remaining areas where future home construction will take place were seeded to establish temporary vegetation.

Past land Use: Prior to development the area was pasture, ranch or farmland.

Item 9. Include method used to determine ground cover (i.e., visual, aerial inspection)

1.1.f. Potential Pollution Sources

Potential pollution sources are those sources that have the potential to impact Storm Water runoff. Potential pollution sources were evaluated for this site and are detailed in this section. Sources and locations may change throughout the construction project. The SWMP Administrator should make appropriate modifications to this section as changes occur.

Table 2 - Potential Pollutant Sources

Material/ Chemical/ Activity	Stormwater Potential Pollutants	Location
All Disturbed and Stored Soils	Sediment, erosion	Entire site, all disturbed areas, top soil will be stored as indicated on the CM Maps as identified by the grading contractor.
Vehicle tracking of sediment	Sediment	Entrance and exit points from the site as shown on the CM map and the approved Grading and Erosion Control plan set for the construction and delivery traffic.
Management of contaminated soils	Fuel, oil, paints, solvents, and other chemical pollutants	Re-fueling areas, material storage areas and adjacent to active construction.
Loading and unloading operations	Sediment, fuels, oils	Re-fueling areas, material storage areas and adjacent to active construction.
Outdoor storage activities	Fuel, oil, paints, solvents, and other chemical pollutants	Designated Material Storage Area and designated areas located near active construction.
Vehicle equipment maintenance and fueling	Fuels, oils, solvents, grease	Material storage and staging area or other designated area near active construction.
Significant dust or particulate generating process	Airborne particles (fugitive dust)	Disturbed areas, stockpiles and street sweeping activities.
Routine maintenance activities	Fertilizers, pesticides, fuels, oils	Materials storage areas and landscaped area maintenance.
On-site waste management	Trash, liquid and solid waste	Dumpsters located in material storage area and/or near active construction. Maintenance and location the responsibility of individual home builders and on-site contractors.
Concrete truck/equipment washing	Liquid and solid concrete	Designated concrete washout areas as shown at various locations on map. Concrete truck washouts areas identified as home builder washouts are the responsibility of the identified home builder.
Dedicated concrete and asphalt batch plants	Concrete/asphalt waste and associated chemicals	N/A – not anticipated for this site.
Non-industrial waste	Worker trash and portable toilets	Waste receptacles at or near material storage area and active construction. Portable toilets located near active construction. The placement and maintenance are the responsibility of the individual home builders.
Adjacent off-site activities with run-on potential	Sediment, erosion	N/A – not anticipated for this site.
Off-site borrow or stockpile areas	Sediment, erosion	N/A – not anticipated for this site.

1.1.g. Allowable Non-Stormwater Discharges

Only those discharges specifically authorized by the permit are allowed from a construction site. Authorized discharges include all Stormwater runoff as well as the non-Stormwater discharges detailed in this section. Additional permits may be necessary for activities not covered by this section.

1. Emergency firefighting activities
2. Release from uncontaminated springs
 - There are no known springs or sources of ground water associated with this site.
3. Landscape irrigation return flow
 - Landscape irrigation return flow is expected to occur once landscape and final stabilization practices have been implemented. CM should be kept in place as needed to reduce erosion and the transport of sediment.
4. Construction Dewatering
 - Construction dewatering may be necessary if Stormwater accumulates in an excavation area. No other dewatering activities are anticipated at this time.
 - If necessary, Stormwater accumulations may be pumped out of excavation areas and conveyed over the project in a non-erosive manner. Waters should either infiltrate or be discharged to a sediment trap or similar structure. If the discharge waters are turbid, a filter bag or similar filtering device must be used.
 - Discharges from this activity may not leave the site as surface runoff or enter a water of the state.
 - Discharges may not be made to the street or storm drain system at the site.
 - Other dewatering activities may require a dewatering permit.
5. Discharges to the ground of concrete wash waters
 - Concrete wash waters are anticipated to occur on this site. Appropriate measures shall be taken to control concrete wash waters in accordance with the permit.
 - Designate a concrete washout area and install per specification. (see Appendix D for specification details)
 - Wash waters are allowed to evaporate or infiltrate into the ground at the wash site. A high water table is not anticipated at this site. If a high water table is discovered or the site is near surface water a poly liner may be necessary to prevent discharge.
 - Concrete wash waters are at no time allowed to be discharged as surface runoff, to existing surface waters, to the street or paved areas or to Stormwater detention/storage facilities.

1.1.h. Receiving Waters

The ultimate receiving water for this project is Black Squirrel Creek located more than five miles east of the project area. Stormwater from this project will be directed to one of two permanent detention basins; the existing Meridian Ranch Pond D or the proposed Meridian Ranch Pond G.

Stormwater passing through existing Pond D first enters an adjacent street and conveyed to the storm drain system which collects the surface flows discharging to an existing improved drainage channel, continuing to an existing permanent detention basin (Meridian Ranch Pond D) with WQCV and is conveyed to another permanent detention basin (Meridian Ranch Pond E) near Eastonville Road, eventually flowing southeasterly through un-named tributaries of Black Squirrel Creek.

Stormwater that will pass through the proposed Pond G first enters an adjacent street and conveyed to the storm drain system which collects the surface flows discharging directly into Pond G or to an existing natural drainage course and continues to the permanent detention basin (Meridian Ranch Pond G) with WQCV where it is released onto the adjacent Falcon Regional Park property and conveyed overland via a natural drainage course to Eastonville Road, eventually flowing southeasterly through un-named tributaries of Black Squirrel Creek.

- **MS4:** The storm drain system is part of the El Paso County MS4 permit
- **Wetlands:** Wetlands are not directly associated with this project
- **Sec. 303d:** The waterways associated with this project are not on the state 303d list of impaired water ways.
- **Sec 404:** Current activities on this site do not require a 404 permit.

There is no anticipated construction stream crossings associated with this project.

1.2 Adjacent Construction Activities & Land Use

The project is directly adjacent to other residential building lots which may be completed, active residential construction lots or vacant developed lots. Other surrounding areas include residential construction as well as parks, ranch land pastures and open space tracts.

If adjacent activities change during the course of this project, the site map shall be updated by the SWMP Administrator to reflect changes.

1.3 Threatened and Endangered Species

This project is not expected to impact any of the listed Threatened or Endangered Species on the national registry. This site is not expected to encroach on any habitat areas. The site should be observed on a regular basis. If a species from the list is found on site, work should be stopped and the Department of Fish and Wildlife contacted before continuing activities. Additional information regarding species identification, location and the process for notification can be found on the web at: http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=CO

1.4 Historic and Preservation Sites

This project is not in proximity to any of the listed protected or historic sites. For additional information visit:

<http://www.coloradohistory-oahp.org/programareas/register/1503/cty.htm>

1.5 Offsite CM

The permittee is responsible for offsite impacts and insuring the operation of offsite CM which are affected by runoff from the permitted site. An example would be where the permittee owns or operates a lot or pad site only. Runoff flows from the site enter the street leading to an inlet with inlet protection continuing on to a shared detention basin. In this example the permittee would have shared responsibility to maintain the effectiveness of the offsite Control Measures. The site would also need to implement a series of CM at the site to minimize offsite impact.

Offsite Control Measures for this site consist of the following:

Inlet Protection/Curb Checks: Inlet protection or curb checks will be installed and maintained by the permittee for this project at the inlet locations and flow lines directly affected by runoff from the owned property or down the flow line from the site entrance.

Detention Basins: Detention basins are in use on this project. Active basins were installed by the project developer and are maintained by the Meridian Service Metropolitan District. The site does discharge to the basins before discharging to natural drainage courses. The permittee shall maintain good sediment and erosion control practices upstream from these basins so as to not adversely impact them. They shall be monitored on a regular basis to ensure functionality until the site permit is terminated.

Street Sweeping: Street sweeping shall be utilized on the adjacent streets and paved areas to minimize offsite tracking of sediment. The activity will be scheduled as needed to reasonably control offsite impact.

1.6 Upstream Run-on Potential

Upstream run-on potential is not expected to impact this project. Observations of the area will be made as a part of the regular site inspections. Updates should be made to the SWMP and site map if conditions change. There is little to no impact anticipated from stormwater run-on to the site.

1.7 Responsibilities

Ultimately the owner or operator holding the permit is responsible for activities associated with this construction project. The permittee must comply with the most stringent of the regulations from the federal and state programs as well as any local requirements. The SWMP Administrator is responsible for the day to day SWMP maintenance and updates.

The permittee may elect to share or delegate responsibility of certain compliance items to other parties such as contractors or third party consultants.

2.0 SOURCES OF INFORMATION

The site is located in the City of Falcon, County of El Paso and the State of Colorado. This Storm Water Management Plan (SWMP) is produced in compliance with the Colorado Water Quality Act, (15-8-101 et.seq., CRS, 1973 as amended) and the Federal Water Pollution Control Act, as amended (33 U.S.C.

1251 et. seq.; the "Act), and covered under General Permit for Stormwater Discharges Associated with Construction Activity.

This SWMP is based on regulations developed by El Paso County for erosion and sedimentation control and a proposed practice for Materials Handling and Spill Prevention.

3.0 CONTROL MEASURES FOR STORMWATER CONTROL

Erosion control measures and CM accepted by the County of El Paso will include those that are outlined in the Drainage Criteria Manual Volume 2. Two types of Control Measures are recognized to prevent potential pollutants from being discharged as a result of construction activities: structural and non-structural. Structural CM include engineered controls and non-structural CM include maintenance, training, and good housekeeping practices. Once these Control Measures are installed and/or implemented, the developer is responsible for their effective use and maintenance on the construction site. Material storage, topsoil stockpiles, staging, concrete washout and waste areas shall be identified by the contractor prior to start of construction activities and adjusted as necessary.

3.1 STRUCTURAL CONTROL MEASURES

Construction for Rolling Hills Ranch PUD Grading occurs in three major stages. Stage 1 consists of over-lot grading. Stage 2 consists of the construction of streets, curb and gutter and utility improvements. Stage 3 consists of the constructing the single family homes and final landscaping. This section discusses the structural CM to be implemented for each phase of construction. Structural CM are industry-tested and are the best defense to prevent pollutants, such as sediment and hazardous wastes, from discharging from the site.

3.1.1 Stage 1

Stage 1 of development consists of over-lot grading. The location of each erosion control measure is outlined on Approved Grading and Erosion Control Plans. These sheets are located in Appendix C and will be updated as necessary. Erosion control measures provided on these plans are summarized below.

Erosion control measures and other CM may be changed as field conditions warrant (see Section 6.0).

INITIAL INSTALL

- Install silt perimeter control as specified in the Approved Grading and Erosion Control Plans.
- Install vehicle tracking control as specified in the Approved Grading and Erosion Control Plans.
- Install Inlet Protection as specified in the Approved Grading and Erosion Control Plans.
- Surface roughening of exposed soil areas that will be exposed for a period greater than 30 days prior to building construction can be used to provide better management of sediment transport internal to the site.
- Soil stockpiles shall have adequate protection either adjacent to the stockpile or sediment perimeter controls to prevent sediment transport from leaving the project boundary. Any soil stockpile remaining after 30 days shall be properly protected.

MAINTENANCE

- Maintain perimeter control.
- Maintain detention/sedimentation ponds.
- Maintain Vehicle Tracking Control.
- Maintain Inlet Protection.
- Maintain Concrete Washout Area (if installed).

3.1.2 Stage 2

During Stage 2 of construction, the site infrastructure (roads and utilities) will be built and installed. Storm drains and other utilities will be placed under ground prior to the road construction and inlet protection will be required. During road construction, temporary sediment basins, in addition to those specified in the Approved Grading and Erosion Control Plans may be required in areas that encounter high runoff. The location of each erosion control measure is outlined on the Approved Grading and Erosion Control Plans. These sheets are located in Appendix C and will be updated as necessary. Erosion control measures shown on these plans are summarized below. Control Measures may be changed as field conditions warrant (see Section 6.0).

INITIAL INSTALL & REMOVAL OF CM NOT NEEDED

- Seed and mulch open areas.
- Install a Concrete Washout Area and Stabilized Staging Area.
- Remove Vehicle Tracking Control after paving of all interior roads is complete.
- Install silt fence or wattles as perimeter control along lot frontage.
- Re-seed all areas disturbed by construction, particularly on graded lots where construction will not commence for a period of 30 days.

MAINTENANCE

- Maintain perimeter control.
- Maintain any temporary diversion dikes and temporary sediment basins.
- Maintain permanent detention ponds
- Maintain Vehicle Tracking Control until road construction is complete.
- Maintain Inlet Protection and curb checks.
- Maintain controls along lot frontage.
- Maintain Concrete Washout Area.

3.1.3 Stage 3

Stage 3 consists of the constructing the single-family homes and final landscaping such activities may occur simultaneous with those found in Stage 2. The locations of each erosion control measure are the responsibility of the individual home builders and are not to be considered a part of this permit. Erosion control measures provided by the home builders will be monitored by the appropriate governmental agency for adequacy and maintenance. The individual home builders may construct and maintain a joint Concrete Washout Area that will not be the responsibility of the permittee. The

Concrete Wash Area shall be placed on property not owned by the permittee. Measures that may be installed by the individual home builder but are not the responsibility of the permittee include:

INITIAL INSTALL

- Install silt fence or wattles as perimeter control along all down-draining property lines and along lot frontage.
- Install vehicle tracking control as per Control Measures for individual home construction. The permittee will advise the home builders if street sweeping is necessary.
- Maintain appropriate Inlet Protection as specified in the SWMP.
- Soil stockpiles shall have adequate protection either adjacent to the stockpile or sediment perimeter controls to prevent sediment transport from leaving the project boundary. Any soil stockpile remaining after 30 days shall be properly protected.

MAINTENANCE

- Maintain perimeter protection.
- Maintain Vehicle Tracking Control.
- Maintain Inlet Protection.
- Maintain Concrete Washout Area.
- Maintain Inlet Protection and curb checks.
- Maintain wattles along lot frontage.

REMOVAL OF CM NO LONGER NEEDED

- Remove Concrete Washout Area once it is no longer required. Individual home builders are responsible for installing and maintaining an approved concrete washout area.
- Remove Stabilized Staging Area and revegetate once it is no longer needed.

3.2 NON-STRUCTURAL CONTROL MEASURES

Materials management and spill prevention techniques are essential to prevent pollution of receiving drainages defined as Waters of the State. Once pollution prevention measures are implemented, the contractor is responsible for maintaining good housekeeping practices on the construction site. This section discusses the specific Control Measures that are most critical to prevent stormwater pollutant discharges to receiving waters. Specification Sheets for specific Control Measures are provided in Appendix D to aid the contractor in implementing and maintaining these practices.

3.2.1 Materials Handling

The best way to avoid potential pollution to stormwater is to prevent it at its source. This may be accomplished with management and maintenance of materials storage areas.

- Garbage/trash/construction debris should be removed on a regular basis to avoid overflowing of trash receptacles. Trash receptacles shall be stored away from drainage areas. The placement and maintenance the responsibility of the individual home builders.

- Washing concrete trucks and other equipment into the storm drainage system is prohibited.
- No waste shall be buried on site.
- Proper clean-up procedures are to be used for spilled materials.
- Mark locations for spill clean-up equipment and materials.
- Clean-up of drips and/or leaks from equipment or machinery at the site.
- Refueling activity must occur in the designated area. Following recommended CM is the responsibility of the contractor. Recommended refueling areas include open spaces or park areas near the official site construction entrance.
- Vehicle maintenance should occur over impermeable surfaces, preferably in the refueling area or over drip pans specifically provided for vehicle maintenance. Maintenance, refueling, and waste materials should be stored and disposed of appropriately.
- Minimize the amount of unneeded materials stored on site.
- Fertilizers and other chemicals to be applied in only the quantity required. Storing these materials should be conducted in a safe and appropriate manner.
- Storage containers, drums, and bags are to be stored away from direct traffic routes to prevent accidental spills.
- Containers are to be stored on pallets or similar devices to prevent corrosion of the containers.
- Chemical substances used in the work place are to be listed and the Material Safety Data Sheet (MSDS) obtained for each. The MSDSs will be readily available for use by posting at the locations where the materials are stored and handled.
- Unlabeled chemicals and chemicals with deteriorated labels are often disposed of unnecessarily or improperly. To avoid improper disposal, all containers shall be labeled to show the following information (usually found on the MSDS):
 - Name and type of substance
 - Stock number
 - Expiration date
 - Health hazards, including: Corrosivity, Ignitability, Reactivity, Toxicity
 - Suggestions for handling
 - First aid information
- Portable toilet facilities are to be properly located 3 feet behind the curb and 50 feet away from storm inlets, secured from being tipped over, and regularly maintained.

3.2.2 Training

Training is a constant non structural CM that will be used on this jobsite. Training will be conducted to ensure all employees (personnel, sub-contractors, vendors, suppliers and others) that have an impact on stormwater and erosion control are trained. The training will consist of the following types:

- Orientation-at the beginning of work on the job
- Scheduled-routine training
- After Spill-to recap what went wrong and how to prevent a future spill

The following is the basic agenda that will be followed during all training:

Stormwater Management Plan (SWMP)

New employees should be familiar with the overall approach to stormwater management on the jobsite. This discussion will cover the following topics:

- Federal Clean Water Act
- State Permit Requirements
- Local jurisdiction
- Penalties that could be levied from the regulators
- Overview of SWMP for the jobsite

Introduction to Control Measures (CM)

The discussion should be a broad overview of all CM, but focus on the CM that will be used on the jobsite. The following questions should be answered.

- What is a CM?
- What does the CM do?
- Who is responsible for maintaining the CM?

Spill Prevention

Spill prevention is an essential Control Measure (CM) to protect receiving waters from stormwater pollution and discharge. CM for spill prevention include employee training and good materials management practices.

All hazardous and non-hazardous materials stored on the property should be stored in a designated area and in a manner that is consistent with their physical properties. All inlets will be protected prior to commencement of construction activities. A spill kit will be located on site, managed, supplied by the contractors and at a location known by all contractors.

All employees working with these materials should be aware of their flammability, reactivity, human health effects, and other characteristics such as corrosivity. This information can be easily provided for employees through the provision of MSDSs, including the information review and awareness training. The MSDS Sheets will be made available onsite to employees.

Instructions and materials/equipment for spill clean-up procedures shall be readily available on the construction site. This includes spill kits, employee training records involving spill clean-up procedures, and appropriate countermeasures.

CM Destruction Policy

Stormwater Management is a priority for this development.

Subcontractors found tracking mud onto internal & external streets, driving over or destroying any Control Measures (CM) without prior approval from the Owner/Developer will be subject to the following:

- 1st Offense \$250 fine plus the cost of repairs
- 2nd Offense \$500 fine plus the cost of repairs
- 3rd Offense \$1000 fine plus the cost of repairs

Subcontractors with a 3rd offense will also be removed from the site until a meeting is held between the subcontractor, Site Superintendent and Stormwater Manager to determine how to prevent destruction of CM in the future.

3.2.3 Spill Prevention Control and Countermeasures

Spill prevention is an essential CM to protect receiving waters from stormwater pollution and discharge. CM for spill prevention include employee training and good materials management practices.

All hazardous and non-hazardous materials stored on the property should be stored in a designated area and in a manner that is consistent with their physical properties. All employees working with these materials should be aware of their flammability, reactivity, human health effects, and other characteristics such as corrosivity. This information can be easily provided for employees through the provision of MSDSs, including the information review and awareness training.

Instructions and materials/equipment for spill clean-up procedures shall be readily available on the construction site. This includes spill kits, employee training records involving spill clean-up procedures, and appropriate countermeasures. The site superintendent (or designee) will determine notification requirements of all appropriate agencies or departments, such as downstream water users, SWMP Administrator, CDPHE and all other applicable agencies. The reportable quantities have been established by the Federal Environmental Protection Agency.

When a spill occurs, it is the responsibility of the contractor to contain the spill by use of a spill kit or other approved means and notify the site superintendent who will then contact the local authorities, such as the Fire Departments Emergency Response Team for further clean up. The site superintendent will ensure that the contractor sends the clean up material to the appropriate disposal facility. The site superintendent will acquire a bill of lading from the contractor for documentation of proper disposal.

All spills, leaks and overflows on site will be documented using the Spill Reporting Form that is found in Appendix G of this SWMP. The CM Map will also be updated to reflect the location of the spill in Appendix C.

Reportable Quantities of Spill

The release of hazardous materials from the site will be minimize or prevented using the CM identified in the SWMP for this project. Any release in 24 hours equal to or in excess to the reportable quantities listed in the Code of Federal Regulations-40 CFR 110 (Discharge of Oil), 40 CFR 117 (Determination of Reportable Quantities for Hazardous Quantities) or 40 CFR 302 (Designation, Reportable Quantities, and Notification) will be reported to the National Response Center, Colorado Department of Public Health and Environment, Division of Water Quality and other applicable agencies.

The SWMP will be modified with 3 days of the knowledge of the release. The SWMP will then be reviewed to identify measures to prevent the reoccurrence of such releases.

Agency	Phone Number
National Response Center	800-424-8802
Environmental Emergency Spill Reporting Line	877-518-5608

4.0 FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Remaining disturbed areas will be stabilized with seeding and mulching. This vegetation will establish the final stabilization of soils and reduce sediment transport at the property. The contractor is required to maintain the new landscaping until vegetation is finally rooted and a healthy growth has occurred. The guideline for establishing healthy vegetative growth, established by the CDPHE, is defined as vegetation that covers 70 percent of the pre-disturbance levels.

Final Stabilization Requirements and Definitions

This section describes final stabilization requirements and clarifies the definitions of uniform vegetative cover, individual plant density, and pre-disturbance levels.

In accordance with Part 1.B.1.a of the CDPS General Permit for Stormwater Discharges Associated with Construction Activity (COR400000) (the stormwater permit):

*“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.*

- **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.
- **Uniform Vegetative Cover** – Uniform vegetative cover means that where vegetative cover is used for final stabilization, an individual plant density (# of plants/unit area) of 70% of pre-

disturbance levels should be established on all areas that were previously disturbed. The intent of this language is to ensure that vegetative coverage is established on all disturbed areas.

- **Individual Plant Density** - Permit language regarding density of vegetation requires that individual plant density, as opposed to canopy cover, be used in evaluating whether final stabilization efforts have achieved 70 percent of the pre-disturbance levels criteria. Individual plant density data must be collected and documented as a measure of # of plants per unit area.
- **Pre-disturbance levels** – Pre-disturbance levels refers to pre-disturbance vegetation that would represent the naturally supported vegetation density in the area. If information directly related to the pre-disturbance or pre-existing natural vegetation for a site is not known, this information can be based on available information of natural vegetation densities in the area, or on conditions at a similar site in the area that is undisturbed or that has established non-irrigated and stable vegetation.

In the event that the permit holder no longer has control of a specific portion of a permitted site, through either ownership or contract, and wishes to transfer coverage of that portion of the site to a second party that does not currently have coverage under the Construction General Permit, a "Notice of Transfer and Acceptance of Terms of a Stormwater Discharge General Permit Certification," should be completed and submitted to the CDPHE (Appendix H). If both parties involved currently have permit coverage, then a "Notice of Reassignment of Permit Coverage for a Portion of a Permitted Area and General Permit Application," should be completed and submitted to the CDPHE (Appendix H). Upon completion of construction and once vegetation has been reestablished at 70 percent of original vegetation for the disturbed acreage or upon transfer of ownership has been completed, an "Inactivation Notice for Construction Stormwater Discharge General Permit Certification" should be submitted to the CDPHE to inactivate the existing permit (Appendix H).

During Stage 2 of construction activity as noted in section 3.1.2 the open areas of the site will be surface roughen, drill seeded and crimp mulch.

5.0 INSPECTIONS AND PREVENTATIVE MAINTENANCE

These subsections discuss inspections and implementation of a preventative maintenance program.

5.1 INSPECTIONS

The purpose of regular inspections is to document compliance with the plans, specifications, and the CDPHE construction stormwater regulations. The intent of the construction stormwater regulations is to protect receiving streams from sedimentation and other potential pollutants during construction activities.

Qualified Stormwater Manager

The contractor is responsible for ensuring that CM are installed as specified and are installed in accordance with the plans and specifications, and that adequate and compliant inspections of the erosion control and materials management are conducted. This must be documented, and documentation may consist of and/or conform to the Environmental Compliance Site Inspection Report Form provided as Appendix F. Documentation of these inspections must be kept with this SWMP. The contractor shall perform a thorough inspection of the storm water management system

every 14-days and after any precipitation or snowmelt event that causes surface erosion, for the duration of construction activities and until all disturbed areas are stabilized. After storm event inspections shall be conducted as soon as practicable, within 24 hours after the storm. Additional inspections during snow melting events may be required if the event consists of an amount that may cause surface erosion. For further information concerning the frequency and length of inspections, refer to the State of Colorado Clean Water Act.

In addition to inspections, follow-up maintenance activities must occur and be adequately documented in the corrective action log. The corrective action must begin as soon as practicable and be completed no longer than seven days from the inspection date. Follow-up maintenance includes repairing CM that have been damaged due to everyday construction activities, stormwater runoff, and/or wind erosion. Maintenance may require the replacement and/or addition of CM in areas where high erosion and/or sedimentation is occurring.

5.2 PREVENTATIVE MAINTENANCE

The contractor shall establish and implement a preventative maintenance program, which shall include the following:

- Identification of sediment and erosion controls, equipment, and site areas with high pollution potential (chemical and/or equipment storage and washing areas) that should be inspected on a regular basis.
- Appropriate and timely maintenance, repair, or replacement of control measures and equipment.
- Preparation of thorough records for inspections of equipment and systems.

The contractor shall maintain a logbook or recordkeeping system of construction activities with respect to the SWMP. The following list of activities and information shall be recorded in the logbook:

- A record of spills, leaks, or overflows, including time, date, and weather conditions
- Implementation of specific items in the SWMP and erosion control plan
- Training events (given or attended)
- Events involving material storage and handling
- Contacts with regulatory agencies and personnel
- Notes of employee activities, contacts, and notifications
- Maintenance and repair of stormwater management controls
- Preventative maintenance activities
- Inspection activities

Additional information, such as dated photographs, field notebooks, drawings and maps, should be included where appropriate. It is also the general contractors' responsibility to inform any subcontractors of this plan and ensure implementation and compliance. Contractors and vendors working on the site should be trained to maintain and implement CM when necessary. Appendix I provides a training signature sheet for subcontractor training and recordkeeping purposes. Appendix J

provides note pages for additional notes and recordkeeping. All records shall be kept for a minimum of three years after final stabilization is complete. **Item 25. Add a note that the SWMP & signed inspection reports will be stored onsite**

6.0 DEVIATIONS FROM THE PLAN

All major deviations from this SWMP must be documented and provided with the plan. Deviations generally include the implementation of CM that are different from the plans and specifications or details provided in the CM Specification Sheets (Appendix D). Any deviations in CM should also be documented on the Erosion Control Plan drawings (Appendix B). Deviations may include a relocation or addition of erosion control structures, such as rough-cut grading or outlet protection. Additional sedimentation ponds may need to be added at the contractor's discretion to prevent high sediment loads from entering receiving waters of the state and would be deemed a deviation of the plan. The contractor may also choose to implement a different form of CM, such as straw bales instead of rough-cut grading. These changes may be considered to be a violation of this plan unless they are documented and added to the plan.

Appendix K contains a template form that may be used to document any deviations from this plan. This form may be completed at the construction site by the contractor or after the completion of regularly-scheduled inspections. The deviations need not be typed or formal; hand written legible notes are sufficient. These forms may be attached to Appendix K to document changes to the SWMP to comply with these recording procedures.

7.0 REFERENCES

Colorado Department of Public Health and Environment (CDPHE). 2005. Colorado Discharge Permit Construction Permitting. On-line address: <http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596875260>

City of Colorado Springs and El Paso County Drainage Criteria Manual Volume