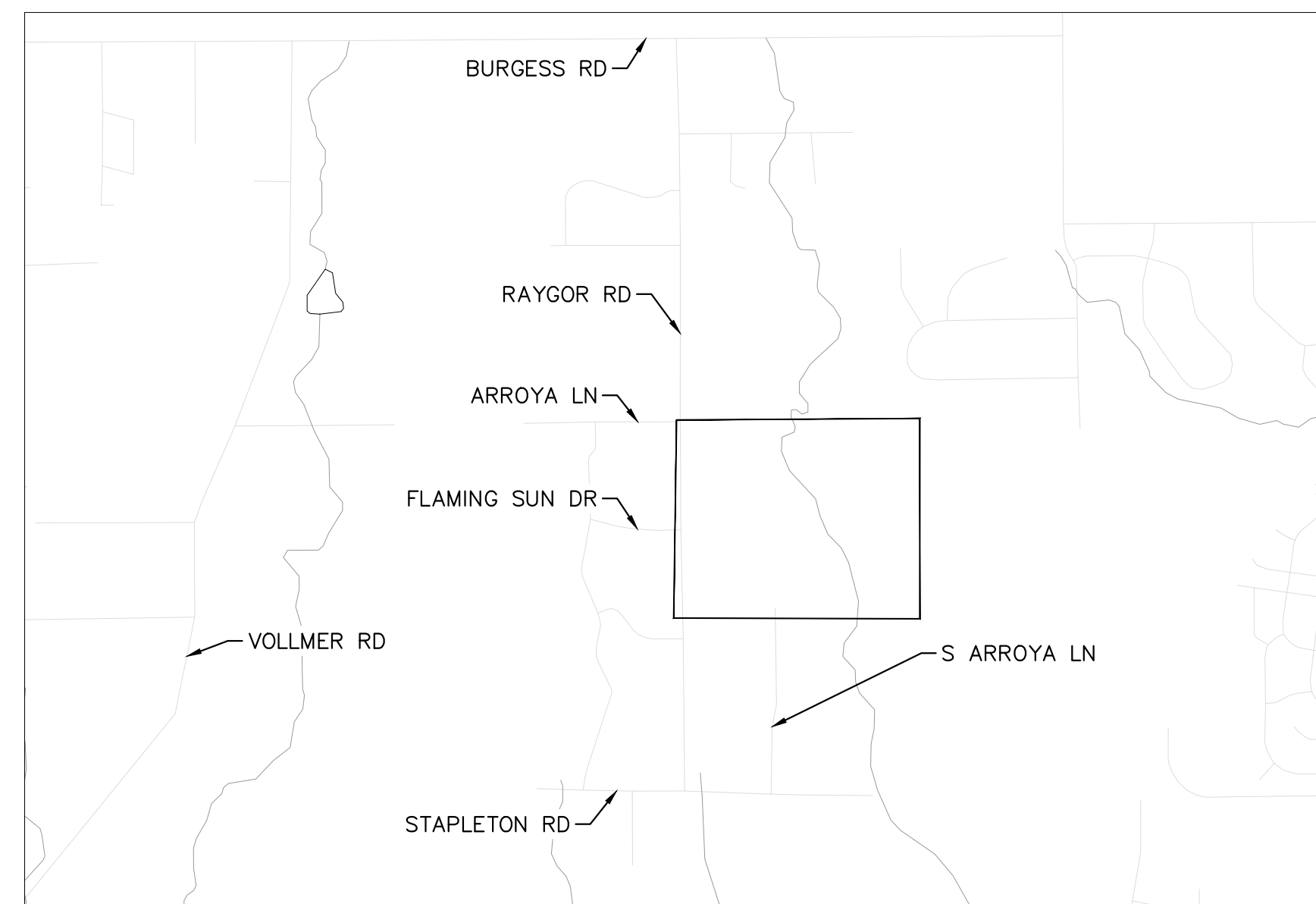


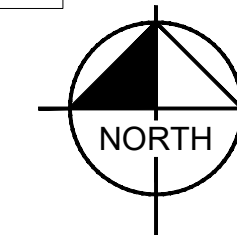
# EAGLEVIEW SUBDIVISION GRADING AND EROSION CONTROL PLAN

A PORTION OF THE NORTHWEST ONE-QUARTER (N.W. 1/4) OF SECTION 26  
TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M.  
COUNTY OF EL PASO, STATE OF COLORADO

SHEET INDEX	
SHEET TITLE	SHEET NO.
COVER SHEET - GEC PLAN	1
CUT FILL MAP	2
INITIAL GEC PLAN	3 - 6
INTERIM GEC PLAN	7 - 10
FINAL GEC PLAN	11 - 14
GEC DETAILS	15 - 19



VICINITY MAP  
1" = 2000'



### CONTACTS:

**DEVELOPER:**  
PT EAGLEVIEW, LLC  
1864 WOODMOOR DRIVE, SUITE 100  
MONUMENT, CO 80132  
TEL: (719) 476-0800  
CONTACT: JOSEPH DESJARDIN

**PLANNER/LANDSCAPE ARCHITECT:**  
NES, INC  
619 N CASCADE AVENUE, SUITE 200  
COLORADO SPRINGS, CO 80903  
TEL: (719) 471-0073  
EMAIL: ABARLOWNESCOLORADO.COM  
CONTACT: ANDREA BARLOW

**ENGINEER:**  
KIMLEY-HORN AND ASSOCIATES, INC.  
2 NORTH NEVADA AVENUE, SUITE 300  
COLORADO SPRINGS, CO 80903  
TEL: (719) 352-9194  
EMAIL: KEVIN.KOFFORD@KIMLEY-HORN.COM  
CONTACT: KEVIN KOFFORD

**SURVEY:**  
RAMPART SURVEYS, LLC.  
1050 TAMARAC PKWY  
WOODLAND PARK, CO 80863  
TEL: (719) 687-0920  
CONTACT: RUSS WOOD

EL PASO COUNTY PLANNING DEPARTMENT  
2880 INTERNATIONAL CIRCLE, SUITE 110  
COLORADO SPRINGS, CO 80910

**PLANNING REVIEWER:**  
NINA RUIZ  
TEL: (719) 520-6313  
EMAIL: NINARUIZ@ELPASOCO.COM

**ENGINEERING REVIEWER:**  
GILBERT LAFORCE  
TEL: (719) 520-7945  
EMAIL: GILBERTLAFORCE@ELPASOCO.COM

**COUNTY ENGINEER:**  
JOSHUA PALMER  
TEL: (719) 520-6806  
EMAIL: JOSHUA.PALMER@ELPASOCO.COM

**EPC PCD INSPECTIONS SUPERVISOR:**  
BRAD WALTERS  
(719) 520-6819  
EMAIL: BRADWALTERS@ELPASOCO.COM

**FALCON FIRE DEPARTMENT:**  
AREA: FAL D2  
FIRE CHIEF T. HARWG  
7030 OLD MERIDIAN ROAD  
PAYTON, CO 80831  
TEL: (719) 495-4050  
EMAIL: FALCONFIRE@FALCONFIREPD.ORG

COLORADO DEPARTMENT OF PUBLIC HEALTH  
AND ENVIRONMENT  
WATER QUALITY CONTROL DIVISION  
4300 CHERRY CREEK DRIVE SOUTH  
DENVER, CO 80246  
TEL: (303) 692-3500

Add missing EPC Standard GEC Plan sheet notes #1-29  
See GEC Checklist



### FLOODPLAIN NOTE

ACCORDING TO NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NUMBER 08041C0535G (MAP REVISED DECEMBER 7, 2018), THE SUBJECT PROPERTY IS LOCATED IN OTHER AREAS, ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

### BENCHMARK

CONTROL POINTS AS SHOWN HEREON. ELEVATIONS ARE BASED ON CITY OF COLORADO SPRINGS FIMS MONUMENT F\_65. PANEL POINTS 50 FOUND AT THE NW CORNER OF RAYGOR ROAD AND ARROYA LANE (EL=7281.39), AND 51 FOUND AT THE NW CORNER OF RAYGOR ROAD AND FLAMING SUN DRIVE (EL=7251.58). (DATUM: NGVD 29).

### BASIS OF BEARINGS

ALL BEARINGS USED HEREIN ARE BASED ON AN ASSUMED BEARING S00°02'11"E (S00°02'11"E PER THE RECORDED DEED), A DISTANCE OF 2587.22 FEET (2587.32 FEET OF RECORD) BETWEEN A 2-1/2" ALUMINUM CAP STAMPED "PLS 4842" AT THE NORTHEAST CORNER OF THE NORTHWEST ONE-QUARTER CORNER OF SECTION 26 AND A 2" ALUMINUM CAP STAMPED "PLS 25968" AT THE CENTER ONE-QUARTER OF SAID SECTION 26.

### SCHEDULE

START OF CONSTRUCTION: FALL 2023

END OF CONSTRUCTION: FALL 2024

FINAL STABILIZATION: FALL 2024

### SOIL DATA

± 1.8% SOIL TYPE A

± 98.2% SOIL TYPE B

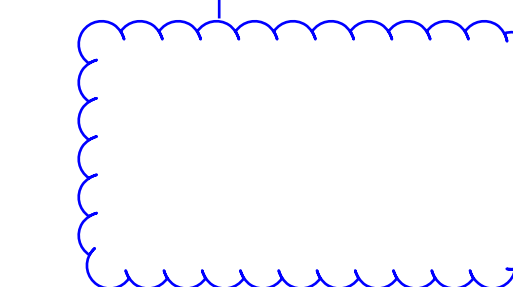
### LEGAL DESCRIPTION

A PORTION OF THE NORTHWEST QUARTER OF SECTION 26, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6th P.M., EL PASO COUNTY, COLORADO, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID NORTHWEST QUARTER OF SECTION 26, AS ACCEPTED AND USED IN THE PLATS OF MEY FARM SUBDIVISION AND PAINT BRUSH HILLS FILING NO. 3, RECORDED IN PLAT BOOK T-3 AT PAGE 93 AND IN PLAT BOOK U-3 AT PAGE 79, RESPECTIVELY, OF THE RECORDS OF SAID EL PASO COUNTY; THENCE S00°02'11"E, ALONG THE EAST LINE OF SAID NORTHWEST QUARTER OF SECTION 26, A DISTANCE OF 2587.22 FEET TO THE CENTER QUARTER CORNER OF SAID SECTION 26 (BASIS OF BEARINGS - ASSUMED); THENCE N89°28'49"W, A DISTANCE OF 978.75 FEET TO THE NORTHEAST CORNER OF LOT 30 OF STAPLETON ESTATES FILING NO. 1, AS RECORDED IN PLAT BOOK R-3 AT PAGE 76 OF THE RECORDS OF SAID EL PASO COUNTY; THENCE N89°31'16"W, ALONG THE BOUNDARY LINE OF SAID STAPLETON ESTATES FILING NO. 1, A DISTANCE OF 1063.31 FEET TO THE NORTHWEST CORNER OF LOT 8 OF SAID STAPLETON ESTATES FILING NO. 1; THENCE N00°26'14"W ALONG THE EAST LINE OF SAID STAPLETON ESTATES FILING NO. 1, A DISTANCE OF 2561.60 FEET TO A POINT ON THE NORTH LINE OF SAID NORTHWEST QUARTER OF SECTION 26; THENCE N89°46'46"E, ALONG SAID NORTH LINE AND ALONG THE SOUTHERLY BOUNDARY LINE OF SAID MEY FARM SUBDIVISION AND THE SOUTHERLY LINE OF RODGWICK SUBDIVISION, RECORDED AT RECEPTION NO. 207712566 OF THE RECORDS OF SAID EL PASO COUNTY, A DISTANCE OF 2059.89 FEET TO THE POINT OF BEGINNING.

SAID TRACT CONTAINS 121.20 ACRES OF LAND, MORE OR LESS.

Please add PCD File  
# SF-22-42



### DEVELOPER'S/OWNER'S SIGNATURE BLOCK

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

### ENGINEER'S SIGNATURE BLOCK

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 PLAN.

KEVIN KOFFORD, PE - KIMLEY-HORN AND ASSOCIATES, INC. \_\_\_\_\_ DATE \_\_\_\_\_

### EL PASO COUNTY

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.

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

COUNTY ENGINEER/ECM ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

NO.	REVISION	BY	DATE	APPR.

**Kimley»Horn**  
2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue Suite 900  
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MJK  
DRAWN BY: MJK  
CHECKED BY: KKK  
DATE: 12/23/2022

EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
COVER SHEET - GEC PLAN

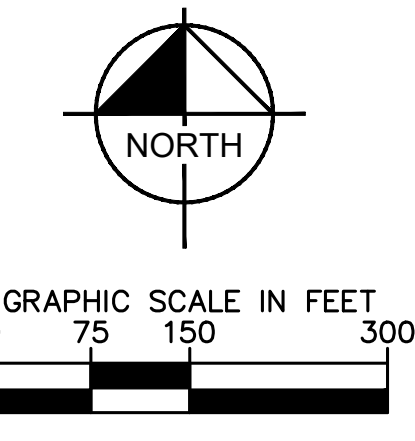
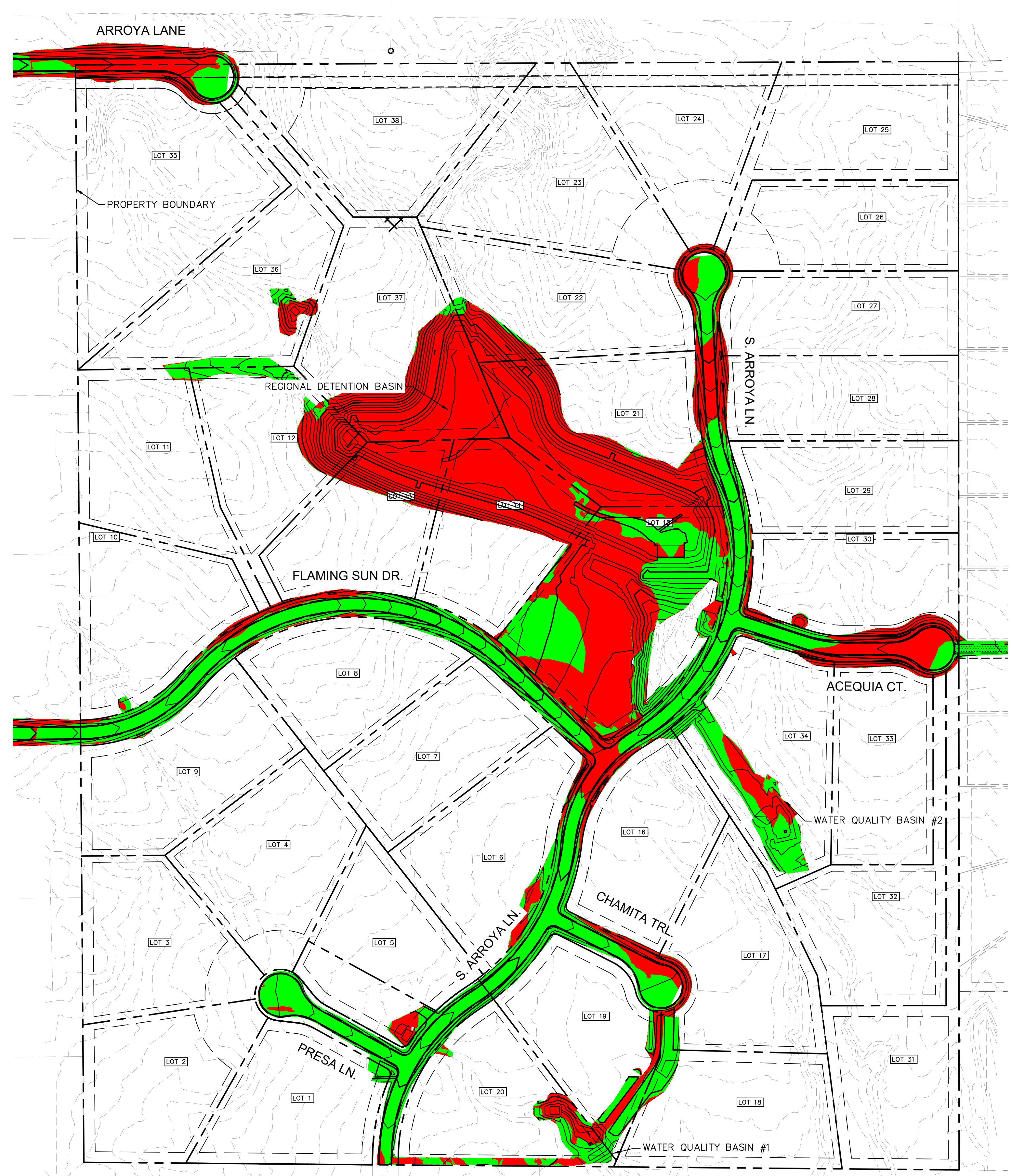
PRELIMINARY  
FOR REVIEW ONLY  
NOT FOR  
CONSTRUCTION  
**Kimley»Horn**  
Kimley-Horn and Associates, Inc.

PROJECT NO.  
196106001

SHEET  
1



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**LEGEND**

CUT AREA

FILL AREA

TOTAL CUT: 92,000 CY  
 TOTAL FILL: 33,500 CY  
 NET: 58,500 CY (CUT)\*

REGIONAL POND: 81,600 CY (CUT)  
 5,440 CY (FILL)

\*RAW NET VALUE - NO FILL FACTOR APPLIED

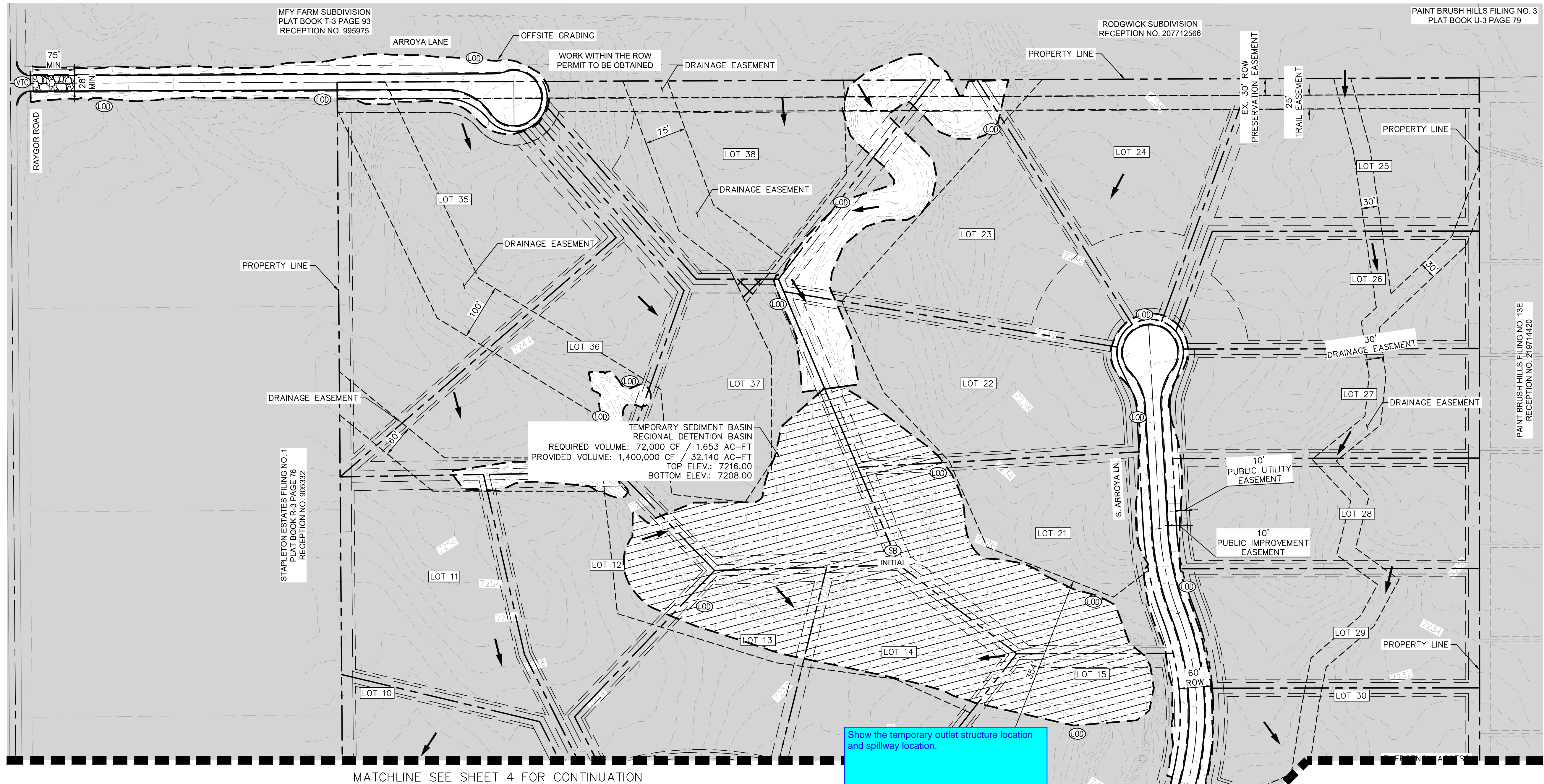
VALUES DO NOT INCLUDE STREAM STABILIZATION EARTHWORK NUMBERS

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

CALL UTILITY NOTIFICATION CENTER OF COLORADO  
 1-800-922-1987  
 CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

	NO. _____		REVISION _____		BY _____		DATE _____
<p>2022 KIMLEY-HORN AND ASSOCIATES, INC.          2 North Nevada Avenue Suite 900          Colorado Springs, Colorado 80903 (719) 453-0180</p>							
DESIGNED BY: MJK DRAWN BY: MJK CHECKED BY: KRK DATE: 12/23/2022							
<b>EAGLEVIEW</b> EL PASO COUNTY, COLORADO <b>GRADING AND EROSION CONTROL PLAN</b> CUT FILL MAP							
PRELIMINARY FOR REVIEW ONLY NOT FOR CONSTRUCTION Kimley-Horn and Associates, Inc.							
PROJECT NO. 196106001							
SHEET 2							

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MFY FARM SUBDIVISION  
PLAT BOOK T-3 PAGE 93  
RECEPTION NO. 995975

RODGWICK SUBDIVISION  
RECEPTION NO. 207712566

PAINT BRUSH HILLS FILING NO. 3  
PLAT BOOK U-3 PAGE 79

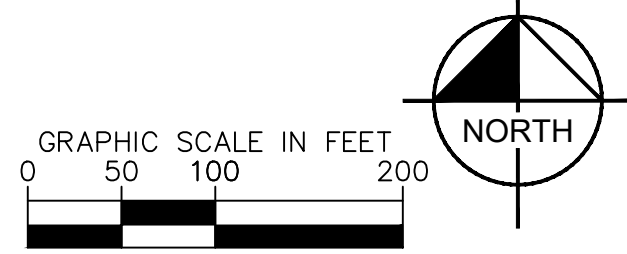
STAPLETON ESTATES FILING NO. 1  
PLAT BOOK N3 PAGE 26  
RECEPTION NO. 905332

PAINT BRUSH HILLS FILING NO. 13E  
RECEPTION NO. 219714420

TEMPORARY SEDIMENT BASIN  
REGIONAL DETENTION BASIN  
REQUIRED VOLUME: 72,000 CF / 1.653 AC-FT  
PROVIDED VOLUME: 1,400,000 CF / 32.140 AC-FT  
TOP ELEV.: 7216.00  
BOTTOM ELEV.: 7208.00

Show the temporary outlet structure location and spillway location.

MATCHLINE SEE SHEET 4 FOR CONTINUATION



**LIMITS OF CONSTRUCTION**

ONSITE DISTURBANCE	= ±34.02 ACRES
OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±34.02 ACRES

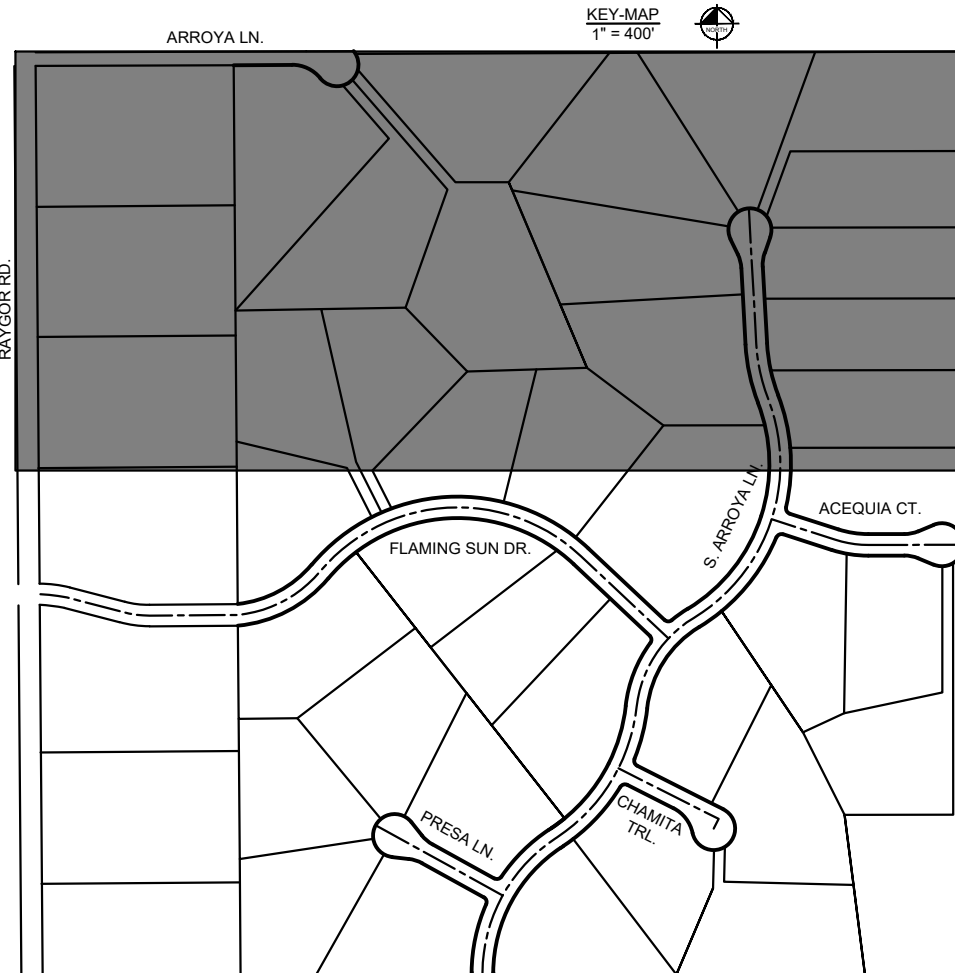
Correct property line to heavy black line all sheets

**LEGEND**

	PROPERTY LINE		EROSION CONTROL BLANKET
	DRAINAGE EASEMENT		VEHICLE TRACKING CONTROL
	LIMITS OF DISTURBANCE/CONSTRUCTION		SOIL STOCKPILE
	SILT FENCE		TEMPORARY SEDIMENT BASIN
	CONSTRUCTION FENCE		EXISTING FLOW ARROW
	SEDIMENT CONTROL LOGS		EXISTING MINOR CONTOUR
	CONCRETE WASHOUT AREA		EXISTING MAJOR CONTOUR
	STABILIZED STAGING AREA		PROPOSED MAJOR CONTOUR
			PROPOSED MINOR CONTOUR

**NOTES**

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
8. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
9. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION
10. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.



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

CALL UTILITY NOTIFICATION CENTER OF COLORADO  
1-800-922-1987  
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

NO.	REVISION	BY	DATE	APPR.

**Kimley Horn**  
2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue Suite 900  
Colorado Springs, Colorado 80903 (719) 453-0180

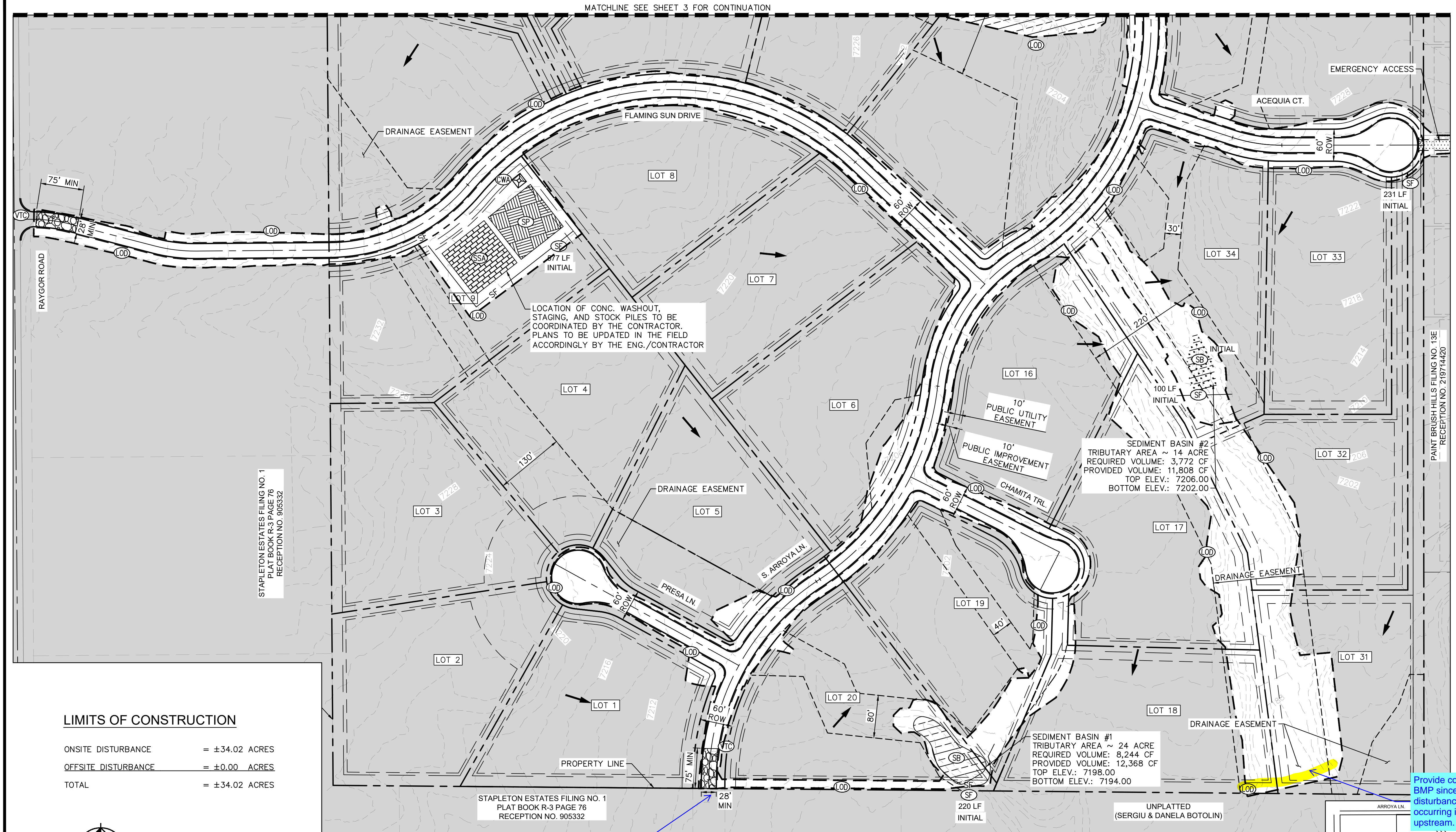
DESIGNED BY: MJK  
DRAWN BY: MJK  
CHECKED BY: KRK  
DATE: 12/23/2022

**EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
INITIAL GEC PLAN**

**PRELIMINARY**  
FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

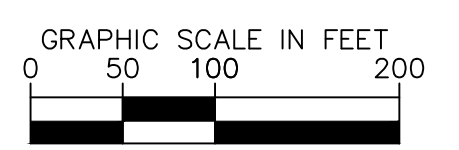
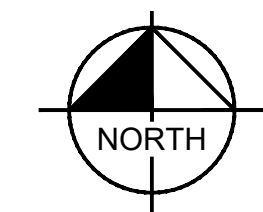
**Kimley Horn**  
Kimley-Horn and Associates, Inc.

PROJECT NO. 196106001  
SHEET 3



**LIMITS OF CONSTRUCTION**

ONSITE DISTURBANCE	= ±34.02 ACRES
OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±34.02 ACRES



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

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1-800-922-1987  
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

**NOTES**

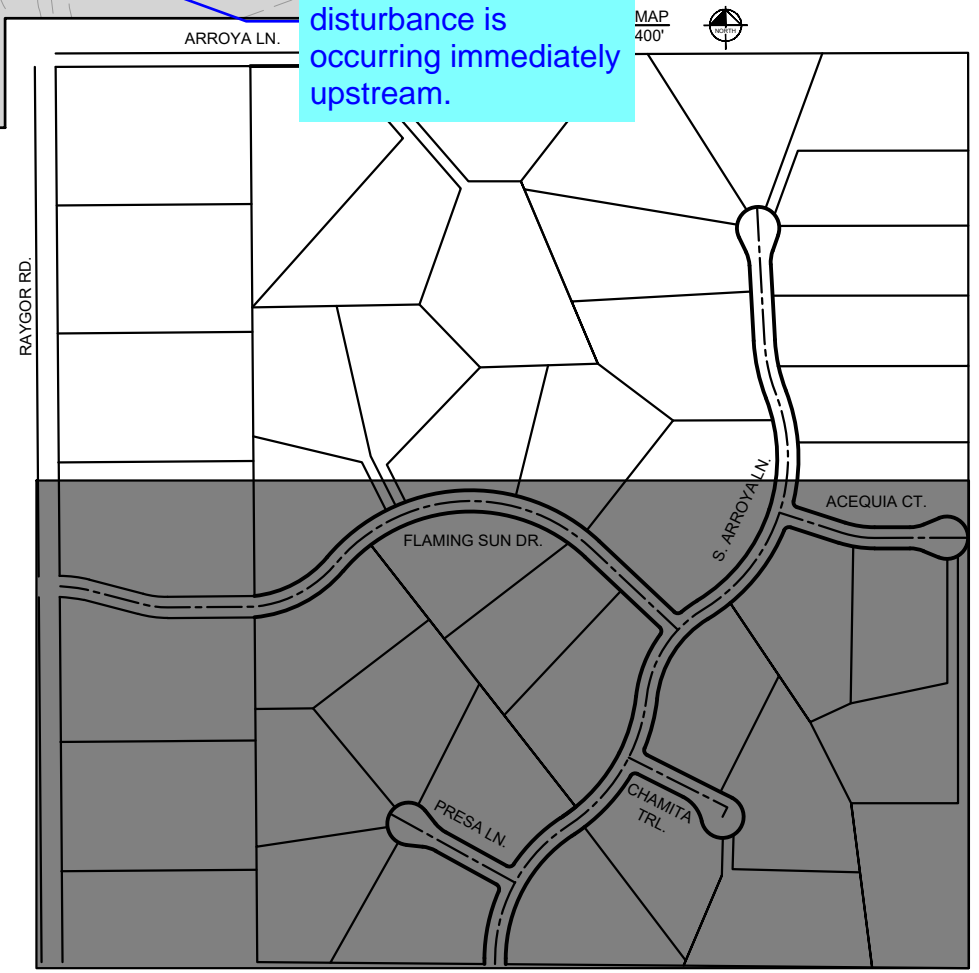
- THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
- TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
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- SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
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- VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION
- NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.

**LEGEND**

	PROPERTY LINE		ECB EROSION CONTROL BLANKET
	DRAINAGE EASEMENT		VTC VEHICLE TRACKING CONTROL
	LIMITS OF DISTURBANCE/CONSTRUCTION		SS SOIL STOCKPILE
	SILT FENCE		SB TEMPORARY SEDIMENT BASIN
	CONSTRUCTION FENCE		EXISTING FLOW ARROW
	SEDIMENT CONTROL LOGS		EXISTING MINOR CONTOUR
	CONCRETE WASHOUT AREA		EXISTING MAJOR CONTOUR
	STABILIZED STAGING AREA		PROPOSED MAJOR CONTOUR
			PROPOSED MINOR CONTOUR

This access does not seem necessary. Recommend replacing with a temporary barricade and limiting traffic through Flaming Sun Dr.

Provide construction BMP since land disturbance is occurring immediately upstream.



NO.	REVISION	BY	DATE	APPR.

**Kimley & Horn**  
2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue Suite 900  
Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MJK  
DRAWN BY: MJK  
CHECKED BY: KRK  
DATE: 12/23/2022

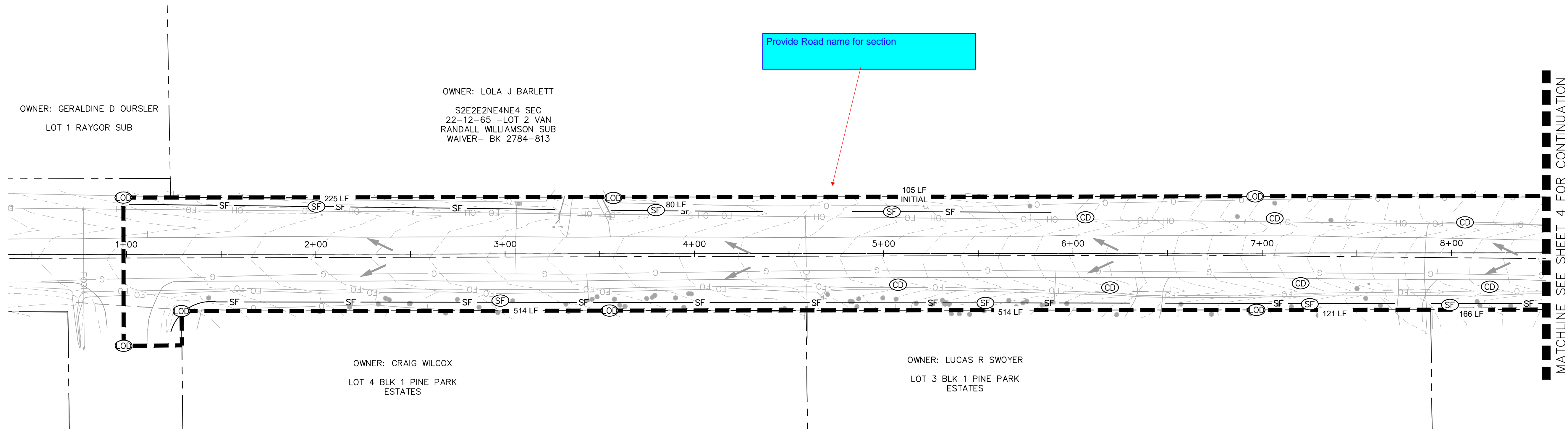
EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
INITIAL GEC PLAN

PRELIMINARY  
FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

PROJECT NO.  
196106001

SHEET  
4

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**NOTES**

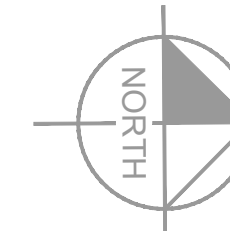
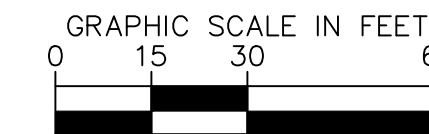
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7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
8. ROCK CHECK DAMS (CD) MAY BE SUBSTITUTED FOR SEDIMENT CONTROL LOGS (SCL) OR STRAW WADDLES. CONTRACTOR TO DETERMINE LOCATION OF CD WITHIN THE ROADSIDE DITCH (SEE TABLE FOR MIN. SPACING REQUIREMENTS) IN COORDINATION WITH COUNTY INSPECTORS.
9. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
10. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION
11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.

**LEGEND**

---	PROPERTY LINE		
---○---	LIMITS OF DISTURBANCE/CONSTRUCTION	SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
---SF---	SILT FENCE	9 INCH	1.5 FEET
---CD---	CHECK DAMS (NOTE 8)	12 INCH	2 FEET
---IP---	CULVERT INLET/OUTLET PROTECTION	16 INCH	2.67 FEET
→	FLOW ARROW		
---64XX---	EXISTING MINOR CONTOUR		
---64XX---	EXISTING MAJOR CONTOUR		
---54XX---	PROPOSED MAJOR CONTOUR		
---54XX---	PROPOSED MINOR CONTOUR		

**LIMITS OF CONSTRUCTION**

ONSITE DISTURBANCE	= ±0.00 ACRES
OFFSITE DISTURBANCE	= ±2.55 ACRES
TOTAL	= ±2.55 ACRES



MATCHLINE SEE SHEET 4 FOR CONTINUATION

NO.	REVISION	BY	DATE	APPR.

**Kimley»Horn**  
 2022 KIMLEY-HORN AND ASSOCIATES, INC.  
 2 North Nevada Avenue Suite 900  
 Colorado Springs, Colorado 80903 (719) 453-0180

DESIGNED BY: MJK  
 DRAWN BY: MJK  
 CHECKED BY: KKK  
 DATE: 12/23/2022

**EAGLEVIEW**  
 EL PASO COUNTY, COLORADO  
**GRADING AND EROSION CONTROL PLAN**  
 OFF-SITE INITIAL GEC PLAN

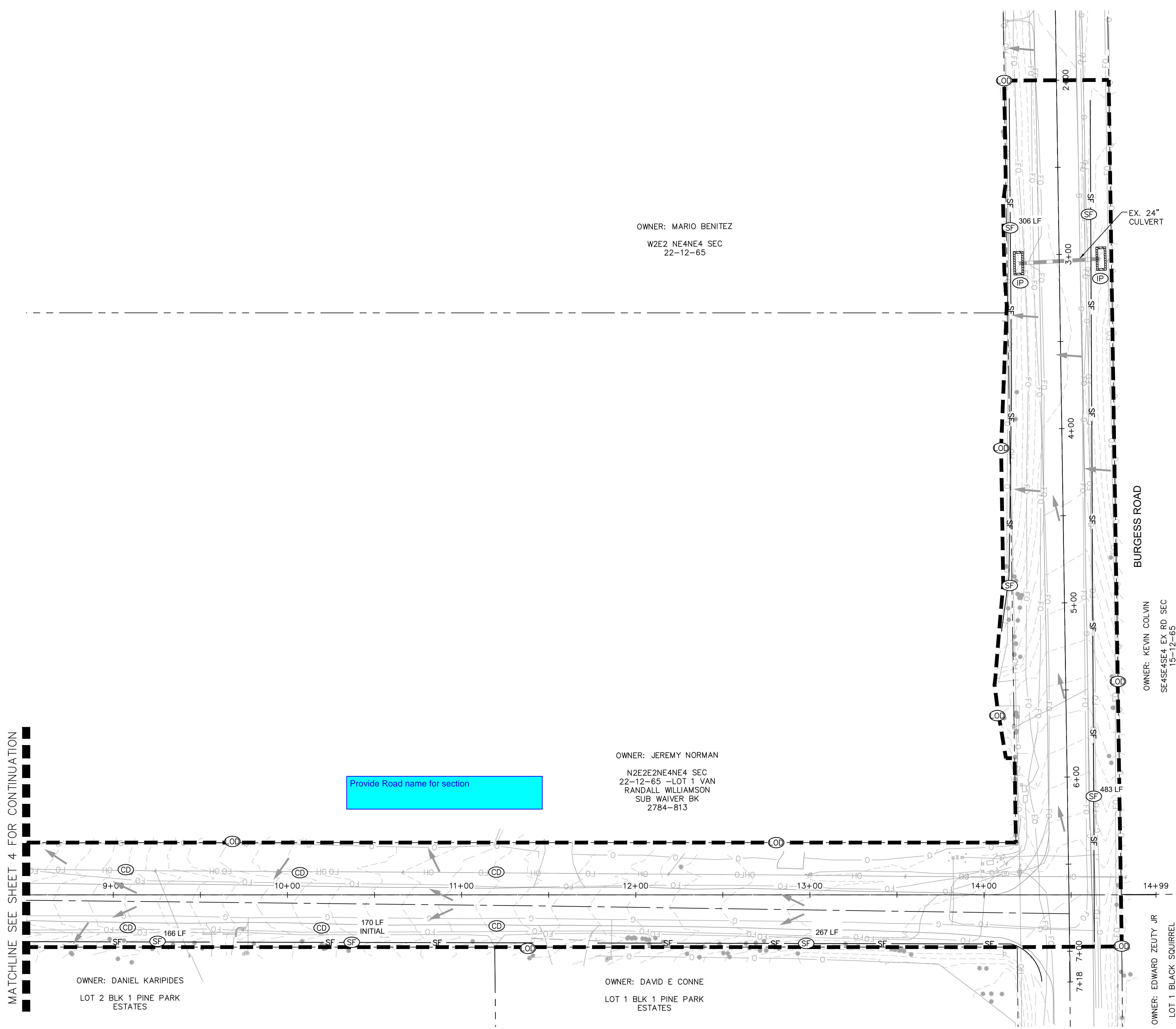
**PRELIMINARY**  
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 NOT FOR CONSTRUCTION  
**Kimley»Horn**  
 Kimley-Horn and Associates, Inc.

PROJECT NO.  
196106001  
 SHEET  
5



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MATCHLINE SEE SHEET 4 FOR CONTINUATION



Provide Road name for section

**NOTES**

1. THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
2. ADJACENT STREETS SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES.
3. TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
4. PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
5. CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS (STRAW-SINGLE NET EROSION CONTROL BLANKETS AND OPEN WEAVE TEXTILES) ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
7. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
8. ROCK CHECK DAMS (CD) MAY BE SUBSTITUTED FOR SEDIMENT CONTROL LOGS (SCL) OR STRAW WADDLES. CONTRACTOR TO DETERMINE LOCATION OF CD WITHIN THE ROADSIDE DITCH (SEE TABLE FOR MIN. SPACING REQUIREMENTS) IN COORDINATION WITH COUNTY INSPECTORS.
9. DEMOLITION, REMOVAL, OVEREXCAVATION AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
10. VEGETATION COVER IS ABOUT 90% CONSISTING OF NATIVE GRASSES, TREES AND SHRUBS, BASED ON VISUAL INSPECTION
11. NO ASPHALT OR CONCRETE BATCH PLANTS SHALL BE USED FOR THIS PROJECT.

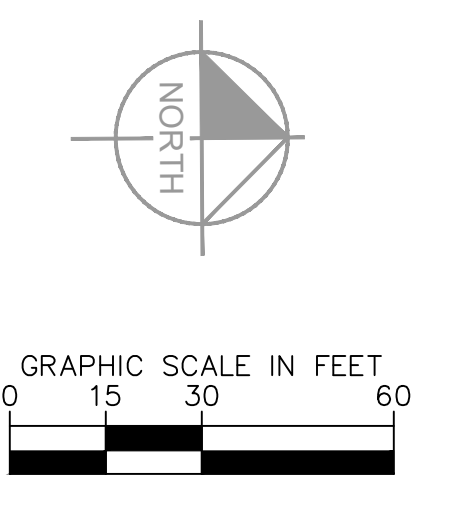
**LEGEND**

- PROPERTY LINE
- OD LIMITS OF DISTURBANCE/CONSTRUCTION
- SF SILT FENCE
- CD CHECK DAMS (NOTE 8)
- P CULVERT INLET/OUTLET PROTECTION
- FLOW ARROW
- 64XX EXISTING MINOR CONTOUR
- 64XX EXISTING MAJOR CONTOUR
- 54XX PROPOSED MAJOR CONTOUR
- 54XX PROPOSED MINOR CONTOUR

**LIMITS OF CONSTRUCTION**

ONSITE DISTURBANCE	= ±0.00 ACRES
OFFSITE DISTURBANCE	= ±2.55 ACRES
TOTAL	= ±2.55 ACRES

SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
9 INCH	1.5 FEET
12 INCH	2 FEET
16 INCH	2.67 FEET



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

CALL UTILITY NOTIFICATION CENTER OF COLORADO  
1-800-922-1987  
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NO.	REVISION	BY	DATE	APPR.

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2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue Suite 900  
Colorado Springs, Colorado 80903 (719) 453-0180

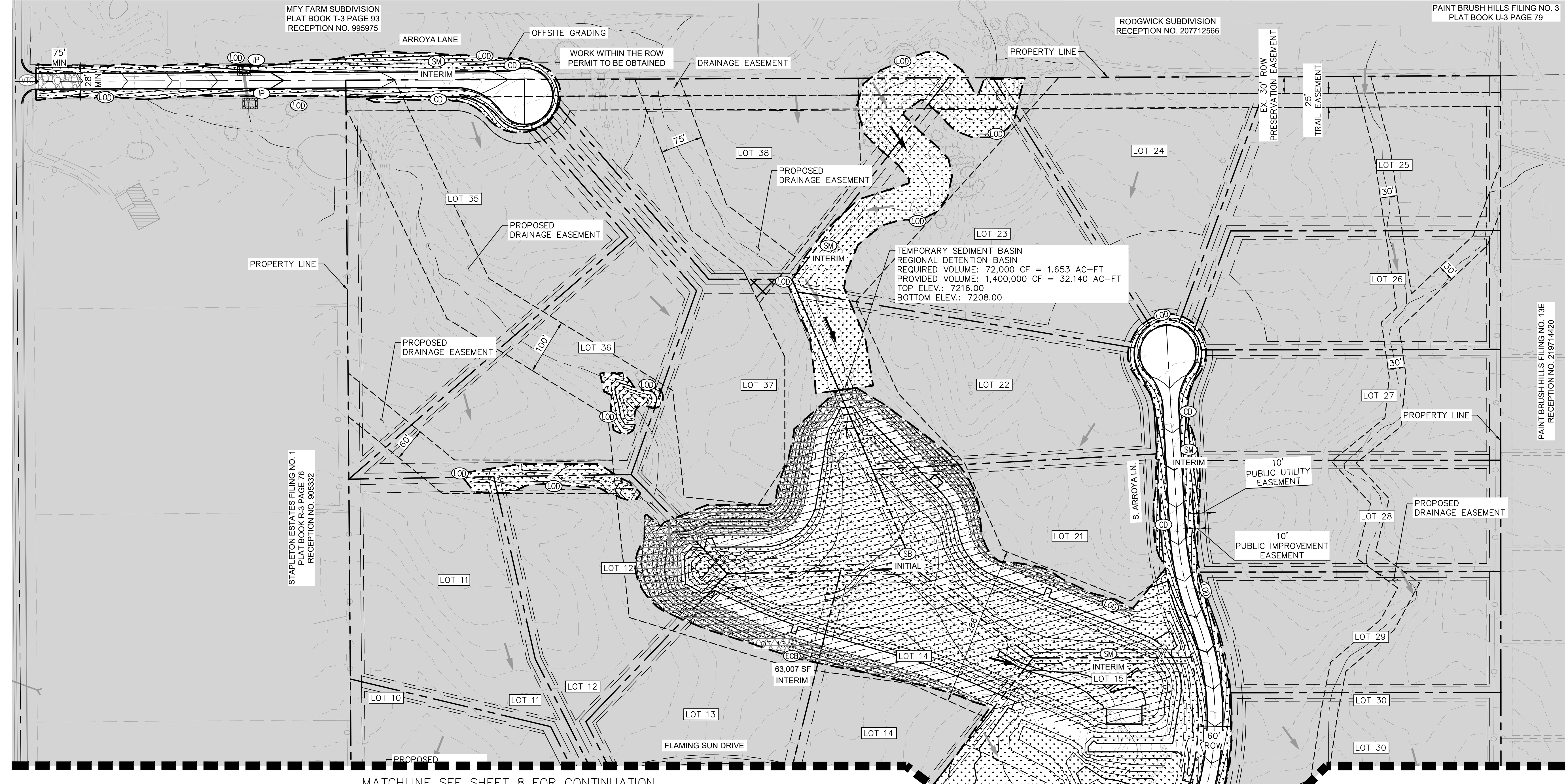
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**EAGLEVIEW**  
**EL PASO COUNTY, COLORADO**  
**GRADING AND EROSION CONTROL PLAN**  
OFF-SITE INITIAL GEC PLAN

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PROJECT NO.  
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SHEET  
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MFY FARM SUBDIVISION  
PLAT BOOK T-3 PAGE 93  
RECEPTION NO. 995975

RODGWICK SUBDIVISION  
RECEPTION NO. 207712566

PAINT BRUSH HILLS FILING NO. 3  
PLAT BOOK U-3 PAGE 79

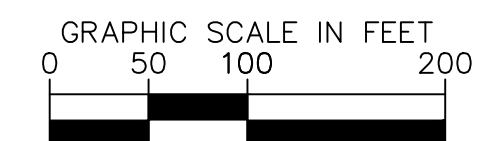
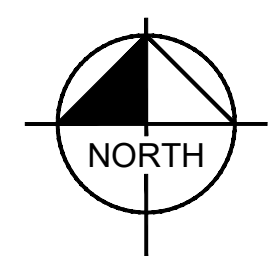
STAPLETON ESTATES FILING NO. 1  
PLAT BOOK R-3 PAGE 76  
RECEPTION NO. 905332

PAINT BRUSH HILLS FILING NO. 13E  
RECEPTION NO. 219714420

TEMPORARY SEDIMENT BASIN  
REGIONAL DETENTION BASIN  
REQUIRED VOLUME: 72,000 CF = 1.653 AC-FT  
PROVIDED VOLUME: 1,400,000 CF = 32.140 AC-FT  
TOP ELEV.: 7216.00  
BOTTOM ELEV.: 7208.00

MATCHLINE SEE SHEET 8 FOR CONTINUATION

SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
9 INCH	1.5 FEET
12 INCH	2 FEET
16 INCH	2.67 FEET



**NOTES**

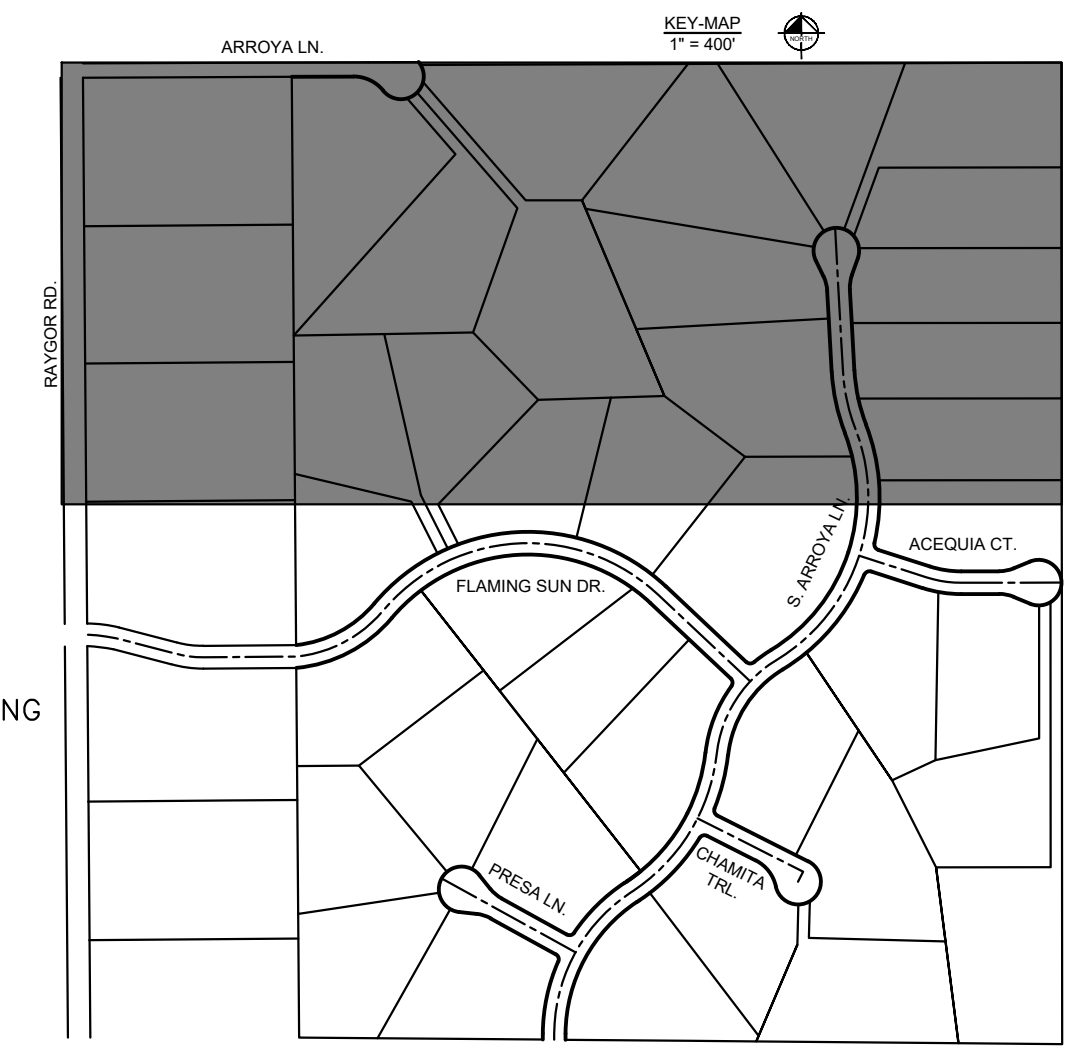
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**LIMITS OF CONSTRUCTION**

ONSITE DISTURBANCE	= ±34.02 ACRES
OFFSITE DISTURBANCE	= ±0.00 ACRES
TOTAL	= ±34.02 ACRES

**LEGEND**

	PROPERTY LINE		EROSION CONTROL BLANKET
	DRAINAGE EASEMENT		VEHICLE TRACKING CONTROL
	LIMITS OF DISTURBANCE/CONSTRUCTION		SOIL STOCKPILE
	SILT FENCE		TEMPORARY SEDIMENT BASIN
	CONSTRUCTION FENCE		TEMP./PERM. SEEDING AND MULCHING
	CULVERT INLET/OUTLET PROTECTION		EXISTING FLOW ARROW
	CONCRETE WASHOUT AREA		EXISTING MINOR CONTOUR
	STABILIZED STAGING AREA		EXISTING MAJOR CONTOUR
	CHECK DAMS (NOTE 8)		PROPOSED MAJOR CONTOUR
			PROPOSED MINOR CONTOUR



NO.	REVISION	BY	DATE	APPR

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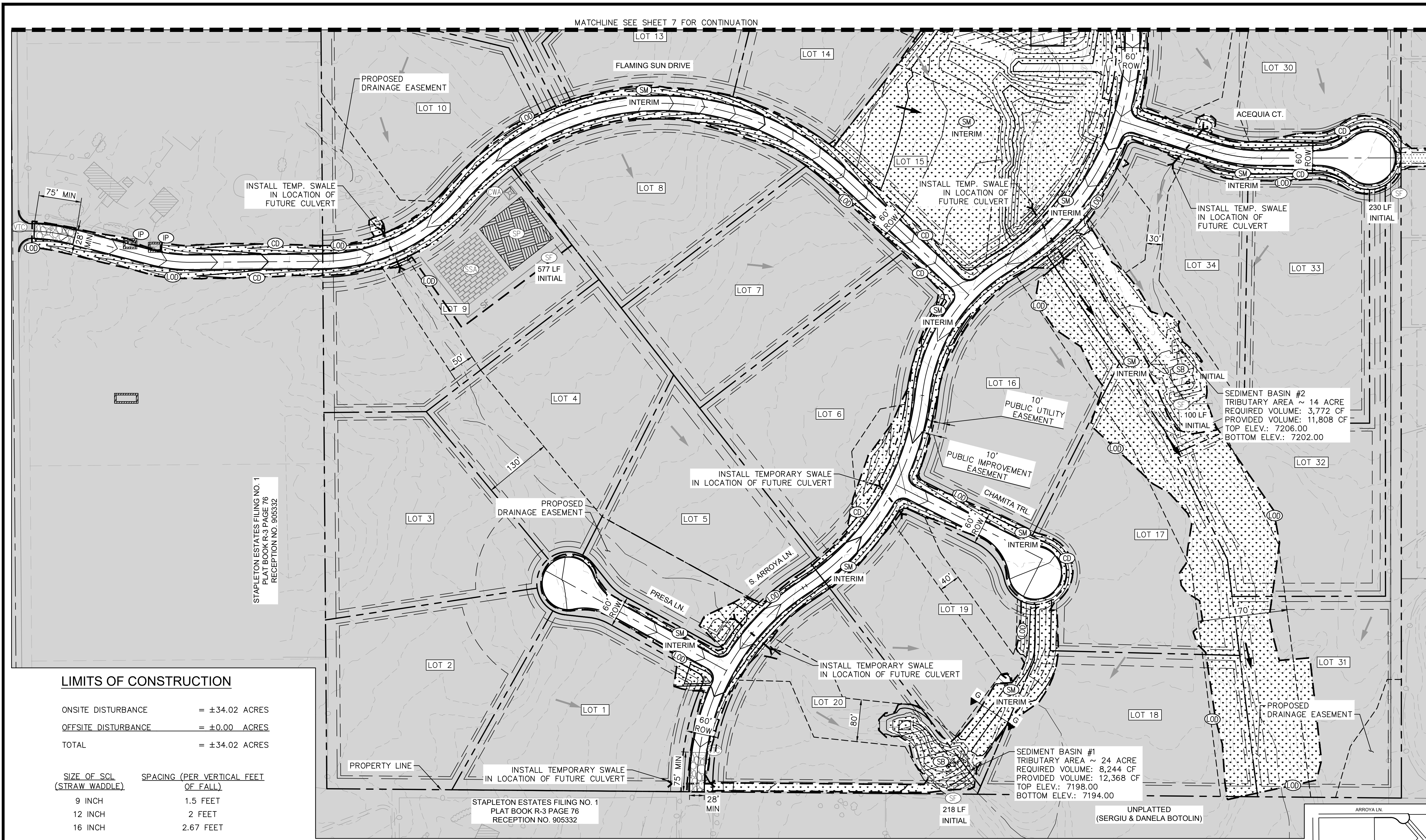
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EAGLEVIEW  
EL PASO COUNTY, COLORADO  
**GRADING AND EROSION CONTROL PLAN**  
INTERIM GEC PLAN

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PROJECT NO.  
196106001  
SHEET  
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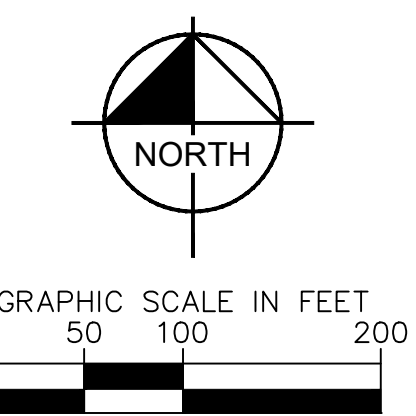
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**LIMITS OF CONSTRUCTION**

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SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
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**NOTES**

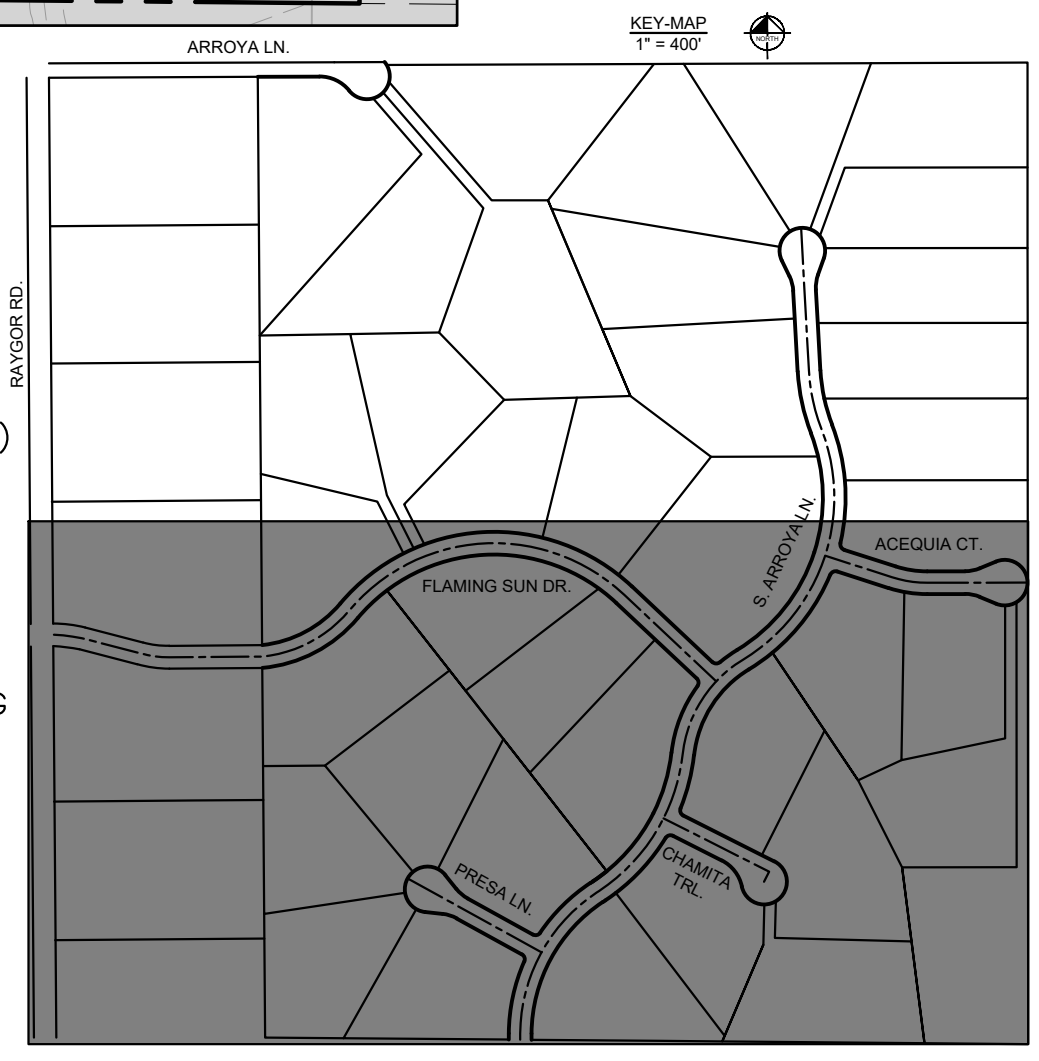
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**LEGEND**

- PROPERTY LINE
- - - DRAINAGE EASEMENT
- - - LOT LIMITS OF DISTURBANCE/CONSTRUCTION
- SF SILT FENCE
- CF CONSTRUCTION FENCE
- IP CULVERT INLET/OUTLET PROTECTION
- CWA CONCRETE WASHOUT AREA
- SSA STABILIZED STAGING AREA
- CD CHECK DAMS (NOTE 8)
- ECB EROSION CONTROL BLANKET (NOTE 4)
- VTC VEHICLE TRACKING CONTROL
- SS SOIL STOCKPILE
- SB TEMPORARY SEDIMENT BASIN
- SM TEMP./PERM. SEEDING AND MULCHING
- EXISTING FLOW ARROW
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**811** Know what's below. Call before you dig.

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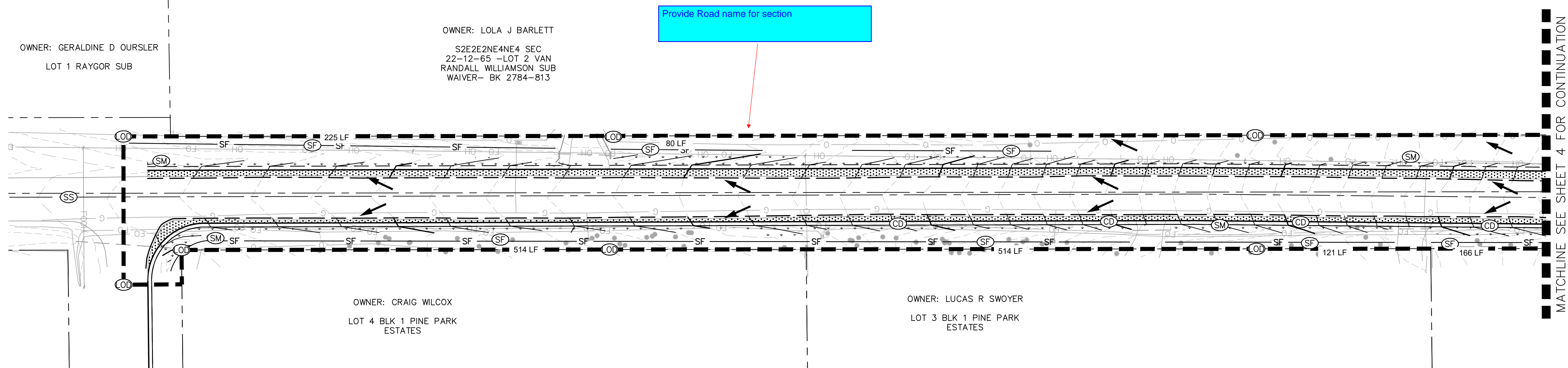
**EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
INTERIM GEC PLAN**

PROJECT NO. 196106001  
SHEET 8

NO. REVISION BY DATE APPR



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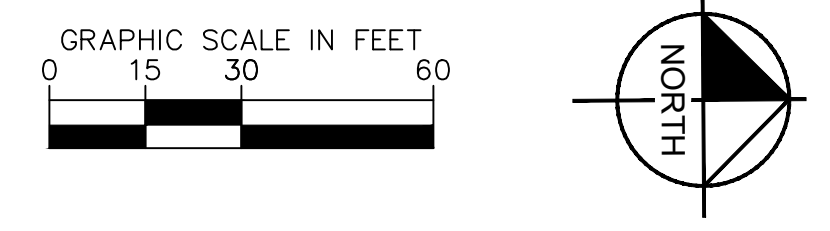
**LEGEND**

— — — — —	PROPERTY LINE
— — — — —	LOD LIMITS OF DISTURBANCE/CONSTRUCTION
— SF —	SILT FENCE
— CD —	CHECK DAMS (NOTE 8)
— IP —	CULVERT INLET/OUTLET PROTECTION
— SM —	TEMP./PERM. SEEDING AND MULCHING
→	FLOW ARROW
- - - - -64XX- - - - -	EXISTING MINOR CONTOUR
- - - - -64XX- - - - -	EXISTING MAJOR CONTOUR
- - - - -54XX- - - - -	PROPOSED MAJOR CONTOUR
- - - - -54XX- - - - -	PROPOSED MINOR CONTOUR

SIZE OF SCL (STRAW WADDLE)	SPACING (PER VERTICAL FEET OF FALL)
9 INCH	1.5 FEET
12 INCH	2 FEET
16 INCH	2.67 FEET

**LIMITS OF CONSTRUCTION**

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OFFSITE DISTURBANCE	= ±2.55 ACRES
TOTAL	= ±2.55 ACRES



MATCHLINE SEE SHEET 4 FOR CONTINUATION

NO.	REVISION	BY	DATE	APPR.

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 Colorado Springs, Colorado 80903 (719) 453-0180

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**EL PASO COUNTY, COLORADO**  
**GRADING AND EROSION CONTROL PLAN**  
**OFF-SITE INTERIM GEC PLAN**

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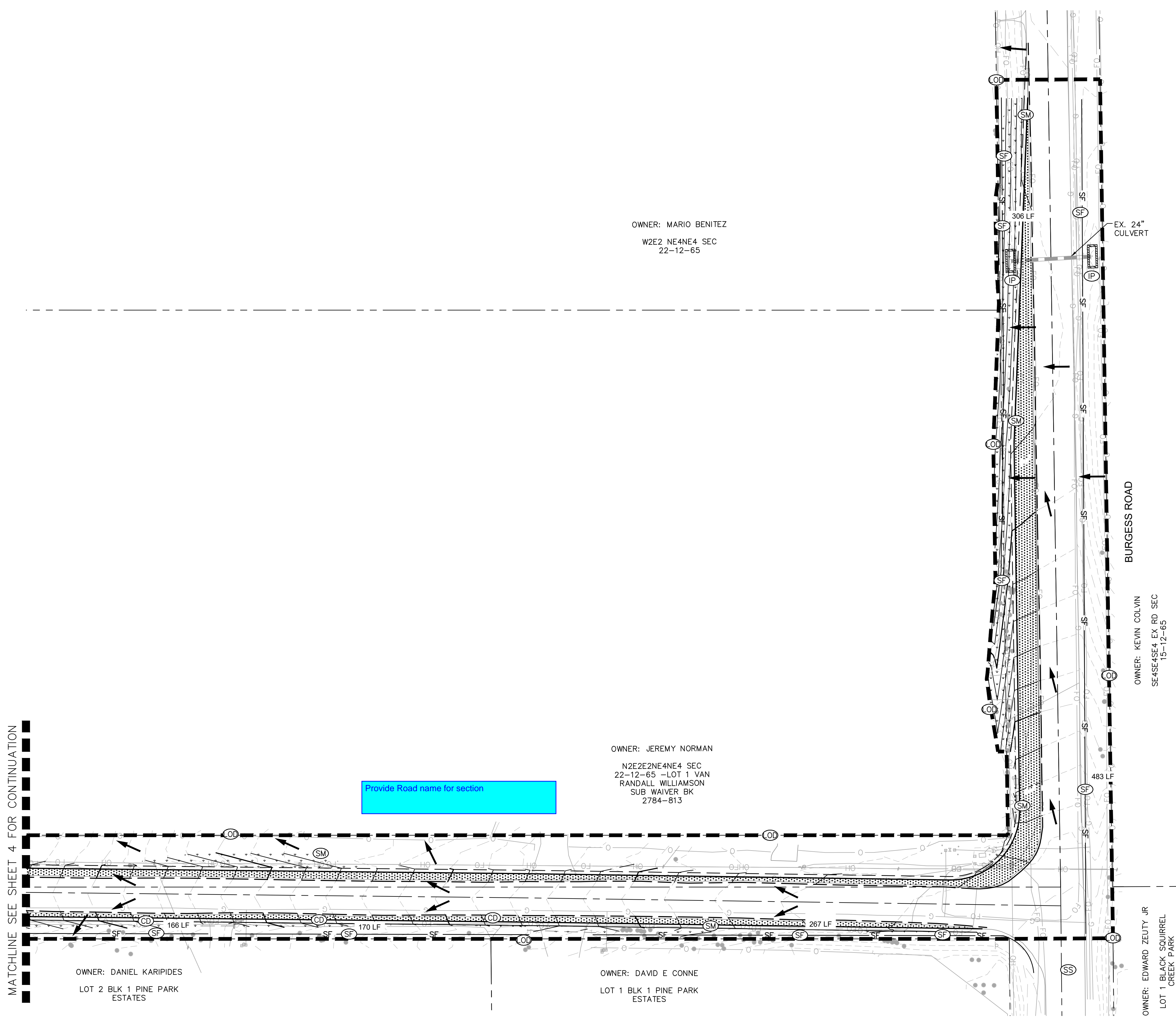
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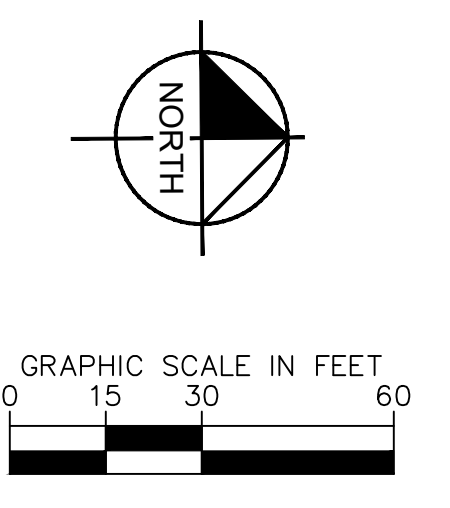
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- CD CHECK DAMS (NOTE 8)
- IP CULVERT INLET/OUTLET PROTECTION
- SM TEMP./PERM. SEEDING AND MULCHING
- > FLOW ARROW
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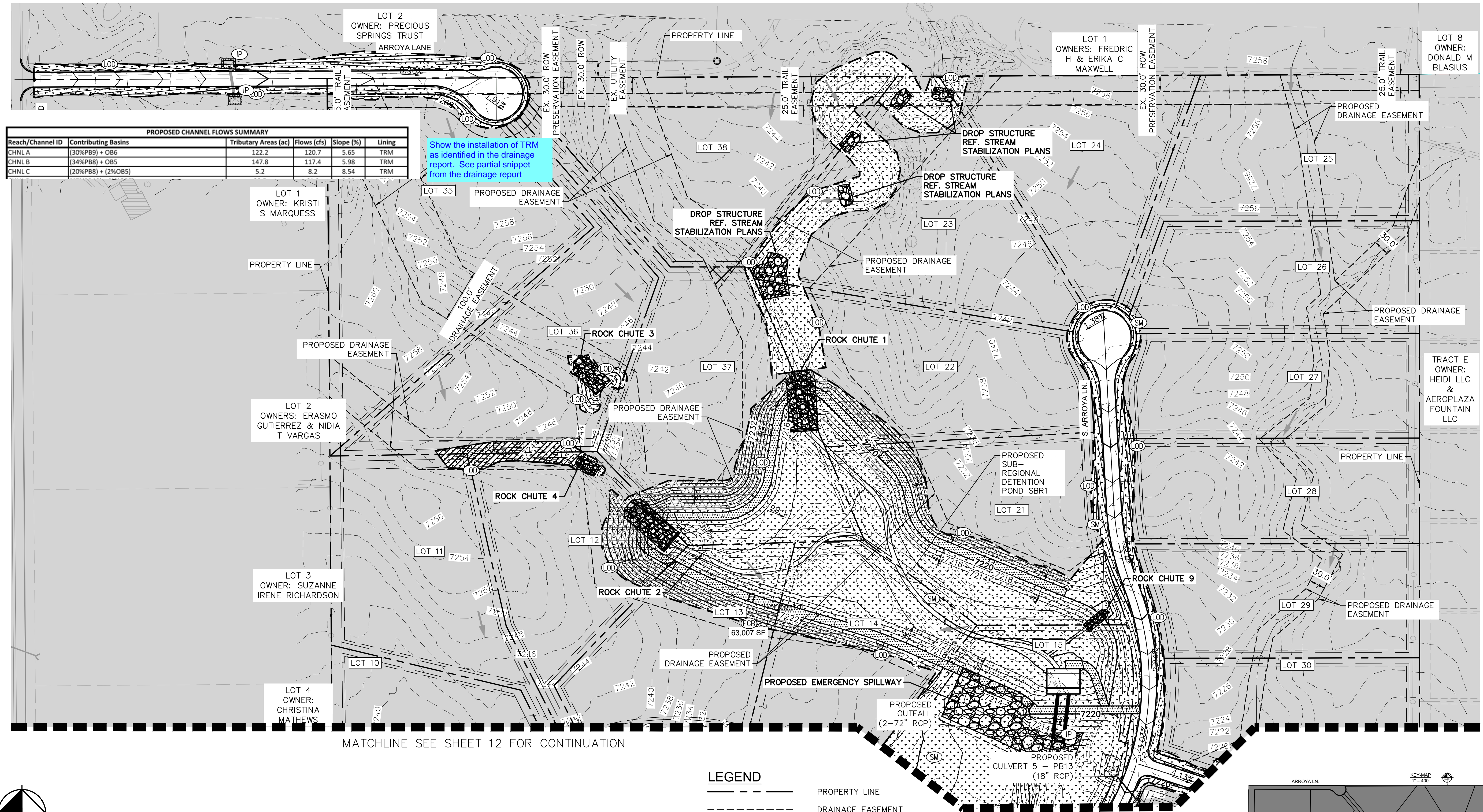
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OFFSITE - INTERIM GEC PLAN

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SHEET  
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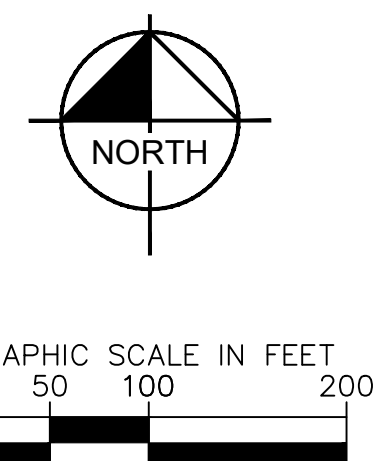
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PROPOSED CHANNEL FLOWS SUMMARY					
Reach/Channel ID	Contributing Basins	Tributary Areas (ac)	Flows (cfs)	Slope (%)	Lining
CHNL A	30%PB9) + OB6	122.2	120.7	5.65	TRM
CHNL B	34%PB8) + OB5	147.8	117.4	5.98	TRM
CHNL C	20%PB8) + (2%OB5)	5.2	8.2	8.54	TRM

Show the installation of TRM as identified in the drainage report. See partial snippet from the drainage report

MATCHLINE SEE SHEET 12 FOR CONTINUATION



**NOTES**

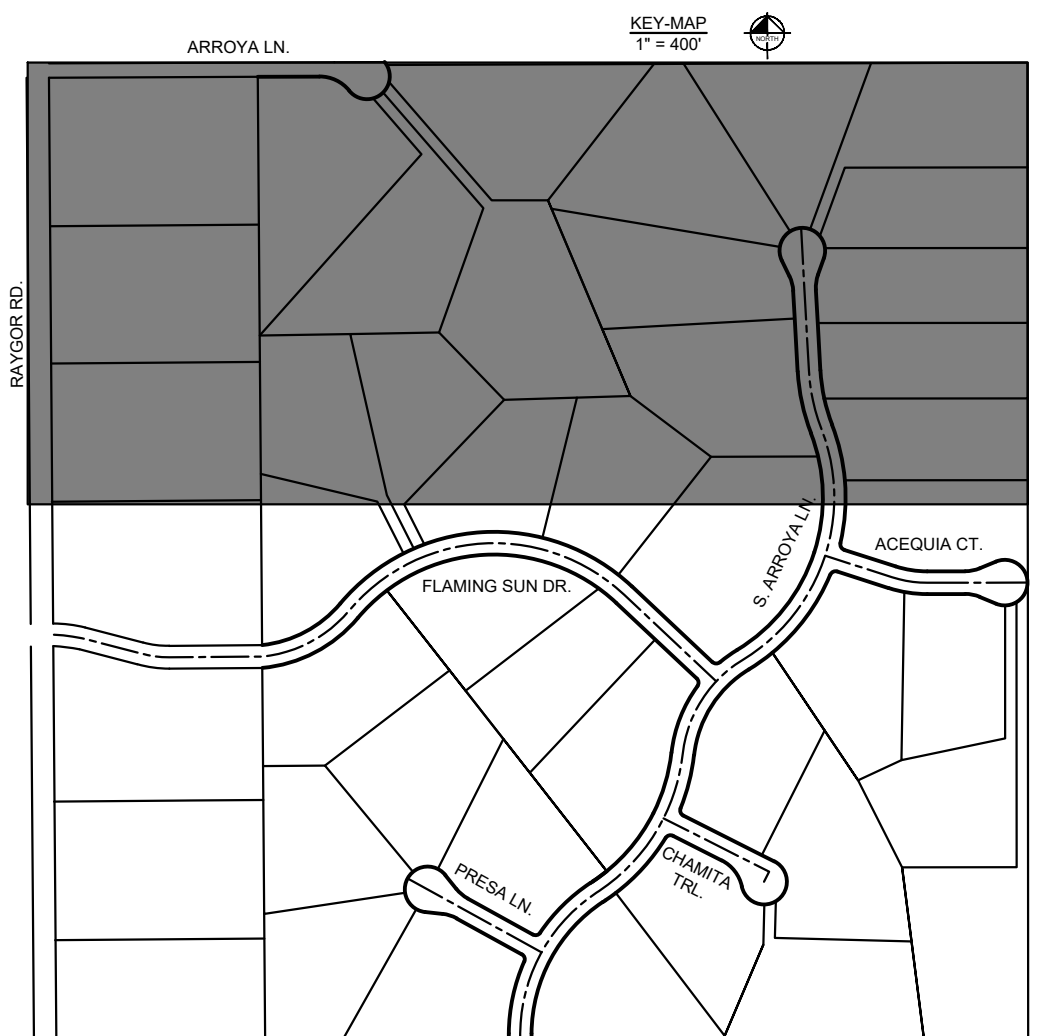
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**LIMITS OF CONSTRUCTION**

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OFFSITE DISTURBANCE	= ±0.00 ACRES
<b>TOTAL</b>	<b>= ±34.02 ACRES</b>



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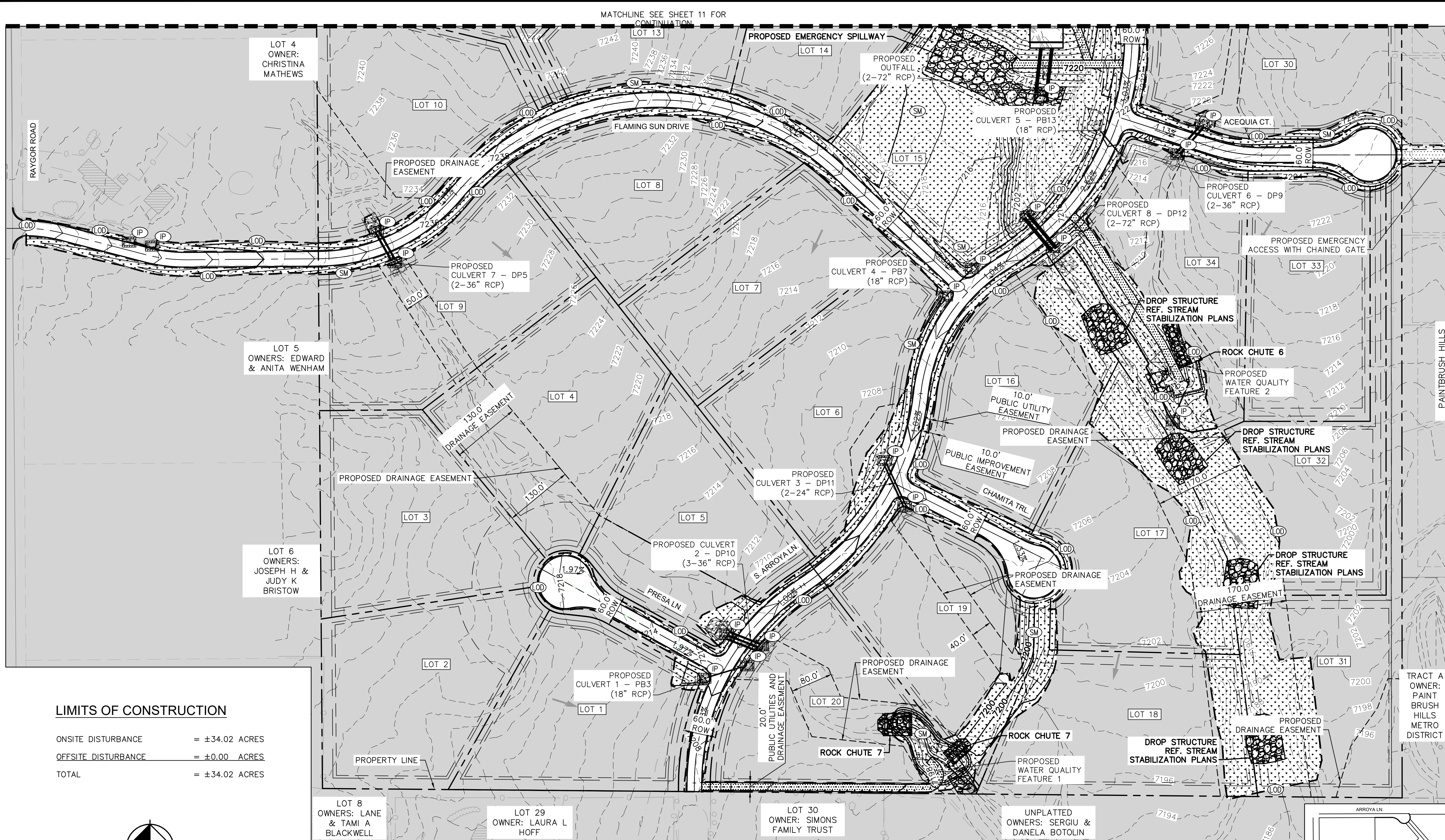
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CHECKED BY: KRK  
DATE: 12/23/2022

**EAGLEVIEW EL PASO COUNTY, COLORADO GRADING AND EROSION CONTROL PLAN**  
FINAL GEC PLAN

PROJECT NO. 196106001  
SHEET 11

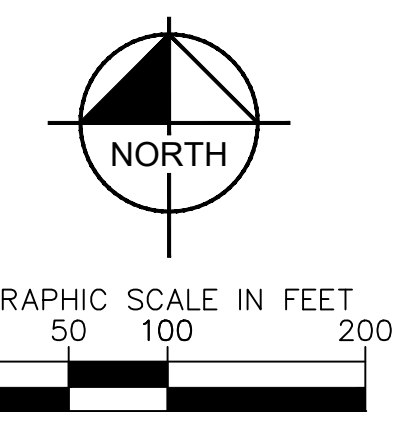
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**LIMITS OF CONSTRUCTION**

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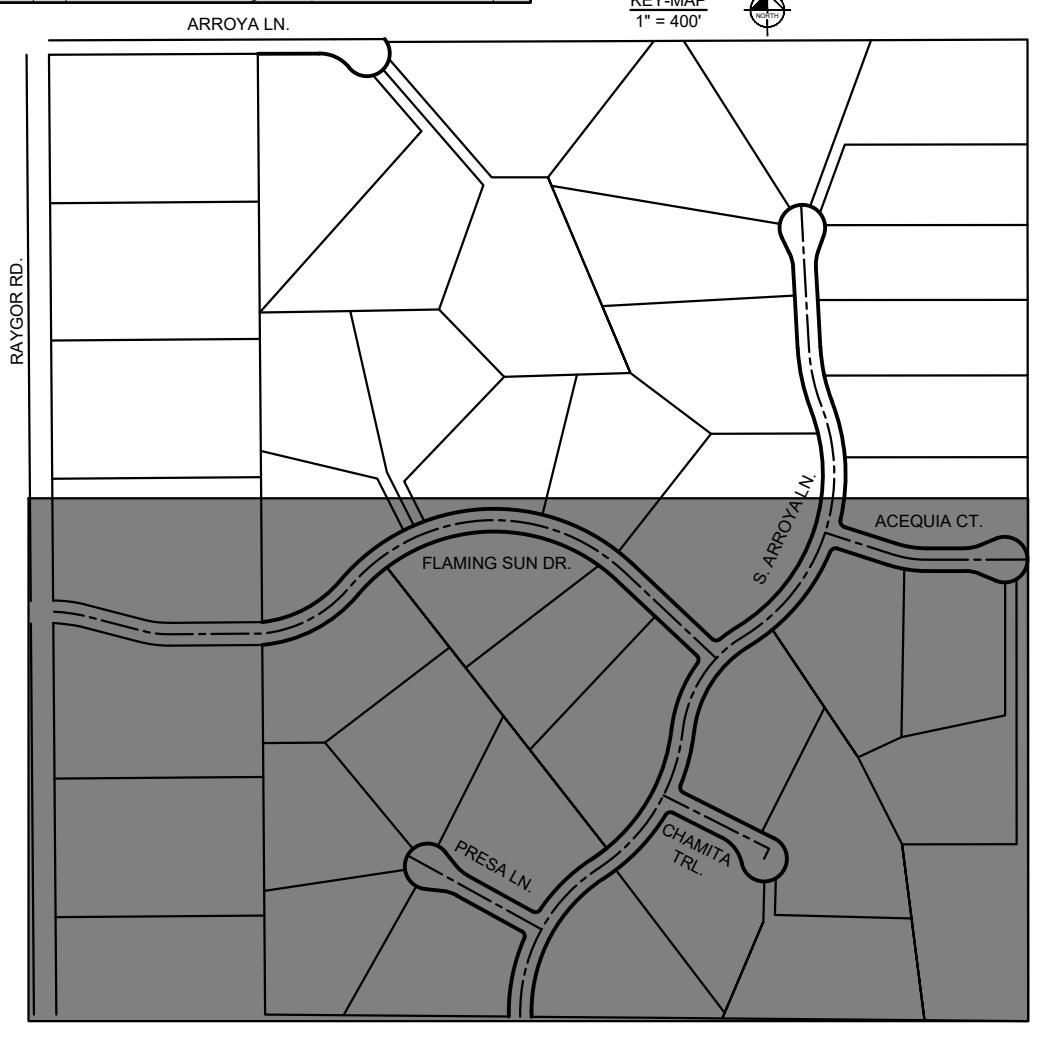


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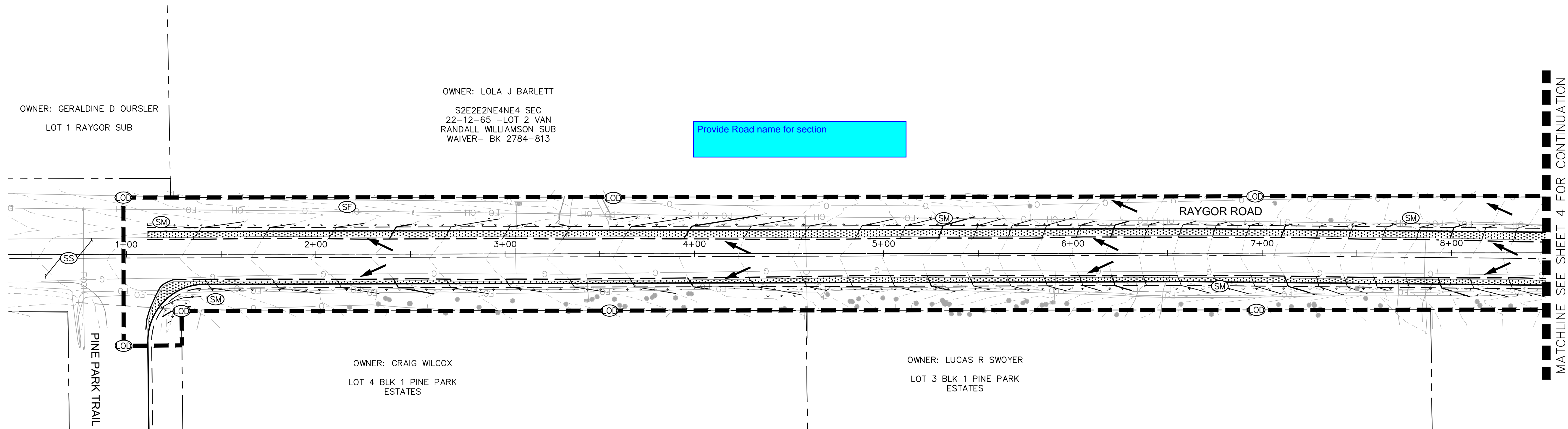


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<p><b>Kimley»Horn</b> 2022 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue Suite 900 Colorado Springs, Colorado 80903 (719) 453-0180</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>NO.</td> <td>REVISION</td> <td>BY</td> <td>DATE</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	REVISION	BY	DATE				
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<p>PROJECT NO. 196106001</p> <p>SHEET 12</p>									

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**NOTES**

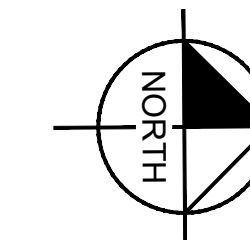
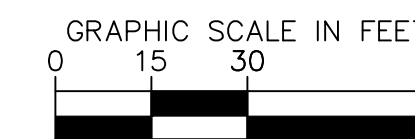
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DESIGNED BY: MJK  
 DRAWN BY: MJK  
 CHECKED BY: KKR  
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 OFF-SITE FINAL GEC PLAN**

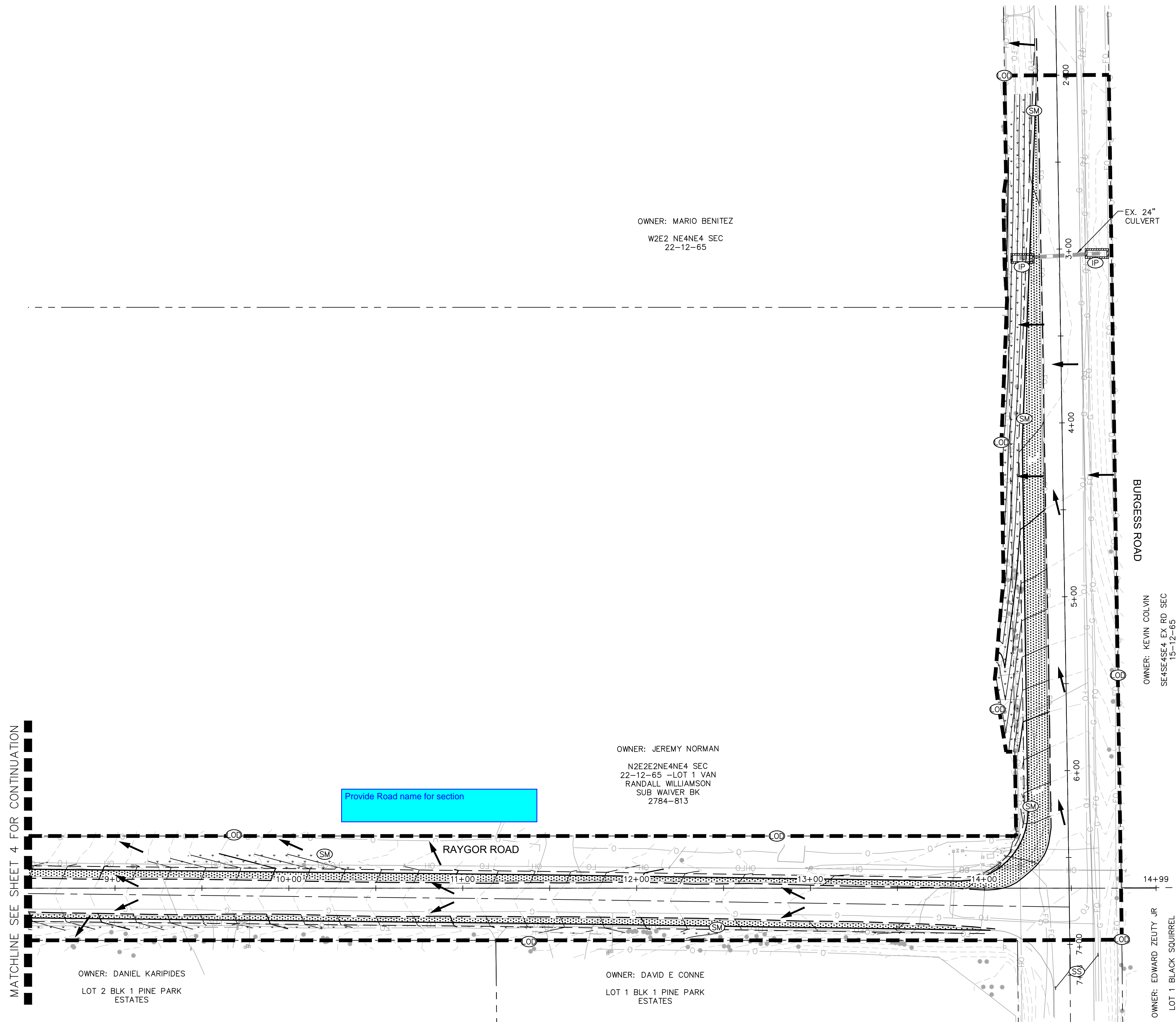
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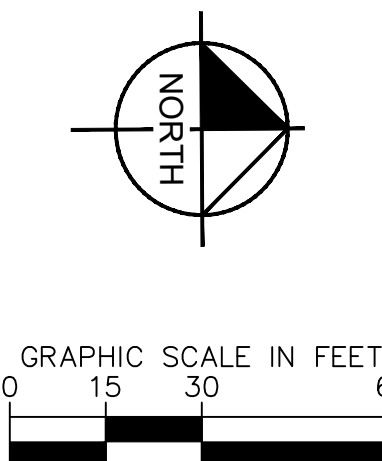
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**Temporary and Permanent Seeding (TS/PS) EC-2**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<sup>b</sup> See Table TS/PS-3 for seeding dates.

<sup>c</sup> If site is to be irrigated, the transition turf seed rates should be doubled.

<sup>d</sup> Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

<sup>e</sup> Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

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

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

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

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

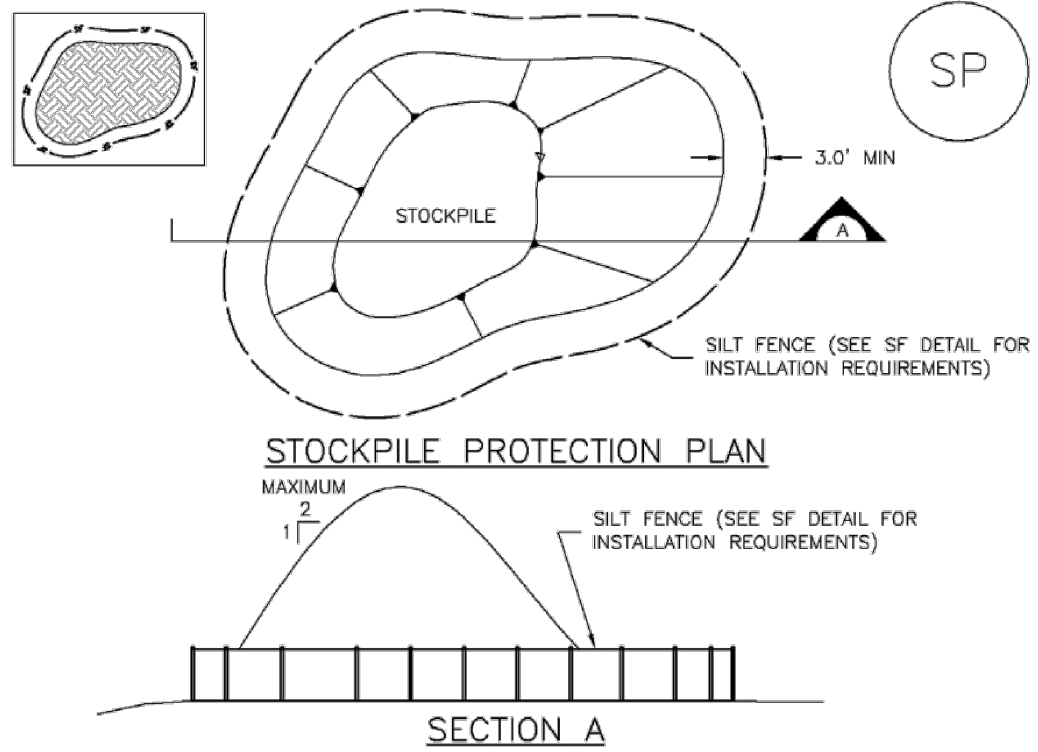
**Maintenance and Removal**  
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

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

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

Protect seeded areas from construction equipment and vehicle access.

**Stockpile Management (SP) MM-2**



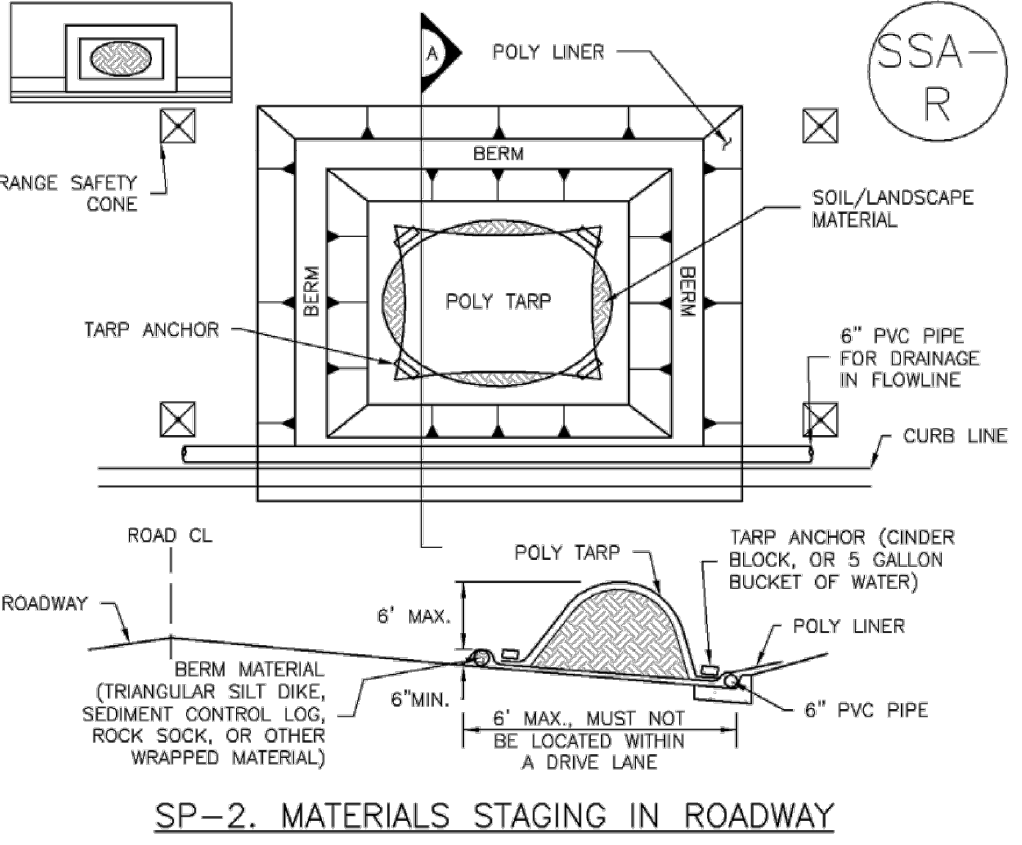
**SP-1. STOCKPILE PROTECTION**

- 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.

**MM-2 Stockpile Management (SM)**

- 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 PROTECTION 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 UDPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

**Stockpile Management (SP) MM-2**



**SP-2. MATERIALS STAGING IN ROADWAY**

- MATERIALS STAGING IN ROADWAYS INSTALLATION NOTES**
- SEE PLAN VIEW FOR:  
-LOCATION OF MATERIAL STAGING AREA(S)  
-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
  - FEATURE MUST BE INSTALLED PRIOR TO EXCAVATION, EARTHWORK OR DELIVERY OF MATERIALS.
  - MATERIALS MUST BE STATIONED ON THE POLY LINER. ANY INCIDENTAL MATERIALS DEPOSITED ON PAVED SECTION OR ALONG CURB LINE MUST BE CLEANED UP PROMPTLY.
  - POLY LINER AND TARP COVER SHOULD BE OF SIGNIFICANT THICKNESS TO PREVENT DAMAGE OR LOSS OF INTEGRITY.
  - SAND BAGS MAY BE SUBSTITUTED TO ANCHOR THE COVER TARP OR PROVIDE BERMING UNDER THE BASE LINER.
  - FEATURE IS NOT INTENDED FOR USE WITH WET MATERIAL THAT WILL BE DRAINING AND/OR SPREADING OUT ON THE POLY LINER OR FOR DEMOLITION MATERIALS.
  - THIS FEATURE CAN BE USED FOR:  
-UTILITY REPAIRS  
-WHEN OTHER STAGING LOCATIONS AND OPTIONS ARE LIMITED.  
-OTHER LIMITED APPLICATION AND SHORT DURATION STAGING.

**MM-2 Stockpile Management (SM)**

- MATERIALS STAGING IN ROADWAY 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.
  - INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
  - CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDPCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM JUPRO, COLORADO)

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NO.	REVISION	BY	DATE

**Kimley-Horn**  
2022 KIMLEY-HORN AND ASSOCIATES, INC.  
2 North Nevada Avenue Suite 900  
Colorado Springs, Colorado 80903 (719) 453-0180

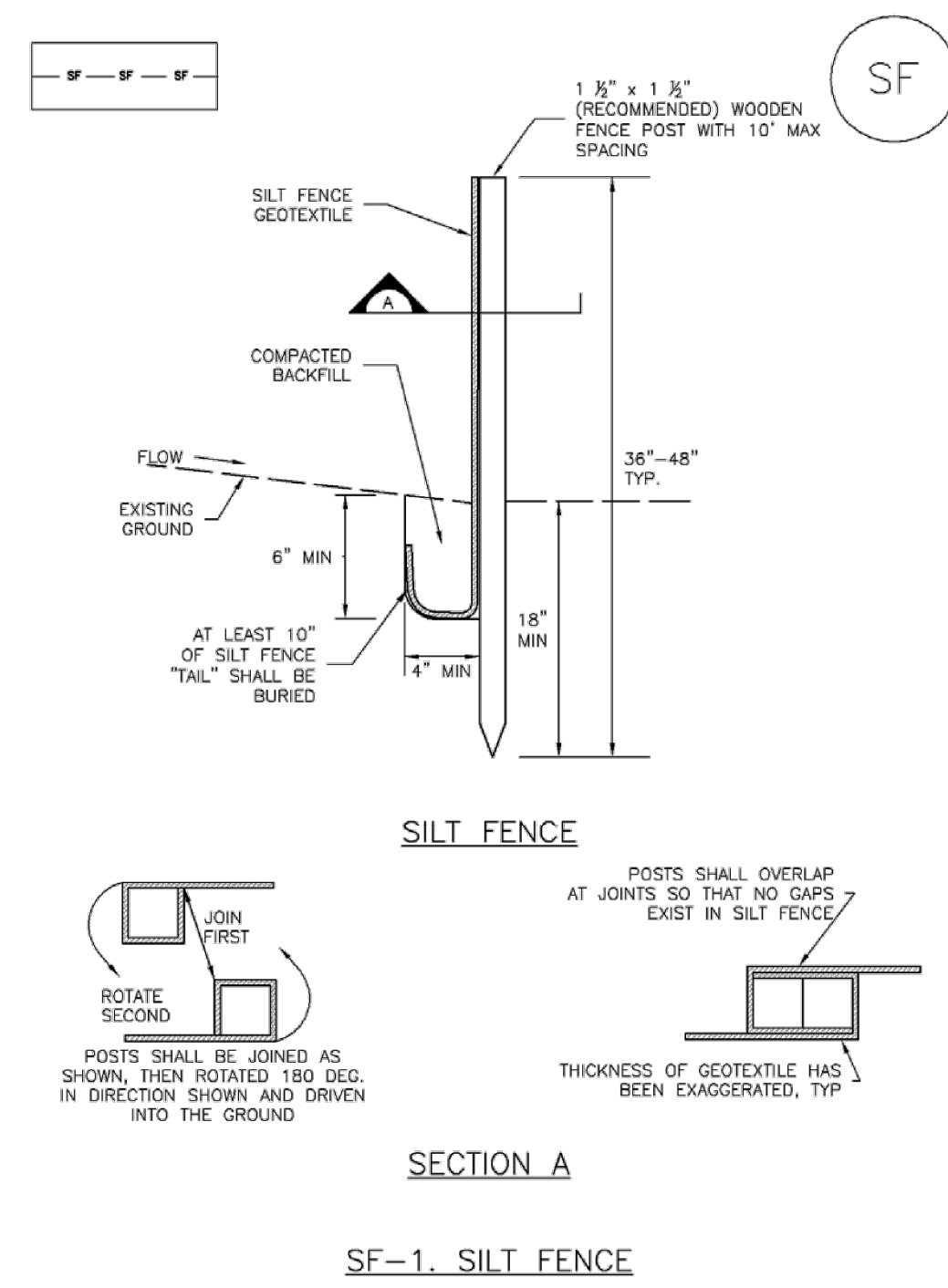
DESIGNED BY: MJK  
DRAWN BY: MJK  
CHECKED BY: KRK  
DATE: 12/23/2022

EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
GEC DETAILS

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**Silt Fence (SF) SC-1**



SF-1. SILT FENCE

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

**SC-1 Silt Fence (SF)**

**SILT FENCE INSTALLATION NOTES**

- 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.
- A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

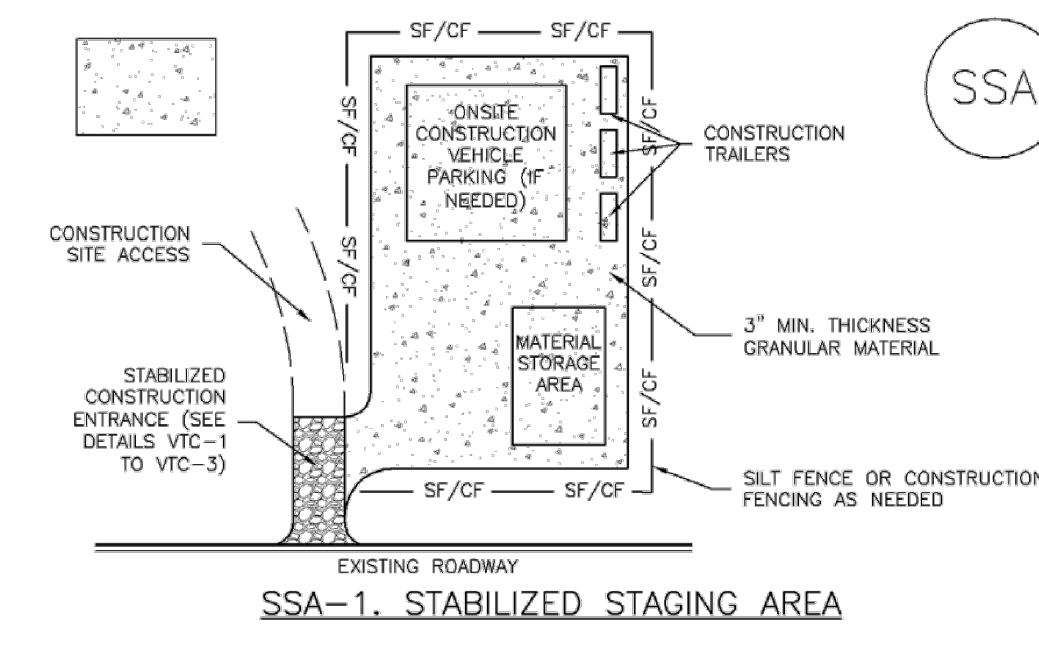
**SILT FENCE MAINTENANCE NOTES**

- 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.
- 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".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

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

**Stabilized Staging Area (SSA) SM-6**



SSA-1. STABILIZED STAGING AREA

**STABILIZED STAGING AREA INSTALLATION NOTES**

- SEE PLAN VIEW FOR -LOCATION OF STAGING AREA(S) -CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

**STABILIZED STAGING AREA 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.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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**SM-6 Stabilized Staging Area (SSA)**

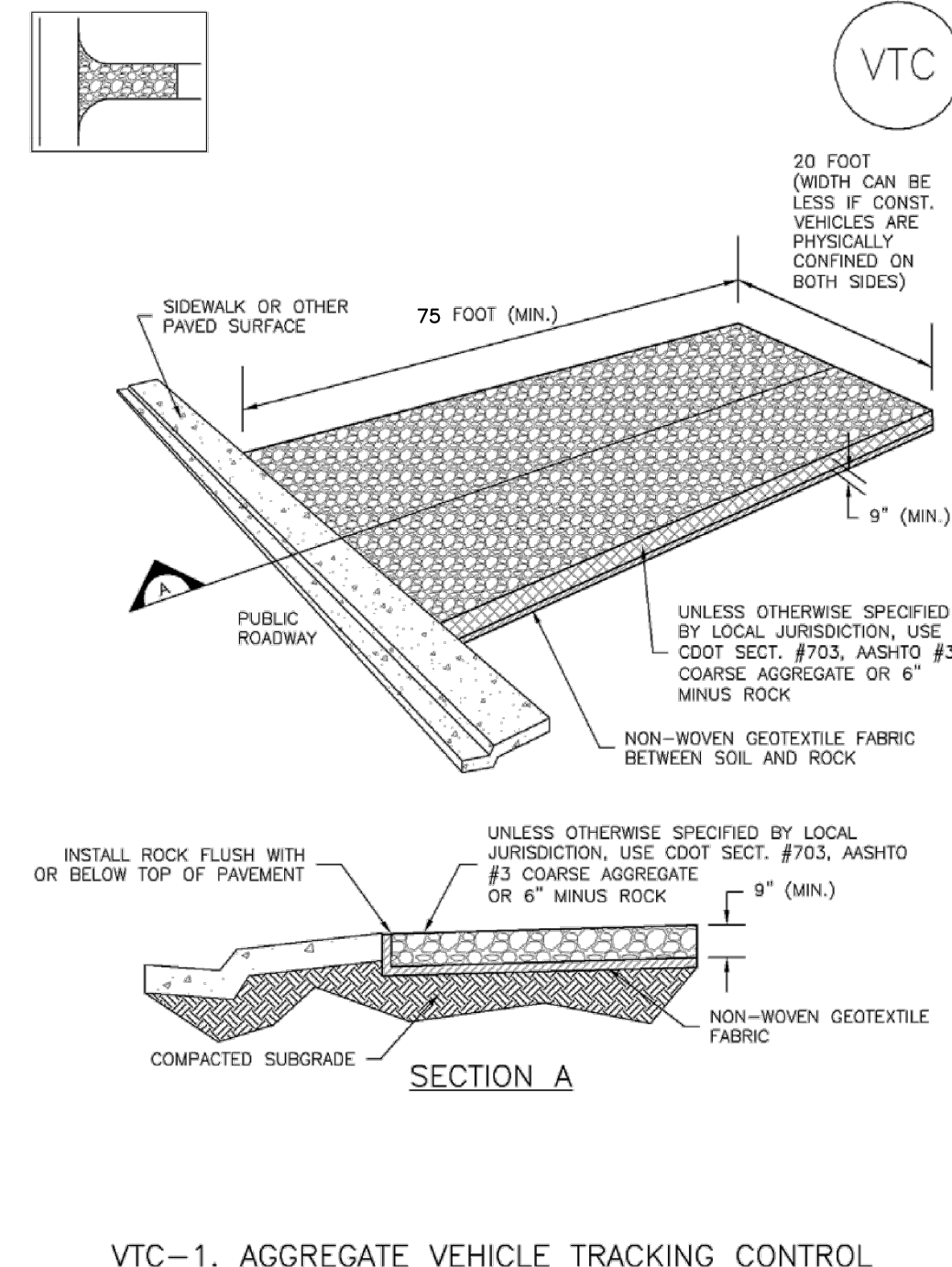
**STABILIZED STAGING AREA MAINTENANCE NOTES**

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

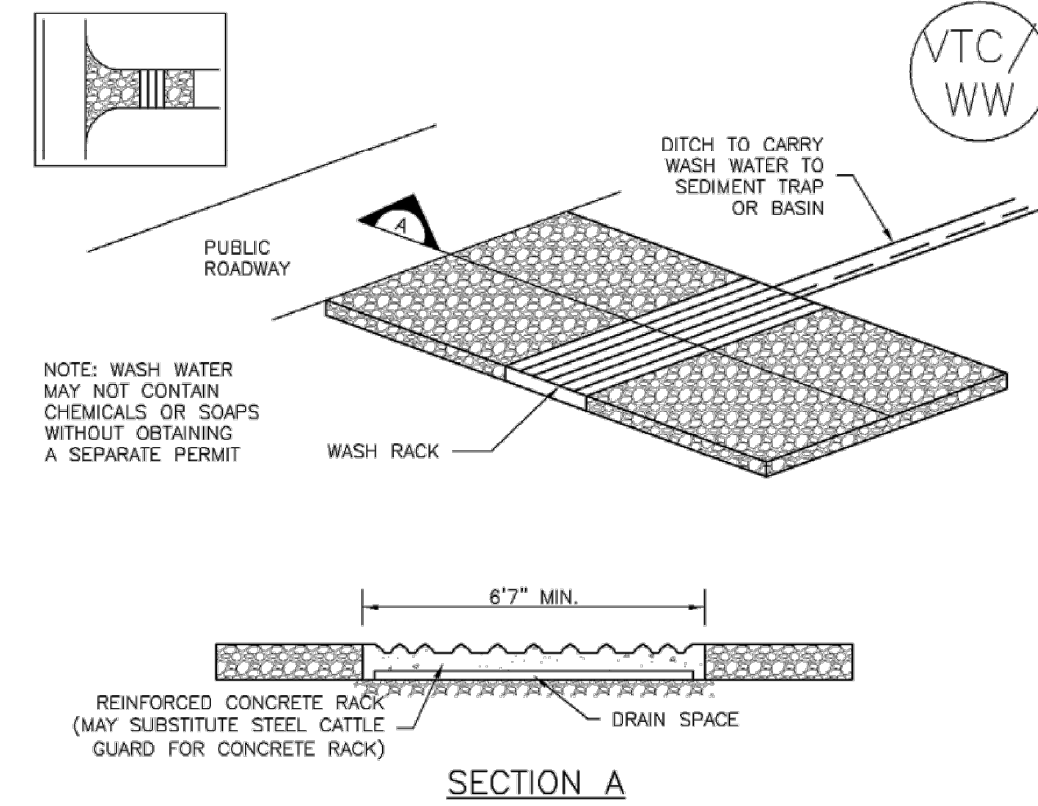
**Vehicle Tracking Control (VTC) SM-4**



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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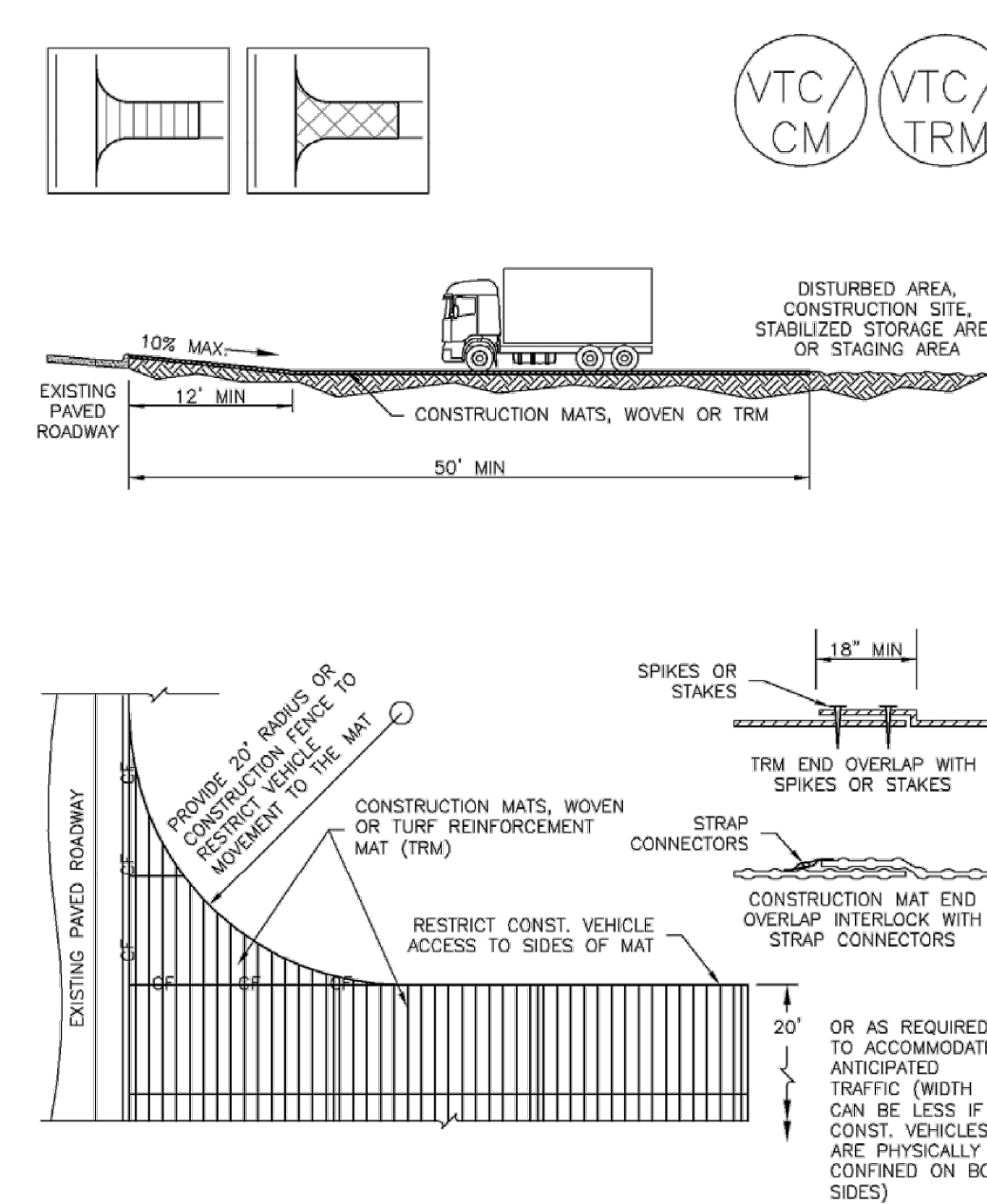
**SM-4 Vehicle Tracking Control (VTC)**



VTC-2. AGGREGATE VEHICLE TRACKING CONTROL WITH WASH RACK

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

**Vehicle Tracking Control (VTC) SM-4**



VTC-3. VEHICLE TRACKING CONTROL W/ CONSTRUCTION MAT OR TURF REINFORCEMENT MAT (TRM)

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 VTC-5

**SM-4 Vehicle Tracking Control (VTC)**

**STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES**

- SEE PLAN VIEW FOR -LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S) -TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
- CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

**STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES**

- 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.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

VTC-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 November 2010

NO.	REVISION	BY	DATE	APPR

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DESIGNED BY: MJK  
DRAWN BY: MJK  
CHECKED BY: KRK  
DATE: 12/23/2022

EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
GEC DETAILS

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Kimley-Horn and Associates, Inc.

PROJECT NO.  
196106001  
SHEET  
16



**Sediment Basin (SB)**

**SC-7**

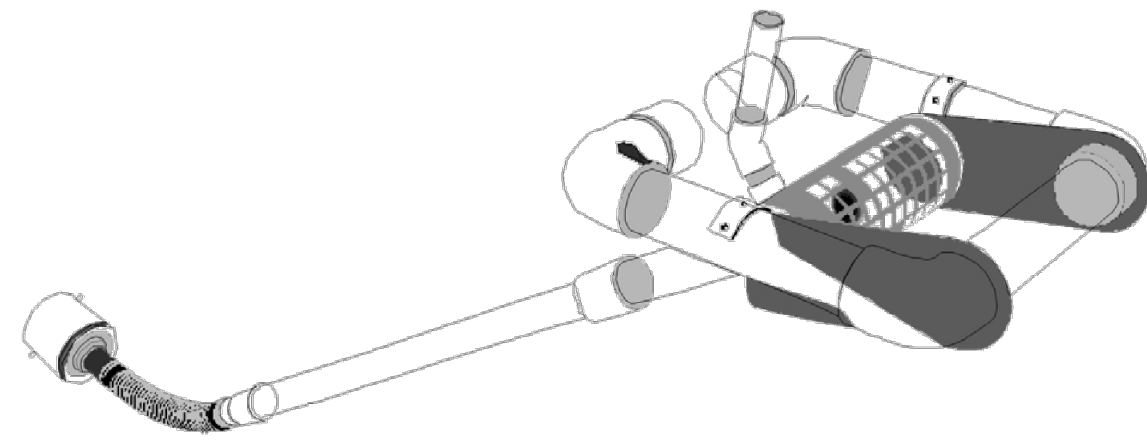


Illustration SB-1. Outlet structure for a temporary sediment basin - Faircloth Skimmer Floating Outlet. Illustration courtesy of J. W. Faircloth & Sons, Inc., FairclothSkimmer.com.

- **Outlet Protection and Spillway:** Consider all flow paths for runoff leaving the basin, including protection at the typical point of discharge as well as overtopping.
  - **Outlet Protection:** Outlet protection should be provided where the velocity of flow will exceed the maximum permissible velocity of the material of the waterway into which discharge occurs. This may require the use of a riprap apron at the outlet location and/or other measures to keep the waterway from eroding.
  - **Emergency Spillway:** Provide a stabilized emergency overflow spillway for rainstorms that exceed the capacity of the sediment basin volume and its outlet. Protect basin embankments from erosion and overtopping. If the sediment basin will be converted to a permanent detention basin, design and construct the emergency spillway(s) as required for the permanent facility. If the sediment basin will not become a permanent detention basin, it may be possible to substitute a heavy polyvinyl membrane or properly bedded rock cover to line the spillway and downstream embankment, depending on the height, slope, and width of the embankments.

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**SC-7**

**Sediment Basin (SB)**

**Maintenance and Removal**

Maintenance activities include the following:

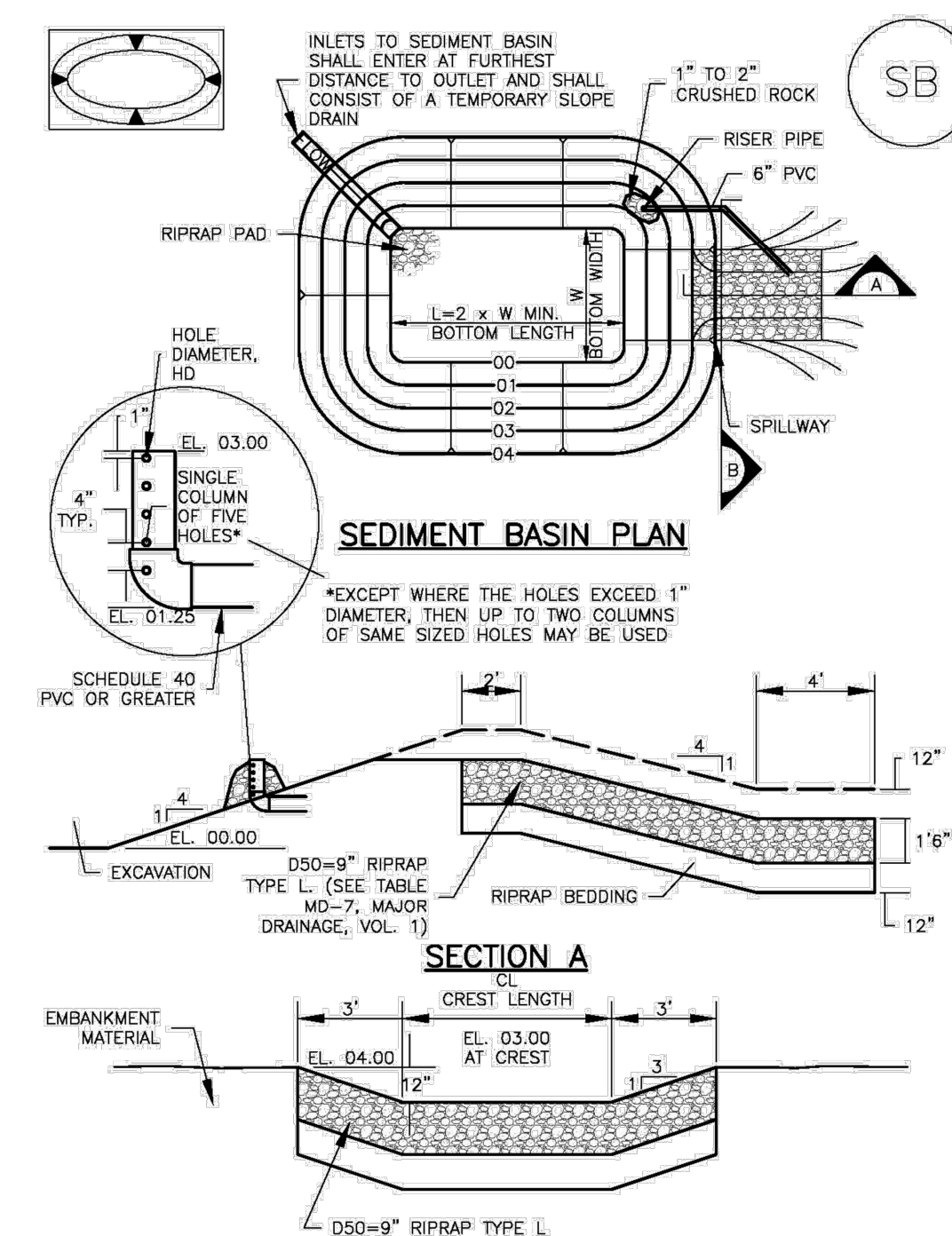
- Dredge sediment from the basin, as needed to maintain BMP effectiveness, typically when the design storage volume is no more than one-third filled with sediment.
- Inspect the sediment basin embankments for stability and seepage.
- Inspect the inlet and outlet of the basin, repair damage, and remove debris. Remove, clean and replace the gravel around the outlet on a regular basis to remove the accumulated sediment within it and keep the outlet functioning.
- Be aware that removal of a sediment basin may require dewatering and associated permit requirements.
- Do not remove a sediment basin until the upstream area has been stabilized with vegetation.

Final disposition of the sediment basin depends on whether the basin will be converted to a permanent post-construction stormwater basin or whether the basin area will be returned to grade. For basins being converted to permanent detention basins, remove accumulated sediment and reconfigure the basin and outlet to meet the requirements of the final design for the detention facility. If the sediment basin is not to be used as a permanent detention facility, fill the excavated area with soil and stabilize with vegetation.

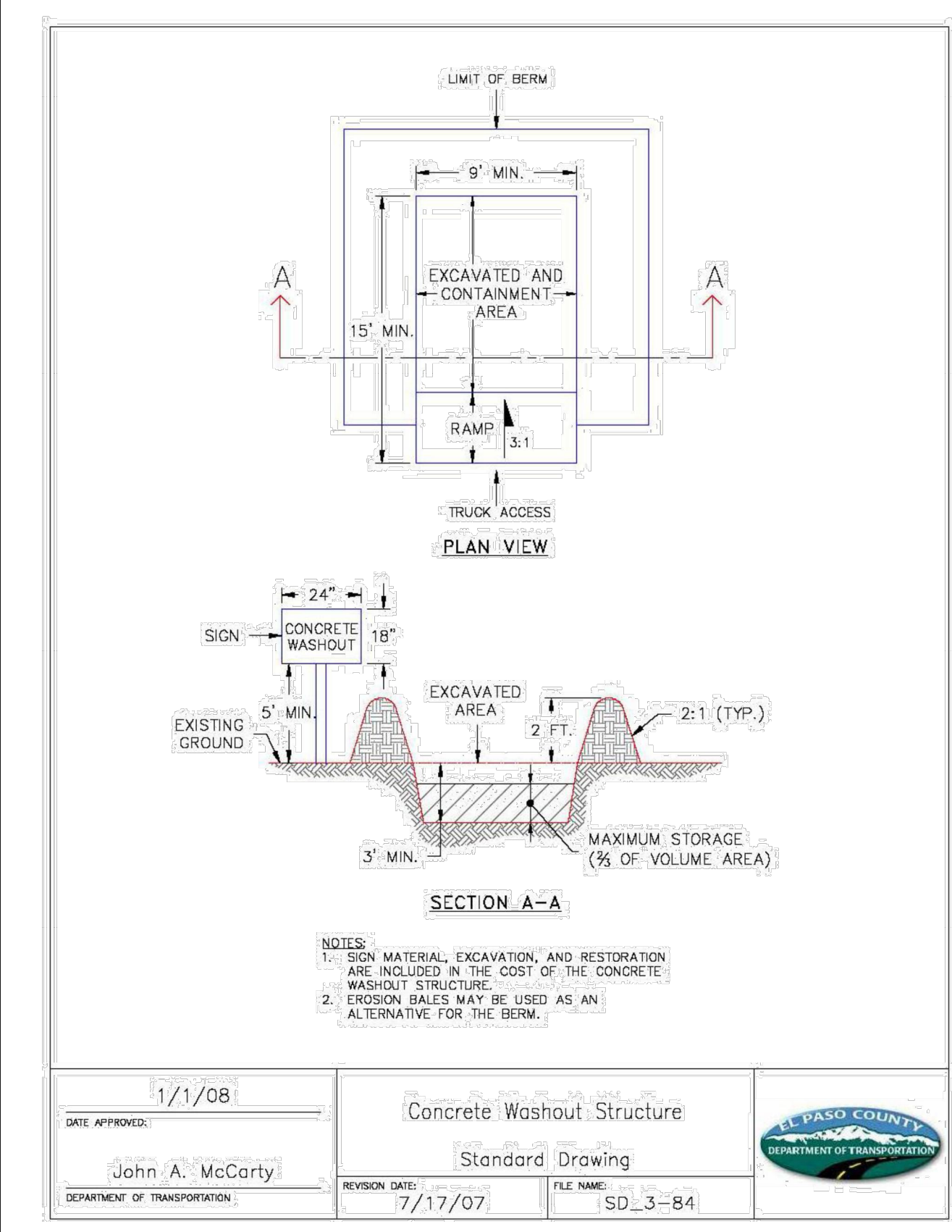
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**Sediment Basin (SB)**

**SC-7**



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



1/1/08 Concrete Washout Structure  
 DATE APPROVED: John A. McCarty  
 DEPARTMENT OF TRANSPORTATION  
 REVISION DATE: 7/17/07  
 STANDARD DRAWING  
 FILE NAME: SD\_3--84  
 EL PASO COUNTY DEPARTMENT OF TRANSPORTATION

**SC-7**

**Sediment Basin (SB)**

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	3 1/2
2	18	3	4 1/2
4	28	4	5 1/2
6	33 1/2	6	6 1/2
7	43	9	7 1/2
8	47 1/2	11	7 1/2
9	51	12	7 1/2
10	55 1/2	13	7 1/2
11	58 1/2	15	7 1/2
12	61	16	7 1/2
13	64	18	7 1/2
14	67 1/2	21	7 1/2
15	70 1/2	22	7 1/2

Clarify. Sheets 4 & 5 shows three sediment basins. Identify the appropriate sizing for each basins since the plan sheet does not indicate the upstream area for each sediment basin.

- SEDIMENT BASIN INSTALLATION NOTES**
- 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.
  - FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
  - SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON BASINS AS A STORMWATER CONTROL.
  - 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.
  - EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
  - PIPE SCH 40 OR GREATER SHALL BE USED.
  - 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.

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

**Sediment Basin (SB)**

**SC-7**

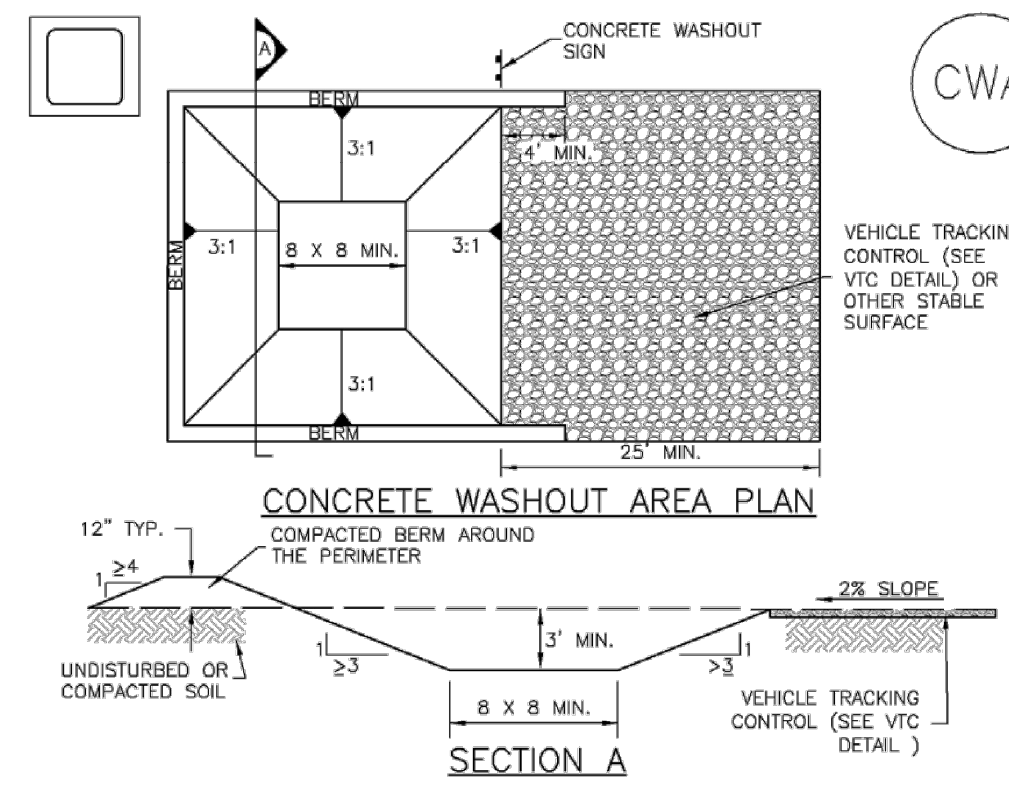
**SEDIMENT BASIN MAINTENANCE NOTES**

- 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.
  - 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).
  - SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
  - 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.

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**Concrete Washout Area (CWA)**

**MM-1**



- CWA-1. CONCRETE WASHOUT AREA**
- CWA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
    - CWA INSTALLATION LOCATION.
  - DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (1/8" MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
  - THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
  - CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
  - BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
  - VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
  - SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
  - USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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**MM-1**

**Concrete Washout Area (CWA)**

**CWA 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.
  - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE, CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
  - CONCRETE WASHOUT WASTE, 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.
  - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
  - WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)  
 NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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NO.	REVISION	BY	DATE	APPR

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 DATE: 12/23/2022

EAGLEVIEW  
 EL PASO COUNTY, COLORADO  
 GRADING AND EROSION CONTROL PLAN  
 GEC DETAILS

PRELIMINARY  
 FOR REVIEW ONLY  
 NOT FOR CONSTRUCTION  
**Kimley»Horn**  
 Kimley-Horn and Associates, Inc.

PROJECT NO.  
 196106001

SHEET  
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**EC-6 Rolled Erosion Control Products (RECP)**

**Description**

Rolled Erosion Control Products (RECPs) include a variety of temporary or permanently installed manufactured products designed to control erosion and enhance vegetation establishment and survivability, particularly on slopes and in channels. For applications where natural vegetation alone will provide sufficient permanent erosion protection, temporary products such as netting, open weave textiles and a variety of erosion control blankets (ECBs) made of biodegradable natural materials (e.g., straw, coconut fiber) can be used. For applications where natural vegetation alone will not be sustainable under expected flow conditions, permanent rolled erosion control products such as turf reinforcement mats (TRMs) can be used. In particular, turf reinforcement mats are designed for discharges that exert velocities and shear stresses that exceed the typical limits of mature natural vegetation.



Photograph RECP-1. Erosion control blanket protecting the slope from erosion and providing favorable conditions for revegetation.

**Appropriate Uses**

RECPs can be used to control erosion in conjunction with revegetation efforts, providing seedbed protection from wind and water erosion. These products are often used on disturbed areas on steep slopes, in areas with highly erosive soils, or as part of drainage stabilization. In order to select the appropriate RECP for site conditions, it is important to have a general understanding of the general types of these products, their expected longevity, and general characteristics.

The Erosion Control Technology Council (ECTC 2005) characterizes rolled erosion control products according to these categories:

- Mulch control netting:** A planar woven natural fiber or extruded geosynthetic mesh used as a temporary degradable rolled erosion control product to anchor loose fiber mulches.
- Open weave textile:** A temporary degradable rolled erosion control product composed of processed natural or polymer yarns woven into a matrix, used to provide erosion control and facilitate vegetation establishment.
- Erosion control blanket (ECB):** A temporary degradable rolled erosion control product composed of processed natural or polymer fibers which are mechanically, structurally or chemically bound together to form a continuous matrix to provide erosion control and facilitate vegetation establishment. ECBs can be further differentiated into rapidly degrading single-net and double-net types or slowly degrading types.

Rolled Erosion Control Products	
Functions	
Erosion Control	Yes
Sediment Control	No
Site/Material Management	No

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**EC-6 Rolled Erosion Control Products (RECP)**

- Turf Reinforcement Mat (TRM):** A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

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**EC-6 Rolled Erosion Control Products (RECP)**

**Table RECP-1. ECTC Standard Specification for Temporary Rolled Erosion Control Products**  
(Adapted from Erosion Control Technology Council 2005)

Product Description	Slope Applications*		Channel Applications*	Minimum Tensile Strength <sup>1</sup>	Expected Longevity
	Maximum Gradient	C Factor <sup>2,3</sup>			
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft <sup>2</sup> (12 Pa)	5 lbs/ft (0.073 kN/m)	Up to 12 months
Netless Rolled Erosion Control Blankets	4:1 (H:V)	≤0.10 @ 4:1	0.5 lbs/ft <sup>2</sup> (24 Pa)	5 lbs/ft (0.073 kN/m)	
Single-net Erosion Control Blankets & Open Weave Textiles	3:1 (H:V)	≤0.15 @ 3:1	1.5 lbs/ft <sup>2</sup> (72 Pa)	50 lbs/ft (0.73 kN/m)	
Double-net Erosion Control Blankets	2:1 (H:V)	≤0.20 @ 2:1	1.75 lbs/ft <sup>2</sup> (84 Pa)	75 lbs/ft (1.09 kN/m)	
Mulch Control Nets	5:1 (H:V)	≤0.10 @ 5:1	0.25 lbs/ft <sup>2</sup> (12 Pa)	25 lbs/ft (0.36 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles (slowly degrading)	1.5:1 (H:V)	≤0.25 @ 1.5:1	2.00 lbs/ft <sup>2</sup> (96 Pa)	100 lbs/ft (1.45 kN/m)	24 months
Erosion Control Blankets & Open Weave Textiles	1:1 (H:V)	≤0.25 @ 1:1	2.25 lbs/ft <sup>2</sup> (108 Pa)	125 lbs/ft (1.82 kN/m)	36 months

\* C Factor and shear stress for mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material. (See Section 5.3 of Chapter 7 Construction BMPs for more information on the C Factor.)  
<sup>1</sup> Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.  
<sup>2</sup> C Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, H:V) to ratio of soil loss from unprotected (control) plot in large-scale testing.  
<sup>3</sup> Required minimum shear stress TRM (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing.  
<sup>4</sup> The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.  
<sup>5</sup> Acceptable large-scale test methods may include ASTM D 6459, or other independent testing deemed acceptable by the engineer.  
<sup>6</sup> Per the engineer's discretion. Recommended acceptable large-scale testing protocol may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

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**EC-6 Rolled Erosion Control Products (RECP)**

**Table RECP-2. ECTC Standard Specification for Permanent<sup>1</sup> Rolled Erosion Control Products**  
(Adapted from Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	Minimum Tensile Strength <sup>2,3</sup>
	Maximum Gradient	Maximum Shear Stress <sup>4,5</sup>	
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	0.5:1 (H:V)	6.0 lbs/ft <sup>2</sup> (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft <sup>2</sup> (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft <sup>2</sup> (480 Pa)	175 lbs/ft (2.55 kN/m)

<sup>1</sup> For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.  
<sup>2</sup> Minimum Average Roll Values, machine direction only for tensile strength determination using ASTM D 6818 (Supersedes Mod. ASTM D 5035 for RECPs)  
<sup>3</sup> Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb/ft) or greater.  
<sup>4</sup> Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large scale testing.  
<sup>5</sup> Acceptable large-scale testing protocols may include ASTM D 6460, or other independent testing deemed acceptable by the engineer.

**Design and Installation**

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to avoid failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wood stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

ECB-1 Pipe Outlet to Drainageway

ECB-2 Small Ditch or Drainageway

ECB-3 Outside of Drainageway

RECP-4 Urban Drainage and Flood Control District November 2010  
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**EC-6 Rolled Erosion Control Products (RECP)**

Staking patterns are also provided in the design details according to these factors:

- ECB type
- Slope or channel type

For other types of RECPs including TRMs, these design details are intended to serve as general guidelines for design and installation; however, engineers should adhere to manufacturer's installation recommendations.

**Maintenance and Removal**

Inspection of erosion control blankets and other RECPs includes:

- Check for general signs of erosion, including voids beneath the mat. If voids are apparent, fill the void with suitable soil and replace the erosion control blanket, following the appropriate staking pattern.
- Check for damaged or loose stakes and secure loose portions of the blanket.

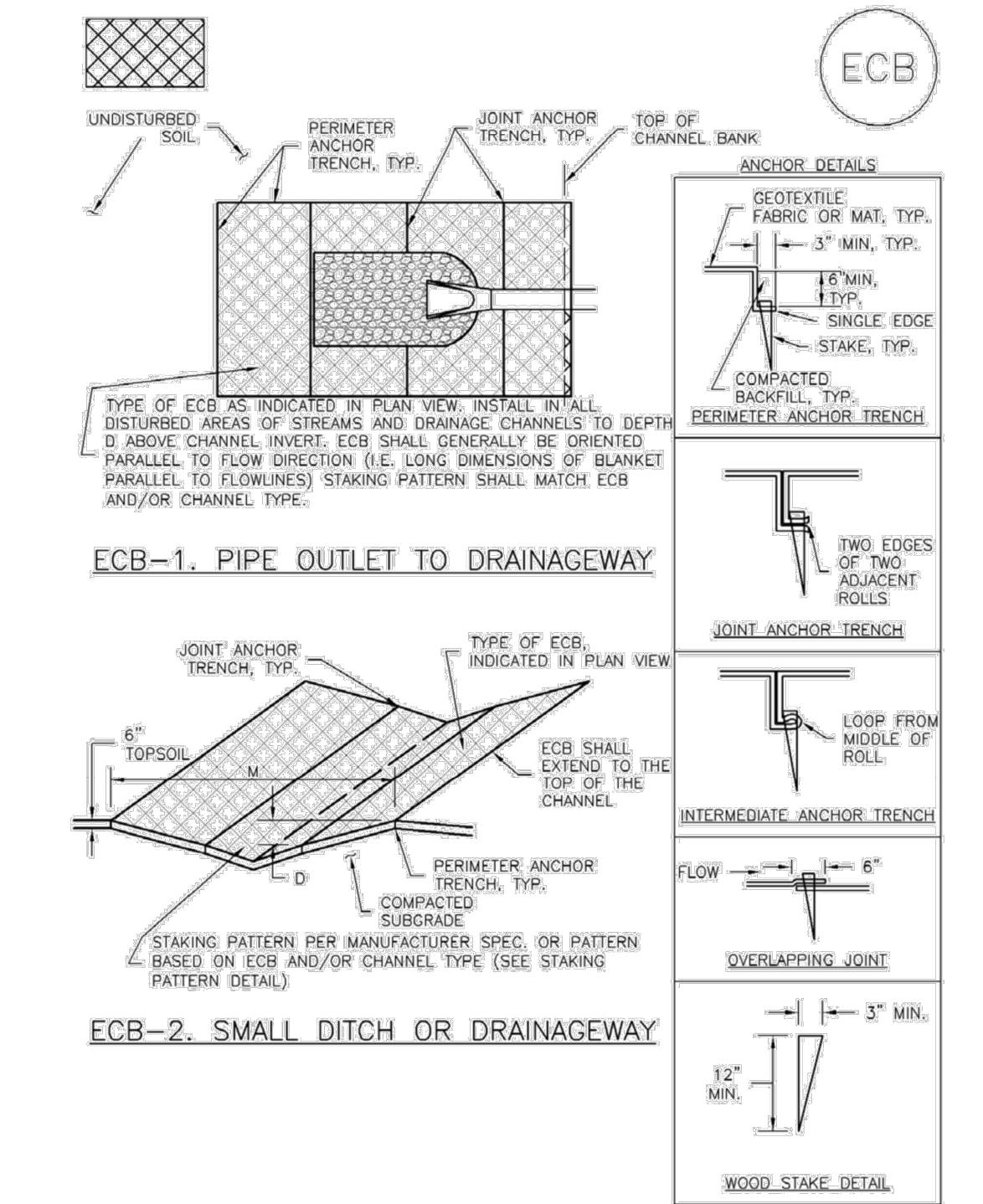
Erosion control blankets and other RECPs that are biodegradable typically do not need to be removed after construction. If they must be removed, then an alternate soil stabilization method should be installed promptly following removal.

Turf reinforcement mats, although generally resistant to biodegradation, are typically left in place as a dense vegetated cover grows in through the mat matrix. The turf reinforcement mat provides long-term stability and helps the established vegetation resist erosive forces.

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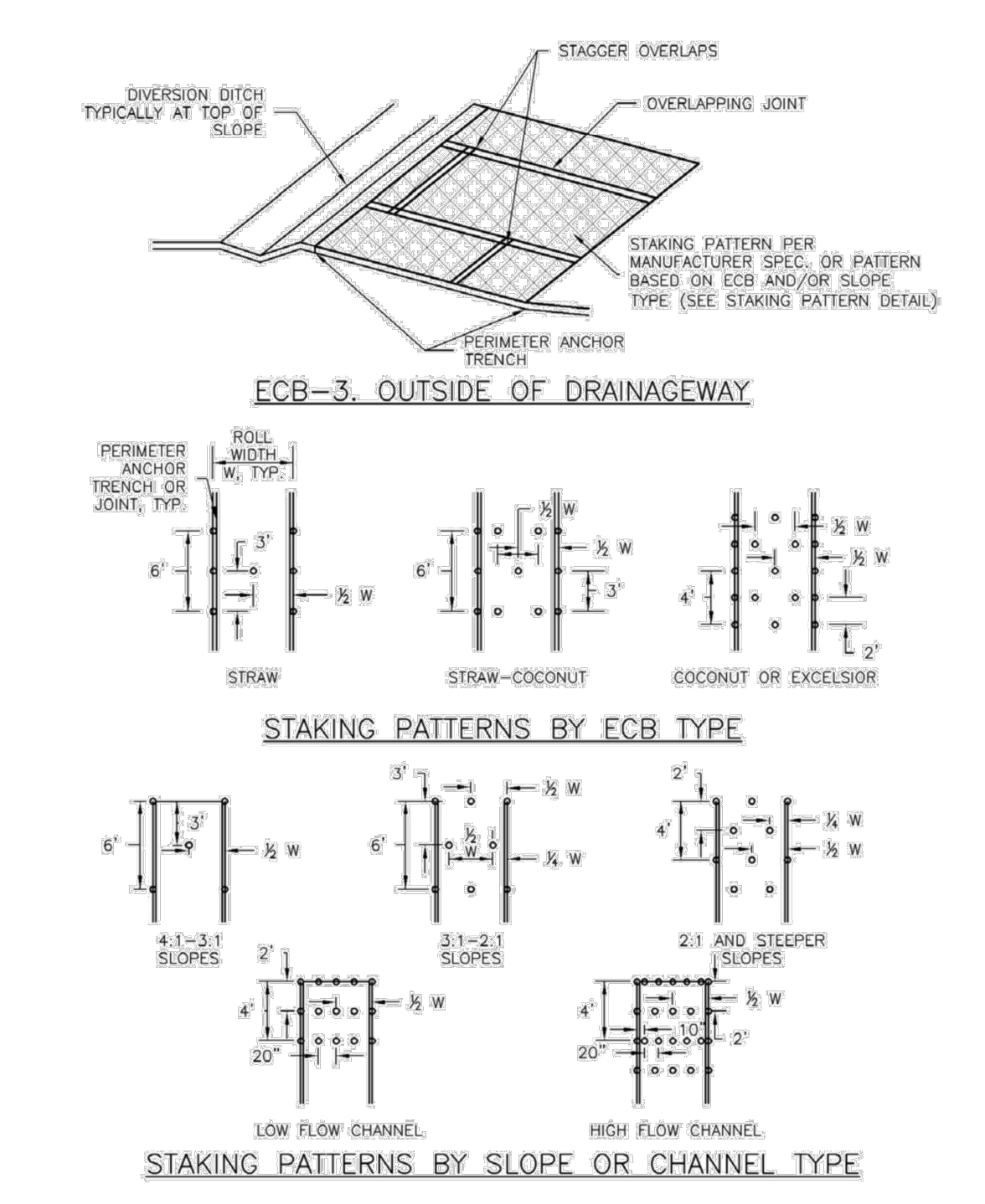
**EC-6 Rolled Erosion Control Products (RECP)**



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**EC-6 Rolled Erosion Control Products (RECP)**



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**EC-6 Rolled Erosion Control Products (RECP)**

**EROSION CONTROL BLANKET INSTALLATION NOTES**

- SEE PLAN VIEW FOR:  
-LOCATION OF ECB.  
-TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR).  
-AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE; NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS				
TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING*
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCOONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

\*STRAW ECBs MAY ONLY BE USED OUTSIDE OF EMBANKMENT AND DRAINAGE CHANNEL.  
 \*\*ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

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 CHECKED BY: KRK  
 DATE: 12/23/2022

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 EL PASO COUNTY, COLORADO  
 GRADING AND EROSION CONTROL PLAN  
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### Rolled Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET 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. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEDED AND MULCHED AND THE ECB REINSTALLED.

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 AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

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### Mulching (MU) EC-4

**Description**

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

**Appropriate Uses**

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

**Design and Installation**

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012      Urban Drainage and Flood Control District      MU-1  
Urban Storm Drainage Criteria Manual Volume 3

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Photograph MU-1. An area that was recently seeded, mulched, and crimped.

### EC-4 Mulching (MU)

- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

**Maintenance and Removal**

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

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MU-2      Urban Drainage and Flood Control District      June 2012  
Urban Storm Drainage Criteria Manual Volume 3

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**EAGLEVIEW  
EL PASO COUNTY, COLORADO  
GRADING AND EROSION CONTROL PLAN  
GEC DETAILS**

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