

Item Numbers refer to SWMP Checklist



STORMWATER MANAGEMENT PLAN FOR RIVERBEND CROSSING FILINGS NO 1 & 2

February 2020

Prepared for:

COLORADO DEPARTMENT PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION-STORMWATER PROGRAM
WQCD-Permits-B2
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Avatar Equities
6800 Jericho Turnpike
Suite 120W #204
Syosset, NY 11791

Catamount Engineering Job 17-114

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:

Placeholder

STORMWATER MANAGER *Added*

Name: _____

Company: _____

Address: _____

CONTRACTOR

Name: _____

Company: _____

Address: _____

Added

Add PCD File No's SP187, SF1843 & SF1844

STORMWATER MANAGEMENT PLAN

Riverbend Crossing Filings No. 1 & 2

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APPENDIX

- Vicinity Map
- General Permit Application
- Recommended BMP Maintenance Inspection Checklist
- Sample Spill Response Plan & Spill Report Form
- Federal, State, or Local Storm water or other Environmental Inspector Site Visit Log
- Details & Drawings
 - Silt Fence*
 - Rock Sock*
 - Vehicle Tracking Control Pad*
 - Port-o-Let Detail*
 - Stockpile Management*
 - Concrete Wash-out Detail*
 - Stabilized Staging Area*
 - Inlet Protection*
 - Rolled Erosion Control Products*
 - Sediment Control Log*
 - Straw Bale Barrier*
 - Temporary Outlet Protection*

STORMWATER MANAGEMENT PLAN

Riverbend Crossing Filings No. 1 & 2

PURPOSE

The following storm water management plan (SWMP) is a detailed account of the requirements for the CDPS permit. The primary objective of this plan is to prevent storm water contamination during construction activity.

It is estimated that clearing, grading, roadway construction will impact 41.5 acres of the 51.999 acre site. Grading operations will require approximately 194,066 CY of earth be moved. Grading operations are anticipated to commence in May, 2019 with final site stabilization proposed in December, 2021.

This document must be kept at the construction site at all times; and be made available to the public and any representative of the Colorado Department of Health - Water Quality Control Division, if requested.

UPDATED
update schedule

The Grading & Erosion Control Plans are considered part of this SWMP and are included in the appendix. These plans shall be kept at the site at all times. Modifications to the erosion control plan may be occasionally necessary based on site inspections. Any additions or deletions of erosion control measures should be documented on the site copy of the Grading & Erosion Control Plans.

The development ultimately outfalls to Fountain Creek. There are no streams crossing the site area being developed.

No on-site batch plant is proposed with the development.

SITE DESCRIPTION

The subject 51.999 acres consists of unplatted land to be developed into a residential lots with associated streets. The parcel is located within the Northeast ¼ of Section 14, Township 15 South, Range 66 West of the 6th principal meridian in unincorporated El Paso County.

The parcel is bounded to the north by Lot 1 St. Dominics Catholic Church, to the east by an unplatted commercial center, to the south by Southmoor Road, warehouse/storage developments and unplatted vacant land, and to the west by unplatted charitable residential.

The parcel generally drains from north to the south at approximately 2.4%. Historic runoff coefficients (C value) for undeveloped land are C5=.05 and C100=.51. Anticipated Developed runoff coefficients for the residential construction proposed are C5=0.45 and C100=0.65.

Existing soils on the site consist of Ellicott loamy course sand, hydrologic soil group A (28), Limon clay, hydrologic soil group C (47), Nunn clay loam, hydrologic soil group C (59), and Schamber-Razor complex, hydrologic soil group A (82) as determined by the Natural Resources

Conservation Service Web Soil Survey. The site is located within the West Little Johnson Drainage Basin.

Item 8. Include soil erosion potential and impacts on discharge

ADDED DISCUSSION

The site exhibits 90% groundcover of native grasses. Sparsely located volunteer trees and shrubs are evident on-site and in the roadside ditch adjacent to Southmoor Drive.

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

ADDED VISUAL OBSERVATION

FLOODPLAIN STATEMENT

A portion of the site lies within a F.E.M.A. designated floodplain per FIRM 08041C0763 F AND 08041C0951 F, effective date of March 17, 1997.

BASIC GRADING, EROSION AND STORMWATER QUALITY REQUIREMENTS AND GENERAL PROHIBITIONS

*Information taken from the City of Colorado Springs/ El Paso County Drainage Criteria Manual Volume 2, herein referred to as the "Manual."

1. Storm water discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters.
2. Concrete wash water shall not be discharged to or allowed to runoff to the Municipal Separate Sewer System (MS4).
3. Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. BMPs may be required by the MS4 Permittee if deemed necessary, based on specific conditions and circumstances (e.g., estimated time of exposure, season of the year, etc.).
4. Vehicle tracking of soils off-site shall be minimized.
5. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
6. No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by the state. In granting the use of such chemicals, special conditions and monitoring may be required.
7. Bulk storage structures for petroleum products and other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering the MS4, including any surface or subsurface storm drainage system or facilities.
8. All persons engaged in earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards of the Drainage Criteria Manual, Volume 2 and in accordance with the approved Erosion and Stormwater Quality Control Plan approved by the MS4 permittee, if required.
9. All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations shall be installed as

defined in the approved Erosion and Stormwater Quality Control Plan and the Drainage Criteria Manual, Volume 2 and maintained throughout the duration of the earth disturbance operation. The installation of the first level of temporary erosion control facilities and BMPs shall be installed and inspected prior to any earth disturbance operations taking place.

10. Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation.
11. All earth disturbances shall be designed, constructed, and completed in such a manner so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
12. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.
13. Suspended sediment caused by accelerated soil erosion shall be minimized in runoff water before it leaves the site of the earth disturbance.
14. Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
15. Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to the standards and specifications prescribed in the Drainage Criteria Manual, Volume 2, and in accordance with the permanent erosion control features shown on the approved Erosion and Stormwater Quality Control Plans approved by the City of Colorado Springs/El Paso County, if required.
16. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within twenty-one (21) calendar days after final grading, or final earth disturbance, has been completed. Disturbed areas and stockpiles which are not at final grade but will remain dormant for longer than 30 days shall also 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. On a case-by-case basis, the MS4 permittee may allow appropriate BMP to be in place that prevents sediment from leaving the site. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented.
17. No person shall cause, permit, or contribute to the discharge into the municipal separate storm sewer pollutants that could cause the MS4 permittee to be in violation of its Colorado Discharge Permit System MS4 Permit.
18. The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater appurtenances as a result of site development.
19. No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter, including the temporary or permanent ramping with materials for vehicle access.
20. Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), regulations promulgated, certifications or permits issued, in addition to the requirements included in the Drainage Criteria Manual, Volume 2. In the event of conflicts between these requirements and water quality control laws, rules, or regulations of other Federal or State agencies, the more restrictive laws, rules, or regulations shall apply.

21. The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels. Materials shall not be stored in a location where they may be carried by stormwater runoff into the MS4 at any time.
22. Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent pollution from discharging to the MS4. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods.

Temporary Sediment Basin to be installed before any land disturbance takes place in the drainage area.

ADDED TO INITIAL MEASURES

CONSTRUCTION ACTIVITIES

The following is a list of major construction activities and the anticipated order of construction.

1. **“Overlot” grading of undeveloped portions of site.**
 - a. Install initial erosion control measures.
 - i. *Develop Stabilized Staging Area*
 - ii. *Vehicle tracking control.*
 - iii. *Perimeter silt fence.*
 - iv. *Install external erosion control measures.*
 1. Silt fence w/Sediment Control Logs.
 - b. Overlot grade portions of the site.
 - i. *Strip and stockpile topsoil.*
 1. Install silt fence around topsoil stockpile.
 - ii. *Overlot grade site.*
 - c. Install remaining site erosion control measures.
 - i. *Additional silt fence.*
 - ii. *Crimp & mulch.*
 - iii. *Rolled Erosion Control Products.*
 - iv. *Seed exposed areas not intended for further development*
2. **Site construction**
 - a. Wet utility installation (trench & backfill)
 - i. *Storm Sewer.*
 1. Install riprap protection at surface discharge points.
 - b. Dry utility installation (trench & backfill)

It is ultimately the property owner's responsibility to ensure that the work at the site is in compliance with this SWMP, the Grading and Erosion Control Plan, and all applicable statutes and ordinances. For this project the overall property owner is responsible for installing, inspecting, and maintaining all erosion control measures and BMP's during the overlot grading process. Catamount Engineering recommends that the responsibility for compliance be transferred with property ownership to the buyer of any individual lot or other portion of this site. For example, if a retail developer purchases a lot, then that developer should become responsible for compliance with this SWMP and all applicable statutes and ordinances on that lot. Catamount Engineering recommends that the current overall property owner establish an

agreement with potential buyers to knowingly transfer this responsibility with property ownership.

The main potential pollutant to Stormwater on this site is sediment.

<u>Other known potential sources of pollution:</u>	<u>Notes</u>
▪ Vehicle fueling.....Yes	See Below
▪ Vehicle washing.....No	
▪ Vehicle maintenance.....Yes	See Below
▪ Waste incineration, treatment, storage, or disposal.....No	
▪ Storage of chemical/fertilizers.....No	
▪ Concrete washoutYes	See Below
▪ Other (specify) – Portable Toilets.....Yes	See Below
▪ On-Site Batch plant for construction activities No	

<u>Non-stormwater components of discharge:</u>	<u>Notes</u>
▪ Landscape irrigation return flow.....No	
▪ Springs.....No	
▪ Other (specify).....No	

Notes:

- Vehicle Fueling – there is no known vehicle fueling station to be installed or used on this site. However, it is anticipated that construction equipment may be refueled during construction. Spill prevention and containment measures shall be used at equipment fueling and servicing areas to prevent the pollution of any state waters, including wetlands. A sample spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer’s recommended methods for spill cleanup shall be followed, along with proper disposal methods. The contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent. Vehicle refueling should be done in an area surrounded by an earthen berm to contain any fuel spills. Containment berming should be of sufficient size to safely contain a spill from the largest tank truck or other containment device located inside the possible spill area. In the event of a spill, a method of removal must be provided, such as application of absorbent materials and the use of a pump or vacuum truck. Any material removed from the spill site must be disposed of according to local, state, and federal standards. Stormwater and snowmelt runoff shall be diverted away from the containment berming area. Water that collects within the berming due to rainfall or snowmelt must be treated to meet standards before release from the spill area.
- Vehicle Maintenance – from time to time it may be necessary for the contractor to perform maintenance on the construction equipment being used on the site. If possible, major repairs to construction equipment shall be done off-site. Basic vehicle maintenance shall be performed in the vehicle fueling area and all recommendations listed above shall be followed.
- Concrete wash water shall not be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities. Any concrete wash

water shall be done in a temporary pit on site. The area around this pit shall be protected per the detail provided and concrete inside the pit shall be removed when done.

- Portable toilets located on the site shall be staked in place using t-posts to prevent them from tipping over during high winds.

SITE MAP

See attached plans. ←

Missing. make sure to include both the Pre-Development GEC and the Site Construction GEC

CORADIOLK PHAO WILL BE INCLUDED IN FINAL VERSION

BMP EROSION CONTROL MEASURES

Steps to prevent sediment from entering the Stormwater discharge system are listed below.

Structural Practices:

Structural sediment control measures include the following:

1. Use of filter fabric silt fencing at site perimeter locations and throughout the site (*before commencement of construction activities*). Silt fence shall also be located around homesites and dirt stockpiles during home building operations. Erosion control measures on individual home sites are the responsibility of the homebuilder. This responsibility should be transferred to the homebuilder with the purchase of any lot. The transfer of erosion control responsibility should be clearly stated in the purchase contract for any lot(s).
2. Straw bale barriers to protect ditches, swales and detention pond outfalls (*immediately after construction of each item*).
3. Vehicle tracking control devices at construction traffic ingress/egress points to prevent sediment tracking onto surrounding streets (*before commencement of construction activities*).
4. All disturbed areas shall have crimped straw installed and shall be reseeded. A recommended seed mix and application rate is included below.
5. All slopes not covered with slope protection erosion control blankets shall be roughened. Roughening shall be performed to follow the contour of the slope, that is, the roughening shall be perpendicular to surface runoff flow direction.
6. Water quality volume and outfall structures in the detention pond can be used as a sedimentation basin (*at beginning of pond construction*). Details of the water quality outfall structures are included in the Appendix of this report. Temporary sedimentation basins shall have straw bale barriers installed in front of the water quality outfall structures during site construction. The contractor should be aware that the sedimentation basins are considered a last line of defense and that the majority of sediment should be contained on the site near the source of the erosion using the other structural sediment control measures described in this report. The contractor shall remove any accumulated sediment prior to landscaping or seeding the ponds.

7. It is recommended that construction haul roads, if used on this site, have small stormwater diversions installed at intermittent locations and low points to prevent rutting and erosion on the roads.

See attached Grading and Erosion Control, and Detail sheets in the Appendix for locations and technical drawings for structural BMP's.

Recommended Seed Mix:

Sandy Soils

30 lbs/ acre

25% Sideoats Gramma

25% Little Bluestem

15% Blue Gramma

15% Prairie Sandreed

20% Switch Grass

Nonstructural Practices:

Temporary or permanent seeding will be employed in all areas disturbed by construction activities. Should excessive blowing of sediment become apparent, then the contractor shall water the site for dust control.

Other Controls:

Contractors shall take steps to keep the site reasonably free from large amounts of construction debris during construction. All waste materials generated by construction activities shall be removed from the site. All wastes composed of building materials must be removed from the construction site for disposal in accordance with local and state regulatory requirements. No building material wastes or unused building materials shall be buried, dumped, or discharged at the site.

Spill prevention and containment measures shall be used at storage, and equipment fueling and servicing areas to prevent the pollution of any state waters, including wetlands. A sample of the spill report form is included in the Appendix of this report. All spills shall be cleaned up immediately after discovery, or contained until appropriate cleanup methods can be employed. Manufacturer's recommended methods for spill cleanup shall be followed, along with proper disposal methods. The contractor shall follow the recommendations of the appropriate Hazard Communication Plan of the site construction manager, general contractor, or site superintendent.

Final Stabilization and Long-Term Stormwater Quality:

Permanent sediment control measures include paving of the streets, installation of riprap, and the installation of landscaping and reseeding with a native grass seed mix. The contractor shall consult the approved Landscape Plan for the proper location, species, and installation methods for landscaping on the site. If the owner reasonably maintains the landscaping and reseeding, then it will provide good soil stability and sediment control. After these permanent measures are installed and final stabilization is achieved, then temporary measures can be removed. Final stabilization is considered achieved when all earth disturbing activities at the site have been completed and uniform vegetative cover has been established with a density of at least 70% of pre-disturbance levels and such cover is capable of adequately controlling soil erosion.

Inspection and Maintenance:

The site construction manager or site inspector responsible for these measures shall inspect them every 14 days and after every storm event. This report recommends that all erosion control measures on the site are inspected a minimum of once every 7 days, except during winter snow pack conditions where no melting is occurring or when all construction activities are completed. Repairs shall be made within a reasonable timeframe after deficiencies are discovered. A record of all inspections made shall be kept with the SWMP Report for a minimum of 3 years. A sample BMP Checklist is included in the Appendix of this report. See attached Detail sheet for specific maintenance requirements for individual BMP's.

Item 25. Add a sentence stating that all inspection logs will be signed

ADDED

SWMP Revision procedures:

The site construction manager or site inspector responsible for updating the on-site SWMP report to reflect field conditions and project phasing. Upon determination that addition, modification, or deletion of proposed erosion control measures the site construction manager will notify the El Paso County Inspector and the project engineer of proposed modifications. Any field modifications shall be reflected within the on-site copy upon completion of modifications.