

GRADING, EROSION, AND SEDIMENT CONTROL PLANS FOR

BLACK FOREST OFFICE

N1/2 NE1/4 SE1/4 SE1/4 OF SECTION 07, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF
THE 6TH P.M., EL PASO COUNTY, COLORADO

PROJECT TEAM

OWNER

BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, CO 80908

LANDSCAPE ARCHITECT

PWN ARCHITECTS & PLANNERS
4949 S SYRACUSE ST #320
DENVER, CO 80237
303.649.9880

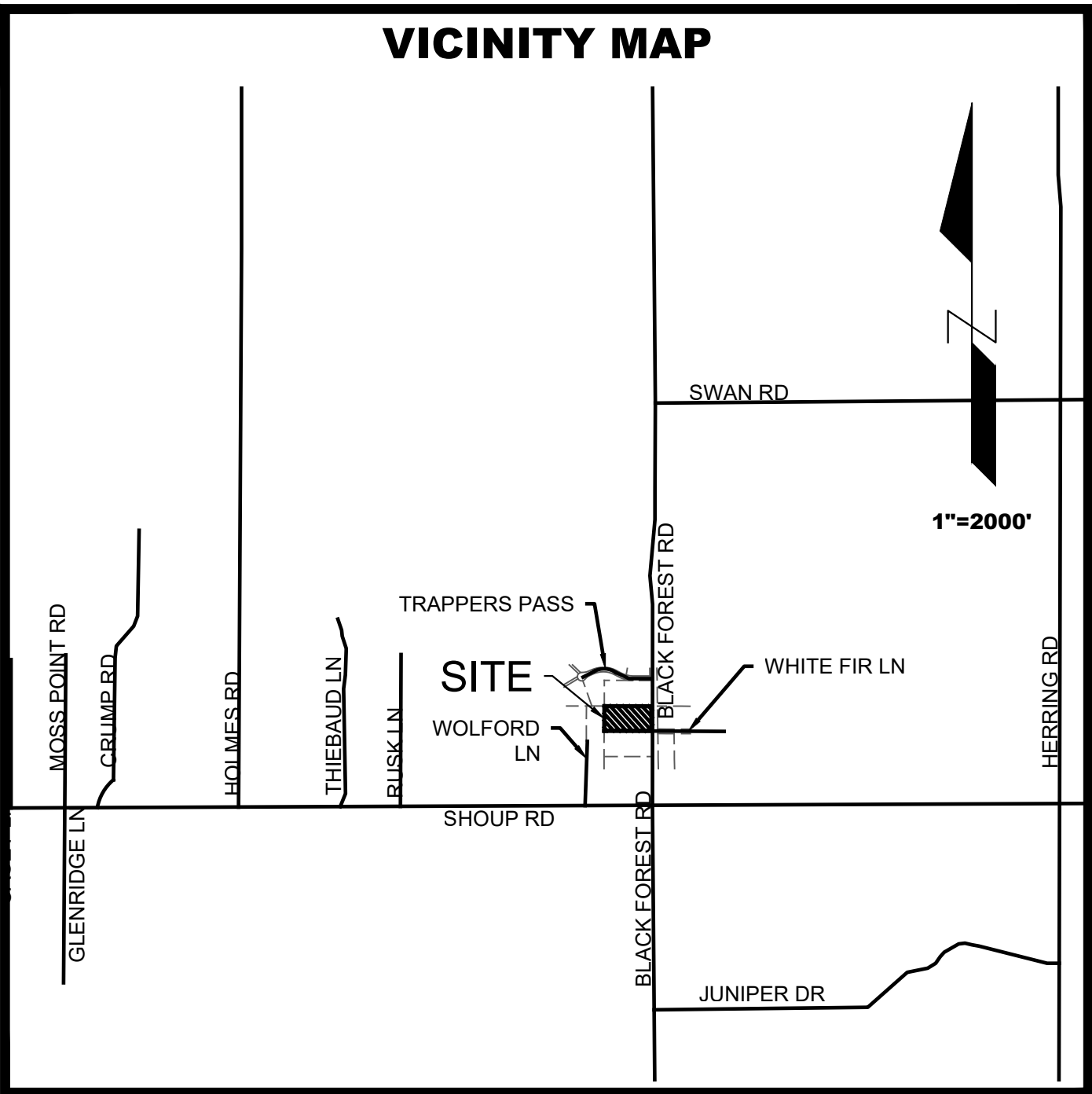
SWMP ADMINISTRATOR

PH: _____

CIVIL ENGINEER

2N CIVIL, LLC
6 INVERNESS COURT EAST, SUITE 125
ENGLEWOOD, CO 80112
MR. TODD WEST
303.925.0544

VICINITY MAP



SHEET INDEX

1	COVER SHEET
2	ESCD - INITIAL PHASE
3	ESCD - INTERIM PHASE
4	ESCD - FINAL PHASE
5-7	EROSION CONTROL DETAILS

FLOODPLAIN STATEMENT:

BASED ON THE FEMA MAP NO. 08041C0315G WITH AN EFFECTIVE DATE OF 12/07/18 (INCLUDED IN THE APPENDIX) THE SITE IS LOCATED WITHIN ZONE X, AREAS OF MINIMAL FLOOD HAZARD. NO PORTION OF THE SITE IS LOCATED WITHIN THE 100 YEAR FLOODPLAIN.

BMP	PROJECT STAGE		
	INITIAL At outset of construction, prior to any land disturbance activities	INTERIM During clearing and grubbing, earthwork operations	FINAL During last steps of construction process for long-term stabilization
Silt Fence		MAINTAINED	TO BE REMOVED
Vehicle Tracking Control		MAINTAINED	TO BE REMOVED
Concrete Washout Area		MAINTAINED	TO BE REMOVED
Stabilized Staging Area		MAINTAINED	TO BE REMOVED
Sediment Control Log			TO BE REMOVED
Inlet Protect			TO BE REMOVED
Culvert Inlet Protection		MAINTAINED	TO BE REMOVED
Sediment Basin		MAINTAINED	TO BE REMOVED
Diversion Ditch		MAINTAINED	TO BE REMOVED
Erosion Control Blanket			TO REMAIN
Seeding and Mulching			TO REMAIN
Permanent Landscaping			

EROSION CONTROL PHASING NOTES:

- INITIAL STAGE BMPs SHALL BE INSTALLED AT THE OUTSET OF CONSTRUCTION, PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES. INITIAL CONTROLS ARE TO BE PLACED ON EXISTING GRADES.
- CONTRACTOR TO ESTABLISH PERIMETER CONTROLS (IP, SF), VTC AND SSA PRIOR TO COMMENCING CONSTRUCTION.
- INTERIM STAGE BMPs SHALL BE BASED ON PROPOSED GRADES AND DRAINAGE FEATURES AND ARE INSTALLED AFTER INITIAL SITE CONSTRUCTION. FOR SOME BMPs SUCH AS INLET PROTECTION, INTERIM CONTROLS ARE INSTALLED AFTER THE CONSTRUCTION OF SITE INFRASTRUCTURE.
- FINAL STAGE BMPs SHALL BE INSTALLED AS ONE OF THE LAST STEPS IN THE CONSTRUCTION ACTIVITY, SUCH AS FINAL SEEDING AND MULCHING.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PHASE THE FINAL BMPs AS THE CONSTRUCTION PROGRESSES.

SOIL TYPE NOTE:

- THE HYDROLOGIC SOILS GROUP (HSG) FOR THE AREA SHOWN WITHIN THE LIMIT OF CONSTRUCTION IS TYPE B. TYPE B SOILS EXHIBIT A MODERATE INFILTRATION RATE WHEN THOROUGHLY WET.

ANTICIPATED TIMING/PHASING SCHEDULE:

Project start date is planned for: Spring 2021
Initial phase – Spring 2021 (2 day duration)
Interim phase – June 2021 (9 month duration)
Final phase – Spring 2022

EARTHWORK NOTE:

- EARTHWORK QUANTITIES SHOWN ARE RAW NUMBERS AND HAVE NOT BEEN ADJUSTED TO ACCOUNT FOR SHRINK, SWELL, COMPACTION, UTILITY SPOILS, TOPSOIL, PLAY PIT EXCAVATION, ETC. THE VALUES REFLECT FINISH GRADE AND DO NOT ACCOUNT FOR ASPHALT/CONCRETE PAVING, PLAYPIT MATERIAL, CRUSHER FINES, SAND, SOD, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EARTHWORK VALUES.

CUT REQUIRED: 8,518 CY
FILL REQUIRED: 1,945 CY
NET CUT REQUIRED: 6,573 CY

Design 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 plan.

Todd West, P.E. #37643

Date

Owner/Developer's Statement:

I, the owner/developer have read and will comply with the requirements of the grading and erosion control plan.

Black Forest, LLC
8655 Table Butte Road
Colorado Springs, CO 80905

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 Directors discretion.

Jennifer Irvine, P.E.
County Engineer / ECM Administrator

Date

CAUTION: NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



Know what's below.
Call before you dig.



303.925.0544
www.2ncivil.com



NOT FOR
CONSTRUCTION

PREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO
80908

COVER SHEET
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADO

DATE:
BY:

REVISIONS:
1
2
3
4

PROJECT NUMBER: 19015
ISSUED DATE: 09-15-2020
DESIGNED BY: ART
REVIEWED BY: TEW

COVER SHEET

MATERIAL LEGEND

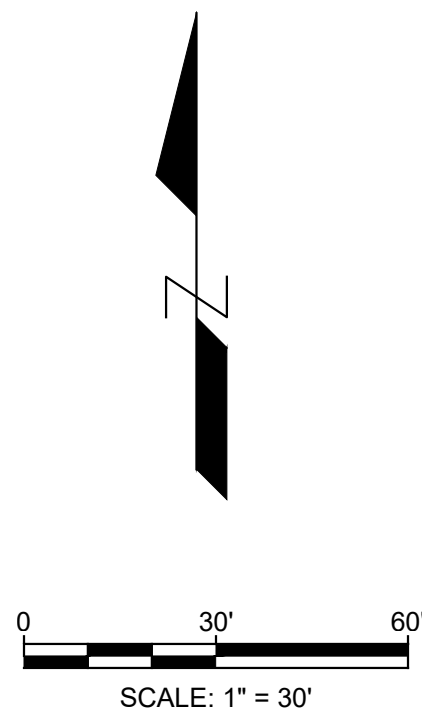
	EXISTING ASPHALT
	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

LEGEND

	PROPERTY BOUNDARY
	EXISTING EASEMENT
	EXISTING SIGN
	EXISTING CURB & GUTTER
	EXISTING HYDRANT
	BUILDING SETBACK
	PROPOSED EASEMENT
	PROPOSED CURB AND GUTTER (CATCH)
	PROPOSED CURB AND GUTTER (SPILL)
	PROPOSED FENCE
	PROPOSED SIGN
	PROPOSED FIRE HYDRANT
	SURVEY CONTROL POINT
	FOUND PROPERTY CORNER

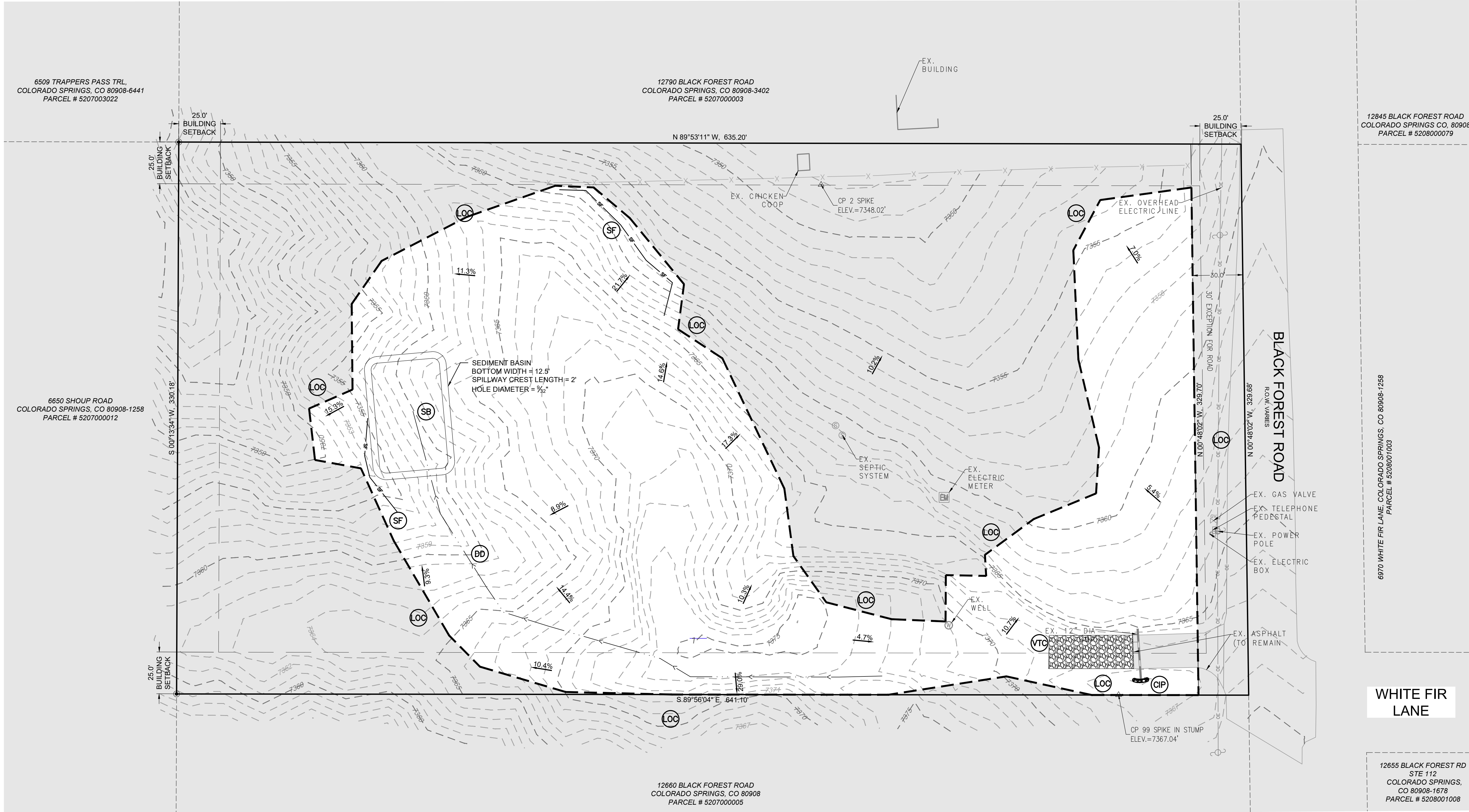
BMP LEGEND

	LIMITS OF CONSTRUCTION	
	CULVERT INLET PROTECTION	
	CONCRETE WASHOUT AREA	
	DIVERSION DITCH	
	EROSION CONTROL BLANKET	
	INLET PROTECTION	
	SEDIMENT CONTROL LOG	
	SEEDING & MULCHING	
	SILT FENCE	
	STABILIZED STAGING AREA	
	VEHICLE TRACKING CONTROL	



EROSION CONTROL NOTES:

1. THE BMPs SHOWN ON THIS INITIAL STAGE ECSD DRAWING SHALL BE INSTALLED AT THE OUTSET OF CONSTRUCTION, PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITIES. INITIAL CONTROLS ARE TO BE PLACED ON EXISTING GRADES, BUT SHALL BE BASED IN PART ON PROPOSED GRADING OPERATIONS.
2. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
3. CONTRACTOR TO ESTABLISH PERIMETER CONTROLS, VTC AND SB PRIOR TO COMMENCING CLEARING AND GRUBBING.
4. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND DISTURBANCE ACTIVITY THAT RELIES ON BASIN AS A STORMWATER CONTROL.
5. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
6. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE ADAMS COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.
7. REMOVAL OF BMPs SHALL NOT OCCUR WITHOUT THE APPROVAL OF THE ADAMS COUNTY INSPECTOR.



CAUTION: NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



BENCHMARK

SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.



303.925.0544
www.2ncivil.com



NOT FOR
CONSTRUCTION

PREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO
80908

ESCD - INITIAL PHASE
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADO

REVISIONS:	BY:	DATE:
1.		
2.		
3.		
4.		

PROJECT NUMBER:	19015
ISSUED DATE:	09-15-2020
DESIGNED BY:	ART
REVIEWED BY:	TEW

ESCD - INITIAL
PHASE

MATERIAL LEGEND

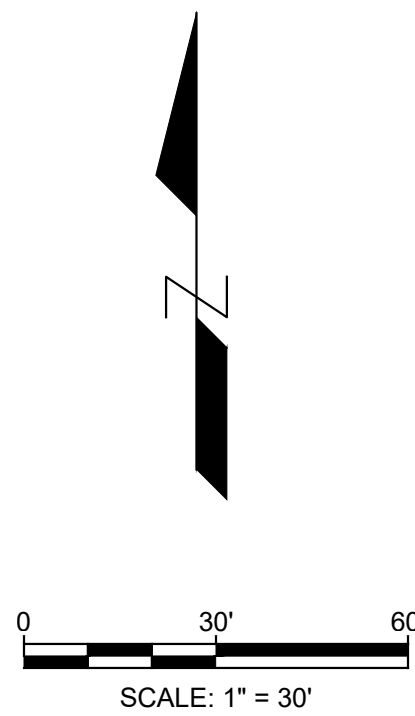
	EXISTING ASPHALT
	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

LEGEND

	PROPERTY BOUNDARY
	EXISTING EASEMENT
	EXISTING SIGN
	EXISTING CURB & GUTTER
	EXISTING HYDRANT
	BUILDING SETBACK
	PROPOSED EASEMENT
	PROPOSED CURB AND GUTTER (CATCH)
	PROPOSED CURB AND GUTTER (SPILL)
	PROPOSED FENCE
	PROPOSED SIGN
	PROPOSED FIRE HYDRANT
	SURVEY CONTROL POINT
	FOUND PROPERTY CORNER

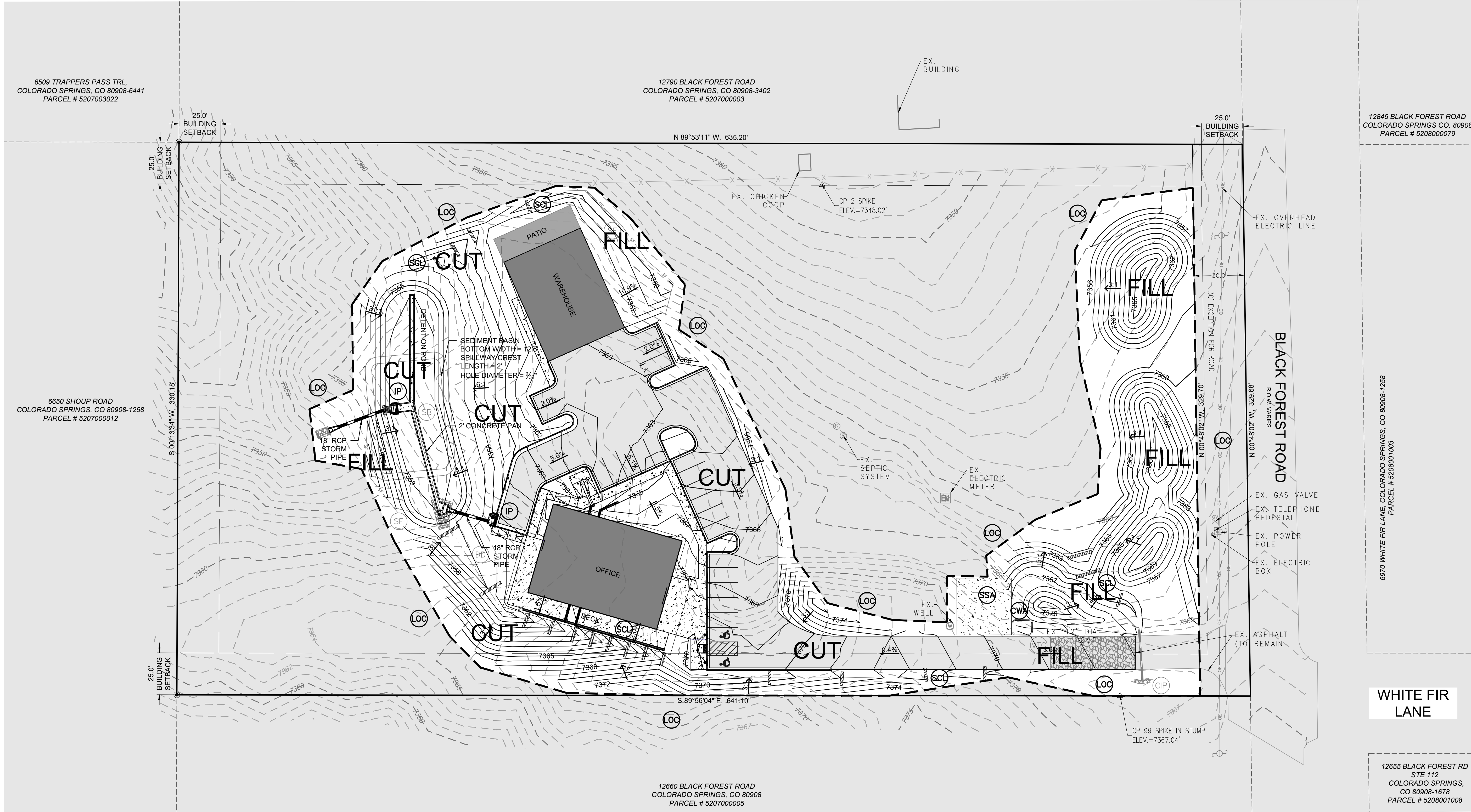
BMP LEGEND

	LIMITS OF CONSTRUCTION	
	CULVERT INLET PROTECTION	
	CONCRETE WASHOUT AREA	
	DIVERSION DITCH	
	EROSION CONTROL BLANKET	
	INLET PROTECTION	
	SEDIMENT CONTROL LOG	
	SEEDING & MULCHING	
	SILT FENCE	
	STABILIZED STAGING AREA	
	VEHICLE TRACKING CONTROL	



EROSION CONTROL NOTES:

1. THE BMPs SHOWN ON THIS INTERIM STAGE ECSD DRAWING SHALL BE BASED ON PROPOSED GRADES AND DRAINAGE FEATURES AND ARE INSTALLED AFTER INITIAL SITE GRADING. FOR SOME BMPs SUCH AS INLET PROTECTION, INTERIM CONTROLS ARE INSTALLED AFTER THE CONSTRUCTION OF SITE INFRASTRUCTURE.
2. SHADED BMPs WERE INSTALLED IN INITIAL STAGE AND SHALL BE LEFT IN PLACE IN INTERIM STAGE.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
4. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
5. ANY WASTE AND DISPOSAL ITEMS SHALL BE PROCESSED THROUGH THE STAGING AREA AND PROPERLY DISPOSED OF OFF-SITE.
6. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.
7. REMOVAL OF BMPs SHALL NOT OCCUR WITHOUT THE APPROVAL OF THE COUNTY INSPECTOR.



CAUTION: NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



BENCHMARK

SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.

AREA OF DISTURBANCE = 93582.357 SQ. FT
2.15 AC



303.925.0544
www.2ncivil.com



NOT FOR
CONSTRUCTION

PREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO
80908

ESCD - INTERIM PHASE
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADO

REVISIONS:	BY:	DATE:
1.		
2.		
3.		
4.		

PROJECT NUMBER:	19015
ISSUED DATE:	09-15-2020
DESIGNED BY:	ART
REVIEWED BY:	TEW

ESCD -
INTERIM
PHASE

MATERIAL LEGEND

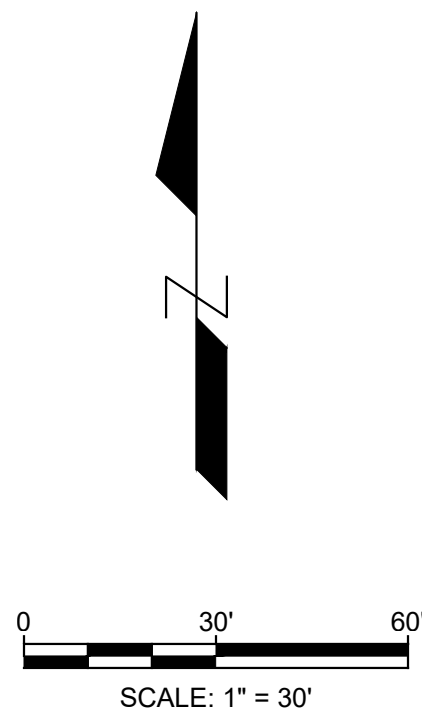
	EXISTING ASPHALT
	PROPOSED CONCRETE
	PROPOSED ASPHALT
	PROPOSED GRAVEL
	PROPOSED BUILDING
	PROPOSED LANDSCAPE ELEMENTS

LEGEND

	PROPERTY BOUNDARY
	EXISTING EASEMENT
	EXISTING SIGN
	EXISTING CURB & GUTTER
	EXISTING HYDRANT
	BUILDING SETBACK
	PROPOSED EASEMENT
	PROPOSED CURB AND GUTTER (CATCH)
	PROPOSED CURB AND GUTTER (SPILL)
	PROPOSED FENCE
	PROPOSED SIGN
	PROPOSED FIRE HYDRANT
	SURVEY CONTROL POINT
	FOUND PROPERTY CORNER

BMP LEGEND

	LIMITS OF CONSTRUCTION	
	CULVERT INLET PROTECTION	
	CONCRETE WASHOUT AREA	
	DIVERSION DITCH	
	EROSION CONTROL BLANKET	
	INLET PROTECTION	
	SEDIMENT CONTROL LOG	
	SEEDING & MULCHING	
	SILT FENCE	
	STABILIZED STAGING AREA	
	VEHICLE TRACKING CONTROL	



EROSION CONTROL NOTES:

1. THE BMPS SHOWN ON THIS FINAL STAGE ECSD DRAWING SHALL BE INSTALLED AS ONE OF THE LAST STEPS IN THE CONSTRUCTION PROCESS, SUCH AS FINAL SEEDING AND MULCHING.
2. SHADED BMPS WERE INSTALLED IN INITIAL OR INTERIM ECSD PLAN AND, UNLESS OTHERWISE INDICATED, SHALL BE LEFT IN PLACE UNTIL REVEGETATION ESTABLISHMENT IS APPROVED BY THE COUNTY.
3. SEE CONSTRUCTION PLANS FOR DETAILS OF PERMANENT DRAINAGE FACILITIES SUCH AS EXTENDED DETENTION BASIN, CULVERTS, AND STORM DRAIN INLETS.
4. STAGING AREAS SHALL BE RESTORED TO PROPOSED CONDITIONS AFTER CONSTRUCTION IS COMPLETE.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PHASE THE FINAL BMPS AS THE CONSTRUCTION PHASES PROGRESS.
6. REFER TO EROSION AND SEDIMENT CONTROL REPORT FOR THIS PROJECT FOR ADDITIONAL DETAILS AND STORMWATER MANAGEMENT REQUIREMENTS.
7. IF ANY BMP REQUIRES MODIFICATION, THE PLAN SHALL BE RED-LINED AND APPROVAL SHALL BE OBTAINED FROM THE COUNTY INSPECTOR PRIOR TO PROCEEDING, UNLESS IT IS AN EMERGENCY SITUATION THAT REQUIRES IMMEDIATE ATTENTION.



CAUTION: NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.



BENCHMARK

SURVEY CONTROL POINTS AS SHOWN HEREON. ALL ELEVATIONS ARE BASED UPON NAVD88 VERTICAL DATUM.



303.925.0544
www.2ncivil.com



NOT FOR
CONSTRUCTION

PREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO
80908

ESCD - FINAL PHASE
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADO

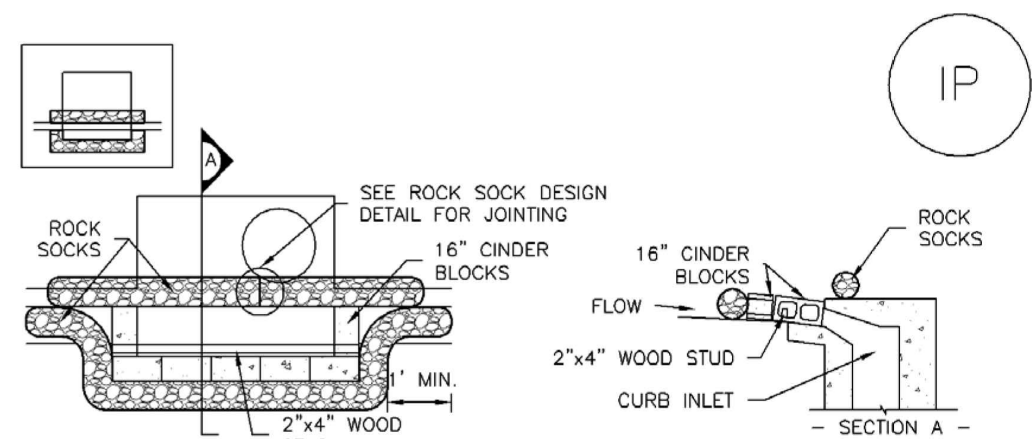
BY: DATE:
REVISIONS:
1.
2.
3.
4.

PROJECT NUMBER: 19015
ISSUED DATE: 09-15-2020
DESIGNED BY: ART
REVIEWED BY: TEW

ESCD - FINAL
PHASE

J:\Projects\1918015\544\Site Plan\EC Plan - Details.dwg 9/18/2020

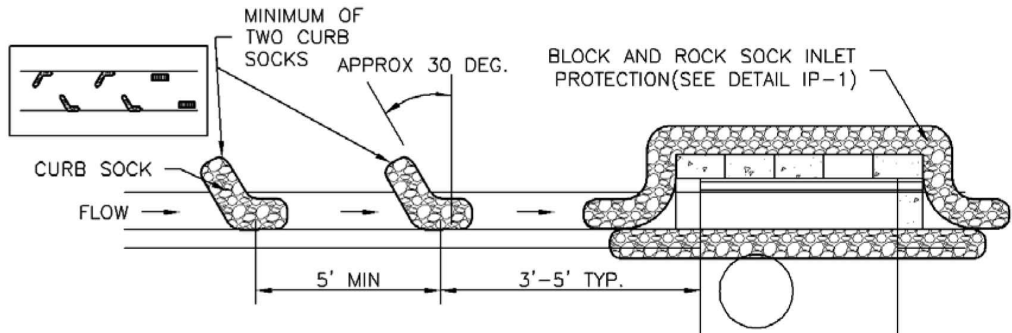
SC-6 Inlet Protection (IP)



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.



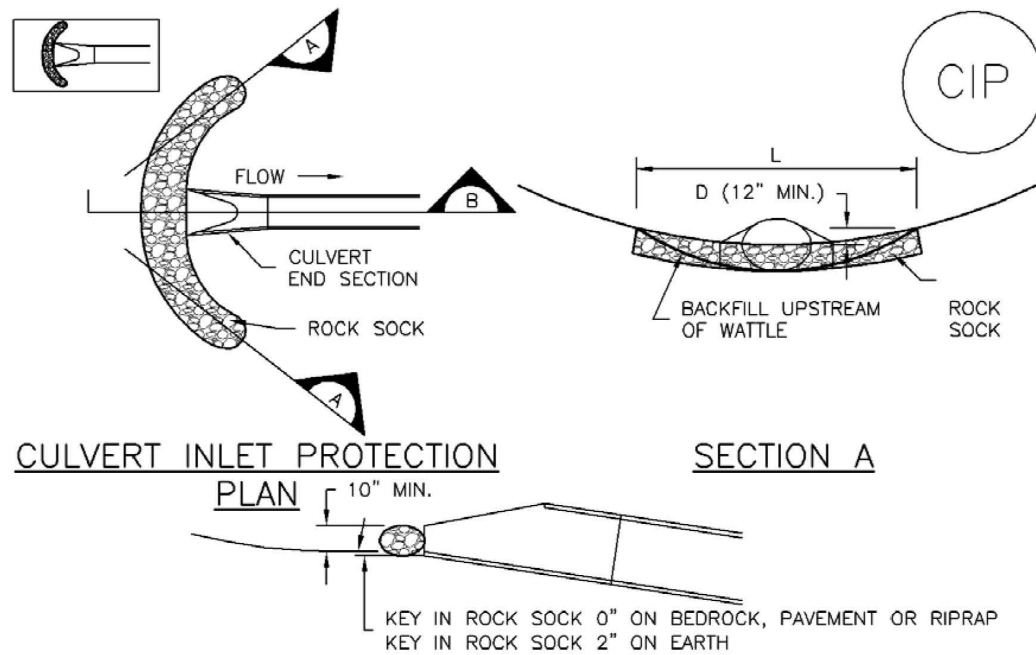
IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

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.

IP-4 Urban Drainage and Flood Control District August 2013
Urban Storm Drainage Criteria Manual Volume 3

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 $\frac{1}{2}$ THE HEIGHT OF THE ROCK SOCK.
5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

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

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

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

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. 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 $\frac{1}{2}$ OF THE HEIGHT FOR STRAW BALES.
5. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
6. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

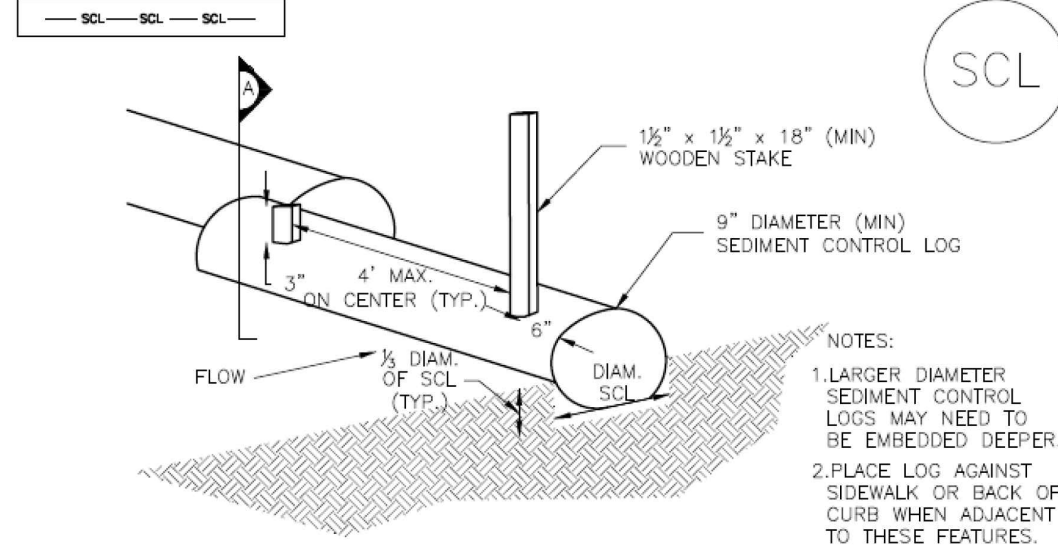
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

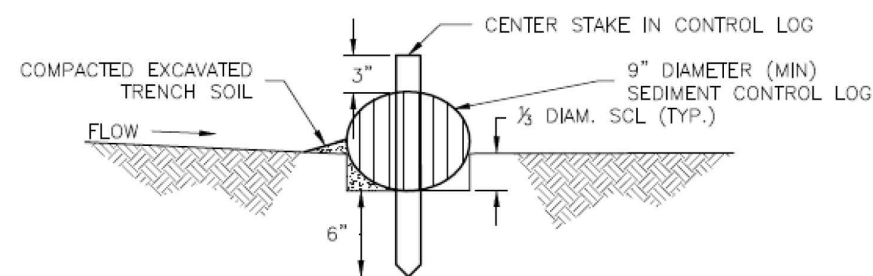
NOTE: SOME MUNICIPALITIES DISCOURAGE OR PROHIBIT THE USE OF STRAW BALES FOR INLET PROTECTION. CHECK WITH LOCAL JURISDICTION TO DETERMINE IF STRAW BALE INLET PROTECTION IS ACCEPTABLE.

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

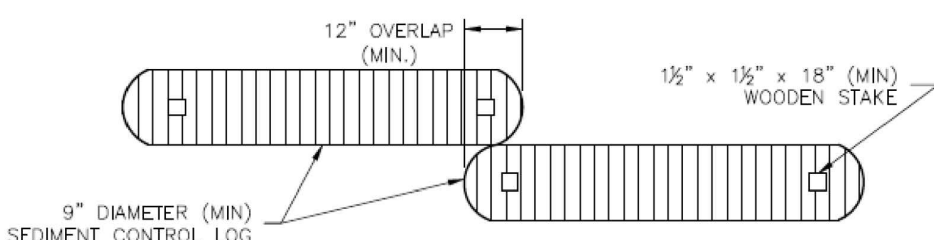
Sediment Control Log (SCL) SC-2



TRENCHED SEDIMENT CONTROL LOG



TRENCHED SEDIMENT CONTROL LOG SECTION A

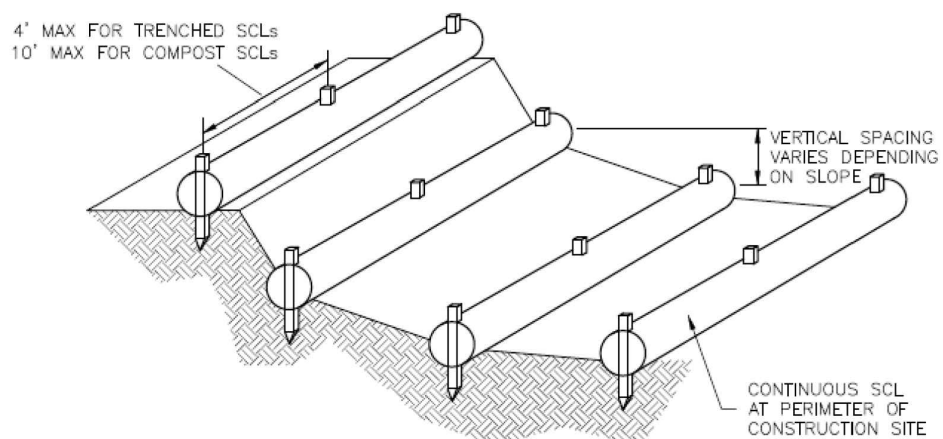


LOG JOINTS

SCL-1. TRENCHED SEDIMENT CONTROL LOG

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

Sediment Control Log (SCL) SC-2



SCL-3. SEDIMENT CONTROL LOGS TO CONTROL SLOPE LENGTH

November 2015 Urban Drainage and Flood Control District SCL-5
Urban Storm Drainage Criteria Manual Volume 3

SC-2 Sediment Control Log (SCL)

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADING LAND-DISTURBING ACTIVITIES.
3. 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.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY $\frac{1}{2}$ 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.
6. THE UPHILL 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.
7. 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

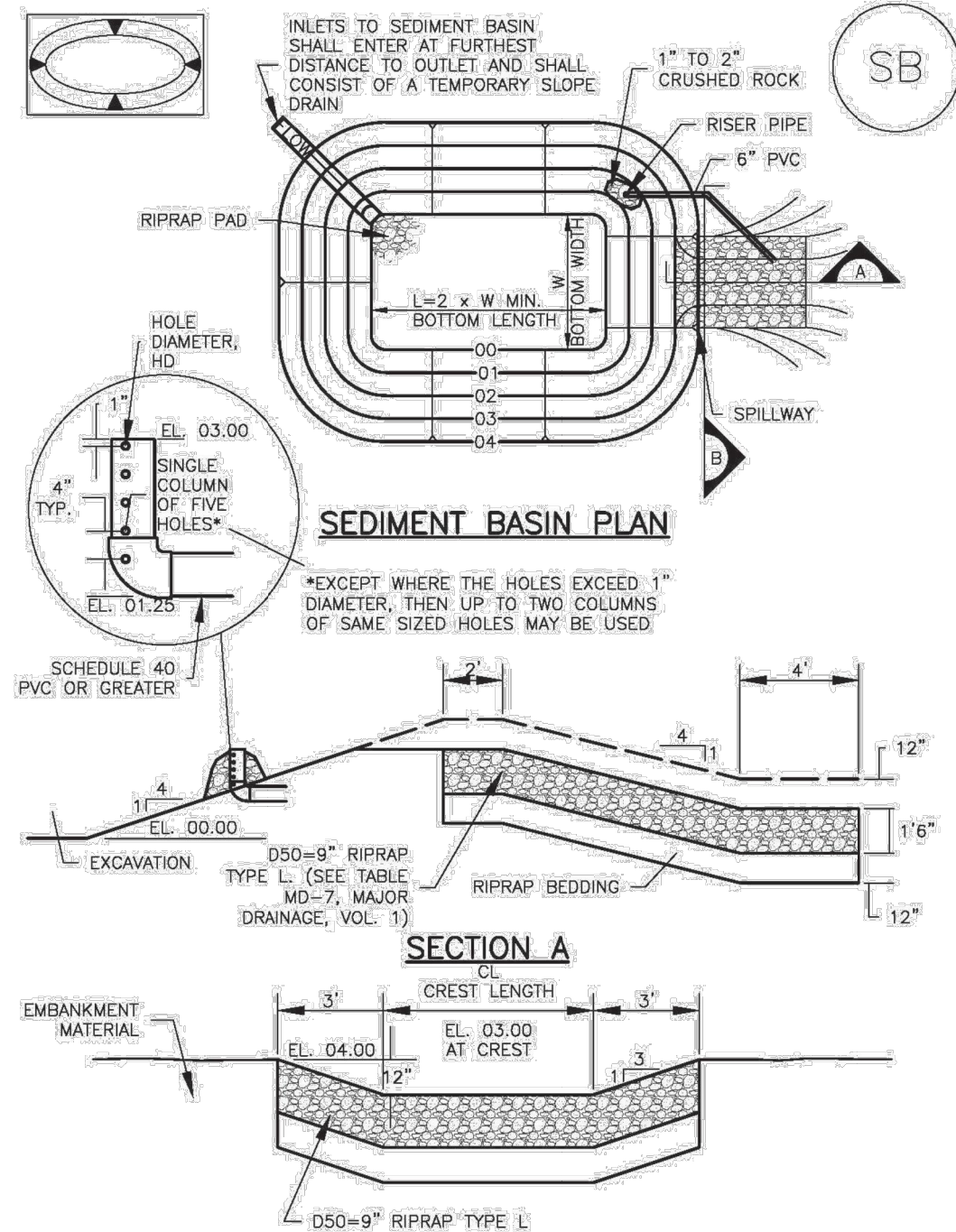
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS 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 SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY $\frac{1}{2}$ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. 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 November 2015
Urban Storm Drainage Criteria Manual Volume 3

Sediment Basin (SB) SC-7



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

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	9 1/2
2	21	3	15 1/4
3	28	5	18
4	33 1/2	6	19 1/2
5	38 1/2	8	21 1/2
6	43	9	22 1/2
7	47 1/2	11	23 1/2
8	51	12	24 1/2
9	55	13	26
10	58 1/2	15	27 1/2
11	61	16	28 1/2
12	64	18	30
13	67 1/2	19	31 1/2
14	70 1/2	21	33 1/2
15	73 1/2	22	34 1/2

SEDIMENT BASIN INSTALLATION NOTES

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

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



NOT FOR CONSTRUCTION

PREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO 80908

EROSION CONTROL DETAILS
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADO

DATE:
BY:

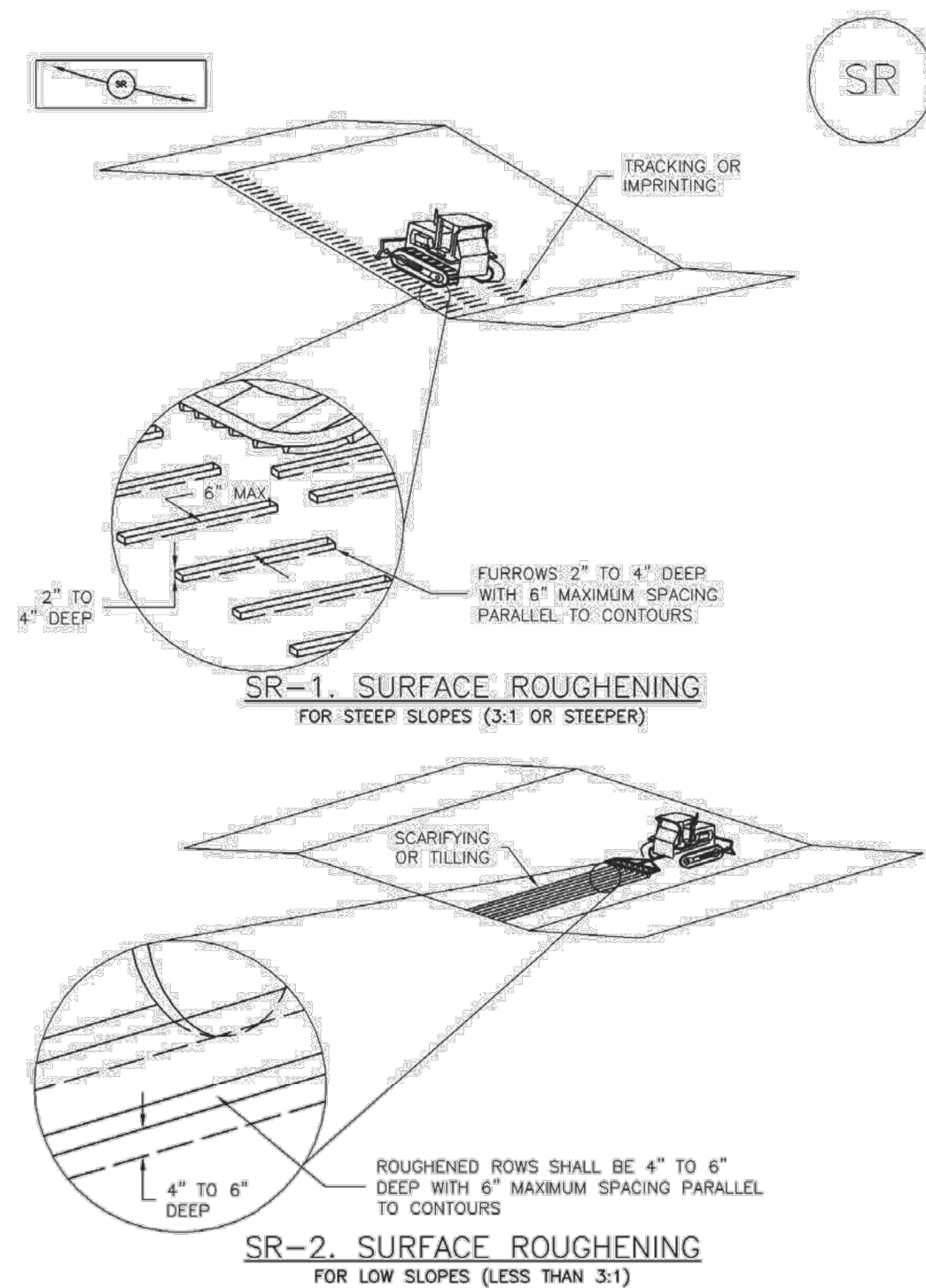
REVISIONS:
1.
2.
3.
4.

PROJECT NUMBER: 19015
ISSUED DATE: 09-15-2020
DESIGNED BY: ART
REVIEWED BY: TEW

EROSION CONTROL DETAILS

Surface Roughening (SR)

EC-1



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

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

^a 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.

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

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

June 2012 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-3

EC-1

Surface Roughening (SR)

SURFACE ROUGHENING INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION(S) OF SURFACE ROUGHENING.
- SURFACE ROUGHENING SHALL BE PROVIDED PROMPTLY AFTER COMPLETION OF FINISHED GRADING (FOR AREAS NOT RECEIVING TOPSOIL) OR PRIOR TO TOPSOIL PLACEMENT OR ANY FORECASTED RAIN EVENT.
- AREAS WHERE BUILDING FOUNDATIONS, PAVEMENT, OR SOO WILL BE PLACED WITHOUT DELAY IN THE CONSTRUCTION SEQUENCE, SURFACE ROUGHENING IS NOT REQUIRED.
- DISTURBED SURFACES SHALL BE ROUGHENED USING RIPPING OR TILLING EQUIPMENT ON THE CONTOUR OR TRACKING UP AND DOWN A SLOPE USING EQUIPMENT TREADS.
- A FARMING DISK SHALL NOT BE USED FOR SURFACE ROUGHENING.

SURFACE ROUGHENING 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 REPLACE UPON DISCOVERY OF THE FAILURE.
- VEHICLES AND EQUIPMENT SHALL NOT BE DRIVEN OVER AREAS THAT HAVE BEEN SURFACE ROUGHENED.
- IN NON-TURF GRASS FINISHED AREAS, SEEDING AND MULCHING SHALL TAKE PLACE DIRECTLY OVER SURFACE ROUGHENED AREAS WITHOUT FIRST SMOOTHING OUT THE SURFACE.
- IN AREAS NOT SEEDING AND MULCHED AFTER SURFACE ROUGHENING, SURFACES SHALL BE RE-ROUGHENED AS NECESSARY TO MAINTAIN GROOVE DEPTH AND SMOOTH OVER RILL EROSION.

(DETAILS ADAPTED FROM TOWN 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.

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

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

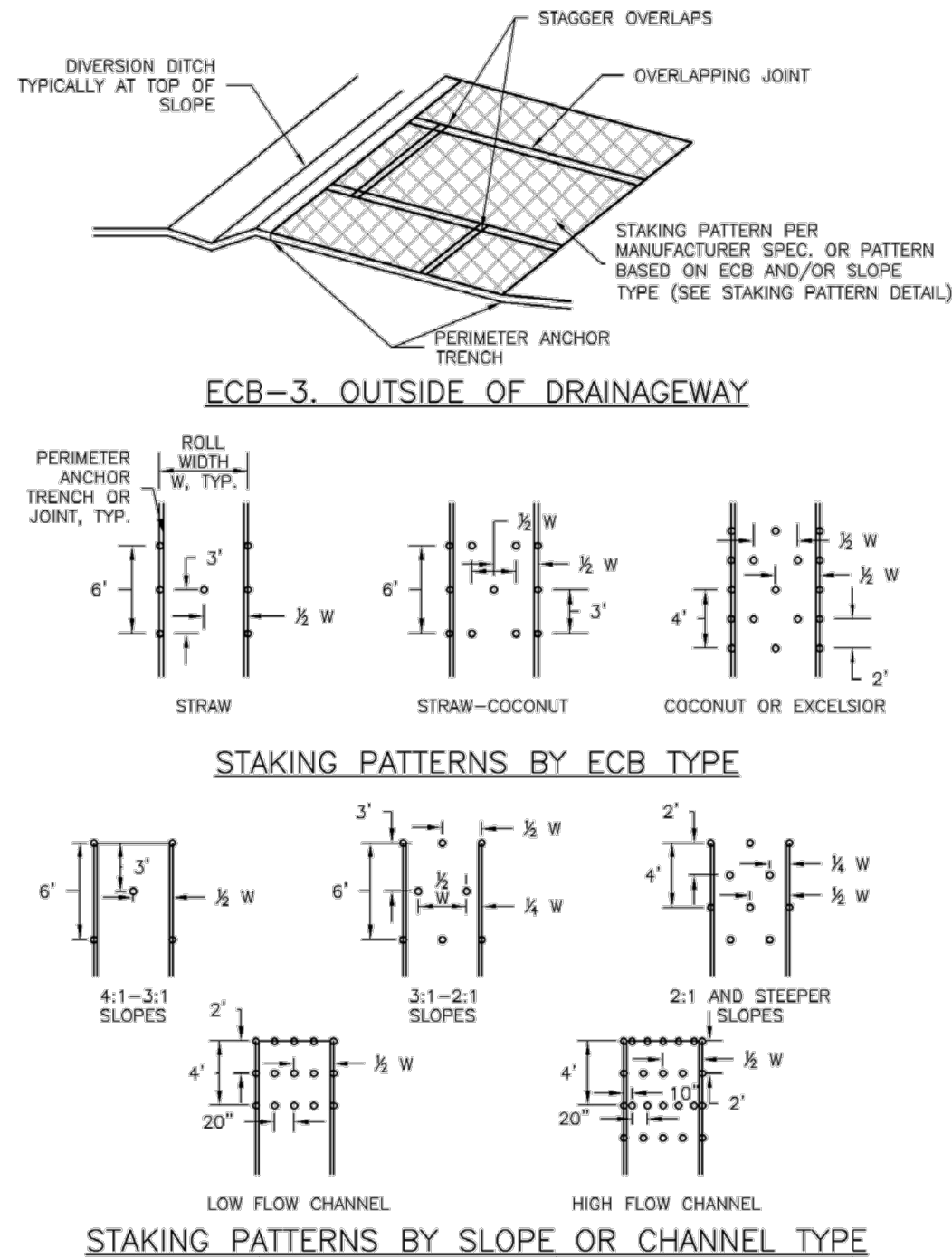
Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common Name	Botanical Name	Growth Season*	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Alkaline Soil Seed Mix					
Alkali sacaton	<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
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'duriscula'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leys</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
Total					15.5
High Water Table Soil Seed Mix					
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 leys</i>	Cool	Sod	130,000	3.0
Pathfinder switchgrass	<i>Panicum virgatum 'Pathfinder'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix*					
Rubens Canadian bluegrass	<i>Poa compressa 'Rubens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'duriscula'</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 leys</i>	Cool	Sod	130,000	3.0
Total					7.5

TS/PS-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012

Rolled Erosion Control Products (RECP)

EC-6



RECP-7 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

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*	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
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
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass ^d	<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 ^d	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leys</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.5

^a 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.

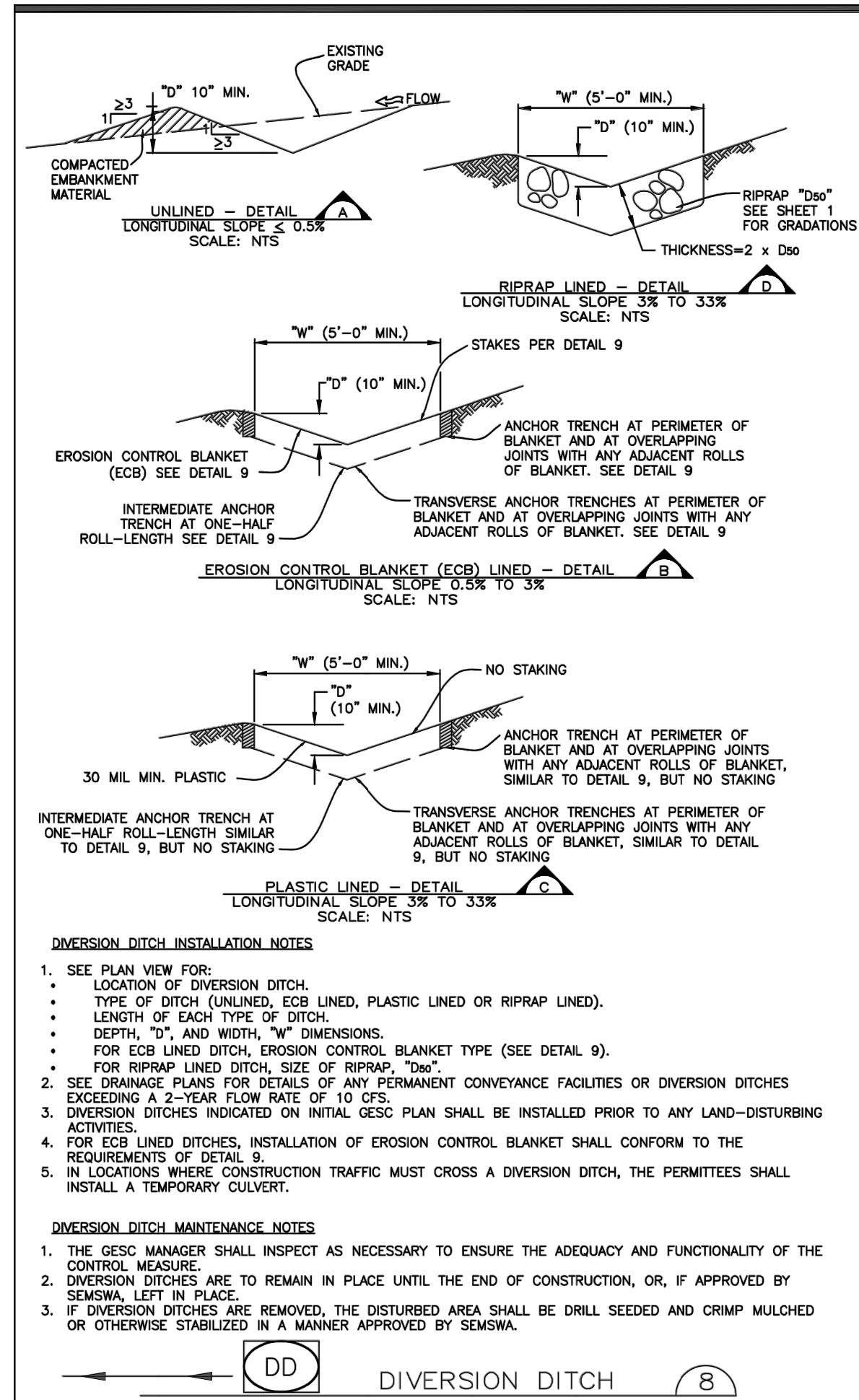
^b See Table TS/PS-3 for seeding dates.

^c If site is to be irrigated, the transition turf seed rates should be doubled.

^d Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

^e Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideoats grama.

TS/PS-5 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012



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.

TS/PS-6 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012

NOT FOR
CONSTRUCTIONPREPARED FOR:
BLACK FOREST, LLC
8655 TABLE BUTTE ROAD
COLORADO SPRINGS, COLORADO
80908EROSION CONTROL DETAILS
EROSION AND SEDIMENT CONTROL DRAWINGS
BLACK FOREST OFFICE
COUNTY OF EL PASO, COLORADODATE:
BY:REVISED:
1.
2.
3.
4.PROJECT NUMBER: 19015
ISSUED DATE: 09-15-2020
DESIGNED BY: ART
REVIEWED BY: TEWEROSION
CONTROL
DETAILS