

**THE GARDENS AT NORTH CAREFREE
STORMWATER MANAGEMENT PLAN
EL PASO COUNTY, COLORADO**

PROJECT NO. 187608744



Prepared for:
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Introduction

This Stormwater Management Plan is being submitted on behalf of Mule Deer Investments, LLC for a tract of land known as:

TRACT IN EASTERN HALF OF SECTION 29 TOWNSHIP 13 SOUTH RANGE 65 WEST
DESCRIPTION AS FOLLOWS:

COMMENCE AT NORTHEAST CORNER OF SAID SECTION, THENCE S 89°10'57"W 215.32 FEET, S 04°23'18"W 3857.57 FEET TO POINT OF BEGINNING, THENCE CONTINUE ON SAID LINE 1456.87 FEET, N 89°19'38" E 1240.25 FT, N 00°02'55" E 1451.73 FT, S 89°18'20" W 1391.65 FEET TO POINT OF BEGINNING, EXISTING POINT PLATTED TO NORTH CAREFREE CIRCLE, EX THAT PT CONV BY REC #26084137

TOGETHER WITH:

LOT 2, MULE DEER BUSINESS PARK FILING NO. 1

THE TOTAL AREA BEING 11.64 +/- ACRES.

The purpose of this Stormwater Management Plan (SWMP) is to identify possible pollutant sources that may contribute pollutants to stormwater and identify Best Management Practices (BMPs) that will reduce or eliminate any possible water quality impacts.

General Location and Description

The site lies in the eastern portion of Section 29, Township 13 South, Range 65 West. The proposed site is south of North Carefree Circle, north of Sika Deer Place, and east of Akers Drive. The site is currently zoned RR-5.

Other development in the area includes residential and commercial development. Mule Deer Filing No. 2 is on the west side of Akers Drive and Pronghorn Meadows Filing No. 1 on the north side of North Carefree Circle. Undeveloped land, owned by City of Colorado Springs is to the east of the site and Mule Deer Business Park is located south of the site.

The proposed site encompasses 11.6 acres. The topography of the site and surrounding area is typical of a high desert; short prairie grass and weeds with slopes generally ranging from 3% to 9%. The area generally drains to the south and west. This development is in the Sand Creek Drainage Basin.

Description of Construction

Construction will consist of site grading, utility installation, and road paving. The majority of the site will be disturbed. Erosion control will be provided prior to construction.

Phasing

All of the site will be graded at one time due to the need to balance the site. There will be no phased construction.

The site will be graded initially as part of the Early Grading Permit issued by El Paso County with the Gardens at North Carefree Preliminary Plan approval.

Work on the property will continue with Gardens at North Carefree Final Plat approval. Once the site is graded and Final Plat is approved, utility construction will begin. Road construction and paving will follow.

Description of Drainage Conveyance

All of the site drains to the west. Storm sewer facilities will be installed throughout the site and streets. Storm flow will be collected and conveyed to an existing storm system located in Akers Drive. This system conveys storm water to an existing Detention Pond constructed for this site and other development to the west.

Steps for Construction

	<u>Estimated Start</u>	<u>Estimated End</u>
• Clearing and grubbing	Nov 1, 2018	Dec 1, 2018
• Rough grading for lots and roads	Nov 15, 2018	Dec 15, 2018
• Utility Installation	Dec 1, 2018	Feb 15, 2019
• Final grading, curb and gutter and paving	May 1, 2019	July 30, 2019
• Final Stabilization		May 1, 2020

Estimates of Excavation

The proposed site encompasses 11.6 acres. Approximately the entire site will be graded during construction activities. Approximately 15,000 yards of soil will be excavated and placed all within the site boundary.

Soil Properties

The site is comprised of several different soil types. From the Soil Survey of El Paso County, the site falls into the following soil types:

97 – Truckton sandy loam (3-9%) – Type A Soil

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

Estimated Runoff Coefficients

Average Prior to Construction	C5=0.08 and C100=0.35
Average After Construction	C5=0.45 and C100=0.59

Potential for soil erosion during construction is moderate and focused primarily on the steep slopes. The erosion control plan includes measures to reduce this potential. Two sedimentation basins are located at the site boundaries to reduce or eliminate soil leaving the site. The existing storm sewer in Akers Drive is the primary drainage structure for the site; the storm sewer will eventually be connected to this system. The storm system ultimately drains to an existing detention pond.

Vegetation

The topography of the site and surrounding area is typical of a high desert; short prairie grass and weeds with slopes generally ranging from 3% to 9%. The estimated vegetative coverage is about 70%. There are no mature trees on site. The surrounding land use is predominantly residential development. The site is currently vacant.

Pollutants

During construction, the largest possible source of non-stormwater pollution will be during equipment refueling operations. The contractor shall be responsible for any spill cleanup while refueling, in accordance with applicable local, county and state regulations. The contractor will also be responsible for cleanup of any off-site vehicle tracking on paved roads. Tracking control will be provided at the entrance to the site. No other source of pollution such as vehicle washing, chemical storage or waste disposal is anticipated. No batch plants will be onsite.

After construction any pollutants will be captured in either of the two water quality ponds built on site; specifically, in the fore bay and will be dealt with as part of regular maintenance by the Home Owners Association.

Discharge

There are no anticipated non-stormwater components of the discharge. The receiving waters for this discharge Sand Creek and ultimately the Arkansas River.

Grading and Erosion Control Plan

A map is provided with this SWMP application that details the site, limits of construction and erosion control measures. This map will be used by the contractor to track installation, maintenance and removal of BMP's during construction; including any field changes that are required during construction.

Best Management Practices

Structural BMP's

Silt fences will be installed prior to any grading occurring on the site. The silt fence will be installed in the areas shown on the provided map. Vehicle tracking control will be provided at the entrances to the site at Fallow Land and Running Deer Way. As construction moves forward and storm sewer is installed inlet protection will be installed to help control sediment leaving the site.

Two Sedimentation Basins will be installed on either side of the Running Deer Way intersection until the storm sewer system is installed and the site transitions to inlet protection. The drainage report and Grading and Erosion Control plan provides details for the construction of these basins.

Non-structural BMP's

Non-structure practices to control erosion and sedimentation will include reseeding of ground cover in disturbed areas according to the erosion control plan. Seeding of bank slopes and mulching along steep embankments will be performed as required. Seeding of disturbed areas will be mitigated until growth has reached 70% of pre-disturbed levels: $.7 \times .8 = 56\%$

Material Handling and Spill Prevention

The most probable source of non-stormwater pollution is refueling and daily maintenance operations. If mobile fuel trucks are used to service equipment, absorbent materials and containers for the storage of used absorbent material will be close by. If a fuel tank is left on site, berms will be built around the tank to capture any spilled fuel. Again, absorbent materials and their containers will be on hand.

Final Stabilization and Long Term Storm Water Management

The silt fence installed on site will not be removed until the site is stabilized, and the entire site is established with vegetation growth of 70% of pre-disturbed levels: $.7 \times .8 = 56\%$.

Other Controls

There are several best management practices that can be employed to prevent or mitigate the source of pollutants and contamination of stormwater runoff. Some of these are:

- All refuse dumpsters and receptacles shall be equipped with functional lids to prevent rain and snow from entering.
- Storage containers, drums and bags shall be stored away from direct traffic routes to prevent accidental spills.
- Empty drums shall be covered to prevent collection of precipitation.
- Containers shall be stored on pallets or other dunnage to prevent corrosion of containers, which can result when containers come in contact with moisture on the ground.
- Regularly scheduled removal of construction trash and debris.

The contractor is certainly not limited to these good housekeeping measures and may implement further controls as prudence and good judgement deem necessary.

Inspection and Maintenance

A thorough inspection of the storm water management system shall be performed every 14 days as well as after any rain or snowmelt event that causes surface erosion:

- Erosion of channels and side slopes shall be repaired.

- Silt fences shall be cleaned whenever sediment has reached a depth of 6" at the fence and broken wooden parts or torn fabric shall be repaired or replaced.
- Any accumulated trash or debris shall be removed from the site.
- Sedimentation basin shall be cleaned when sediment has reached a depth of 6-inches.
- Inspections will include the existing storm system and the channel where the system discharges. Any sediment leaving the site and being left in the channel bottom, will be removed

An Inspection and Maintenance Log follows this Storm Water Management Plan.

SWMP Revisions

Revisions to the SWMP will occur from time to time as construction proceeds. The contractor will be responsible for revisions to the plan to include the following:

1. Changes to the plan will be tracked by marking changes on the plan with date and note of the responsible party requesting/requiring the change.
2. Dates and responsible party for addition or removal of BMP's will be noted on the plan.
3. If there are any changes the contractor deems to be a significant modification of the approved GEC plan he must contact the owner prior to proceeding.
4. The SWMP will be kept on site and up to date at all times.

Inspection and Maintenance Log

STORMWATER MANAGEMENT PLAN
The Gardens at North Carefree
INSPECTION AND MAINTENANCE LOG

(Record inspections, items found maintenance and corrective actions taken. Also record any training received by Contractor personnel with regard to erosion control, materials handling and any inspections by outside agencies)

DATE	ITEM	SIGNATURE OF PERSON MAKING ENTRY

Site Map and Erosion Control Plan

General Permit Application