

# APPALOOSA HWY 24 SUBDIVISION FILING NO. 1A, LOT 2

## GRADING, EROSION CONTROL AND STORMWATER QUALITY REPORT

### PREPARED BY

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EPC Planning & Community  
Development Department



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## PROJECT DESCRIPTION

This proposed project is contained within a new subdivision named the Appaloosa Hwy 24 Subdivision, Filing No. 1A Lot 2. This currently vacant lot consists of 1.008 acres. It will be developed as light industrial lots. It is located in Sections 7, Township 14 South, Range 65 West of the Sixth Principal Meridian, County of El Paso, State of Colorado. The site is located north of Hwy 24, east of Amelia Street and south of Terminal Avenue.

The proposed site is located within the Sand Creek Drainage Basin and flows into the East Fork of Sand Creek. The flows from this area travel in a southwesterly direction and into an existing 4'x4' concrete box culvert located under Hwy 24 at the southwest corner of the site.

## SITE DESCRIPTION

### Existing Site Conditions

The existing site is undeveloped and covered in Rangeland grasses with approximately 90% coverage. The site slopes in a southwest direction with slopes that range from 1% to 2.0%.

### Soils

The Soil Conservation Service (NRCS) soil survey for El Paso County has identified the type in this study area as a Truckton Sandy Loam which belongs to a hydrologic soil Group B. It has an Erosion Factor of 0.10 and a 'T' value of 5.

## EROSION AND SEDIMENT CONTROL CRITERIA

### Areas and Volumes

The proposed Lot 2 is part of the overall Appaloosa Hwy 24 Subdivision development. As part of the initial overall subdivision the following work will have been completed:

- minor grading to install a swale along the proposed east-west property line
- a new storm sewer along the west property line
- a proposed 0.656 ac. ft. Extended Detention Basin (EDB)

The future site imperiousness will increase from 0 to 70% and the runoff coefficient for the 100 year storm will increase from 0.35 to 0.62.

Improvements shall include the construction of a 10,800 sf building, asphalt parking, gravel storage on the east side of the building and perimeter landscaping. The total area of disturbance shall be approximately 0.98 acres. Construction activities shall consist of clearing, grubbing and grading for the new development. Approximately 300 cubic yards of cut and fill shall be moved. Disturbed and exposed areas of the site shall be seeded and mulched if construction activities cease for more than 30 consecutive days.

### Erosion and Sediment Control Measures

Erosion control and sediment prevention measures describe a wide range of management procedures, schedules of activities, prohibitions on practices, and other best management practices (BMP). BMPs also include operating procedures, treatment requirements and practices to control site runoff, drainage from materials storage, spills or leaks. Structural practices for this site include silt fences, straw bales, inlet protection, and vehicular tracking control. Erosion matting may be required on unstable slopes, if directed by the engineer. General descriptions of the BMPs to be used during the construction of this project are listed below. See the Erosion

Control Plans for the specific type and location of each erosion and sediment control device required for this project.

### **Initial Stage**

These BMPs shall be installed at the outset of construction, prior to the initial pre-construction meeting and any other land-disturbing activities. Initial controls are to be placed on existing grades but shall be based in part on proposed grading operations. The initial stage includes clearing, grubbing, overlot grading, and utility and other construction prior to paving operations.

### **Temporary Stabilization**

Disturbed areas will be temporarily stabilized as soon as construction activities are completed. Seeding will be applied to completed areas within 14 days of completion.

### **Vehicle Tracking Control**

A vehicle tracking control device will be installed at the construction entrance where the construction entrance intersects an existing paved private roadway.

### **Silt Fence**

Prior to the start of construction, silt fence will be installed along the perimeter of all disturbed areas that are within the project site. Silt fence shall be placed as indicated on the plan drawing. Sediment shall be removed when depth exceeds one-fourth the height of the silt fence. The engineer may require additional silt fence as necessary to retard sediment transport on or off the project site.

### **Outlet Protection**

Outlet protection at the water quality basin on the site will be provided to prevent erosion and scour of the water quality basin area by the concentrated flows gathered by the storm sewer system both during and after construction.

### **Non-Structural Practices**

Upon completion of the grading, temporary seeding and mulching will be applied to all disturbed areas on and adjacent to the site. All seeding, fertilizers, and mulching shall conform to *El Paso County Engineering Criteria Manual*.

### **Construction Timing**

The site will be graded to accommodate the proposed redevelopment items delineated previously. This project will be constructed in a single phase. Once construction begins, it will continue until the project is complete; therefore, construction phasing will not be necessary. The construction process will consist of grading (excavation and fill) activities, installation of utilities, paving, concrete placement, landscaping, and building construction. The general sequence for major construction activities will be as follows:

- Establish limits of disturbance
- Install vehicle tracking control (VTC)
- Install silt fence
- Install Portable Toilet
- Clear and grub the site
- Excavation and fill placement
- Install drainage improvements

- Install permanent landscaping
- Remove BMPs

To be fully effective, erosion and sediment control measures must be installed and phased with the construction activities. The vehicular tracking control device shall be installed at the entrance prior to the mobilization of construction equipment on-site. Prior to the clearing and grubbing of the entire construction area, localized clearing shall be performed for the placement of perimeter erosion control measures. Site clearing shall commence only after the perimeter erosion control measures are in place. Erosion control devices must be in place to reduce the potential of eroded excavated material entering the storm drainage system. Protection devices shall be placed during grading activities, in the appropriate areas, as indicated on the plan drawing that is located in the Appendix.

Anticipated starting and completion date: June 1, 2019 to August 1, 2019

Expected date on which the final stabilization will be completed: September 1, 2019

### **Permanent Stabilization**

Disturbed areas shall be permanently stabilized as soon as construction activities are completed. Viable vegetative cover shall be established no later than one year from disturbance. Areas to be revegetated shall be treated with soil amendments to provide an adequate grown medium to sustain vegetation and shall match the existing 70 percent pre-disturbed vegetation cover.

The seedbed shall be well settled and firm, but friable enough that seed can be placed at the seeding depth specified. The seedbed shall be reasonably free of weeds. Soils that have been over-compacted by traffic or equipment, especially when wet, shall be tilled to break up rooting restrictive layers and then harrowed, rolled, or packed to prepare the required firm seedbed. Mulch shall be applied at a rate of two and one-half (2 ½) tons per acre and shall be spread uniformly, in a continuous blanket, after seeding is complete. Mulch shall be clean, weed and seed free, long-stemmed grass or hay, or long-stemmed straw of oats, wheat, or rye. At least 50 percent of mulch, by weight, shall be ten inches or longer. Mulch shall be spread by hand or blower-type mulch spreader. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slope and continued uniformly until the area is covered. The mulch shall not be bunched. Immediately following spreading, the mulch shall be anchored to the soil by a v-type wheel land packer or scalloped-disk land packer designed to force mulch into the soil surface a minimum of three inches. All seeded areas shall be mulched after seeding on the same day as the seeding. The type of seed mix used for permanent vegetation shall utilize perennial grasses as delineated on the plans.

### **Stormwater Management**

All developed stormwater will be routed through the EDB facilities to provide stormwater quality as delineated on the drawings.

### **Maintenance**

All temporary and permanent erosion and sediment control practices shall be maintained and repaired as needed by the contractor throughout the duration of construction to assure that each BMP will function as intended. As required by the stormwater discharge permit, a weekly inspection of these items will be performed. In addition, all facilities must be inspected by the owner or the owner's representative following each heavy precipitation or snowmelt event that results in runoff, with maintenance occurring immediately after discovering a need.

Silt fence may require periodic replacement. All sediment accumulated behind the silt fence must be removed and disposed of properly when depth exceeds one-fourth the height of the silt fence. On-site construction traffic will be monitored to minimize the transport of sediment onto the proposed on-site streets, as well as onto adjacent city streets. The Owner, Site Developer, Contractor, and/or their authorized agents shall prevent loss of cut and fill material being transported to and from the site by taking appropriate measures. All mud and sediment tracked onto public streets shall be cleaned immediately. Road cleaning includes shoveling and sweeping activities.

Diversion ditches shall be kept clean and functional during construction. They shall be routinely checked on a weekly basis and cleaned if the height of sedimentation exceeds one-half its depth.

Inlet/outlet protection shall be inspected to ensure proper operation. Excess debris or sediment must be removed prior to final acceptance of the project.

The temporary sedimentation pond shall remain in place until such time as the major grading operations in the area are completed and the ground stabilized by either temporary or permanent measures. The ponds will be cleaned out periodically with depth of sediment at no time allowed to accumulate more than one-half the depth of the facility.

## Cost

An engineer's cost estimate for the anticipated erosion and sediment control items for the entire site are listed below:

Section 1 – Grading & Erosion Control BMPs	Quantity	Units	Price	Total
Earthwork*	300	CY	\$5	\$1,500.00
Permanent Seeding	0.3	AC	\$582	\$ 174.60
Mulching	0.3	AC	\$507	\$ 152.10
Inlet Protection	1	EA	\$153	\$ 153.00
Vehicle Tracking Control	1	EA	\$1,625	\$ 1,625.00
Silt Fence	410	LF	\$4	\$1,640.00
Straw Bale Barriers	6	EA	\$21	\$126.00
<b>TOTAL EROSION &amp; SEDIMENT CONTROL COST</b>				<b>\$5,370.70</b>

\*Private

## STORMWATER MANAGEMENT

### Stormwater Management

Stormwater quality shall be protected and preserved throughout the life of this development. During mass grading and construction, measures such as sediment fences, straw bales, and vehicle tracking control shall be used to minimize erosion and sedimentation on site. During construction, the proposed extended detention basin shall function as a temporary sediment basin to reduce the potential for sediment leaving this development. Temporary diversion dikes shall be constructed to transport runoff that may contain sediment to the temporary sediment basin located on site until a stormwater system is installed. After various stages of the construction, when applicable, temporary or permanent erosion control stabilization shall be installed and maintained (landscaping, seeding, mulching, etc.).

Should revisions to this SWMP plan be required, the developer shall contact the design engineer for approval of those revisions prior to implementation.

## **Potential Pollution Sources**

Materials are sometimes used at the construction site that present a potential for contamination of stormwater runoff. These include sediment, equipment/vehicle washing, vehicle maintenance and fueling, petroleum products, paint, solvents, treated wood products, asphalt (bituminous) paving, concrete, concrete-curing compounds, metal, waste storage and disposal and other liquid chemicals such as fertilizers, herbicides, and pesticides. Practices that can be used to prevent or minimize toxic materials in runoff from a construction site are described in this section.

Areas at the construction site that are used for storage of toxic materials and petroleum products shall be designed with an enclosure, container, or dike located around the perimeter of the storage area to prevent discharge of these materials in runoff from the construction site. These barriers shall also function to contain spilled materials from contact with surface runoff. Proposed locations for storage of toxic materials have not been determined at the time of this report. Locations shall depend upon construction phasing.

Measures to prevent spills or leaks of fuel, gear oil, lubricants, antifreeze, and other fluids from construction vehicles and heavy equipment shall be considered to protect groundwater and runoff quality. All equipment maintenance shall be performed in designated areas and shall use spill control measures, such as drip pans, to contain petroleum products. Spills of construction-related materials, such as paints, solvents, or other fluids and chemicals, shall be cleaned up immediately and disposed of properly.

Trash receptacles shall be provided and kept clean as required to keep the site clean of trash. In addition, portable toilets shall be provided for all workers on the site during construction. All portable toilet facilities shall be located at least three feet from curb flow lines and paved surfaces. The facilities shall be stationed on ground and secured down to prevent tipping.

Potable water is anticipated as a non-stormwater discharge. Potable water shall be used for grading, dust control, and irrigation of erosion control and permanent landscaping. An effort shall be made to use only the amount of potable water required for these operations.

No batch plants are proposed for this development.

## **Owner Inspection and Maintenance of Constructed BMPs**

All inspection logs will include signatures on the logs and be kept on site at all times along with other SWMP records during construction.

1. **Minimum Inspection Schedule.** The permittee shall, at a minimum, make a thorough inspection at least once every 14 calendar days. Also, post-storm event inspections shall be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections shall be used to fulfill the 14-day routine inspection requirement. A more frequent inspection schedule than the minimum inspections described may be necessary to ensure that BMPs continue to operate as needed to comply with the permit.

- 1.1. **Post-Storm Event Inspections at Temporarily Idle Sites.** If no construction activities will occur following a storm event, post-storm event inspections shall be conducted prior to re-

commencing construction activities, but no later than 72 hours following the storm event. The occurrence of any such delayed inspection must be documented in the inspection record. Routine inspections still must be conducted at least every 14 calendar days.

- 1.2. ***Inspections at Completed Sites/Areas.*** For sites, or portions of sites, that meet the following criteria; but final stabilization has not been achieved due to a vegetative cover that has not become established, the permittee shall make a thorough inspection of their stormwater management system at least once every month. Post-storm event inspections are not required. This reduced inspection schedule is only allowed if:

1.2.1.all construction activities that will result in surface ground disturbance are completed;

1.2.2.all activities required for final stabilization in accordance with the Grading and Erosion Control/Stormwater Quality Plan have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and

1.2.3.the Grading and Erosion Control/Stormwater Quality Plan has been amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this section.

- 1.3. ***Winter Conditions Inspections Exclusion.*** No changes are expected for winter work.

- 1.4. ***Record Keeping and Documenting Inspection:***

Contractor shall maintain records of aa inspection reports, including signed inspection logs, at the project site.

Permittee shall document inspection results and maintain a record of the results for a period of 3 years following expiration or inactivation of permit coverage.

Site inspection records shall include the following:

Inspection Date

Name and title of personnel making the inspection

Location of discharges of sediment or other pollutants from the site

Location(s) of BMP's that need to be maintained

Location(s) of BMP's that failed to operate as designed or proved inadequate for a particular location

Location(s) where additional BMP's are needed that were not in place at the time of inspection

Deviations from the minimum inspection schedule



## CONCLUSION

This SWMP Report and the Best Management Practices (BMPs) specified on the Erosion Control Plans have been designed to reduce any adverse impacts the construction of this project might have on the surrounding properties. If properly installed and maintained, the design shall protect the quality of the stormwater runoff that is released from this development.

All temporary erosion and sediment control measures shall be removed and disposed of within thirty (30) days after final site stabilization is achieved, or after temporary measures are no longer needed, whichever occurs earliest, or as authorized by the local governing jurisdiction.

Temporary erosion control measures may be removed only after streets and drives are paved, and all disturbed areas have been stabilized. Trapped sediment and disturbed soil areas resulting from the disposal of temporary measures must be returned to final plan grades and permanently stabilized to prevent additional soil erosion.

Final stabilization is reached when all soil disturbing activities at the site have been completed, and uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbance levels; or equivalent permanent, physical erosion reduction methods have been employed.

### Compliance with Standards

This report was prepared in accordance with the procedures and concepts outlined in the *El Paso County Engineering Criteria Manual*.

## REFERENCES

- *City of Colorado Springs Drainage Criteria Manual*, Volume 2, including Addendums I and II.
- *El Paso County Engineering Criteria Manual*.

## **APPENDIX A**

### Vicinity Map Grading and Erosion Control Plans

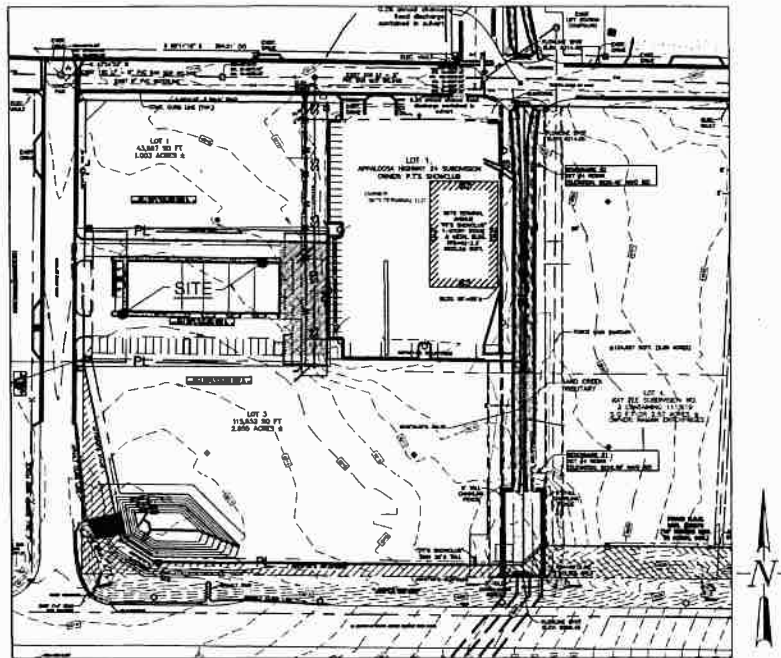
NAME: M:\LAND PROJECTS\201803437-APPALOOSA HWY 24, LOT 2\DWG\CONSTRUCTION\03437-CONST.DWG  
PLOT DATE: August 8, 2019 12:31 PM BY: MIKE BARTUSEK

### STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT (PCD) AND A PRE-CONSTRUCTION CONFERENCE IS HELD WITH PCD INSPECTIONS
- STORM-WATER 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
- 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 FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING
- A SEPARATE STORM WATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORM-WATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORM-WATER MANAGER, SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD
- ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE GEC. A PRE-CONSTRUCTION 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 PCD INSPECTIONS STAFF.
- 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
- 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
- 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 STORM-WATER MANAGEMENT PLAN (SWMP).
- 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
- 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
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORM-WATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY
- 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
- EROSION CONTROL BLANKETING SHALL BE USED ON SLOPES STEEPER THAN 3:1
- BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. BMPs MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES
- VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY
- 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
- 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 STORM-WATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT
- 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
- NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORM-WATER 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
- 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
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORM-WATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCH-LINE
- 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
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS
- PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND
- THE SOILS REPORT FOR THIS SITE WAS BEEN PREPARED BY RMG INC FOR THE APPALOOSA HWY 24 SUBDIVISION FIL 1A AND SHALL BE CONSIDERED A PART OF THESE PLANS
- 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 STORM-WATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORM-WATER MANAGEMENT PLAN (SWMP), OR WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT: CDPHE, WATER QUALITY CONTROL DIVISION, 4300 CHERRY CREEK DR. S., DENVER, CO 80246-1530, ATTN: PERMITS UNIT. PH: 303-692-3500

## GRADING AND EROSION CONTROL PLAN

APPALOOSA HIGHWAY 24 SUBDIVISION FILING NO. 1A, LOT 2  
EL PASO COUNTY, COLORADO

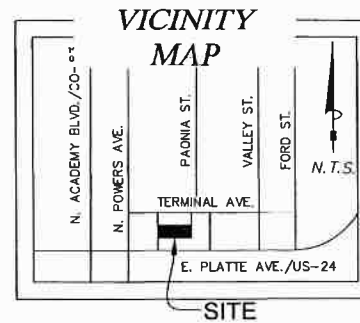


### SITE MAP

#### Standard Notes for El Paso County Construction Plans

ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
  - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
  - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
  - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
  - CDOT M & S STANDARDS
- 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 FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ON-SITE AND OFF-SITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY DSD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF DISTURBANCE SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.



#### DEVELOPER'S STATEMENT:

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

By: Nathan Derwick  
Title: President  
Address: Copestone General Contractors  
1624 S. 21st St  
Colorado Springs, CO 80904

Mr. Nathan Derwick - President Date: 8/8/19

#### 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 ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY NEGLIGENCE OR OMISSIONS ON MY PART IN THIS PLAN.

Michael Bartusek, COLORADO P.E. # 23329  
Respec

#### 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 MANUAL AND ENGINEERING CRITERIA MANUAL AS AMENDED.

JENIFER IRVINE P.E.  
COUNTY ENGINEER/ECM ADMINISTRATOR

DATE

#### LEGEND:

- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- UG PIPE (MATERIAL AND SIZE AS NOTED)
- SF SILT FENCE
- LIMITS OF CONSTRUCTION
- CW CONCRETE WASHOUT
- VEHICLE TRACKING CONTROL
- SBB STRAW BALE BARRIER
- IP INLET PROTECTION
- PL PROPERTY LINE

#### DRAWING INDEX

NAME	SHEET #S
GRADING AND EROSION CONTROL COVER	1
DRAINAGE, GRADING & EROSION CONTROL PLAN	2
EROSION CONTROL DETAILS SH. 1	3
EROSION CONTROL DETAILS SH. 2	4

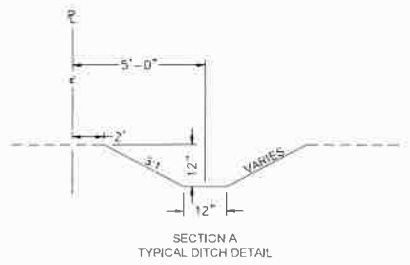
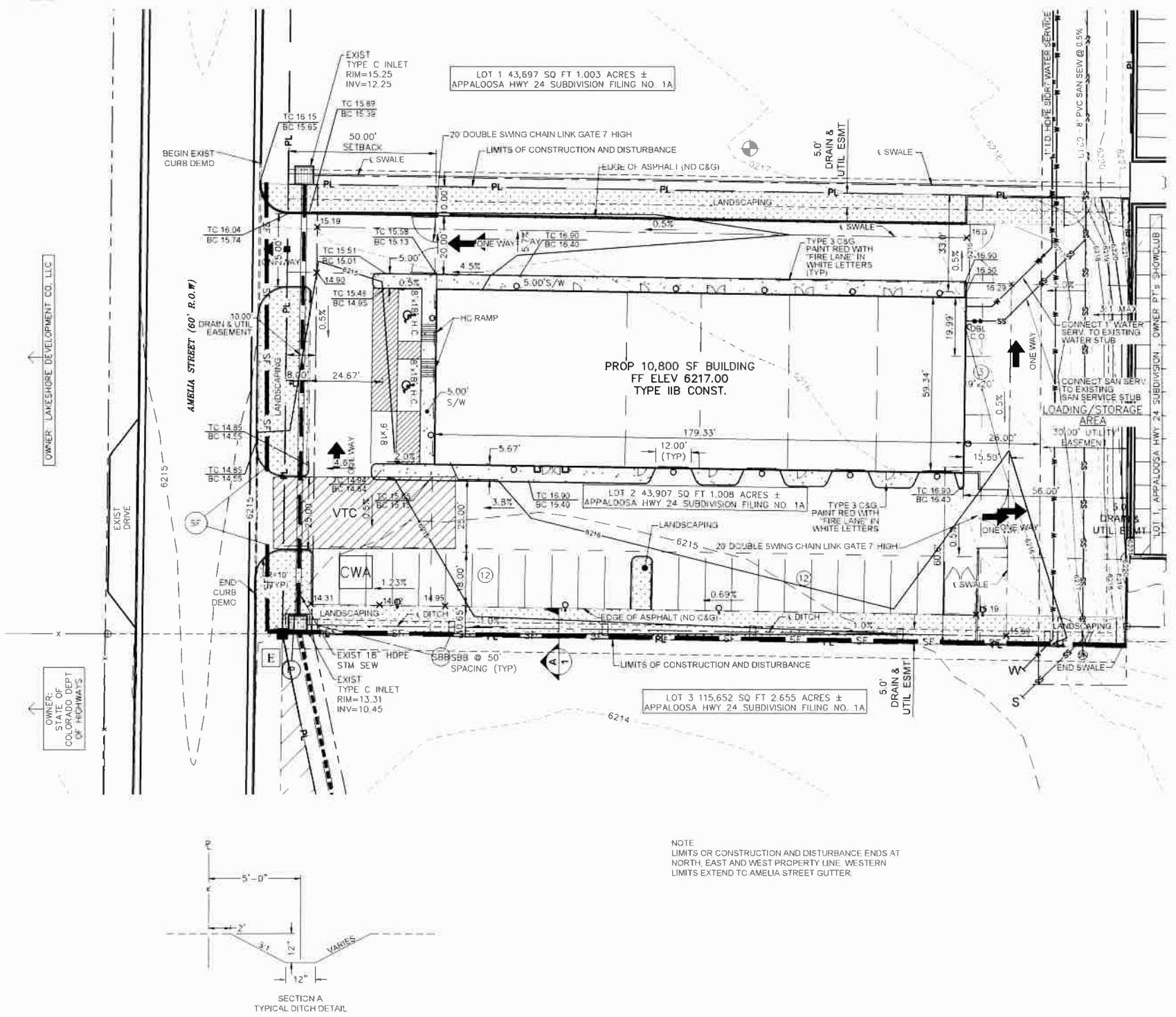
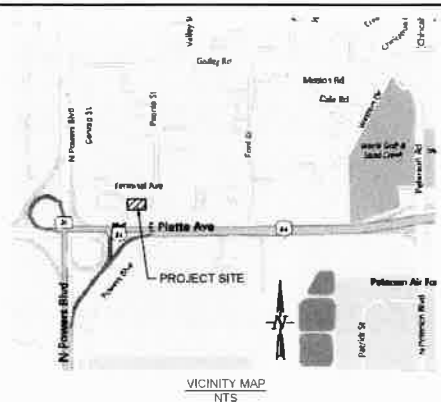
IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

SUBSURFACE SOIL INVESTIGATION PERFORMED BY ENTECH ENGINEERING, INC

PCD File No. PPR 193

DESIGNED MAB	DRAWN HUG	CHECKED MAB	DATE 7/6/18	REVISION
RESPEC 720 S COLORADO BLVD SUITE 4105 DENVER, CO 80246 PHONE (303) 737-5855				
STAMP				
811 Know what's below. Call before you dig. PROJ NO 03437 DWG NM 03437-DEV				
COPESTONE GENERAL CONTRACTORS 1624 S. 21ST ST COLORADO SPRINGS, CO. 80904				
LOT 2, APPALOOSA HWY 24 SUBDIVISION FIL 1A				
COVER SHEET				
DRAWING NUMBER: 				
SHEET 1				

NAME K LAND PROJECTS\01\03437-APPALOOSA HWY 24 LOT 2\DWG\CONSTRUCTION\03437-CONST.DWG  
PLOT DATE 5/28/2019 12:20:15 12:41 PM BY JIN JILL



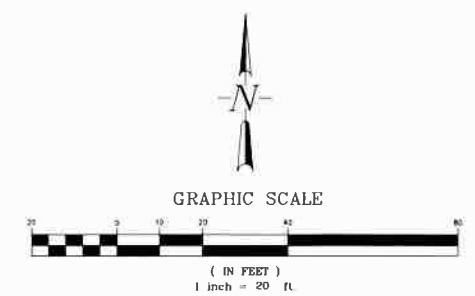
NOTE  
LIMITS OF CONSTRUCTION AND DISTURBANCE ENDS AT  
NORTH, EAST AND WEST PROPERTY LINE. WESTERN  
LIMITS EXTEND TO AMELIA STREET GUTTER

- GENERAL NOTES**
- Do not prepare or seed frozen soils.
  - Do not seed when wind exceeds 5 mph.
  - Perform seeding only after preceding work affecting ground surface is completed.
  - Do not mulch over seeded areas when wind exceeds 15 mph.
  - Seed all disturbed areas.
  - Seed to be a blend of native prairie grasses.
  - Watering shall be provided in the form of watering trucks and spray bars.
- MULCH MATERIALS**
- HAY OR STRAW MULCH
    - Chopped of oats, wheat or rye grass hay.
    - Free from noxious weed seeds.
    - Rotted, brittle or moldy hay is not acceptable.
    - 50% by weight greater than 10" inch length.
  - FIBER
    - Short wood fiber
    - "Corwed" "Silver Fiber" or equivalent.
- BED PREPARATION**
- Prepare to a minimum depth of 4" with disc harrows or chiseling tools.
  - Uproot all competitive vegetation.
  - Work soil uniformly to a smooth surface free of clods, stones over 2" in any dimension or any material which will interfere seeding equipment.
  - Fill across slopes.
  - Do not till when soil moisture is unsuitable.
    - Soil texture after tillage shall be uniform, free of wet compressed or dry lumps.
  - Do not prepare seed bed more than twenty four hours in advance of seeding.
  - Fertilize at a rate of fifty (2) lbs. nitrogen per 1,000 sq. ft.
    - Till fertilizer into soil a minimum of two (2) inches.

Species		lbs/acre drilled
Western Wheat Grass	Barton	2.5
Sideoats Grama	El Reno	3.0
Slender Wheat Grass	Native	2.0
Little Bluestem	Pastura	2.0
Switch Grass	Nebraska 28	3.0
Sandy Drop Seed	Native	0.5
Weeping Love Grass	Morpha	1.0
Optional Perennial Rye		2.0
		TOTAL 16.0

- EROSION CONTROL PLAN NOTES**
- All disturbed areas are to be reseeded.
  - Schedule of Grading - approximate time frame of one month to complete grading and installation of erosion control measures.
  - Temporary Sediment Barriers shall be kept in place and maintained until the vegetation has been reestablished. Removal of sediment is required once it reaches half the height of the sediment control log.

- LEGEND:**
- PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED SAN SEW
  - PROPOSED WATER LINE
  - EXISTING WATER VALVES
  - PROPOSED WATER VALVES
  - EXISTING SANITARY MANHOLE
  - PROPOSED SANITARY MANHOLE
  - U/G PIPE (MATERIAL AND SIZE AS NOTED)
  - SILT FENCE
  - LIMITS OF CONSTRUCTION AND DISTURBANCE
  - CONCRETE WASHOUT
  - VEHICLE TRACKING CONTROL
  - STRAW BALE BARRIER
  - INLET PROTECTION
  - TRAFFIC FLOW ARROWS
  - PROPERTY LINE
  - PROP GRAVEL AREA



DESIGNED		DRAWN		CHECKED		DATE	
MAB		HUG		MAB		7/6/18	
RESPEC		720 COLORADO BLVD		DENVER, CO 80245		PHONE (303) 757-3555	
STAMP							
811		Know what's below. Call before you dig.					
COPESTONE GENERAL CONTRACTORS		PROJ NO. 03437 DWG NM 03437-DEV					
LOT 2, APPALOOSA HWY 24 SUBDIVISION		1924 S. 21ST ST COLORADO SPRINGS, CO. 80904					
GRADING & EROSION CONTROL PLAN		FIL 1A					
DRAWING NUMBER:		C					
SHEET 2							

NAME: K LAND PROJECT\5031903437-APPALOOSA HWY 24 LOT 2DWGCONSTRUCTION\03437-CONST DWG  
PLOT DATE: 08/09/2011 11:23 AM BY: JIM GILL



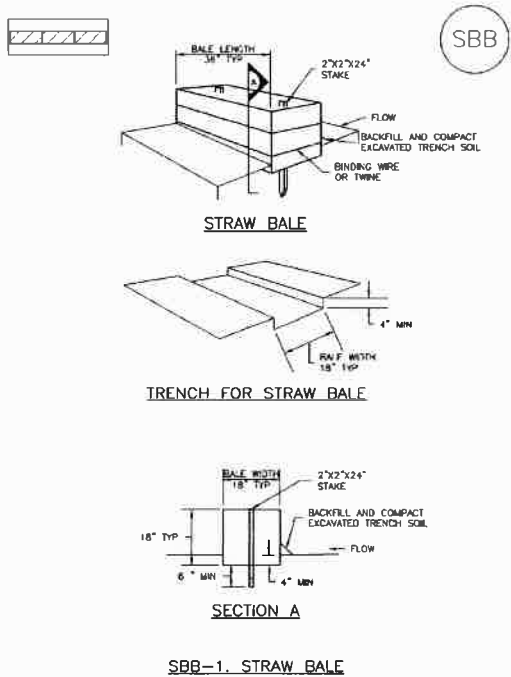
Know what's below.  
Call before you dig.

SC-3

Straw Bale Barrier (SBB)

Straw Bale Barrier (SBB)

SC-3



SBB-1. STRAW BALE

STRAW BALE INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-LOCATION(S) OF STRAW BALES.
2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
4. WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ADJUTING ONE ANOTHER.
5. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
6. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4" STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
7. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE 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. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
5. SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/4 OF THE HEIGHT OF THE STRAW BALE BARRIER.
6. STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
7. WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM FORM OF FARMER, COLORADO, NOT AVAILABLE IN AUTOCAD)  
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE EL PASO COUNTY ENGINEERING SPECIFICATIONS.
2. THE CONTRACTOR SHALL NOTIFY COLORADO STATE UTILITIES CENTRAL LOCATING (1-800-922-1987 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION SO THAT THEY MAY LOCATE THEIR FACILITIES. THE LOCATION OF FACILITIES SHOWN ON THE DRAWINGS IS FROM AVAILABLE RECORDS AND IS APPROXIMATE.
3. ALL EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS REFLECT THE AVAILABLE INFORMATION AND DO NOT NECESSARILY INDICATE THE ACTUAL LOCATIONS. PRIOR TO ANY CONSTRUCTION THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES THAT MAY CONFLICT WITH OR OBSTRUCT THE NEW CONSTRUCTION. ANY REQUIRED RELOCATIONS THAT ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL BE COORDINATED WITH AND HAVE PRIOR APPROVAL OF EL PASO COUNTY UTILITIES.

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

1. CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM DEVELOPMENT SERVICES AND A PRE-CONSTRUCTION CONFERENCE IS HELD WITH DEVELOPMENT SERVICES INSPECTIONS.
2. STORM-WATER 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.
3. 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.
4. A SEPARATE STORM-WATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORM-WATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORM-WATER MANAGER. SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
5. ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPs AS INDICATED ON THE GEC. A PRE-CONSTRUCTION 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.
6. 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.
7. 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 DESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.
8. ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPs IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME II AND IN ACCORDANCE WITH THE STORM-WATER MANAGEMENT PLAN (SWMP).
9. ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMPs AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.
10. 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.
11. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORM-WATER AROUND THROUGH OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
12. 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.
13. EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
14. BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. BMPs MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
15. VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
16. 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.
17. 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 STORM-WATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
18. 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.
19. NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORM-WATER 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.
20. 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.
21. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORM-WATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCH-LINE.
22. 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.
23. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
24. PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
25. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
26. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY RMG INC AND SHALL BE CONSIDERED A PART OF THESE PLANS.
27. 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 STORM-WATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORM-WATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT: CDPHE, 4330 CHERRY CREEK DR., S. DENVER, CO 80245-1530. PH: 303-692-3530.

DESIGNED				REVISION			
MAB	DESIGNED	MAB	7/6/18				
UG	DRAWN	UG					
MAB	CHECKED	MAB					
DATE							
RESPEC							
720 S. COLO. BLVD							
DENVER, CO 80248							
PHONE (303) 737-3655							
STAMP							
811							
Know what's below. Call before you dig.							
PROJ NO. 03437 DWG NM 03437-DEV							
COPESTONE GENERAL CONTRACTORS							
1624 S. 21ST ST							
COLORADO SPRINGS, CO. 80904							
LOT 2, APPALOOSA HWY 24 SUBDIVISION FIL 1A							
DETAILS AND NOTES 1							
DRAWING NUMBER:							
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SHEET 3							

SC-6

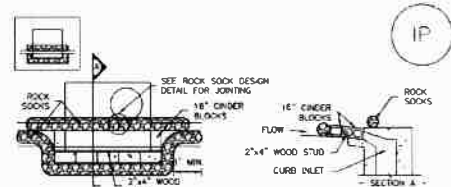
Inlet Protection (IP)

Inlet Protection (IP)

SC-6

SC-6

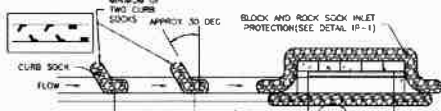
Inlet Protection (IP)



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

## BLOCK AND ROCK SOCK INLET PROTECTION INSTALLATION NOTES

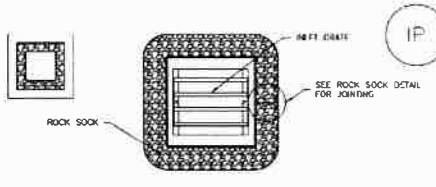
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS
2. CONCRETE "CINDER" BLOCKS SHALL BE Laid ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB
3. GRAVEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINTED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

## CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS
2. PLACEMENT OF THE SOCKS SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW
3. SOCKS ARE TO BE TUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART
4. AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

## ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

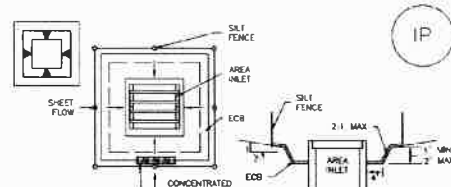
1. SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS
2. STRAW BATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL



IP-4. SILT FENCE FOR SUMP INLET PROTECTION

## SILT FENCE INLET PROTECTION INSTALLATION NOTES

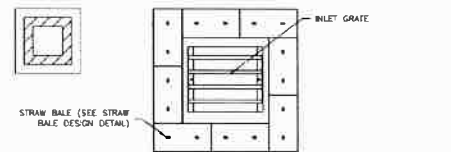
1. SEE SILT FENCE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS
2. POSTS SHALL BE PLACED AT EACH CORNER OF THE INLET AND AROUND THE EDGES AT A MAXIMUM SPACING OF 3 FEET
3. STRAW BATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL



IP-5. OVEREXCAVATION INLET PROTECTION

## OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

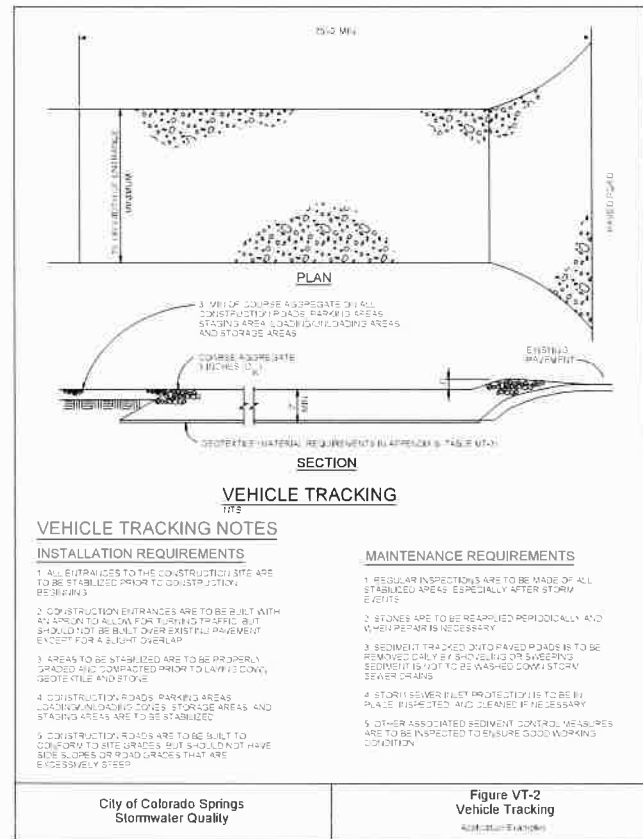
1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY SMALL CONTRIBUTING DRAINAGE AREA
2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH ORIENTED TOWARDS DIRECTION OF FLOW
3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA



IP-6. STRAW BALE FOR SUMP INLET PROTECTION

## STRAW BALE SUMP INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER

Know what's below.  
Call before you dig.

VEHICLE TRACKING

## VEHICLE TRACKING NOTES

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING
2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN AREA TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAY
3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING COARSE AGGREGATE AND STONE
4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED
5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO ADEQUATE SLOPE SLOPES THAT HAVE SIDE SLOPES OR ROAD GRADERS THAT ARE EXCESSIVELY STEEP

## MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE BY ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS
2. STONES ARE TO BE REPLACED PERIODICALLY AND WHEN REPAIR IS NECESSARY
3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR BLOWING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS
4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, FISHED, AND CLEANED IF NECESSARY
5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION

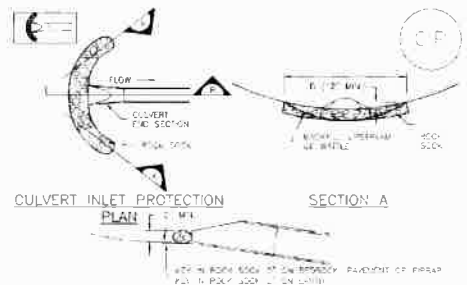
Figure VT-2  
Vehicle Tracking

Inlet Protection (IP)

SC-6

SC-6

Inlet Protection (IP)



CIP-1. CULVERT INLET PROTECTION

## CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION OF CULVERT INLET PROTECTION
2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK SOCKS

## CULVERT INLET PROTECTION MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY
2. WHEN BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE
3. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN STORAGE VOLUME REACHES SIZE OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES
4. 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
5. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEED, AND MULCH, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION

## GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
  - LOCATION OF INLET PROTECTION
  - TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT
3. MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDC STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED

## INLET PROTECTION MAINTENANCE NOTES

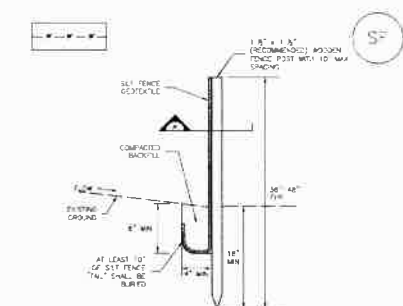
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE
2. FREQUENT OBSERVATIONS 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 SIZE OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 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, SEED, AND MULCH, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION

## (DETAIL ADAPTED FROM FORM OF PUBLISHED COLORADO AND CITY OF DENVER, COLORADO, NOT AVAILABLE IN ADOBE)

- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM USDC 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. USDC NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION. HOWEVER, IN THE DENVER METROPOLITAN AREA, IF PROPRIETARY METHODS ARE USED, THE APPROPRIATE DETAIL FROM THE MANUFACTURER MUST BE INCLUDED IN THE BMP 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

Silt Fence (SF)

SC-1



SF-1. SILT FENCE

November 2009 Urban Drainage and Flood Control District  
Urban Storm Drainage Criteria Manual Volume 3

SF-3

SC-1

Silt Fence (SF)

## SILT FENCE INSTALLATION NOTES

1. SILT FENCE SHALL BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PASSAGE. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST 5 FEET (1.5 M) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION
2. A UPSTREAM 8" X 1" ANCHOR BLOCK SHALL BE LOCATED USING "PENCER" OR SILT FENCE INSTALLATION LOGS. NO ROAD GRADERS, BLOWERS, OR SIMILAR EQUIPMENT SHALL BE USED
3. CONTACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. CONNECTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND
4. SILT FENCE SHALL BE STALLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE GAP BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES
5. SILT FENCE 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 FENCE 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 "U-SHAPED" "THE U-SHAPED" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP PONDING FROM FORMING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20')
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES

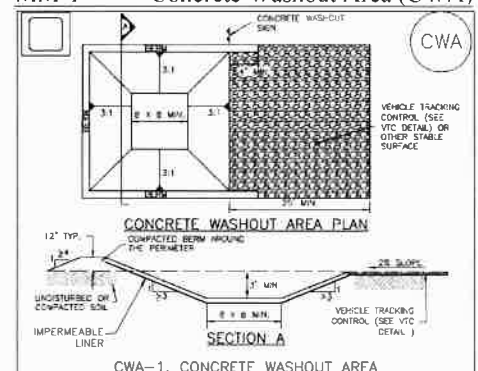
## SILT FENCE MAINTENANCE NOTES

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 SEDIMENT 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, UNLESS THE LOCAL JURISDICTION OF S. REPAIRS BY AN EQUIVALENT FORMER SEDIMENT CONTROL BMP
7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED, AND MULCH OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION

## (DETAIL ADAPTED FROM FORM OF PUBLISHED COLORADO AND CITY OF DENVER, COLORADO, NOT AVAILABLE IN ADOBE)

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

MM-1 Concrete Washout Area (CWA)



CWA-1. CONCRETE WASHOUT AREA

## CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
  - CWA INSTALLATION LOCATION
2. DO NOT LOCATE AN UNLIMITED 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 NEARLY NEARLY, 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 (IT THAT IS AT LEAST 1/8" SLOPES LEADING OUT OF THE SUBSURFACE IT 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 MAXIMUM HEIGHT OF 1'
6. VEHICLE TRACKING AND SHALL BE LOCATED 2' REMOVED FROM THE CWA
7. SILT FENCE 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 TRUCKS
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 3"
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 DEPOSITED AT PROPERLY
6. 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

REVISION			
DESIGNED	MAB		
DRAWN	HUG		
CHECKED	MAB		
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DETAILS AND NOTES 2

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