

**GRADING, EROSION AND STORMWATER  
QUALITY CONTROL PLAN**

for

**FALCON MARKETPLACE**

11680 E. Woodmen Road  
Falcon, Colorado

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## 1.0 STORMWATER QUALITY STATEMENT & OBJECTIVES

Stormwater quality best management practices shall be implemented to minimize soil erosion, sedimentation, increased pollutant loads and changed water flow characteristics resulting from land disturbing activity, to the maximum extent practicable, so as to minimize pollution of receiving waters.

Per Appendix A of the Colorado Department of Health, Water Quality Control Division's (the Division) "General Permit Application for Stormwater Discharge Associated with Construction Activities", the goal of the Stormwater Management Plan (SWMP) is:

"To identify possible pollutant sources that may contribute pollutants to stormwater, and identify Best Management Practices (BMPs) that, when implemented, will reduce or eliminate any possible water quality impacts. The SWMP must be completed and implemented at the time the project breaks ground, and revised if necessary as construction proceeds to accurately reflect the conditions and practices at the site."

This document is not intended to address training, site specific operational procedures, logistics, or other "means and methods" required to construct this project.

This document must be kept at the construction site at all times. Inspections are to be made at least every 14 days and after any precipitation event. El Paso County requires that the inspector be contacted 48 hours prior to initial and final inspections. An inspection log entry shall be completed with each inspection performed. The inspection log shall be kept with the SWMP. The conditions of the SWMP and General Permit for Stormwater Discharges associated with the construction activity will remain in effect until final stabilization is achieved, and a notice of inactivation is sent to CDPHE Stormwater Quality Division. All pertinent records must be kept for at least 3 years from the date the site is stabilized.

Drexel, Barrell & Co. has been retained to provide civil engineering services for the design of this project. Drexel, Barrell & Co. is not responsible for implementation and maintenance of the Stormwater Management Plan.

## 2.0 SITE DESCRIPTION

### 2.1 DESCRIPTION OF CONSTRUCTION ACTIVITIES

The project involves the development of Falcon Marketplace Filing No. 1 in Falcon, CO. The proposed development consists of approximately 36.4 acres of commercial development with associated roadways and parking areas.

The site work will include overlot grading, utility and drainage infrastructure, and roadway construction (asphalt and concrete paving).

### 2.2 EXISTING SITE CONDITIONS

There majority of the site is currently undeveloped, with one existing home on the site, and several small outbuildings. The site is 90% covered with native grass and vegetation, and gently slopes from north to south. Offsite flows concentrate into the Unnamed Tributary to Black Squirrel Creek (UTBSC) through the center of the site, and on to a double set of triple 48" diameter culverts under E. Woodmen Road.

### 2.3 ADJACENT AREAS

The site is bounded on the north by Falcon Ranchettes single family residential, the west by Courtyards at Woodmen Hills West single family residential, the east by Meridian Road, and on the south by E. Woodmen Road. All of the construction activities are to take place on the site. The surrounding areas should not be affected by the land disturbing and stabilization activities.

### 2.4 SOILS

From the Natural Resources Conservation Service (NRCS), the soils on the site as mapped by the Soil Conservation Service (SCS) are of the Blakeland loamy sand (Soil No. 8), and the Blakeland-Fluvaquentic Haplaquolis (Soil No. 9), and the Columbine gravelly sandy loam (Soil No. 19). All soils are hydrologic group A, with moderate erosion potential.

In general this is the only added text from the last version submitted. Please review the SWMP checklist provided at the last review and address items highlighted in blue. Please call Jeff or Elizabeth if you are unclear as to the requirements of the checklist. Most of these missing items can be addressed in one sentence (except checklist item 11).

## 2.5 AREAS AND VOLUME STATEMENT

The project site consists of approximately 36.4 acres. Unadjusted overlot earthwork volumes within the construction site are approximately 78,000 CY of cut and 78,000 CY of fill, with the intention of a balanced site.

## 2.6 CONTROLS AND MEASURES DURING CONSTRUCTION

Stabilization activities are anticipated to begin in summer of 2017. A construction schedule will be prepared by the contractor prior to land disturbing activities. The general sequence of major construction activities is as follows:

1. Temporary Erosion Control Measures – Temporary erosion control measures, such as silt fence and construction of vehicle tracking pads and staging area will be completed prior to any other large scale activity. The vehicle tracking pad will ensure a reduction of tracking of soil on and off the construction site. The staging area will house the materials, petroleum product storage (if any), trash dumpster, sanitary facilities and hazardous spill clean-up areas. These are all potential pollutants that are not sediment related.
2. Trash and Debris Removal – Existing trash and debris shall be removed from the site and hauled to designated receiving facility.
3. Site Clearing – The area to be disturbed for construction will be cleared and grubbed, as necessary to the perimeter of erosion control. The sequence of the areas to be cleared and grubbed are subject to the contractor's means and methods of construction of the site; however, the general plan is to work from the north to south and east where the vehicle tracking pads are located in order to eliminate backtracking over areas that have already been completed.
4. Overlot Grading – Overlot grading will occur to bring the site to the proposed sub-grade elevations in paved areas, and to finished grade elevations in the landscape and detention areas. Spoils from the site will be removed from the site and hauled to a designated receiving facility or location.

5. Utility Installation – Utility installation will consist of water, sanitary sewer, electric, and telephone and natural gas service lines. Storm drain lines will also be installed. Utility locations will be obtained prior to commencement of construction activities.
6. Final Grading – The site will be brought to final elevations with the installation of the proposed paving and final blending to existing grades on the perimeter of the improvement area.
7. Permanent Re-vegetation – Erosion control blanket will be installed at all areas graded to a 3:1 slope. Areas not paved will be re-vegetated and/or landscaped by the contractor or owner on an as-needed basis. Vegetation and stabilization of soil will aid in the trapping of sediment and reducing soil erosion.
8. Removal of Temporary BMP's – Temporary erosion control measures may be removed once the site has achieved final 70 percent of pre disturbance levels and vegetation cover is capable of reducing soil erosion. All permanent BMPs shall be cleaned and functioning before any temporary BMPs are removed.
9. Housekeeping – The best BMP for a job site is good housekeeping around the site. Routine site trash pickup and routine BMP inspection and maintenance are paramount for keeping a job site clean and tidy. All petroleum storage areas in the staging area should be checked daily for leaks. Any leaks shall be reported to the site foreman for clean up. All personnel on site for both the contractor and subcontractors should be briefed on spill cleanup and containment procedures. Employees shall also be briefed as to where the spill cleanup materials can be found if a spill should occur. The spill plan shall be produced by the general contractor for the project and remain onsite for the duration of the project. Contractor shall coordinate with the school district and City to obtain the necessary contacts in the case that a spill occurs.

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this item is required to be in this report. Please add a section and address this as shown on the swmp checklist item 11.

County?

## 2.7 POTENTIAL POLLUTION SOURCES

Any substances with the potential to contaminate either the ground or ground surface water shall be cleaned up immediately following discovery, or contained until

appropriate cleanup methods can be employed. Manufacturer's recommended methods for cleanup shall be followed, along with proper disposal methods. All waste and debris created by construction at the site or removed from the site shall be disposed of in accordance with all laws, regulations and ordinances of the Federal, State and local agencies. The following is a summary of potential pollution sources and their associated measures intended to minimize the risk of pollution for this project.

- 1) Disturbed and stored soils: Straw wattles/fiber rolls, straw bale check dams and gravel bag check dams.
- 2) Vehicle tracking and sediments: VTC and Street Sweeping
- 3) Vehicle and equipment maintenance and fueling: Spill prevention procedures.
- 4) Dust or particulate generation from earthmoving activities and vehicle movement: water trucks for site watering.
- 5) On site waste management of solid wastes (construction debris): Waste container placement, covering and disposal.
- 6) Worker trash and portable toilets: Container placement, covering and disposal.
- 7) Equipment repair or maintenance beyond normal fueling operations: Spill prevention procedures.

The following items are not anticipated to be potential pollution sources for this project:

- 1) Management of contaminated soils.
- 2) Outdoor storage of fertilizers, chemicals or potentially polluting construction material.
- 3) Dedicated asphalt or concrete batch plants.

## 2.8 NON-STORMWATER DISCHARGES

Non-stormwater discharges possibly encountered during construction may include: watering down of the site, construction staging area, and excess dirt storage during high winds to minimize wind erosion and water utilized in soil compaction efforts.

## 2.9 RECEIVING WATER

Runoff generated by the proposed project will be passed to the onsite storm sewer system and detention pond prior to discharging into the two existing sets of triple 48" RCP culverts that pass under E. Woodmen Road and on to Pond MN to the south, ultimately to Black Squirrel Creek.

## 3.0 SITE MAP

Attached as part of this plan is a Site Map (See Appendix C). The drawing identifies the following:

- 1) Project area boundary
- 2) Area used for staging area
- 3) Location of erosion control facilities or structures (BMP's)
- 4) Boundaries of 100-year floodplains (if applicable)

The following items may not be indicated on the attached drawings, but will be determined by the individual contractors prior to and during construction activities:

- 1) Areas used for storage of construction materials, soils, or wastes
- 2) Location of portable toilets and waste receptacles
- 3) Location of additional BMP's that may become necessary as work progresses

These items shall be added to the Site Map by the Contractor.

#### **4.0 BMP's FOR STORMWATER POLLUTION PREVENTION**

Best management practices (BMPs) used throughout the site shall include: surface roughening, silt fence, inlet protection, vehicle tracking control, temporary sediment basins, mulching and reseeding and concrete washout.

##### **4.1 EROSION CONTROL – STRUCTURAL PRACTICES**

Silt fence shall be installed along the downstream perimeter boundary of the area to be disturbed. The silt fence location is shown on the Site Map and shall be in place before project grading and remain in place through final stabilization. Any stockpiled areas are to be contained by silt fence, or other acceptable measures to prevent erosion and sediment from leaving the area.

Surface roughening may be used to reduce the amount of runoff and wind erosion from any given area. Once the existing vegetation is cleared, watering should occur to help control fugitive dust. Disturbed areas and stockpiles, which are not at final grade but will remain dormant for longer than 30 days, shall be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary erosion control measures shall be maintained until permanent measures are implemented.

One vehicle tracking pad will be used at the construction access point off the E. Woodmen Road Frontage to prevent mud from being tracked out to E. Woodmen Road. Periodic clean up around the entrance area is expected nevertheless.

Temporary sediment basins will be utilized during the interim condition for water quality purposes.

Upon installation of the site storm sewer system, inlet protection will be provided at each constructed inlet.

A concrete wash-out will be required for the anticipated concrete pouring operations to take place on the site for curb & gutter and sidewalk work. The concrete wash-out shall

be installed prior to any concrete pouring operations taking place on the site and remain in place through the completion of site concrete work.

#### 4.2 EROSION CONTROL – NON-STRUCTURAL PRACTICES

Street sweeping around the construction site will be utilized when tracking of mud occurs on paved streets. The sweeping will be required after any significant tracking has occurred; significant meaning any visible amount that cannot be completely cleaned by hand. The adjacent paved drive surfaces will be cleaned at the end of each day of construction activities. Sweeping efforts will continue as necessary until construction operations are completed.

#### 4.3 MATERIALS HANDLING

Any waste material found on-site or generated by construction will be disposed of in a manner as to prevent pollutants in storm water discharges. In the event that waste is to be stored on-site, it shall be in an area located a minimum of 100 feet from all drainage courses, whenever possible. Whenever waste is not stored in a non-porous container, it shall be in an area enclosed by a compacted earthen ridge. If the enclosed waste area is located on porous soil, the area shall be covered with a non-porous liner to prevent soil contamination. Whenever precipitation is predicted, the waste shall be covered with a non-porous cover, anchored on all sides to prevent its removal by wind, in order to prevent precipitation from leaching out potential pollutants from the waste.

Any designated fueling areas shall be located a minimum of 100 feet from all drainage courses, whenever possible. If the fueling area is located on porous soil, the area shall be covered with a non-porous lining to prevent soil contamination and any spillage shall be cleaned up immediately.

Whenever precipitation is predicted, any construction materials stored on site shall be covered with a non-porous cover, anchored on all sides to prevent its removal by wind, in order to prevent precipitation from leaching out potential pollutants from the materials.

Any chemical stored on site should be kept in an area with berms constructed around the perimeter in order to confine any spills or in a lockable storage container.

#### 4.4 GROUNDWATER & STORMWATER DEWATERING

In the event that groundwater is encountered or stormwater enters an excavation and dewatering is necessary, a separate construction dewatering permit will be required.

#### 5.0 TIMING SCHEDULE

The project is anticipated to begin construction in summer of 2017 and be completed by summer of 2018. The contractor shall be responsible for producing a schedule that will show at a minimum: start and completion times including site grading operations, utility construction and the removal of the temporary erosion and sediment control measures.

#### 6.0 FINAL STABILIZATION AND LONG-TERM STORMWATER MANAGEMENT

Final stabilization shall not be considered complete until 70% of new vegetated cover is established on areas not to be hard-surfaced. Temporary sediment and erosion control measures installed prior to the construction phase will remain in place until this time. Any sediment that collects within the site's drainage system is considered unstabilized soil and must be removed prior to the site being considered finally stabilized.

#### 7.0 INSPECTION AND MAINTENANCE

A site inspection of all erosion control facilities will be conducted every 14 days and within 24 hours after every precipitation event. The entrance to the construction site shall be inspected daily and existing street cleaned, as necessary, of all materials tracked out of the site.

The construction site perimeter, disturbed areas, and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWMP shall be observed to ensure that they are operating correctly.

Based on the results of the inspection, the description of potential pollutant sources and the pollution prevention and control measures that are identified in this plan shall be revised and modified as appropriate as soon as practicable after such inspection. Modification to control measures shall be implemented in a timely manner, but in no case more than seven (7) calendar days after the inspection.

The operator shall be responsible for documenting inspections and maintaining records. Uncontrolled releases of mud or muddy water or measurable quantities of sediment found off the site shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measure taken to clean up the sediment that has left the site. All signed inspection record/logs should be kept on site and made available to the El Paso County or CDPHE personnel upon request.

All temporary and permanent erosion and sediment control facilities shall be maintained and repaired per manufacturer's specifications to assure continued performance of their intended function. Repairs should be completed within 24 to 48 hours. Silt fences may require periodic replacement.

## **8.0 REFERENCES**

- [1] General Permit Application and Stormwater Management Plan Preparation Guidance for Stormwater Discharges Associated with Construction Activities. Prepared by the Colorado Department of Health, Water Quality Control Division. Revised 7/2009.
- [2] City of Colorado Springs– Drainage Criteria Manual, Volume 2 “Stormwater Quality Procedures and Best Management Practices (BMPs). November 1, 2002, amended August 10, 2010.
- [3] NRCS Web Soil Survey, [www.websoilsurvey.nrcs.usda.gov](http://www.websoilsurvey.nrcs.usda.gov)

**APPENDIX A**  
Vicinity Map

**APPENDIX B**  
**SOILS INFORMATION**

**APPENDIX C**  
**SITE MAP**