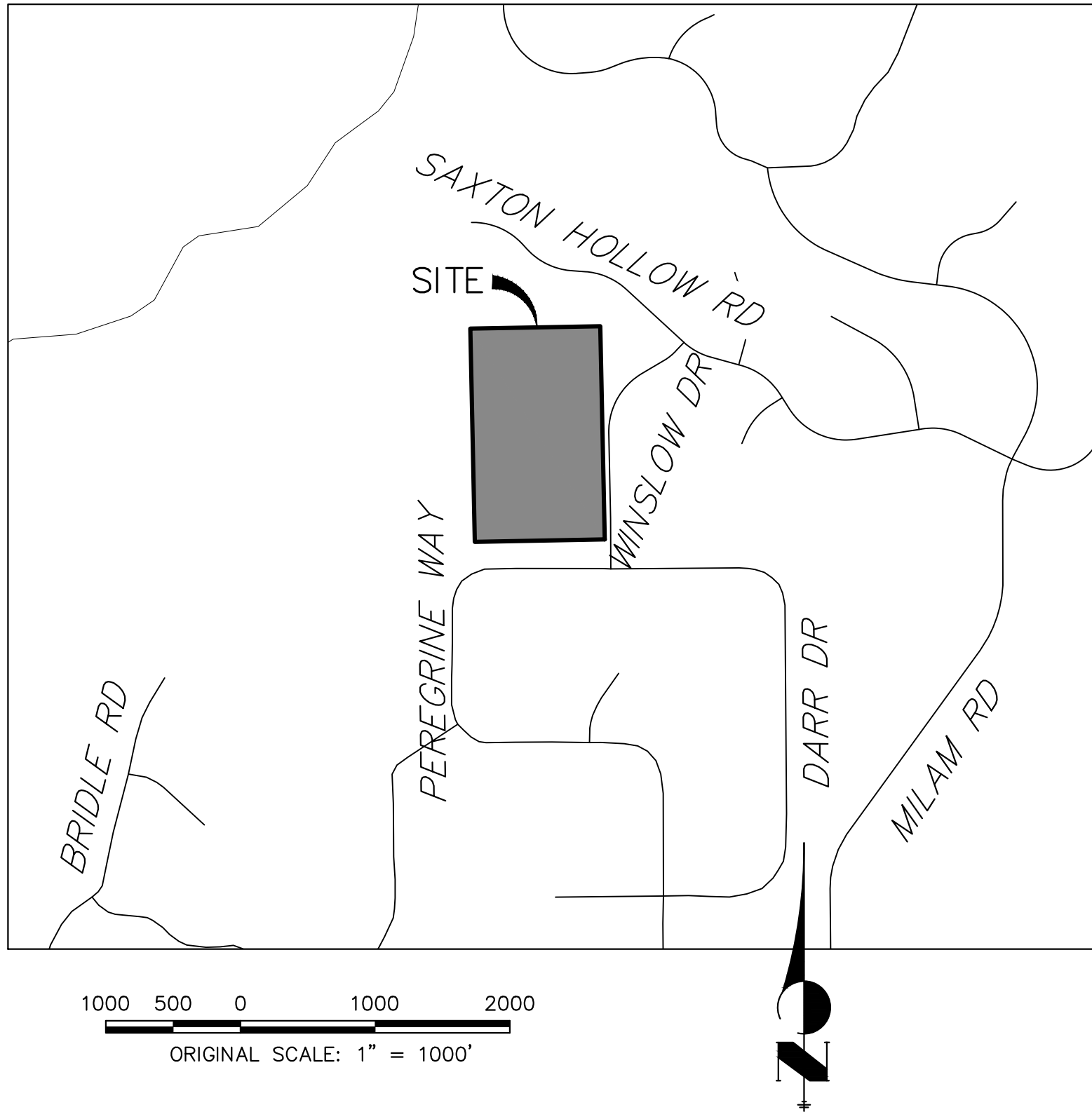


ESTATES AT CATHEDRAL PINES

GRADING AND EROSION CONTROL STANDARD NOTES

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS, ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SWMP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED SEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN THE GROUND DISTURBANCE IS COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE EGM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
10. EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATION REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO COMPLETION OF THE WORK IN AN ORDERLY MANNER. ALL MATERIALS STORED OFF-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE EGM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE EGM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
25. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ROCKY MOUNTAIN GROUP. (DATED 06/24/2022) AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THE GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

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



BASIS OF BEARINGS

THE WEST LINE OF THE SOUTHEAST 1/4 OF SECTION 2, TOWNSHIP 12 SOUTH, RANGE 66 WEST OF THE 6TH P.M. BEING MONUMENTED BY A 3-1/4" ALUMINUM CAP STAMPED "LS 9132" AT THE SOUTH 1/4 CORNER AND A 2-1/2" ALUMINUM CAP STAMPED "LS 9132" AT THE CENTER 1/4 CORNER, SAID LINE BEARING N00°11'44"W AS SHOWN ON THE PLAT OF CATHEDRAL PINES SUBDIVISION FILING NO. 1 RECORDED UNDER RECEPTION NO. 205001738 IN THE RECORDERS OF THE EL PASO COUNTY CLERK AND RECORDER.

BENCHMARKS

1. SITE VERTICAL DATUM NGVD88 FROM PLANS BY LEIGH-WHITEHEAD ELEVATION 7436.65

2. 4 REBAR 23" NORTH AND 20' EAST OF THE SOUTHEAST CORNER OF SECTION 2, TOWNSHIP 12 NORTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY COLORADO, SAID SECTION CORNER BEING A 3-1/4" ALUMINUM SURVEYORS CAP STAMPED "PLS 9132" BEING APPROPRIATELY MARKED

3. 1" IRON PIPE AT SOUTHEAST CORNER OF SITE BEING 367'4" NORTH OF THE INTERSECTION OF PEREGRINE WAY AND WINSLOW DRIVE AND 30' WESTERLY OF THE CENTERLINE OF WINSLOW DRIVE ELEVATION = 7347.65

3. THE NORTHWEST CORNER OF AN AREA INLET BEING EASTERLY OF WINSLOW DRIVE AND BEING 900' +/- NORTH OF THE INTERSECTION OF PEREGRINE WAY AND WINSLOW DRIVE ELEVATION = 7347.47

AGENCIES

OWNER/DEVELOPER: VILLAGREE DEVELOPMENT LLC
5710 VESSEY RD
COLORADO SPRINGS, CO 80908
GREGG & ELAINE CAMLFIELD (719) 413-6900

CIVIL ENGINEER: JR ENGINEERING, LLC
5475 TECH CENTER DRIVE
COLORADO SPRINGS, CO 80919
RYAN BURNS P.E. (303) 267-6178

COUNTY ENGINEERING: EL PASO COUNTY PLANNING
AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
CHARLENE DURHAM, P.E. (719) 520-7951

TRAFFIC ENGINEERING: EL PASO COUNTY DEPARTMENT OF PUBLIC W
3275 AKERS DRIVE
COLORADO SPRINGS, CO 80922
JOSHUA PALMER, P.E. (719) 520-6460

FIRE DISTRICT:	BLACK FOREST FIRE PROTECTION DISTRICT 11445 TEACHOUT ROAD COLORADO SPRINGS, CO 80908 CHIEF BRYAN JACK (719) 495-4300
GAS DEPARTMENT:	BLACK HILLS ENERGY 7080 ALEGRE STREET FOUNTAIN, CO 80817 (719) 393-6625
ELECTRIC DEPARTMENT:	MOUNTAIN VIEW ELECTRIC 11140 E. WOODMEN ROAD FALCON, CO 80831 (719) 495-2283
COMMUNICATIONS:	U.S. WEST COMMUNICATIONS (LOCATORS) (800) 922-1987

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOIL PANO GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
 - 3.1. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - 3.2. CITY OF COLORADO SPRINGS/ EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
 - 3.3. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS AND BRIDGE CONSTRUCTION
 - 3.4. CDOT M&S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN RELATED OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION WORDS TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSIONS OF THE RELEVANT ADOPTED CITY AND COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ON-SITE AND OFF-SITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCO. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCO PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
10. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
11. SIGHT VISIBILITY TRIANGLES ARE IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED IN SIGHT TRIANGLES.
12. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS AND MUTCD CRITERIA.
13. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
14. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FOR ADJOINING PROPERTY OR PORTION PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

SHEET INDEX

- 1 : COVER SHEET
2 : LEGEND
3 : TYPICAL SECTIONS
4-5 : GRADING & EROSION CONTROL PLAN
6-11 : DETAIL SHEET

TOTAL SHEETS: 11



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

EDARP PROJECT NUMBER: EGP232

EL PASO COUNTY STATEMENT

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 DIRECTORS DISCRETION.

No.	REVISION	BY	DATE
1"=1000'			
H-SCALE			
V-SCALE	N/A		
DATE	11/28/23		
DESIGNED BY	PAL		
DRAWN BY	PAL		
CHECKED BY			

OWNER/DEVELOPER STATEMENT

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

Elaine Cawlfild 12/11/2023
ELAINE CAWLFIELD DATE

VILLAGREE DEVELOPMENT, LLC
5710 VESSEY RD
COLORADO SPRINGS, CO 80908

ENGINEER'S STATEMENT

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

RYAN E. BURNS, P.E.
COLORADO P.E. 0054412
FOR AND ON BEHALF OF



11/29/23

ESTATES AT CATHEDRAL PINES

SHEET 1 OF 11

JOB NO 25260.00

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

PREPARED FOR

VILLAGREE DEVELOPMENT LLC
5710 VESSEY RD
COLORADO SPRINGS, CO 80908
GREGG & ELAINE CRAWFIELD
(719) 413-6900

J·R ENGINEERING
A Westrian Company



Centennial 303-740-9393 • Colorado Springs 719-593-2593
Fort Collins 970-491-9888 • www.jengineering.com

LAYER LINETYPE LEGEND

	EXISTING	PROPOSED
PHASE LINE		
MATCH LINE		
SECTION LINE		
BOUNDARY LINE		
PROPERTY LINE		
EASEMENT LINE		
RIGHT OF WAY		
R.O.W. A LINE		
CENTERLINE		
CITY LIMITS		
WIRE FENCE		
CHAIN LINK FENCE		
WOOD FENCE		
MASONRY FENCE		
GUARDRAIL		
CONC. BARRIER		
CABLE TV		
ELECTRIC		
FIBER OPTIC		
GAS MAIN		
IRRIGATION MAIN		
OIL/PETRO. MAIN		
OVERHEAD UTILITY		
SANITARY SEWER		
STORM DRAIN		
TELEPHONE		
WATER MAIN		
RAW WATER LINE		
SWALE/WATERWAY FLOWLINE		
DIVERSION DITCH		
DIVERSION CHANNEL		
MAJOR DRAINAGE BASIN		
MINOR DRAINAGE BASIN		
TOP OF SLOPE		
TOE OF SLOPE		
EDGE OF WATER		
INDEX CONTOUR		
INTERMEDIATE CONTOUR		
DEPRESSION CONT. (INDEX)		
DEPRESSION CONT. (INTER)		
TOP OF CUTS		
TOE OF FILLS		
CUT AND FILL LINE		
SILT FENCE		
100 YEAR FLOODPLAIN		
500 YEAR FLOODPLAIN		
FLOODWAY		
BASE FLOOD ELEVATION		
EDGE OF WETLANDS		
STONE WALL		

LANDSCAPE LEGEND

	EXISTING	PROPOSED
TREE - CONIFEROUS		
TREE - DECIDUOUS		
SHRUB/BUSH		
SHRUBS AND BUSHES		
IRRIGATION BOX		
IRRIGATION SPRINKLER		
IRRIGATION VALVE		
BOLLARD		
FLAGPOLE		

UTILITIES LEGEND

	EXISTING	PROPOSED
STORM SEWER		
MANHOLE		
STORM INLET		
AREA INLET - SQUARE		
AREA INLET - ROUND		
FLARED END SECTION		
RIPRAP		
SANITARY SEWER		
LINE MARKER		
SERVICE MARKER		
CLEAN-OUT		
MANHOLE W/ DIRECTIONAL FLOW ARROW		
WATER LINE		
LINE MARKER		
SERVICE MARKER		
FIRE HYDRANT		
FIRE CONNECTION		
MANHOLE		
BEND		
BLOW-OFF VALVE		
WELL		
METER		
VALVE		
REDUCER		
THRUST BLOCK		
CROSS		
PLUG W/ THRUST BLOCK		
TEE		
REVERSE ANCHOR		
ANODE		
AIR & VACUUM VALVE ASSEMBLY		
TRANSMISSION BLOW-OFF ASSEMBLY		
GAS LINE		
MARKER		
SERVICE MARKER		
METER		
VALVE		
PLUG		
TEE		
DRY UTILITIES		
CABLE TV MARKER		
CABLE TELEVISION PEDESTAL		
ELECTRIC MARKER		
ELECTRIC SERVICE MARKER		
ELECTRICAL PEDESTAL		
ELECTRICAL METER		
ELECTRICAL MANHOLE		
FIBER-OPTIC MARKER		
IRRIGATION PEDESTAL		
TELEPHONE MARKER		
TELEPHONE PEDESTAL		
TELEPHONE MANHOLE		
UTILITY POLE		
GUY ANCHOR		
GUY POLE		
MISC. UTILITIES		
VENT PIPE		
TEST HOLE DESIGNATOR		

MONUMENTATION LEGEND

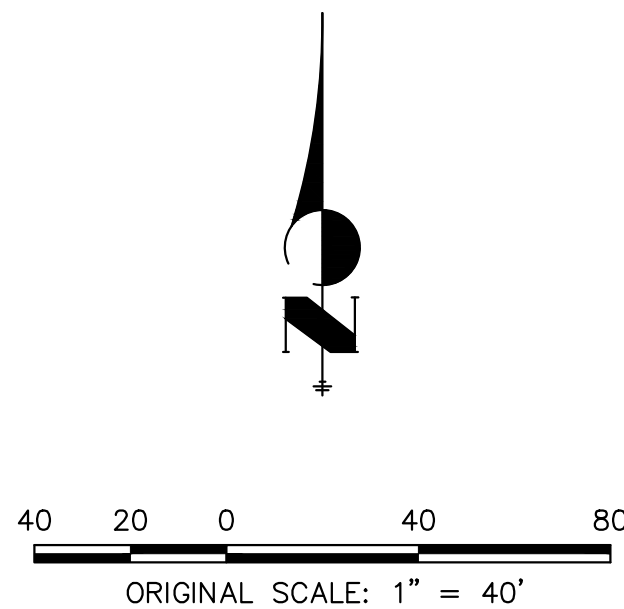
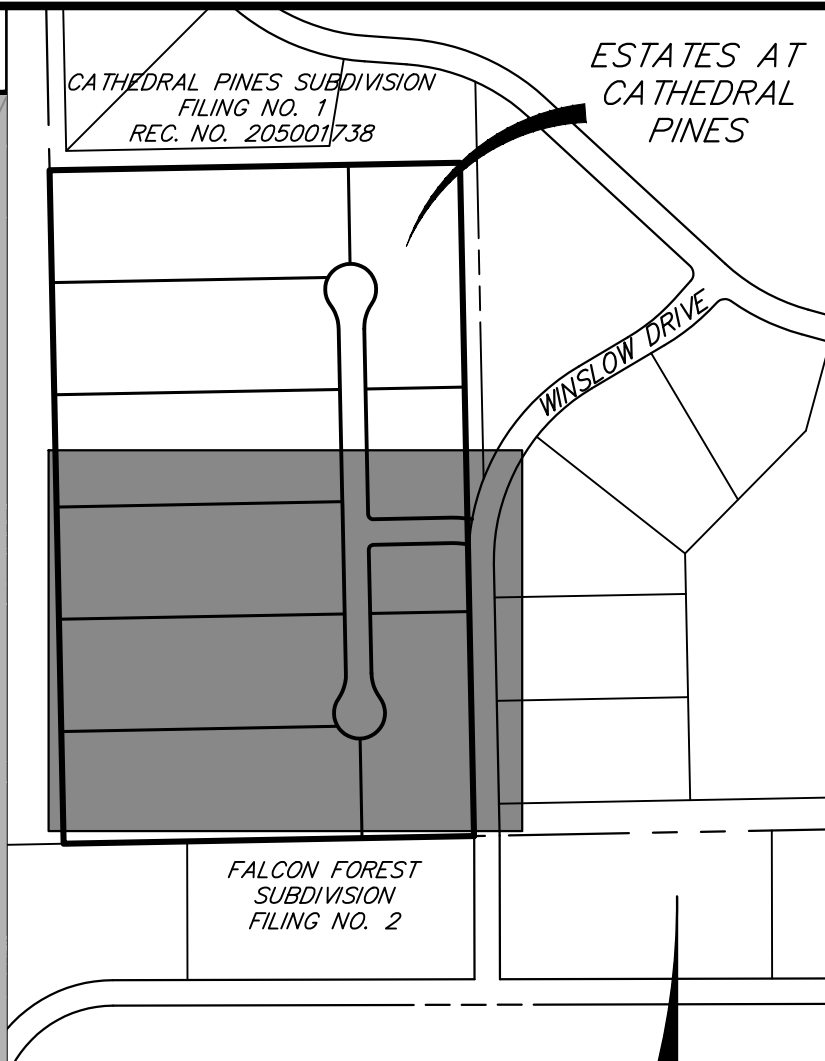
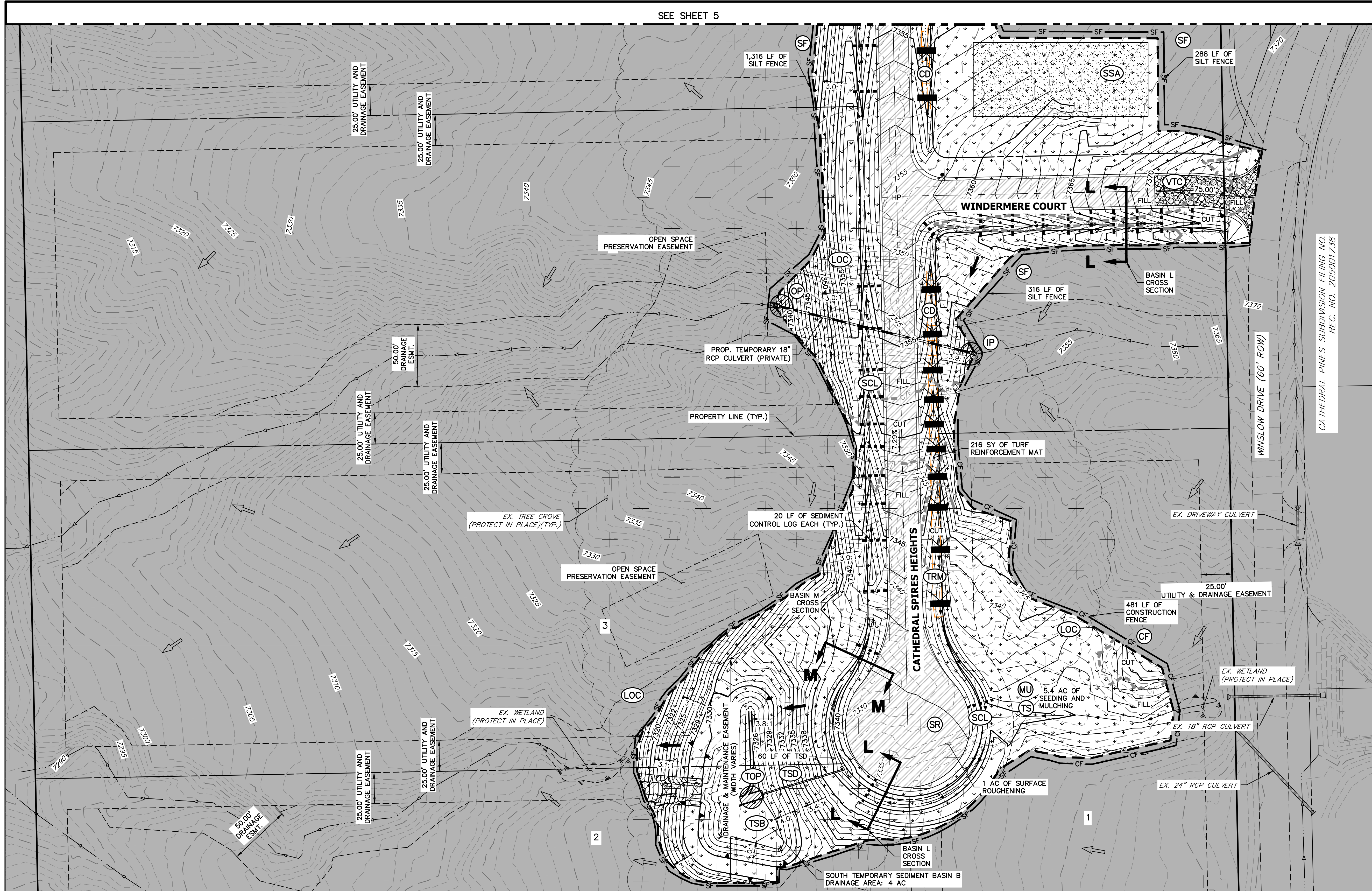
ALUMINUM CAP - FOUND	
BRASS CAP - FOUND	
BENCHMARK - FOUND	
CROSS - FOUND	
MONUMENT - SET	
MONUMENT - FOUND (DEFAULT)	
MONUMENT - FOUND (ALTERNATE 1)	
MONUMENT - FOUND (ALTERNATE 2)	
MONUMENT - FOUND (ALTERNATE 3)	
MONUMENT - FOUND (ALTERNATE 4)	
MONUMENT - FOUND (ALTERNATE 5)	
MONUMENT - FOUND (ALTERNATE 6)	
MONUMENT - FOUND (ALTERNATE 7)	
NAIL & WASHER - FOUND	
PANEL - FOUND	
PK NAIL - FOUND	
ROW MONUMENT - FOUND	
ROW MARKER - FOUND	
SECTION CORNER - FOUND	
SECTION CORNER - SET	
QUARTER-SECTION CORNER - FOUND	
QUARTER-SECTION CORNER - SET	
SECTION CENTER - FOUND	
SECTION CENTER - FOUND	
CONTROL/TRVERSE POINT - SET	

LEGEND

SILT FENCE		PROPOSED FLOW PATH	
CUT/FILL BOUNDARY		EXISTING FLOW PATH	
STABILIZED STAGING AREA		LIMITS OF CONSTRUCTION/DISTURBANCE	
VEHICLE TRACKING CONTROL		TEMPORARY SEEDING AND MULCHING	
SURFACE ROUGHENING		TEMPORARY CHECK DAM	
TEMP. SWALE		OUTLET PROTECTION	
INLET PROTECTION		STOCK PILE	
TEMPORARY SEDIMENT BASIN		TURF REINFORCEMENT MAT	
CONSTRUCTION FENCE		TEMPORARY SLOPE DRAIN	
TEMPORARY OUTLET PROTECTION		SEDIMENT CONTROL LOG	

ABBREVIATIONS

AC	ACRE	INT	INTERSECTION
AD	ALGEBRAIC DIFFERENCE	INV	INVERT
AH	AHEAD	IRR	IRRIGATION
ARCH	ARCHITECT	KB	KICK (THRUST) BLOCK
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	LB	POUND
ASSY	ASSEMBLY	LE	LANDSCAPE EASEMENT
AVE	AVENUE	LF	LINEAR FOOT
BB	BOX BASE	LN	LANE
BK	BACK	LOMR	LETTER OF MAP REVISION
BNDR	BOUNDARY	LP	LOW POINT
BOP	BOTTOM OF PIPE	LS	LUMP SUM
BOV	BLOW OFF VALVE	LT	LEFT
BFV	BUTTERFLY VALVE	MAX	MAXIMUM
BLVD	BOULEVARD	M/D	MOISTURE DENSITY
BW	BOTTOM OF WALL	MDDP	MASTER DEVELOPMENT DRAINAGE PLAN
C&G	CURB & GUTTER	MANHOLE	MANHOLE
CATV	CABLE TELEVISION	MH	MINIMUM
CB	CATCH BASIN	MS	MOUNTABLE SIDEWALK
CBC	CONCRETE BOX CULVERT	N	NORTH
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION	NRCP	NON-REINFORCED CONCRETE PIPE
CDS	CUL-DE-SAC	ODP	OFFICIAL DEVELOPMENT PLAN
CF	CUBIC FOOT	OHE	OVERHEAD ELECTRIC
CFS	CUBIC FEET PER SECOND	OHU	OVERHEAD UTILITY
CIP	COMPLETE IN PLACE	PC	POINT OF CURVATURE
CL	CENTER LINE	PCC	POINT OF COMPOUND CURVATURE
CLOMR	CONDITIONAL LETTER OF MAP REVISION	PCR	POINT OF CURB RETURN
CLR	CLEAR	PDP	PRELIMINARY DEVELOPMENT PLAN
CMP	CORRUGATED METAL PIPE	PE	PROFESSIONAL ENGINEER
CO	CLEAN OUT	PI	POINT OF INTERSECTION
COCs	CITY OF COLORADO SPRINGS CONCRETE	PKWY	PARKWAY
CR	CIRCLE	PL	PROPERTY LINE
CSP	CORRUGATED STEEL PIPE	PR	PROPOSED
CSU	COLORADO SPRINGS UTILITIES COURT	PRC	POINT OF REVERSE CURVATURE
CTRB	CONCRETE THRUST REDUCER BLOCK	PT	POINT OF TANGENCY
CY	CUBIC YARD	PV	PLUG VALVE
DBPS	DRAINAGE BASIN PLANNING STUDY	PVC	POLYVINYL CHLORIDE
DE	DRAINAGE EASEMENT	R	RADIUS
DIA	DIAMETER	RCBC	REINFORCED CONCRETE BOX CULVERT
DIP	DUCTILE IRON PIPE	RCP	REINFORCED CONCRETE PIPE
DR	DRIVE	RD	ROAD
DRC	DESIGN REVIEW COMMITTEE	ROW	RIGHT OF WAY
DU	DWELLING UNITS	RT	RIGHT
DY	DAY	S	SOUTH
E	EAST	STE	STEEL
EA	EACH	SAN	SANITARY SEWER
EGL	ENERGY GRADE LINE	SF	SQUARE FOOT
EL	ELEVATION	ST	STREET
ELEC	ELECTRIC	STA	STATION
EOA	EDGE OF ASPHALT	STM	STORM SEWER
EPC	EL PASO COUNTY	SY	SQUARE YARD
ERCP	ELLIPTICAL RCP	SY-IN	SQUARE YARD INCH
ESMT	EASEMENT	TB	THRUST BLOCK
EST	ESTIMATE	TBC	TOP BACK OF CURB
EX	EXISTING	TBW	TOP BACK OF WALK
FDP	FINAL DEVELOPMENT PLAN	TEL	TELEPHONE
FDR	FINAL DRAINAGE REPORT	TN	TON
FES	FLARED END SECTION	TOA	TOP OF ASPHALT
FF	FINISHED FLOOR ELEVATION	TOB	TOP OF BOX
FG	FINISHED GRADE	TOC	TOP OF CURB OR CONCRETE
FH	FIRE HYDRANT	TOF	TOP OF FOUNDATION
FL	FLOWLINE	TOP	TOP OF PIPE
FIL	FILING	TW	TOP OF WALL
FO	FIBER OPTIC CABLE	TYP	TYPICAL
GB	GRADE BREAK	UDFCD	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
GE	GAS EASEMENT	UE	UTILITY EASEMENT
GIS	GEOGRAPHIC INFORMATION SYSTEM	U&DE	UTILITY & DRAINAGE EASEMENT
GL	GAS LINE	UGE	UNDERGROUND ELECTRIC
GPS	GLOBAL POSITIONING SYSTEM	VCP	VITRIFIED CLAY PIPE
GV	GATE VALVE	VPC	VERTICAL POINT OF CURVATURE
HBP	HOT BITUMINOUS PAVEMENT	VPI	VERTICAL POINT OF INTERSECTION
HC	HANDICAP	VPT	VERTICAL POINT OF TANGENCY
HDC	HIGH DEFLECTION COUPLING	VTC	VEHICLE TRACKING CONTROL
HDPE	HIGH DENSITY POLYETHYLENE	W	WEST
HGL	HYDRAULIC GRADE LINE	WL	WATER LINE
HMA	HOT MIX ASPHALT	WM	WATER MAIN
HOA	HOME OWNERS ASSOCIATION	WRD	WATER RESOURCES DEPARTMENT
HP	HIGH POINT	WS	WATER SURFACE
HR	HOUR	WSE	WATER SURFACE ELEVATION
I	INLET	WTR	WATER
IE	IRRIGATION EASEMENT	YR	YEAR



LEGEND

SILT FENCE	SF	PROPOSED FLOW PATH	→
CUT/FILL BOUNDARY	---	EXISTING FLOW PATH	→
STABILIZED STAGING AREA	SSA	LIMITS OF CONSTRUCTION/ DISTURBANCE	LOC
VEHICLE TRACKING CONTROL	VTC	TEMPORARY SEEDING AND MULCHING	SM
SURFACE ROUGHENING	SR	TEMPORARY CHECK DAM	CD
TEMP. SWALE	TSW	OUTLET PROTECTION	OP
INLET PROTECTION	IP	STOCK PILE	SP
TEMPORARY SEDIMENT BASIN	TSB	TURF REINFORCEMENT MAT	TRM
CONSTRUCTION FENCE	CF	TEMPORARY SLOPE DRAIN	TSD
TEMPORARY OUTLET PROTECTION	TOP	SEDIMENT CONTROL LOG	SCL

BMP PHASING

INITIAL	INTERIM	FINAL
1. INSTALL VTC	1. MAINTAIN ALL BMP'S	1. INSTALL MULCH AND TEMPORARY SEEDING
2. INSTALL SILT FENCE	2. LOCATE/INSTALL TEMPORARY STOCK PILE	2. IN ALL DISTURBED AREA
3. INSTALL SEDIMENT BASINS	3. REMOVE ALL TEMPORARY BMP'S AFTER 70% VEGETATION HAS BEEN ACHIEVED	
	4. INSTALL INLET AND OUTLET PROTECTION	
	5. ESTABLISH SSA	
	6. INSTALL CONSTRUCTION FENCE	
	7. INSTALL SR	
	8. INSTALL TEMPORARY SWALE	
	9. INSTALL CHECK DAMS	

NOTE:
FUTURE ANTICIPATED LOTS AND EASEMENTS SHOWN FOR INFORMATION ONLY.
EARLY GRADING REQUEST IS FOR THE EXISTING 35 ACRE PARCEL.

CONSTRUCTION NOTES:

EXISTING VEGETATION ON THE PROJECT SITE CONSISTS OF SPARSE GRASS AND TREES.

NO WETLANDS ARE TO BE PERMANENTLY DISTURBED PER THIS GRADING PLAN.

THERE ARE NO DEDICATED ASPHALT OR CONCRETE BATCH PLANTS PROPOSED AS PART OF THIS PROJECT.

DEWATERING OPERATIONS ARE NOT ANTICIPATED FOR THIS PROJECT.

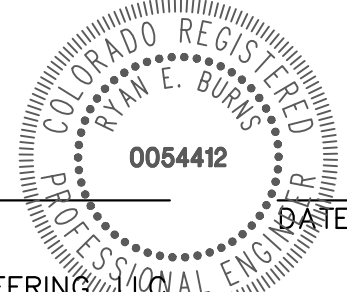
NO EARLY GRADING IS TO OCCUR WITHIN THE 100 YEAR FLOODPLAIN.

ALL TEMPORARY RIPRAP SHOWN ON THE PLANS SHALL BE TYPE 'M'. RIPRAP SHALL BE PLACED IN THE LOCATIONS INDICATED BY THE PLAN OR IN AREAS AS THE CONTRACTOR SEES FIT TO CONTROL EROSION. ALL RIPRAP SHALL BE PLACED AT A MINIMUM THICKNESS OF 2.0' DEEP.

ENGINEER'S STATEMENT

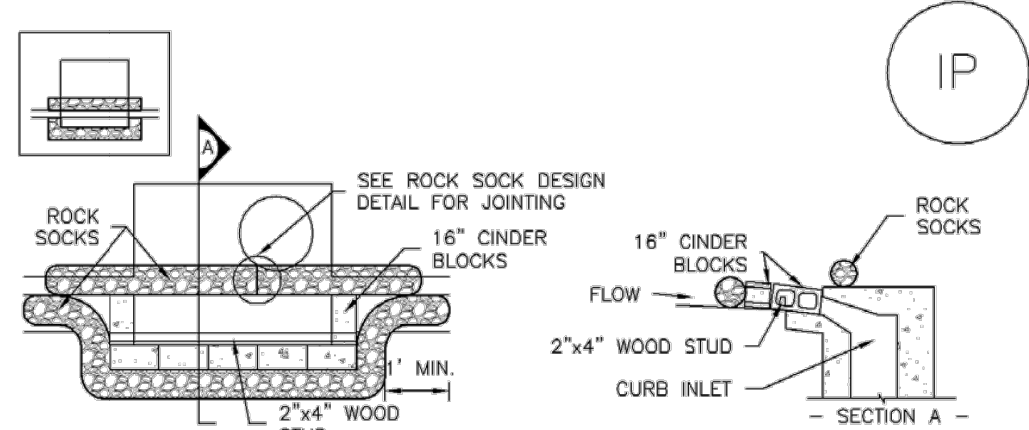
THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY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

RYAN E. BURNS, P.E.
COLORADO P.E. 0054412
FOR AND ON BEHALF OF JR ENGINEERING



ESTATES AT CATHEDRAL PINES	PREPARED FOR		VILLAGREE DEVELOPMENT LLC 5710 VESSEY RD COLORADO SPRINGS, CO 80908 GREGG & ELAINE CAWFIELD (719) 413-6900	
	BY		DATE	
	REVISION		DATE	
	H-SCALE		V-SCALE	
GRADING & EROSION CONTROL PLAN	DESIGNED BY		PAL	
	DRAWN BY		PAL	
	CHECKED BY		PAL	
	SHEET 4 OF 11		JOB NO. 25260.00	

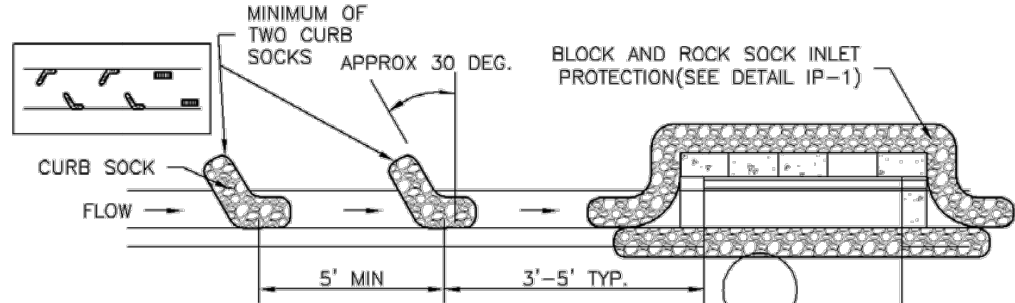
SC-6 Inlet Protection (IP)



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

BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES

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



IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES

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

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SC-6 Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
-LOCATION OF INLET PROTECTION.
-TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

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

INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY, A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/2 OF THE HEIGHT FOR STRAW BALES.

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

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

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

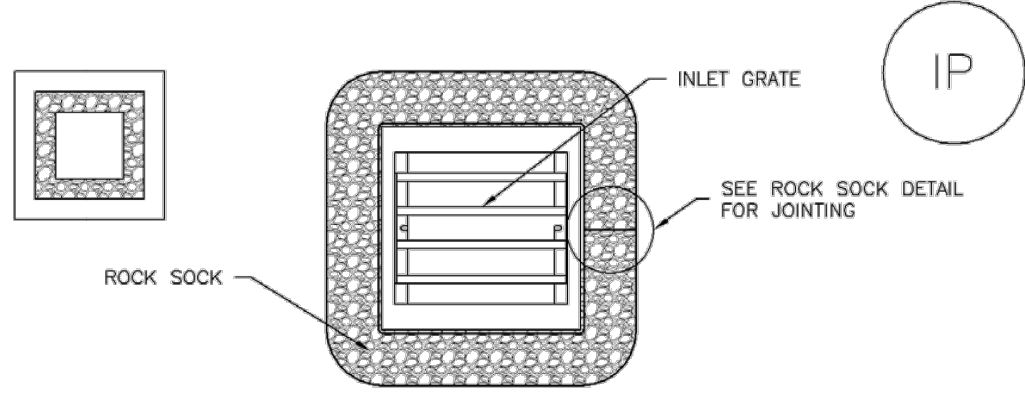
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

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

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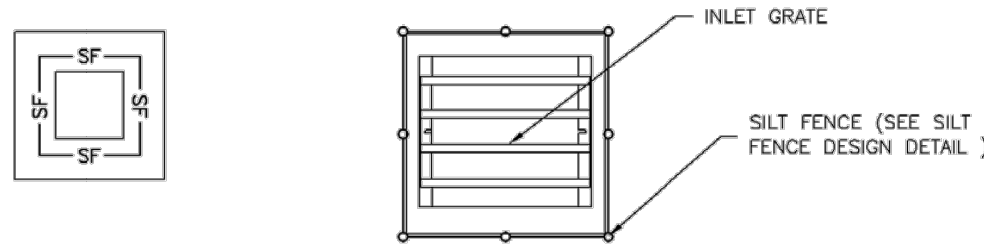
Inlet Protection (IP) SC-6



IP-3. ROCK SOCK SUMP/AREA INLET PROTECTION

ROCK SOCK SUMP/AREA INLET PROTECTION INSTALLATION NOTES

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



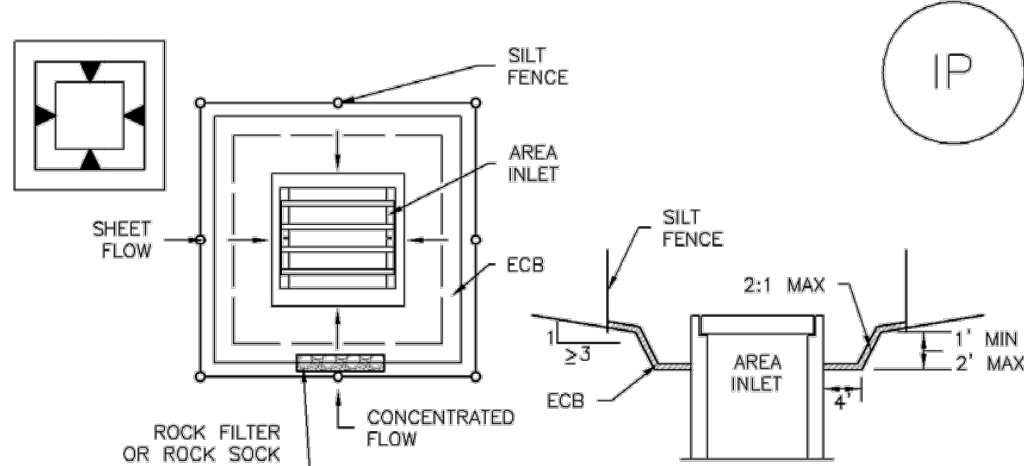
IP-4. SILT FENCE FOR SUMP INLET PROTECTION

SILT FENCE INLET PROTECTION INSTALLATION NOTES

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

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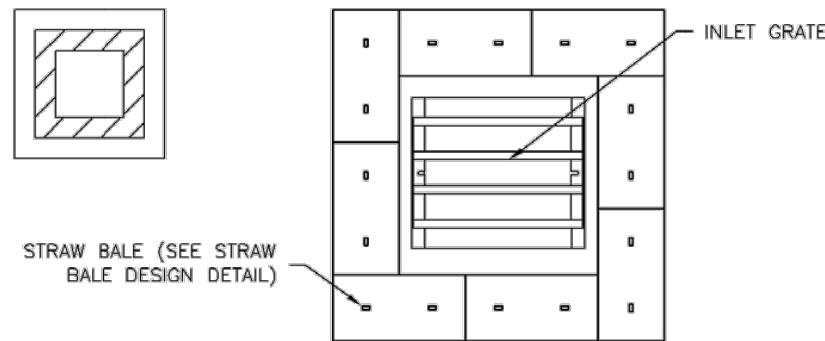
SC-6 Inlet Protection (IP)



IP-5. OVEREXCAVATION INLET PROTECTION

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

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



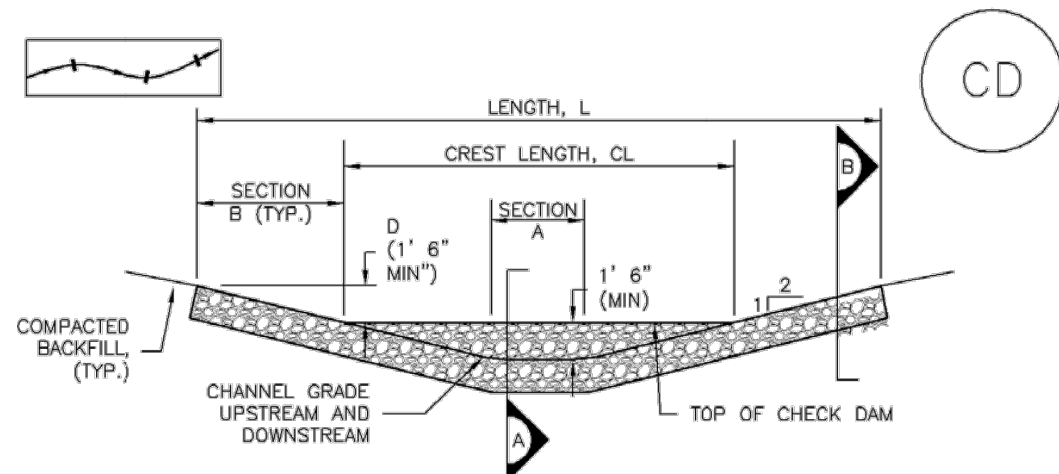
IP-6. STRAW BALE FOR SUMP INLET PROTECTION

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

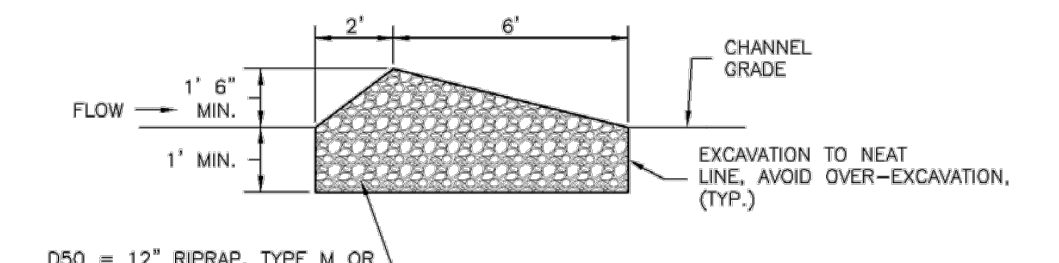
1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES TIGHTLY ABUTTING ONE ANOTHER.

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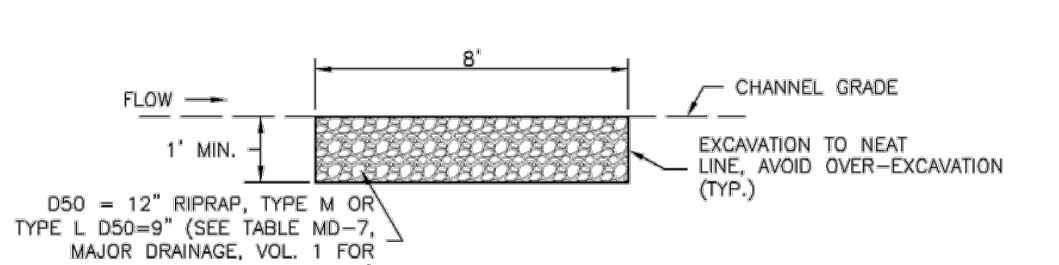
Check Dams (CD) EC-12



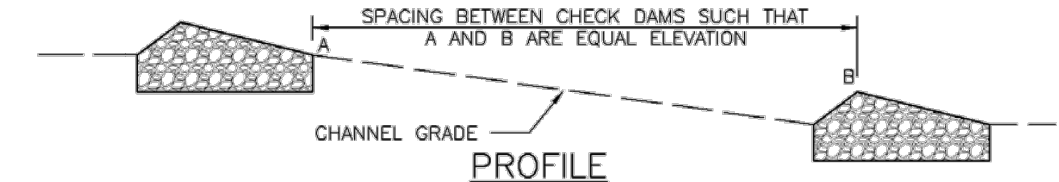
CHECK DAM ELEVATION VIEW



SECTION A



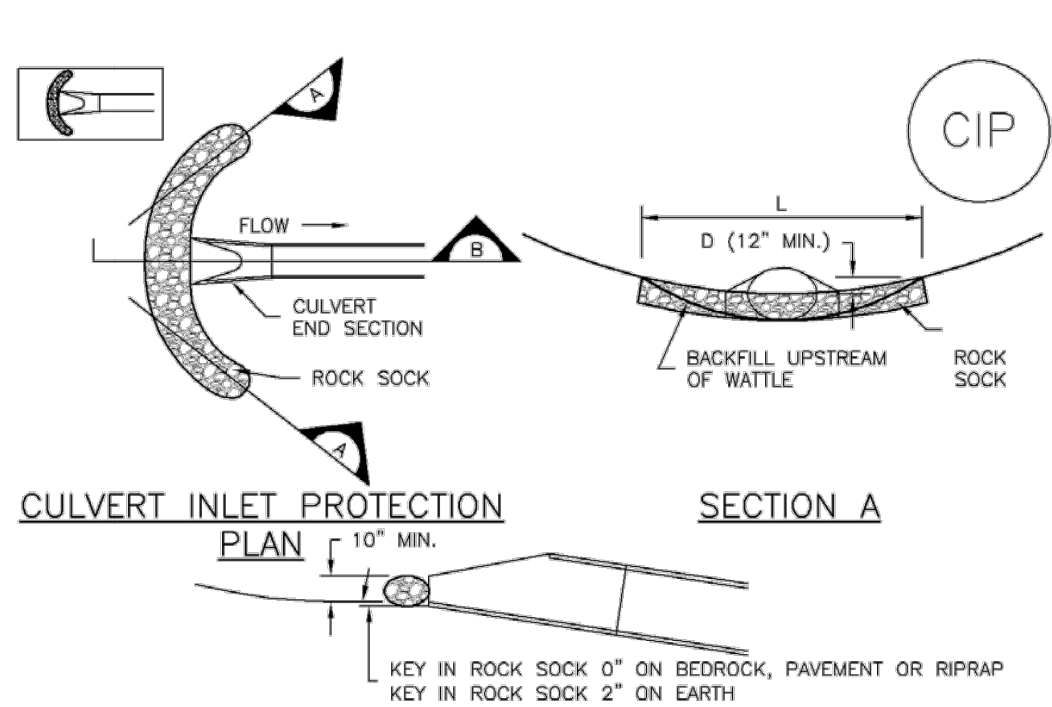
SECTION B



CD-1. CHECK DAM

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Inlet Protection (IP) SC-6



CIP-1. CULVERT INLET PROTECTION

CULVERT INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
-LOCATION OF CULVERT INLET PROTECTION.
2. SEE ROCK SOCK DESIGN DETAIL FOR ROCK GRADATION REQUIREMENTS AND JOINTING DETAIL.

CULVERT INLET PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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

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

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EC-12 Check Dams (CD)

CHECK DAM INSTALLATION NOTES

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

CHECK DAM MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
5. CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
6. WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

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

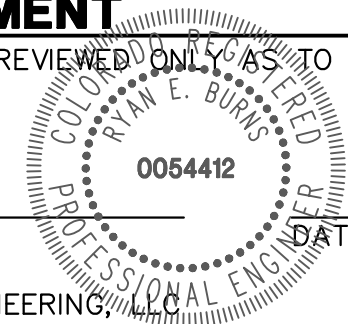
CD-4 Urban Drainage and Flood Control District November 2010
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ENGINEER'S STATEMENT

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

[Signature]

RYAN E. BURNS, P.E.
COLORADO P.E. 0054412
FOR AND ON BEHALF OF JR ENGINEERING



11/29/23

DATE	BY	REVISION	No.	N/A	N/A	H-SCALE	V-SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
								11/28/23	PAL	PAL	
ESTATES AT CATHEDRAL PINES DETAIL SHEET											
SHEET 7 OF 11											
JOB NO. 25260.00											

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

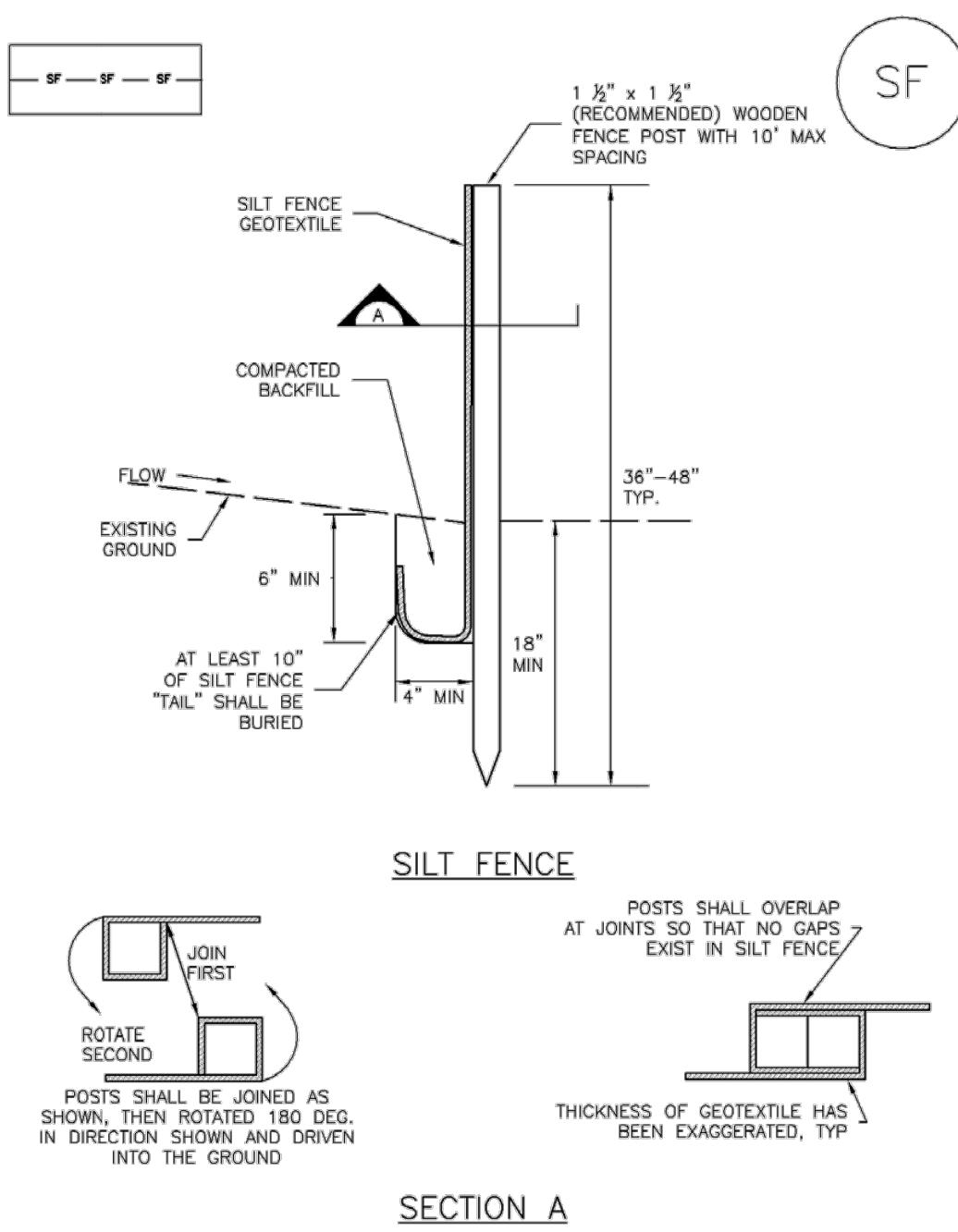
VILLAGREE DEVELOPMENT LLC
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J.R. ENGINEERING
A Westman Company
Central 303-740-9888 • Colorado Springs 719-583-2583
Fort Collins 970-491-9888 • www.jrengineering.com



Silt Fence (SF)

SC-1



SF-1. SILT FENCE

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SC-1

Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

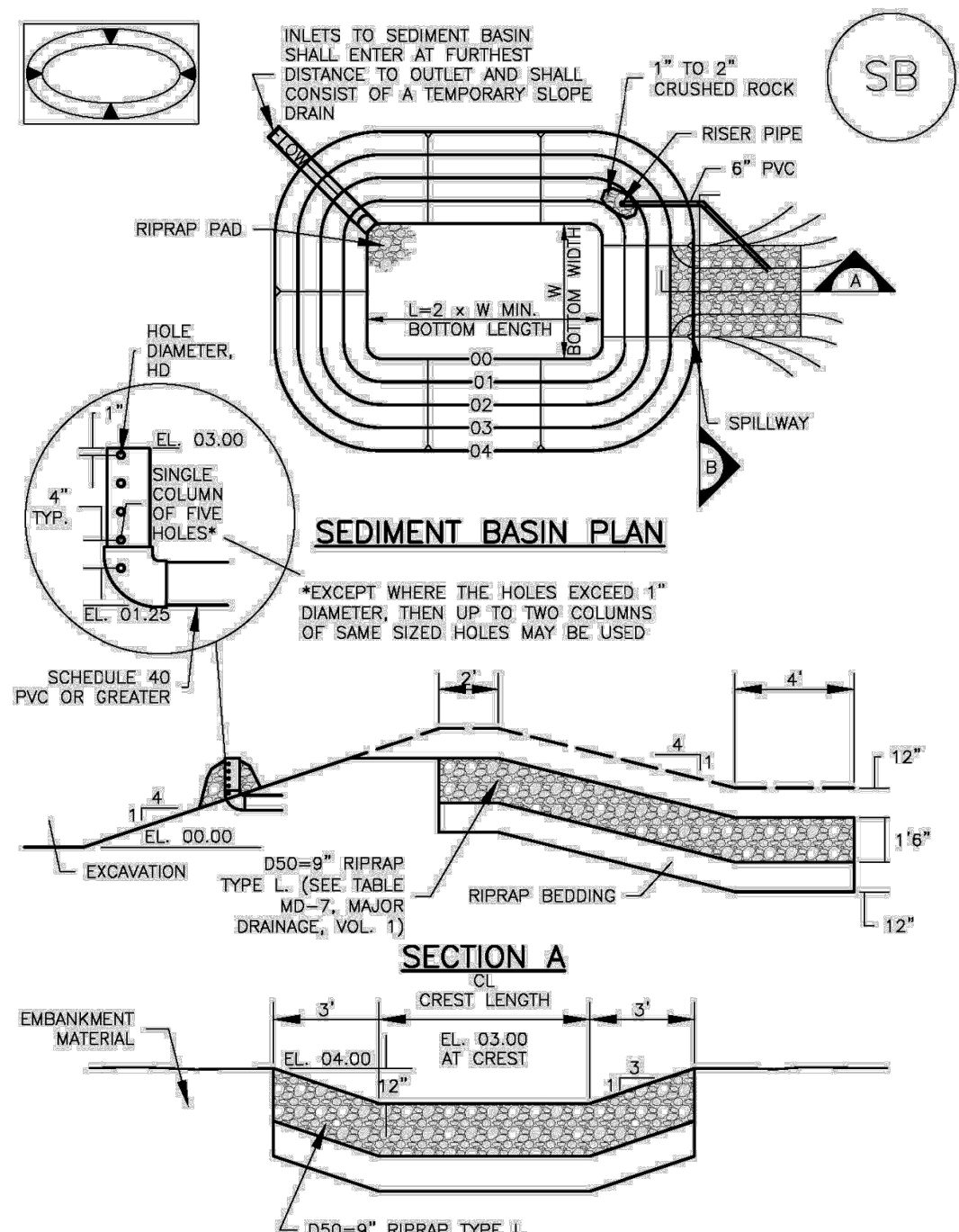
SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
 6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
 7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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Sediment Basin (SB)

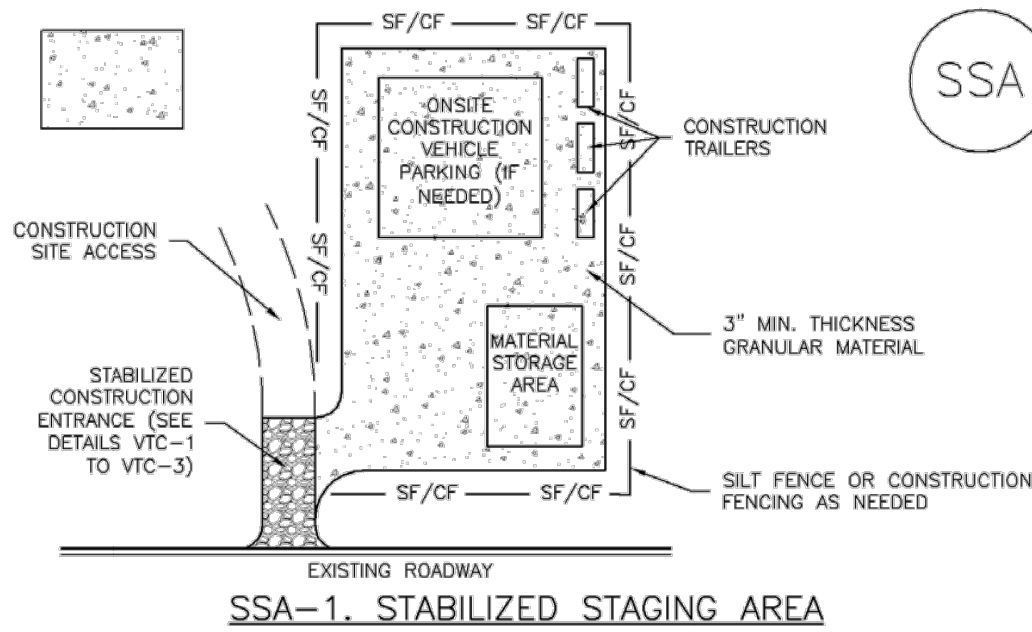
SC-7



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Stabilized Staging Area (SSA)

SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

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

STABILIZED STAGING AREA MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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SC-7

Sediment Basin (SB)

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN			
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	3/2
2	21	3	1 1/4
3	28	6	1 1/2
4	33 1/2	6	1 5/8
5	38 1/2	6	1 3/4
6	43	9	2 1/2
7	47 1/4	11	2 1/2
8	51	12	2 1/2
9	55	13	2 1/2
10	58 1/4	15	1 5/8
11	61	18	2 1/2
12	64	18	1
13	67 1/2	19	1 1/4
14	70 1/2	21	1 1/2
15	73 1/4	22	1 5/8

SEDIMENT BASIN INSTALLATION NOTES

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

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SM-6

Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
 6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

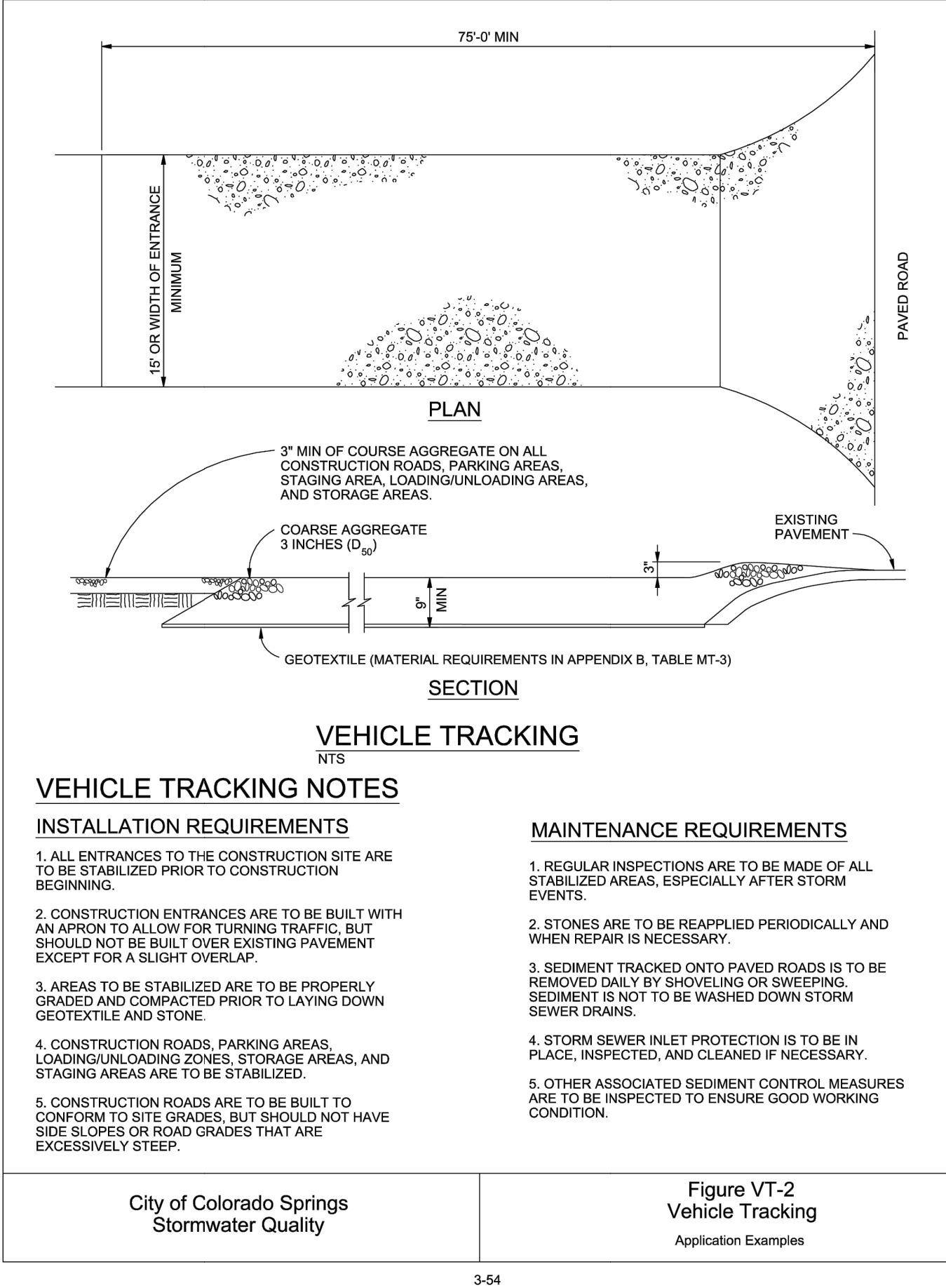
Sediment Basin (SB)

SC-7

SEDIMENT BASIN MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS. TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
 5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
 6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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VEHICLE TRACKING NOTES

INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
2. 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.
3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS

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

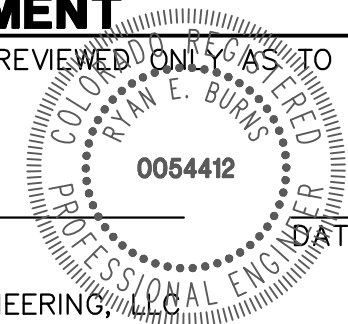
City of Colorado Springs Stormwater Quality Figure VT-2 Vehicle Tracking Application Examples

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ENGINEER'S STATEMENT

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

RYAN E. BURNS, P.E.
COLORADO P.E. 0054412
FOR AND ON BEHALF OF JR ENGINEERING



No.	REVISION	BY	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
N/A	N/A	N/A	11/28/23	PAL	PAL	
ESTATES AT CATHEDRAL PINES						
DETAIL SHEET						
SHEET 8 OF 11				JOB NO. 25260.00		

Surface Roughening (SR)

EC-1

Description

Surface roughening is an erosion control practice that involves tracking, scarifying, imprinting, or tilling a disturbed area to provide temporary stabilization of disturbed areas. Surface roughening creates variations in the soil surface that help to minimize wind and water erosion. Depending on the technique used, surface roughening may also help establish conditions favorable to establishment of vegetation.

Appropriate Uses

Surface roughening can be used to provide temporary stabilization of disturbed areas, such as when revegetation cannot be immediately established due to seasonal planting limitations. Surface roughening is not a stand-alone BMP, and should be used in conjunction with other erosion and sediment controls.

Surface roughening is often implemented in conjunction with grading and is typically performed using heavy construction equipment to track the surface. Be aware that tracking with heavy equipment will also compact soils, which is not desirable in areas that will be revegetated. Scarifying, tilling, or ripping are better surface roughening techniques in locations where revegetation is planned. Roughening is not effective in very sandy soils and cannot be effectively performed in rocky soil.

Design and Installation

Typical design details for surfacing roughening on steep and mild slopes are provided in Details SR-1 and SR-2, respectively.

Surface roughening should be performed either after final grading or to temporarily stabilize an area during active construction that may be inactive for a short time period. Surface roughening should create depressions 2 to 6 inches deep and approximately 6 inches apart. The surface of exposed soil can be roughened by a number of techniques and equipment. Horizontal grooves (running parallel to the contours of the land) can be made using tracks from equipment treads, stair-step grading, ripping, or tilling.

Fill slopes can be constructed with a roughened surface. Cut slopes that have been smooth graded can be roughened as a subsequent operation. Roughening should follow along the contours of the slope. The tracks left by track mounted equipment working perpendicular to the contour can leave acceptable horizontal depressions; however, the equipment will also compact the soil.

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Urban Storm Drainage Criteria Manual Volume 3

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SR-1

SR-2

SR-1. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-2. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

Surface Roughening (SR)

EC-1

SR

SR-1. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-2. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

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SR-3

SR-4

SR-4

SR-5

SR-4

SR-5

SR-4. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-5. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

Surface Roughening (SR)

EC-1

SR

SR-1. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-2. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

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SR-5

SR-4. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-5. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

Surface Roughening (SR)

EC-1

SR

SR-1. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-2. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

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SR-5

SR-4. SURFACE ROUGHENING
FOR STEEP SLOPES (3:1 OR STEEPER)

SR-5. SURFACE ROUGHENING
FOR LOW SLOPES (LESS THAN 3:1)

TECHNICAL BULLETIN

TECHNICAL BULLETIN

VMax® TRMs

ROLLMAX™
ROLLED EROSION CONTROL

A Permanent Turf Reinforcement Mat Solution for Every Design

The VMax system of permanent TRMs are ideal for high-flow channels, streambanks, shorelines, and other areas needing permanent vegetation reinforcement and protection from water and wind. Our VMax TRMs combine a three-dimensional matting and a fiber matrix material for all-out erosion protection, vegetation establishment and reinforcement. The VMax TRMs are available with various performance capabilities and support reinforced vegetative lining development from germination to maturity.

VMax® Unique Three-Dimensional Design

North American Green VMax TRMs are each designed to maximize performance through all development phases of a reinforced vegetative lining. The corrugated matting structure lends a true reinforcement zone for vegetation entanglement, especially compared to flat net mats. The unique design of the corrugated matting also helps to create a shear plane that deflects flowing water away from the soil surface. And the incorporation of a fiber matrix supplements the 3-D structure by creating a ground cover that blocks soil movement and aids in vegetation establishment.

Four VMax Turf Reinforcement Mats Designed for Every Level of Performance

Matrix Fiber	100% Straw	70% Straw / 30% Coconut	100% Coconut	100% Polypropylene
Netting Types	Top and Bottom light-weight UV-stabilized PP, Crimped PP center net	Top and Bottom UV-stabilized PP, Crimped PP center net	Top and Bottom heavy-weight UV-stabilized PP, Crimped PP center net	Top and Bottom ultra heavy-weight UV-stabilized PP, Crimped PP center net
Typical Slope Applications (H:V)	1:1 and greater	1:1 and greater	1:1 and greater	1:1 and greater
Channel Shear Stress Threshold	Unvegetated: 2.3 psf Vegetated: 10.0 psf	Unvegetated: 3.0 psf Vegetated: 10.0 psf	Unvegetated: 3.2 psf Vegetated: 12.0 psf	Unvegetated: 4.0 psf Vegetated: 14.0 psf
Channel Velocity Threshold	Unvegetated: 8.5 fps Vegetated: 18 fps	Unvegetated: 9.5 fps Vegetated: 15 fps	Unvegetated: 10.5 fps Vegetated: 20 fps	Unvegetated: 12.5 fps Vegetated: 25 fps

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VMax® TRMs cont.

Selecting the Right VMax TRM

Choosing the right VMax TRM can be made easy by utilizing our Erosion Control Materials Design Software (www.ecmds.com), which allows users to input project specific parameters for channels, slopes, spillways, and more and ensures proper evaluation, design, and product selection in return. Our four VMax TRMs offer varying performance values, fiber matrix longevities, and price points, to help you meet your project specific goals.

Twist Pin + VMax TRM - an Ideal Installation

Utilizing the VMax TRMs in conjunction with Twist Pin fastener technology can result in an installed system that pushes TRM performance with increased factors of safety. The combined system has been shown to have superior pullout strength performance up to 200 lbs when compared to installation with traditional wire staples and pins. This is up to 10x the pullout resistance of wire staples and pins. Additionally, the use of the twist pins provides intimate contact between the TRM and the soil, and have been shown to be effective in a wide range of soil types. With a quick and easy installation using an electric drill and custom chuck, the TRM+Twist Pin system can eliminate time and labor costs from day 1 through project release.

VMax turf reinforcement mat being installed on a channel application (top right), twist pins installed with TRMs can have increased system performance and pullout resistance (middle right), twist pins are available in 8" and 12" lengths and two coil configurations designed for hard or soft soil types (lower right).

Comparison of common TRM fasteners based on pullout performance and typical application (below).

Fastener	Pullout Resistance (lb)	Comment
6" Round Top Pin	14	Best for hardened soils where other fasteners are damaged during installation.
6" Regular U-staple	42	Standard fastener that develops additional pullout as legs may deflect and add friction during installation.
12" Pin with Washer	35	Standard fastener good for soils where staples can be bent frequently and are too difficult to install.
18" Pin with Washer	27	Standard fastener good for soils where staples are frequently bent and 12" straight pins fail to provide sufficient pullout because surface soil is wet or loose.
Twist Pin	170	Upgraded fastener that provides high pullout and ideal for loose or soft soils.

ESTATES AT CATHEDRAL PINES

DETAIL SHEET

ENGINEER'S STATEMENT

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

RYAN E. BURNS, P.E.

COLORADO P.E. 0054412

FOR AND ON BEHALF OF JR ENGINEERING

0054412

11/29/23

SHEET 9 OF 11

JOB NO. 25260.00

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

PREPARED FOR
VILLAGREE DEVELOPMENT LLC
5710 VESSEY RD
COLORADO SPRINGS, CO 80908
GREGG & ELAINE CAWLFIELD
(719) 413-6900

J.R. ENGINEERING
A Westman Company

Central 303-740-9383 • Colorado Springs 719-583-2583
Fort Collins 970-491-9888 • www.jrengineering.com

BY

DATE

REVISION

No.

N/A

N/A

11/28/23

DESIGNED BY

PAL

DRAWN BY

PAL

CHECKED BY

ESTATES AT CATHEDRAL PINES

DETAIL SHEET

ENGINEER'S STATEMENT

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RYAN E. BURNS, P.E.

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0054412

11/29/23

SHEET 9 OF 11

JOB NO. 25260.00

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Sediment Control Log (SCL)

SC-2

Description

A sediment control log is a linear roll made of natural materials such as straw, coconut fiber, or compost. The most common type of sediment control log has straw filling and is often referred to as a "straw wattle." All sediment control logs are used as a sediment barrier to intercept sheet flow runoff from disturbed areas.



Appropriate Uses

Sediment control logs can be used in the following applications to trap sediment:

- As perimeter control for stockpiles and the site.
- As part of inlet protection designs.
- As check dams in small drainage ditches. (Sediment control logs are not intended for use in channels with high flow velocities.)
- On disturbed slopes to shorten flow lengths (as an erosion control).
- As part of multi-layered perimeter control along a receiving water such as a stream, pond or wetland.

Sediment control logs work well in combination with other layers of erosion and sediment controls.

Design and Installation

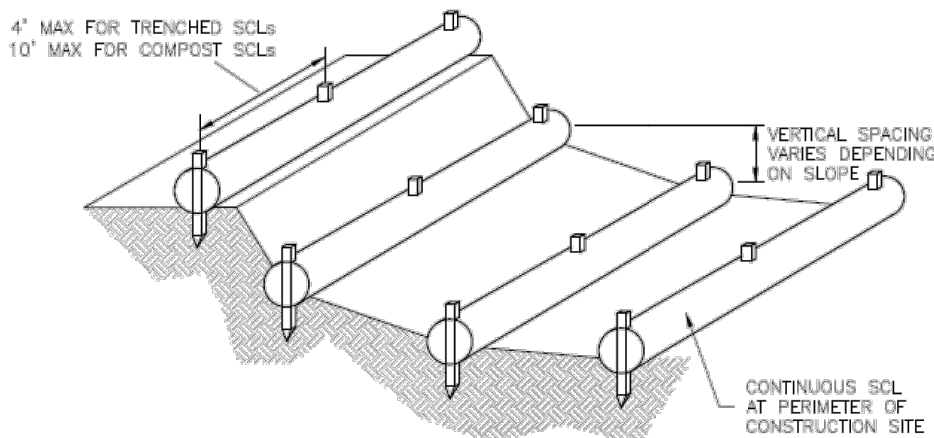
Sediment control logs should be installed along the contour to avoid concentrating flows. The maximum allowable tributary drainage area per 100 linear feet of sediment control log, installed along the contour, is approximately 0.25 acres with a disturbed slope length of up to 150 feet and a tributary slope gradient no steeper than 3:1. Longer and steeper slopes require additional measures. This recommendation only applies to sediment control logs installed along the contour. When installed for other uses, such as perimeter control, it should be installed in a way that will not produce concentrated flows. For example, a "J-hook" installation may be appropriate to force runoff to pond and evaporate or infiltrate in multiple areas rather than concentrate and cause erosive conditions parallel to the BMP.

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

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Sediment Control Log (SCL)

SC-2



SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

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SC-2

Sediment Control Log (SCL)

Although sediment control logs initially allow runoff to flow through the BMP, they can quickly become a barrier and should be installed as if they are impermeable.

Design details and notes for sediment control logs are provided in the following details. Sediment logs must be properly installed per the detail to prevent undercutting, bypassing and displacement. When installed on slopes, sediment control logs should be installed along the contours (i.e., perpendicular to flow).

Improper installation can lead to poor performance. Be sure that sediment control logs are properly trenched (if lighter than 8 lb/foot), anchored and tightly jointed.

Maintenance and Removal

Be aware that sediment control logs will eventually degrade. Remove accumulated sediment before the depth is one-half the height of the sediment log and repair damage to the sediment log, typically by replacing the damaged section.

Once the upstream area is stabilized, remove and properly dispose of the logs. Areas disturbed beneath the logs may need to be seeded and mulched. Sediment control logs that are biodegradable may occasionally be left in place (e.g., when logs are used in conjunction with erosion control blankets as permanent slope breaks). However, removal of sediment control logs after final stabilization is typically appropriate when used in perimeter control, inlet protection and check dam applications. Compost from compost sediment control logs may be spread over the area and seeded as long as this does not cover newly established vegetation.

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SC-2

Sediment Control Log (SCL)

SEDIMENT CONTROL LOG INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
- SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPSLOPE LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
- IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 8 LB/FT DO NOT NEED TO BE TRENCHED.
- THE UPSHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER OR BLOWN IN PLACE.
- FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

SEDIMENT CONTROL LOG 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 SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION.COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BAGS ARE REMOVED AND THE AREA SEEDED. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

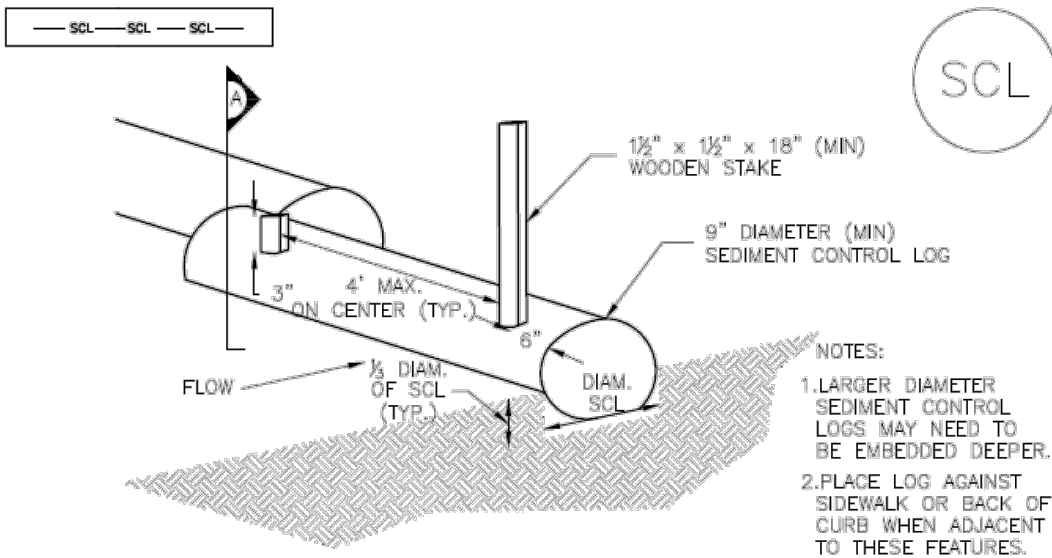
(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, JEFFERSON COUNTY, COLORADO, DOUGLAS COUNTY, COLORADO, AND CITY OF AURORA, COLORADO; NOT AVAILABLE IN AUTOCAD)

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

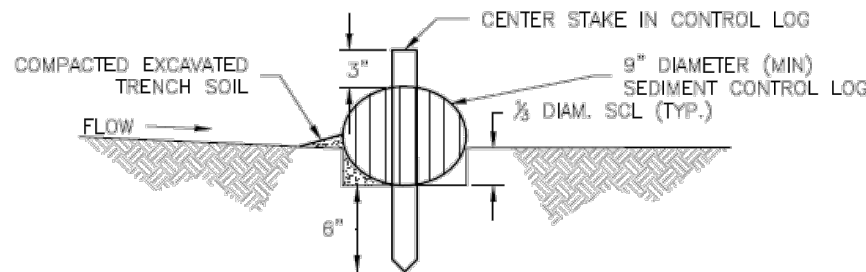
SCL-6	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	November 2015
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Sediment Control Log (SCL)

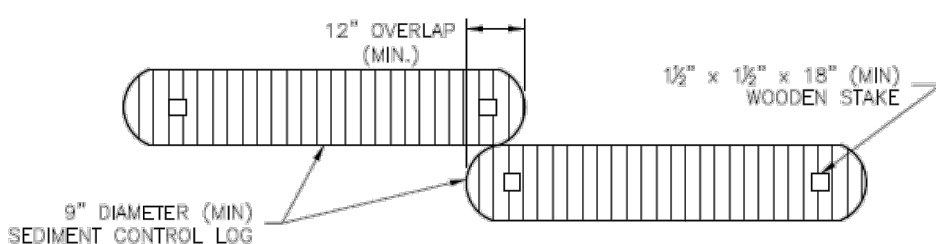
SC-2



TRENCHED SEDIMENT CONTROL LOG



SECTION A
TRENCHED SEDIMENT CONTROL LOG



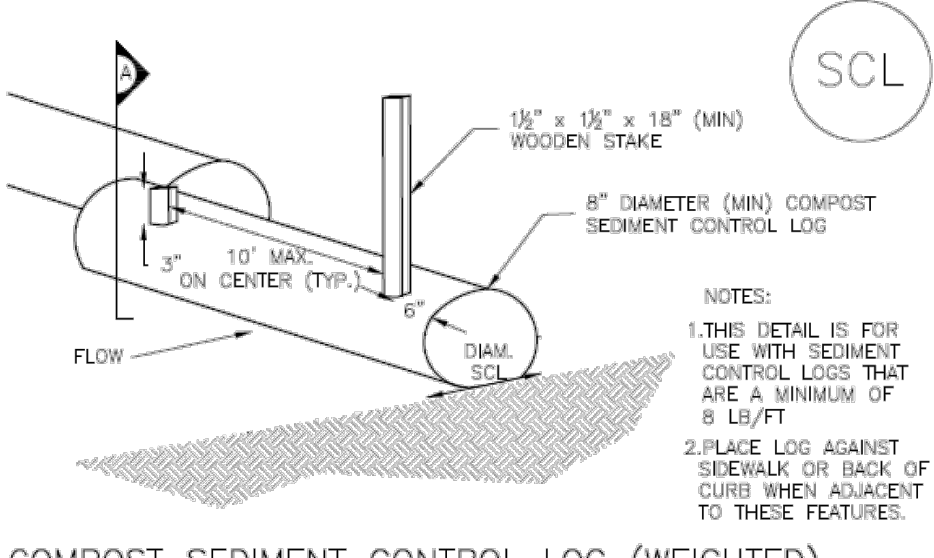
LOG JOINTS

SCL-1. TRENCHED SEDIMENT CONTROL LOG

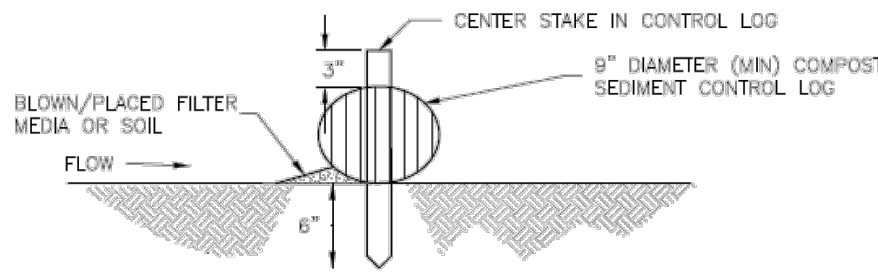
November 2015	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	SCL-3
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SC-2

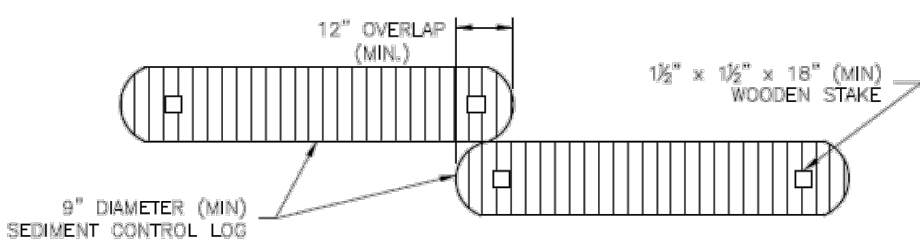
Sediment Control Log (SCL)



COMPOST SEDIMENT CONTROL LOG (WEIGHTED)



SECTION A
COMPOST SEDIMENT CONTROL LOG



LOG JOINTS

SCL-2. COMPOST SEDIMENT CONTROL LOG (WEIGHTED)

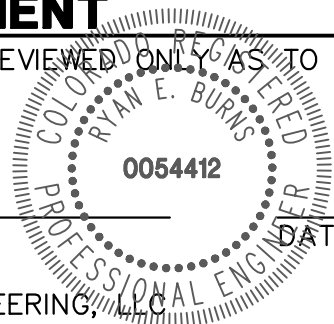
SCL-4	Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3	November 2015
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ENGINEER'S STATEMENT

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

RYAN E. BURNS, P.E.
COLORADO P.E. 0054412

FOR AND ON BEHALF OF JR ENGINEERING



11/29/23

ESTATES AT CATHEDRAL PINES

DETAIL SHEET

SHEET 11 OF 11

JOB NO. 25260.00