



## **Gieck Ranch Main Stem (Channel A) and Gieck Ranch Tributary #2 (Channel B) Stormwater Management Plan (SWMP)**

January 26, 2024

HR Green Project No: 201662.03

El Paso County No. CDR-228

### **Prepared For (Applicant/Owner):**

D.R. Horton

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### **Prepared By:**

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## Engineer's Statement

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.

Name: Greg Panza, P.E. Date: 01/26/2024

Phone Number: 720-602-4999

Seal

If this is intended for the EPC Review Engineer (me), you can delete this. I only stamp the last page of the SWMP checklist itself as "reviewed." We do not sign/stamp statements on the SWMP since it is a living document.

## Review Engineer's Statement

The Stormwater Management Plan was reviewed and found to meet the checklist requirements except where otherwise noted or allowed by an approved deviation request.

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

Review Engineer

## I. Site Location & Description

### Location

The Gieck Ranch Main Stem (Channel A) and Gieck Ranch Tributary #2 (Channel B) site is located in unincorporated El Paso County, Colorado. The Channel A and Channel B location (referred to as the site herein) is located within and adjacent to Grandview Reserve Filings 1-4, and southeast of the intersection of Eastonville Road & Rex Road.

The site lies within a tract of land within Sections 21 and 28, Township 12 South, Range 64 West of the 6<sup>th</sup> Principal Meridian, in El Paso County, State of Colorado. A Vicinity Map is included in **Appendix A**.

The site is bound by a segment of Rex Road to be developed with this project to the northeast and undeveloped land that has historically been used as ranching lands. The east of the site will be a future phase of the Grandview Reserve Subdivision. The south of the site is bound by Grandview Reserve Filings 1-4.

The Gieck Ranch Tributary #2 "Channel B" is a part of the Gieck Ranch Drainage Basin tributary to Black Squirrel Creek. The channel will be constructed according to its CLOMR report, and the Grandview Reserve improvements will follow any requirements of that report..

### Description of Property

The site is approximately 84 acres of proposed stream channelization. The channelization is being studied in a CLOMR report which is ongoing and pending approval.

The existing groundcover and topography of the site is native grasses/weeds and exposed soil on gently rolling hillside with slopes ranging from 2% to 4%.

Per a NRCS soil survey, the site is made up of Type A Columbine gravelly sandy loam. The NRCS soil survey is presented in **Appendix A**.

There are no known irrigation facilities in the area.

There are no known existing utilities or other encumbrances on site.

### Neighboring Areas

The surrounding area to the north is a parcel of land currently zoned A35 and dedicated to grazing with an area of 186.58 acres. To the west and south of the property is Grandview Phase 1, Filings 1-4, which has a dedicated land use of single family residential. To the east is the future phase 3 of Grandview Reserve which will also be dedicated to single family residential.

### Construction Activity

The proposed channelization is to only include grading activities and construction of riffle/pool drop structures and three culverts for future roadway crossing and one pedestrian low water crossing. No utilities or proposed roadways will be installed during this time. No grading will take place within the FEMA identified 100-year zone A floodplain, map number 08041C0553G, effective date 12/7/2018, until the appropriate CLOMR permit has been approved.



Silt fence and VTC are temporary erosion control measures, not stabilization measures.

Construction will begin with setting up perimeter erosion control measures and construction fencing. Temporary stabilization measures such as silt fence installation and vehicle tracking control will be installed prior to construction. Stabilized staging area(s) and stockpile management area(s) are shown on the GEC plans. During construction, temporary stabilization measures such as check dams will be utilized to control stormwater runoff. Once construction activities have been completed, all areas not within limits of disturbance will receive seeding and mulching. Upon stabilization, permanent erosion control measures will be left in place.

No off-site disturbance is anticipated. No control measures will be located outside the property line and limits of disturbance.

## II. Construction Phasing

### Phasing and Sequence Schedule

The proposed sequence of major construction activities and Construction Control Measures for the project as are follows:

SF?

No TSBs shown on plans

1. Install VTC, SSA, S, TSB and other perimeter erosion and stormwater control measures (i.e. silt fence, construction fence etc.) (Fall/Winter 2024)
2. Clear grub and grade site for improvements. Install the initial phase control measures for perimeter control and temporary conditions stormwater diversion including silt fence and check dams. ((Fall/Winter 2024)
3. Landscaping, restoration and final stabilization. Ensuring final stabilizations is achieved prior to site closure is to take place as part of a future full construction phasing SWMP and is not within the scope of this report.

### Construction Documentation

Construction drawings are provided with this document showing the Erosion Control plan for this project and are intended to be a "living" document used by the SWMP Manager to document construction activities. See Appendix E for record log.

## III. Pre-Development Conditions and Soils

### Floodplain

The channelization of Channel B impacts the Effective Floodplain and therefore will not begin until the submitted CLOMR is approved by FEMA.

### Existing Vegetation

The existing vegetative cover is 90 percent as evidenced by a field survey and aerial imagery. The existing vegetation includes native grasses and weeds, and shrubs.

### Soils

According to the US Department of Agriculture Natural Resources Conservation Service Soil Survey of El Paso County, Colorado, the primary soil through site is Type A columbine gravelly sandy loam.

The existing soil type has a slight potential for erosion which can be mitigated by employing appropriate downstream construction BMPs before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing Gieck Ranch Tributary #3 and downstream properties.

## IV. Description of Potential Pollutants

Potential sources of sediment to stormwater runoff include earth moving and concrete activities associated with grading, trail construction, and landscaping.

Potential pollutants and sources other than sediment to stormwater runoff include trash, debris, fueling and equipment failure. Materials of significance stored on the project site include: sediment, concrete washout, cement, trash & debris, fuels and oils.

Construction activities can produce a variety of pollutants that can potentially cause stormwater contamination. Grading activities remove rocks, vegetation and other erosion controlling surfaces and can result in the exposure of underlying soil to the elements, which can then be displaced into water sources.

Wind, erosion and vehicular transport can produce sediment debris.

Potential Sources of Pollution:

1. Potential sources of pollution from construction activities include:

- a. Disturbed or stored soils
- b. Vehicle tracking of sediment
- c. Loading & unloading operations
- d. Outdoor Storage activities
- e. Vehicle and Equipment Maintenance/Fueling
- f. Dust or Particulate Generating Processes
- g. Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents etc.
- h. On-site waste management (waste piles, liquid wastes, dumpsters)
- i. Concrete truck/equipment washing (washing truck chute and associated fixtures)
- j. Dedicated asphalt, concrete batch plants and masonry mixing stations
- k. Non-industrial waste (worker trash and portable toilets)

SWMP Checklist Item 12. Note that this project does not anticipate utilizing onsite batch plants in the SWMP text.

## V. Areas and Volumes

The total 84 acres is expected to be disturbed.

### **Grading Earthwork Quantities:**

Cut Quantity: 10,358 c.y.

Fill Quantity: 205,581 c.y.

Net: 195,223 c.y. Fill

Portable toilets will be located a minimum of 10ft from stormwater inlets and 50ft from state waters. They will be secured at all four corners to prevent overturning and cleaned on a weekly basis. They will be inspected daily for spills.



## VI. Self-Inspections

Self-inspections of the Construction Control Measures must be completed by the certified GEC Administrator. The below provides the minimum to satisfy the El Paso County self-inspection requirements. A more frequent self-inspection schedule may be required to ensure Control Measures are operating in compliance with the approved GEC plan.

### 1. Inspection Schedules:

- a. The GEC Administrator shall make a thorough inspection of the Control Measures:
  - i. At least once every fourteen (14) calendar days.
  - ii. Within 24 hours following any precipitation event (i.e. rain, snow, hail etc.) that causes surface erosion.
    - Alternatively, the GEC Administrator can perform a thorough inspection of the Control Measures once every seven (7) days and forego post-precipitation inspections.
- b. For sites where construction activities have completed and final stabilization measures installed but final stabilization has not yet been achieved, the GEC Administrator shall make a thorough inspection of the Control Measures:
  - i. At least once every month
  - ii. Within 72 hours following any precipitation event that causes surface erosion

### 2. Inspection Procedures:

- a. Site Inspection & Observation Items:
  - i. Limits of disturbance perimeter and stormwater discharge points
  - ii. All disturbed areas to ensure necessary Construction Control Measures are in place to control potential stormwater runoff.
  - iii. Areas used for material/waste storage.
  - iv. Any areas having a signification potential for storm water pollution (i.e., site entrances, concrete washout areas etc.)
  - v. All Construction Control Measures identified on the GEC plans.
- b. Inspection Requirements:
  - i. Determine any locations, or potential locations, where pollutants and stormwater may be exiting the site/entering the receiving waters.
  - ii. Evaluate Construction Control measures and determine if they are constructed in accordance with the latest revision of the approved GEC plan and operate effectively.
  - iii. Provide recommendations for the need of additional Construction Control measures and the maintenance of existing measures in disrepair to ensure complication with the El Paso County Stormwater Construction Manual.
- c. Construction Control Measure Maintenance/Replacement:
  - i. The GEC administrator shall ensure sediment has been removed from perimeter controls and relocated to an area without the potential for sediment to discharge from the site.
  - ii. The GEC administrator shall ensure that failed Control Measures are repaired/reinstalled within three (3) calendar days, according to the El Paso County Stormwater Control Measure details, to ensure pollutants and/or sediment do not discharge from the site. GEC details are provided in Appendix B.

- d. Documentation:
- i. Update the GEC plan to document the installation/revision of Control Measures
  - ii. Identify Control Measure deficiencies and that noncompliance is resolved within three (3) calendar days.
  - iii. Identify Self-Inspection schedule in most recent inspection form.
  - iv. Complete and submit Self-Inspection forms to the El Paso County within five (5) business days of the completed inspection.
  - v. Ensure Self-Inspections are available, either physically or electronically, throughout the duration of the project
  - vi. Self-Inspection Report shall contain at least the following:
    - Inspection Date
    - Name and title of the GEC Administrator performing inspection
    - Location(s) of illicit discharges of stormwater, sediment or pollutants from the site
    - Location(s) of Construction Control Measures in need of maintenance/repair
    - Location(s) of Construction Control Measures that failed to operate as designed or proved inadequate.
    - Location(s) of additional Construction Control Measures not shown on the latest, approved revision of the GEC plan.
    - Any deviations from the minimum inspection schedule

SWMP Checklist Item 25 - GEC Admin should sign inspection logs

## VII. Materials Handling

1. General Materials Handling Practices:
  - a. 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 be located away from storm drain inlets and should be equipped with covers, roofs or secondary containment as required to prevent stormwater from contacting stored materials. Chemicals that are not compatible shall be stored in segregated areas so that spill materials cannot combine and react.
  - b. Disposal of materials shall be in accordance with the manufacturer's instructions and applicable local, state, and federal regulations.
  - c. Materials no longer required for construction shall be removed from the site as soon as possible.
  - d. Adequate garbage, construction waste, and sanitary waste handling and disposal facilities shall be provided as necessary to keep the site clear of obstruction and Control Measures clear and functional.
2. Specific Materials Handling Practices:
  - a. All pollutants, including waste materials and demolition debris, that occur onsite during construction shall be handled in a way that does not contaminate stormwater.
  - b. All chemicals including liquid products, petroleum products, water treatment chemicals, and wastes stored onsite shall be covered and protected from vandalism.
  - c. Maintenance, fueling, and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operation, 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

SWMP Checklist Item 13. Discuss inspection procedure for checking waste disposal bins for leaks and overflowing capacity. And discuss frequency that they will be emptied (or at what level of capacity would trigger the need to be emptied).

ground. Materials spilled during maintenance operations shall be cleaned up immediately and properly disposed of.

- d. Wheel wash water shall be settled and discharged onsite by infiltration.
- e. 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 stormwater runoff. Follow manufacturer's recommendations for application rates and procedures.
- f. pH-modifying sources shall be managed to prevent contamination of runoff and stormwater 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.

## VIII. Spill Prevention & Response Plan

1. The primary objective in responding to a spill is to quickly contain the material and prevent or minimize their mitigation into stormwater runoff and conveyance systems. If the release has impacted onsite stormwater, 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 once the situation has stabilized.
  - c. The site superintendent 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 locations shall be reported to the GEC administrator.
4. Absorbent materials shall be on-hand at all fueling areas for use in containing advertent 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
  - b. Oil absorbent booms
  - c. 55-gallon drums
  - d. 9-mil plastic bags
  - e. Personal protective equipment including gloves and goggles
6. Concrete wash water: unless confined in a pre-defined, bermed containment area, the cleaning of concrete truck delivery chutes is prohibited at the job site.
7. Notification procedures:
  - a. In the event of an accident or spill, the GEC administrator shall be notified.
  - b. Depending on the nature of the spill and material involved, the Colorado Department of Public Health and Environment, 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.

## IX. Implementation of Control Measures

Stormwater control measures must be installed according to El Paso County design specifications, presented in Appendix D, and the approved Grading and Erosion Control plan this report supports. Within the context of this SWMP’s construction activities the following control measures, at a minimum, are required:

- Perimeter Silt Fence
- Vehicle Tracking Control
- Stabilized Staging Area
- Concrete Washout
- Stockpile Management
- Rock Socks
- Check Dams
- Erosion Control Blanket

Additional control measures may be required at the discretion of the County Stormwater Inspector.

## X. Final Stabilization & Long-Term Stormwater Management Plan

1. Ensure stabilization is achieved prior to site closure. Final stabilization is to take place as a part of a future construction phasing SWMP and is not within the scope of this report.
2. Final stabilization will be achieved at time of final landscaping. See approved landscaping plans for final stabilization details. Final stabilization is met when 70% of pre disturbance levels, not including noxious weeds, are stabilized. Final stabilization must be achieved prior to removal of temporary stormwater control measures. Anticipated date of final stabilization is Spring 2025; however this is subject to change. See below for seeding and mulching details:
  - a. Prior to seeding, fill any eroded rills and gullies with topsoil.
  - b. Ensure all areas are seeded and mulched per the County Stormwater Construction Manual.
  - c. Continue monthly self-inspections of final stabilization methods and the stormwater management system to ensure proper function. If repairs are needed, reseed and re-mulch as needed.
  - d. Control noxious weeds in a manner acceptable to the GEC inspector.
  - e. Seed Mix: See Landscape Architecture Construction Documents for approved seed mixes.
  - f. Seeding Requirements:
    - i. Drill seed whenever possible, seed depth must be 1/3 to 1/2 inch when drill-seeding. Cross drilling should be used whenever possible with the seed divided between the two operations. The second drilling should be perpendicular to the first.

- ii. When drill seeding is not possible or on slopes greater than 3:1, hydro-seeding with tackifier may be substituted at the discretion of the GEC inspector. Hydro-seeding must be lightly raked into soil. Seeding rates are presented in Appendix D.
- iii. All seeded areas must be mulched.
- g. Mulching Requirements:
  - i. Mulching shall be completed as soon as practical after seeding but no more than fourteen (14) days after planting. Erosion control blankets can be used in place of the below mulching methods.
  - ii. Hay or straw mulch:
    - 1. Only certified weed-free and certified-seed free mulch may be used. Must be applied at 2 tons/acre and adequately secured.
    - 2. Crimping shall not be used on slopes greater than 3:1, tackifier must be used in place.
  - iii. Hydraulic mulching:
    - 1. Allowable on steep slopes or areas with limited access
    - 2. If hydro-seeding is used, mulching must be applied secondarily.
    - 3. Wood cellulose fibers mixed with water must be applied at a rate of 2,000-2,500 lbs/acre, and tackifier applied at a rate of 100 lbs/acre.

## XI. References

El Paso County – Drainage Criteria Manual, latest revision October 31, 2018

El Paso County – Engineering Criteria Manual, latest revision October 14, 2020

Mile High Flood District Urban Storm Drainage Criteria Manual Volumes 1, 2, and 3; latest revisions

SWMP Checklist Item 14. Discuss Location and description of any anticipated allowable non-stormwater discharge. If N/A, add a note stating no non-stormwater components of discharge, such as springs, landscape irrigation return flows, construction dewatering, or other discharges will be encountered during the project.

Similarly address SWMP Checklist Items 15, 16, and 26.



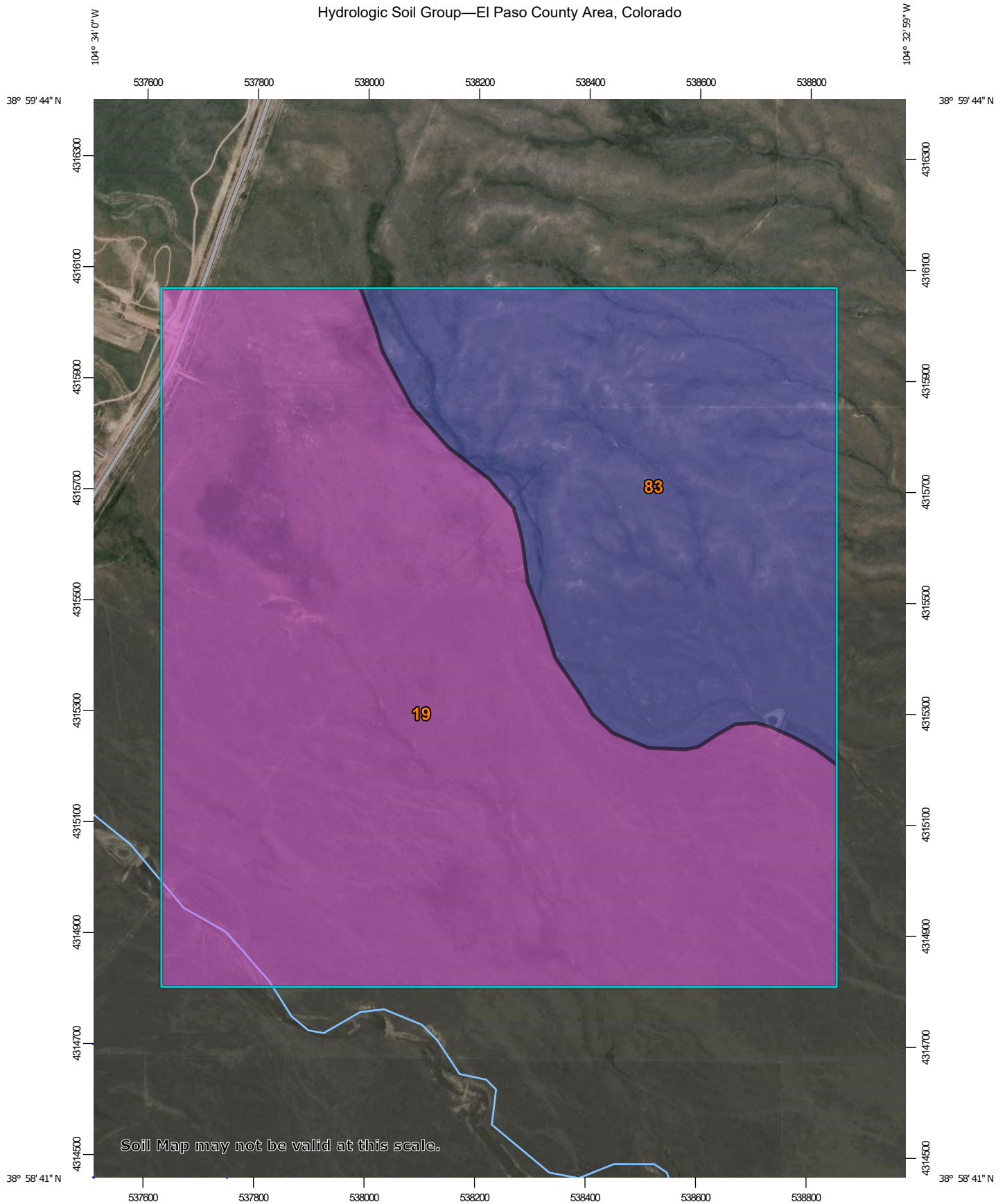
Grandview Reserve Channel A  
and Channel B  
Stormwater Management Plan  
Project No.: 201662.03  
El Paso County, Colorado

## **APPENDIX A – VICINITY MAP & NRCS SOIL SURVEY & FEMA MAP**

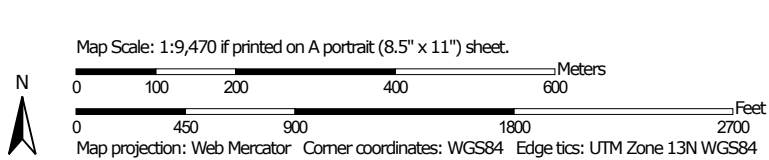




Hydrologic Soil Group—El Paso County Area, Colorado



Soil Map may not be valid at this scale.

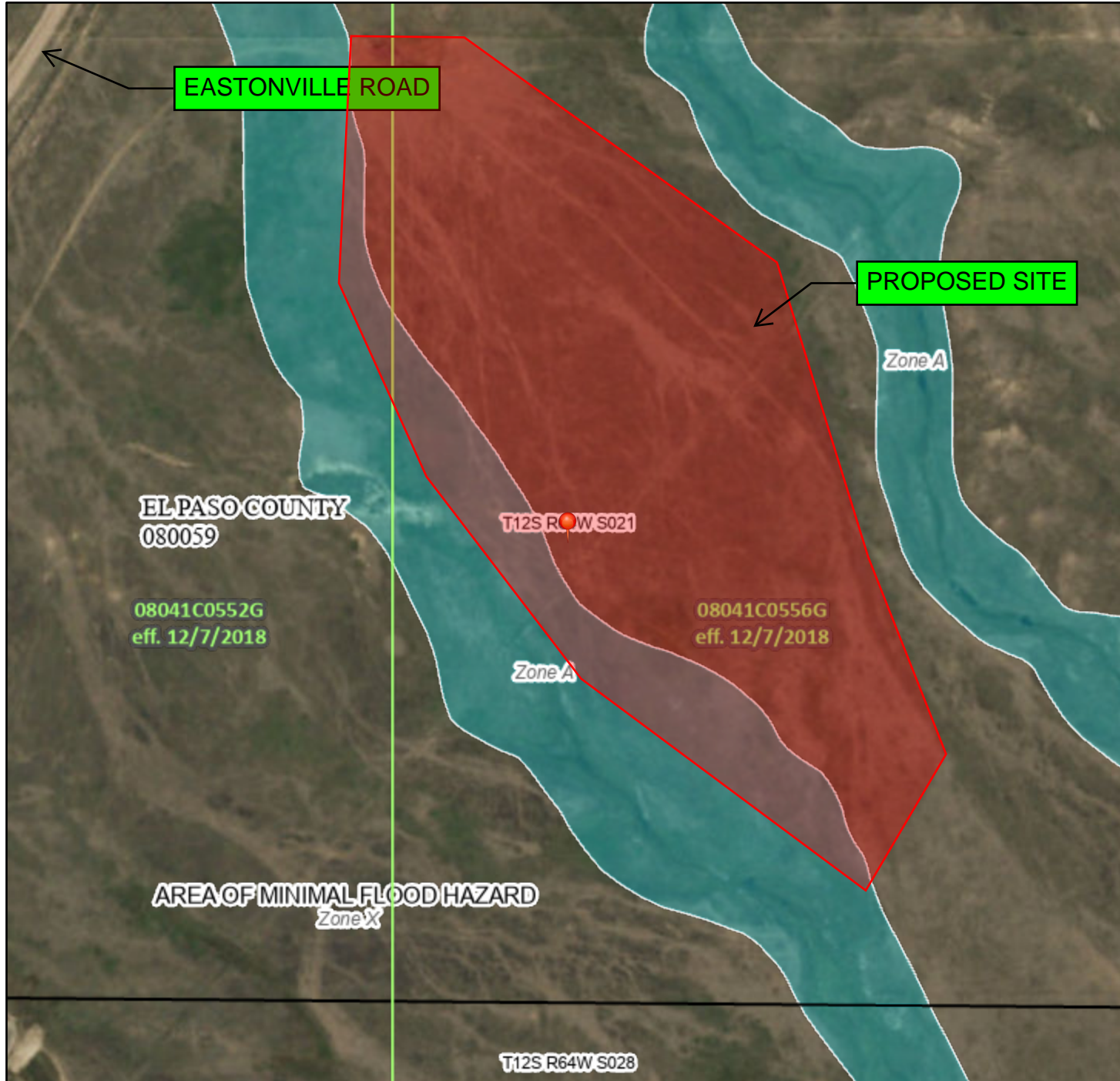




# National Flood Hazard Layer FIRMMette



104°33'58"W 38°59'28"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>	With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
	Regulatory Floodway	

OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>	Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>	Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>	Area with Flood Risk due to Levee <i>Zone D</i>

OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>	Effective LOMRs	Area of Undetermined Flood Hazard <i>Zone D</i>

GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer	Levee, Dike, or Floodwall

OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation	Coastal Transect	Base Flood Elevation Line (BFE)	Limit of Study	Jurisdiction Boundary	Coastal Transect Baseline	Profile Baseline	Hydrographic Feature
	20.2 17.5							

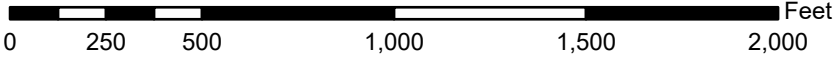
MAP PANELS	Digital Data Available	No Digital Data Available	Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/14/2023 at 12:16 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

104°33'20"W 38°59'N

Basemap Imagery Source: USGS National Map 2023

### 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

-  C
-  C/D
-  D
-  Not rated or not available


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado  
 Survey Area Data: Version 20, Sep 2, 2022

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—Jun 12, 2021

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
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	A	254.0	66.5%
83	Stapleton sandy loam, 3 to 8 percent slopes	B	127.8	33.5%
<b>Totals for Area of Interest</b>			<b>381.8</b>	<b>100.0%</b>

### 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

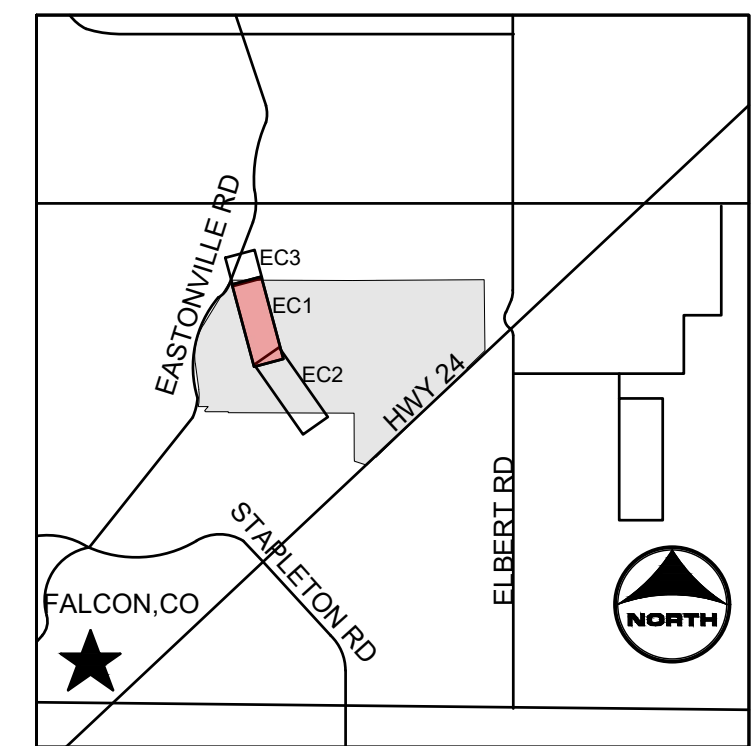
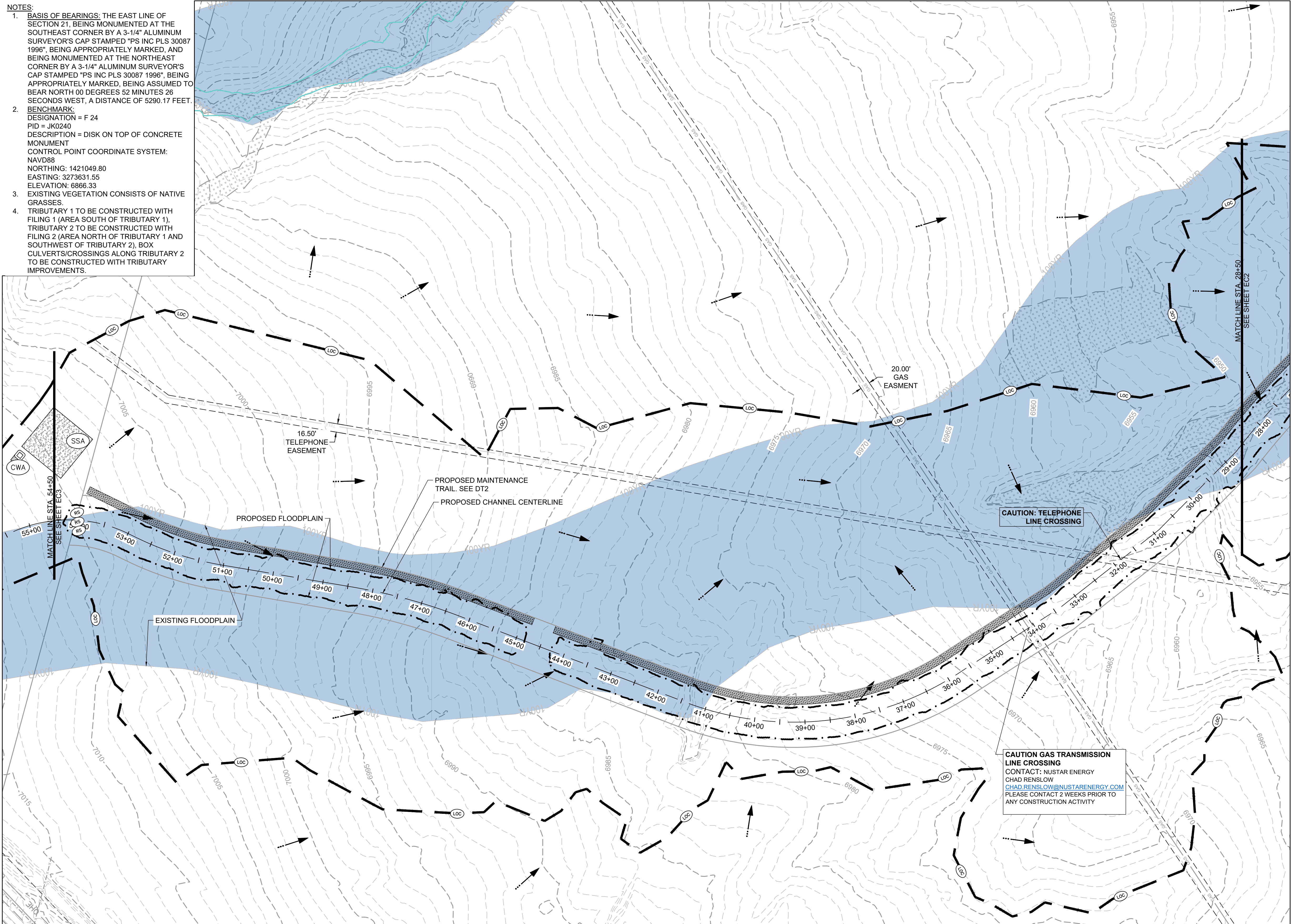


Grandview Reserve Channel A  
and Channel B  
Stormwater Management Plan  
Project No.: 201662.03  
El Paso County, Colorado

## **APPENDIX B – GEC PLANS**



- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:**  
 DESIGNATION = F 24  
 PID = JK0240  
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
 CONTROL POINT COORDINATE SYSTEM:  
 NAVD88  
 NORTING: 1421049.80  
 EASTING: 3273631.55  
 ELEVATION: 6866.33
  - EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.
  - TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1), TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2), BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.

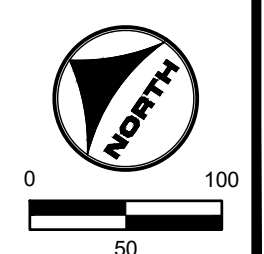


**KEYMAP**

- PROJECT LEGEND:**
- PROPERTY LINE
  - EXISTING EASEMENT
  - EXISTING GAS LINE
  - EXISTING TELEPHONE LINE
  - EXISTING FENCE LINE
  - EXISTING SECTION LINE
  - EXISTING SWALE
  - EXISTING OVERHEAD ELECTRIC
  - EXISTING TELEPHONE POLE
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FLOW ARROW
  - PROPOSED 100-YR FLOODPLAIN
  - EXISTING 100-YR FLOODPLAIN
  - EXISTING WETLANDS - JURISDICTIONAL
  - EXISTING WETLANDS - NONJURISDICTIONAL
  - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - SF SILT FENCE
  - VTC VEHICLE TRACKING CONTROL
  - SSA STABILIZED STAGING AREA
  - LOC LIMITS OF CONSTRUCTION
  - CD CHECK DAM
  - RS ROCK SOCK

**CAUTION GAS TRANSMISSION LINE CROSSING**  
 CONTACT: NUSTAR ENERGY  
 CHAD RENSLAW  
[CHAD.RENSLOW@NUSTARENERGY.COM](mailto:CHAD.RENSLOW@NUSTARENERGY.COM)  
 PLEASE CONTACT 2 WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY



**811** UNCC CALL BEFORE YOU DIG  
 811 OR 1-800-922-1987  
 Utility Notification Center of Colorado

DRAWN BY: ACH	JOB DATE: 1/25/2024	BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: GLP	JOB NUMBER: 201662.03	IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD DATE: 1/26/2024		
CAD FILE: J:\2020\201662.03\CAD\Drawings\INITIAL EROSION CONTROL		

NO.	DATE	BY	REVISION DESCRIPTION

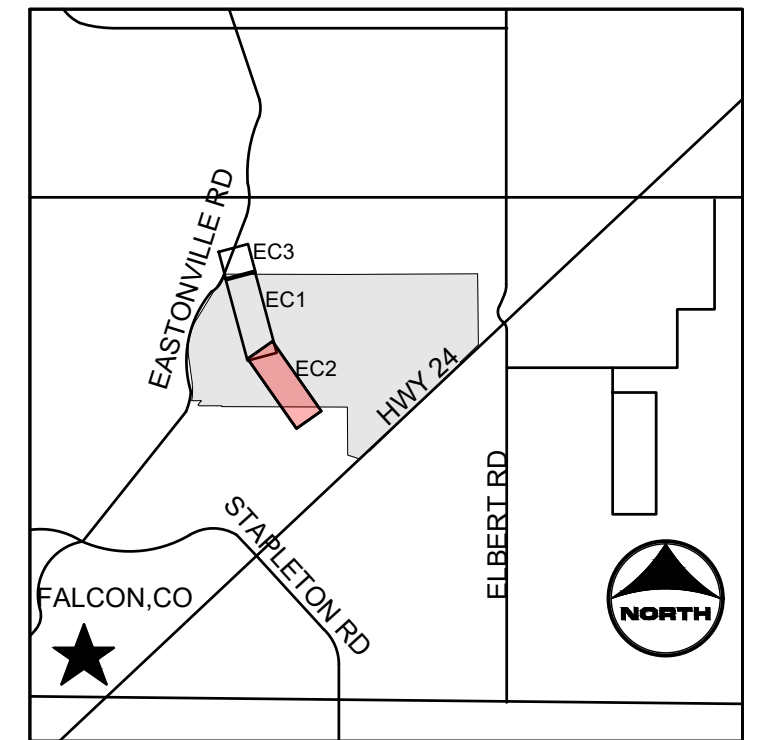
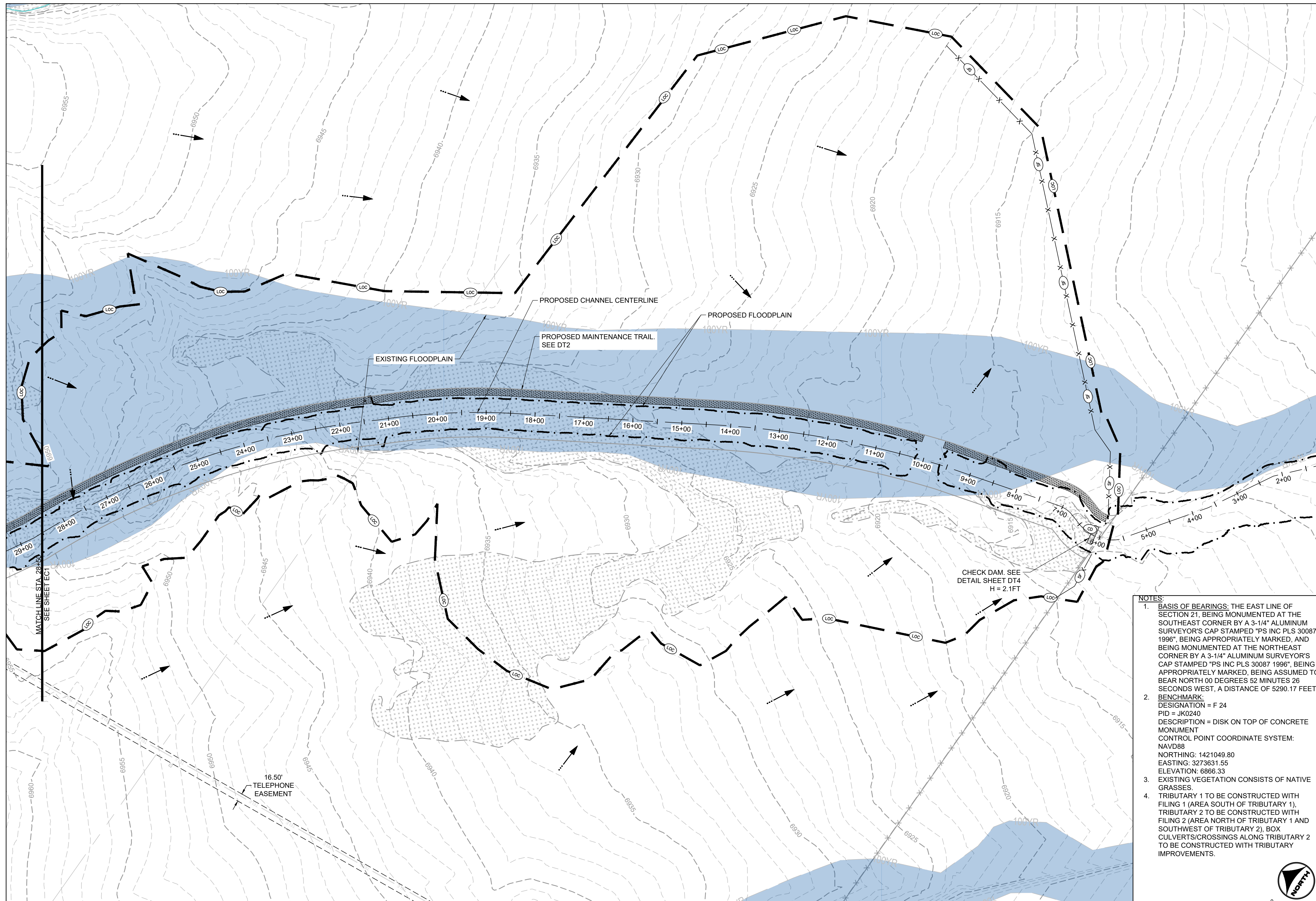
**HRGreen**  
 HR GREEN - DENVER  
 5613 DTC PARKWAY SUITE 950  
 DENVER CO 80111  
 PHONE: 720.602.4999  
 FAX: 713.965.0044

**GRANDVIEW RESERVE**  
**DR HORTON**  
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
 INITIAL EROSION CONTROL

SHEET  
**EC1**  
 24

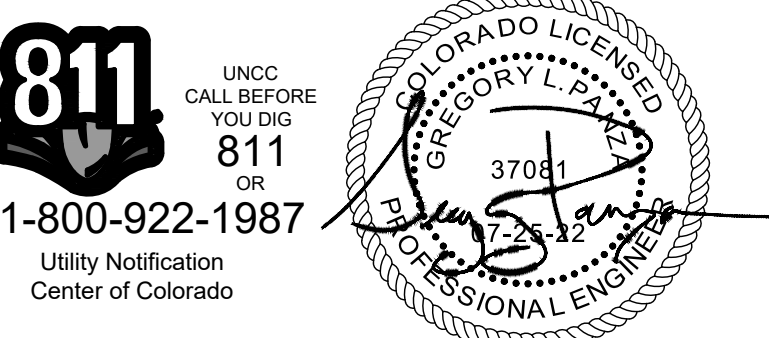
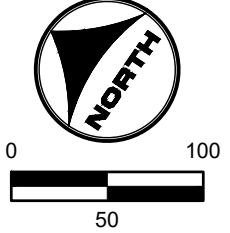
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- PROJECT LEGEND:**
- PROPERTY LINE
  - EXISTING EASEMENT
  - G45 EXISTING GAS LINE
  - TELE EXISTING TELEPHONE LINE
  - X-X-X- EXISTING FENCE LINE
  - EXISTING SECTION LINE
  - EXISTING SWALE
  - OHE EXISTING OVERHEAD ELECTRIC
  - EXISTING TELEPHONE POLE
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - 5250 PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FLOW ARROW
  - PROPOSED 100-YR FLOODPLAIN
  - EXISTING 100-YR FLOODPLAIN
  - EXISTING WETLANDS - JURISDICTIONAL
  - EXISTING WETLANDS - NONJURISDICTIONAL
  - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - SF SILT FENCE
  - VTC VEHICLE TRACKING CONTROL
  - SSA STABILIZED STAGING AREA
  - LOC LIMITS OF CONSTRUCTION
  - CD CHECK DAM
  - RS ROCK SOCK

- NOTES:**
- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
  - BENCHMARK:  
 DESIGNATION = F 24  
 PID = JK0240  
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
 CONTROL POINT COORDINATE SYSTEM:  
 NAVD83  
 NORTHING: 1421049.80  
 EASTING: 3273631.55  
 ELEVATION: 6866.33
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  - TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1), TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2), BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.



DRAWN BY: ACH	JOB DATE: 1/25/2024	BAR IS ONE INCH ON OFFICIAL DRAWINGS: 1"
APPROVED: GLP	JOB NUMBER: 201662.03	IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD DATE: 1/26/2024		
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\INITIAL EROSION CONTROL		

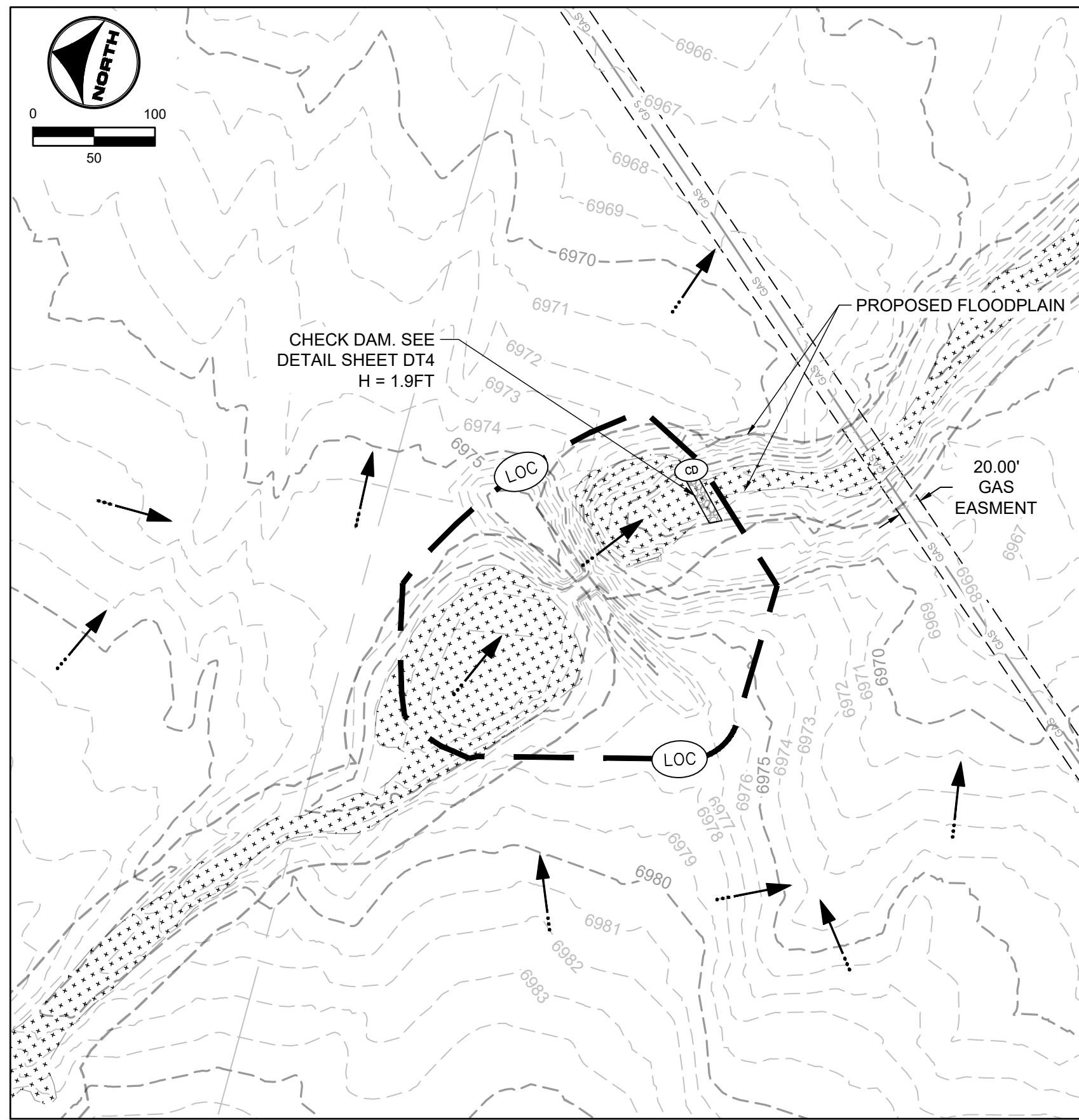
NO.	DATE	BY	REVISION DESCRIPTION

**HRGreen**  
 HR GREEN - DENVER  
 5613 DTC PARKWAY SUITE 950  
 DENVER CO 80111  
 PHONE: 720.602.4999  
 FAX: 713.965.0044

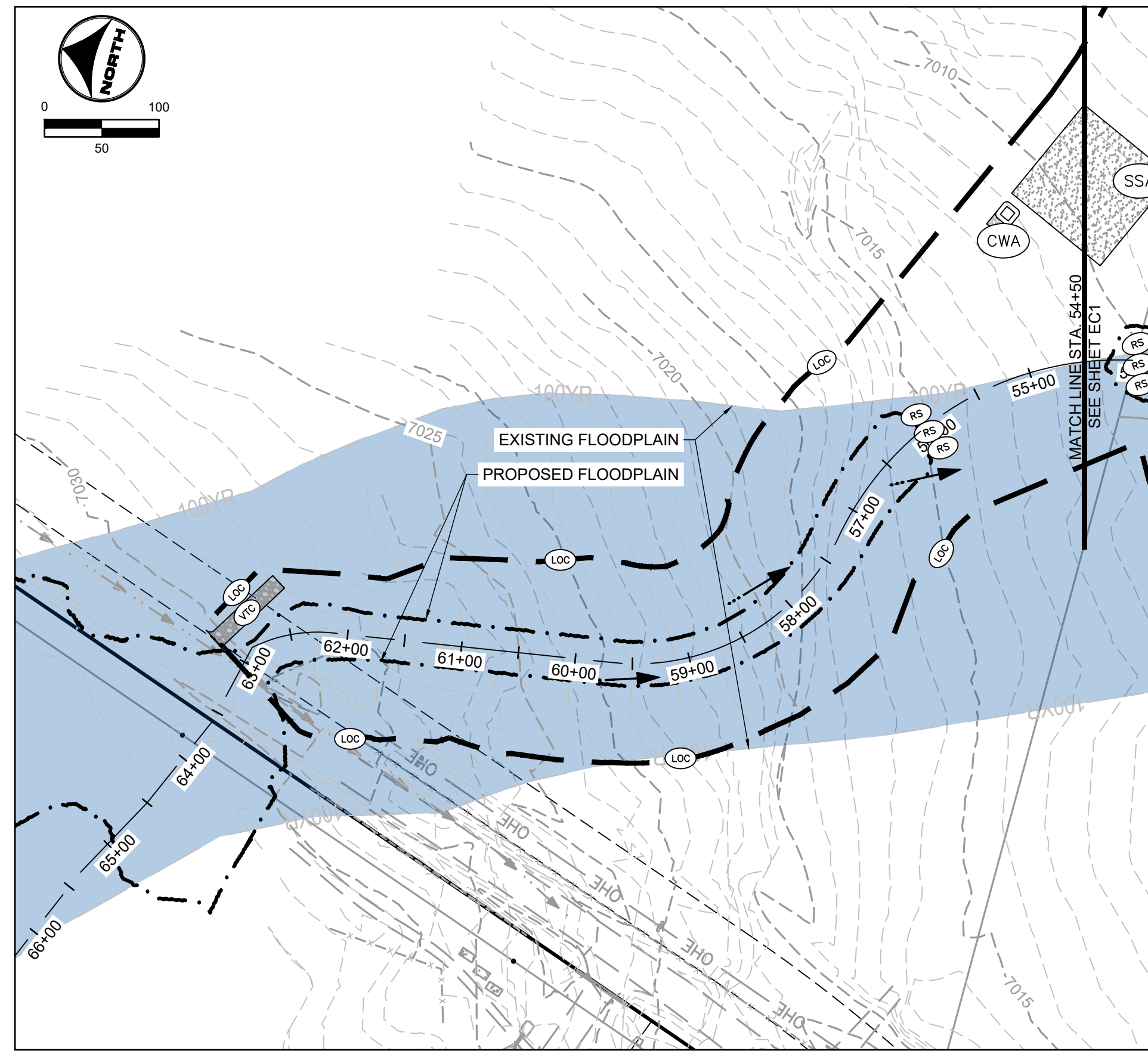
**GRANDVIEW RESERVE  
 DR HORTON**  
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
 INITIAL EROSION CONTROL

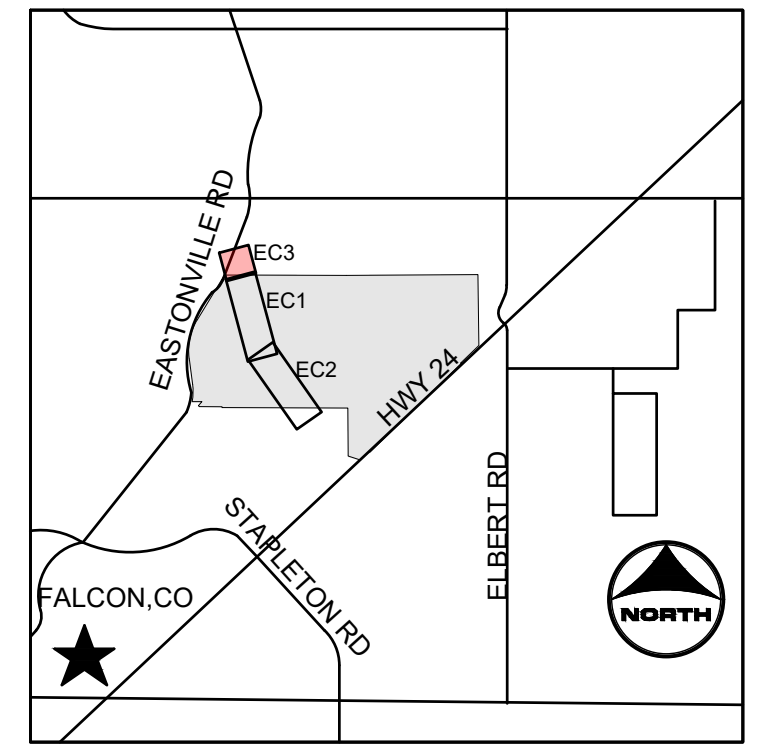
SHEET  
**EC2**  
 25



TRIBUTARY 1



TRIBUTARY 2



KEYMAP

- PROJECT LEGEND:**
- — — — — PROPERTY LINE
  - - - - - EXISTING EASEMENT
  - GAS — EXISTING GAS LINE
  - TELE — EXISTING TELEPHONE LINE
  - X - X - X - EXISTING FENCE LINE
  - - - - - EXISTING SECTION LINE
  - - - - - EXISTING SWALE
  - OHE — EXISTING OVERHEAD ELECTRIC
  - TELEPOLE — EXISTING TELEPHONE POLE
  - - - - - EXISTING MAJOR CONTOUR
  - - - - - EXISTING MINOR CONTOUR
  - 5250 — PROPOSED MAJOR CONTOUR
  - - - - - PROPOSED MINOR CONTOUR
  - — — — — FLOW ARROW
  - - - - - PROPOSED 100-YR FLOODPLAIN
  - EXISTING 100-YR FLOODPLAIN
  - EXISTING WETLANDS - JURISDICTIONAL
  - EXISTING WETLANDS - NONJURISDICTIONAL
  - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
  - X - SF SILT FENCE
  - VTC VEHICLE TRACKING CONTROL
  - SSA STABILIZED STAGING AREA
  - — — — — LOC LIMITS OF CONSTRUCTION
  - — — — — CD CHECK DAM
  - RS ROCK SOCK

- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
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 EASTING: 3273631.55  
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**811** UNCC CALL BEFORE YOU DIG  
 811 OR 1-800-922-1987  
 Utility Notification Center of Colorado

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 APPROVED: GLP JOB NUMBER: 201662.03  
 CAD DATE: 1/26/2024  
 CAD FILE: J:\2020\201662.03\CAD\DWGS\C\INITIAL EROSION CONTROL

BAR IS ONE INCH ON OFFICIAL DRAWINGS.  
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NO.	DATE	BY	REVISION DESCRIPTION

**HRGreen**  
 HR GREEN - DENVER  
 5613 DTC PARKWAY SUITE 950  
 DENVER CO 80111  
 PHONE: 720.602.4999  
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**GRANDVIEW RESERVE**  
**DR HORTON**  
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
 INITIAL EROSION CONTROL

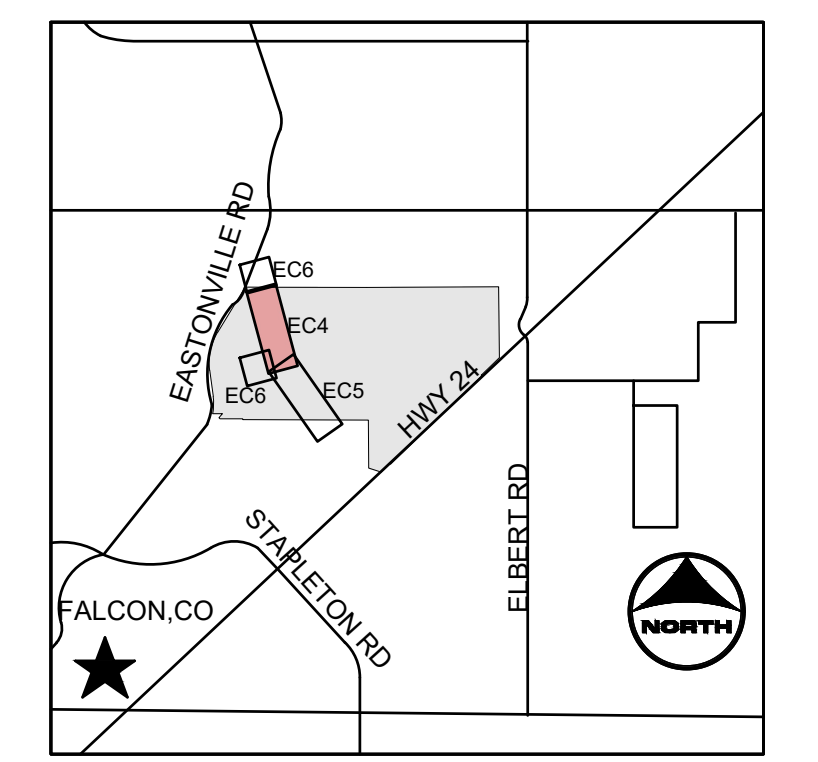
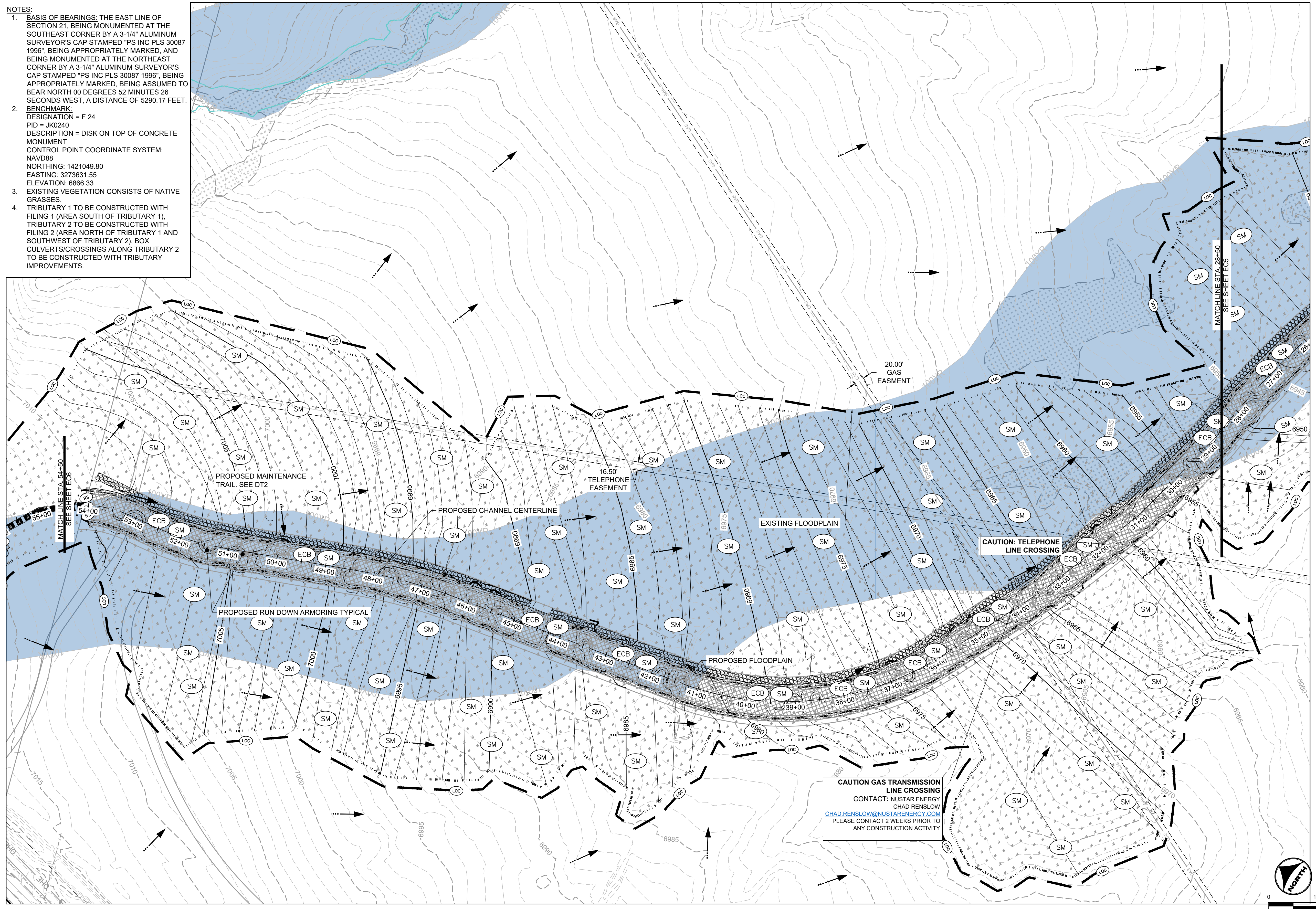
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**NOTES:**

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 PID = JK0240  
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
 CONTROL POINT COORDINATE SYSTEM: NAVD88  
 NORTING: 1421049.80  
 EASTING: 3273631.55  
 ELEVATION: 6866.33
3. EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.
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- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
  - EXISTING EASEMENT
  - EXISTING GAS LINE
  - EXISTING TELEPHONE LINE
  - EXISTING FENCE LINE
  - EXISTING SECTION LINE
  - EXISTING SWALE
  - EXISTING OVERHEAD ELECTRIC
  - EXISTING TELEPHONE POLE
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - FLOW ARROW
  - PROPOSED 100-YR FLOODPLAIN
  - EXISTING 100-YR FLOODPLAIN
  - EXISTING WETLANDS - JURISDICTIONAL
  - EXISTING WETLANDS - NONJURISDICTIONAL
  - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- LOC LIMITS OF CONSTRUCTION
  - SM SEEDING AND MULCHING
  - ECB EROSION CONTROL BLANKET
  - RS ROCK SOCK

**811** UNCC CALL BEFORE YOU DIG  
 811 OR 1-800-922-1987  
 Utility Notification Center of Colorado

PROFESSIONAL ENGINEER  
 GREGORY L. PARKS  
 37081  
 17-26-22

DRAWN BY: ACH JOB DATE: 1/23/2024  
 APPROVED: GLP JOB NUMBER: 201662.03  
 CAD DATE: 1/26/2024  
 CAD FILE: J:\2020\201662.03\CAD\dwgs\C\FINAL EROSION CONTROL

BAR IS ONE INCH ON OFFICIAL DRAWINGS.  
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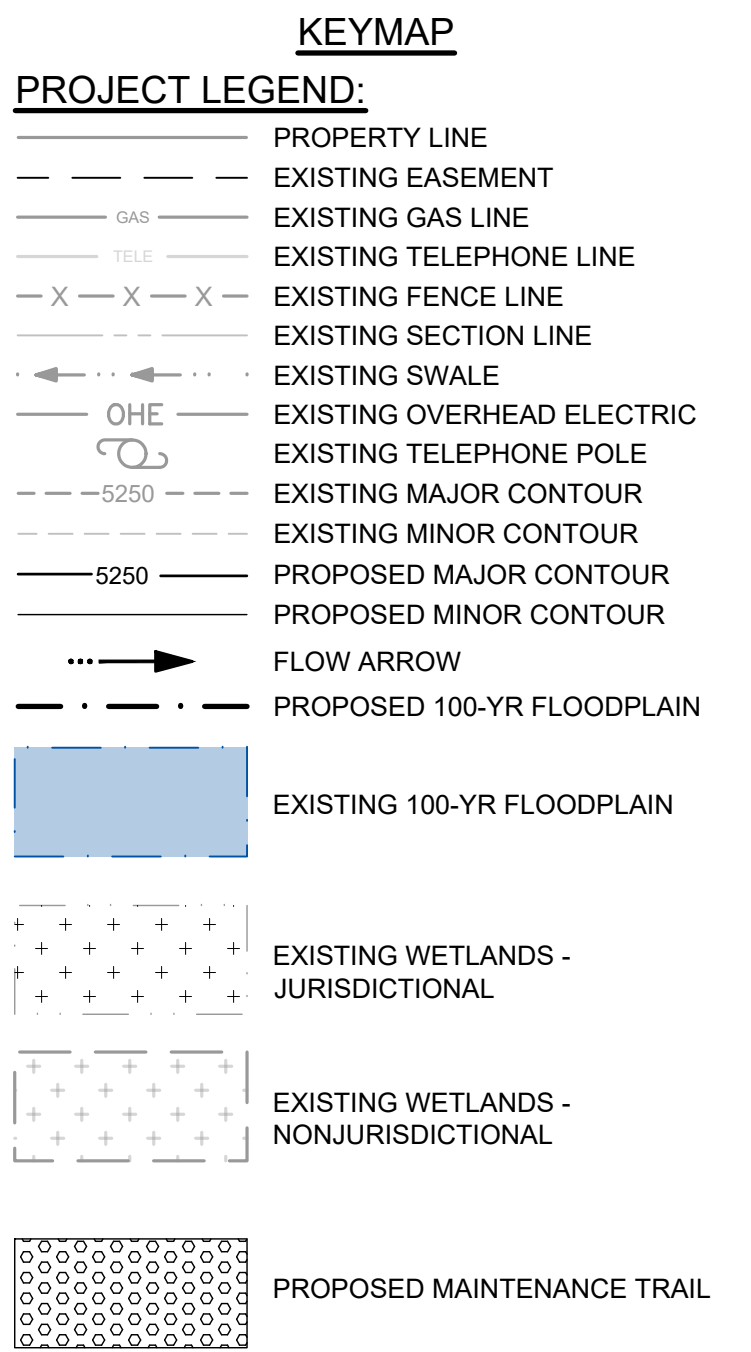
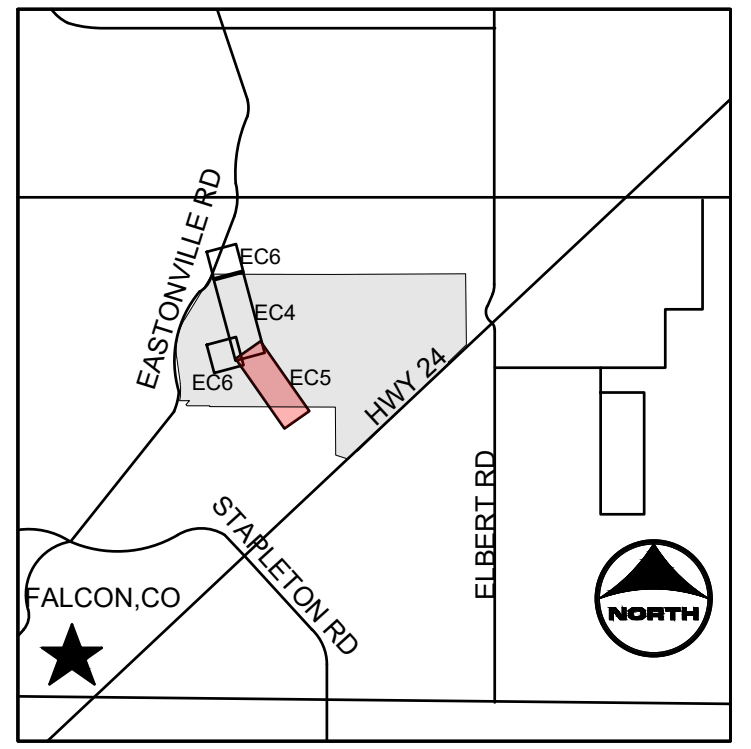
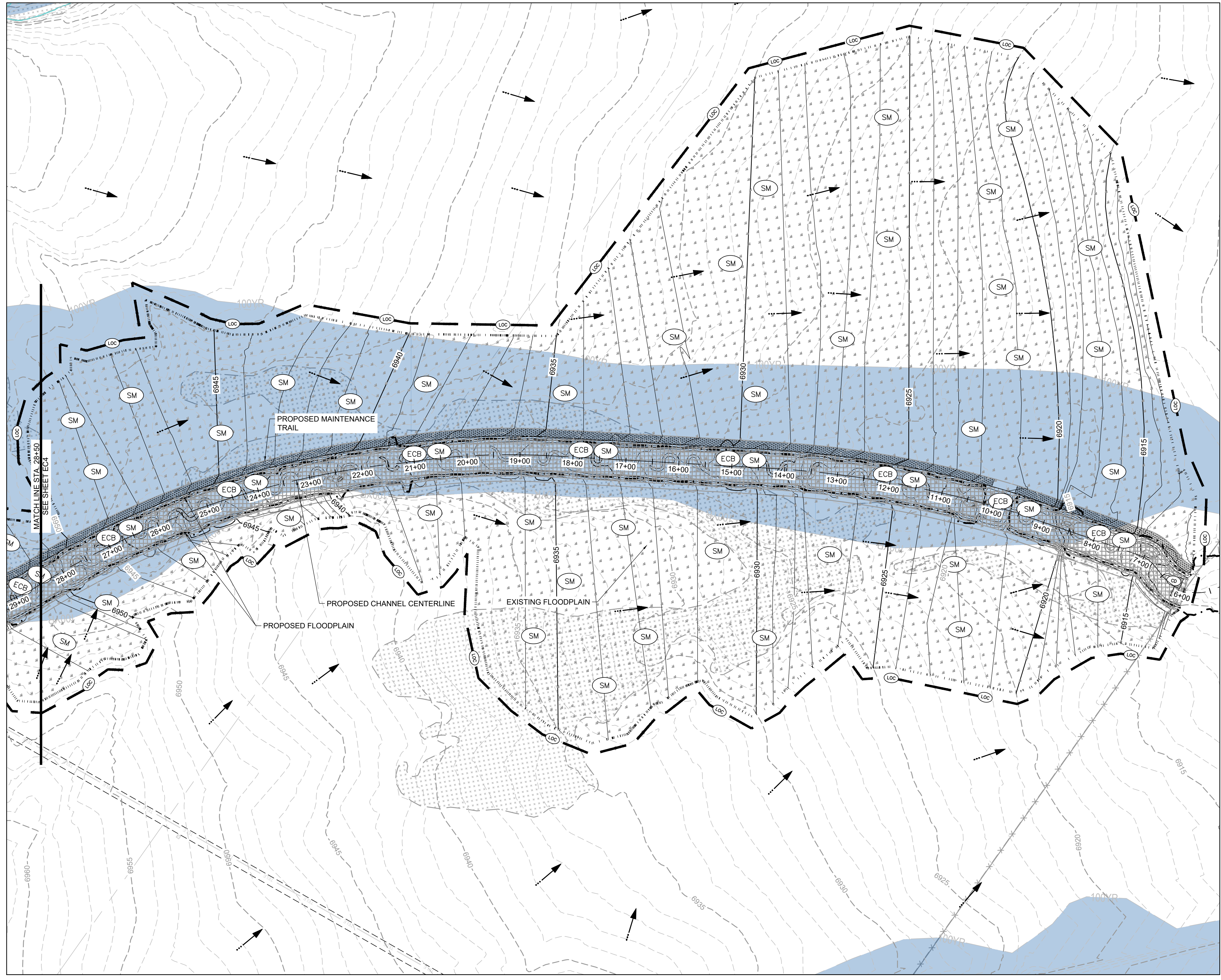
NO.	DATE	BY	REVISION DESCRIPTION

**HRGreen**  
 HR GREEN - DENVER  
 5613 DTC PARKWAY SUITE 950  
 DENVER CO 80111  
 PHONE: 720.602.4999  
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**GRANDVIEW RESERVE**  
**DR HORTON**  
 FALCON, COLORADO

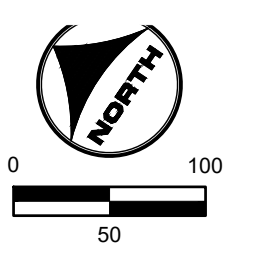
CONSTRUCTION DOCUMENTS  
 FINAL EROSION CONTROL

SHEET  
**EC4**  
 27



**NOTES:**

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DESIGNATION = F 24  
PID = JK0240  
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT  
CONTROL POINT COORDINATE SYSTEM:  
NAVD83  
NORTHING: 1421049.80  
EASTING: 3273631.55  
ELEVATION: 6866.33
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**811** UNCC CALL BEFORE YOU DIG  
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Utility Notification Center of Colorado

**PROFESSIONAL ENGINEER**  
GREGORY L. PARKS  
37081  
3/27/2024

DRAWN BY: ACH JOB DATE: 1/23/2024  
APPROVED: GLP JOB NUMBER: 201662.03  
CAD DATE: 1/26/2024  
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\FINAL EROSION CONTROL

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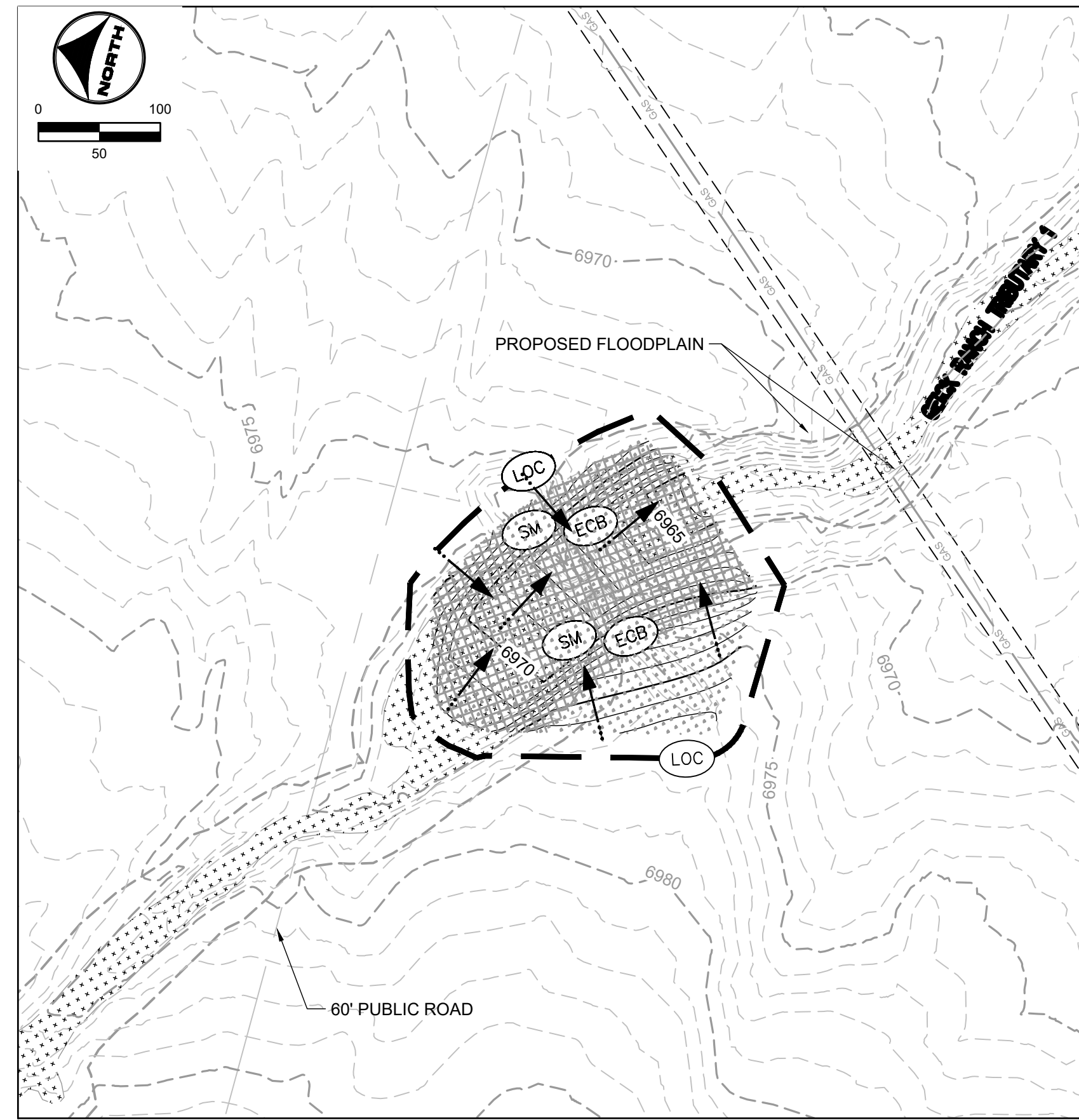
**HRGreen**  
HR GREEN - DENVER  
5613 DTC PARKWAY SUITE 950  
DENVER CO 80111  
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**DR HORTON**  
FALCON, COLORADO

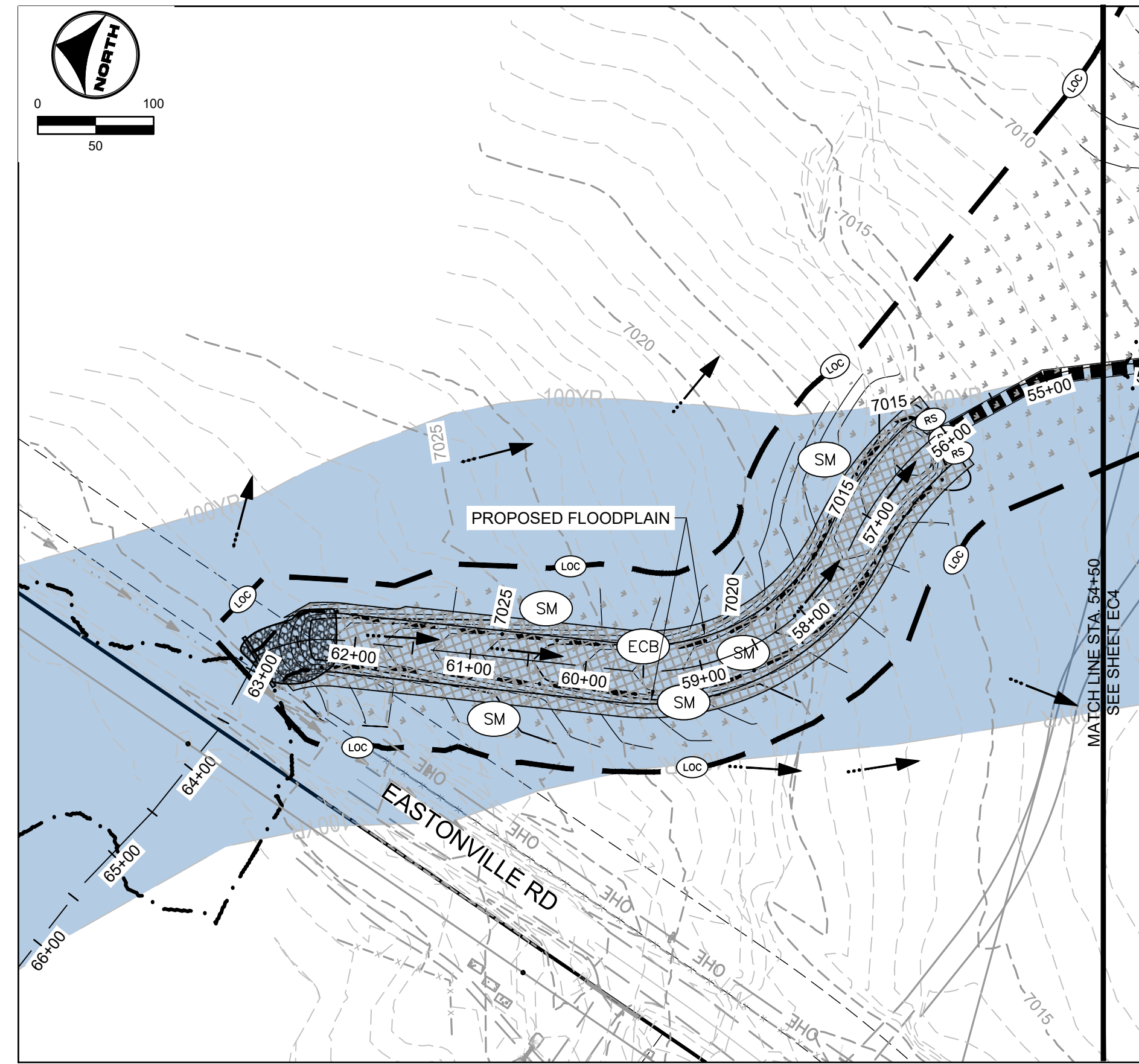
CONSTRUCTION DOCUMENTS  
FINAL EROSION CONTROL

SHEET  
**EC5**  
28

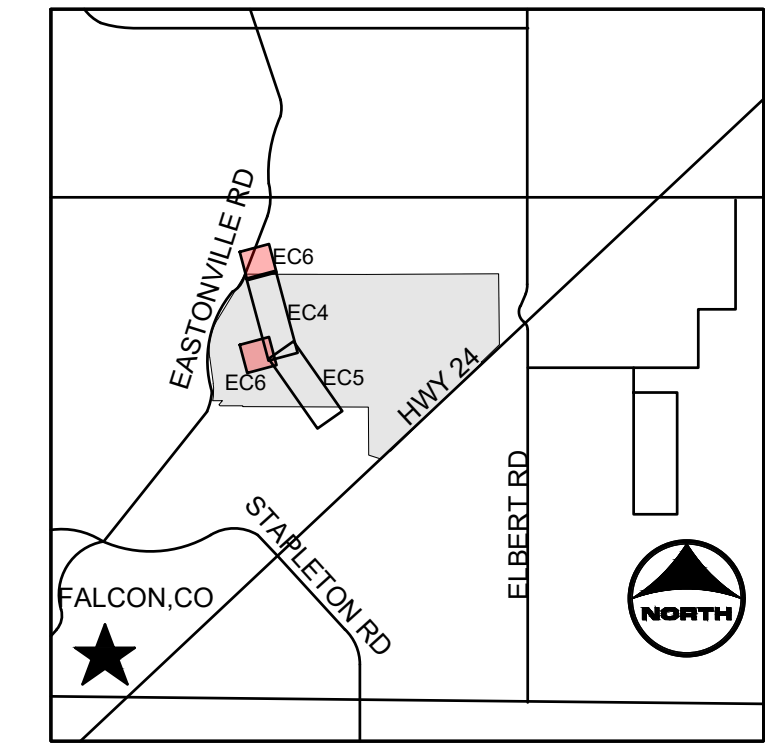
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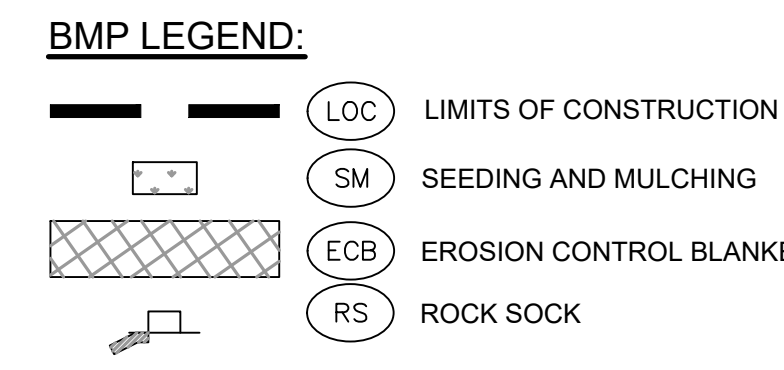
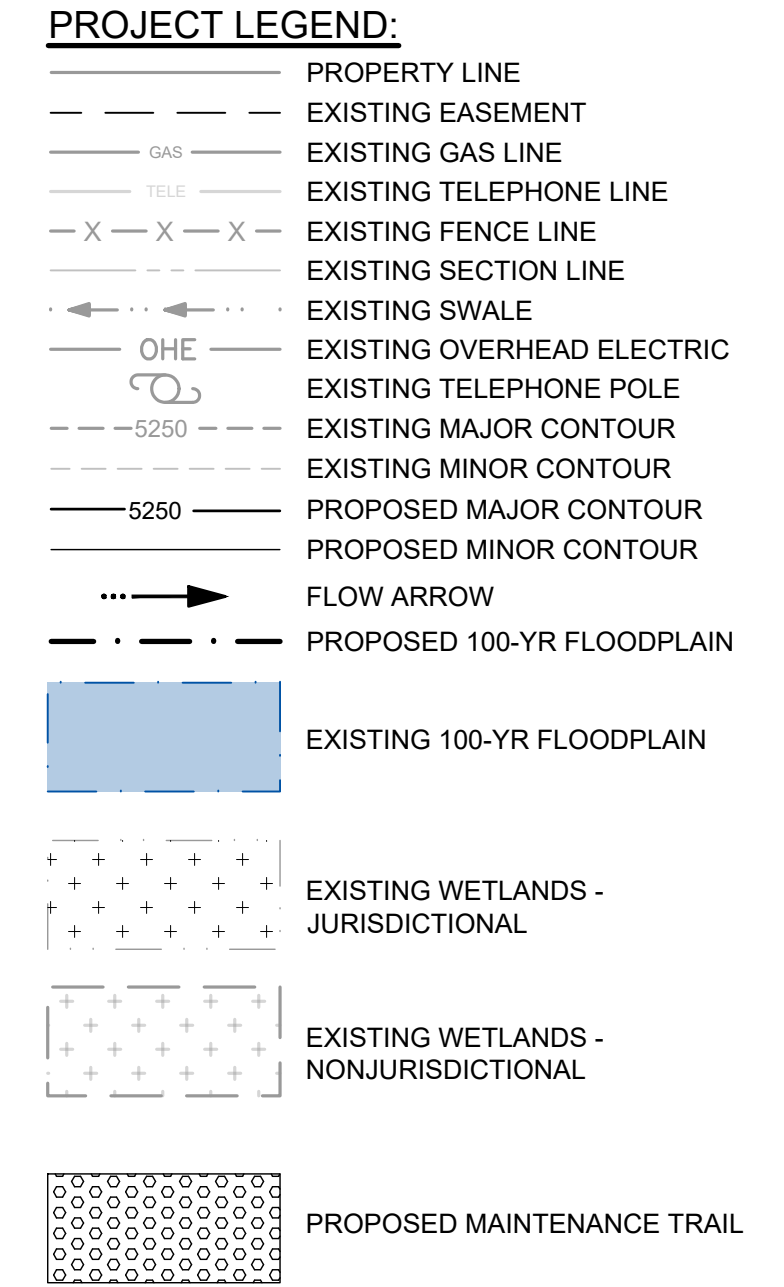
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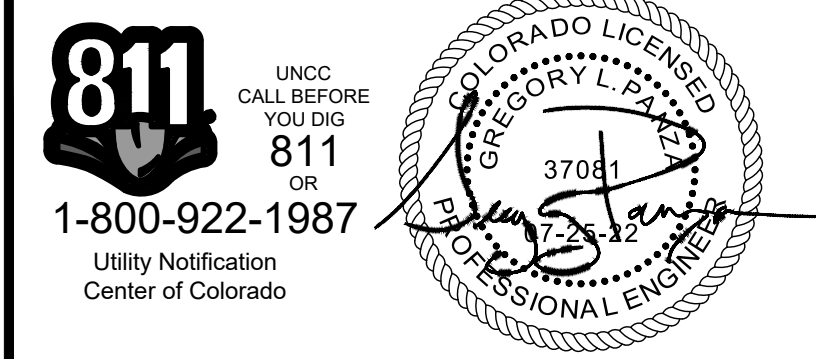
TRIBUTARY 2



KEYMAP



- NOTES:**
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**811** UNCC  
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 YOU DIG  
**811**  
 OR  
**1-800-922-1987**  
 Utility Notification  
 Center of Colorado

HR GREEN (xref: s: xref: d: 01: FINAL EROSION CONTROL KEY: 01-XC-FINAL-EC-01-XC-RIPRAP-01-XC-PR-100YR\_PP\_DELINEATION: xc-channel: xv-diff: B62: xv-row-B62: xv-dgn: B62

DRAWN BY: ACH	JOB DATE: 1/23/2024	BAR IS ONE INCH ON OFFICIAL DRAWINGS:  IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
APPROVED: GLP	JOB NUMBER: 201662.03	
CAD DATE: 1/26/2024		
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\FINAL EROSION CONTROL		

NO.	DATE	BY	REVISION DESCRIPTION

HR GREEN - DENVER  
 5613 DTC PARKWAY SUITE 950  
 DENVER CO 80111  
 PHONE: 720.602.4999  
 FAX: 713.965.0044

**GRANDVIEW RESERVE**  
**DR HORTON**  
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS  
 FINAL EROSION CONTROL

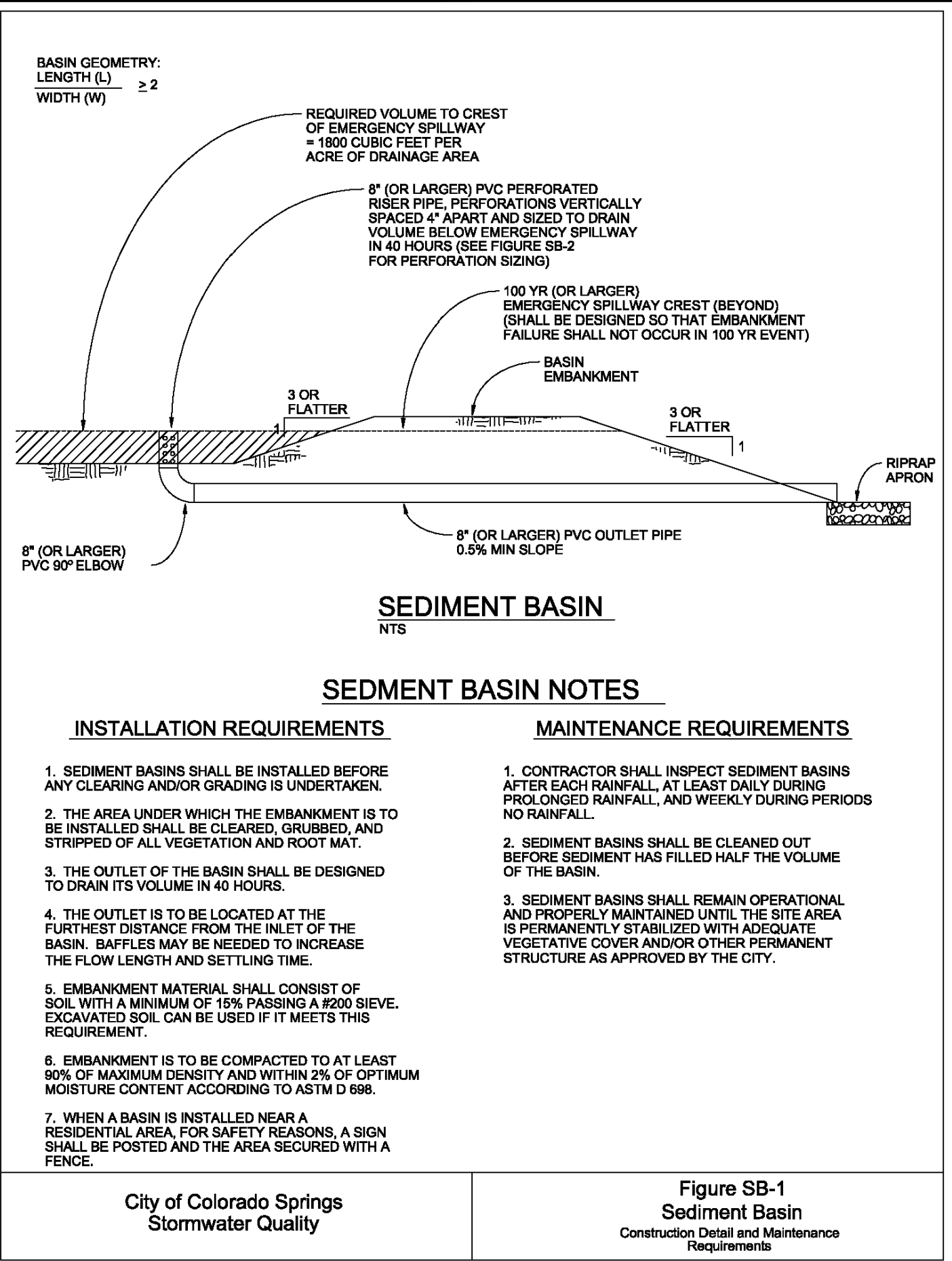
SHEET  
**EC6**  
 29



Grandview Reserve Channel A  
and Channel B  
Stormwater Management Plan  
Project No.: 201662.03  
El Paso County, Colorado

## **APPENDIX C – EL PASO COUNTY CONSTRUCTION CONTROL MEASURES**





Required Area per Row (in<sup>2</sup>)

Design Volume (acre-ft)	Depth at Outlet (ft)							
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
2	15.04	7.71	5.10	3.76	2.95	2.41	2.02	1.73
1	7.52	3.86	2.55	1.88	1.48	1.21	1.01	0.87
0.6	4.51	2.31	1.53	1.13	0.89	0.72	0.61	0.52
0.4	3.01	1.54	1.02	0.75	0.59	0.48	0.40	0.35
0.2	1.50	0.77	0.51	0.38	0.30	0.24	0.20	0.17
0.1	0.75	0.39	0.26	0.19	0.15	0.12	0.10	0.09
0.06	0.45	0.23	0.15	0.11	0.09	0.07	0.06	0.05
0.04	0.30	0.15	0.10	0.08	0.06	0.05	0.04	0.03
0.02	0.15	0.08	0.05	0.04	0.03	0.02	0.02	0.02
0.01	0.08	0.04	0.03	0.02	0.01	0.01	0.01	0.01

TABLE SB-1

Circular Perforation Sizing

Hole Diameter (in)	Hole Diameter (in)	n = 1	n = 2	n = 3
1/4	0.250	0.05	0.10	0.15
5/16	0.313	0.08	0.15	0.23
3/8	0.375	0.11	0.22	0.33
7/16	0.438	0.15	0.30	0.45
1/2	0.500	0.20	0.39	0.59
9/16	0.563	0.25	0.50	0.75
5/8	0.625	0.31	0.61	0.92
11/16	0.688	0.37	0.74	1.11
3/4	0.750	0.44	0.88	1.33
7/8	0.875	0.60	1.20	1.80
1	1.000	0.79	1.57	2.36
1 1/8	1.125	0.99	1.99	2.98
1 1/4	1.250	1.23	2.45	3.68
1 3/8	1.375	1.48	2.97	4.45
1 1/2	1.500	1.77	3.53	5.30
1 5/8	1.625	2.07	4.15	6.22
1 3/4	1.750	2.41	4.81	7.22
1 7/8	1.875	2.76	5.52	8.28
2	2.000	3.14	6.28	9.42

n = Number of columns of perforations

Minimum steel plate thickness 1/4" 5/16" 3/8"

TABLE SB-2

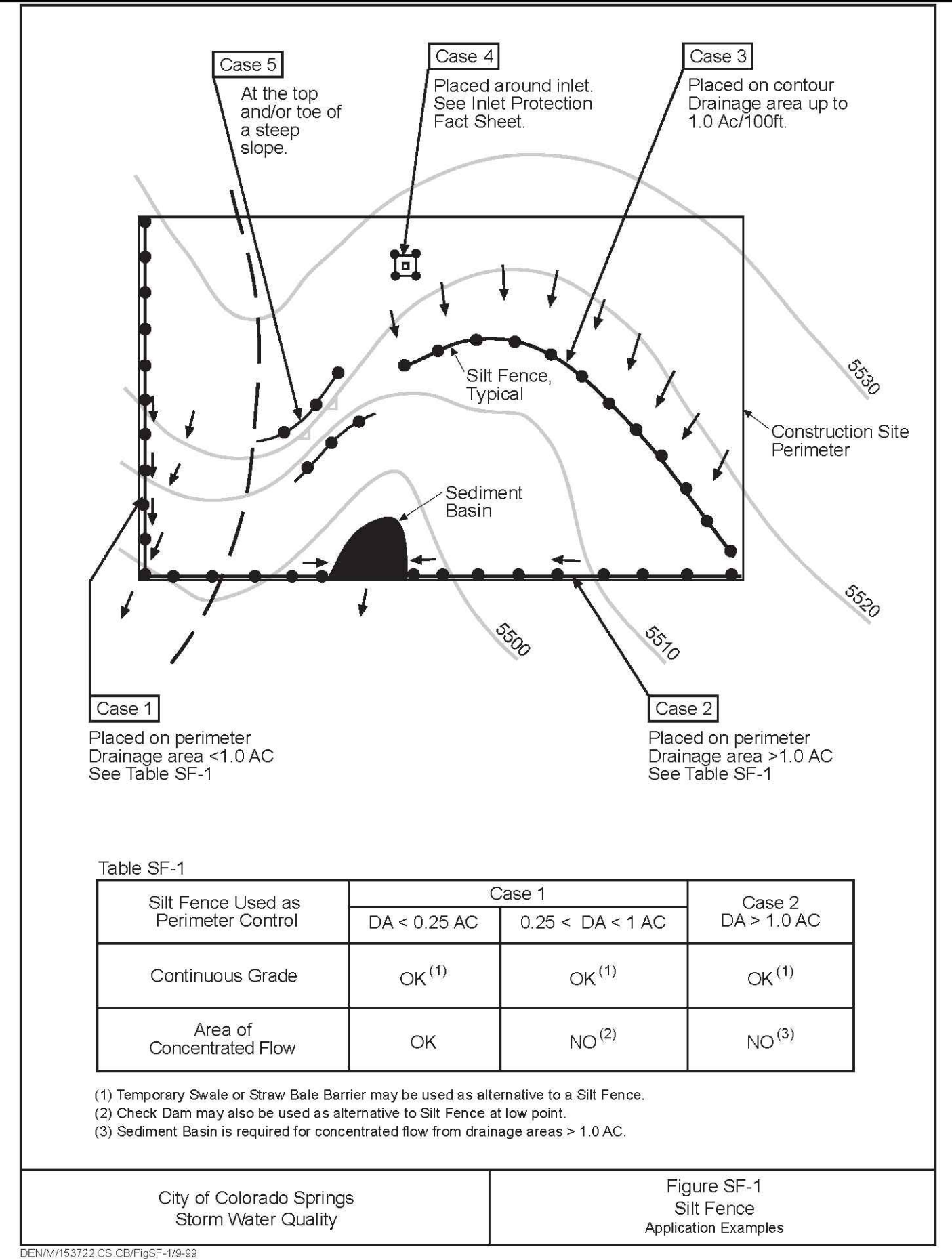


Table SF-1

Silt Fence Used as Perimeter Control	Case 1		Case 2
	DA < 0.25 AC	0.25 < DA < 1 AC	DA > 1.0 AC
Continuous Grade	OK <sup>(1)</sup>	OK <sup>(1)</sup>	OK <sup>(1)</sup>
Area of Concentrated Flow	OK	NO <sup>(2)</sup>	NO <sup>(3)</sup>

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

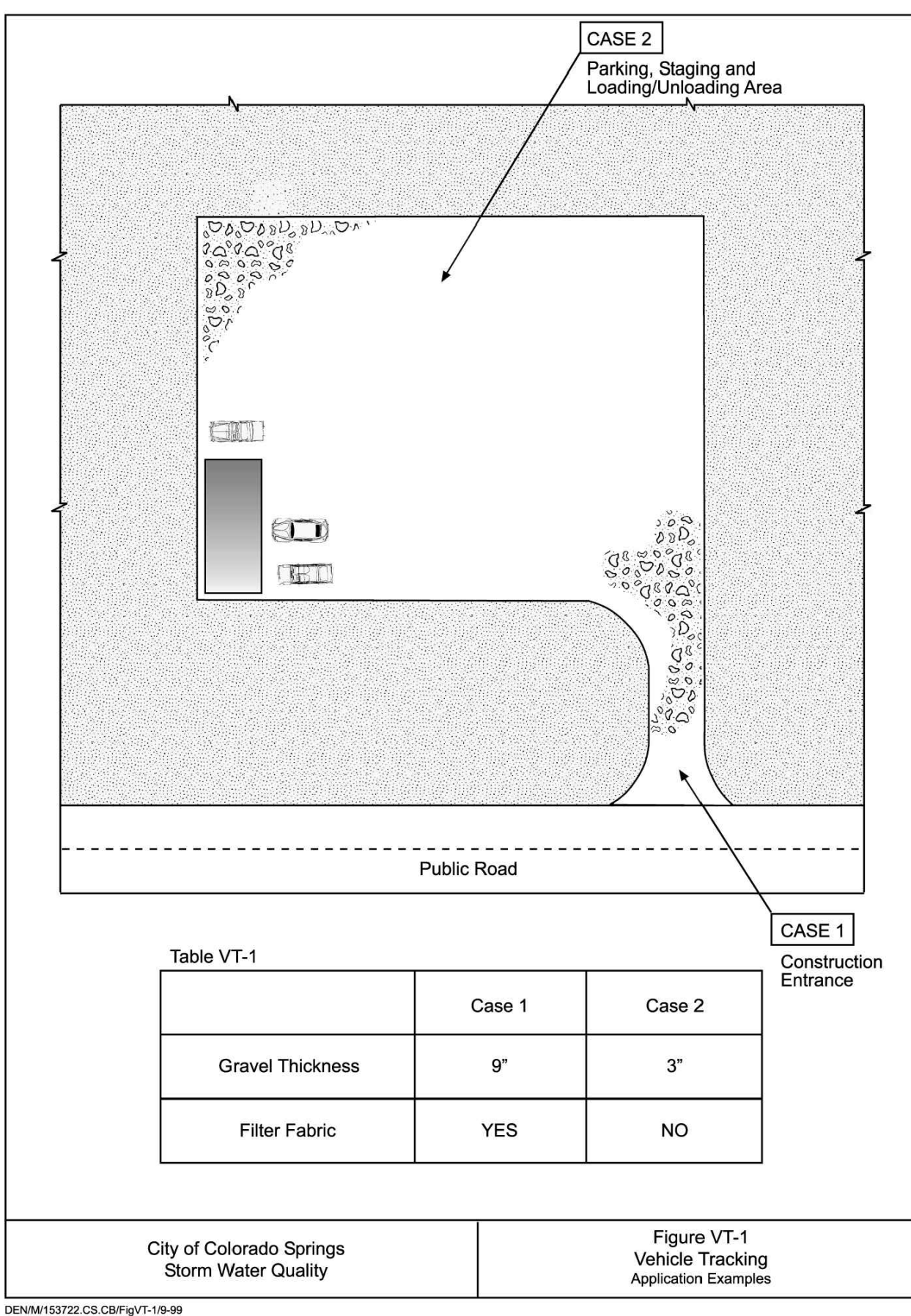
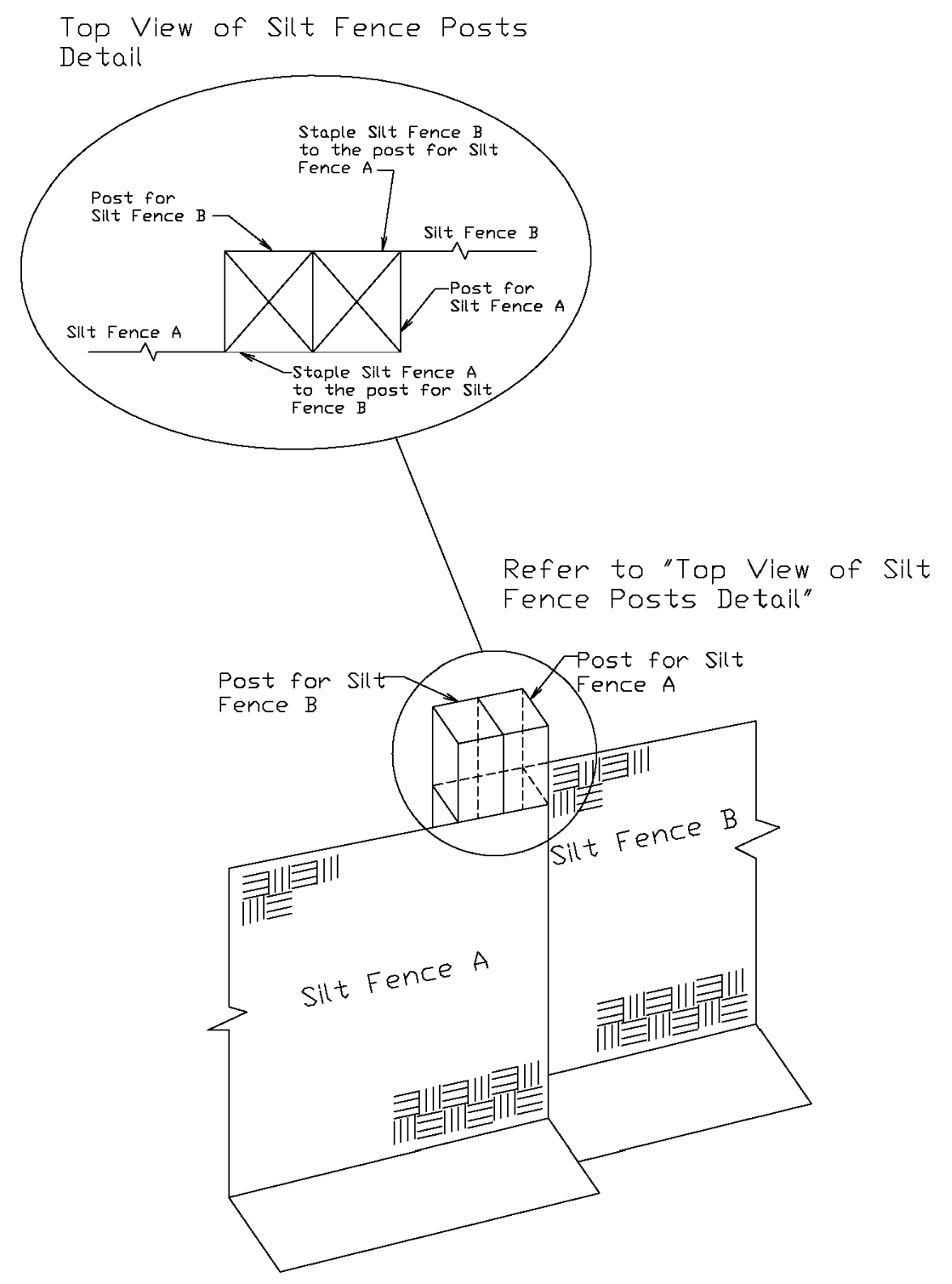
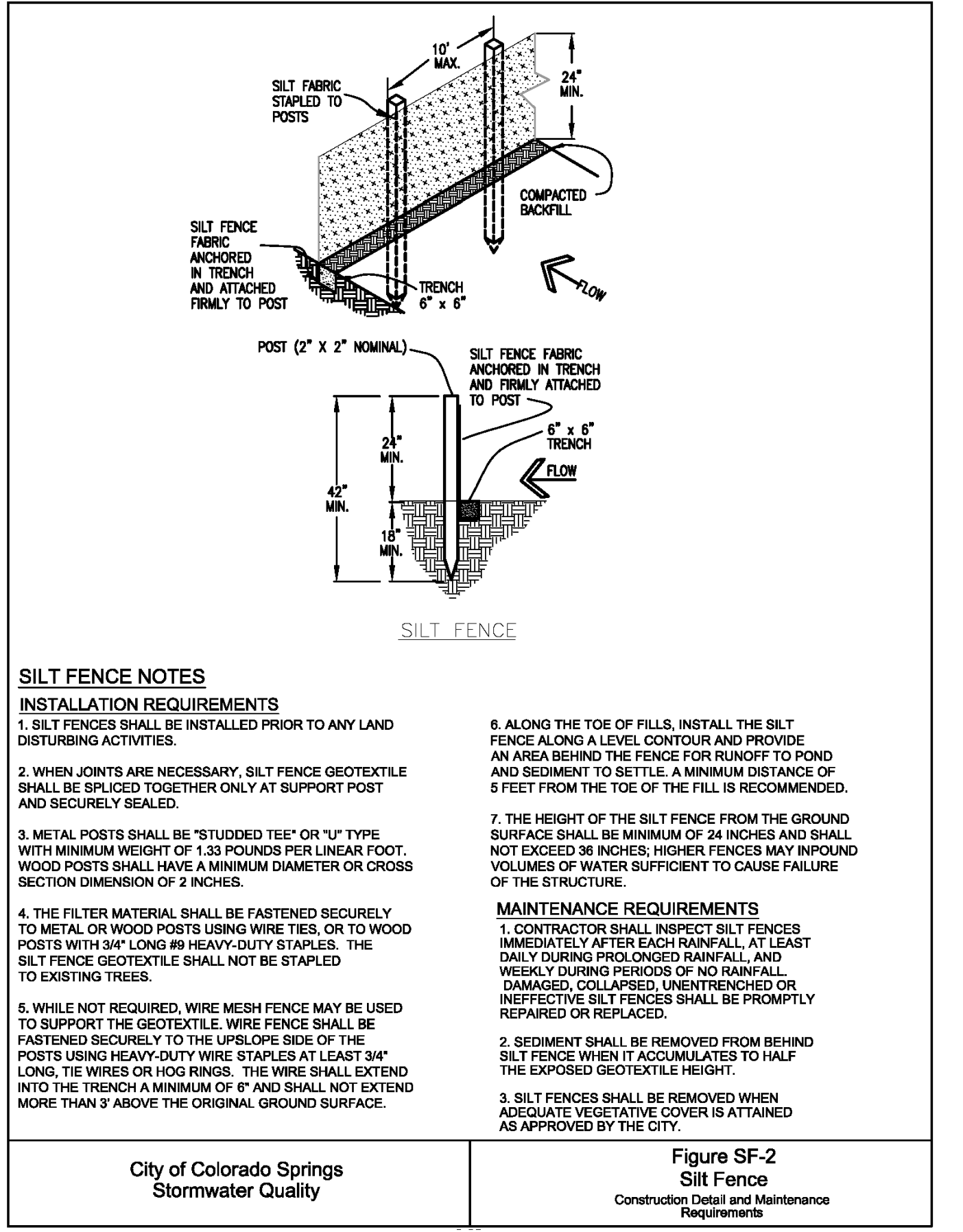
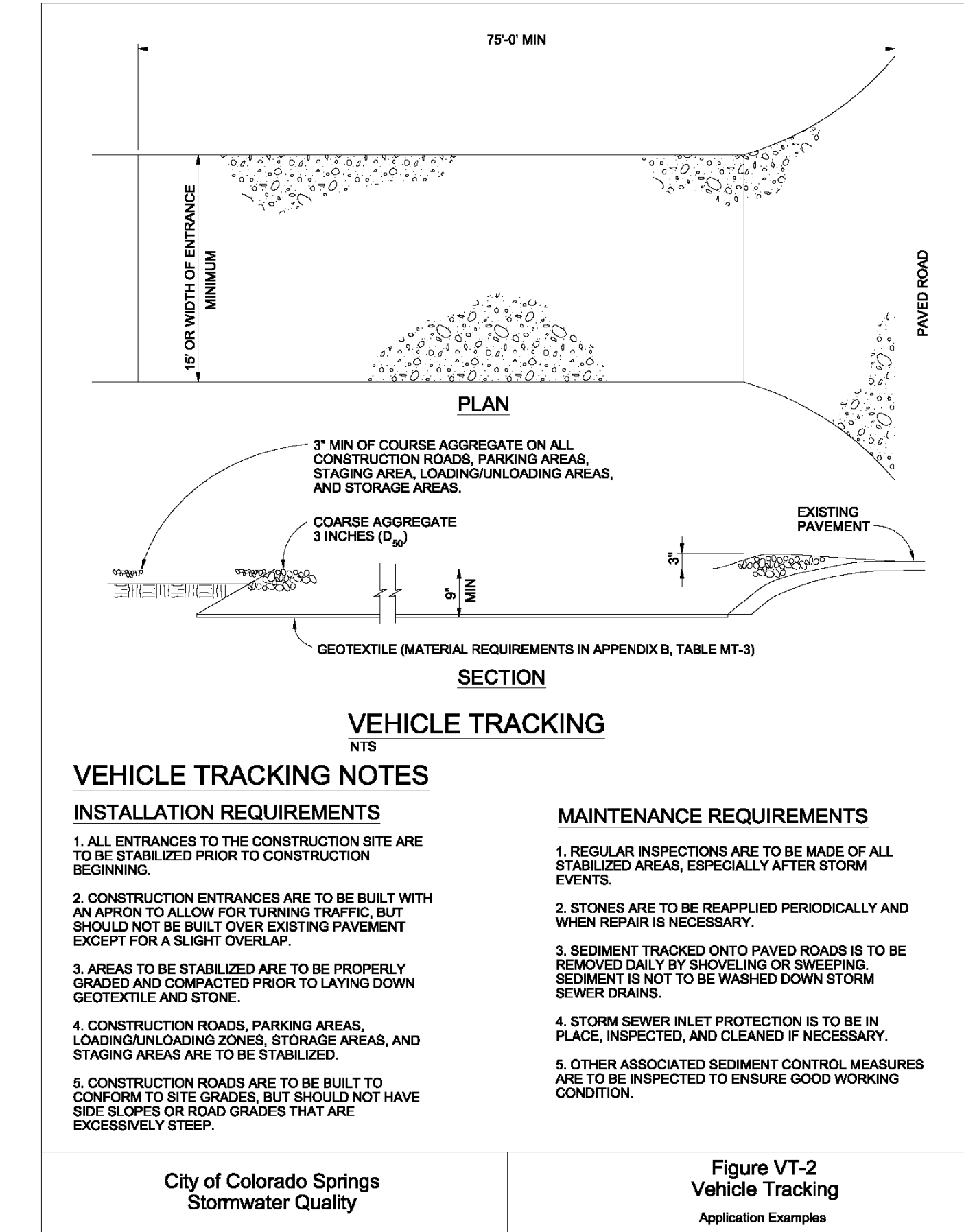


Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO



- VEHICLE TRACKING NOTES**
- INSTALLATION REQUIREMENTS**
- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
  - CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
  - AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
  - CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
  - CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.
- MAINTENANCE REQUIREMENTS**
- REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
  - STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
  - SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
  - STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
  - OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

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CAD DATE: 1/26/2024		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
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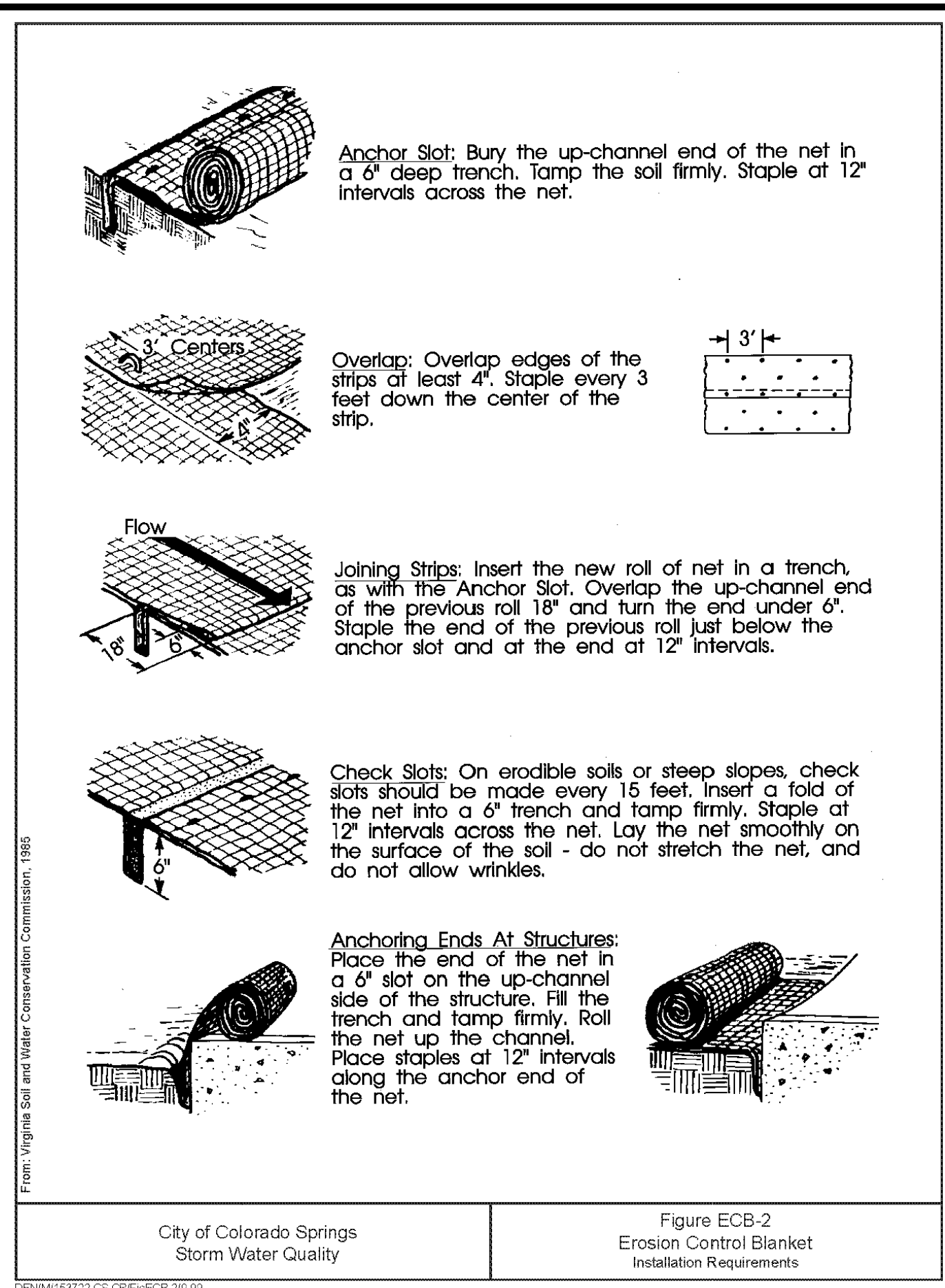
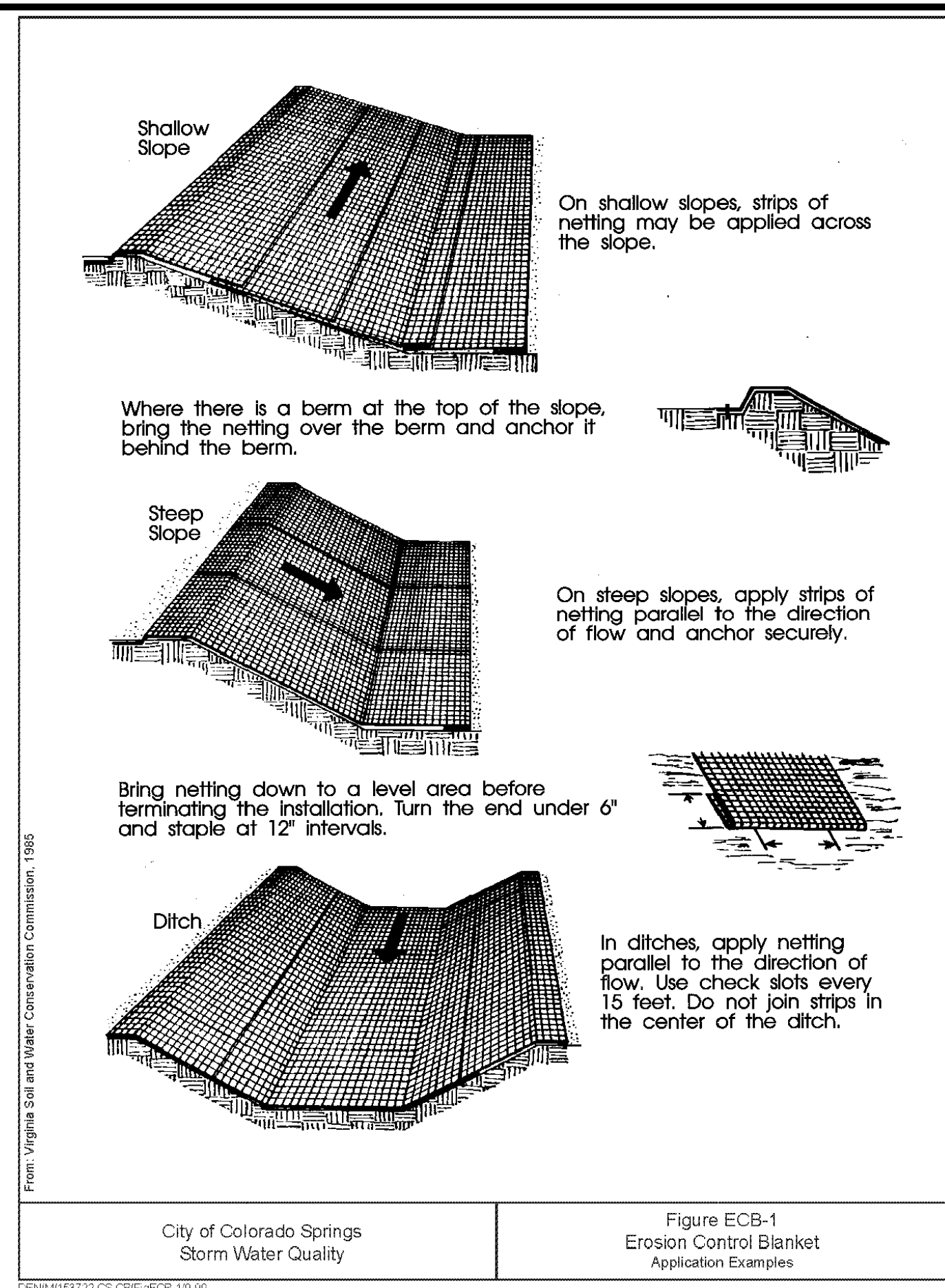
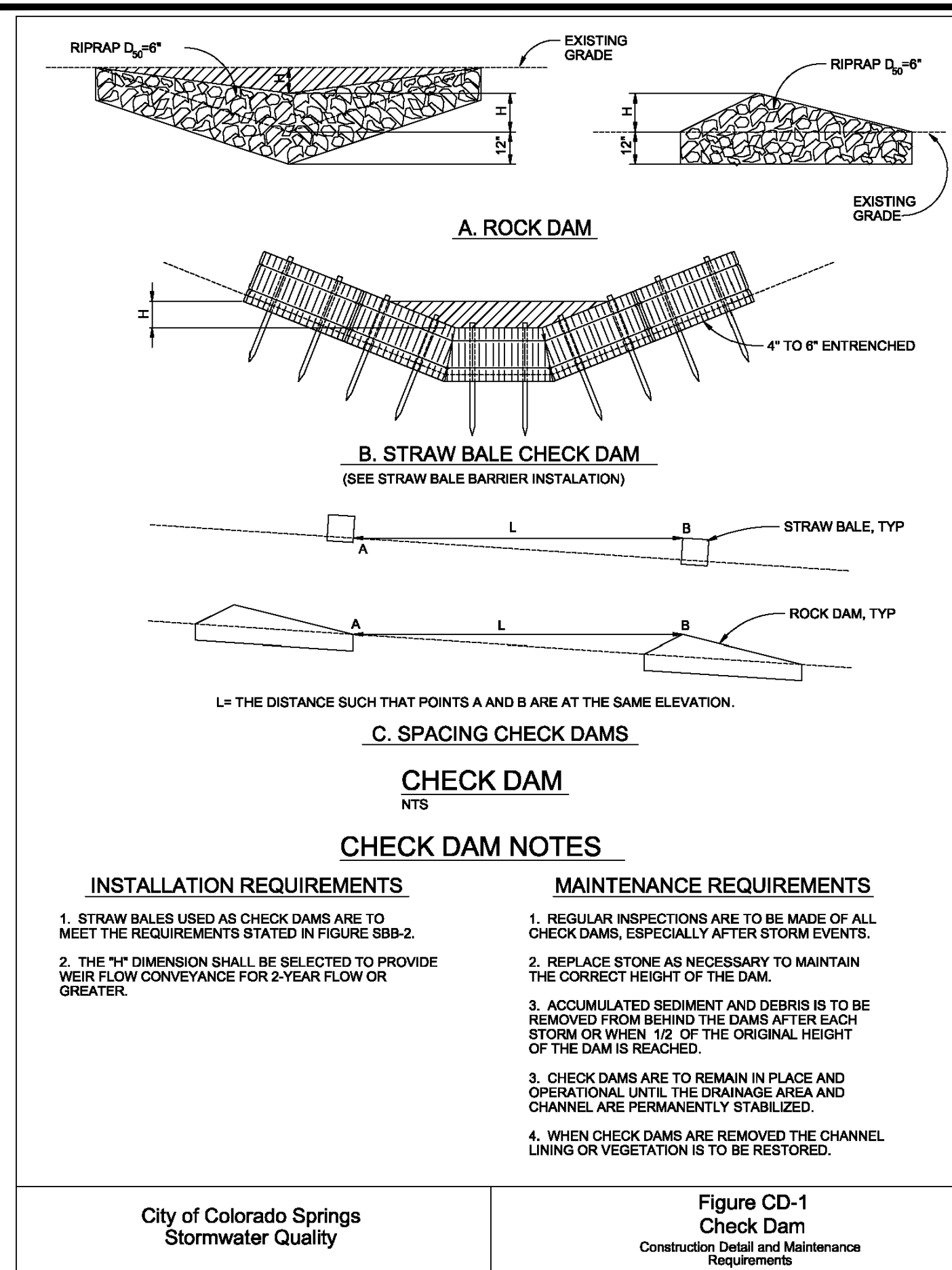
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**DR HORTON**  
**FALCON, COLORADO**

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**RECOMMENDED ANNUAL GRASSES**

SPECIES (COMMON NAME)	GROWTH SEASON	SEEDING DATE	POUNDS OF PURE LIVE SEED (PLS) (PLS/ACRE)	PLANTING DEPTH (INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

**TABLE TS-1**

**TEMPORARY SEEDING NOTES**

**INSTALLATION REQUIREMENTS**

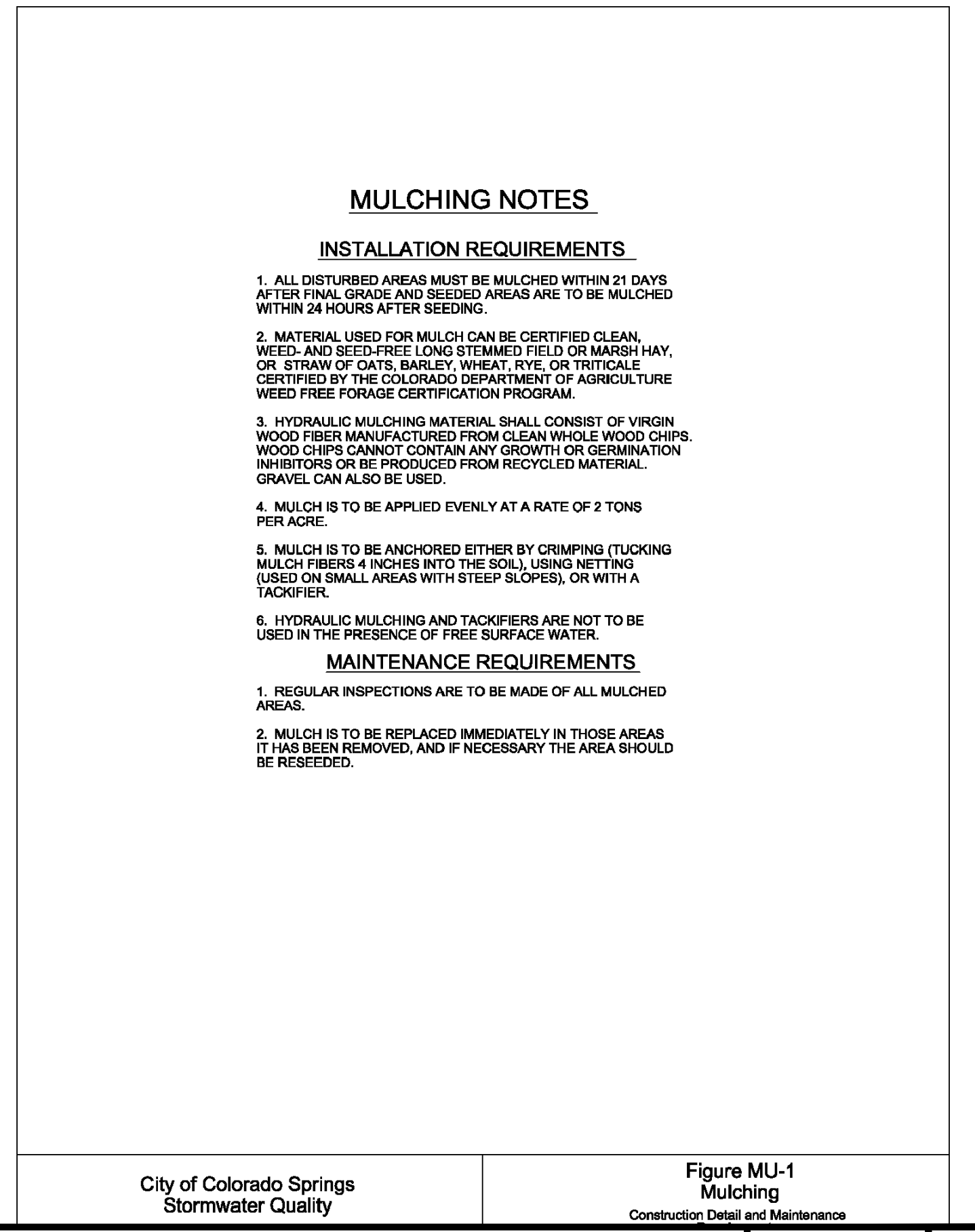
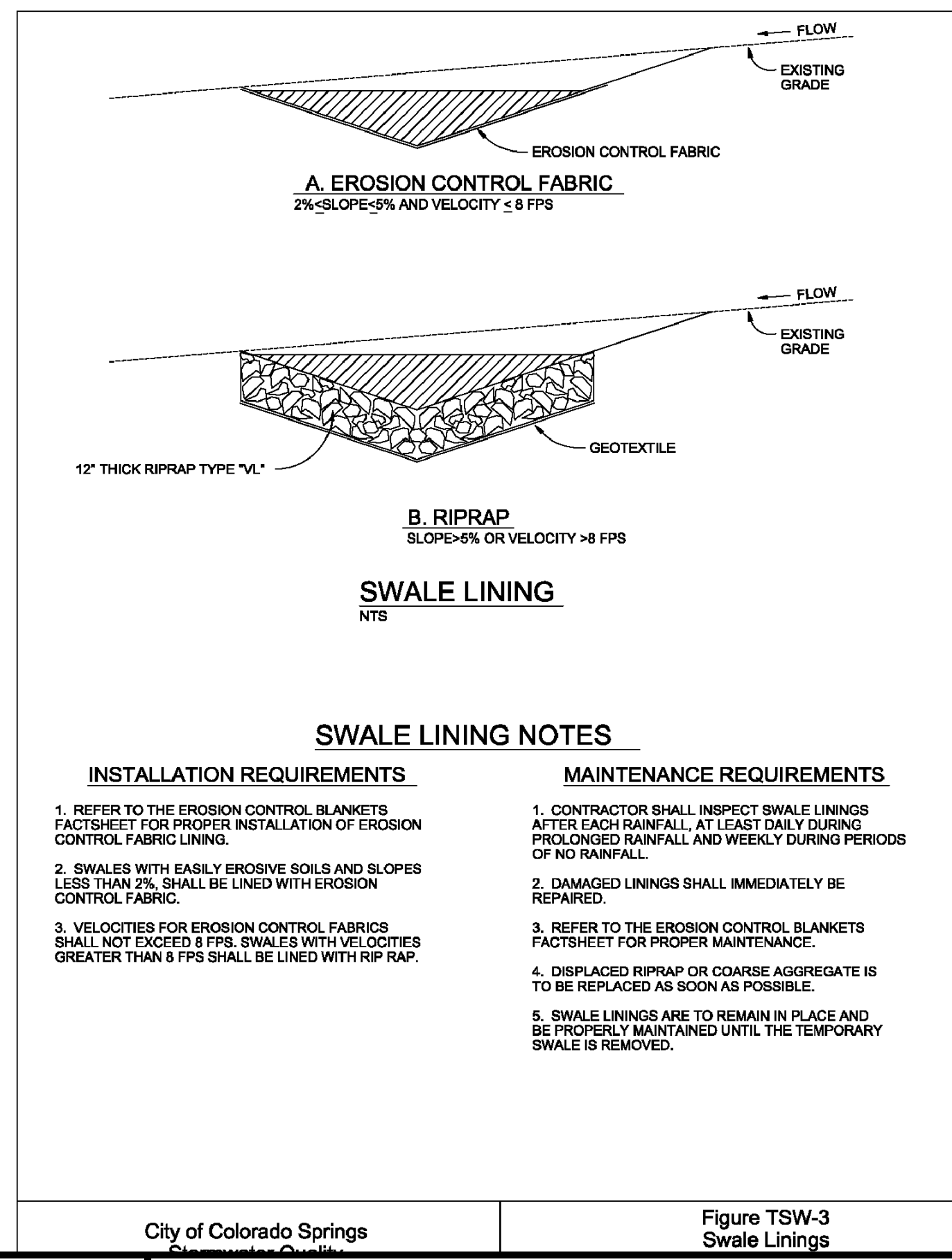
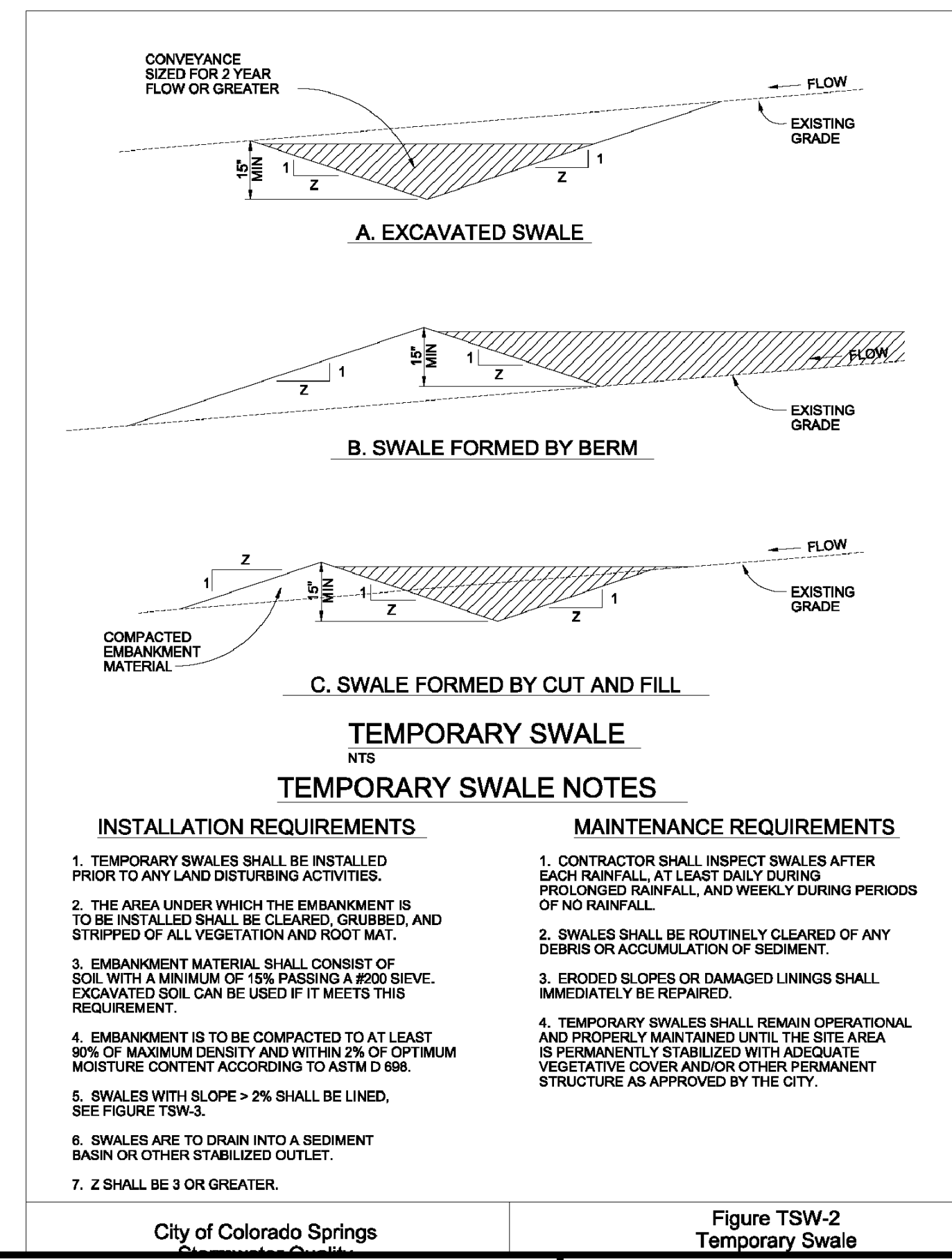
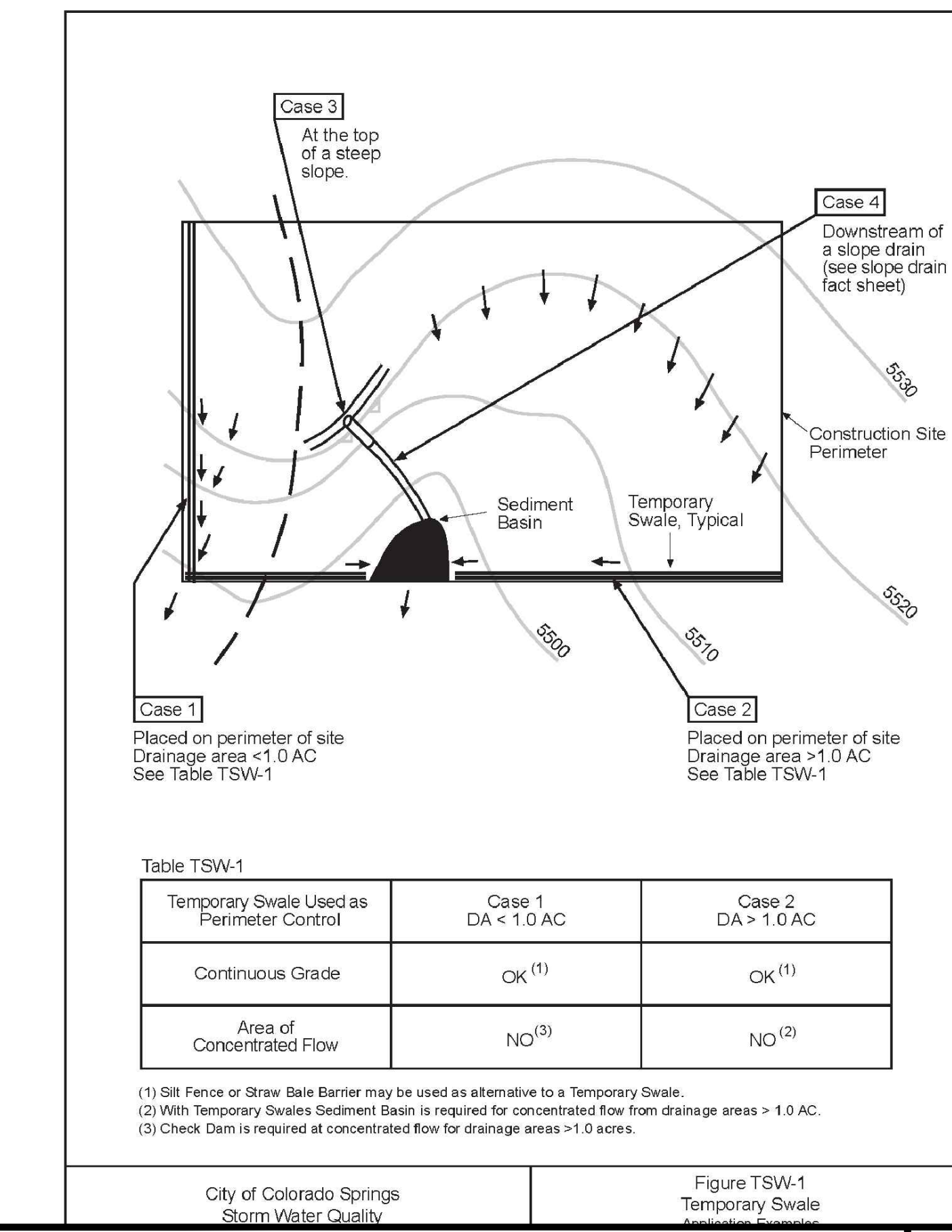
1. DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.
2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.
3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.
4. SEEDED DEPTH IS TO BE 4 INCHES FOR SLOPES FLATTER THAN 2:1, AND 1 INCH FOR SLOPES STEEPER THAN 2:1.
5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NOXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNAPWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.
6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.
7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OR ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.
8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING).
9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH.

**MAINTENANCE REQUIREMENTS**

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.
2. AREAS WHERE GROWTH IS NOT OCCURRING QUICKLY OR THE MULCH HAS BEEN REMOVED SHALL BE RE-SEEDED AS SOON AS POSSIBLE AND RE-MULCHED IF NEEDED.
3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality

Figure TS-1  
Temporary Seeding  
Construction Detail and Maintenance Requirements



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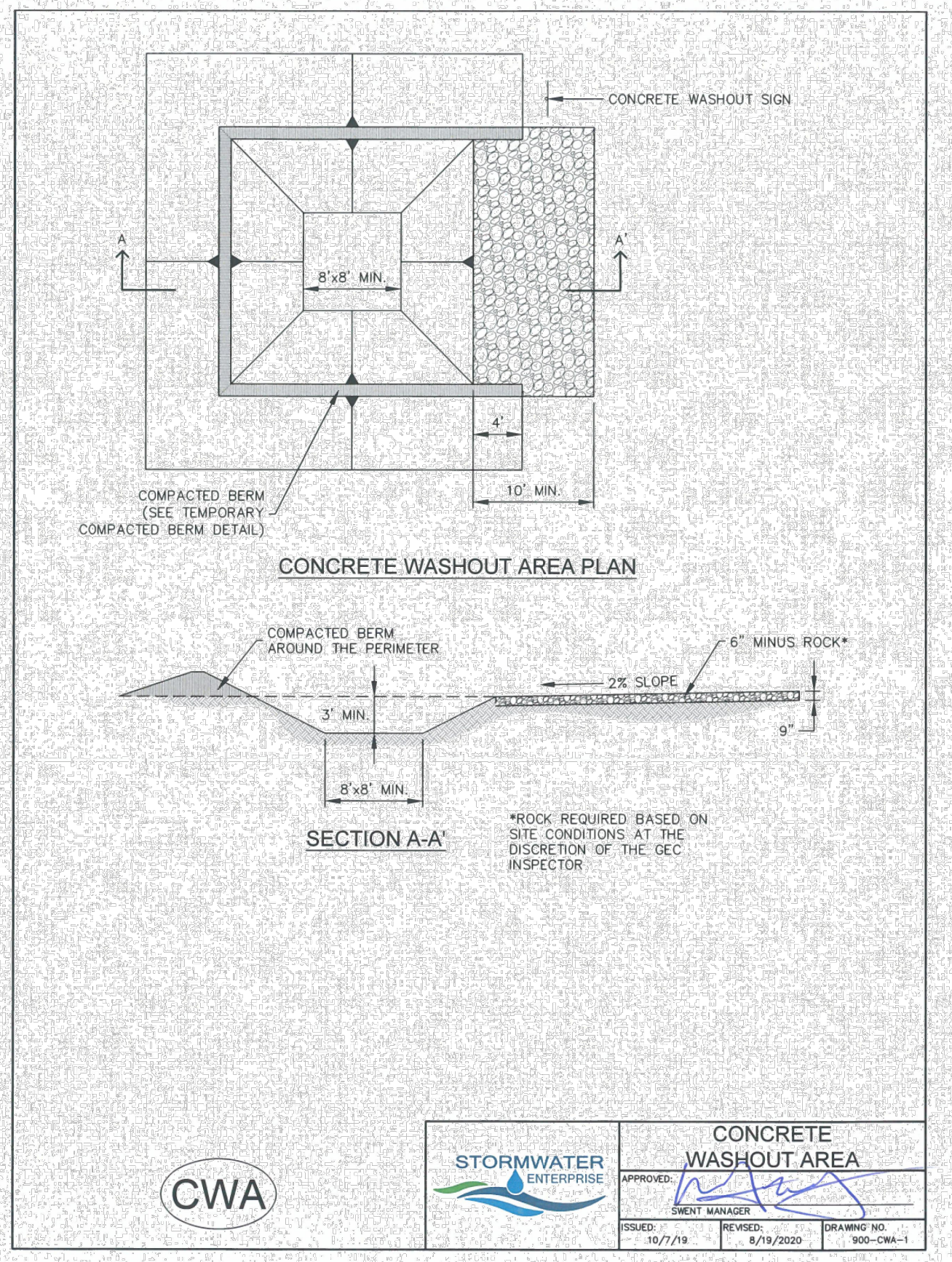
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- INSTALLATION NOTES**
1. SEE PLAN VIEW FOR LOCATION OF CONCRETE WASHOUT AREA.
  2. LOCATE AT LEAST 50' AWAY FROM STATE WATERS MEASURED HORIZONTALLY.
  3. AN IMPERMEABLE LINER (16 MIL. MINIMUM THICKNESS) IS REQUIRED IF CONCRETE WASH AREA IS LOCATED WITHIN 400' OF STATE WATERS OR 1000' OF WELLS OR DRINKING WATER SOURCES.
  4. DO NOT LOCATE IN AREAS WHERE SHALLOW GROUNDWATER MAY BE PRESENT.
  5. THE CONCRETE WASH AREA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
  6. CONCRETE WASH AREA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8'.
  7. BERM SURROUNDING SIDES AND BACK OF CONCRETE WASH AREA SHALL HAVE A MINIMUM HEIGHT OF 2 FEET.
  8. CONCRETE WASH AREA ENTRANCE SHALL BE SLOPED 2% TOWARDS THE CONCRETE WASH AREA.
  9. SIGNS SHALL BE PLACED AT THE CONCRETE WASH AREA.
  10. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.
- MAINTENANCE NOTES**
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
  2. THE CONCRETE WASH AREA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS ACCUMULATED IN THE PIT SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2/3 THE HEIGHT OF THE CONCRETE WASH AREA.
  3. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE, AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
  4. THE CONCRETE WASH AREA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  5. PERMANENTLY STABILIZE AREA AFTER CONCRETE WASH AREA IS REMOVED.



**CONCRETE WASHOUT AREA**

APPROVED: *[Signature]*  
SHEET MANAGER

ISSUED: 10/7/19    REVISED: 8/19/2020    DRAWING NO: 900-CWA-1



**CONCRETE WASHOUT AREA**

APPROVED: *[Signature]*  
SHEET MANAGER

ISSUED: 10/7/19    REVISED: 8/19/2020    DRAWING NO: 900-CWA-2

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Grandview Reserve Channel A  
and Channel B  
Stormwater Management Plan  
Project No.: 201662.03  
El Paso County, Colorado

## **APPENDIX D – SPILL PREVENTION PLAN**





# Spill Prevention, Control and Countermeasure (SPCC) Plan

**Facility Name:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
\_\_\_\_\_

**Contact Name:** \_\_\_\_\_  
**Phone:** \_\_\_\_\_  
**Fax:** \_\_\_\_\_  
**Email:** \_\_\_\_\_

**Certification:** I hereby certify that I have examined the facility, and, being familiar with the provisions of 40 CFR part 112, attest that this SPCC plan has been prepared, or updated within 5 years, in accordance with good engineering practices and meets the requirements listed in 40 CFR part 112.

**This plan has been certified by:**

**Date of certification:** \_\_\_\_\_

*Engineer's Seal*

**Copies of this plan are located at the facility and are available to all employees.**

**Location(s) of plan(s):** \_\_\_\_\_

**I. FACILITY INFORMATION**

- a. Facility Name: \_\_\_\_\_
- b. Mailing Address: \_\_\_\_\_  
\_\_\_\_\_
- c. Physical address if different: \_\_\_\_\_  
\_\_\_\_\_
- d. Owner Name: \_\_\_\_\_
- e. Owner Address: \_\_\_\_\_  
\_\_\_\_\_
- f. Primary Contact Name: \_\_\_\_\_  
Work Phone Number: \_\_\_\_\_  
Home Phone Number: \_\_\_\_\_  
Mobile Phone Number: \_\_\_\_\_
- g. Secondary Contact Name: \_\_\_\_\_  
Work Phone Number: \_\_\_\_\_  
Home Phone Number: \_\_\_\_\_  
Mobile Phone Number: \_\_\_\_\_
- h. Date of Initial Operation: \_\_\_\_\_

**II. SITE ASSESSMENT**

**a. Location:**

Describe where facility is located. For example, "This site is located along Broad Creek about 2 miles north of its confluence with the Choptank River at Holland Point. Road access is from. . . . The site is located on Talbot County ADC map 22 (H5). Latitude is \_\_\_\_ and longitude is \_\_\_\_."

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\_\_\_\_\_

### III. FACILITY DESCRIPTION

**a. Acres of land:** \_\_\_\_

**b. Facilities and Equipment:**

Place an X beside all that apply.

- Garage for vehicle processing
- Parts store
- On-site crusher
- Impervious crush pad for crusher
- Impervious pad for outside vehicle processing
- Spill kit/emergency equipment
- Refrigerant (Freon) extractor

- Parts washer
- Other structures and major equipment:

Please list: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**c. Services:**

Place an X beside all that apply.

- Dismantler/Recycler
- Sell used parts
- Sell vehicles for scrap
- Crushing
- Auto body/repair shop
- Sell used cars

\_\_\_\_ Other services:

Please list: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**d. Fixed Storage:**

List capacity and contents of each storage container. For example, "One 6,000 gallon above ground tank containing diesel fuel." Be sure to include diesel, gasoline, waste oil, heating oil, kerosene, paint thinner and other solvents. Also describe the construction of the containers, secondary containment for each, liquid level indicators, alarms and method of corrosion protection for each container.

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**e. Non-Fixed Storage:**

List capacity and contents of each storage container. For example, "One 55 gallon drum for recycled oil." Be sure to indicate what each container is used for, its condition and construction and how secondary containment is provided. \_\_\_\_\_

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**f. Total quantity of stored materials:**

The combined quantity of the materials listed above: \_\_\_\_\_ gallons

**IV. OIL SPILL HISTORY**

Place an X on the appropriate line and proceed accordingly.

\_\_\_\_ There has never been a significant spill at the above named facility.

\_\_\_\_ There have been one or more significant spills at the above named facility. Details of such spill(s) are described below.

For each spill that occurred, supply the following information:

- Type and amount of oil spilled
- Location, date and time of spill(s)
- Watercourse affected
- Description of physical damage
- Cost of damage
- Cost of clean-up
- Cause of spill
- Action taken to prevent recurrence

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## V. POTENTIAL SPILL VOLUMES AND RATES

Fill in all applicable blanks. Be prepared to show the engineer documentation of flow rates. Your fuel vendor and the manufacturer of your storage and dispensing equipment should be able to provide this documentation.

<u>Potential Event</u>	<u>Volume Released</u>	<u>Spill Rate</u>
Complete failure of a full tank*	___ gallons	instantaneous
Partial failure of a full tank*	1 to ___ gallons	gradual to instantaneous
Tank overflow**	1 to ___ gallons	up to ___ gallons per minute
Leaking during unloading***	up to ___ gallons	up to ___ gallons per minute
Pipe failure****	up to ___ gallons	up to ___ gallons per minute
Leaking pipe or valve****	several ounces to gallons	up to ___ gallons per minute
Fueling operations****	several ounces to gallons	up to ___ gallons per minute
Oil and grease	several ounces to quarts	spotting

- \* Volume of largest tank
- \*\* Calculate using the rate at which fuel is dispensed from the delivery truck into your tank(s).
- \*\*\* Calculate using the rate at which petroleum would be withdrawn from the tank if it should have to be emptied (e.g., if it was being taken out of service).
- \*\*\*\* Calculate based on the specifications of your equipment.

## VI. SPILL PREVENTION AND CONTROL

### a. Spill Prevention:

Provide specific descriptions of containment facilities and practices. Include description of items such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. Also, describe how and when employees are trained in proper handling procedures and spill prevention and response procedures.

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**b. Spill discharge and flow:**

For each potential spill source, describe where petroleum would flow in the event of a spill. For example, “The 6,000 gallon diesel tank has a pre-manufactured secondary containment system capable of holding 110 percent of the total volume of the tank” and, “A spill from engine repair would be contained inside the shop building and quickly cleaned up with oil absorbents.” Incorporate site map by reference (see instructions under *Appendices*).

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**c. Spill response:**

Identify what equipment would be deployed by whom and in what situation. Also, include phone numbers for response agencies, *e.g.*, U.S. Coast Guard, fire department, spill response contractors, etc. A copy of your spill response plan may be attached as an appendix to this SPCC plan in lieu of completing this section.

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**d. Security**

Provide a description of how all containers are protected when the facility is not in operation or unattended. Include a description of fencing, access control, gates, locks, etc. that prevent access by unauthorized individuals.

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## VII. FACILITY INSPECTIONS

### a. Routine Inspections

Name facilities and the frequency with which they are inspected. For example, “The fuel pumps are inspected daily. The materials storage area is inspected monthly.” Describe all facility containers, piping, etc. that is to be inspected. Name the person who has responsibility to implement preventative maintenance programs, oversee on-site inspections, coordinate employee training, maintain records, update the plan as necessary, and ensure that reports are submitted to the proper authorities.

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### b. Annual Inspections

Include a description of annual comprehensive inspections. For example, “A site inspection is also conducted annually by appropriate responsible personnel to verify that the description of potential pollutant sources are accurate, that the map reflects current site conditions, and that the controls to reduce the pollutants identified in this plan are being implemented and are adequate. This annual inspection will be conducted above and beyond the routine inspections done focusing on designated equipment and areas where potential sources are located.”

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## VIII. RECORD KEEPING

Describe record keeping procedures. For example, “Record keeping procedures consist of maintaining all records a minimum of three years. The following items will be kept on file: current SPCC plan, internal site reviews, training records, and documentation of any spills or maintenance conducted in regards to these sites.” *Maintenance Inspection, Employee Training, and Record Keeping* logs are included in this template for your use.

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**IX. MAINTENANCE INSPECTIONS**

Maintenance Coordinator: \_\_\_\_\_ . Maintenance Coordinator responsibilities include implementation of preventative maintenance programs and oversight of on-site inspections.

Use this table to record inspections:

<b>Facility Inspected</b>	<b>Date of Inspection</b>	<b>Name of Inspector</b>	<b>Result Pass/Fail</b>	<b>Comments</b>



## X. RECORD KEEPING OF INCIDENTAL SPILLS

Record Keeper: \_\_\_\_\_. Record Keeper responsibilities include maintaining records of incidents, updating the SPCC plan as necessary and ensuring reports are submitted to the proper authorities when necessary.

Incident No.	Type of Incident	Date of Occurrence	How it was Cleaned Up



Grandview Reserve Channel A  
and Channel B  
Stormwater Management Plan  
Project No.: 201662.03  
El Paso County, Colorado

## **APPENDIX E – CSWMP REPORT REVISION LOG**





### SWMP REPORT REVISION LOG

REVISION #	DATE	BY	COMMENTS

