

## **Inspection and Maintenance Plan (IM Plan)**

**For:**

# **Apex Waste Solutions**

**Located at:**

**560-570 Air Lane, El Paso County, CO**

**Prepared for:**

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**Completed By:**

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**October 24, 2024**

**El Paso County Project  
Number: PPR2441**



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## **Introduction**

This plan addresses operation and maintenance of the private full-infiltration sand filter basin constructed as part of the site development plan for Apex Waste Solutions (PCD No. **PPR2441**). The site is located in El Paso County, CO and was previously platted as Lots 4 and 5 of the Hillcrest Acres Subdivision (Plat No. R01950).

## **Background**

The State of Colorado Department of Public Health and Environment, Water Quality Control Division (CDPHE), has implemented federal regulations within the State of Colorado through permitting, and has included El Paso County as one of numerous Municipal Separate Storm Sewer Systems (MS4s) required to be permitted in compliance with National Pollutant Discharge Elimination System (NPDES) Phase 2 Regulations, as defined within Colorado's Phase 2 Municipal Guidance.

NPDES Phase 2 MS4s stormwater discharges are covered under a general permit under the Colorado Discharge Permit System (CDPS) under Regulation 61, and as a minimum require the MS4's operator (e.g., El Paso County) to develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable to protect water quality requirements of the Colorado Water Quality Control Act, Colorado Code of Regulations [CCR] 61.8(11)(a)(i).

## **Funding for and Organization of Facility Operation and Maintenance**

Apex Waste Solutions, Inc. will be responsible for operations and maintenance of the proposed sand filter basin upon acceptance of the facilities.

## **Site and Facilities Description**

1. The site is located in the SE and SW  $\frac{1}{4}$  of Section 8, Township 14 South, Range 65 West in El Paso County, Colorado. The site is currently platted as Lots 4 and 5 of the Hillcrest Acres Subdivision. The sand filter basin will be located in the southwest corner of the property.
2. The site is accessed via the public road Air Lane. All on-site stormwater is conveyed via overland flow towards the southwest corner of the property where it is detained in the proposed sand filter basin. The sand filter basin is a full-infiltration section, and all captured stormwater is directly discharged into the subgrade. A drainage easement is proposed to provide access to the basin from Air Lane.
3. The sand filter basin will have an emergency spillway at the south end of the basin. Overtopping flows will be conveyed south offsite, and will follow historic drainage routes.
4. The basin is proposed as a full infiltration section due to site constraints. There is a lack of available storm sewer to connect to, and the pond is situated at a naturally low point on the

site. Because of this no outlet structure besides the emergency spillway is proposed. The basin will have a layer of filter media across the bottom of the basin, which will allow detained runoff to directly infiltrate into the subgrade.

### **Sand Filter Basin (SFB) Description**

The following sections describe general SFB operations and maintenance.

### **SFB-1 General SFB Concept**

Sand Filter Basins (SFBs) are a common type of stormwater best management practice (BMP) utilized within the Front Range of Colorado. SFBs typically consist of a flat sand filter bed, with an underdrain and overflow structure. Sand filter basins may also be designed as full-infiltration sections, where an underdrain system is not proposed and captured runoff directly infiltrates into the subgrade below. SFBs can be utilized to provide storage of the WQCV or can be designed to detain and release larger events. The sand filter basin proposed for this development is a full-infiltration section with full-spectrum detention capacity. The basin will capture and infiltrate all events up to the 100-year event. As runoff enters the basin it ponds above the sand bed and gradually infiltrates into the underlying sand filter, filling the void spaces of the sand and infiltrating into the subgrade. Any event greater than the 100-year storage of the basin will be discharged by the rip-rap lined emergency overflow channel. SFBs provide for filtering and absorption of pollutants in the stormwater. The popularity of SFBs has grown because they allow the WQCV and detention storage to be provided on a site that has little open area available for stormwater management.

### **SFB-2 Inspecting Sand Filter Basins (SFBs)**

#### **SFB-2.1 Access and Easements**

Inspection and maintenance personnel may utilize the figures located in the appendix containing the locations of the access points and potential maintenance easements of the SFBs within this development.

#### **SFB-2.2 Stormwater Best Management Practice (BMP) Locations**

Inspection and maintenance personnel may utilize the figures located in the appendix containing the locations of the SFBs within this development.

#### **SFB-2.3 Sand Filter Extended Detention Basin (SFB) Features**

SFBs have a number of features that are designed to serve a particular function. Many times, the proper function of one feature depends on another. It is important for maintenance personnel to understand the function of each of these features to prevent damage to any feature during maintenance operations. Below is a list and description of the most common features within a SFB and the corresponding maintenance inspection items that can be anticipated:

**Table SFB-1  
Inspection and Maintenance Requirements Matrix for Full-Infiltration Sand Filter Basins**

	Sediment Removal	Mowing Weed Control	Trash & Debris Removal	Erosion	Overgrown Vegetation Removal	Removal & Replacement	Structure Repair
Filter Media	X	X	X	X	X	X	
Emergency Overflow Channel	X		X				X
Embankment		X	X	X	X		

**SBF-2.3.1 Filter Media**

The filter media is the main pollutant removal component of the SFB. The filter media consists of 18-inches of washed sand. The filter media removes pollutants through several different processes, including sedimentation, filtration, infiltration and microbial uptake.

Sedimentation is accomplished by the slow release of stormwater runoff through the filter media. This slow release allows for sediment particles to be deposited on the top layer of the filter media where they are easily removed through routine maintenance. Other pollutants are also removed through this process because they are attached to sediment.

Filtration is the main pollutant removal mechanism of SFBs. When the stormwater runoff migrates down through the filter media, many of the particulate pollutants are physically strained out as they pass through the filter bed of sand and are trapped on the surface or among the pores of the filter media.

SFBs that are not lined with an impervious liner allow for infiltration into the native soils. This process also allows for additional pollutant removal.

Microbes that naturally occur in the filter media can assist with pollutant removal by breaking down organic pollutants.

The typical maintenance activities that are required within the filter media areas are as follows:

- a. Mowing/woody growth control/weeds present - Noxious weeds and other unwanted vegetation must be treated as needed throughout the SFB. This activity can be performed either through mechanical means (mowing/pulling) or with herbicide. Consultation with a local Weed Inspector is highly recommended prior to the use of herbicide. Herbicides should

be utilized sparingly and as a last resort. All herbicide applications should be in accordance with the manufacturer's recommendations.

b. Sediment/Pollutant Removal – Although SFBs should not be utilized in areas where large concentrations of sediment and other pollutants will enter the SFB, it is inevitable that some sediment and other pollutants will enter the SFB. Most sediment will be deposited along the basin embankments, however finer suspended particles will migrate to the filter media. These sediments need to be removed to ensure proper infiltration rates of the stormwater runoff.

c. Filter Replacement - The top layers of the filter media are the most susceptible to pollutant loading and therefore may need to be removed and disposed of properly on a semi-regular basis when infiltration rates slow.

d. Infiltration Rate Test - An infiltration test may be necessary to ensure proper functioning of the filter media. The infiltration test can be conducted by filling the sand filter with water to the elevation of the overflow channel. The sand filter needs to drain completely within 40-hours of the filling. If the drain time for the basin is longer than 40-hours, the filter is in need of maintenance.

#### SFB-2.3.2 Emergency Overflow

An emergency spillway is typical of all SFBs and designed to serve as the overflow in the event the volume of the pond is exceeded. The emergency spillway is typically armored with riprap (or other hard armor), and is sometimes buried with soil or may be a concrete wall or other structure. The emergency spillway is typically a weir (notch) in the basin embankment. Proper function of the emergency spillway is essential to ensure flooding does not affect adjacent properties.

The typical maintenance activities that are required for the emergency overflow areas are as follows:

a. Riprap Displaced – As mentioned before, the emergency spillway is typically armored with riprap to provide erosion protection. Over the life of an SFB, the riprap may shift or become dislodged due to flow.

b. Erosion Present – Although the spillway is typically armored, stormwater flowing through the spillway can cause erosion damage. Erosion must be repaired to ensure the integrity of the basin embankment, and proper function of the spillway.

c. Mowing/weed/woody growth control – Management of woody vegetation is essential in the proper long-term function of the spillway. Larger trees or dense shrubs can capture larger debris entering the SFB and reduce the capacity of the spillway. These trees and shrubs may also damage the underdrain system of the SFB.

d. Obstruction/Debris – The spillway must be cleared of any obstruction (man-made or natural) to ensure the proper design capacity.

### SFB-2.3.3 Embankments

Some SFBs utilize irrigated turf grass embankments to store the WQCV.

The typical maintenance activities that are required for the embankment areas are as follows:

a. Vegetation Sparse – The embankments are one of the most visible parts of the SFB and, therefore, aesthetics is important. Adequate and properly maintained vegetation can greatly increase the overall appearance of the SFB. Also, vegetation can reduce the potential for erosion and subsequent sediment transport to the filter media, thereby reducing the need for more costly maintenance.

b. Erosion – Inadequate vegetative cover may result in erosion of the embankments. Erosion that occurs on the embankments can cause clogging of the filter media.

c. Trash/Debris – Trash and debris can accumulate in the upper area after large events, or from illegal dumping. Over time, this material can clog the SFB filter media and emergency overflow outlet.

d. Mowing/woody growth control/weeds present – The presence of plant material not part of the original landscaping, such as wetland plants or other woody growth, can result in difficulty in performing maintenance activities. These trees and shrubs may also damage the underdrain system of the SFB. This plant material may indicate a clogging of the filter media and may require additional investigation.

### SFB-2.3.4 Miscellaneous

There are a variety of inspection/maintenance issues that may not be attributed to a single feature within the SFB. This category on the inspection form is for maintenance items that are commonly found in the SFB, but may not be attributed to an individual feature.

a. Access – Access needs to be maintained.

b. Graffiti/Vandalism – Vandals can cause damage to the SFB infrastructure. If criminal mischief is evident, the inspector should forward this information to the local emergency agency.

c. Public Hazards – Public hazards include items such as vertical drops of greater than 4-feet, containers of unknown/suspicious substances, and exposed metal/jagged concrete on structures. If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local

emergency services at 911 immediately.

d. Other – Any miscellaneous inspection/maintenance items not contained on the form should be entered here.

### **SFB-2.4 Inspection Forms**

SFB Inspection forms are located in the appendix. Inspection forms shall be completed by the person(s) conducting the inspection activities. Each form shall be reviewed and submitted by the property owner or property manager to the El Paso County Stormwater Team per the requirements of the Inspection and Maintenance Plan. These inspection forms shall be kept a minimum of 5 years and made available to El Paso County of upon request.

### **SFB-3 Maintaining Sand Filter Basins (SFBs)**

#### **SFB-3.1 Maintenance Personnel**

Maintenance personnel should be qualified to properly maintain SFBs. Inadequately trained personnel can cause additional problems resulting in additional maintenance costs.

#### **SFB-3.2 Equipment**

It is imperative that the appropriate equipment and tools are taken to the field with the operations crew. The types of equipment/tools will vary depending on the task at hand. Below is a list of tools, equipment, and material(s) that may be necessary to perform maintenance on a SFB:

- 1.) Mowing Tractors
- 2.) Trimmers (extra string)
- 3.) Shovels
- 4.) Rakes
- 5.) All Surface Vehicle (ASVs)
- 6.) Skid Steer
- 7.) Back Hoe
- 8.) Track Hoe/Long Reach Excavator
- 9.) Dump Truck
- 10.) Jet-Vac Machine
- 11.) Engineers Level (laser)
- 12.) Riprap (Minimum - Type M)
- 13.) Geotextile Fabric
- 14.) Erosion Control Blanket(s)
- 15.) Sod
- 16.) Illicit Discharge Cleanup Kits
- 17.) Trash Bags
- 18.) Tools (wrenches, screw drivers, hammers, etc)
- 19.) Confined Space Entry Equipment

- 20.) Approved Inspection and Maintenance Plan
- 21.) ASTM C-33 Sand

Some of the items identified above may not be needed for every maintenance operation. However, this equipment should be available to the maintenance operations crews should the need arise.

### **SFB-3.3 Safety**

Vertical drops may be encountered in areas located within and around the SFB. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified that is greater than 48-inches in height, make the appropriate note/comment on the maintenance inspection form.

### **SFB-3.4 SFB Maintenance Forms**

The SFB Maintenance Form provides a record of each maintenance operation performed by maintenance contractors. The SFB Maintenance Form shall be filled out in the field after the completion of the maintenance operation. Each form shall be reviewed and submitted by the property owner or property manager to the El Paso County Stormwater Team per the requirements of the Inspection and Maintenance Plan. The SFB Maintenance form is located in the appendix.

### **SFB-3.5 SFB Maintenance Categories and Activities**

A typical SFB Maintenance Program will consist of three broad categories of work: Routine, Minor and Major. Within each category of work, a variety of maintenance activities can be performed on a SFB. A maintenance activity can be specific to each feature within the SFB, or general to the overall facility. This section of the SOP explains each of the categories and briefly describes the typical maintenance activities for a SFB.

A variety of maintenance activities are typical of SFBs. The maintenance activities range in magnitude from routine trash pickup to the reconstruction of the SFB filter media or underdrain system. Below is a description of each maintenance activity, the objectives, and frequency of actions:

### **SFB-3.6 Routine Maintenance Activities**

The majority of this work consists of scheduled mowings, trash and debris pickups for the SFB during the growing season. It also includes activities such as weed control. These activities normally will be performed numerous times during the year. These items typically do not require any prior correspondence with El Paso County, however, completed inspection and maintenance forms shall be submitted to the El Paso County Stormwater Team for each inspection and maintenance.



The Routine Maintenance Activities are summarized below, and further described in the following sections.

**Table SFB-2**  
**Summary of Routine Maintenance Activities**

Maintenance Activity	Minimum Frequency	Look for:	Maintenance Action
Mowing	Twice annually	Excessive grass height/aesthetics	2”-4” grass height
Trash/Debris Removal	Twice annually	Trash/debris in SFB	Remove and dispose of trash and debris
Woody growth control/weed removal	Minimum twice annually	Noxious weeds, unwanted vegetation	Treat with herbicide or hand pull, consult a local weed inspector

SFB-3.6.1 Mowing

Routine mowing of the turf grass embankments and turf grass located in the sedimentation chamber is necessary to improve the overall appearance of the SFB and ensure proper performance of the sediment chamber. Turf grass should be mowed to a height of 2 to 4-inches and shall be bagged to prevent potential contamination of the filter media.

*Frequency* – Routine - Minimum of twice annually or depending on aesthetics.

SFB-3.6.2 Trash/Debris Removal

Trash and debris must be removed from the entire SFB area to minimize outlet clogging and to improve aesthetics. This activity must be performed prior to mowing operations.

*Frequency* – Routine – Prior to mowing operations and minimum of twice annually.

SFB- 3.6.3 Woody Growth Control/Weed Removal

Noxious weeds and other unwanted vegetation must be treated as needed throughout the SFB. This activity can be performed either through mechanical means (mowing/pulling) or with herbicide. Consultation with a local El Paso County Weed Inspector is highly recommended prior to the use of herbicide. Herbicides should be utilized sparingly and as a last resort. All herbicide applications should be in accordance with the manufacturer’s recommendations.

*Frequency* – Routine – As needed based on inspections.

**SFB-3.7 Restoration Maintenance Activities**

This work consists of a variety of isolated or small-scale maintenance/operational problems. Most of this work can be completed by a small crew, hand tools, and small equipment. These items do not require prior approval from El Paso County. Completed inspection and maintenance forms shall be submitted to the El Paso County Stormwater Team for each inspection and maintenance period. In the event that the SFB needs to be dewatered, care should be given to ensure sediment, filter material and other pollutants are not discharged. All dewatering activities shall be appropriately permitted.

**Table SFB-3  
Summary of Restoration Maintenance Activities**

Maintenance Activity	Minimum Frequency	Look for:	Maintenance Action
Sediment & Pollutant Removal	As needed; typically every 1-2 years	Sediment build up in filter media; decrease in infiltration rate	Remove and dispose of sediment
Erosion Repair	As needed, based upon inspection	Rills/gullies on embankments or sedimentation near the filter media	Repair eroded areas and revegetate; address cause

SFB-3.7.1 Sediment Removal/Pollutant Removal

Sediment removal is necessary to ensure proper function of the filter media. The infiltration rate of the SFB needs to be checked in order to ensure proper functioning of the SFB. A SFB should drain completely within 40-hours of a storm event. If drain times exceed the 40-hour drain time than maintenance of the filter media shall be required.

At a minimum, the top 3-inches of filter media should be removed at each removal period. Additional amounts of filter media may need to be removed if deeper sections of the filter media are contaminated. New filter media will need to be placed back into the SFB when the total amount of sand removed reaches 9-inches. This may take multiple maintenance events to accomplish. It is critical that only sand that meets the American Society for Testing and Materials (ASTM) C-33 standard be utilized in the replacement of the filter media.

ASTM C-33 Sand Standard

US Standard Sieve Size (Number)	Total Percent Passing (%)
9.5 mm (3/8 inch)	100
4.75 mm (No. 4)	95-100
2.36 mm (No. 8)	80-100
1.18 mm (No. 16)	50-85

600 mm (No. 30)	25-60
300 mm (No. 50)	10-30
150 mm (No. 100)	2-10

Other types of sand and soil material may lead to clogging of the SFB. The minor sediment removal activities can typically be addressed with shovels, rakes and smaller equipment. Major sediment removal activities will require larger and more specialized equipment. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. The major sediment removal activities will also require surveying with an engineer’s level, and consultation with El Paso County’s Engineering staff to ensure design volumes/grades are achieved.

Stormwater sediments removed from SFBs do not meet the regulatory definition of “hazardous waste”. However, these sediments can be contaminated with a wide array of organic and inorganic pollutants and handling must be done with care to ensure proper removal and disposal. Sediments should be transported by motor vehicle only after they are dewatered. All sediments must be taken to a licensed landfill for proper disposal. Should a spill occur during transportation, prompt and thorough cleanup and disposal is imperative.

*Frequency* – Non-routine – As necessary, based upon inspections. Sediment removal in the sedimentation chamber may be necessary as frequently as every 1-2 years.

**SFB-3.7.2 Erosion Repair**

The repair of eroded areas is necessary to ensure the proper functioning of the SFB, to minimize sediment transport, and to reduce potential impacts to other features. Erosion can vary in magnitude from minor repairs to filter media and embankments, to rills, and gullies in the embankments and inflow points. The repair of eroded areas may require the use of excavators, earthmoving equipment, riprap, concrete, and sod. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. Major erosion repair to the pond embankments, spillways, and adjacent to structures will require consultation with El Paso County’s Engineering staff.

*Frequency* – Non-routine – As necessary, based upon inspections.

**SFB-3.8 Rehabilitation Maintenance Activities**

This work consists of larger maintenance/operational problems and failures within the stormwater management facilities. All of this work requires approval from El Paso County’s Engineering staff to ensure the proper maintenance is performed. This work requires that Engineering staff review the original design and construction drawings to assess the situation and assign the necessary maintenance activities. This work may also require more specialized maintenance equipment, design/details, surveying, or assistance through private contractors and consultants. In the event that the basin needs to be

dewatered, care should be given to ensure sediment, filter material and other pollutants are not discharged. Proper permitting is required prior to any dewatering activity.

**Table SFB-4**  
**Summary of Rehabilitation Maintenance Activities**

Maintenance Activity	Minimum Frequency	Look for:	Maintenance Action
Major Sediment & Pollutant Removal	As needed; based upon scheduled inspections	Large quantities of sediment build up in filter media; decrease in infiltration rate and capacity	Remove and dispose of sediment. Repair vegetations as needed
Major Erosion Repair	As needed, based upon scheduled inspections	Severe erosion including gullies, excessive soil displacement, areas of settlement, holes	Repair erosion – find cause of problem and address to avoid future erosion
Structural Repair	As needed, based upon scheduled inspections	Deterioration and/or damage to structural components – major damage to emergency overflow channel	Structural repair to restore the structure to its original design
SFB Rebuild	As needed, due to complete failure of SFB	Removal of filter media and emergency overflow channel	Contact El Paso County Engineering

SFB-3.8.1 Major Sediment & Pollutant Removal

In very rare cases the filter media of the SFB may be contaminated so badly that the entire 18-inches of the filter media may need to be removed.

Major sediment/pollutant removal consists of removal of large quantities of sediment/filter media. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur. The sediment/filter media needs to be carefully removed, transported and properly disposed. Vegetated areas need special care to ensure design volumes and grades are preserved or may need to be replaced due to the removal activities. Stormwater sediments removed from SFBs do not meet the regulatory definition of “hazardous waste”. However, these sediments can be contaminated with a wide array of organic and inorganic pollutants and handling must be done with care to insure proper removal and disposal. Sediments should be transported by motor vehicle only after they are dewatered. All sediments must be taken to a licensed landfill for proper disposal. Should a spill occur during transportation, prompt and thorough cleanup and disposal is imperative.

*Frequency* – Non-routine – Repair as needed, based upon inspections.

#### SFB-3.8.2 Major Erosion Repair

Major erosion repair consists of filling and revegetating areas of severe erosion. Determining the cause of the erosion as well as correcting the condition that caused the erosion should also be part of the erosion repair. Care should be given to ensure design grades and volumes are preserved. Extreme care should be taken when utilizing motorized or heavy equipment to ensure damage to the underdrain system does not occur.

*Frequency* – Non-routine – Repair as needed, based upon inspections.

#### SFB-3.8.3 Structural Repair

A SFB generally includes a splitter box or concrete overflow outlet structure that can deteriorate or be damaged during the service life of the facility. These structures are constructed of steel and concrete that can degrade or be damaged and may need to be repaired or re-constructed from time to time. Major repairs to structures may require input from a structural engineer and specialized contractors. Consultation with El Paso County's Engineering staff shall take place prior to all structural repairs.

*Frequency* – Non-routine – Repair as needed, based upon inspections.

#### SFB-3.8.4 SFB Rebuild

In very rare cases a SFB may need to be rebuilt. Generally, the need for a complete rebuild is a result of improper construction, improper maintenance resulting in structural damage to the filter media, or extensive contamination of the SFB. Consultation with El Paso County's Engineering staff shall take place prior to any rebuild project.

*Frequency* – Non-routine – As needed, based upon inspections.

# APPENDIX

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# INSPECTION FORM

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## SAND FILTER BASIN (SFB) INSPECTION FORM

Subdivision/Business Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Subdivision/Business Address: \_\_\_\_\_ Inspector: \_\_\_\_\_  
 Weather: \_\_\_\_\_  
 Date of Last Rainfall: \_\_\_\_\_ Amount: \_\_\_\_\_ Inches

**Property Classification:** Residential    Multi Family    Commercial    Other: \_\_\_\_\_  
 (Circle One)

**Reason for Inspection:** Routine                  Complaint                  After Significant Rainfall Event  
 (Circle One)

**INSPECTION SCORING** - For each facility inspection item, insert one of the following scores:  
 0 = No deficiencies identified                                  2 = Routine maintenance required  
 1 = Monitor (potential for future problem)                                  3 = Immediate repair necessary  
 N/A = Not applicable

### FEATURES

- |  |  |
|--|--|
| <p><b>1.) Inflow Points/Splitter Box</b><br/>         ___ Riprap Displaced<br/>         ___ Sediment Accumulation<br/>         ___ Structural Damage (pipe, end-section, etc.)<br/>         ___ Trash/Debris</p> | <p><b>2.) Sedimentation Chamber</b><br/>         ___ Mowing /weed/woody growth control<br/>         ___ Erosion Present<br/>         ___ Trash/Debris<br/>         ___ Sediment Accumulation</p> |
| <p><b>3.) Filter Media</b><br/>         ___ Mowing /weed/woody growth control<br/>         ___ Sediment/Pollutant Removal<br/>         ___ Filter Replacement<br/>         ___ Infiltration Rate Check</p>       | <p><b>4.) Underdrain System</b><br/>         ___ Evidence of clogged system<br/>         (jet-vac cleaning required)</p>   |
| <p><b>5.) Outlet Works</b><br/>         ___ Structural Damage (concrete, steel, subgrade)<br/>         ___ Mowing /weed/woody growth control</p>   | <p><b>6.) Embankments</b><br/>         ___ Vegetation Sparse<br/>         ___ Erosion Present<br/>         ___ Trash/Debris<br/>         ___ Mowing /weed/woody growth control</p>               |
| <p><b>7.) Emergency Overflow</b><br/>         ___ Riprap Displaced<br/>         ___ Erosion Present<br/>         ___ Woody Growth/Weeds Present<br/>         ___ Obstruction/Debris</p>                          | <p><b>8.) Miscellaneous</b><br/>         ___ Encroachment in Easement Area<br/>         ___ Graffiti/Vandalism<br/>         ___ Public Hazards<br/>         ___ Other</p>                        |

Inspection Summary / Additional Comments: \_\_\_\_\_

**OVERALL FACILITY RATING (Circle One)**

0 = No Deficiencies Identified                                  2 = Routine Maintenance Required  
 1 = Monitor (potential for future problem exists)                                  3 = Immediate Repair Necessary

This inspection form shall be kept a minimum of 5 years and made available to the El Paso County of upon request.



# MAINTENANCE FORM

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**SAND FILTER BASIN (SFB)  
MAINTENANCE FORM**

Subdivision/Business Name: \_\_\_\_\_ Completion Date: \_\_\_\_\_  
 Subdivision/Business Address: \_\_\_\_\_ Contact Name: \_\_\_\_\_

**Maintenance Category:**                      Routine                      Restoration                      Rehabilitation  
 (Circle all that apply)

**MAINTENANCE ACTIVITIES PERFORMED**

**ROUTINE WORK**

- \_\_\_\_\_ MOWING
- \_\_\_\_\_ TRASH/DEBRIS REMOVAL
- \_\_\_\_\_ OUTLET WORKS CLEANING (TRASH RACK/WELL SCREEN)
- \_\_\_\_\_ WEED CONTROL (HERBICIDE APPLICATION)

**RESTORATION WORK**

**REHABILITATION WORK**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>_____ SEDIMENT REMOVAL</li> <li>_____ INFLOW POINT/SPLITTER BOX</li> <li>_____ OUTLET WORKS</li> <li>_____ FILTER MEDIA</li> <li>_____ SEDIMENTATION CHAMBER</li> <li>_____ EMERGENCY OVERFLOW</li> <li>_____ EROSION REPAIR</li> <li>_____ INFLOW POINT/SPLITTER BOX</li> <li>_____ OUTLET WORKS</li> <li>_____ EMBANKMENTS</li> <li>_____ SEDIMENTATION CHAMBER</li> <li>_____ EMERGENCY OVERFLOW</li> <li>_____ FILTER MEDIA</li> <li>_____ REVEGETATION</li> <li>_____ JET-VAC/CLEARING DRAINS</li> <li>_____ INFLOWS</li> <li>_____ OUTLET WORKS</li> <li>_____ UNDERDRAIN</li> </ul> | <ul style="list-style-type: none"> <li>_____ SEDIMENT REMOVAL (DREDGING)</li> <li>_____ FILTER MEDIA</li> <li>_____ SEDIMENTATION CHAMBER</li> <li>_____ EROSION REPAIR</li> <li>_____ INFLOW POINT/SPLITTER BOX</li> <li>_____ OUTLET WORKS</li> <li>_____ EMBANKMENTS</li> <li>_____ SEDIMENTATION CHAMBER</li> <li>_____ EMERGENCY OVERFLOW</li> <li>_____ FILTER MEDIA</li> <li>_____ STRUCTURAL REPAIR</li> <li>_____ INFLOW POINT/SPLITTER BOX</li> <li>_____ OUTLET WORKS</li> <li>_____ FILTER MEDIA</li> <li>_____ SEDIMENTATION CHAMBER</li> <li>_____ EMERGENCY OVERFLOW</li> </ul> |
|---|--|
- OTHER \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

ESTIMATED TOTAL MANHOURS: \_\_\_\_\_

COSTS INCURRED (include description of costs): \_\_\_\_\_

EQUIPMENT/MATERIAL USED (include hours of equipment usage and quantity of material used):  
 \_\_\_\_\_

COMMENTS/ADDITIONAL INFO:  
 \_\_\_\_\_

This Maintenance Activity Form shall be kept a minimum of 5 years and made available to the El Paso County of upon request.

ANNUAL INSPECTION AND MAINTENANCE  
SUBMITTAL FORM

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Annual Inspection and Maintenance Reporting Form  
for  
Stormwater BMPs

*(This form to be submitted to El Paso County of prior to May 31 of each year)*

**Date:** \_\_\_\_\_

**To: El Paso County Stormwater Team  
3460 Marksheffel  
Colorado Springs, CO 80922**

**Re: Certification of Inspection and Maintenance; Submittal of forms**

Property/Subdivision Name: \_\_\_\_\_

Property Address: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Contact Phone #: \_\_\_\_\_

Contact Email Address: \_\_\_\_\_

I verify that the required stormwater facility inspections and required maintenance have been completed in accordance with the Stormwater BMP Maintenance Agreement and the Inspection and Maintenance Manual associated with the above referenced property.

The required Stormwater Facility Inspection and Maintenance forms are attached to this form.

\_\_\_\_\_  
Name of Party Responsible for Inspection  
& Maintenance

\_\_\_\_\_  
Property Owner

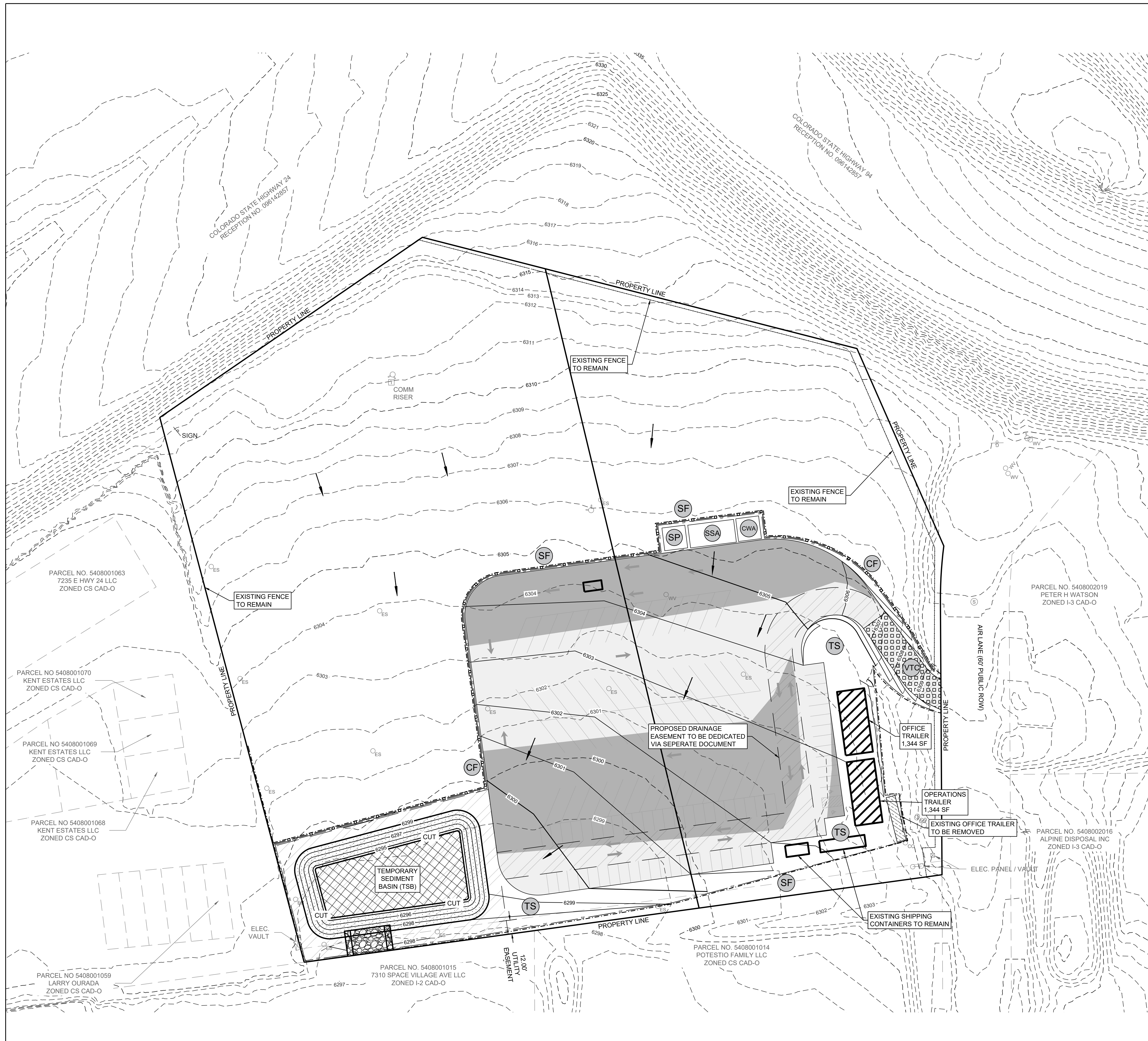
\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Signature

# GRADING AND EROSION CONTROL PLANS

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**LEGEND**

- LIMITS OF DISTURBANCE
- CF --- CONSTRUCTION FENCE
- EXISTING ASPHALT MILLINGS
- PROPOSED ASPHALT MILLINGS
- PROPOSED OFFICE TRAILER
- EXISTING OFFICE TRAILER TO BE REMOVED
- VTC --- VEHICLE TRACKING CONTROL
- PROPOSED SAND FILTER BASIN
- SAND FILTER BASIN FILTER AREA
- PROPOSED RIPRAP
- PROPOSED DRAINAGE EASEMENT
- TS --- TEMPORARY SEEDING AND MULCHING
- PS --- PERMANENT SEEDING AND MULCHING
- SF --- SILT FENCE
- CWA --- CONCRETE WASHOUT AREA
- SSA --- STABILIZED STAGING AREA
- SP --- STOCKPILE PROTECTION
- ← FLOW ARROW
- EXISTING FENCE TO REMAIN
- EXISTING CONTOURS (1' AND 5')
- PROPOSED CONTOURS (1' AND 5')

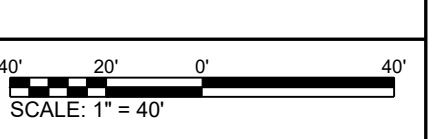
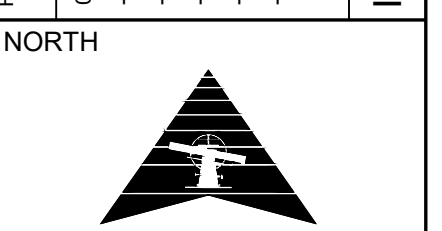
**UTILITY LEGEND**

- SIGN
- FIBER OPTIC SIGN
- ELECTRIC SERVICE
- ELECTRIC VAULT / PANEL
- TELEPHONE PEDESTAL
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- WATER VALVE
- FIRE HYDRANT

**GENERAL NOTES:**

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ADJACENT TO THE SITE. THE OMISSION FROM, OR INCLUSION OF, UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, BUILDINGS, FENCES, AND ROADWAYS FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE ABOVE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.
3. GRADING SHALL BE COMPLETED TO A SUBGRADE TOLERANCE OF PLUS OR MINUS 0.2'.
4. CONTRACTOR SHALL OBTAIN COPIES OF THE SOILS REPORT FROM THE GEOTECHNICAL ENGINEER AND THEY SHALL BE KEPT ONSITE DURING ALL EARTHWORK.
5. THE SITE SHALL BE STRIPPED A MINIMUM OF 0.5' BELOW EXISTING GRADE, OR AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ONLY APPLICABLE IN PREVIOUSLY UNDISTURBED AREAS.
6. DUST CONTROL SHALL BE SUPPLIED BY THE GRADING CONTRACTOR THROUGH THE DURATION OF THE PROJECT PER THE COUNTY HEALTH DEPARTMENT SPECIFICATIONS.
7. LOCATION OF STORAGE FOR MAINTENANCE EQUIPMENT AND TEMPORARY DISPOSAL AREAS WILL BE ADDED TO THE GEC/SWMP BY CONTRACTOR.
8. ALL NON-STRUCTURAL CONTROL MEASURES SUCH AS STREET SWEEPING, GOOD HOUSEKEEPING, AND ETC. SHALL BE EMPLOYED BY THE CONTRACTOR AS NECESSARY AND OUTLINED IN THE SWMP.
9. MAXIMUM CUT/FILL SLOPES SHALL NOT EXCEED 4:1.
10. ALL FILL MATERIAL SHALL BE APPROVED BY A LICENSED ENGINEER.
11. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED FOR RE-USE IF POSSIBLE.
12. LOCATION OF PORTABLE TOILET, STABILIZED STAGING AREA, AND SITE (CONTACTS AND PERMITS) AND WASHOUT POSTING TO BE ADDED TO THIS PLAN AND SWMP BY CONTRACTOR.
13. CONSTRUCTION DISTURBANCE LIMITS AND SILT FENCE OFFSET FOR CLARITY, CONTRACTOR TO ENSURE CCM'S ARE PLACED DOWNSTREAM OF DISTURBED AREAS TO PREVENT SEDIMENT FROM LEAVING SITE. NO BATCH PLANTS WILL BE UTILIZED ON SITE.
14. ON-SITE VEGETATION IS NATIVE GRASSES AND WEEDS. THERE IS NO NOTABLE VEGETATION OTHERWISE.
15. CONTRACTOR SHALL PROTECT ALL AREAS OUTSIDE OF THE CONSTRUCTION LIMITS WITH SILT FENCE OR OTHER METHOD TO PROTECT UNDISTURBED AREAS FROM EROSION.
17. THERE ARE NO SPRINGS, STREAMS, WETLANDS AND OTHER SURFACE WATERS, INCLUDING AREAS THAT REQUIRE MAINTENANCE OF PRE-EXISTING VEGETATION WITHIN 50 FEET OF A RECEIVING WATER FOR THIS PROJECT.

REVISION	DATE	DESCRIPTION



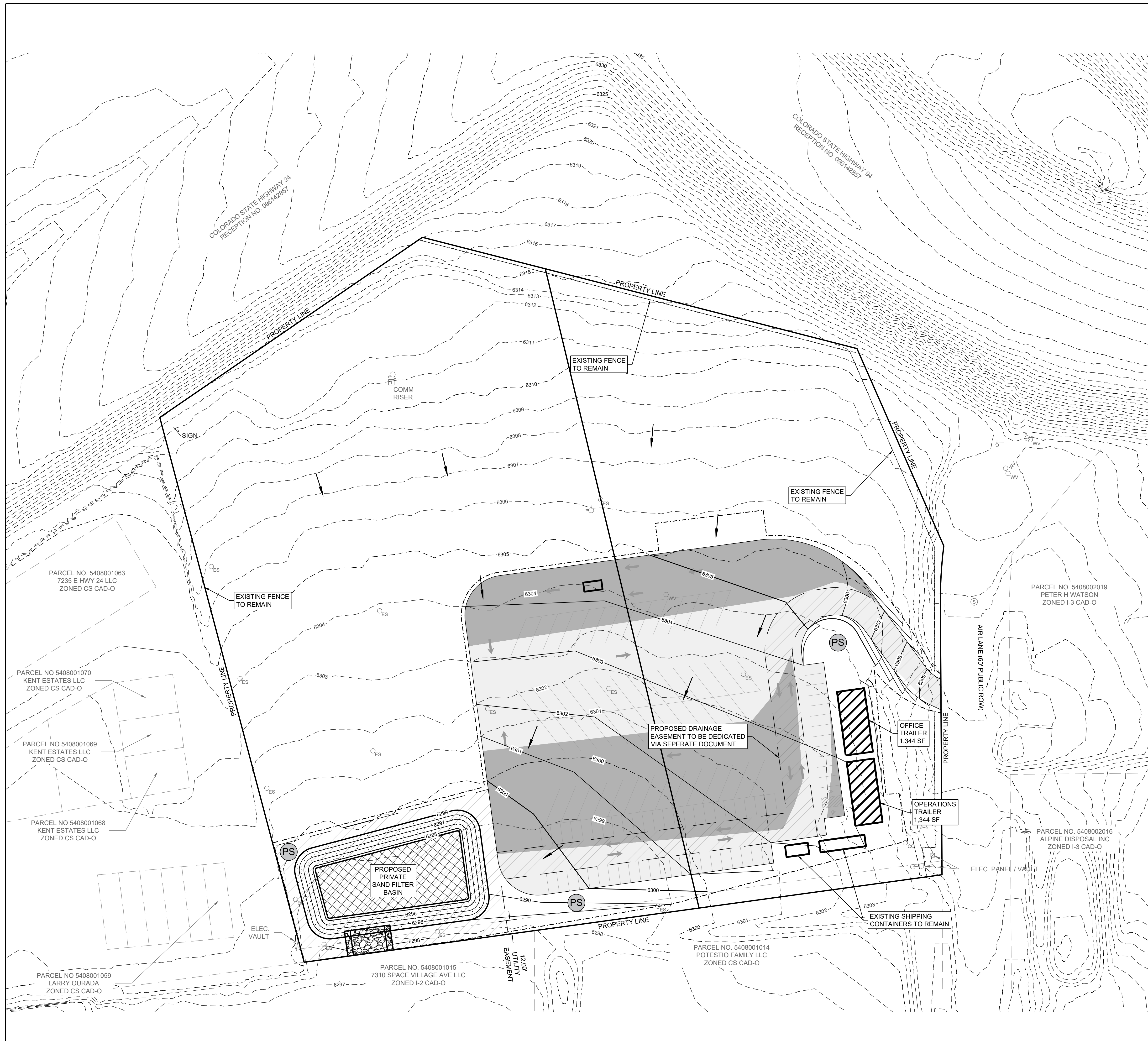
PROJECT #: 2403-0094  
 CHECKED BY: BML  
 DRAWN BY: EDM

DATE: 10/02/2024

SHEET # **G.2**

TOTAL SHEETS 7





**LEGEND**

- LIMITS OF DISTURBANCE
- EXISTING ASPHALT MILLINGS
- PROPOSED ASPHALT MILLINGS
- PROPOSED OFFICE TRAILER
- PROPOSED SAND FILTER BASIN
- SAND FILTER BASIN FILTER AREA
- PROPOSED RIPRAP
- PROPOSED DRAINAGE EASEMENT
- PERMANENT SEEDING AND MULCHING (PS)
- FLOW ARROW
- EXISTING FENCE TO REMAIN
- EXISTING CONTOURS (1' AND 5')
- PROPOSED CONTOURS (1' AND 5')

**UTILITY LEGEND**

- SIGN
- FIBER OPTIC SIGN
- ELECTRIC SERVICE
- ELECTRIC VAULT / PANEL
- TELEPHONE PEDESTAL
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- WATER VALVE
- FIRE HYDRANT

**GENERAL NOTES:**

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ADJACENT TO THE SITE. THE OMISSION FROM, OR INCLUSION OF, UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.
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4. CONTRACTOR SHALL OBTAIN COPIES OF THE SOILS REPORT FROM THE GEOTECHNICAL ENGINEER AND THEY SHALL BE KEPT ONSITE DURING ALL EARTHWORK.
5. THE SITE SHALL BE STRIPPED A MINIMUM OF 0.5' BELOW EXISTING GRADE, OR AS RECOMMENDED BY THE GEOTECHNICAL REPORT, ONLY APPLICABLE IN PREVIOUSLY UNDISTURBED AREAS.
6. DUST CONTROL SHALL BE SUPPLIED BY THE GRADING CONTRACTOR THROUGH THE DURATION OF THE PROJECT PER THE COUNTY HEALTH DEPARTMENT SPECIFICATIONS.
7. STOCKPILE LOCATION FOR THIS PROJECT TO BE LOCATED BY CONTRACTOR AND ADDED TO THE SWMP/GEC UPON DETERMINATION.
8. LOCATION OF STORAGE FOR MAINTENANCE EQUIPMENT AND TEMPORARY DISPOSAL AREAS WILL BE ADDED TO THE GEC/SWMP BY CONTRACTOR.
9. ALL NON-STRUCTURAL CONTROL MEASURES SUCH AS STREET SWEEPING, GOOD HOUSEKEEPING, AND ETC. SHALL BE EMPLOYED BY THE CONTRACTOR AS NECESSARY AND OUTLINED IN THE SWMP. MAXIMUM CUT/FILL SLOPES SHALL NOT EXCEED 4:1.
10. ALL FILL MATERIAL SHALL BE APPROVED BY A LICENSED ENGINEER.
11. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED FOR RE-USE IF POSSIBLE.
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REVISION	DATE	DESCRIPTION
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**FINAL GRADING & EROSION CONTROL PLAN**

PROJECT #: 2403-0094  
CHECKED BY: BML  
DRAWN BY: EDM

DATE: 10/02/2024

SHEET # **G.3**

TOTAL SHEETS 7