



**STORMWATER MANAGEMENT PLAN
FOR
BOCES CAMPUS,
EL PASO COUNTY, COLORADO**

July 2024

Prepared For:

Pikes Peak Board of Cooperative Educational Services
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(719) 570-7474

Prepared By:

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5475 Tech Center Drive
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Job No. 25301.00

PCD File No.: TBD

PPR2426

ENGINEER OF RECORD:

The 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 and State for Stormwater Management Plans.

Bryan Law, P.E.

Date

Registered Professional Engineer

State of Colorado No. 25043

For and on behalf of JR Engineering, LLC.

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1. Applicant / Contact Information

Owner/Developer: Patrick Bershinsky
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Colorado Springs, CO 80906
(719) 570-7474

Engineer: JR Engineering, LLC
5475 Tech Center Drive, Suite 235
Colorado Springs, CO 80919
Attn: Bryan Law (303) 267-6254
blaw@jrengineering.com

SWMP Administrator: To Be Determined

Contractor: To Be Determined

2. Site Description and Location

The proposed BOCES Campus development is located within the south half of Section 35, Township 12 South, Range 64 West of the Sixth Principal Meridian, El Paso County, Colorado.

The site is bound by existing single-family residence at 16360 Judge Orr Road to the east, existing Judge Orr Road to the south, existing Elbert Road to the west, and by several existing single-family homes (8995 Elbert Road, 9280 Palomino Ridge VW, and 8950 Palomino Ridge VW) to the north. A vicinity map is presented in Appendix A.

The proposed BOCES Campus development contains approximately 84.1 acres and will be comprised of a vocational training educational campus for teenagers, single family housing for the workforce, community open areas and detention pond areas.

Site details:

- a. Total site area: 84.1 acres.
Estimated area to undergo disturbance: 72.1 acres
- b. Soil Type: Per a NRCS web soil survey of the area, the site is made up of Hydrologic Group A soils. Type A soils are typically deep well-drained to excessively drained sands that have a high infiltration rate when thoroughly wet. A NRCS soil survey map is presented in Appendix A.
- c. Soil erosion potential and potential impacts upon discharge:
 - i. Conduct land-disturbing activities in a manner that effectively reduces accelerated soil erosion and reduces sediment movement and deposition off site.

SWMP Checklist Item 9 - and percent ground cover and method used to determine ground cover

- ii. Schedule construction activities to minimize the total amount of soil exposed at any given time.
 - iii. Establish temporary or permanent cover on areas that have been disturbed as soon as practical after grading is completed.
 - iv. Design and construct temporary or permanent facilities to limit the flow of water to non-erosive velocities for the conveyance of water around, through or from the disturbed area.
 - v. Remove sediment caused by accelerated soil erosion from surface runoff water before it leaves the site.
 - vi. Stabilize disturbed areas with permanent vegetative cover and provide permanent storm water quality control measures for the post-construction condition.
- d. Existing vegetation is sparse short and mixed grass prairie vegetation and natural drainageways.
- e. Location and description of potential pollution sources: Potential sources of pollution include: Onsite waste management, portable toilets, onsite vehicle fueling, and outdoor storage, vehicle tracking pads, dust management, and temporary stock pile. The locations of these sources are shown in the GEC plans in Appendix C or will be determined by the contractor.
- i. Non-industrial waste sources such as worker trash and portable toilets – Clean up litter and debris from the construction site daily and worker trash receptacles will be located by entrance/exit for easy removal/replace access. All portable toilets should be kept a minimum of 50 feet from a storm drain inlet or drainage course and secured to the ground. Toilets will be cleaned regularly and inspected daily for any spills or leaks. Waste disposal bins will be reasonably maintained at regular intervals to check for leaks and overflow capacity, and will be emptied routinely to prevent overflow.
 - ii. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils, etc. – oil, grease, coolants, etc. that leak onto the soil or impervious surface should be cleaned up as soon as possible and on-site personnel notified.
 - iii. Vehicle, equipment maintenance, and fueling – all designated fueling and maintenance areas shall be located a minimum of 100 feet from any drainage course whenever possible. If the fueling area is located on a pervious surface, the area shall be covered with a non-pervious lining so as to prevent soil contamination by way of infiltration. Any spillage shall be cleaned up immediately.
 - iv. Raw materials, intermediate products, byproducts, process residuals, Finished products, containers, and materials storage areas can be sources of pollutants such as metals, oils and grease, sediment and other contaminants. Where practical, conduct operations indoors. Where impractical, select an appropriate temporary or permanent covering to reduce exposure of materials to rainfall and runoff.
 - v. Vehicle tracking controls (VTC) provide stabilized construction site access where vehicles exit the site onto paved public roads. An effective vehicle tracking control helps remove sediment (mud or dirt) from

vehicles, reducing tracking onto the paved surface. With aggregate vehicle tracking controls, ensure rock and debris from this area do not enter the public right-of-way. Inspect the VTC for degradation and replace aggregate or material used for a stabilized entrance/exit as needed.

- vi. Wind erosion and dust control BMPs help to keep soil particles from entering the air as a result of land disturbing construction activities. Dust control measures should be used on any site where dust poses a problem to air quality. Dust control is important to control for the health of construction workers and surrounding waterbodies.
- vii. Stockpile management should be used when soils or other erodible materials are stored at the construction site. Special attention should be given to stockpiles in close proximity to natural or manmade storm systems. Soils stockpiled for an extended period (typically for more than 30 days) mulched with a temporary grass cover once the stockpile is placed (typically within 21 days). An area that will remain in an interim state for over 60 days must also be seeded. Use of mulch only or a soil binder is acceptable if the stockpile will be in place for a more limited time period (typically 30-60 days). Refer to DCM Vol 2 – Section 3.2- General principles - Basic Grading, Erosion and Stormwater Quality Requirements and General Prohibitions #16 for more information.
- f. Spill prevention and pollution controls for dedicated batch plants: Not applicable for this site since there will be no dedicated batch plants.
- g. Street sweeping or vacuuming should be conducted when there is noticeable sediment accumulation on roadways adjacent to the construction site. Typically, this will be concentrated at the entrance/exit to the construction site. Well-maintained stabilized construction entrances and vehicle tracking controls can help reduce the necessary frequency of street sweeping and vacuuming.
- h. Location and description of anticipated non-stormwater components of discharge: Another potential source of non-stormwater discharge could be the irrigation of temporary seeding (TS). Irrigation will be kept at a rate so as to not create runoff.
- i. Existing basin drainage patterns are generally from east to west by way of sheet flow.
- j. Receiving water: Runoff from the project will be treated and released through an outlet structure pipe that will direct the water into the Geick Ranch Main Stem Tributary.
- k. There are no streams that cross the project site.

3. Proposed Sequence of Major Activities

The project will follow standard construction sequences for construction, i.e., clearing and grubbing, over excavation, and over lot grading. The contractor will be responsible for implementing and maintaining the erosion and sediment control measures described in this document and the accompanying design drawings. The contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and their proposed function at each phase of the project

Include TSB

remains with the contractor. The order of major activities (with estimated completion dates) will be as follows:

1. Install VTC and other perimeter soil erosion control measures (Spring 2025).
2. Clear and rough grade for improvements (Spring 2025).
3. Install rough cut street control (Spring 2025).
4. Place Seed and Mulch (Summer 2025).
5. Clean up and final stabilization (Summer 2025).

4. BMPs for Stormwater Pollution Prevention

See GEC plans in Appendix C for BMP locations and detail sheets.

a. Erosion and Sediment Controls

i. Structural BMPs:

1. Temporary Sediment basins (TSB) to collect runoff before it enters receiving waters (initial, interim)
2. Silt fence (SF) along downstream limits of disturbed areas to filter sediment from runoff (initial, interim)
3. Stabilized staging area (SSA) near site entrance to consolidate construction equipment in a stabilized location (initial, interim)
4. Construction fence (CF) to identify limits of construction (LOC) where silt fence is not needed (initial, interim)
5. Vehicle tracking control (VTC) at site entrance to prevent sediment from leaving the site via vehicle tires (initial, interim)
6. Rough Cut Street Control (RCS) is material placed after a road has been cut and before base has been installed for paving (interim)
7. Temporary stock pile (SP) to consolidate materials such as topsoil in a controlled area bounded by silt fence (initial, interim)
8. Inlet protection (IP) around culvert entrances (initial, interim, final)
9. Outlet protection (OP) at culvert outlets (initial, interim, final)
10. Temporary Swale (TSW) to Convey runoff to sediment basins (initial, interim)
11. Check Dams (CD) in swales to slow and filter sediment from runoff (initial, interim)
12. Temporary Slope Drain (TSD) to capture and convey runoff under VTC's and steep slopes at risk for erosion.

ii. Non-structural BMPs:

1. Seeding (PS) and Mulching (MU) to stabilize disturbed areas (final)

b. Materials Handling and Spill Prevention

i. General Materials Handling Practices:

1. Potential pollutants shall be stored and used in a manner consistent with the manufacturer's instructions in a secure location. To the extent practical, material storage areas should not be located near

storm drain inlets and should be equipped with covers, roofs, or secondary containment as required to prevent storm water from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spilled materials cannot combine and react.

2. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
3. Materials no longer required for construction shall be removed from the site as soon as possible.
4. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and BMPs clear and functional.

ii. Specific Materials Handling Practices

1. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate storm water.
2. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
3. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants, shall be conducted under cover during wet weather and on an impervious surface to prevent release of contaminants onto the ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.
4. Wheel wash water shall be settled and discharged onsite by infiltration.
5. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to storm water runoff. Follow manufacturer's recommendations for application rates and procedures.
6. pH-modifying sources shall be managed to prevent contamination of runoff and storm water collected onsite. The most common sources of pH-modifying materials are bulk cement, cement kiln dust (CKD), fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.

iii. Spill Prevention and Response Procedures

1. The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize their migration into storm water runoff and conveyance systems. If the release has impacted onsite storm water, it is critical to contain the released materials onsite and prevent their release into receiving waters.

2. Spill Response Procedures:
 - a. Notify site superintendent immediately when a spill, or the threat of a spill, is observed. The superintendent shall assess the situation and determine the appropriate response.
 - b. If spills represent an imminent threat of escaping onsite facilities and entering the receiving waters, site personnel shall respond immediately to contain the release and notify the superintendent after the situation has stabilized.
 - c. The site superintendent, or his/her designee, shall be responsible for completing a spill reporting form and for reporting the spill to the appropriate agency.
 - d. Spill response equipment shall be inspected and maintained as necessary to replace any materials used in spill response activities.
3. Spill kits shall be on-hand at all fueling sites. Spill kit location(s) shall be reported to the SWMP administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing inadvertent spills. Containers shall be on-hand at all fueling sites for disposal of used absorbents.
5. Recommended components of spill kits include the following:
 - a. Oil absorbent pads (one bale)
 - b. Oil absorbent booms (40 feet)
 - c. 55-gallon drums (2)
 - d. 9-mil plastic bags (10)
 - e. Personal protective equipment including gloves and goggles
6. Notification procedures:
 - a. In the event of an accident or spill, the SWMP administrator shall be notified.
 - b. Depending on the nature of the spill material involved, the Colorado Department of Public Health and Environment (24-hour spill reporting line: 887-518-5608), downstream water users, or other agencies may also need to be notified.
 - c. Any spill of oil which 1) violates water quality standards, 2) produces a “sheen” on a surface water, or 3) causes a sludge or emulsion, or any hazardous substance release, or hazardous waste release which exceeds the reportable quantity, must be reported immediately by telephone to the National Response Center Hotline at (800) 424-8802.

5. Final Stabilization and Long-Term Stormwater Management

- a. Permanent seeding will be provided to achieve long-term stabilization of the site.
- b. Seed Mix: Sand dropseed, or approved equal.
- c. Seeding Application Rate: Drill seed 0.25” to 0.5” into the soil. In small areas not accessible to a drill, hand broadcast at double the rate and rake 0.25” to 0.5” into the soil. Apply seed at the following rates:

- i. Dryland: 20-25 lbs/acre
 - ii. Irrigated: 40 lbs/acre
- d. Soil stabilization Practices:
 - i. Mulching Application: Apply 1-1/2 tons of certified weed free hay per acre mechanically crimped into the soil in combination with an organic mulch tackifier. On slopes and ditches requiring a blanket, the blanket shall be placed in lieu of much and mulch tackifier.
- e. Soil Conditioning and Fertilization Requirements:
 - i. Soil conditioner, organic amendment shall be applied to all seeded areas at 3 CY / 1000 SF.
 - ii. Fertilizer shall consist of 90% fungal biomass (mycelium) and 10% potassium-magnesia with a grade of 6-1-3 or approved equal. Fertilizer shall be applied as recommended by seed supplier.
- f. Final stabilization is reached when all soil-disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plan density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
 - i. The overall project does not solely rely on another entity or control measures for final stabilization or permanent water quality or detention.
- g. Final Stabilization and Long-term Stormwater Quality:
 - i. After final stabilization occurs, Stormwater Quality of the site will be maintained via the use of full-spectrum ponds, all developed flows on site will be routed to the pond and treated.
 - 1. Mowing and Trimming shall occur on a regular basis in the pond and at the spillway.
 - ii. Onsite flows will also be treated via grass swales that route flows present in open spaces to the storm sewer system which eventually outfalls to the full-spectrum pond.

6. Inspection and Maintenance

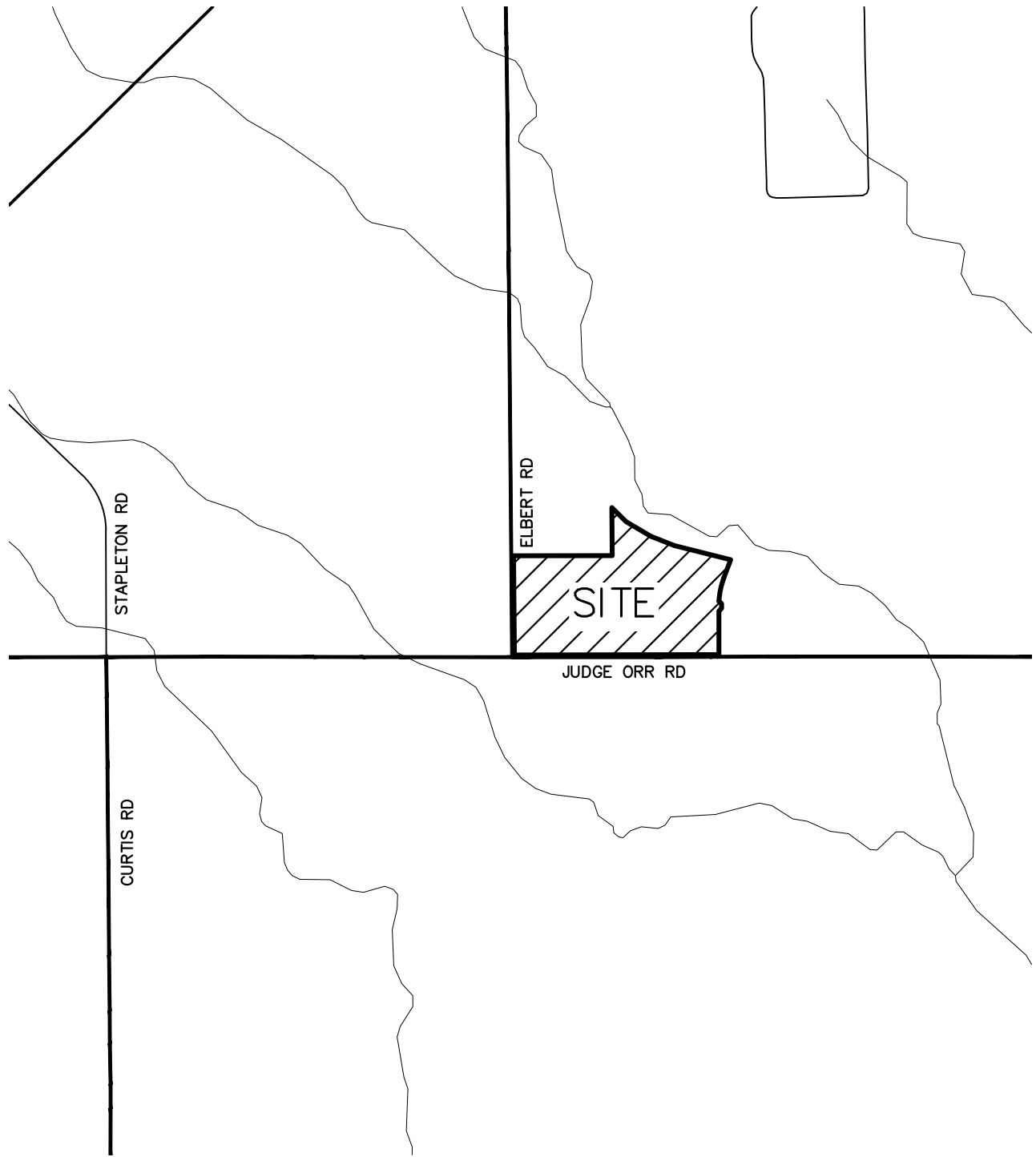
- a. Inspection Schedules:
 - i. The contractor shall inspect BMPs once every 14 days at a minimum, and immediately (within 24 hours) after any precipitation or snowmelt event that causes surface erosion (i.e. that results in storm water running across the ground), to ensure that BMPs are maintained in effective operating condition.
 - ii. The contractor will be responsible for any re-excavation of sediment and debris that collects in the basin depression required to ensure that the basin meets the design grades following construction. The storm lines shall also be cleaned and free of sediment once the site becomes stabilized.
- b. Inspection Procedures:
 - i. Site Inspection / Observation Items:
 - 1. Construction site perimeter and discharge points
 - 2. All disturbed areas

3. Areas used for material / waste storage that are exposed to precipitation
 4. Other areas having a significant potential for storm water pollution, such as demolition areas or concrete washout areas, or locations where vehicles enter or leave the site
 5. Erosion and sediment control measures identified in the SWMP
 6. Any other structural BMPs that may require maintenance, such as secondary containment around fuel tanks, or the conditions of spill response kits.
- ii. Inspection Requirements:
1. Determine if there is any evidence of, or potential for, pollutants entering the receiving waters.
 2. Review BMPs to determine if they still meet design and operational criteria in the SWMP, and if they continue to adequately control pollutants at the site.
 3. Upgrade and/or revise any BMPs not operating in accordance with the SWMP and update the SWMP to reflect any revisions.
 4. The SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing storm water quality issues at the site.
 5. The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5.2.A.
 6. The Qualified Storm water Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity or when BMPs are no longer necessary and are removed.
- iii. BMP Maintenance / Replacement and Failed BMPs:
1. The contractor shall remove sediment that has been collected by perimeter controls, such as silt fence and inlet protection, on a regular basis to prevent failure of BMPs, and remove potential of sediment from being discharged from the site in the event of BMP failure.
 2. Removed sediment must be moved to an appropriate location where it will not become an additional pollutant source, and should never be placed in ditches or streams.
 3. The contractor shall update the GEC as required with any new BMPs added during the construction period.
 4. The SWMP should be viewed as a “living document” that is continuously being reviewed and modified as a part of the overall process of evaluating and managing storm water quality issues at the site.
 5. The Qualified Storm water Manager shall amend the SWMP when

there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMPs or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity or when BMPs are no longer necessary and are removed.

6. The contractor shall address BMPs that have failed or have the potential to fail without maintenance or modifications, as soon as possible, immediately in most cases, to prevent discharge of pollutants.
- iv. Record Keeping and Documenting Inspections:
1. The contractor shall maintain records of all inspection reports, including signed inspection logs, at the project site.
 2. The 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.
 3. Site inspection records shall include the following:
 - a. Inspection date
 - b. Name and title of personnel making the inspection
 - c. Location of discharges of sediment or other pollutants from the site
 - d. Location(s) of BMPs in need of maintenance
 - e. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location
 - f. Location(s) where additional BMPs are needed that were not in place at the time of inspection
 - g. Deviations from the minimum inspection schedule

APPENDIX A – VICINITY MAP



2000 1000 0 2000



ORIGINAL SCALE: 1" = 2000'

VICINITY MAP
BOCES CAMPUS
JOB NO. 25301.00
05/13/2024
SHEET 1 OF 1



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APPENDIX B – FEMA AND SOILS MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NINGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2008.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

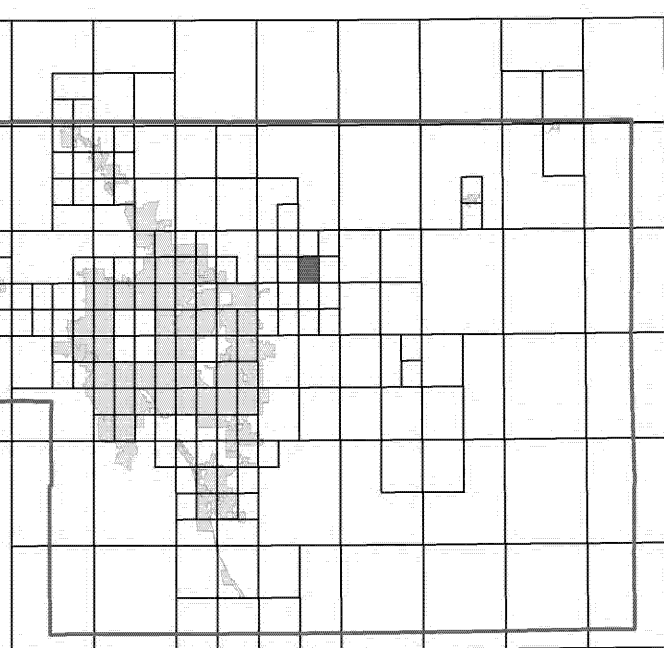
Contact **FEMA Map Service Center (MSC)** via the FEMA Map Information eXchange (FIMX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfip>.

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

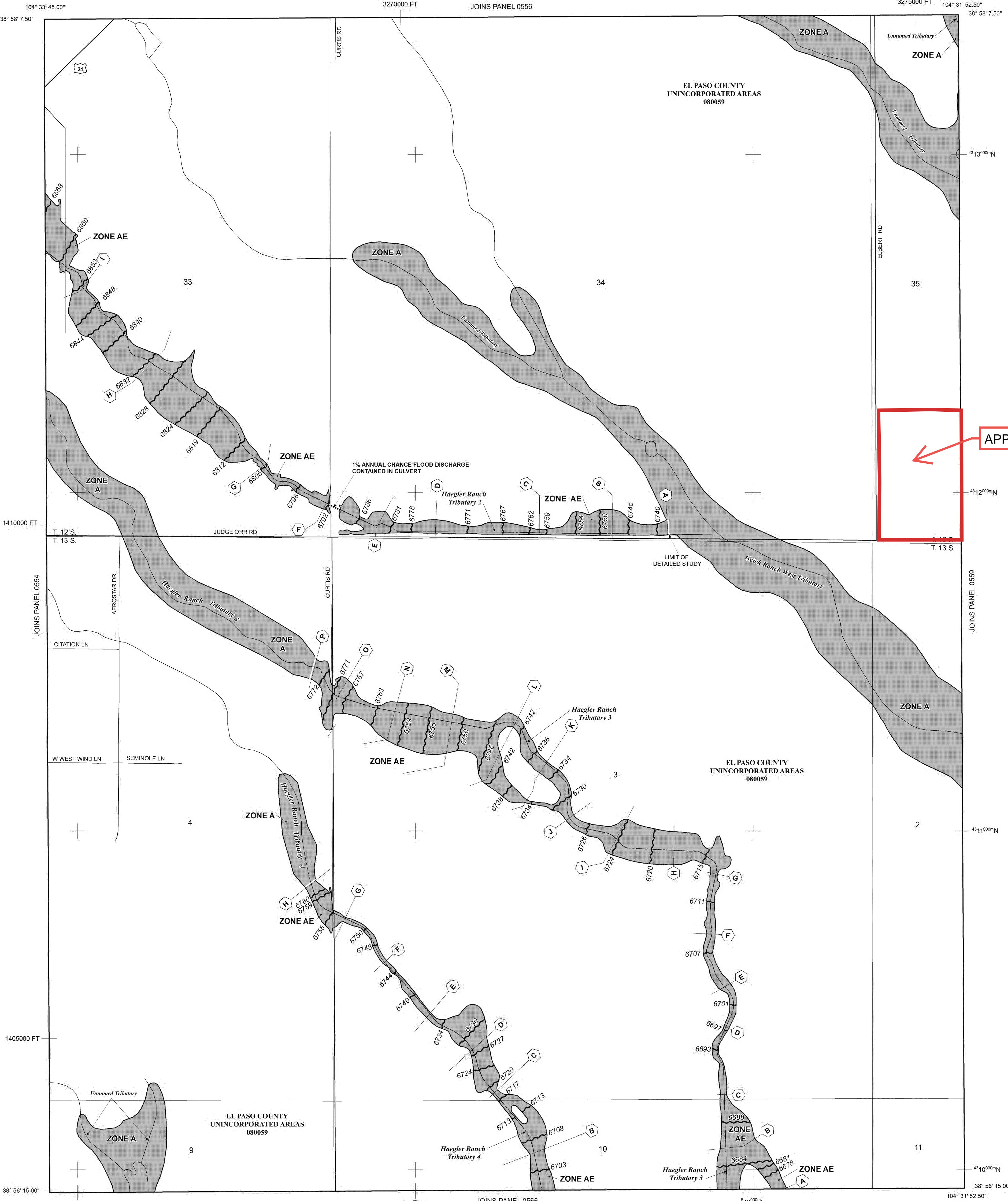
Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).



Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 64 WEST, AND TOWNSHIP 13 SOUTH, RANGE 64 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decommissioned. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot, or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain boundary
Floodway boundary
Zone D Boundary
CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
(EL 987)

Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

Cross section line
Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 13

5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

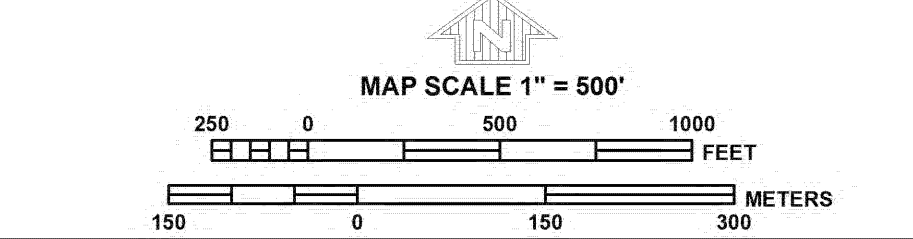
MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NFP
PANEL 0558G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 558 OF 1300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
EL PASO COUNTY 080059 0558 G

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 08041C0558G
MAP REVISED DECEMBER 7, 2018
Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NINGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov/>.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2008.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact **FEMA Map Service Center (MSC)** via the FEMA Map Information eXchange (FIMX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at <http://www.msc.fema.gov/>.

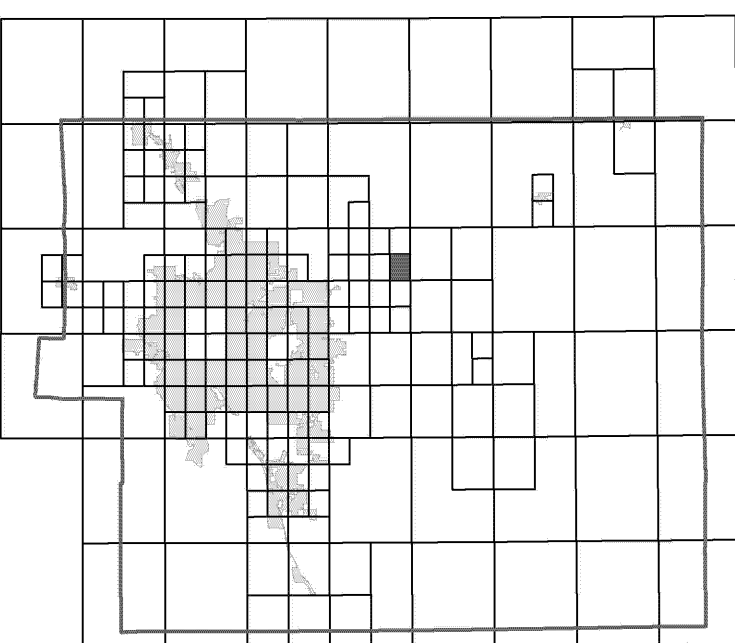
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP (1-877-336-2627)** or visit the FEMA website at <http://www.fema.gov/business/nfp>.

El Paso County Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)

REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION

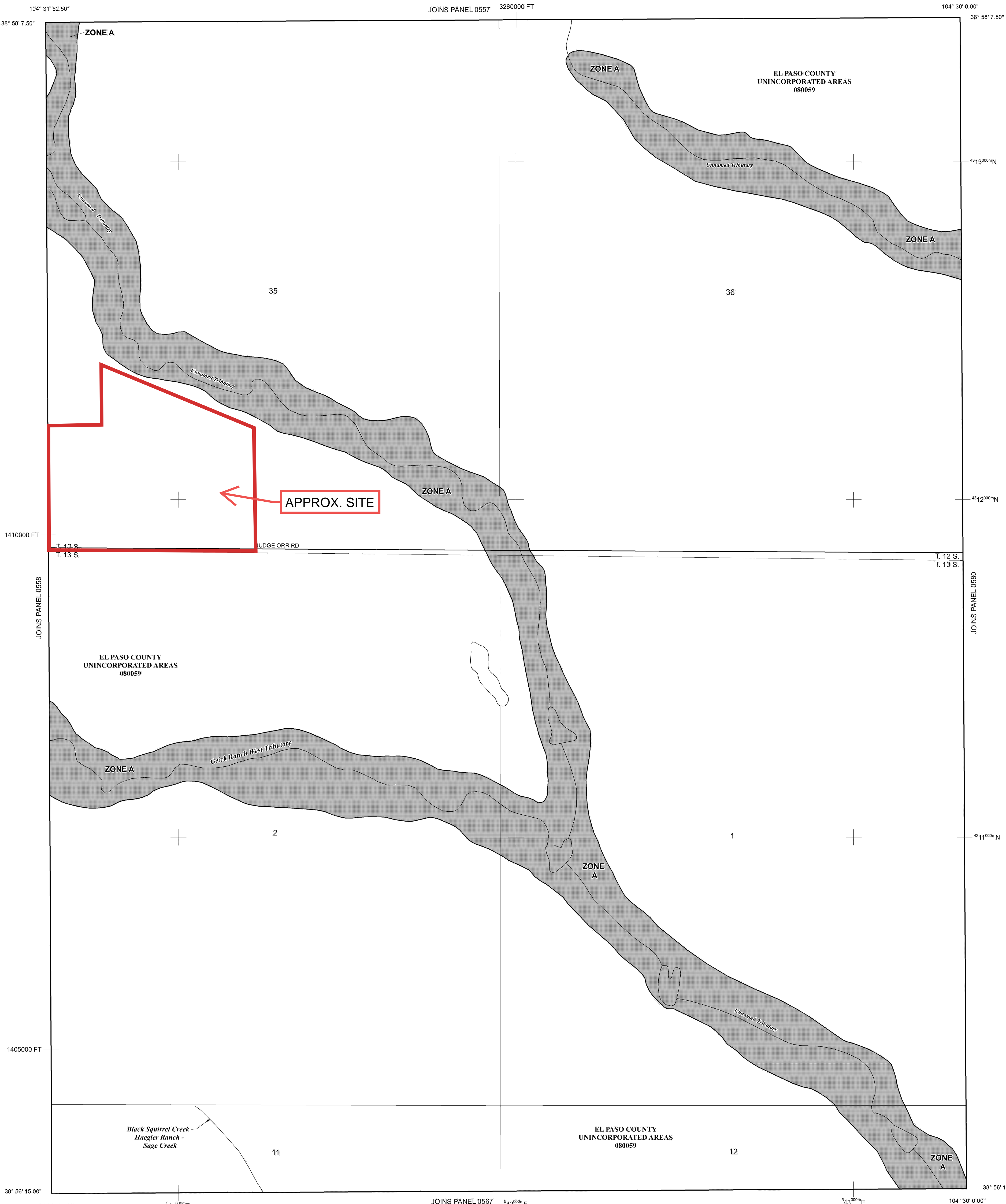
Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).



Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 64 WEST, AND TOWNSHIP 13 SOUTH, RANGE 64 WEST.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AV, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A-A Cross section line

23-23 Transsect line

97° 07' 30.00" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

4750000N 1000-meter Universal Transverse Mercator grid ticks, zone 13

6000000 FT 5000-foot grid ticks; Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection

DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 River Mile

MAP REPOSITORIES Refer to Map Repositories list on Map Index

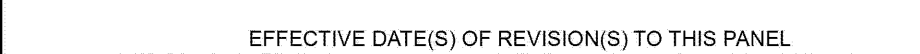
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'



PANEL 0559G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY,
COLORADO
AND INCORPORATED AREAS

PANEL 559 OF 1300
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

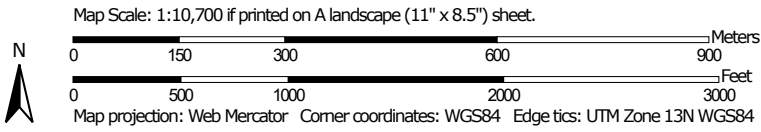
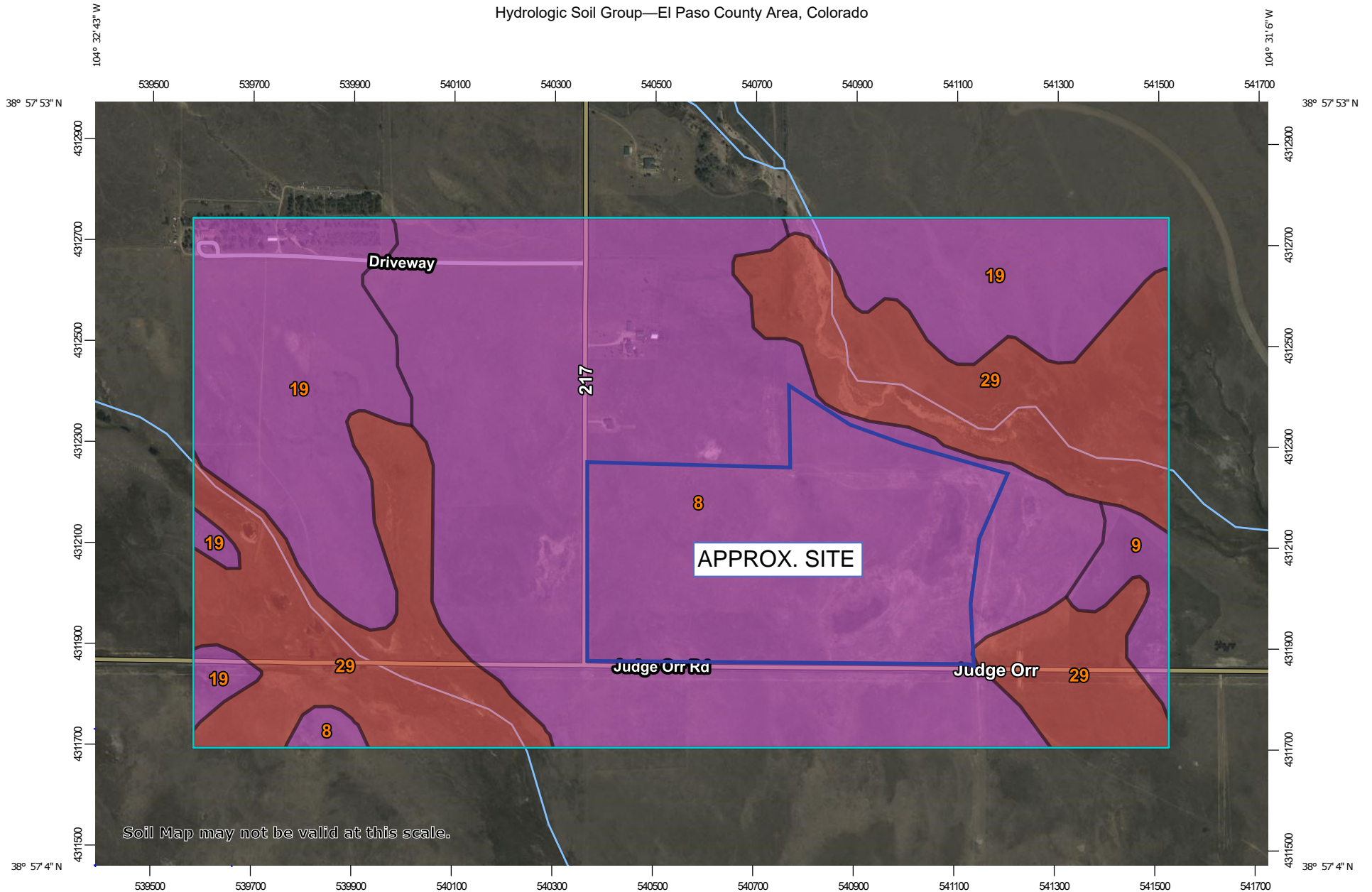
CONTAINS:			
COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY	080059	0559	G

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





























MAP NUMBER
08041C0559G

MAP REVISED
DECEMBER 7, 2018
Federal Emergency Management Agency

Hydrologic Soil Group—El Paso County Area, Colorado



MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 - Soil Rating Polygons**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
 - Soil Rating Lines**
 -  A
 -  A/D
 -  B
 -  B/D
 -  C
 -  C/D
 -  D
 -  Not rated or not available
 - Soil Rating Points**
 -  A
 -  A/D
 -  B
 -  B/D
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
 -  Aerial Photography
- Other**
 -  C
 -  C/D
 -  D
 -  Not rated or not available

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 21, Aug 24, 2023

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

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	A	263.4	52.0%
9	Blakeland-Fluvaquentic Haplaquolls	A	9.5	1.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	A	103.9	20.5%
29	Fluvaquentic Haplaquolls, nearly level	D	129.3	25.5%
Totals for Area of Interest			506.1	100.0%

Description

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

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C – GEC PLANS AND DETAILS

LAYER LINETYPE LEGEND

Table listing various linetypes for EXISTING and PROPOSED conditions, including Phase Line, Match Line, Section Line, Boundary Line, Easement Line, Right of Way, R.O.W. A Line, Centerline, City Limits, Wire Fence, Chain Link Fence, Wood Fence, Masonry Fence, Guardrail, Conc. Barrier, Cable TV, Electric, Fiber Optic, Gas Main, Irrigation Main, Oil/Petro. Main, Overhead Utility, Sanitary Sewer, Storm Drain, Telephone, Water Main, Raw Water Line, Swale/Waterway Flowline, Diversion Ditch, Diversion Channel, Major Drainage Basin, Minor Drainage Basin, Top of Slope, Toe of Slope, Edge of Water, Index Contour, Intermediate Contour, Depression Cont. (INDEX), Depression Cont. (INTER), Top of Cuts, Cut and Fill Line, Silt Fence, 100 Year Floodplain, 500 Year Floodplain, Floodway, Base Flood Elevation, Edge of Wetlands, Stone Wall.

LANDSCAPE LEGEND

Table listing landscape symbols for EXISTING and PROPOSED conditions, including Tree - Coniferous, Tree - Deciduous, Shrub/Bush, Shrubs and Bushes, Irrigation Box, Irrigation Sprinkler, Irrigation Valve, Bollard, Flagpole.

UTILITIES LEGEND

Table listing utility symbols for EXISTING and PROPOSED conditions, categorized into Storm Sewer, Sanitary Sewer, Water Line, Gas Line, Dry Utilities, and Misc. Utilities.

MONUMENTATION LEGEND

Table listing monumentation symbols for FOUND and SET conditions, including Aluminum Cap, Brass Cap, Benchmark, Cross, Monument, Nail & Washer, Panel, PK Nail, Row Monument, Row Marker, Section Corner, Quarter-Section Corner, Section Center, Control/Traverse Point.

ABBREVIATIONS

Table of abbreviations for various engineering terms, including Acre, Algebraic Difference, Ahead, Architect, American Society of Civil Engineers, Avenue, Box Base, Back, Boundary, Bottom of Pipe, Blow Off Valve, Butterfly Valve, Boulevard, Bottom of Wall, Curb & Gutter, Cable Television, Catch Basin, Concrete Box Culvert, Colorado Department of Transportation, Cul-De-Sac, Cubic Foot, Cubic Feet per Second, Complete in Place, Center Line, Conditional Letter of Map Revision, Clean Out, Corrugated Metal Pipe, Clean Out, City of Colorado Springs, Concrete, Circle, Corrugated Steel Pipe, Colorado Springs Utilities, Court, Concrete Thrust Reducer, Block, Cubic Yard, Drainage Basin Planning Study, Drainage Easement, Diameter, Ductile Iron Pipe, Drive, Design Review Committee, Dwelling Units, Day, East, Each, Energy Grade Line, Elevation, Electric, Edge of Asphalt, El Paso County, Elliptical RCP, Easement, Estimate, Existing, Final Development Plan, Final Drainage Report, Flared End Section, Finished Floor Elevation, Finished Grade, Fire Hydrant, Flowline, Filing, Fiber Optic Cable, Grade Break, Gas Easement, Geographic Information System, Global Positioning System, Gate Valve, Hot Bituminous Pavement, Handicap, High Deflection Coupling, High Density Polyethylene, Hydraulic Grade Line, Hot Mix Asphalt, Home Owners Association, High Point, Hour, Inlet, Irrigation Easement, Intersection, Invert, Irrigation, Kick (Thrust) Block, Pound, Landscape Easement, Linear Foot, Lane, Letter of Map Revision, Low Point, Lump Sum, Left, Maximum, Moisture Density, Master Development, Drainage Plan, Manhole, Minimum, Mountable Sidewalk, North, Non-Reinforced Concrete Pipe, Official Development Plan, Overhead Electric, Overhead Utility, Point of Curvature, Point of Compound, Curvature, Point of Curb Return, Preliminary Development Plan, Professional Engineer, Point of Intersection, Parkway, Property Line, Proposed, Point of Reverse Curvature, Point of Tangency, Plug Valve, Polyvinyl Chloride, Radius, Reinforced Concrete Box Culvert, Reinforced Concrete Pipe, Road, Right of Way, Right, South, Steel, Sanitary Sewer, Square Foot, Station, Storm Sewer, Square Yard, Square Yard Inch, Thrust Block, Top Back of Curb, Top Back of Walk, Telephone, Top, Top of Asphalt, Top of Box, Top of Curb or Concrete, Top of Foundation, Top of Pipe, Top of Wall, Typical, Urban Drainage and Flood Control District, Utility Easement, Utility & Drainage Easement, Underground Electric, Vitrified Clay Pipe, Vertical Point of Curvature, Vertical Point of Intersection, Vertical Point of Tangency, Vehicle Tracking Control, West, Water Line, Water Main, Water Resources Department, Water Surface, Water Surface Elevation, Water, Year.

GEC LEGEND

Table listing symbols for various engineering and construction features, including Limits of Construction, Temporary Swale, Permanent Seeding & Mulching, Temporary Sediment Basin, Erosion Control Blanket, Rough Cut Street Control, Stabilized Staging Area, Vehicle Tracking Control, Inlet Protection, Outlet Protection, Check Dam, Temporary Slope Drain, Stockpile Protection, Cut and Fill Line, Construction Fence, Silt Fence, Rock Sock.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR PBOCES 2853 S. CIRCLE DRIVE COLORADO SPRINGS, CO 80906 PATRICK BERSHINSKY (719) 570-7474

J.R. ENGINEERING A Westman Company Central 303-740-9888 • Colorado Springs 719-583-2583 Fort Collins 970-491-9888 • www.jrengineering.com

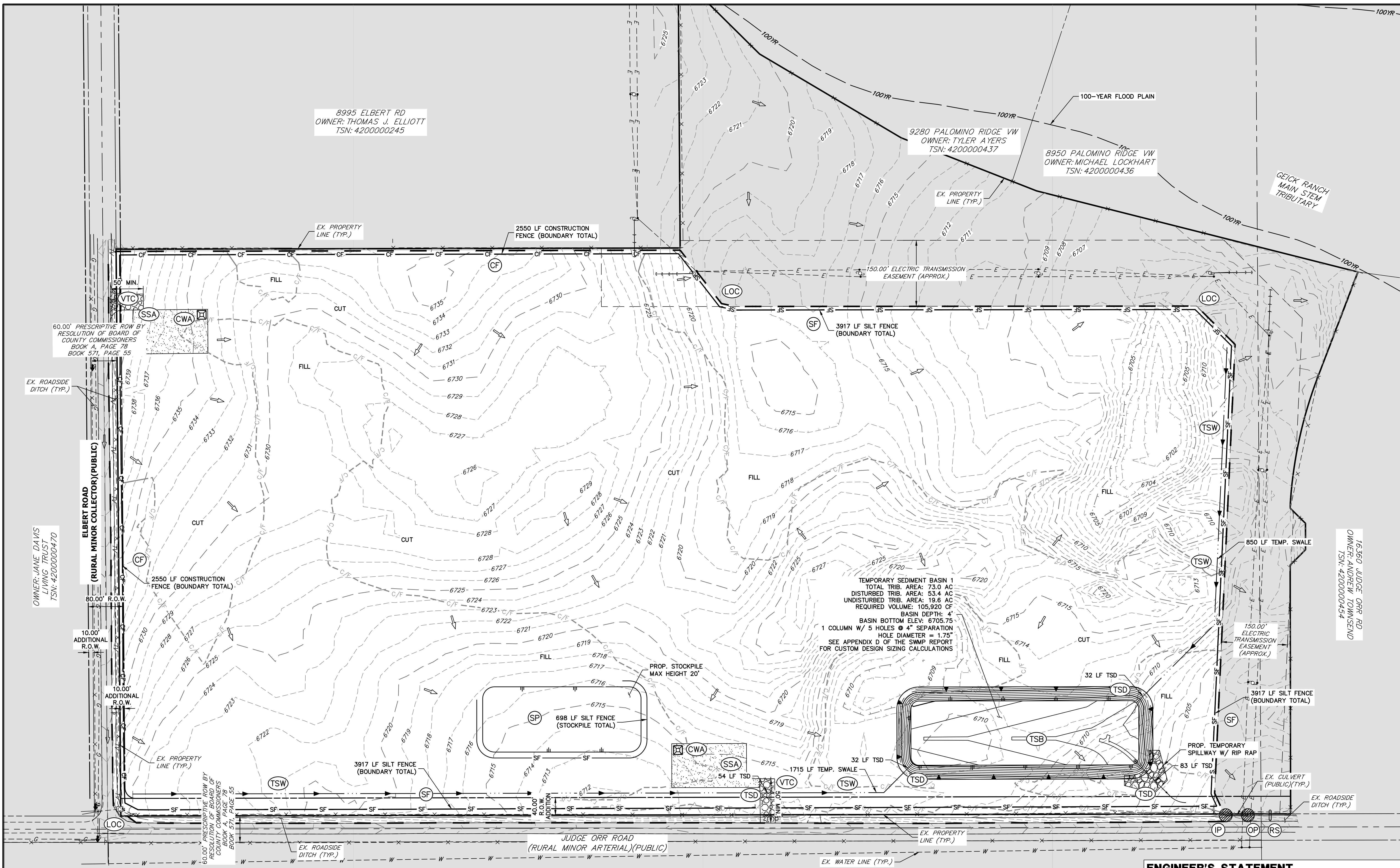
Table with columns for No., REVISION, BY, DATE.

Table with columns for H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY.

BOCES CAMPUS LEGEND



Know what's below. Call before you dig.



GEC PLAN SHEET NOTES

- TOTAL AREA TO BE SEEDED AND MULCHED POST-CONSTRUCTION IS 47.7 AC.
- ALL CONSTRUCTION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL AND DETAILS.
- NON-STRUCTURAL CONTROLS INCLUDING STREET SWEEPING, WILL BE AT THE DISCRETION OF THE PROJECT'S CERTIFIED GEC ADMINISTRATOR THROUGHOUT THE DURATION OF LAND DISTURBING ACTIVITIES.
- PROJECT IS LOCATED OUTSIDE OF 100 YEAR FLOOD PLAIN.
- CONTRACTOR TO DIRECT RUNOFF FROM DISTURBED AREAS TO PROPOSED TEMPORARY SEDIMENT BASINS WITH TEMPORARY SWALES AND PROPOSED SWALES. IF THE PROPOSED SWALES ARE NOT GRADED, TEMPORARY SWALES MAY BE REQUIRED TO ENSURE DISTURBED AREA RUNOFF IS TREATED IN THE TEMPORARY SEDIMENT BASINS PRIOR TO LEAVING THE SITE.

GEC LEGEND

LIMITS OF CONSTRUCTION	LOC	STABILIZED STAGING AREA	SSA	TEMPORARY SLOPE DRAIN	TSD
TEMPORARY SWALE	TSW	VEHICLE TRACKING CONTROL	VTC	STOCKPILE PROTECTION	SP
PERMANENT SEEDING & MULCHING	SM	INLET PROTECTION	IP	CUT AND FILL LINE	C/F
TEMPORARY SEDIMENT BASIN	TSB	OUTLET PROTECTION	OP	CONSTRUCTION FENCE	CF
EROSION CONTROL BLANKET	ECB	CHECK DAM	CD	SILT FENCE	SF
ROUGH CUT STREET CONTROL	RCS			ROCK SOCK	RS

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

100 50 0 100 200
ORIGINAL SCALE: 1" = 100'

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 LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLANS.

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING

COLORED REGISTERED PROFESSIONAL ENGINEER
25043

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
PBOCES
2883 S. CIRCLE DRIVE
COLORADO SPRINGS, CO 80906
PATRICK BERSHINSKY
(719) 570-7474

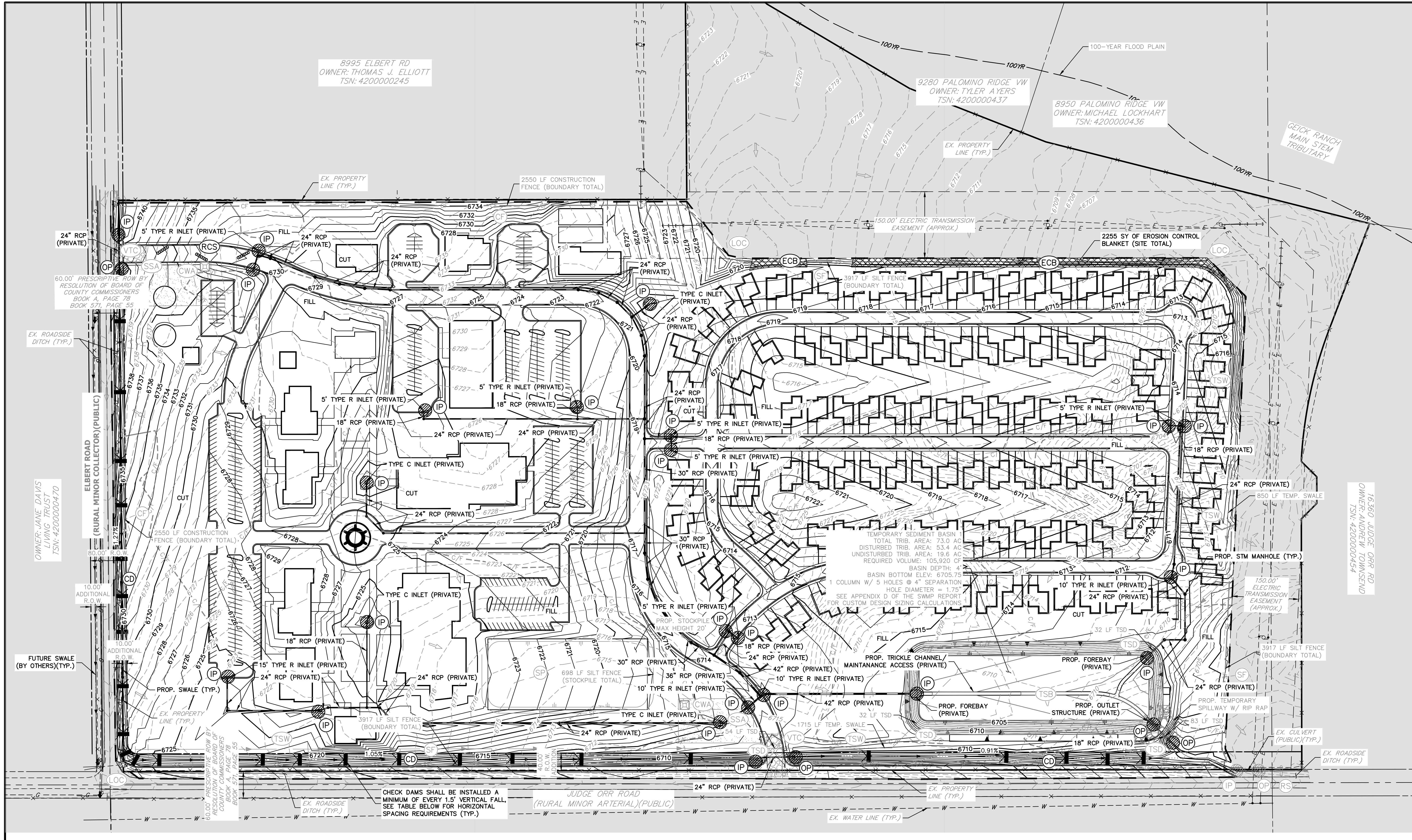
J.R. ENGINEERING
A Westman Company
Central 303-740-9888 • Colorado Springs 719-583-2583
Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	NO.	REVISION

H-SCALE 1"=100'
V-SCALE N/A
DATE 07/18/24
DESIGNED BY PAL
DRAWN BY PAL
CHECKED BY

BOCES CAMPUS
GEC INITIAL

SHEET 3 OF 9
JOB NO. 25301.00



Channel Slope (%)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
Check Dam Spacing (ft)	150	75	50	37.5	30	25	21.4	18.8	16.7	15

GEC PLAN SHEET NOTES

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GEC LEGEND

LIMITS OF CONSTRUCTION	LOC	— — — — —	STABILIZED STAGING AREA	SSA		TEMPORARY SLOPE DRAIN	TSD	
TEMPORARY SWALE	TSW		VEHICLE TRACKING CONTROL	VTC		STOCKPILE PROTECTION	SP	
PERMANENT SEEDING & MULCHING	SM		INLET PROTECTION	IP		CUT AND FILL LINE	C/F	
TEMPORARY SEDIMENT BASIN	TSB		OUTLET PROTECTION	OP		CONSTRUCTION FENCE	CF	
EROSION CONTROL BLANKET	ECB		CHECK DAM	CD		SILT FENCE	SF	
ROUGH CUT STREET CONTROL	RCS					ROCK SOCK	RS	

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

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 COLORADO P.E. 25043
 FOR AND ON BEHALF OF JR ENGINEERING

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PREPARED FOR
PBOCES
 2883 S. CIRCLE DRIVE
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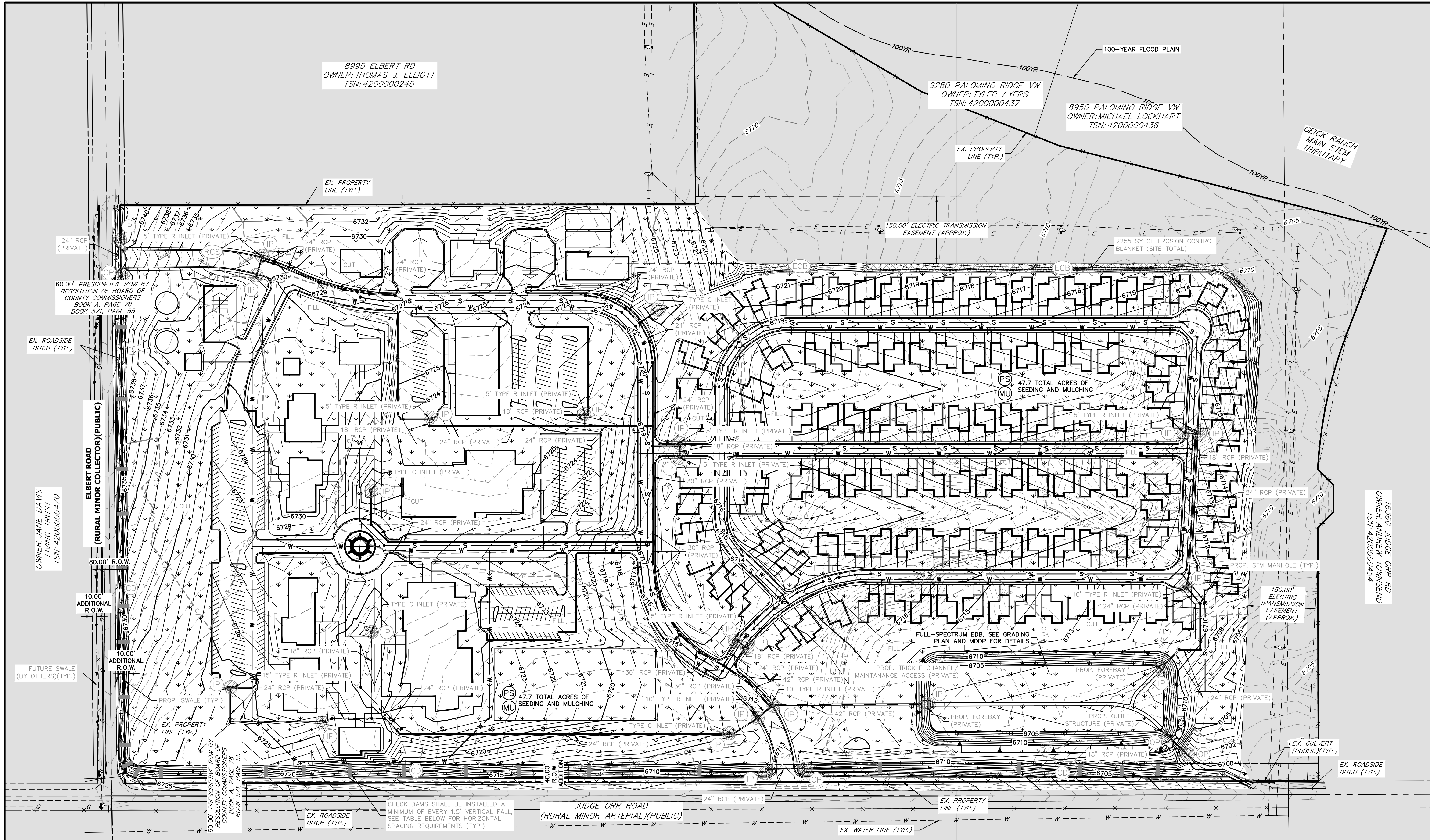
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BY	DATE	No.	REVISION

H-SCALE 1"=100'
 V-SCALE N/A
 DATE 07/18/24
 DESIGNED BY PAL
 DRAWN BY PAL
 CHECKED BY

BOCES CAMPUS
 GEC INTERIM

SHEET 4 OF 9
 JOB NO. 25301.00



8995 ELBERT RD
OWNER: THOMAS J. ELLIOTT
TSN: 4200000245

9280 PALOMINO RIDGE VW
OWNER: TYLER AYERS
TSN: 4200000437

8950 PALOMINO RIDGE VW
OWNER: MICHAEL LOCKHART
TSN: 4200000436

GEICK RANCH
MAIN STEM
TRIBUTARY

60.00' PRESCRIPTIVE ROW BY
RESOLUTION OF BOARD OF
COUNTY COMMISSIONERS
BOOK A, PAGE 78
BOOK 571, PAGE 55

EX. ROADSIDE
DITCH (TYP.)

ELBERT ROAD
(RURAL MINOR COLLECTOR)(PUBLIC)

OWNER: JANE DAVIS
LIVING TRUST
TSN: 4200000470

60.00' R.O.W.

10.00'
ADDITIONAL
R.O.W.

10.00'
ADDITIONAL
R.O.W.

FUTURE SWALE
(BY OTHERS)(TYP.)

60.00' PRESCRIPTIVE ROW BY
RESOLUTION OF BOARD OF
COUNTY COMMISSIONERS
BOOK A, PAGE 78
BOOK 571, PAGE 55

CHECK DAMS SHALL BE INSTALLED AT
A MINIMUM OF EVERY 1.5' VERTICAL FALL.
SEE TABLE BELOW FOR HORIZONTAL
SPACING REQUIREMENTS (TYP.)

JUDGE ORR ROAD
(RURAL MINOR ARTERIAL)(PUBLIC)

16360 JUDGE ORR RD
OWNER: ANDREW TOMMENSEND
TSN: 4200000454

Channel Slope (%)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
Check Dam Spacing (ft)	150	75	50	37.5	30	25	21.4	18.8	16.7	15

GEC PLAN SHEET NOTES

- TOTAL AREA TO BE SEEDED AND MULCHED POST-CONSTRUCTION IS 47.7 AC.
- ALL CONSTRUCTION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE COLORADO SPRINGS STORMWATER CONSTRUCTION MANUAL AND DETAILS.
- NON-STRUCTURAL CONTROLS INCLUDING STREET SWEEPING, WILL BE AT THE DISCRETION OF THE PROJECT'S CERTIFIED GEC ADMINISTRATOR THROUGHOUT THE DURATION OF LAND DISTURBING ACTIVITIES.
- PROJECT IS LOCATED OUTSIDE OF 100 YEAR FLOOD PLAIN.
- CONTRACTOR TO DIRECT RUNOFF FROM DISTURBED AREAS TO PROPOSED TEMPORARY SEDIMENT BASINS WITH TEMPORARY SWALES AND PROPOSED SWALES. IF THE PROPOSED SWALES ARE NOT GRADED, TEMPORARY SWALES MAY BE REQUIRED TO ENSURE DISTURBED AREA RUNOFF IS TREATED IN THE TEMPORARY SEDIMENT BASINS PRIOR TO LEAVING THE SITE.

GEC LEGEND

LIMITS OF CONSTRUCTION		STABILIZED STAGING AREA		TEMPORARY SLOPE DRAIN	
TEMPORARY SWALE		VEHICLE TRACKING CONTROL		STOCKPILE PROTECTION	
PERMANENT SEEDING & MULCHING		INLET PROTECTION		CUT AND FILL LINE	
TEMPORARY SEDIMENT BASIN		OUTLET PROTECTION		CONSTRUCTION FENCE	
EROSION CONTROL BLANKET		CHECK DAM		SILT FENCE	
ROUGH CUT STREET CONTROL				ROCK SOCK	

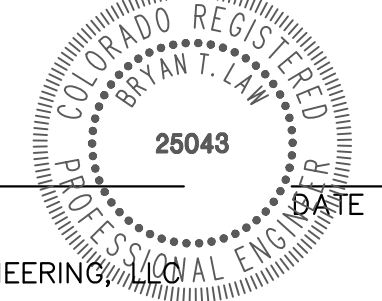


Know what's below.
Call before you dig.



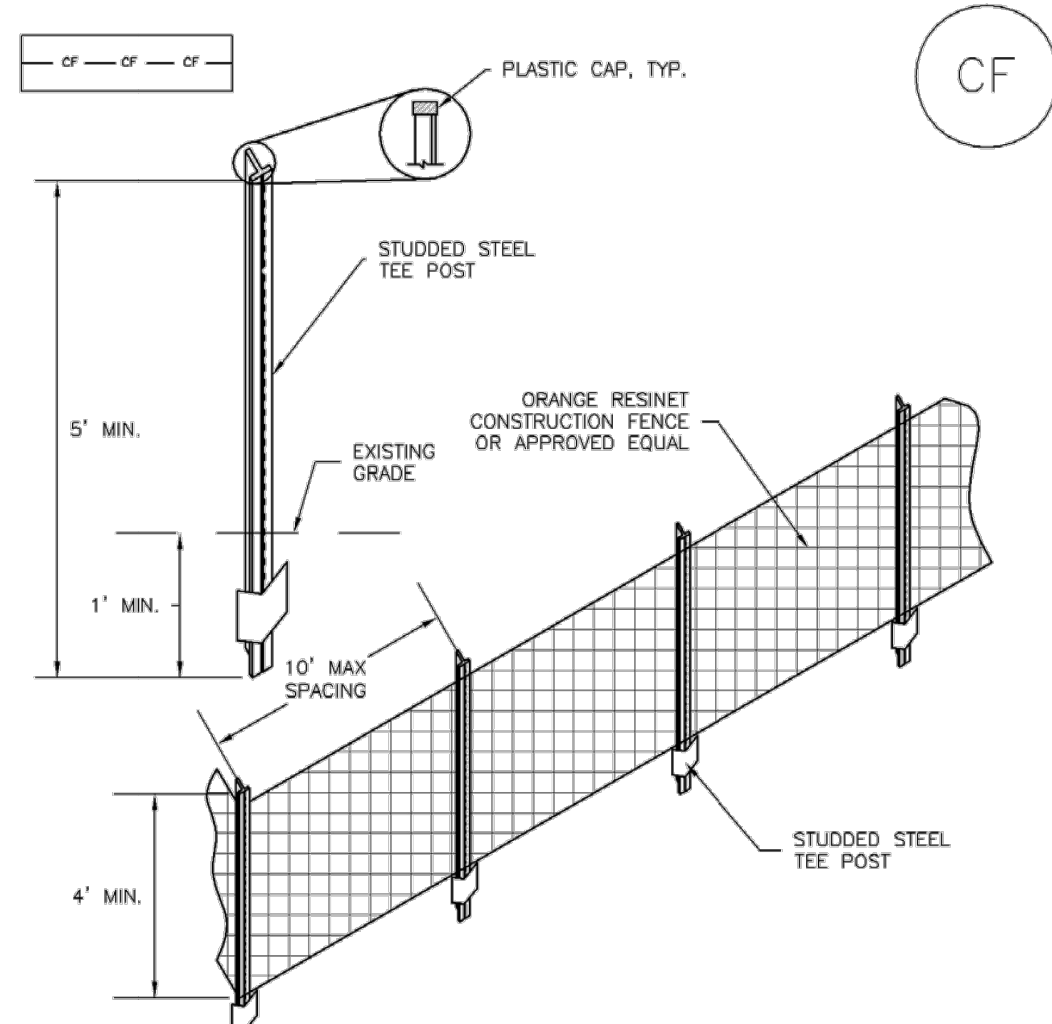
ENGINEER'S STATEMENT

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 LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLANS.



BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION. PREPARED FOR PBBOCES 2883 S. CIRCLE DRIVE COLORADO SPRINGS, CO 80906 PATRICK BERSHINSKY (719) 570-7474	BY DATE
	No. REVISION
H-SCALE 1"=100' V-SCALE N/A DATE 07/18/24 DESIGNED BY PAL DRAWN BY PAL CHECKED BY	BOCES CAMPUS GEC FINAL
SHEET 5 OF 9 JOB NO. 25301.00	J.R. ENGINEERING A Westman Company Centennial 300-740-9888 • Colorado Springs 719-583-2583 Fort Collins 970-491-9888 • www.jrengineering.com



CF-1. PLASTIC MESH CONSTRUCTION FENCE

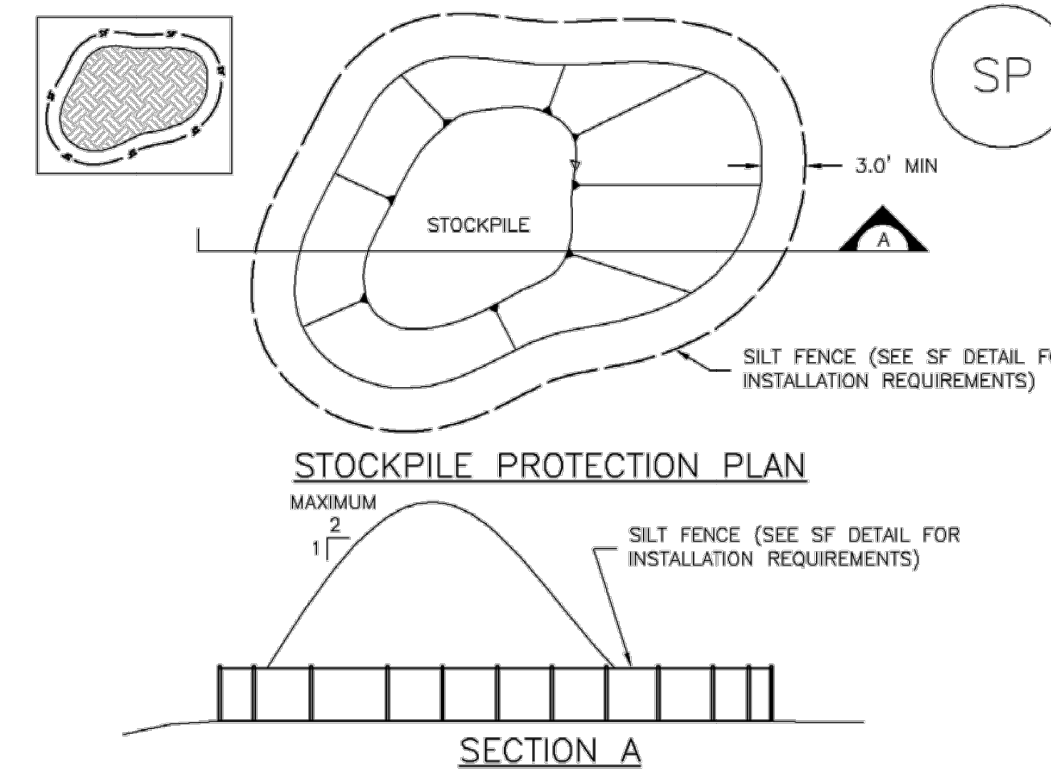
CONSTRUCTION FENCE INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF CONSTRUCTION FENCE.
- CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY.
- STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.
- CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND BOTTOM OF EACH POST.

CONSTRUCTION FENCE MAINTENANCE NOTES

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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.
(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)



SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF STOCKPILES.
 - TYPE OF STOCKPILE PROTECTION.
- INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADEMENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

- IF PERIMETER CONTROL MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.

(DETAILS ADAPTED FROM 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.

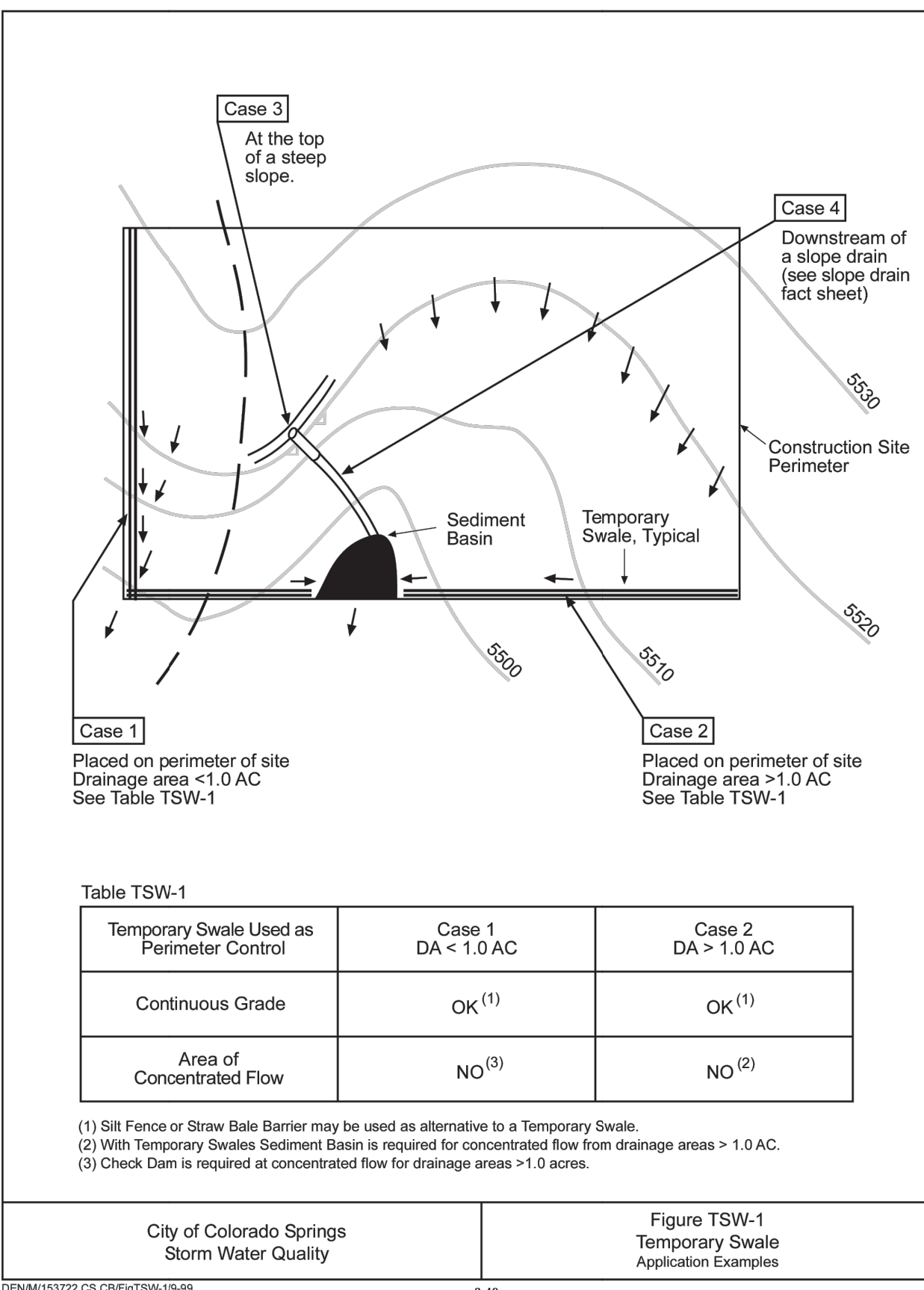
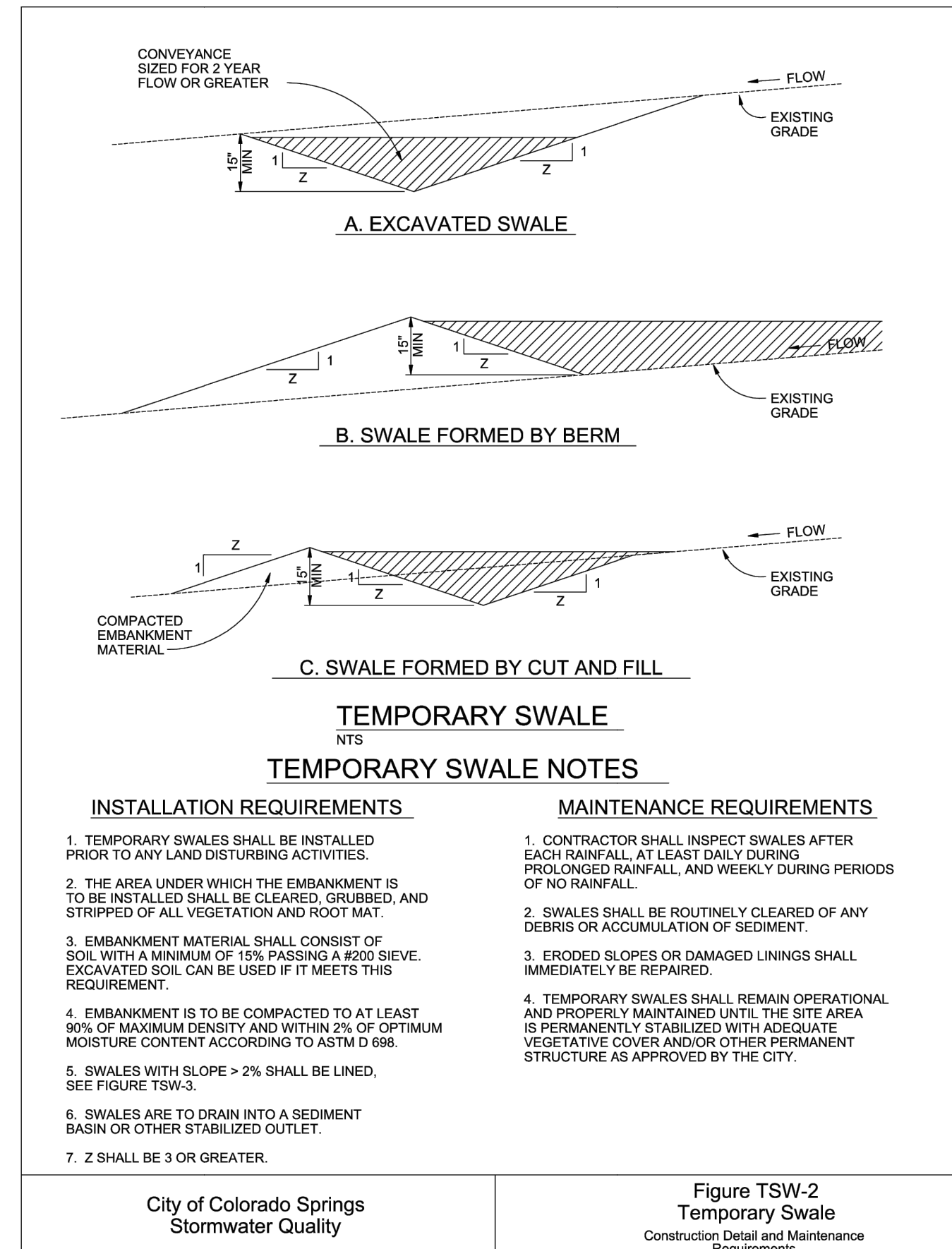


Table TSW-1

Temporary Swale Used as	Case 1 DA < 1.0 AC	Case 2 DA > 1.0 AC
Continuous Grade	OK ⁽¹⁾	OK ⁽¹⁾
Area of Concentrated Flow	NO ⁽³⁾	NO ⁽²⁾

(1) Silt Fence or Straw Bale Barrier may be used as alternative to a Temporary Swale.
(2) With Temporary Swales Sediment Basins is required for concentrated flow from drainage areas > 1.0 AC.
(3) Check Dam is required at concentrated flow for drainage areas > 1.0 acres.



TEMPORARY SWALE NOTES

INSTALLATION REQUIREMENTS MAINTENANCE REQUIREMENTS

- TEMPORARY SWALES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 15% PASSING A #200 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
- EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
- SWALES WITH SLOPE > 2% SHALL BE LINED. SEE FIGURE TSW-2.
- SWALES ARE TO DRAIN INTO A SEDIMENT BASIN OR OTHER STABILIZED OUTLET.
- Z SHALL BE 3 OR GREATER.

Description

Outlet protection helps to reduce erosion immediately downstream of a pipe, culvert, slope drain, rundown or other conveyance with concentrated, high-velocity flows. Typical outlet protection consists of riprap or rock aprons at the conveyance outlet.

Appropriate Uses

Outlet protection should be used when a conveyance discharges onto a disturbed area where there is potential for accelerated erosion due to concentrated flow. Outlet protection should be provided where the velocity at the culvert outlet exceeds the maximum permissible velocity of the material in the receiving channel.

Note: This Fact Sheet and detail are for temporary outlet protection, outlets that are intended to be used for less than 2 years. For permanent, long-term outlet protection, see the Major Drainage chapter of Volume 1.

Design and Installation

Design outlet protection to handle runoff from the largest drainage area that may be contributing runoff during construction (the drainage area may change as a result of grading). Key in rock, around the entire perimeter of the apron, to a minimum depth of 6 inches for stability. Extend riprap to the height of the culvert or the normal flow depth of the downstream channel, whichever is less. Additional erosion control measures such as vegetative lining, turf reinforcement mat and/or other channel lining methods may be required downstream of the outlet protection if the channel is susceptible to erosion. See Design Detail OP-1 for additional information.

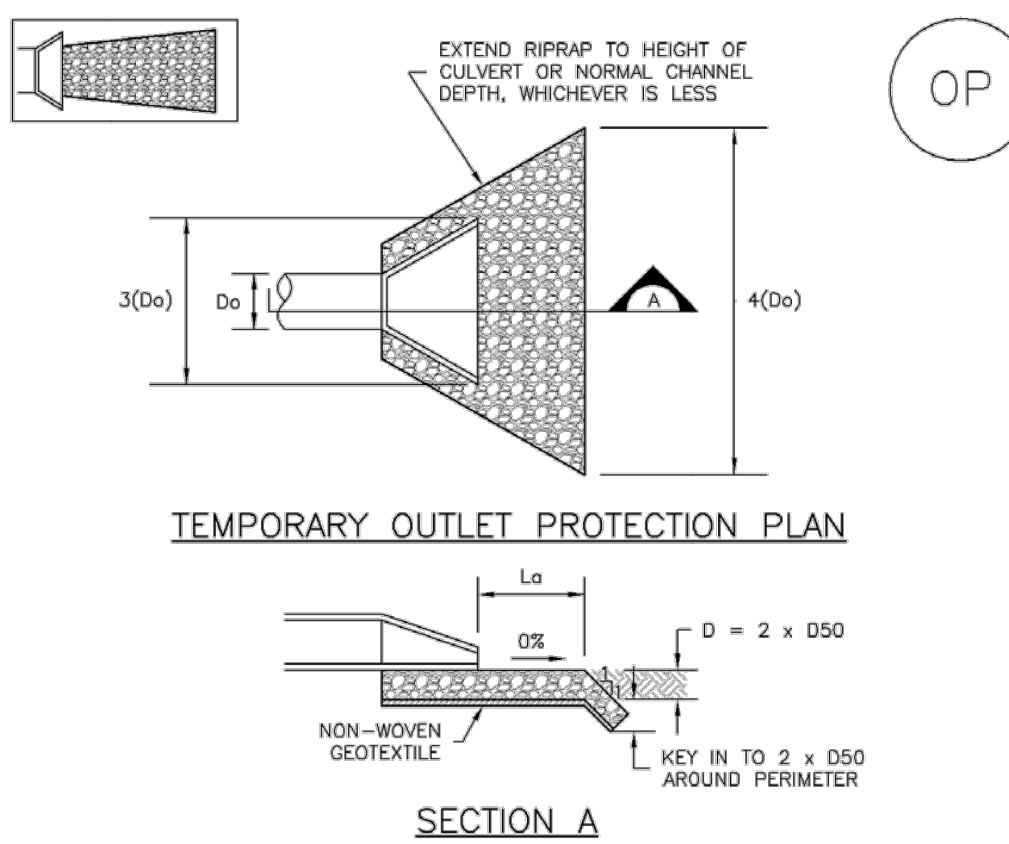
Maintenance and Removal

Inspect apron for damage and displaced rocks. If rocks are missing or significantly displaced, repair or replace as necessary. If rocks are continuously missing or displaced, consider increasing the size of the riprap or deeper keying of the perimeter.

Remove sediment accumulated at the outlet before the outlet protection becomes buried and ineffective. When sediment accumulation is noted, check that upgradient BMPs, including inlet protection, are in effective operating condition.

Outlet protection may be removed once the pipe is no longer draining an upstream area, or once the downstream area has been sufficiently stabilized. If the drainage pipe is permanent, outlet protection can be left in place; however, permanent outlet protection should be designed and constructed in accordance with the requirements of the Major Drainage chapter of Volume 2.

Outlet Protection	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No



TEMPORARY OUTLET PROTECTION PLAN

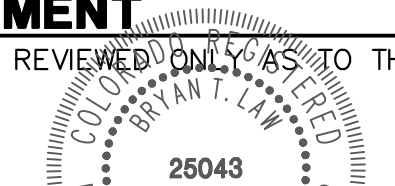
SECTION A

PIPE DIAMETER, D _o (INCHES)	DISCHARGE, Q (CFS)	APRON LENGTH, L _a (FT)	RIPRAP D50 DIAMETER MIN (INCHES)
8	2.5	5	4
	5	10	6
12	5	10	4
	10	13	6
18	10	10	6
	20	16	9
	30	23	12
24	40	26	12
	40	26	16
	60	30	16

OP-1. TEMPORARY OUTLET PROTECTION

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT



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COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING

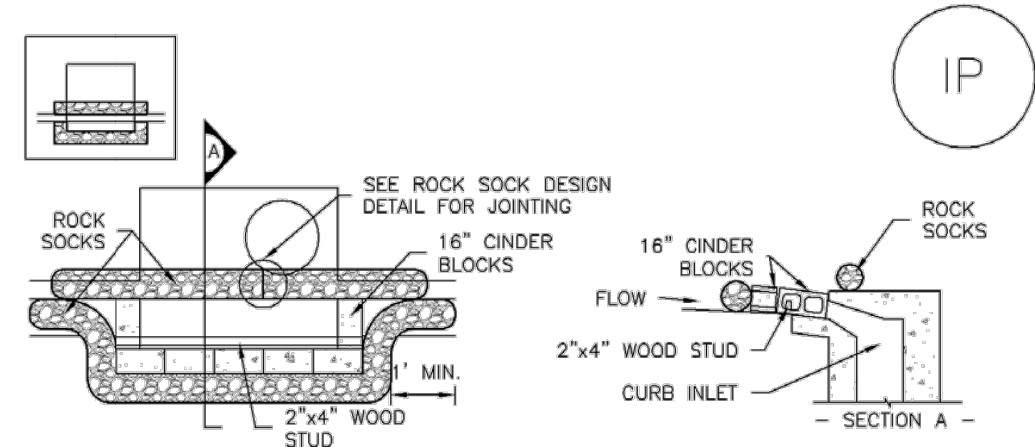
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PREPARED FOR
PBOCES
2883 S. CIRCLE DRIVE
COLORADO SPRINGS, CO 80906
PATRICK BERSHINSKY
(719) 570-7474

J.R. ENGINEERING
A Westman Company
Central 303-740-9888 • Colorado Springs 719-588-2583
Fort Collins 970-491-9888 • www.jrengineering.com

H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY	No.	REVISION	BY	DATE
BOCES CAMPUS DETAILS									
SHEET 6 OF 9 JOB NO. 25301.00									

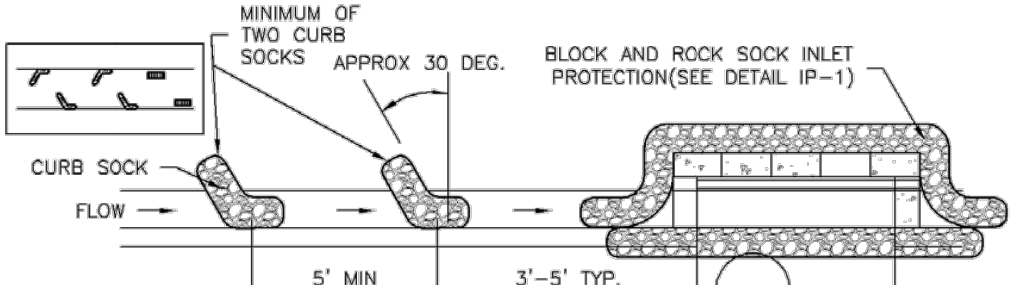
SC-6 Inlet Protection (IP)



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 JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.



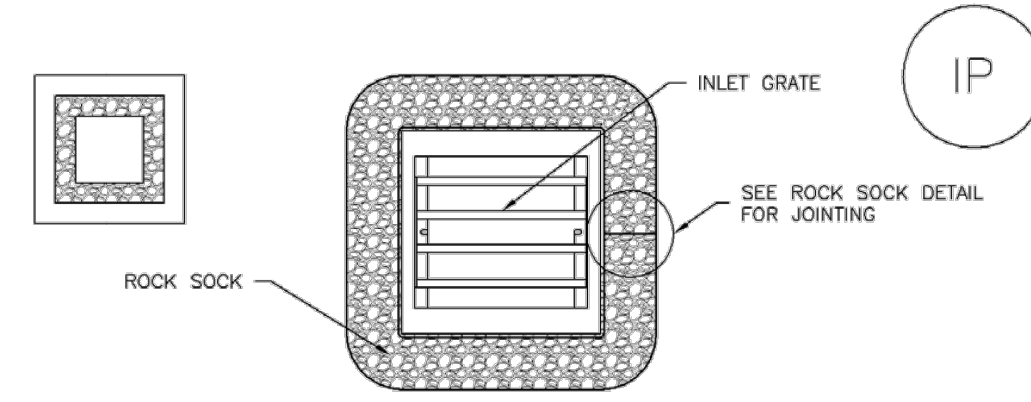
IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

- 1. SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
2. PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
3. SOCKS ARE TO BE FLUSH 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-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

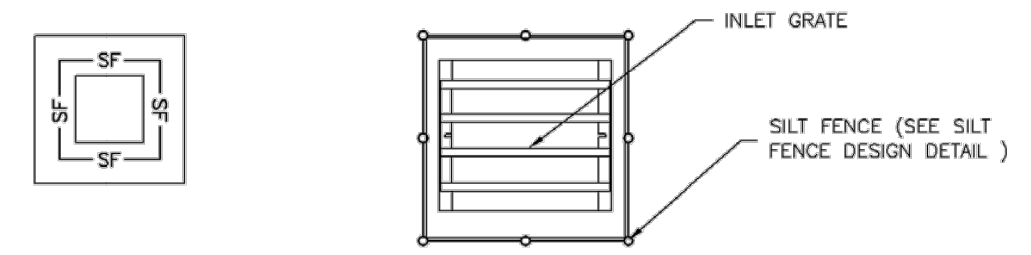
Inlet Protection (IP) SC-5



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 WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.



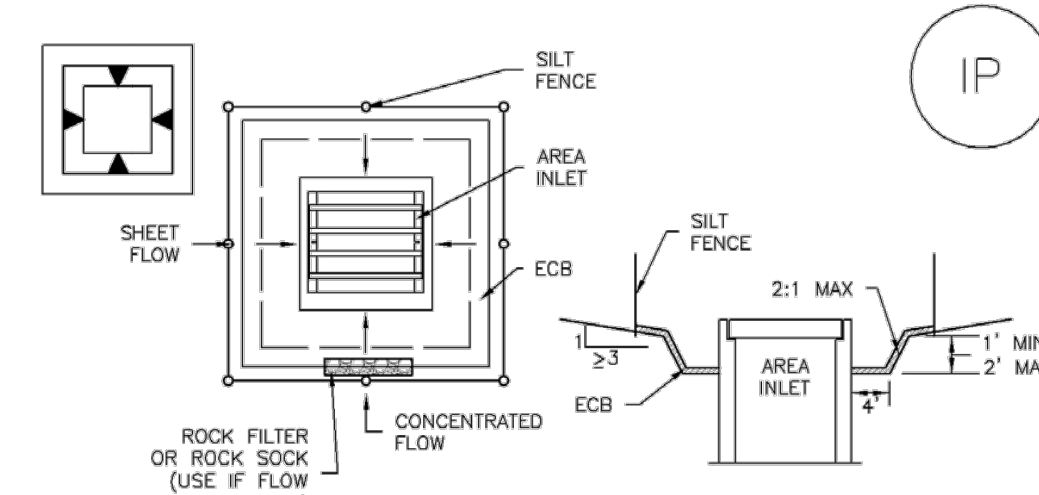
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

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 WATTLES/SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF SILT FENCE FOR INLETS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL.

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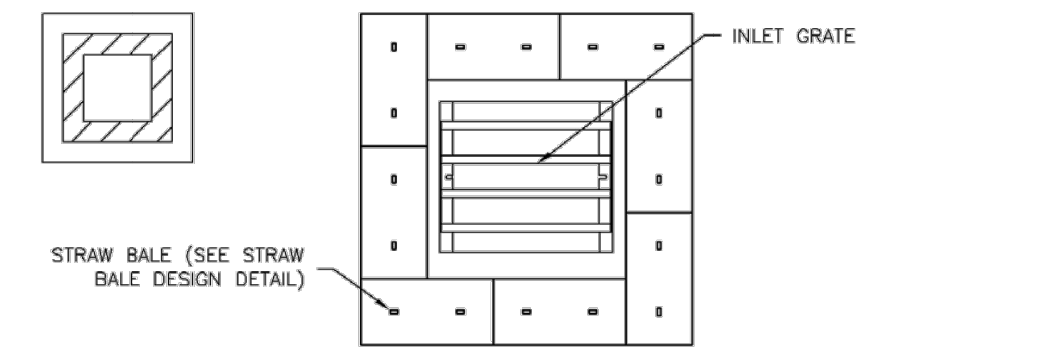
SC-6 Inlet Protection (IP)



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.



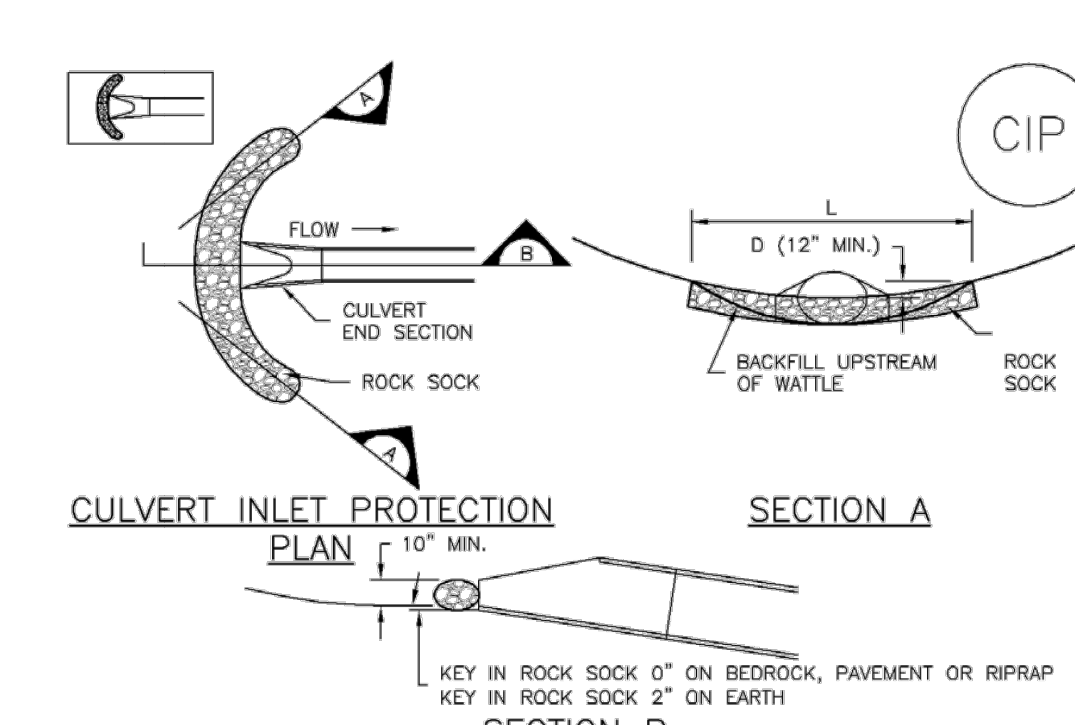
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER 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.

IP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

Inlet Protection (IP) SC-6



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 GRADATION REQUIREMENTS AND JOINING DETAIL.

CULVERT 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 THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
(Details adapted from 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.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 IP-7

SC-6 Inlet Protection (IP)

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 UDFCD 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 THE 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 1/2 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.

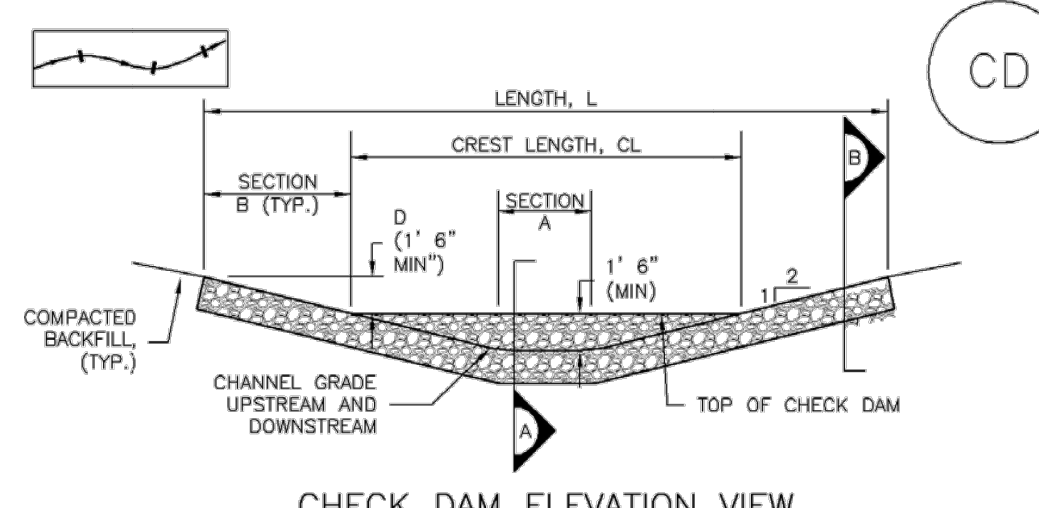
NOTE: THE DETAILS INCLUDED WITH THIS FACT SHEET SHOW COMMONLY USED, CONVENTIONAL METHODS OF INLET PROTECTION IN THE DENVER METROPOLITAN AREA. THERE ARE MANY PROPRIETARY INLET PROTECTION METHODS ON THE MARKET. UDFCD NEITHER ENDORSES NOR DISCOURAGES USE OF PROPRIETARY INLET PROTECTION. HOWEVER, IN THE 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.

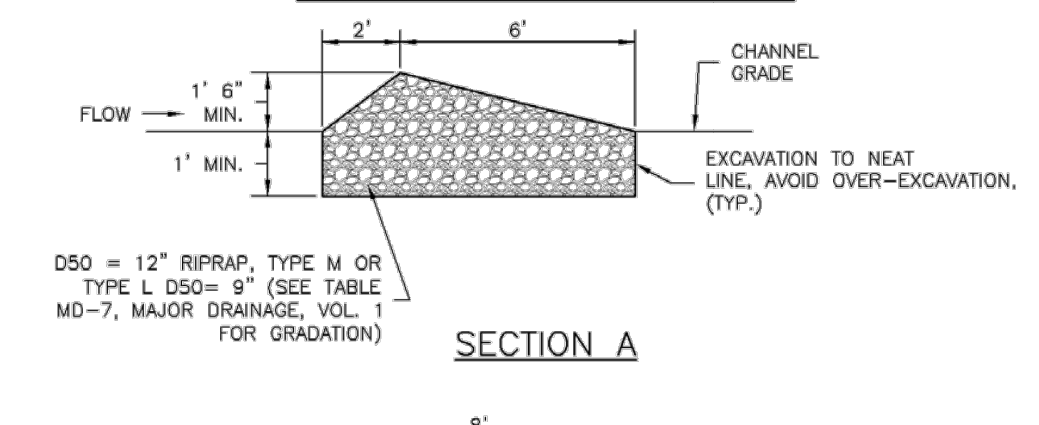
IP-8 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

SEEDING & MULCHING. ALL SOIL TESTING, SOILS AMENDMENT AND FERTILIZER DOCUMENTATION, AND SEED LOAD AND BAG TICKETS MUST BE ADDED TO THE CSWMP. SOIL PREPARATION. 1. IN AREAS TO BE SEEDED, THE UPPER 6 INCHES OF THE SOIL MUST NOT BE HEAVILY COMPACTED, AND SHOULD BE IN FRAGILE CONDITION, LESS THAN 85% STANDARD PROCTOR DENSITY IS ACCEPTABLE.

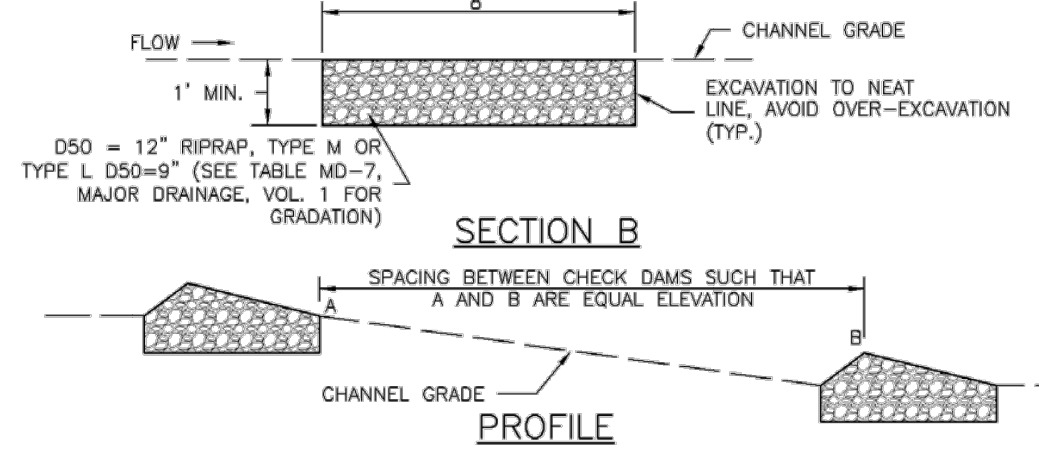
Check Dams (CD) EC-12



CHECK DAM ELEVATION VIEW



SECTION A



SECTION B

CD-1. CHECK DAM

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CD-3

EC-12 Check Dams (CD)

CHECK DAM INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR -LOCATION OF CHECK DAMS. -CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM). -LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
2. CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
3. RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").
4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.
5. THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM MAINTENANCE NOTES

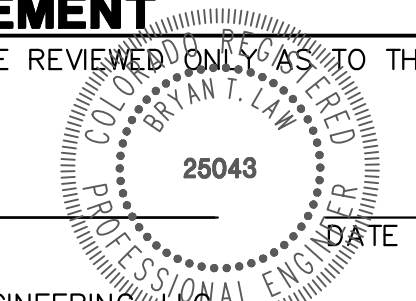
- 1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS 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 CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
5. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
6. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
(Details adapted from Douglas County, 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.

CD-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

ENGINEER'S STATEMENT

STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

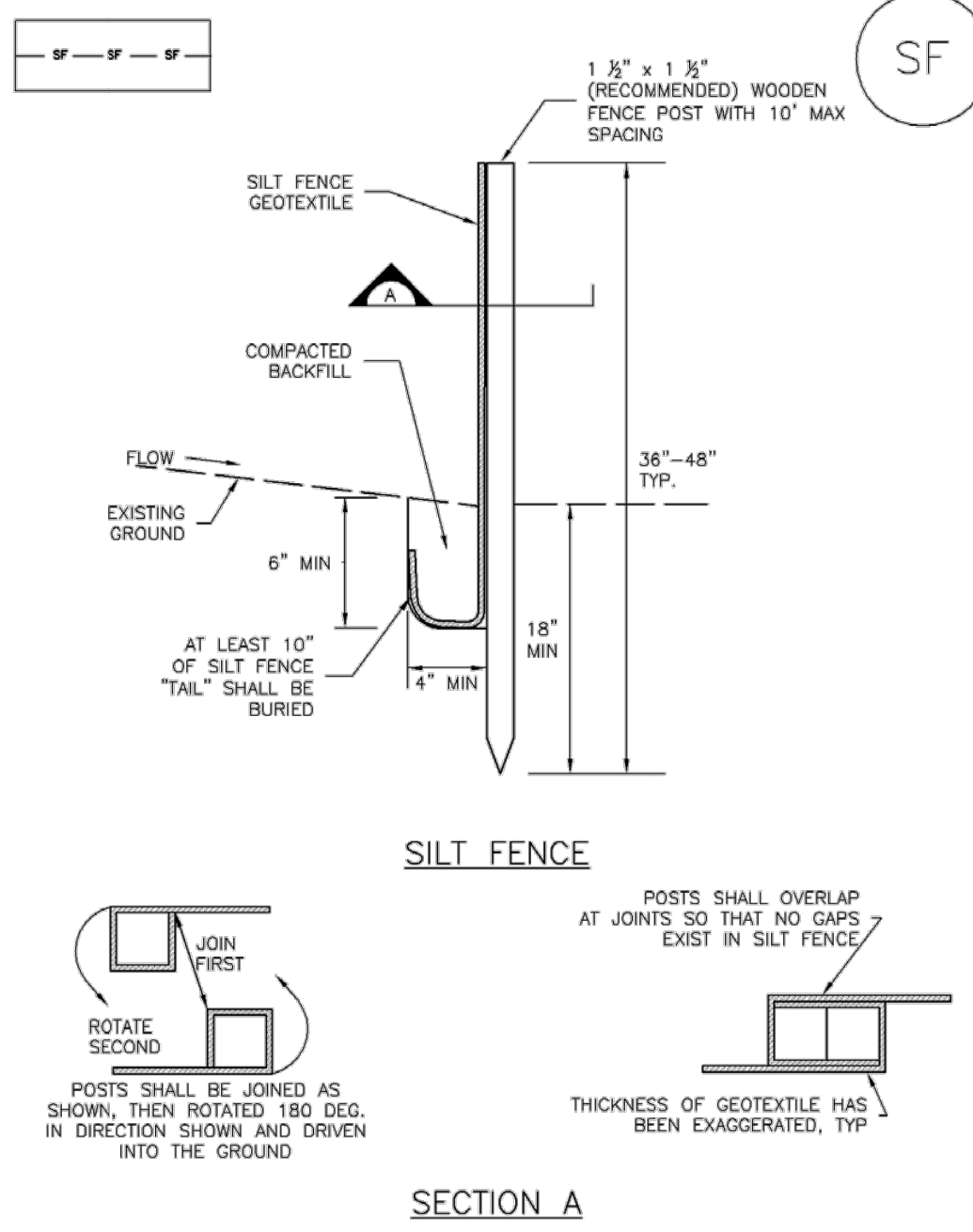
BRYAN T. LAW, P.E. COLORADO P.E. 25043 FOR AND ON BEHALF OF JR ENGINEERING



BOCES CAMPUS DETAILS SHEET 7 OF 9 JOB NO. 25301.00. PREPARED FOR PPBOCES BY JR ENGINEERING. UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

Silt Fence (SF)

SC-1



SF-1. SILT FENCE

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SC-1

Silt Fence (SF)

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\"/>

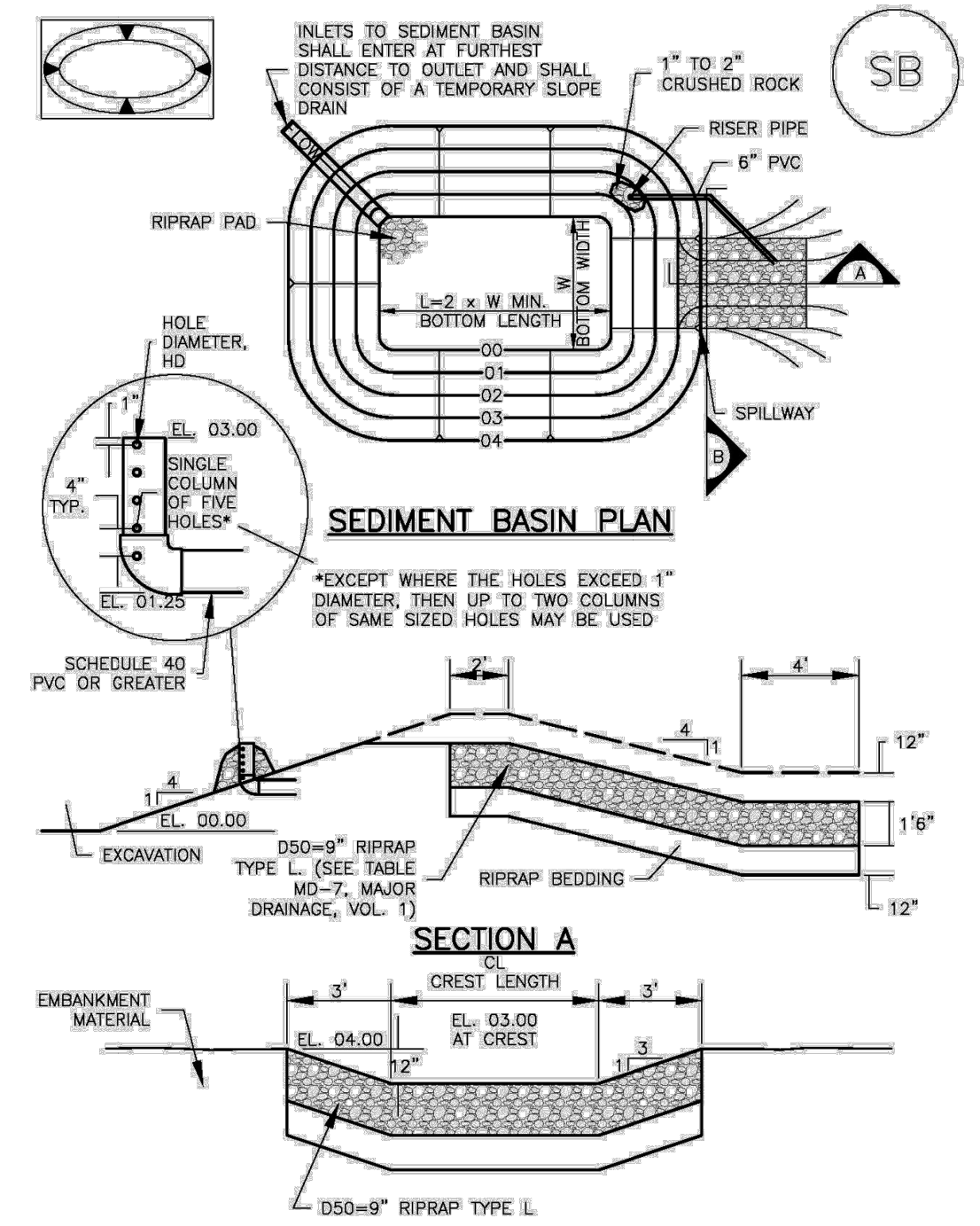
SILT FENCE MAINTENANCE NOTES

- 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\"/>

SF-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Sediment Basin (SB)

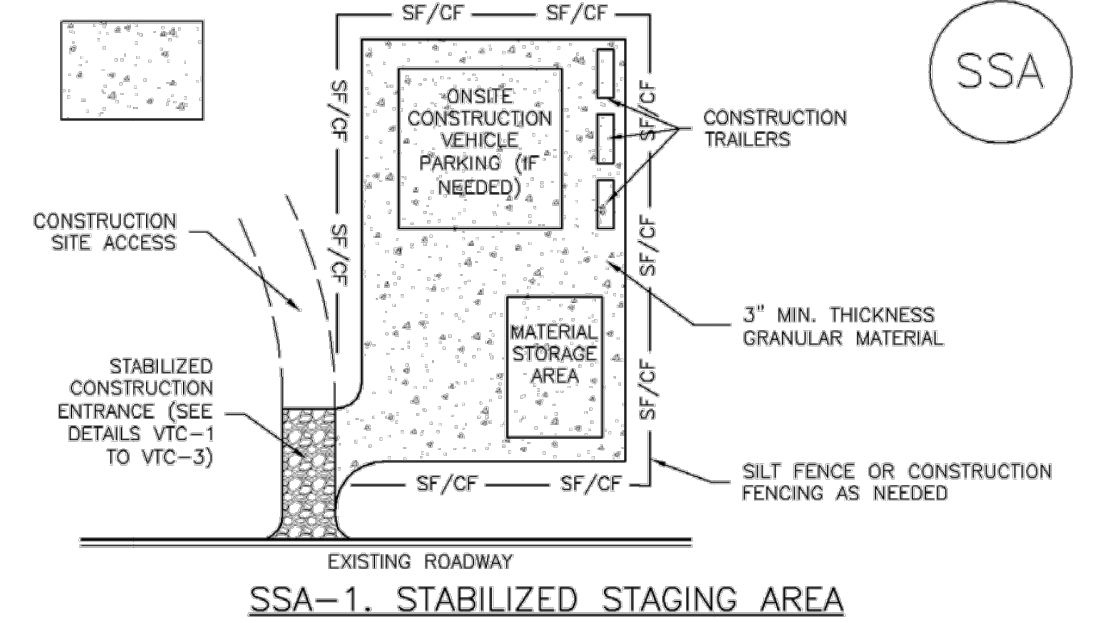
SC-7



August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-5

Stabilized Staging Area (SSA)

SM-6



SSA-1. STABILIZED STAGING AREA
STABILIZED STAGING AREA INSTALLATION NOTES
1. SEE PLAN VIEW FOR LOCATION OF STAGING AREA(S).
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\"/>

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SSA-3

SC-7

Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN. Columns: Upstream Drainage Area (ac), Basin Bottom Width (ft), Spillway Crest Length (ft), Hole Diameter (in).

- SEDIMENT BASIN INSTALLATION NOTES
1. SEE PLAN VIEW FOR:
- LOCATION OF SEDIMENT BASIN.
- TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
- FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
- FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SB-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 August 2013

SM-6

Stabilized Staging Area (SSA)

- 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)

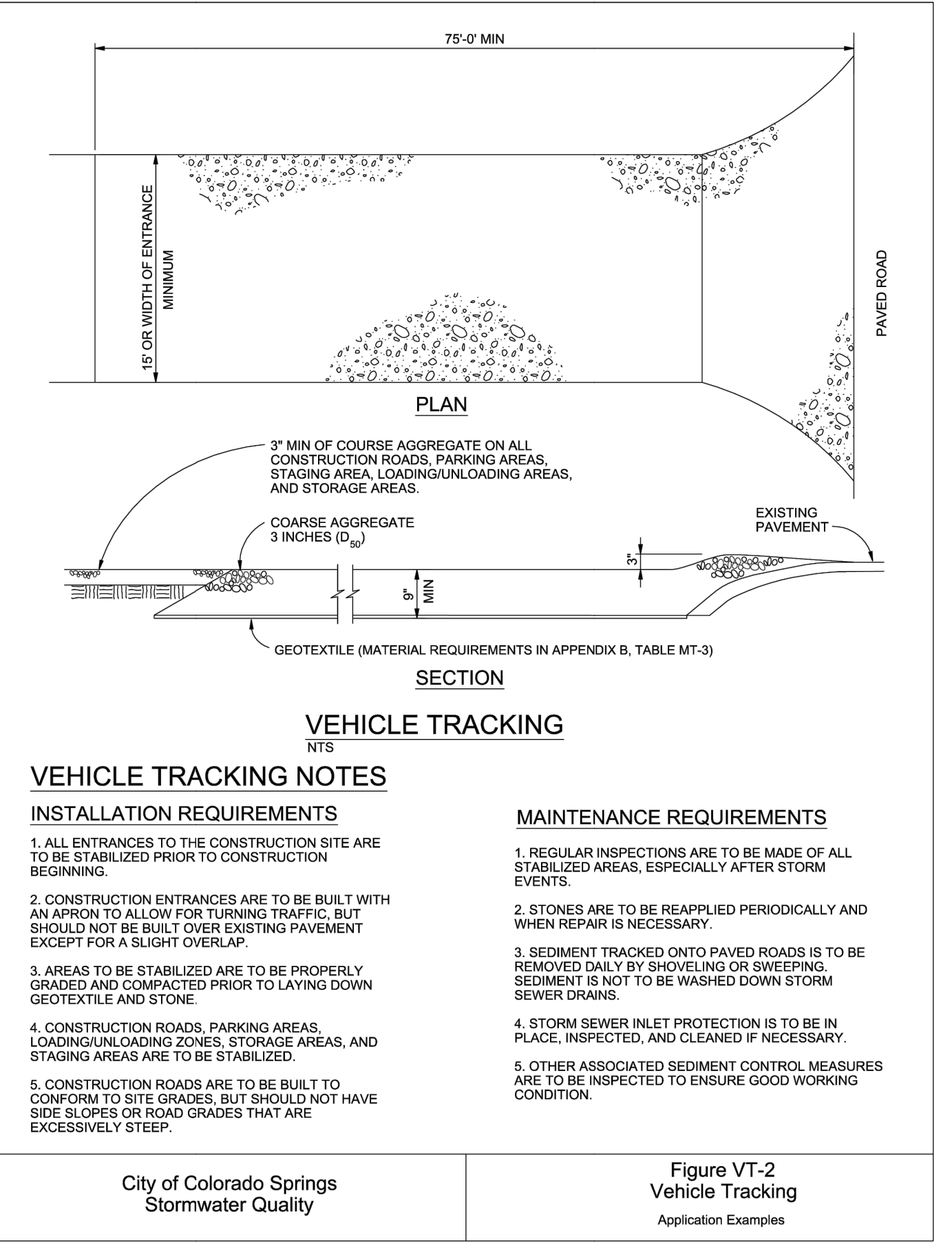
SSA-4 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Sediment Basin (SB)

SC-7

- SEDIMENT BASIN 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 IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
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.

August 2013 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SB-7



City of Colorado Springs Stormwater Quality Figure VT-2 Vehicle Tracking Application Examples 3-64

ENGINEER'S STATEMENT

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BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, OR ENGINEERING APPROVES THEIR USE, THESE DRAWINGS ARE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR PBOCES 2863 S. CIRCLE DRIVE COLORADO SPRINGS, CO 80906 PATRICK BERSHINSKY (719) 570-7474



Table with columns: No., REVISION, BY, DATE. Includes a section for H-SCALE, V-SCALE, DATE, DESIGNED BY, DRAWN BY, CHECKED BY.

BOCES CAMPUS DETAILS

DESIGNED BY PAL DRAWN BY PAL CHECKED BY

SHEET 8 OF 9 JOB NO. 25301.00

Rough Cut Street Control (RCS) EC-9

Description

Rough cut street controls are rock or earthen berms placed along dirt roadways that are under construction or used for construction access. These temporary berms intercept sheet flow and divert runoff from the roadway, and control erosion by minimizing concentration of flow and reducing runoff velocity.



Photograph RCS-1. Rough cut street controls.

Appropriate Uses

Appropriate uses include:

- Temporary dirt construction roadways that have not received roadbase.
- Roadways under construction that will not be paved within 14 days of final grading, and that have not yet received roadbase.

Design and Installation

Rough cut street controls are designed to redirect sheet flow off the dirt roadway to prevent water from concentrating and eroding the soil. These controls consist of runoff barriers that are constructed at intervals along the road. These barriers are installed perpendicular to the longitudinal slope from the outer edge of the roadside swale to the crown of the road. The barriers are positioned alternately from the right and left side of the road to allow construction traffic to pass in the lane not barred. If construction traffic is expected to be congested and a vehicle tracking control has been constructed, rough-cut street controls may be omitted for 400 feet from the entrance. Runoff from the controls should be directed to another stormwater BMP such as a roadside swale with check dams once removed from the roadway. See Detail RCS-1 for additional information.

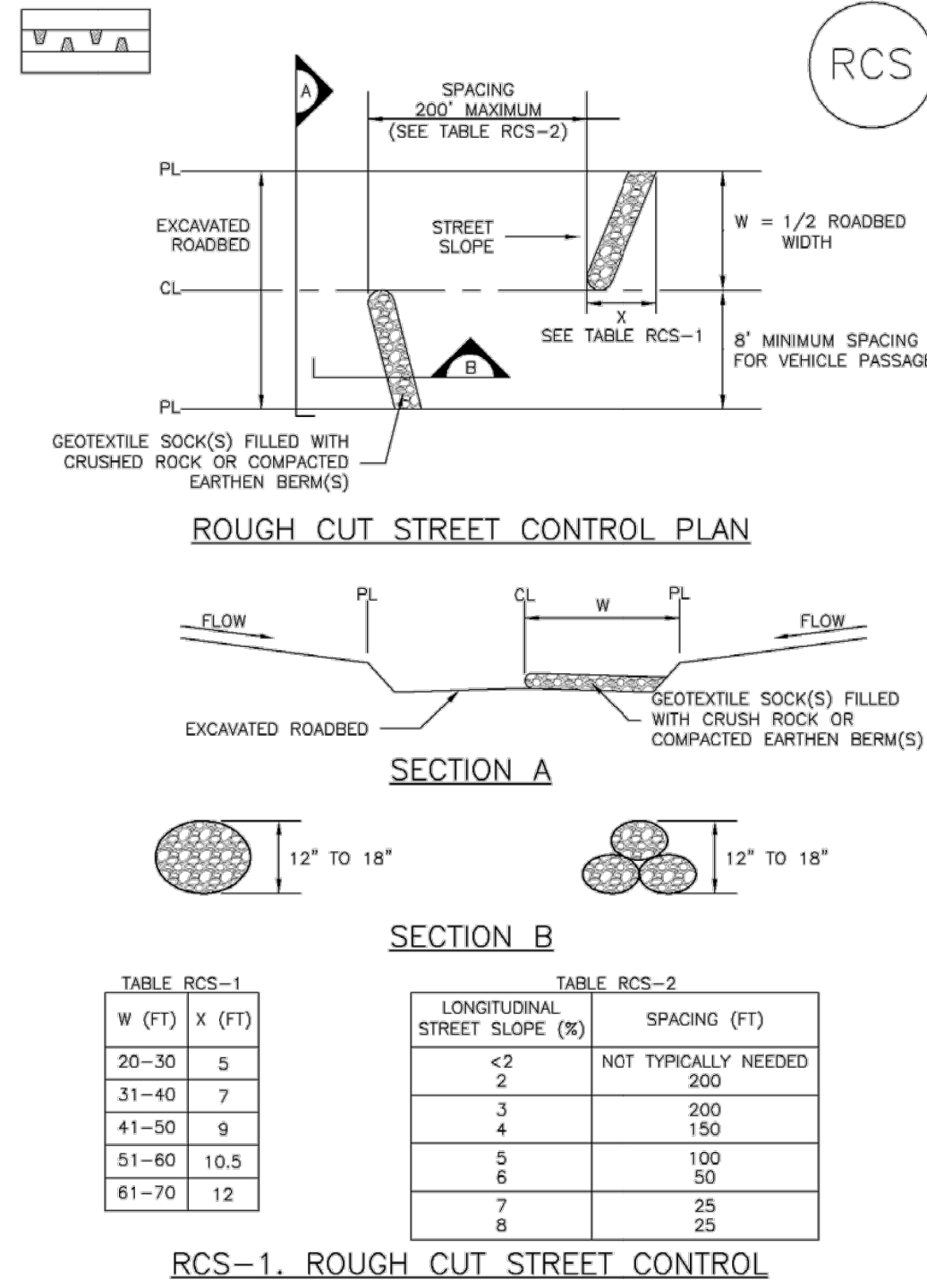
Maintenance and Removal

Inspect street controls for erosion and stability. If rills are forming in the roadway or cutting through the control berms, place the street controls at shorter intervals. If earthen berms are used, periodic recompaction may be necessary. When rock berms are used, repair and/or replace as necessary when damaged. Street controls may be removed 14 days prior to road surfacing and paving.

Rough Cut Street Control	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RCS-1

EC-9 Rough Cut Street Control (RCS)



RCS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Rough Cut Street Control (RCS) EC-9

ROUGH CUT STREET CONTROL INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION OF ROUGH CUT STREET CONTROL MEASURES.
- ROUGH CUT STREET CONTROL SHALL BE INSTALLED AFTER A ROAD HAS BEEN CUT IN, AND WILL NOT BE PAVED FOR MORE THAN 14 DAYS OR FOR TEMPORARY CONSTRUCTION ROADS THAT HAVE NOT RECEIVED ROAD BASE.

ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

(DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RCS-3

Rock Sock (RS) SC-5

Description

A rock sock is constructed of gravel that has been wrapped by wire mesh or a geotextile to form an elongated cylindrical filter. Rock socks are typically used either as a perimeter control or as part of inlet protection. When placed at angles in the curb line, rock socks are typically referred to as curb socks. Rock socks are intended to trap sediment from stormwater runoff that flows onto roadways as a result of construction activities.



Photograph RS-1. Rock socks placed at regular intervals in a curb line can help reduce sediment loading to storm sewer inlets. Rock socks can also be used as perimeter controls.

Appropriate Uses

Rock socks can be used at the perimeter of a disturbed area to control localized sediment loading. A benefit of rock socks as opposed to other perimeter controls is that they do not have to be trenched or staked into the ground; therefore, they are often used on roadway construction projects where paved surfaces are present.

Use rock socks in inlet protection applications when the construction of a roadway is substantially complete and the roadway has been directly connected to a receiving storm system.

Design and Installation

When rock socks are used as perimeter controls, the maximum recommended tributary drainage area per 100 lineal feet of rock socks is approximately 0.25 acres with disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. A rock sock design detail and notes are provided in Detail RS-1. Also see the Inlet Protection Fact Sheet for design and installation guidance when rock socks are used for inlet protection and in the curb line.

When placed in the gutter adjacent to a curb, rock socks should protrude no more than two feet from the curb in order for traffic to pass safely. If located in a high traffic area, place construction markers to alert drivers and street maintenance workers of their presence.

Maintenance and Removal

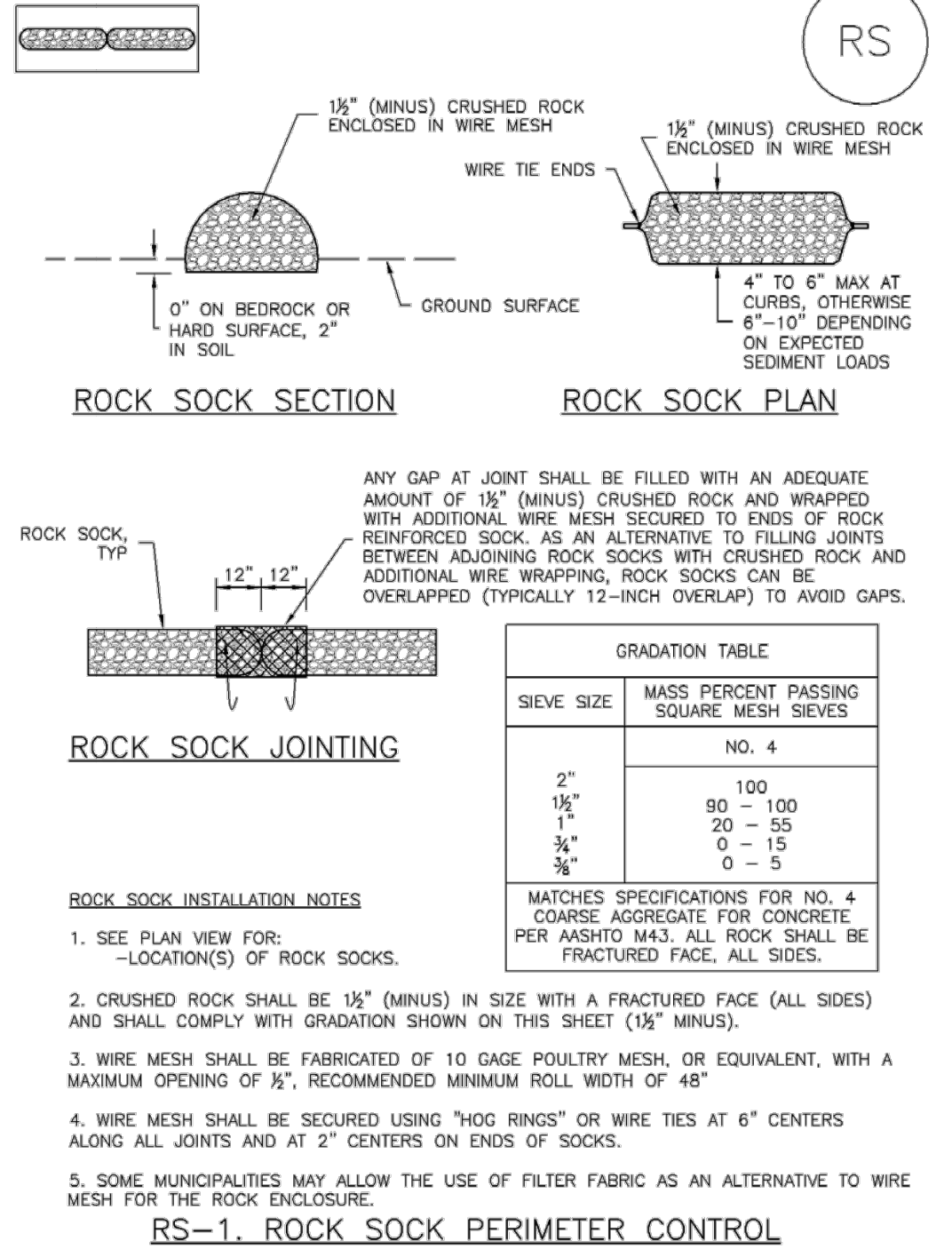
Rock socks are susceptible to displacement and breaking due to vehicle traffic. Inspect rock socks for damage and repair or replace as necessary. Remove sediment by sweeping or vacuuming as needed to maintain the functionality of the BMP, typically when sediment has accumulated behind the rock sock to one-half of the sock's height.

Rock Sock	
Functions	
Erosion Control	No
Sediment Control	Yes
Site/Material Management	No

Once upstream stabilization is complete, rock socks and accumulated sediment should be removed and properly disposed.

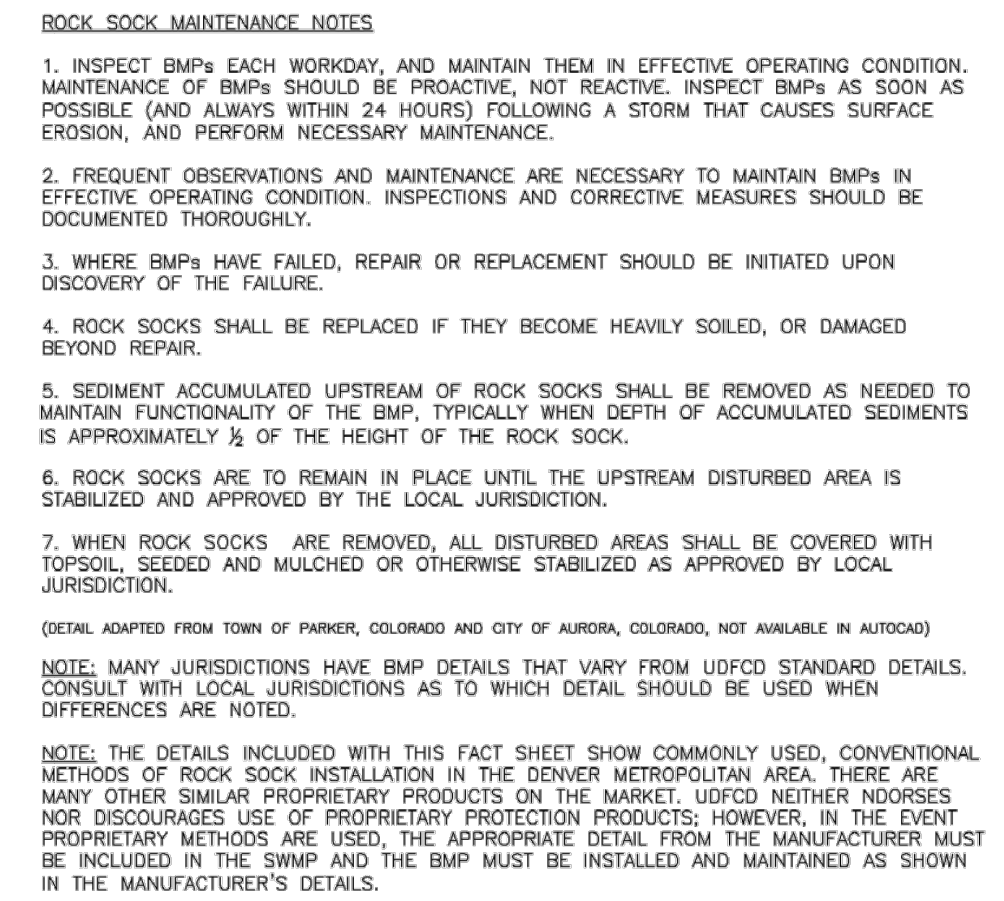
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RS-1

SC-5 Rock Sock (RS)



RS-2 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

Rock Sock (RS) SC-5



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 RS-3

ENGINEER'S STATEMENT
STANDARD DETAILS SHOWN WERE REVIEWED ONLY AS TO THEIR APPLICATION ON THIS PROJECT

BRYAN T. LAW, P.E.
COLORADO P.E. 25043
FOR AND ON BEHALF OF JR ENGINEERING

DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE AGENCIES, OR ENGINEERING APPROVES THEIR USE DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
PBOCES
2883 S. CIRCLE DRIVE
COLORADO SPRINGS, CO 80906
PATRICK BERSHINSKY
(719) 570-7474

J.R. ENGINEERING
A Westman Company
Centennial 303-740-9888 • Colorado Springs 719-588-2583
Fort Collins 970-491-9888 • www.jrengineering.com

BY	DATE	REVISION	H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
			N/A	N/A	07/18/24	PAL	PAL	

BOCES CAMPUS
DETAILS

SHEET 9 OF 9
JOB NO. 25301.00

APPENDIX D – CALCULATIONS

BOCES - 25301.00

Required Sediment Pond Volumes

7/16/2024

Sediment Basin #1

Total Area =	73	acres
Developed Area =	53.40	acres
Undeveloped Area =	19.60	acres
Required Volume =	(Dev. Area * 1800 ft ³ /ac) + (Undev. Area * 500 ft ³ /ac)	
=	105,920	ft³
	2.432	AC-FT
	1.216	1/2 VOLUME
L=2xW	266	L
	133	W
	35,307	pond bottom min (3' depth assumed)

**BOCES (25301.00)
Orifice Sizing**

Show SB #3 on plans.
Only SB #1 is currently
shown on plans.

Sediment Basin #3

Basin Total Volume:	1.949	ac-ft	
Top 1/2	0.975	ac-ft	
	42449	cf	
Drain Time 40 hrs	0.2948	cfs	
	Assuming	5	over 40 hrs
	0.0590	cfs	holes
Equates to a	2.625	diam. hole (in)	per hole
Equates to a	5.41	sq. in. hole	

Solution	5	1 Column - 5 holes
	2.63	Inch diameter holes

APPENDIX E – INSPECTION REPORT TEMPLATE

CONSTRUCTION STORMWATER SITE INSPECTION REPORT

Facility Name		Permittee					
Date of Inspection		Weather Conditions					
Permit Certification #		Disturbed Acreage					
Phase of Construction		Inspector Title					
Inspector Name							
Is the above inspector a qualified stormwater manager? (permittee is responsible for ensuring that the inspector is a qualified stormwater manager)			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO						
<input type="checkbox"/>	<input type="checkbox"/>						

INSPECTION FREQUENCY					
Check the box that describes the minimum inspection frequency utilized when conducting each inspection					
At least one inspection every 7 calendar days	<input type="checkbox"/>				
At least one inspection every 14 calendar days, with post-storm event inspections conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosions	<input type="checkbox"/>				
<ul style="list-style-type: none"> • This is this a post-storm event inspection. Event Date: _____ 	<input type="checkbox"/>				
Reduced inspection frequency - Include site conditions that warrant reduced inspection frequency	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Post-storm inspections at temporarily idle sites 	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Inspections at completed sites/area 	<input type="checkbox"/>				
<ul style="list-style-type: none"> • Winter conditions exclusion 	<input type="checkbox"/>				
Have there been any deviations from the minimum inspection schedule? If yes, describe below.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	YES	NO	<input type="checkbox"/>	<input type="checkbox"/>
YES	NO				
<input type="checkbox"/>	<input type="checkbox"/>				

INSPECTION REQUIREMENTS*
i. Visually verify all implemented control measures are in effective operational condition and are working as designed in the specifications
ii. Determine if there are new potential sources of pollutants
iii. Assess the adequacy of control measures at the site to identify areas requiring new or modified control measures to minimize pollutant discharges
iv. Identify all areas of non-compliance with the permit requirements, and if necessary, implement corrective action
*Use the attached Control Measures Requiring Routine Maintenance and Inadequate Control Measures Requiring Corrective Action forms to document results of this assessment that trigger either maintenance or corrective actions

AREAS TO BE INSPECTED			
Is there evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system or discharging to state waters at the following locations?			
	NO	YES	If "YES" describe discharge or potential for discharge below. Document related maintenance, inadequate control measures and corrective actions Inadequate Control Measures Requiring Corrective Action form
Construction site perimeter	<input type="checkbox"/>	<input type="checkbox"/>	
All disturbed areas	<input type="checkbox"/>	<input type="checkbox"/>	
Designated haul routes	<input type="checkbox"/>	<input type="checkbox"/>	
Material and waste storage areas exposed to precipitation	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where stormwater has the potential to discharge offsite	<input type="checkbox"/>	<input type="checkbox"/>	
Locations where vehicles exit the site	<input type="checkbox"/>	<input type="checkbox"/>	
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	

REPORTING REQUIREMENTS

The permittee shall report the following circumstances orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and shall mail to the division a written report containing the information requested within five (5) working days after becoming aware of the following circumstances. The division may waive the written report required if the oral report has been received within 24 hours.

All Noncompliance Requiring 24-Hour Notification per Part II.L.6 of the Permit		
a. Endangerment to Health or the Environment Circumstances leading to any noncompliance which may endanger health or the environment regardless of the cause of the incident (See Part II.L.6.a of the Permit) <i>This category would primarily result from the discharge of pollutants in violation of the permit</i>		
b. Numeric Effluent Limit Violations <ul style="list-style-type: none"> o Circumstances leading to any unanticipated bypass which exceeds any effluent limitations (See Part II.L.6.b of the Permit) o Circumstances leading to any upset which causes an exceedance of any effluent limitation (See Part II.L.6.c of the Permit) o Daily maximum violations (See Part II.L.6.d of the Permit) <i>Numeric effluent limits are very uncommon in certifications under the COR400000 general permit. This category of noncompliance only applies if numeric effluent limits are included in a permit certification.</i>		

Has there been an incident of noncompliance requiring 24-hour notification?	NO	YES	
	<input type="checkbox"/>	<input type="checkbox"/>	If "YES" document below

Date and Time of Incident	Location	Description of Noncompliance	Description of Corrective Action	Date and Time of 24 Hour Oral Notification	Date of 5 Day Written Notification *

*Attach copy of 5 day written notification to report. Indicate if written notification was waived, including the name of the division personnel who granted waiver.

After adequate corrective action(s) and maintenance have been taken, or where a report does not identify any incidents requiring corrective action or maintenance, the individual(s) designated as the Qualified Stormwater Manager, shall sign and certify the below statement:

"I verify that, to the best of my knowledge and belief, all corrective action and maintenance items identified during the inspection are complete, and the site is currently in compliance with the permit."

Name of Qualified Stormwater Manager

Title of Qualified Stormwater Manager

Signature of Qualified Stormwater Manager

Date

Notes/Comments