Stormwater Management Plan Report
For

7-Eleven on Lot 1
Academy Gateway Subdivision

January 18, 2018

PPR-17-058

Prepared For:

7-Eleven, Inc.

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CERTIFICATION SHEET

Engineer's Statement:

This Stormwater Management Plan was prepared under my direction and supervision and is correct to the best of my knowledge and belief. Said Plan has been prepared according to the criteria established by the County for Grading and Erosion Control Plans. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this plan.

_____ _____

Registered Professional Engineer Date

Colorado Registration No. _____

Owner's Statement:

The Owner will comply with the requirements of the Grading and Erosion Control Plan.

_____ _____

Owner Date

El Paso County:

County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/ or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility for completeness and/ or accuracy of this document.

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria, and Engineering Criteria Manual as amended

_____ _____

Jennifer Irvine, P.E. Date
County Engineer / ECM Administrator

I. GENERAL DESCRIPTION AND LOCATION

A. Introduction

This Stormwater Management Plan and Report covers construction activities for the proposed 7-Eleven convenience store and fuel station on Lot 1 in Academy Gateway Subdivision Filing No.1. The development plan will consist of a new one story 2,940 square foot 7-Eleven convenience store, a new 3,100 square foot 6 MPD fuel canopy, associated landscaping, parking and drive aisles. The Stormwater Management Plan has been developed per El Paso County regulations for authorizing stormwater discharges from construction activities.

The SWMP Report has been designed to complement the municipality's goals in minimizing water pollution, protection of receiving waters and wetlands, treating stormwater runoff to the maximum extent practicable, and controlling discharges of sediment, debris and other pollutants associated with construction activities to municipal storm sewer system and receiving waters. Under the permit, construction activities include clearing, grubbing, grading, utility construction, milling/grinding operations, asphalt and concrete sawcutting operations, waste material generation such as concrete washout, and any disturbances to dirt/earth. This SWMP Report prescribes standard erosion and sediment control practices and operating procedures during and immediately following construction. Practices that will be utilized include protecting as much existing vegetation as possible, slowing down runoff, preventing or minimizing erosion from construction activities, providing phased seeding and mulching, and final stabilization.

B. Location

The proposed 7-Eleven convenience store and fuel station is bound to the east by Struthers Road, to the south by North Gate Boulevard, to the north by a proposed Starbucks development, and to the west by Tract C serving as a drainage area for the subdivision. More specifically, the site is located in Section 6, Township 12 South, Range 66 West of the Sixth Principal Meridian, El Paso County, State of Colorado. The proposed site is located within the Academy Gateway Subdivision development as Lot 1 and is currently an undeveloped parcel. The convenience store has been assigned an address of 229 Gleneagle Gate View. The gas canopy has been assigned an address of 235 Gleneagle Gate View.

Total Site Acreage: 1.31 Acres
The total site disturbance required for grading and earthwork activity will be 0.86 acres.
The total site disturbance required for grading and landscaping will be 1.19 acres. The difference will include landscaping in area already grading/disturbed by others in the overlot phase.

VICINTY MAP

Total Volume of Cut: 1,500 Cu. Yd. (includes tank excavation)
Total Volume of Fill: 205 Cu. Yd.
Total Area of Impervious: 0.75 Acres
Total Area of Landscaping: 0.56 Acres

C. Existing and Proposed Topography

The site is approximately 1.31 acres, currently consisting of barren land. The existing site generally slopes from north to south, with the northern portion of the site directly flows in a northeastern direction. The site is mass graded at slopes approximately 2-5%. The perimeter along the eastern and southern property boundary adjacent to Right-Of-Way contains slopes of 3:1 per overlot grading by others. The site elevations range from 6718 to the finish floor elevation of 6734.40. The lowest proposed elevation is 6728, where proposed grades connect to undisturbed existing slopes from overlot grading activities. The proposed site mimics the existing drainage patterns generally slopes from north to south or north to northeast.

D. Current Land Use

The proposed site is currently an undeveloped parcel located within the Academy Gateway development. It has been mass graded, and trunk utilities are proposed and will be constructed before proposed development starts.

E. Soils

A Geotechnical Evaluation Report was completed by Vivid Engineering Group on February 6, 2017, and the results yielded earth materials underlying the project site consisting predominantly of poorly graded to silt and clayey soils. Existing fill comprised of poorly graded sand with silt and gravel, and silty sand was encountered within the upper 5 to 8 feet. Vivid does not recommend a requirement to remove and replace the materials. The fill materials may be reused as structural fill and subgrade preparation will include scarification, moisture conditioning, and recompaction of the upper zone of fill to provide a more uniform building pad. Ground water was found at depths between 13 and 23 feet below the existing ground surface.

Since the time of the geotechnical investigation performed by Vivid Engineering Group, the overall developer has had their plans approved and overlot mass grading earthwork activities are currently underway. Lot 1 will have considerable fill per the overlot grading plans.

According to the USDA NRCS Soil Survey, the on-site soils are predominately identified as Blendon Sandy Loam, 0 to 3 percent slopes identified in Hydrologic Soil Group B. The NRCS Soil Survey is shown in **Appendix A**.

F. Floodplain Areas

Lot 1 is located in FEMA flood zone X per FEMA map number 08041C0290 F, dated March 17, 1997. A copy of the map is included in **Appendix B.**

G. Wetlands and Stream Impacts

No on-site detention or water quality is required for Lot 1. The subdivision pond as detailed in the report and addendum Final Drainage Report for Academy Gateway Subdivision Filing No. 1 completed by Classic Consulting Engineers and Surveyors, provides detention and water quality for this project.

No major drainageways are located on-site.

H. Potential Pollution Sources

Table 1-1 Potential Pollution Sources

Potential Pollution Source	Site Specific Description
All disturbed and stored soils	Upon site construction activities the ground will be disturbed, exposing the underlying soil. BMPs selected to control this source are perimeter control, inlet protection, temporary stock piles, rock socks, surface roughening, seed and mulch, erosion control blankets vehicle tracking control, restoration of landscaped areas and repaving. Non-structural measures include phasing construction to the extent feasible to limit the amount of disturbed area open at any one time, planning staging areas and Site access to minimize land disturbance.
Vehicle tracking of sediments	Construction equipment will be entering/exiting the Site from Stabilized Staging Areas and adjacent paved streets. Vehicle tracking control (VTC) pads (traditional rock VTC or Mud Mats) will be located at all points where vehicles exit the construction site onto a public paved road. VTCs are shown on the plans but locations may be revised by the contractor at the time of construction. To control tracking of sediments onto adjacent streets, the contractor is required to complete street sweeping as often as needed (at a minimum by the close of that business day) when sediment and/or other materials or tracked or discharged onto adjacent paved surfaces. Street sweeping is also required when deemed appropriate by the separate municipalities or other regulatory authorities. Additional BMPs may include construction fencing to limit entry to designated access points. Staging areas also minimize and specify traffic movement onsite.
Management of contaminated soils	It is possible that petroleum or volatile organic compound (VOC)-impacted soils will be encountered during construction activities. If contamination is encountered, activities will be stopped until the situation can be assessed by project environmental personnel. The Project Manager will be contacted for further direction.
Loading and unloading operations	Piping, asphalt, cut and fill material, and road base will be delivered to the Site. Loading and unloading operations will occur on stabilized surfaces. BMPs selected to control this source are material management practices, personnel training, providing spill kits where needed, and following Spill Prevention Procedures (Section IV).

Potential Pollution Source	Site Specific Description
Outdoor storage activities (building materials, fertilizers, chemicals, etc.)	Excess excavation material will be removed from the project site by the contractor. Stockpile processing areas are required and locations are shown on the plans for over excavation. Covers and perimeter control required on stockpiles at all times. No petroleum products, fertilizers, chemicals or other hazardous substances will be stored on Site. Additional activities associated with this pollution source are storage of material at the staging areas that create the potential for spills and leaks and transport from traffic and stormwater. Note that the location of the stabilized staging area is shown on the initial and interim erosion plan but may be revised by the contractor. BMPs selected to control this source include rock socks, silt fence, earthen berm or other perimeter BMPs on the down gradient side of temporary stock pile; materials management practices; use of secondary containment and berms; personnel training; providing spill kits where needed; and following Spill Prevention Procedures (Section IV).
Vehicle and equipment maintenance and fueling	Vehicle fueling will be conducted off-site.
Significant dust or particulate generating processes	Given the arid Colorado climate, some dust is expected to be generated during construction activities. However, since large areas are not going to be cleared or graded at one time, dust generation is expected to be minor. BMPs selected to control this source are watering of disturbed areas on an as-needed basis during construction; interim stabilization measures such as surface roughening, mulch, soil binders, and final stabilization; and minimizing the duration that disturbed areas are exposed, to the extent practical. Air Pollution Permits may be required by the State of Colorado for this project. Permits as required will be identified separately of this application.
Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc.	No maintenance activities will be performed on Site.

Potential Pollution Source	Site Specific Description
On-Site waste management practices (waste piles, liquid wastes, dumpsters, etc.)	Activities associated with this pollution source are the generation of waste materials during project activities, including waste generated from excavation of mud and fluids, saw cutting water, pipe and joint sealing, and waste from clearing and grubbing. Solid waste removed from the Site will be placed in a dumpster or removed immediately from the Site. Liquid wastes, specifically from saw cutting and excavation fluids, will be removed via vacuuming during saw cutting activities to remove slurry, process water and cuttings prior to migration. Monitoring of cutting operations will occur routinely to determine if and what additional BMPs are necessary.
Non-industrial waste sources (worker trash and portable toilets)	Activities associated with this potential pollutant source include the generation of non-industrial waste such as discarded pipeline materials, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality. BMPs to control this source include the use of waste containers and location and placement of portable toilets, which will be located as far as feasible from surface waters and inlets that are maintained regularly.
Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment	Activities associated with this pollution source are concrete pours. The BMPs selected to control this source are using a designated concrete washout area or offsite washout, and personnel training. The concrete washout location is shown on the initial and interim erosion control plan. Equipment washing will not be conducted on Site.
Dedicated asphalt and concrete batch plants	No asphalt or concrete batch plants will be located on Site. Concrete and asphalt will be delivered to the Site via trucks.
Non-industrial waste sources such as worker trash and portable toilets	Non-industrial waste sources will include trash generated by employees and employee sanitation facilities (portable toilets). Waste dumpsters and portable toilets will be provided on Site and portable toilets will be inspected routinely as outlined in Appendix D. Portable toilets will be placed on flat terrain, located at least 50 feet from surface waters and inlets, and tied down to prevent tipping.

Potential Pollution Source	Site Specific Description
Non-stormwater discharges	Discharges to the ground of water from construction dewatering activities may be authorized by this GESC Report, provided that the source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42; and does not leave the Site as surface runoff or discharge to surface waters. These same provisions apply to concrete washout water discharged to the ground. Other allowable non-stormwater discharges include discharges from fire-fighting activities, natural springs and irrigation return flows. If any of these non-stormwater discharges are identified in the field, the site-specific information for that project will be updated to include the location and characteristics of the discharge.
Other areas or procedures where potential spills can occur	None identified.

I. Non-Stormwater Discharges

Except as provided in the paragraphs below, all discharges that occur during the life of this project shall be composed entirely of stormwater associated with construction activity.

- Discharges from fire-fighting activities.
- Natural springs. No known springs exist at the Site.
- Landscape irrigation return flow.
- Discharges to the ground of concrete washout water from washing of tools and concrete mixer chutes are allowed under this SWMP Report, provided that: the washout water is confined in a concrete washout area and does not leave the Site as surface runoff or to surface waters, and does not enter groundwater.
- Discharges to the ground from construction dewatering activities may be authorized by this SWMP Report, provided that the source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in concentrations exceeding the state groundwater standards in Regulations 5 CCR 1002-41 and 42; is indicated in the SWMP Report, and does not leave the Site as surface runoff or to surface waters.

  Allowable sources of non-stormwater discharges encountered during project implementation will be noted in this SWMP Report and indicated on the Site maps, and/or in field notes and inspections reports.

J. Endangered Species

There are no endangered species permanently residing on this site.

II. SITE CONSTRUCTION

A. Construction Activities

Construction activities also include trenching, grading, utility relocation, paving, landscaping, and drainage structures.

Disturbed areas where work is temporarily halted will be temporarily stabilized by surface roughening and soil binders or bonded fiber matrix within 5 calendar days after activity has ceased.

Table 2-1 Construction Activities

Activity	YES	NO
Clearing and Grubbing		X
Mass Overlot Grading		X
Cut Operations	X	
Fill Operations	X	
Building Demolition		X
Landscape Demolition		X
Roadway, Parking Lot and Driveway Demolition		X
Foundation Excavation		X
Utility Construction	X	
Building Construction	X	
Roadway, Parking Lot and Driveway Construction/Paving	X	
Landscaping	X	
Will public storm and sewer systems be constructed		X
Will private storm and sewer systems be constructed	X	

B. Construction Schedule

Table 2-2 Construction Schedule

Description	Approximate Start Date	Approximate Finish Date
Site Development	Spring 2018	Fall 2018

C. BMP Construction Phasing

The three phases of construction are typically broken into pre-construction (initial), construction (interim), and post-construction (final). BMP installation and removal will correspond to the details below. Refer to the GESC plan set for further detail on the BMPs utilized.

As construction is initiated, the following proposed sequence will be implemented:

1. *Initial construction BMP installations include:*
   -Construction Fence
   -Silt Fence
   -Stabilized Staging Area
   -Vehicle Tracking Control

2. *Interim construction BMP installations include:*
   -Concrete Washout Area
   -Inlet Protection
   -Seeding and Mulching
   -Surface Roughening as needed
   -Silt Fence adjustments as needed for proposed grades

3. *Final construction BMP activities:*

   BMPs to be removed in the Final phase include:

   - Concrete Washout Area
   - Silt Fence
   - Inlet Protection
   - Construction Fence
   - Stabilized Staging Area
   - Vehicle Tracking Control

III. STORMWATER QUALITY CONTROLS

A. SWMP Administrator

Name: ***TBD***
Title:
Company:
Address:
Phone:
Direct Line:
Emergency Phone:

B. Best Management Practices

The structural BMPs listed below are supported by BMP details in the GESC plan set. Descriptions of all BMPs available for use at the 7-Eleven construction site are provided below; however, not all BMPs listed below are currently proposed in the GESC plan set. These additional BMPs are provided as options should site-specific conditions warrant additional measures. If the contractor proposes to use alternative approaches or products that are not part of the details, the contractor must develop a detail or include a manufacturer's cut sheet for a manufactured product for inclusion in this report. Additionally, all changes to this SWMP Report and GESC plan set should be noted in field notes and inspection reports. Inclusion of additional details onsite or in this report shall be directly communicated to the onsite municipality erosion control inspector and may require additional approval. Major changes, including increasing the land area or hydrology of the site, will require resubmittal to the municipality for approval.

1. Structural Practices for Erosion and Sediment Control

<u>Concrete Washout Area (CWA)</u>
A concrete washout is designed to capture wastewater and waste products resulting from the cleaning of concrete and masonry equipment. A concrete washout may not be necessary if all washout operations are performed off-site. If a concrete washout is needed, it will be installed or provided prior to any construction activities that include the handling of materials containing cement (e.g., concrete, masonry). Concrete washouts may include small excavations located near the point of concrete masonry placement, geotextile bags, water tight vessels, small dumpsters, buckets, or a mobile disposal unit. Concrete washouts will be located at all stabilized staging areas and require appropriate access control, tracking control and containment. Signs will be placed at the washout area and elsewhere, as necessary, to clearly indicate the location of the concrete washout. If needed, the designated washout facility or facilities will be installed onsite and the locations added to the Site plan.

Maintenance may include the removal and proper disposal of excess material, cleaning or replacing the tracking material and general structural integrity of the installation, as needed.

Concrete washouts will be cleaned of excess water and solids on a regular basis to maintain the proper function of the BMP. The hardened concrete and/or excess wash water will be hauled away by an approved contractor to a designated facility designed to receive such materials.
No concrete waste will be discharged directly onto the ground without a containment feature. Concrete washout water will not be discharged to state surface waters or to storm sewer systems. If unlined pits are used to contain concrete washout water, the following management practices must be implemented:

- The washout site may not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands; and upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the Site to prevent onsite disposal of solid waste.

Inlet and Culvert Protection (IP)

Inlet protection consists of a barrier material placed in front, around, or immediately up gradient from an inlet or culvert to remove sediment from stormwater. The most common forms of culvert protection are sediment control logs and rock socks. Inlet and culvert protection is designed to slow stormwater flow into the inlet/culvert, allowing sediment time to settle and accumulate on the up-gradient side to the structure. Inlet and culvert protection will be installed prior to earth disturbing activity and construction vehicles/equipment moving in the vicinity of up-gradient of the inlet/culvert. If conditions warrant, protection will be provided to minimize sediment entering the inlet/culvert from above or behind the opening. Culvert protection will remain in place until all up gradient areas are stabilized and construction vehicles/equipment are not moving in the vicinity of the inlet/culvert. Inlet protection may be provided by other proprietary products, such as the “Dandy Curb Bag” or the “Dandy Bag,” or approved equivalent, if approved by the Site inspector.

Inlet and culvert protection will be inspected for damage, structural integrity, proper installation in relationship to the curb, and need for sediment removal. Maintenance includes repairing or replacing as needed; repositioning the culvert protection, and/or removing accumulated sediment.

Silt Fence (SF)

Silt fence consists of geotextile fabric installed with at least six inches of the fabric trenched into the soil with wooden stakes attached on the down-gradient side. Wire-backed fence may be used or additional stakes or lathe may be added on the up-gradient side for strengthening the fence around corners or in high wind conditions. Silt fence provides sediment control by reducing water velocity and ponding water to facilitate the deposition of sediment on the up-gradient side of the fence. Silt fence applications include, but are not limited to: project perimeter control, secondary containment, back of curb protection, and containment for any disturbed or staging area. Silt fence will be inspected regularly for sediment accumulation, tears or holes in the fabric, broken stakes, and gaps in the fabric, or areas where the fabric needs to be re-attached to the wooden stakes. Maintenance includes repairing the items noted, removing

sediment accumulation, or replacing the fence as needed. In addition to silt fences, hard armored BMPs will be required for work along the banks ditches, along with dewatering and appropriate (i.e., rated ECBs and/or riprap for waterways) stabilization. Construction phasing will determine the type of BMP installed.

Stabilized Staging Area (SSA)

A stabilized staging area is a specific location on or near the project Site for stockpiling and staging materials and equipment for use onsite. A stabilized staging area allows for a central location for deliveries and storage of equipment when not in use, and reduces disturbance of areas of the Site not scheduled for disturbance through construction activities. Stabilized staging areas generally consist of a cleared area of the Site with aggregate-stabilized or paved surfacing, a concrete washout area if required, and vehicle tracking and perimeter control (e.g., silt fence, SCL and/or construction fencing). Spill control measures will also be utilized at staging areas including spill control BMPs and spill kits. Stabilized staging areas will be inspected for adequate vehicle tracking control, perimeter control and sediment, soil or materials leaving the area. Stabilized staging areas will be repaired or modified as needed. Locations of Stabilized Staging Areas will be decided by the contractor during construction.

Vehicle Tracking Control (VTC)

Vehicle tracking control is an excavated area with a geotextile liner and coarse aggregate at construction access points. Tracking control is designed to remove soil off equipment and vehicles as they transition from disturbed soils to paved areas. Designated points of ingress and egress, where traffic transitions from a stabilized road surface (e.g., gravel or pavement) to disturbed soil, are likely to need vehicle tracking control. Tracking control may be moved or eliminated as onsite conditions and activities change. VTC is used in conjunction with construction fencing and construction markers to designate and clarify access points. Tracking control will be inspected for depth of rock, presence of excess soil, proper usage, and the overall general condition. The most common maintenance items include the removal of accumulated soil and addition of rock. Most of the project area is in close proximity to paved streets. Mud Mats or similar products may be used in limited traffic situations to minimize the potential for vehicle tracking without creating the disturbance associated with installing a rock vehicle tracking control pad and where there are space constraints. Additionally, a wheel wash may be added to the VTC for additional removal of soil. Street sweeping will be performed as necessary to minimize the potential for sediment to leave the Site.

Temporary Stockpile Management

These practices are implemented to reduce stormwater pollutants from entering storm drains and watercourses from typical soil, concrete, asphalt or aggregate stockpiles found on construction sites. Stockpiles must be protected continuously and located away from areas where stormwater flow is anticipated. Stockpiles shall be covered and protected with temporary perimeter controls.

2. Non-Structural Practices for Erosion and Sediment Control

Non-structural practices are those practices which, when implemented, will minimize erosion and sediment or other pollutant transport. Practices implemented at this Site include interim stabilization practices, good housekeeping, construction and BMP sequencing, as well as personnel training. The potential non-structural BMPs for the project are described below.

Mulching

Mulching uses hay or straw material that is machine crimped into the soil to provide stability. Crimp mulch will be used in conjunction with seeding for final stabilization. Crimp mulch functions as a soil stabilizer by decreasing the velocity of sheet flow. Mulch may be hay or cereal grain straw. Mulch will likely be crimped into the soil using either a drill seeder or notched disk plow to the minimum depth of three inches and a maximum depth of four inches. To maximize effectiveness, crimping equipment must run parallel to the contours of the land. Crimp mulch may not be appropriate for slopes with hard or rocky soil in which the crimper cannot penetrate. Inspections should look for areas where mulch is missing or thin or for areas where erosion has occurred. Maintenance items would include re-grading as necessary and reapplying as appropriate.

Seed and Stabilization (temporary and permanent ground cover)

Seeding involves the mechanical or hand application of specific seed mixes appropriate for the Site location and soil type. Seeding provides plant growth to stabilize the soil and thereby reducing the likelihood of erosion or sediment transport. As soon as practical, after the completing of construction activities, soil should be properly prepared and seeded. Seeding will be accompanied by mulching to protect the seed and soil from erosion during the germination and growth process. Seeded areas will be inspected to ensure that the soil stabilization method (e.g., crimp mulch) was applied correctly and has not been compromised. The area will also be inspected for erosion. Maintenance items would include re-seeding bare or areas of thin vegetative growth and/or adding additional BMPs as appropriate. If seeding cannot be accomplished due to seasonal or other constraints, other temporary stabilization measures will be used. The temporary stabilization will consist of 1.5 tons certified weed free forage per acre, mechanically crimped into the soil in combination with an organic mulch tackifier. This temporary stabilization will be inspected and maintained until permanent seeding is allowed.
Seeding and crimp mulching shall be performed for all areas that will not be paved, sodded, landscaped or otherwise stabilized.

Surface Roughening

Surface roughening consists of scarifying, tilling or tracking the soil surface, parallel to the slope contours, to help minimize water and wind erosion. This is a temporary soil stabilization technique that works well in areas that will remain inactive for a short time. Disturbed surfaces will be left in a roughened condition at all times by equipment tracking, scarifying or disking the surface on contour with a two to four inch minimum variation in soil surface. Surface roughening works by reducing water velocity and promoting infiltration, thus decreasing the potential for erosion to occur. This may be used on areas where scheduling prevents the

immediate implementation of final stabilization practices, the sides of stock piles or other slopes. This can be done with the teeth on a loader bucket, ripping, disking or plowing equipment. Surface roughening can also be created by running tracked equipment up and down the slope. Inspection of surface roughened areas would include proper placement and alignment to the slope, and of areas of erosion or sediment accumulation to determine effectiveness. Maintenance for surface roughening would include re-applying the technique or installation of new or additional BMPs. Surface roughening is not a stand-alone BMP and should be used in conjunction with other BMPs.

Street Sweeping

Soils deposited on paved surfaces will be swept or cleaned as needed to reduce the potential of sediment transport and tracking. Sweeping operations consist of the scraping large quantities of sediment from pavement and/or sweeping, via hand or mechanical means to remove as much deposited sediment as possible. Removing sediment may be done by physical scrapping, sweeping, and/or using a street sweeping truck. Streets within and immediately surrounding a construction Site will be cleaned of earth material when sediment has been deposited on the roadway and is being tracked off site. Scraped or swept material will not be deposited in the storm sewer. Sweeping and vacuuming may not be effective when soil is wet or muddy. Street sweeping is anticipated for this project given that there are paved streets in the vicinity. Street sweeping will be performed daily during active operations and more frequently, if needed.

Wind Erosion Control

Wind erosion and dust control may be necessary if wind is transporting soil within or off site. Wind erosion control functions to stabilize the soil surface reducing the potential for wind erosion. Wind erosion control consists of applying water and/or other dust palliatives as necessary to prevent or alleviate erosion by the forces of wind. Covering of small stockpiles or areas is an alternative to applying water or other dust palliatives. If needed, a soil tackifier can be applied to control wind erosion. Disturbed areas should be inspected for obvious signs of wind erosion and BMPs implemented, if needed. Areas with wind erosion controls in place should be inspected for integrity and coverage, and repaired or replaced as appropriate. In situations where these types of controls are necessary, applying water will be the primary source of control.

Training

Employees and contractor will be trained on good housekeeping, the proper use and storage of materials, site management practices, and erosion control BMP installation, use and maintenance.

Site Management Practices

Good housekeeping will be used to keep potential areas where pollutants exist clean and orderly. Containers, drums, and bags will be stored away from direct traffic routes to reduce the risk of accidental spills. If there are containers stored onsite, the containers will be stored on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact

with moisture on the ground and typically will be covered. Toxic or hazardous liquids will be stored within secondary containment.

Portable Sanitary Facilities

Portable sanitary facilities will be provided in convenient, level locations away from traffic areas, curb flowlines, paved surfaces, storm drains, drainage ways, or retention areas. A licensed company will be hired to maintain and clean the units, inspect for any deficiencies, and keep the units in good working order. Portable sanitary facilities will be adequately anchored to prevent tipping over, and secondary containment (such as small berms) is suggested. Portalet locations will be identified during construction and redlined on the Erosion Control Plan sheets at that time.

IV. SPILL PREVENTION

A. General Requirements

Section 208.06 (Materials Handling and Spill Prevention) of CDOT Standard Specifications, provides valuable direction for preventing, controlling, or containing spills of fuel, lubricants, or other pollutants and protecting potential pollutants from contact with precipitation or runoff.
General requirements from the CDOT specification are outlined below:

The Erosion Control Supervisor (ECS) shall clearly describe and record on the SWMP, all practices implemented at the Site to minimize impacts from procedures or significant material that could contribute pollutants runoff.

The presence of bulk storage of petroleum or other chemicals are not anticipated during this project. If bulk storage is required, bulk storage structures for petroleum products and any other chemicals shall have secondary containment or equivalent adequate protection so as to contain all spills and prevent any spilled material from entering state waters. If secondary containment is used and results in accumulation of stormwater within the containment, a plan shall be implemented to properly manage and dispose of accumulated stormwater.

The Contractor shall inspect and certify equipment and vehicles daily to ensure petroleum, oils, and lubricants (POL) are not leaking onto the soil or pavement. Absorbent material or containers shall be used to prevent leaking POL from reaching the soil or pavement to prevent impact to stormwater. The Contractor shall have on-Site approved absorbent material or containers of sufficient capacity to contain any POL leak that can reasonably be foreseen. All materials resulting from POL leakage control and cleanup shall become the property of the Contractor and shall be removed from the Site. Gravel socks shall be around POL materials shall be used for interim stabilization.

A Spill Prevention, Control and Counter measure Plan shall be developed and implemented to establish operating procedures and the necessary employee training to minimize the accidental releases of pollutants that can contaminate stormwater runoff.

B. Vehicle Fueling

The mobile refueler truck unloading procedures must meet the minimum requirements and regulations established by the Department of Transportation. The drivers must be trained to handle spills. The refueling operator should follow the procedures described below.

- The delivery hose will be equipped with a pressure relief nozzle that prevents overfilling of the motive power vehicle. At no time is this pressure relief valve to be disabled.
- The transport driver will remain on hand until delivery has been completed.
- The transfer will be constantly monitored to prevent overfilling and spilling.
- The delivery hose and lines will be checked for leaks before and during operations.
- When unloading is complete, all appropriate valves will be shut off, hoses will be disconnected, and the operator will check for leaks.
- Personnel will be aware of the storage location of spill response materials (spill kit) which will be located on the re-fueling vehicle.
- All spills must be immediately reported to the Site Emergency Contact and the SWMP Administrator.

C. Location of Spill Materials

Absorbent materials (spill kit) are stored on the re-fueling vehicle.

D. Spill during Refueling Operations

Use absorbent materials to contain the spill, as possible, and to prevent any spill material from entering the City or County storm sewer system (street stormwater inlets).

If the release poses an emergency situation, notify the fire and police departments immediately; otherwise, notify the Site Emergency Contact, who will alert the fire department if the size of the release so requires.

E. Spill Containment Protection of Stormwater Pathways

In the occurrence of a spill, all resources must be used to prevent a spill of any type (fuel, lubricants, temporary sanitary toilets, or other pollutants) from entering any storm drain and/or leaving the Site. Useful resources may include supplies in spill kits and/or the use of construction machinery to prevent a spill from reaching a storm drain. Storm drains downstream of spills must be protected in any manner available, including absorbent materials being placed around the storm drain inlet for protection. If the spill occurs on an unpaved surface, construction machinery can be used to construct an earthen berm to contain the spill before it enters the storm drains.

F. Cleanup Response

The Site Emergency Contact is responsible for coordinating cleanup of releases. If a spill cannot be controlled with absorbent materials, then other suitable measures for spill control will be made. If necessary, and depending on Site-specific constraints, heavy construction equipment will be employed to respond, in a timely manner, to prevent migration of contaminants off Site. Depending on the extent of the spill and Site conditions, follow the below outlined procedures.

1. Arrange for a contractor to remove spilled product and contaminated material
2. Cleanup the affected area
3. Place waste materials in a drum and label the drum appropriately; the Site Emergency Contact is responsible for proper disposal of the waste
4. If soil has been impacted, collect and analyze a soil sample to verify that cleanup is complete
5. Document the release
6. Replenish spill response supplies

G. Spill Reporting

Employees, contractors, and other personnel at the Site are responsible for the following as outlined below.

- If the release poses a fire risk, the Fire and Police Departments must be contacted immediately:

Donald Wescott Fire Protection District 719-488-8680 or 911

- Report spills of any size by notifying the Site Emergency Contact:

  To Be Determined

Give the above contact the following information:

- The source of the spill or release
- The material being released
- An assessment of the impact (size) of the release and potential hazards
- Do not attempt to respond to severe situations without proper training, resources or backup personnel
- The Site Emergency Contact will notify the SWMP Administrator of a spill event

A spill or overfill of a petroleum product must be reported if it is considered a harmful quantity of oil discharged to U.S. navigable waters, adjoining shorelines, or the contiguous zone. According to the EPA, a harmful quantity of discharged oil is any discharge that violates state water quality standards, causes a film or sheen on the water's surface or leaves sludge or emulsion beneath the surface. Federal reporting requirements are no longer based on the amount of oil discharged, but instead on the presence of a sheen, sludge, or emulsion. For this reason, the Discharge of Oil regulation is commonly known as the "sheen" rule. Note that a floating sheen alone is not the only quantity that triggers the reporting requirements (e.g., sludge or emulsion deposited below the surface of the water may also be reportable). If such a release occurs the Site Emergency Contact will notify the National Response Center immediately upon knowledge of such release.

- National Response Center 1-800-424-8802

Any release that has or may impact waters of the state, which includes surface water, ground water and dry gullies or storm sewers leading to surface water, no matter how small, must be reported immediately to the CDPHE. Written notification to the CDPHE must follow within five (5) days.

The CDPHE, Water Quality Control Division (the Division), issued additional guidance for reporting spills in “Guidance for Reporting Spills under the Colorado Water Quality Control Act and Colorado Discharge Permits,” Policy Number WQE-10, dated March 1, 2008 (CDPHE, 2008). A Spill Form is included in **Appendix E**. The Division identified the

following example of a spill (applicable to oil spill reporting) that is considered "non-reportable." The guidance states that spills that meet the following requirements are not required to be reported: "A spill to a generally impervious surface or structure (e.g., paved street/parking lot, storm sewer, warehouse floor, manhole, vault, concrete basement), or onto soils, that is fully contained in/on the impervious surface/structure or soils, or that is managed in a manner so that it will not reach State waters at the time of the spill or in the future. Such spills that are cleaned up within 24 hours will be considered by the Division to have no potential to reach State waters. However, even if such spills are not cleaned up within 24 hours, the responsible person may be able to "fully contain" or otherwise manage a spill such that it will not reach State waters."

- CDPHE Emergency Spill Reporting 877-518-5608

The caller must be prepared to provide the following information:

- Name, address, and telephone number of the person reporting;
- Company name and location;
- Exact location of the spill
- Date and time of the release
- Quantity, source, and material spilled
- Danger or threat posed by the discharge
- Number and types of injuries (if any)
- Weather conditions at the incident location
- Location of nearest storm drain(s)
- Proposed action for containment and clean up

V. INSPECTIONS

A. Inspections

The designated responsible party for inspections at the site will make a thorough inspection at least every 14 days to ensure the BMPs implemented on the Site are functioning as specified. In addition to every 14 days, inspections will also be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. The post-storm inspections may be used to fulfill the routine inspection requirement, and this resets the 14 day schedule. Inspections will also occur when specifically requested by the municipalities. A sample inspection form can be found in **Appendix E**.

If no construction activities will occur following a storm event, post-storm event inspections will be conducted prior to re-commencing construction activities, but no later than 48 hours following the storm event. The delayed inspection will be documented in the inspection record.

The following items will be examined for evidence of, or the potential for, pollutants leaving the construction Site boundaries, entering the stormwater drainage system, or discharging to state waters during the inspection and reported on the inspection reports: Construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and vehicle access locations.

The Inspection Report Form (**Appendix E**) must identify any incidents of non-compliance with the terms and conditions of the General Permit. The Inspection Report Form will note the potential for pollutants leaving construction site boundaries, evidence of pollutants leaving construction site boundaries, pollutants entering the stormwater drainage system, or pollutants discharging to State Waters. An example Inspection Form is located in **Appendix E**. Based in inspections, modifications will be necessary if at any time the specified BMP's do not meet requirements. The owner shall meet with the appropriate personnel to determine required modifications. All modifications shall be completed within seven days of the referenced inspection and shall be recorded in the owner's copy of the GESC Plans.

B. Maintenance

All erosion and sediment control practices and other protective measures identified in this SWMP Report will be maintained in effective operating condition in accordance with BMP typical details and the municipality's standard operating procedure, whichever is more stringent. BMPs which are not properly maintained in accordance with good engineering, hydrologic and pollution control practices are considered to be no longer operating effectively and will be modified or replaced. BMPs implemented at the site must be adequately designed and maintained to provide control for all potential pollutant sources associated with the construction activity to prevent pollution or degradation of state waters.

Maintenance of BMPs will occur anytime that the condition of the BMP or the accumulation of sediment or debris adversely impacts the functioning of the BMP.

Adequate site assessment will be performed as part of comprehensive inspection and maintenance procedures to assess the effectiveness of site BMPs and address any needed changes to the BMPs to ensure effective performance. If site inspections indicate that new BMPs are needed or BMPs need to be replaced, then BMPs will be maintained or installed according to this GESC Report. As new BMPs are installed or existing BMPs are modified, this SWMP Report will be updated as necessary. Where BMPs fail, resulting in noncompliance, they will be addressed as soon as possible to minimize the discharge of pollutants.

C. Record Keeping

This SWMP Plan will be implemented prior to the start of construction activities. The SWMP Plan will be kept accurate and up-to-date, and will reflect the onsite conditions. If this SWMP Report and the Erosion Control Plans are ineffective in controlling pollutants in stormwater discharge it will be revised. A copy of this SWMP Report will be retained at the contractor's construction office and copies will be kept onsite where active construction is taking place along the Project.

A copy of this SWMP Report will be provided upon request to any local agency in charge of approving sediment and erosion plans, grading plans or stormwater management plans, and within a timely manner. If the GESC Plan is required to be submitted to any of these entities, it must include a signed certification in accordance with the General Permit, certifying that the GESC Plan is complete and meets all permit requirements.

VI. Conclusions

A goal of this project is to perform the construction and restore the disturbed areas back to permanent stabilized surface conditions as soon as possible, either through pavement or vegetation.

All construction activities covered under this SWMP Report must meet municipality Performance Standards for erosion and sediment control work as summarized below.

1. All regulated land disturbance activities shall be conducted in such a manner as to effectively reduce accelerated soil erosion, and reduce the movement or deposition of sediment off site.
2. All regulated land disturbance activities shall be designed, constructed and completed in such a manner that disturbed land shall be exposed for a minimum period of time.
3. Soil stabilization measures shall be implemented within fourteen (14) days following completion of grading activities. Stabilization of disturbed areas adjacent to receiving waters or with slopes 3 to 1 and greater shall be completed within seven (7) days following completion of grading activities.

4. All sediment resulting from accelerated soil erosion and sediment transport shall be removed to the maximum extent practicable from storm or surface runoff prior to leaving the permitted site area and its associated points of compliance.
5. All temporary facilities for conveying water around, though, or from land disturbed by construction activity shall be designed and constructed so as to limit flows to non-erosive velocities.
6. All temporary erosion and sediment control BMPs shall be removed and locations permanently stabilized when land disturbing activities are completed.
7. Final landscape or other stabilization of disturbed land shall take place as soon as practicable upon completion of construction activity in that part of the development.
8. All construction wastes, fuel, lubricants, chemical storage, trash, or debris shall be contained onsite and protected from contact with rainfall or surface runoff.
9. All chemical wastes, sanitary waste, trash, debris, or contaminated soil shall be periodically removed from the construction site and disposed of properly.
10. Construction activities will be limited to those areas within the limits of disturbance as shown on the plans. Construction activities in addition to normal procedures will include the on-site parking of vehicles or equipment, on-site staging, haul roads, or work access and any other action which would disturb existing conditions. Off road staging areas or stockpiles must be pre-approved by the municipality. Disturbances beyond these limits will be restored to original condition.
11. The permittee will tabulate additional disturbances, locations and quantities not identified in the GESC Plan and add them to the GESC Plan.

This SWMP Report is in compliance with the provisions of the El Paso County, and meets the intent to protect waterways from construction activity erosion pollution.

VII. References

1. El Paso County Engineering Criteria Manual, January 2006 with revisions July 2016.

2. Federal Emergency Management Agency Flood Insurance Rate Map, Community Panel Number 08041C0290 F, Effective Date March 17, 1997.

3. Natural Resources Conservation Center Web Soil Survey, United States Department of Agriculture, site visited October, 2017.

4. Geotechnical Evaluation Report, Vivid Engineering Group, Inc., February 6, 2017.

VIII. Appendices

Appendix A: NRCS Soils Map
Appendix B: FEMA Map
Appendix C: Opinion of Probable Cost
Appendix D: Spill Form
Appendix E: Inspection Form
Appendix F: Seed Mix

APPENDIX A

NRCS SOILS MAP

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

El Paso County Area, Colorado

October 20, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:531 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 14, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 22, 2014—Mar 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Blendon sandy loam, 0 to 3 percent slopes	0.8	100.0%
Totals for Area of Interest		**0.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

El Paso County Area, Colorado

10—Blendon sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3671
Elevation: 6,000 to 6,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blendon and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blendon

Setting

Landform: Alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium derived from arkose

Typical profile

A - 0 to 10 inches: sandy loam
Bw - 10 to 36 inches: sandy loam
C - 36 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

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APPENDIX B

FEMA MAP

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 290 OF 1300

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0290	F
EL PASO COUNTY, UNINCORPORATED AREAS	080059	0290	F

MAP NUMBER
08041C0290 F

EFFECTIVE DATE:
MARCH 17, 1997

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

APPENDIX C

OPINION OF PROBABLE COST

2015 Financial Assurance Estimate Form

(Basic form) 1/4/2018

Project Information	
Lot 1 - Academy Gateway - 7-Eleven	**1/4/2018**
Project Name	Date

Section 1 - Grading and Erosion Control BMPs	Quantity	Units		Price			
Earthwork*	1,140.00	CY	@	$ $5	=	$ 5,700.00	*
Permanent Seeding* (inc. noxious weed management)	0.22	AC	@	$ $582	=	$ 128.04	*
Mulching*	0.22	AC	@	$ $507	=	$ 111.54	*
Permanent Erosion Control Blanket*		SY	@	$ $6	=	$	*
Temporary Erosion Control Blanket		SY	@	$ $3		$	
Vehicle Tracking Control	1.00	EA	@	$ $1,625	=	$ 1,625.00	
Safety Fence	200.00	LF	@	$ $3	=	$ 600.00	
Silt Fence	455.00	LF	@	$ $4	=	$ 1,820.00	
Temporary Seeding		AC	@	$ $485	=	$	
Temporary Mulch		AC	@	$ $507	=	$	
Erosion Bales		EA	@	$ $21	=	$	
Erosion Logs	80.00	LF	@	$ $6	=	$ 480.00	
Rock Ditch Checks		EA	@	$	=	$	
Inlet Protection	3.00	EA	@	$ $153	=	$ 459.00	
Sediment Basin		EA	@	$ $1,625	=	$	
Concrete Washout Basin	1.00	EA	@	$ $776	=	$ 776.00	
			@	$	=	$	
pecified items subject to defect warranty financial assurance							
				Section 1 Subtotal	=	$ 11,699.58	

Section 2 - Public Improvements**	Quantity	Units		Price		
- Roadway Improvements						
Construction Traffic Control		LS	@	$	=	$
Aggregate Base Course		Tons	@	$ $18	=	$
Asphalt Pavement		Tons	@	$ $65	=	$
Raised Median, Paved		SF	@	$ $7	=	$
Electrical Conduit, Size =		LF	@	$ $14	=	$
Traffic Signal, complete intersection		EA	@	$ $250,000	=	$
Regulatory Sign		EA	@	$ $100	=	$
Advisory Sign		EA	@	$ $100	=	$
Guide/Street Name Sign		EA	@	$		$
Epoxy Pavement Marking		SF	@	$ $12	=	$
Thermoplastic Pavement Marking		SF	@	$ $22	=	$
Barricade - Type 3		EA	@	$ $115	=	$
Delineator (Type I)		EA	@	$ $21	=	$
Curb and Gutter, Type C (Ramp)		LF	@	$ $21	=	$
Curb and Gutter, Type A (6" Vertical)		LF	@	$ $16	=	$
Curb and Gutter, Type B (Median)		LF	@	$ $13	=	$
Pedestrian Ramp		SY	@	$ $108	=	$

Cross Pan			SY	@	$ $53	=	$
Curb Chase			EA	@	$ $1,300	=	$
Guardrail Type 3 (W-Beam)			LF	@	$ $18	=	$
Guardrail Type 7 (Concrete)			LF	@	$ $67	=	$
Guardrail End Anchorage			EA	@	$ $1,978	=	$
Guardrail Impact Attenuator			EA	@	$ $3,564	=	$
Sound Barrier Fence			LF	@	$ $100	=	$
- Storm Drain Improvements							
Concrete Box Culvert (M Standard), Size (W x H)			LF	@	$	=	$
Reinforced Concrete Pipe (RCP)	Size		LF	@	$	=	$
18" Reinforced Concrete Pipe			LF	@	$ $69	=	$
24" Reinforced Concrete Pipe			LF	@	$ $84	=	$
30" Reinforced Concrete Pipe			LF	@	$ $94	=	$
36" Reinforced Concrete Pipe			LF	@	$ $124	=	$
42" Reinforced Concrete Pipe			LF	@	$ $134	=	$
48" Reinforced Concrete Pipe			LF	@	$ $178	=	$
54" Reinforced Concrete Pipe			LF	@	$ $182	=	$
60" Reinforced Concrete Pipe			LF	@	$ $216	=	$
66" Reinforced Concrete Pipe			LF	@	$ $263	=	$
72" Reinforced Concrete Pipe			LF	@	$ $283	=	$
Corrugated Steel Pipe (CSP)	Size		LF	@	$	=	$
18" Corrugated Steel Pipe			LF	@	$ $66	=	$
24" Corrugated Steel Pipe			LF	@	$ $96	=	$
30" Corrugated Steel Pipe			LF	@	$ $101	=	$
36" Corrugated Steel Pipe			LF	@	$ $136	=	$
42" Corrugated Steel Pipe			LF	@	$ $147	=	$
48" Corrugated Steel Pipe			LF	@	$ $169	=	$
54" Corrugated Steel Pipe			LF	@	$ $193	=	$
60" Corrugated Steel Pipe			LF	@	$ $227	=	$
66" Corrugated Steel Pipe			LF	@	$ $278	=	$
72" Corrugated Steel Pipe			LF	@	$ $330	=	$
78" Corrugated Steel Pipe			LF	@	$ $381	=	$
84" Corrugated Steel Pipe			LF	@	$ $432	=	$
Flared End Section (FES) RCP	┼		EA	@	$	=	$
Flared End Section (FES) CSP	┼		EA	@	$	=	$
End Treatment- Headwall			EA	@	$	=	$
End Treatment- Wingwall			EA	@	$	=	$
End Treatment - Cutoff Wall			EA	@	$	=	$
Curb Inlet (Type R) L=5', Depth < 5 feet			EA	@	$ $3,791	=	$
Curb Inlet (Type R) L=5', 5'-10' Depth			EA	@	$ $5,044		$
Curb Inlet (Type R) L =5' , 10'-15' Depth			EA	@	$ $6,027	=	$
Curb Inlet (Type R) L =10', Depth < 5 feet			EA	@	$ $5,528	=	$
Curb Inlet (Type R) L =10' , 5'-10' Depth			EA	@	$ $6,694	=	$
Curb Inlet (Type R) L =10' , 10'-15' Depth			EA	@	$ $7,500	=	$
Curb Inlet (Type R) L =15' , Depth < 5 feet			EA	@	$ $7,923	=	$
Curb Inlet (Type R) L =15' , 5'-10' Depth			EA	@	$ $8,000	=	$
Curb Inlet (Type R) L =15' , 10'-15' Depth			EA	@	$ $8,800	=	$
Curb Inlet (Type R) L =20' , Depth < 5 feet			EA	@	$ $8,000	=	$
Curb Inlet (Type R) L =20' , 5'-10' Depth			EA	@	$ $8,830	=	$
Curb Inlet (Type R) L =_____', __' - __' Depth			EA	@	$	=	$
Curb Inlet (Type R) L =_____', __' - __' Depth			EA	@	$	=	$

Grated Inlet (Type C), < 5' deep		EA	@	$ $3,270	=	$
Grated Inlet (Type D), < 5' deep		EA	@	$ $3,908	=	$
Storm Sewer Manhole, Box Base, Depth < 15 feet		EA	@	$ $8,592	=	$
Storm Sewer Manhole, Slab Base, Depth < 15 feet		EA	@	$ $4,575	=	$
Geotextile (Erosion Control)		SY	@	$ $5	=	$
Rip Rap, d50 Size from 6" to 24"		CY	@	$ $98	=	$
Rip Rap, Grouted		CY	@	$ $215	=	$
Drainage Channel Construction, Size (W x H)		LF	@	$	=	$
Channel Lining, Concrete		CY	@	$ $450	=	$
Channel Lining, Rip Rap		CY	@	$ $98	=	$
Channel Lining, Grass		AC	@	$ $1,287	=	$
Channel Lining, Other Stabilization		SY	@	$ $3	=	$
Detention Outlet Structure		EA	@	$	=	$
Detention Emergency Spillway		EA	@	$	=	$
Permanent Water Quality Facility (Describe)		EA	@	$	=	$
**all items this section subject to defect warranty financial assurance. ┼ For flared end sections, multiply pipe LF cost by 6				**Section 2 Subtotal**	=	$ **

Section 3 - Common Development Improvements (Private or District)***	Quantity	Units		Price		
- Roadway Improvements						
(Include any applicable items from above Public Improvements list, that are to be private and NOT maintained by El Paso County)			@	$	=	$
			@	$	=	$
			@	$	=	$
Concrete Sidewalk		SY	@	$ $38	=	$
			@	$	=	$
			@	$	=	$
- Storm Drain Improvements						
(Include any applicable items from above Public Improvements list, that are to be private and NOT maintained by El Paso County)			@	$	=	$
			@	$	=	$
			@	$	=	$
4" PVC	109.00	lf	@	$ 21	=	$ 2,289.00
6" PVC	172.00	lf	@	$ 30	=	$ 5,160.00
8" PVC	29.00	lf	@	$ 38	=	$ 1,102.00
Type R 5' Inlet, 5-10' depth	1.00	ea	@	$ 5,044	=	$ 5,044.00
5' Storm Manhole	1.00	ea	@	$ 1	=	$ 1.00
- Water System Improvements						
Water Main Pipe (PVC), Size 8"		LF	@	$ $94	=	$
Water Main Pipe (Ductile Iron), Size 8"		LF	@	$ $137	=	$
Gate Valves, 8"		EA	@	$ $1,852	=	$
Fire Hydrant Assembly w/ all valves		EA	@	$ $6,430	=	$
Water Service Line Installation, inc. tap & valves	1.00	EA	@	$ $1,253	=	$ 1,253.00
1" Water Service Line Type K Copper	247.00	LF	@	$ $25	=	$ 6,175.00
Fire Cistern Installation, complete		EA	@	$	=	$
- Sanitary Sewer Improvements						
Sewer Main Pipe (PVC), Size 8"		LF	@	$ $94	=	$
Sanitary Sewer Manhole, Depth < 15 feet		EA	@	$ $4,575	=	$
4" PVC SDR 35 Sanitary Service Line Installation	218.00	LF	@	$ 35	=	$ 7,630.00
Sanitary Sewer Lift Station, complete		EA	@	$	=	$
- Landscaping (If Applicable)						
(List landscaping line items and cost - usually only in case of subdivision specific condition of approval, or PUD)		EA	@	$	=	$
		EA	@	$	=	$
		EA	@	$	=	$
		EA	@	$	=	$
		EA	@	$	=	$
***items in this section are not subject to defect warranty financial assurance				**Section 3 Subtotal**	=	$ 28,654.00

Financial Assurance Totals		
As-built drawings - **(FILL IN IF THERE ARE ANY PUBLICLY-MAINTAINED IMPROVEMENTS)**		$
(Inc. survey to verify detention pond volumes.) **Construction Financial Assurance Total**	=	$ 40,353.58
(Sum of all Section Totals)		
Public Improvements Total* **		$ 5,939.58
Defect Warranty Financial Assurance Total	=	$ 1,187.92
(20%of Section 2 Subtotal and 20% of identified Grading and Erosion BMP items)		

Approvals

I hereby certify that this is an accurate and complete estimate of costs for the work as shown on the approved Construction Drawings associated with the Project.

Sean McIntosh, CO PE 50038 1/4/17

Engineer Date

(P.E. Seal)

Approved by Owner / Applicant Date

Approved by El Paso Couny Engineer / ECM Administrator Date

APPENDIX D

SPILL FORM

SPILL HISTORY LOG

Complete this form for any reportable spill(s) which has (have) occurred from this facility into a navigable water.

Date_____ Volume_____

Cause:

_____

_____

_____

Was soil impacted? YES ☐ NO ☐ If yes, describe surficial extent. _____

_____

_____

Was a waterway impacted? YES ☐ NO ☐ If yes, estimate volume released.

_____

Corrective Action Taken:

_____

_____

_____

Plans for Preventing Reoccurrence:

_____

_____

_____

_____

Other Comments:

_____

_____

APPENDIX E

INSPECTION FORM

GESC FIELD INSPECTION REPORT—ACTIVE CONSTRUCTION

Project Name:	Project Contractor:	Erosion Control Supervisor/SWMP Administrator:
CDPS Certification #	Inspector(s) (Name and Title):	Date of Project Inspection:

Weather at Time of Inspection:

REASON FOR INSPECTION / EXCLUSION

☐ Routine Inspection: (minimum every 14 Calendar Days)

☐ Runoff Event: (Post-storm event inspections must be conducted within 24 hours after the end of any precipitation or snowmelt event with potential to cause surface erosion).

Storm Start Date:	Approximate End Time of Storm (hrs):

Note: exclusions apply for inactive sites and winter (freezing) conditions—see CDPHE guidance permits

GESC MANAGEMENT **CURRENT CONSTRUCTION ACTIVITIES:**

	Yes	No	NA	
(a) Is the SWMP notebook located on site?				
(b) Are changes to the GESCdocuments noted and approved?				
(c) Are the inspection reports retained in the SWMP notebook?				
(d) Are corrective actions from the last inspection completed?				
(e) Is a Spill Prevention Control and Countermeasure Plan retained at the project site?				Estimate of disturbed area at the time of the inspection: _____ Acres
(f) Is a list of potential pollutants retained at the site?				

BMPs ON SITE AT TIME OF INSPECTION

	In SWMP	Used	Not Needed at this time		In **GESC**	Used	Not Needed at this time
(a) EROSION CONTROL BMPs ON SITE				**(b) SEDIMENT CONTROL BMPs ON SITE**			
Seeding	☐	☐	☐	Stabilized Const. Entrance	☐	☐	☐
Mulching/Mulch Tackifier	☐	☐	☐	Sediment Trap	☐	☐	☐
Soil Binder	☐	☐	☐	Inlet Protection	☐	☐	☐
Soil Retention Blankets	☐	☐	☐	Sediment Basin	☐	☐	☐
Embankment Protector	☐	☐	☐	Perimeter Control	☐	☐	☐
Grading Techniques	☐	☐	☐	Other:	☐	☐	☐
Berm/Diversion	☐	☐	☐	**(d) MATERIALS HANDLING, SPILL PREVENTION, WASTE MANAGEMENT AND GENERAL POLLUTION PREVENTION**			
Check Dams	☐	☐	☐				
Outlet Protection	☐	☐	☐	Stockpile Management	☐	☐	☐
Other:	☐	☐	☐	Materials Management	☐	☐	☐
(c) BMPs FOR SPECIAL CONDITIONS				Concrete Waste Management	☐	☐	☐
				Saw Water Management	☐	☐	☐
Dewatering Structure	☐	☐	☐	Solid Waste/Trash Management	☐	☐	☐
Temp. Stream Crossing	☐	☐	☐	Street Sweeping	☐	☐	☐
Clear Water Diversion	☐	☐	☐	Sanitary Facility	☐	☐	☐
Sensitive Area Fencing	☐	☐	☐	Vehicle and Equip. Management	☐	☐	☐
Other:	☐	☐	☐	Other:	☐	☐	☐

CONSTRUCTION SITE ASSESSMENT & CORRECTIVE ACTIONS **Off site Pollutant Discharges are a Violation of the Permit and Reason for Immediate Project Suspension**

The construction site perimeter, all disturbed areas, material and/or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site shall be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.

All erosion and sediment control practices identified in the SWMP shall be evaluated to ensure that they are maintained and operating correctly. Identify the condition of the BMP, using more than one letter if necessary: (**I**) Incorrect Installation; (**M**) Maintenance is needed; (**F**) BMP failed to operate; (**A**) Additional BMP is needed; (**R**) Remove BMP. Keep copies of this blank page for additional room if needed.

Continuous maintenance is required on all BMPs. **BMPs that are not operating effectively, have proven to be inadequate, or have failed must be addressed as soon as possible, immediately in most cases.**

Location	BMP	Condition	Comments: Description of Corrective Action and Preventative Measure Taken	Date Completed & Initials

CONSTRUCTION SITE ASSESSMENT:**OFF SITE POLLUTANT DISCHARGES ARE A VIOLATION OF THE PERMIT AND REASON FOR IMMEDIATE PROJECT SUSPENSION**

(a) Is there evidence of discharge of sediment or other pollutants from the site? ☐ Yes ☐ No

*If yes, explain the discharge and the corrective actions in the Construction Site Assessment & Corrective Actions section or General Notes.

(b) Has sediment or other pollutants discharging from the site reached state waters? ☐ Yes ☐ No

*If yes, review CCD and CDPHE permits, as applicable, for reporting requirements.

GENERAL NOTES

INSPECTION CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Stormwater Inspector (*Name, Title, Company & Signature*) Date:

COMPLIANCE CERTIFICATION

Corrective action(s) has been taken, or where a report does not identify any incidents requiring corrective action, the report shall contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

Erosion Control Supervisor/GESC Administrator (*Name, Title Company & Signature*) Date:

APPENDIX F

SEED MIX

Recommended El Paso County Grass Seed Mixes

Grass mix for quick revegetation – all sites:

Grass:	Variety	PLS lbs per acre
Crested Wheat Grass	Ephraim or HyCrest	4.0
Perennial Rye	Linn	2.0
Western Wheatgrass	Barton	3.0
Smooth Brome Grass	Lincoln or Manchar	5.0
Sideoats Grama	El Reno	2.5
	Total:	16.5

Grass mix for heavier soil areas:

Grass:	Variety	PLS lbs per acre
Crested Wheat Grass	Ephraim	3.0
Slender Wheat Grass	Sodar	2.5
Western Wheatgrass	Barton	5.0
Smooth Brome Grass	Lincoln or Manchar	4.0
Sideoats Grama	El Reno	3.0
	Total:	17.5

Grass mix for sandy soils:

Grass:	Variety	PLS lbs per acre
Sideoats Grama	El Reno	3.0
Western Wheatgrass	Barton	2.5
Slender Wheat Grass	Native	2.0
Little Bluestem	Pastura	2.0
Sand Dropseed	Native	0.5
Switch Grass	Nebraska 28	3.0
Weeping Love Grass	Morpha	1.0
Optional: Perennial Rye		2.0
	Total:	14-16

(From NRCS memo dated June 19, 2001)

APPENDIX G

GESC PLANS

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MAJOR SITE DEVELOPMENT PLAN

LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1

A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 12 SOUTH, RANGE 67 AND THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 12 SOUTH, RANGE 66, ALL WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, STATE OF COLORADO

GRADING QUANTITIES	
CUT*	360 CY
FILL*	205 CY
NET*	150 CY (CUT)
APPROX. PROPOSED TANK EXCAVATION** 52' X 37' X 16'	1140 CY (CUT)

* QUANTITIES ARE RAW VALUES FROM EXISTING GRADE TO FINISHED GRADE AND DO NOT ACCOMMODATE ANY PAVEMENT SECTIONS, OVEREXCAVATION OR UTILITY TRENCHING.

** QUANTITIES ARE RAW VALUES FOR APPROXIMATED PROPOSED TANK EXCAVATION VOLUME ONLY.

N

0 20 40

1 INCH = 20 FT.

LEGEND

- PROPERTY LINE
- SETBACK
- EXISTING EASEMENT LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- STREAMSIDE BUFFER OVERLAY
- MINOR CONTOUR
- MAJOR CONTOUR
- CURB AND GUTTER
- BUILDING
- MONUMENT SIGN
- HANDICAP PARKING SIGN
- 717.78 — SPOT ELEVATION
- 717.78 FL — FLOW LINE ELEVATION
- 717.78 HP — HIGH POINT
- 717.78 ME — PROPOSED GRADE TO MATCH EXISTING
- 717.78 TBC — PROPOSED GRADE AT TOP BACK OF CURB
- 717.78 FG & BW — PROPOSED GRADE AT BOTTOM OF WALL
- 5.1% — FLOW ARROW AND GRADE
- SITE LIGHT
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING STORM INLET
- EXISTING STORM GRATE
- ST — EXISTING STORM LINE\
- ADA ROUTE
- LIMITS OF DISTURBANCE FOR PROPOSED GRADING

GENERAL NOTES

1. NO WORK IS TO BEGIN UNTIL ALL PERMITS HAVE BEEN OBTAINED.
2. SEE THE SITE SURVEY FOR SURVEY INFORMATION AND LEGAL DESCRIPTION.
3. CATCH CURB AND GUTTER FLOWLINE GRADES SHALL BE A MINIMUM 0.6%.
4. ALL ADA SIDEWALKS, RAMPS AND PARKING STALLS SHALL COMPLY WITH CITY AND STATE APPLICABLE CODES AND STANDARDS WHEN POSSIBLE.
5. ALL PROPOSED STORM SEWER WILL BE PRIVATE.
6. FINAL GRADES ARE SUBJECT TO MINOR CHANGE BY CONTRACTOR. NO GRADE CHANGES IN EXCESS OF 0.05' WITHOUT ENGINEER APPROVAL.
7. ANY FILL MATERIAL REQUIRED TO BRING THE SITE TO GRADE SHALL BE CLEAN FILL APPROVED BY GEOTECHNICAL ENGINEER. SEE "SOIL PREPARATION NOTE" ON COVERS SHEET.
8. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING DEPOSITION OF ONSITE SEDIMENTS ONTO SURROUNDING PUBLIC STREETS DURING CONSTRUCTION.
9. GRADES SHOWN ARE FLOWLINE UNLESS OTHERWISE NOTED.
10. RETAINING WALL MAXIMUM HEIGHT IS FROM FINISHED GRADE TO TOP OF WALL TO FINISHED GRADE AT BOTTOM OF WALL AND DOES NOT INCORPORATE FOOTING DEPTH OR WALL HEIGHT ABOVE FINISHED REFER TO MANUFACTURERS SPECIFICATIONS FOR WALL DESIGN AND FULL HEIGHT OF WALL.
11. EROSION CONTROL BLANKET TO BE INSTALLED ON ALL SLOPES STEEPER THAN 4:1.
12. CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT (PCD) AND A PRECONSTRUCTION CONFERENCE IS HELD WITH PCD INSPECTORS,

ENGINEER'S STATEMENT

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS, OR OMISSIONS ON MY PART IN PREPARING THIS REPORT.

NAME DATE

OWNER'S STATEMENT

THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

NAME DATE

EL PASO COUNTY

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA AND ENGINEERING CRITERIA MANUAL AS AMENDED.

COUNTY ENGINEER / DIRECTOR DATE

COUNTY PROJECT NUMBER PPR-17-058

811 Know what's below. Call before you dig.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

1-800-922-1987 or 811

CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

No.	REVISION	BY	DATE
1	EL PASO COUNTY RESUBMITTAL	SPM	01/01/18

PRELIMINARY NOT FOR CONSTRUCTION

EES
ENTITLEMENT AND ENGINEERING SOLUTIONS, INC.
518 17th Street
Suite 1576
Denver, CO 80202
www.ees.co.com
303-572-7997

DEVELOPMENT PLAN
7-ELEVEN
LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
GRADING PLAN

PROJECT NO:	7EL024.01
DESIGNED BY:	SPM
DRAWN BY:	LER
DATE:	12/04/17

C2.0

SHEET 3 OF 16

1/12/2018 2:10 PM P:\7-ELEVEN\CO, EL PASO COUNTY NORTHGATE AND STRUTHERS 103307\08 CAD\C2.0 GRADING PLAN.DWG

MAJOR SITE DEVELOPMENT PLAN

LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 12 SOUTH, RANGE 67 AND THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 12 SOUTH, RANGE 66, ALL WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, STATE OF COLORADO

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DETAIL 1

0 10 20

1 INCH = 10 FT.

DETAIL 2

0 10 20

1 INCH = 10 FT.

DETAIL 4

0 10 20

1 INCH = 10 FT.

KEYMAP

0 40 80

1 INCH = 40 FT.

DETAIL 3

0 10 20

1 INCH = 10 FT.

LEGEND

- PROPERTY LINE
- SETBACK
- EXISTING EASEMENT LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- STREAMSIDE BUFFER OVERLAY
- MINOR CONTOUR
- MAJOR CONTOUR
- CURB AND GUTTER
- BUILDING
- MONUMENT SIGN
- HANDICAP PARKING SIGN
- 717.78 — SPOT ELEVATION
- 717.78 — FLOW LINE ELEVATION
- 717.78 FL — HIGH POINT
- 717.78 HP — PROPOSED GRADE TO MATCH EXISTING
- 717.78 ME — PROPOSED GRADE AT TOP BACK OF CURB
- 717.78 TBC — PROPOSED GRADE AT BOTTOM OF WALL
- 717.78 FG & BW — FLOW ARROW AND GRADE
- 5.1% — SITE LIGHT
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING STORM INLET
- EXISTING STORM GRATE
- ST — EXISTING STORM LINE

GENERAL NOTES

1. NO WORK IS TO BEGIN UNTIL ALL PERMITS HAVE BEEN OBTAINED.
2. SEE THE SITE SURVEY FOR SURVEY INFORMATION AND LEGAL DESCRIPTION.
3. CATCH CURB AND GUTTER FLOWLINE GRADES SHALL BE A MINIMUM 0.6%.
4. ALL ADA SIDEWALKS, RAMPS AND PARKING STALLS SHALL COMPLY WITH CITY AND STATE APPLICABLE CODES AND STANDARDS WHEN POSSIBLE.
5. ALL PROPOSED STORM SEWER WILL BE PRIVATE.
6. FINAL GRADES ARE SUBJECT TO MINOR CHANGE BY CONTRACTOR. NO GRADE CHANGES IN EXCESS OF 0.05' WITHOUT ENGINEER APPROVAL.
7. ANY FILL MATERIAL REQUIRED TO BRING THE SITE TO GRADE SHALL BE CLEAN FILL APPROVED BY GEOTECHNICAL ENGINEER. SEE "SOIL PREPARATION NOTE" ON COVERS SHEET.
8. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MINIMIZING DEPOSITION OF ONSITE SEDIMENTS ONTO SURROUNDING PUBLIC STREETS DURING CONSTRUCTION.
9. GRADES SHOWN ARE FLOWLINE UNLESS OTHERWISE NOTED.
10. RETAINING WALL MAXIMUM HEIGHT IS FROM FINISHED GRADE TO TOP OF WALL TO FINISHED GRADE AT BOTTOM OF WALL AND DOES NOT INCORPORATE FOOTING DEPTH OR WALL HEIGHT ABOVE FINISHED REFER TO MANUFACTURERS SPECIFICATIONS FOR WALL DESIGN AND FULL HEIGHT OF WALL.
11. EROSION CONTROL BLANKET TO BE INSTALLED ON ALL SLOPES STEEPER THAN 4:1.

COUNTY PROJECT NUMBER PPR-17-058

811 Know what's below. Call before you dig.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987 or 811
CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

No.	REVISION	BY	DATE
1	EL PASO COUNTY RESUBMITTAL	SPM	01/01/18

PRELIMINARY NOT FOR CONSTRUCTION

EES
ENTITLEMENT AND ENGINEERING SOLUTIONS, INC.
518 17th Street
Suite 1576
Denver, CO 80202
Voice: 303-572-7997

DEVELOPMENT PLAN
7-ELEVEN
LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
GRADING ENLARGEMENT PLAN

PROJECT NO:	7EL024.01
DESIGNED BY:	SPM
DRAWN BY:	LER
DATE:	12/04/17

C2.1
SHEET 4 OF 16

1/12/2018 2:11 PM P:\7-ELEVEN\CO, EL PASO COUNTY NORTHGATE AND STRUTHERS 103907\908 CAD\C2.1 GRADING ENLARGEMENT PLAN.DWG

MAJOR SITE DEVELOPMENT PLAN

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A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 12 SOUTH, RANGE 67 AND THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 12 SOUTH, RANGE 66, ALL WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, STATE OF COLORADO

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VICINITY MAP
1"= 500'

N

0 20 40
1 INCH = 20 FT.

LEGEND

	PROPERTY LINE
	SETBACK
	EXISTING EASEMENT LINE
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	MINOR CONTOUR
	MAJOR CONTOUR
	STREAMSIDE BUFFER OVERLAY
	BUILDING
	CURB AND GUTTER
	PVC STORM SEWER
	EXISTING FIRE HYDRANT
ST	EXISTING STORM LINE
SS	EXISTING SANITARY MANHOLE
	EXISTING STORM INLET
	EXISTING STORM GRATE
SF	SILT FENCE
CWA	CONCRETE WASHOUT AREA
SSA	STABILIZED STAGING AREA
VTC	VEHICLE TRACKING CONTROL
SM	SEEDING MULCHING
LOC	LIMIT OF CONSTRUCTION
CF	CONSTRUCTION FENCE
IP	PROPOSED INLET PROTECTION
CS	PROPOSED CURB SOCK
	PROPOSED FLOW ARROW

GENERAL NOTES

1. SEE THE SITE SURVEY FOR SURVEY INFORMATION AND LEGAL DESCRIPTION.
2. THERE ARE NO USES WITHIN THE 7-ELEVEN PROJECT THAT UTILIZE OR GENERATE ANY SIGNIFICANT QUANTITIES OF TOXIC MATERIAL.
3. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS FOR ANY OFF-SITE CONSTRUCTION ACTIVITY.
4. THE SITE IS MASS GRADED WITH NO EXISTING VEGETATION.

811 Know what's below. Call before you dig.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987 or 811
CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

COUNTY PROJECT NUMBER PPR-17-058

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1	EL PASO COUNTY RESUBMITTAL	SPM	01/01/18

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DEVELOPMENT PLAN
7-ELEVEN
LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
EROSION CONTROL PLAN

PROJECT NO:	7EL024.01
DESIGNED BY:	SPM
DRAWN BY:	LER
DATE:	12/04/17

C3.0
SHEET 6 OF 16

1/12/2018 2:11 PM P:\7-ELEVEN\CO, EL PASO COUNTY NORTHGATE AND STRUTHERS 103007908 CAD\C3.1 EROSION CONTROL PLAN.DWG

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A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 12 SOUTH, RANGE 67 AND THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 12 SOUTH, RANGE 66, ALL WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, STATE OF COLORADO

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF SITE WATERS, INCLUDING WETLANDS.

2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.

3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORMWATER MANAGER, SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.

4. ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON THE GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY DSD INSPECTIONS STAFF.

5. SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 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. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.

6. TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO STANDARDS AND SPECIFICATION PRESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.

7. 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 (DCM) VOLUME II AND IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SWMP).

8. 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 PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.

9. ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME.

10. 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.

11. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.

12. EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.

13. 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. BMP'S MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.

14. VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.

15. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.

16. 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.

17. 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.

18. NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.

19. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.

20. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.

21. INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

22. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.

23. PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.

24. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.

25. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY VIVID ENGINEERING GROUP AND SHALL BE CONSIDERED A PART OF THESE PLANS.

26. AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 1 ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

CONCRETE WASHOUT AREA PLAN

SECTION A

CWA–1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
–CWA INSTALLATION LOCATION.

2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.

3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.

4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.

5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.

6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.

7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.

8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

CWA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

5. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER–TIGHT CONTAINER AND DISPOSED OF PROPERLY.

6. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

7. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD).

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

IP–1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

2. CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW, ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.

3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR ¼ OF THE HEIGHT FOR STRAW BALES.

5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.

6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION; HOWEVER, IN THE EVENT PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE SWMP AND THE BMP MUST BE INSTALLED AND MAINTAINED AS SHOWN IN THE MANUFACTURER'S DETAILS.

NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
–LOCATION OF STAGING AREA(S).
–CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE–ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

SECTION A

VTC–1. AGGREGATE VEHICLE TRACKING CONTROL

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR
–LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
–TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT–OF–WAYS.

4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON–WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.

6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

COUNTY PROJECT NUMBER PPR-17-058

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987 or 811
CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.
Know what's below. Call before you dig.

No.	REVISION	BY	DATE
1	EL PASO COUNTY RESUBMITTAL	SPM	01/01/18

PRELIMINARY NOT FOR CONSTRUCTION

EES
ENTITLEMENT AND ENGINEERING SOLUTIONS, INC.
518 17th Street
Suite 1576
Denver, CO 80202
Voice: 720.602.4309
303-572-7997

DEVELOPMENT PLAN
7-ELEVEN
LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
EROSION CONTROL NOTES & DETAILS

PROJECT NO:	7EL024.01
DESIGNED BY:	SPM
DRAWN BY:	LER
DATE:	12/04/17

C3.1
SHEET 7 OF 16

1/12/2018 2:11 PM P:\7-ELEVEN\CO, EL PASO COUNTY NORTHGATE AND STRUTHERS 103907908 CAD\C3.0 EROSION CONTROL NOTES.DWG

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MAJOR SITE DEVELOPMENT PLAN

LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
A SUBDIVISION OF A PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 12 SOUTH, RANGE 67 AND THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 12 SOUTH, RANGE 66, ALL WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, STATE OF COLORADO

SILT FENCE

SECTION A

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Temporary and Permanent Seeding (TS/PS) EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species[a] (Common name)	Growth Season[b]	Pounds of Pure Live Seed (PLS)/acre[c]	Planting Depth (inches)
1. Oats	Cool	35 - 50	1 - 2
2. Spring wheat	Cool	25 - 35	1 - 2
3. Spring barley	Cool	25 - 35	1 - 2
4. Annual ryegrass	Cool	10 - 15	½
5. Millet	Warm	3 - 15	½ - ¾
6. Sudangrass	Warm	5–10	½ - ¾
7. Sorghum	Warm	5–10	½ - ¾
8. Winter wheat	Cool	20–35	1 - 2
9. Winter barley	Cool	20–35	1 - 2
10. Winter rye	Cool	20–35	1 - 2
11. Triticale	Cool	25–40	1 - 2

[a] Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or mowed closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

[b] See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

[c] Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common[a] Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alakali Soil Seed Mix					
Alkali sacaton	*Sporobolus airoides*	Cool	Bunch	1,750,000	0.25
Basin wildrye	*Elymus cinereus*	Cool	Bunch	165,000	2.5
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Jose tall wheatgrass	*Agropyron elongatum 'Jose'*	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.75**
Fertile Loamy Soil Seed Mix					
Ephriam crested wheatgrass	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	2.0
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Sodar streambank wheatgrass	*Agropyron riparium 'Sodar'*	Cool	Sod	170,000	2.5
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	7.0
Total					**15.5**
High Water Table Soil Seed Mix					
Meadow foxtail	*Alopecurus pratensis*	Cool	Sod	900,000	0.5
Redtop	*Agrostis alba*	Warm	Open sod	5,000,000	0.25
Reed canarygrass	*Phalaris arundinacea*	Cool	Sod	68,000	0.5
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Pathfinder switchgrass	*Panicum virgatum 'Pathfinder'*	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	*Agropyron elongatum 'Alkar'*	Cool	Bunch	79,000	5.5
Total					**10.75**
Transition Turf Seed Mix[d]					
Ruebens Canadian bluegrass	*Poa compressa 'Ruebens'*	Cool	Sod	2,500,000	0.5
Dural hard fescue	*Festuca ovina 'duriuscula'*	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	*Lolium perenne 'Citation'*	Cool	Sod	247,000	3.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Total					**7.5**

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season[b]	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	*Bouteloua gracilis*	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	*Schizachyrium scoparium 'Camper'*	Warm	Bunch	240,000	1.0
Prairie sandreed	*Calamovilfa longifolia*	Warm	Open sod	274,000	1.0
Sand dropseed	*Sporobolus cryptandrus*	Cool	Bunch	5,298,000	0.25
Vaughn sideoats grama	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**10.25**
Heavy Clay, Rocky Foothill Seed Mix					
Ephriam crested wheatgrass[d]	*Agropyron cristatum 'Ephriam'*	Cool	Sod	175,000	1.5
Oahe Intermediate wheatgrass	*Agropyron intermedium 'Oahe'*	Cool	Sod	115,000	5.5
Vaughn sideoats grama[e]	*Bouteloua curtipendula 'Vaughn'*	Warm	Sod	191,000	2.0
Lincoln smooth brome	*Bromus inermis leyss 'Lincoln'*	Cool	Sod	130,000	3.0
Arriba western wheatgrass	*Agropyron smithii 'Arriba'*	Cool	Sod	110,000	5.5
Total					**17.5**

[a] All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

[b] See Table TS/PS-3 for seeding dates.

[c] If site is to be irrigated, the transition turf seed rates should be doubled.

[d] Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

[e] Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

EC-2 Temporary and Permanent Seeding (TS/PS)

SM

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
Seeding Dates	**Warm**	**Cool**	**Warm**	**Cool**
January 1–March 15			✓	✓
March 16–April 30	4	1,2,3	✓	✓
May 1–May 15	4		✓	
May 16–June 30	4,5,6,7			
July 1–July 15	5,6,7			
July 16–August 31				
September 1–September 30		8,9,10,11		
October 1–December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

CS

CURB SOCK INLET PROTECTION
NTS

CURB SOCK INLET PROTECTION NOTES

INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.

2. SOCK IS TO BE MADE OF 1/4 INCH WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

3. WASHED SAND OR GRAVEL 3/4 INCH TO 4 INCHES IN DIAMETER IS PLACED INSIDE THE SOCK.

4. PLACEMENT OF THE SOCK IS TO BE 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.

5. SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED AT A MINIMUM 5 FEET APART.

6. AT LEAST 2 CURB SOCKS IN SERIES IS REQUIRED.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS NO RAINFALL.

2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.

3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE SOCK WHEN GUTTER WIDTH IS FILLED.

4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE CITY.

COUNTY PROJECT NUMBER PPR-17-058

CALL UTILITY NOTIFICATION CENTER OF COLORADO
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CALL 3-BUSINESS DAYS (NOT INCLUDING INITIAL DAY OF CONTACT) IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.
811 Know what's below. Call before you dig.

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518 17th Street
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Denver, CO 80202
www.ees.co.com
303-572-7997

DEVELOPMENT PLAN
7-ELEVEN
LOT 1 ACADEMY GATEWAY SUBDIVISION FILING NO. 1
EROSION CONTROL DETAILS

PROJECT NO:	7EL024.01
DESIGNED BY:	SPM
DRAWN BY:	LER
DATE:	12/04/17

C3.2
SHEET 8 OF 16

1/12/2018 2:11 PM P:\7-ELEVEN\CO, EL PASO COUNTY NORTHGATE AND STRUTHERS 103907908 CAD\C3.2 EROSION CONTROL DETAILS.DWG