EARLY GRADING & EROSION CONTROL PLANS FALCON MEADOWS AT BENT GRASS FILING NO. 1 FALCON, CO 80831 - EL PASO COUNTY CHALLENGER COMMUNITIES, LLC

PROJECT CONTACTS

OWNER/DEVELOPER

CHALLENGER COMMUNITIES, LLC 13570 NORTHGATE ESTATES DR. COLORADO SPRINGS, CO 80921 TELE: (719) 598-5190 ATTN: JIM BYERS EMAIL: JIM@CHALLENGERHOMES.COM

<u>APPLICANT</u>

619 NORTH CASCADE AVENUE, SUITE 200 COLORADO SPRINGS, CO 80903 TELE: (719) 471-0073 ATTN: ERIN GANAWAY EMAIL: EGANAWAY@NESCOLORADO.COM

CIVIL ENGINEER

GALLOWAY & CO., INC.

1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
TELE: (719) 900-7220
ATTN: GRANT DENNIS. P.F.

EMAIL: GRANTDENNIS@GALLOWAYUS.COM

GEOTECHNICAL ENGINEER

ROCKY MOUNTAIN GROUP
2910 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918
TELE: (719) 394-3072
ATTN: TONY MUNGER, P.E.
EMAIL: TMUNGER@RMG-ENGINEERS.COM

TRAFFIC ENGINEER

LSC TRANSPORTATION CONSULTANTS, INC. 545 EAST PIKES PEAK AVENUE, SUITE 210 COLORADO SPRINGS, CO 80903 TELE: (719) 633–2868 ATTN: JEFFREY C. HODSON, P.E.

SURVEYOR

EMAIL: JEFF@LSCTRANS.COM

GALLOWAY & CO., INC.
1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
TELE: (719) 337-1262
ATTN: BRIAN DENNIS
EMAIL: BRIANDENNIS@GALLOWAYUS.COM

<u>UTILITY CONTACTS</u>

WATER & WASTEWATER

WOODMEN HILLS METRO DISTR 8046 EASTONVILLE ROAD FALCON, CO 80831 TELE: (719) 495-2500 ATTN: JERRY JACOBSON EMAIL: JERRY@WHMD.ORG

ELECTRIC

MOUNTAIN VIEW ELECRIC 11140 E WOODMEN RD FALCON, CO 80831 TELE: (719) 495-2283 CATHY HANSEN-LEE EMAIL: CATHY.H@MVEA.COOP

NATURAL GAS

COLORADO SPRINGS UTILITIES (CSU)
7710 DURANT DRIVE, P.O. BOX 1103, MAIL CODE 2150
COLORADO SPRINGS, CO 80947-2150
TELE: (719) 668-5573
AARON CASSIO
EMAIL: ACASSIO@CSU.ORG

FIRE

FALCON FIRE PROTECTION DISTRICT 7030 OLD MERIDIAN ROAD PEYTON, CO 80831 TELE: (719) 495-4050

EMAIL: FALCONFIRE@FALCONFIREPD.ORG

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE

WETLANDS.

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

WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFFSITE WATERS, INCLUDING

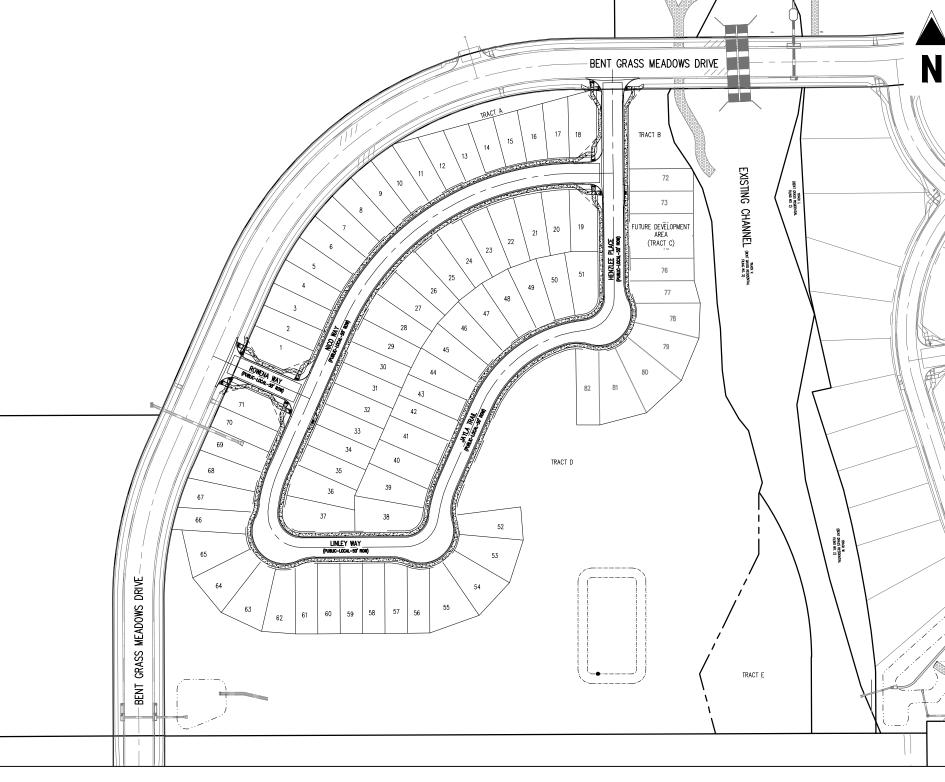
- STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- 3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR AND 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 INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. 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.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT MAY CONTRIBUTE POLLUTANTS TO STORMWATER. TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED 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 IS 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 PRIOR TO IMPLEMENTATION.
- 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. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE STABILIZED.
- 8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLAN 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 DEFINED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE HYDROLOGY OR HYDRAULICS OF A PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM 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 SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED.
- 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 RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUT SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY.
- 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.
- 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 REGULATORY 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 ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED 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, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEM 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 PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON—SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- 21. NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- 22. BULK STORAGE OF PETROLEUM PRODUCTS OR OTHER LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL HAVE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- 23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF 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 ECM 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 AT APPROVED CONSTRUCTION ACCESS POINTS.
- 26. PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- 27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- 28. THE SOILS REPORT, TITLED "BENT GRASS RESIDENTIAL, FILING NO. 2 EL PASO COUNTY, COLORADO" FOR THIS SITE HAS BEEN PREPARED BY ROCKY MOUNTAIN GROUP, JOB NO. 169845, DATED JANUARY 13, 2020 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 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 THIS 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

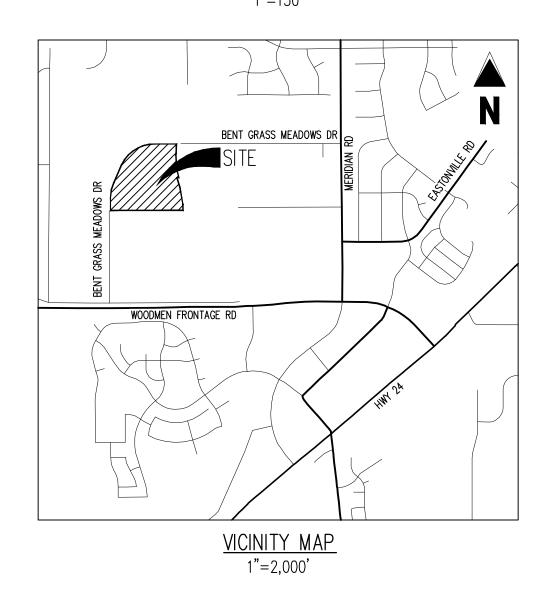
EROSION CONTROL NOTES

ATTN: PERMITS UNIT

- 1. SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN TWENTY-ONE (21) CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPS SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.
- CONSTRUCTION FENCE AND SILT FENCE ARE OFFSET FOR CLARITY. CONTRACTOR TO ENSURE BMPS ARE PLACED DOWNSTREAM OF DISTURBED AREAS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
- 3. BENT GRASS MEADOWS DRIVE SHALL BE STREET SWEPT AND INSPECTED ON A REGULAR BASIS DURING CONSTRUCTION.
- 4. NO NOTABLE EXISTING VEGETATION EXISTS ON THE SITE, APART FROM NATIVE GRASSES AND WEEDS. THE EXISTING SOIL TYPES WITHIN THE PROPERTY CONSISTS OF COLUMBINE GRAVELLY SANDY LOAM, BLAKELAND-FLUVAQUENTIC HAPLAQUOLLS, AND BLAKELAND LOAMY SAND. ALL SOILS ARE DEFINED AS HAVING A HYDROLOGIC SOIL GROUP OF A, AS DETERMINED BY THE NRCS WEB SOIL SURVEY FOR EL PASO COUNTY AREA.



SITE MAP



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 THE ORITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY AN NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.

RONALD G. DENNIS, COLORADO P.E. NO. 0051622

04/21/2021

OWNER'S STATEMENT

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

Jim Byers

04/21/2021 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.

APPROVED

Engineering Department

JENNIFER IRVINE, P.E.
COUNTY ENGINEER / ECM ADMINISTRATOR

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	EPC Planning & Comm
	Development Departm

<u>SHEET INDEX</u>					
SHEET NUMBER	SHEET TITLE	SHEET DESCRIPTION			
1	COVER SHEET	G0.0			
2	GRADING & EROSION CONTROL PLAN	G1.1			
3	GRADING & EROSION CONTROL PLAN	G1.2			
4	GRADING & EROSION CONTROL PLAN	G1.3			
5	GRADING DETAILS	G2.1			
6	EROSION CONTROL DETAILS	G2.2			
7	EROSION CONTROL DETAILS	G2.3			
8	EROSION CONTROL DETAILS	G2.4			
9	EROSION CONTROL DETAILS	G2.5			
10	EROSION CONTROL DETAILS	G2.6			

PCD FILING NO.

PUDSP-20-005 CDR-21-004

BASIS OF BEARINGS

ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THE BEARING OF THE LINE BETWEEN THE SOUTHWEST CORNER OF SECTION 1, T13S, R65W AND THE WEST QUARTER CORNER SECTION 1, T13S, R65W IS N00°13'46"W AND MONUMENTED AS SHOWN:

BENCHMARK

THE SOUTHWESTERLY CORNER OF LOT 1 WOODMEN HILLS FILING NO. 4. MONUMENTED BY A YELLOW PLASTIC SURVEYORS CAP ON A NO. 4 REBAR LS# 24954 ELEVATION = 6947.67

CAUTION — NOTICE TO CONTRACTOR 1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS

PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE FIELD LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEEER PRIOR TO

2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO

ow what's **below. Call** before you dig. 719.900.7220
GallowayUS.com



Colorado Springs, CO 80920

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THESE PLANS ARE AN INSTRUMENT OF SERVICE

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COMMUNTIES, LLC

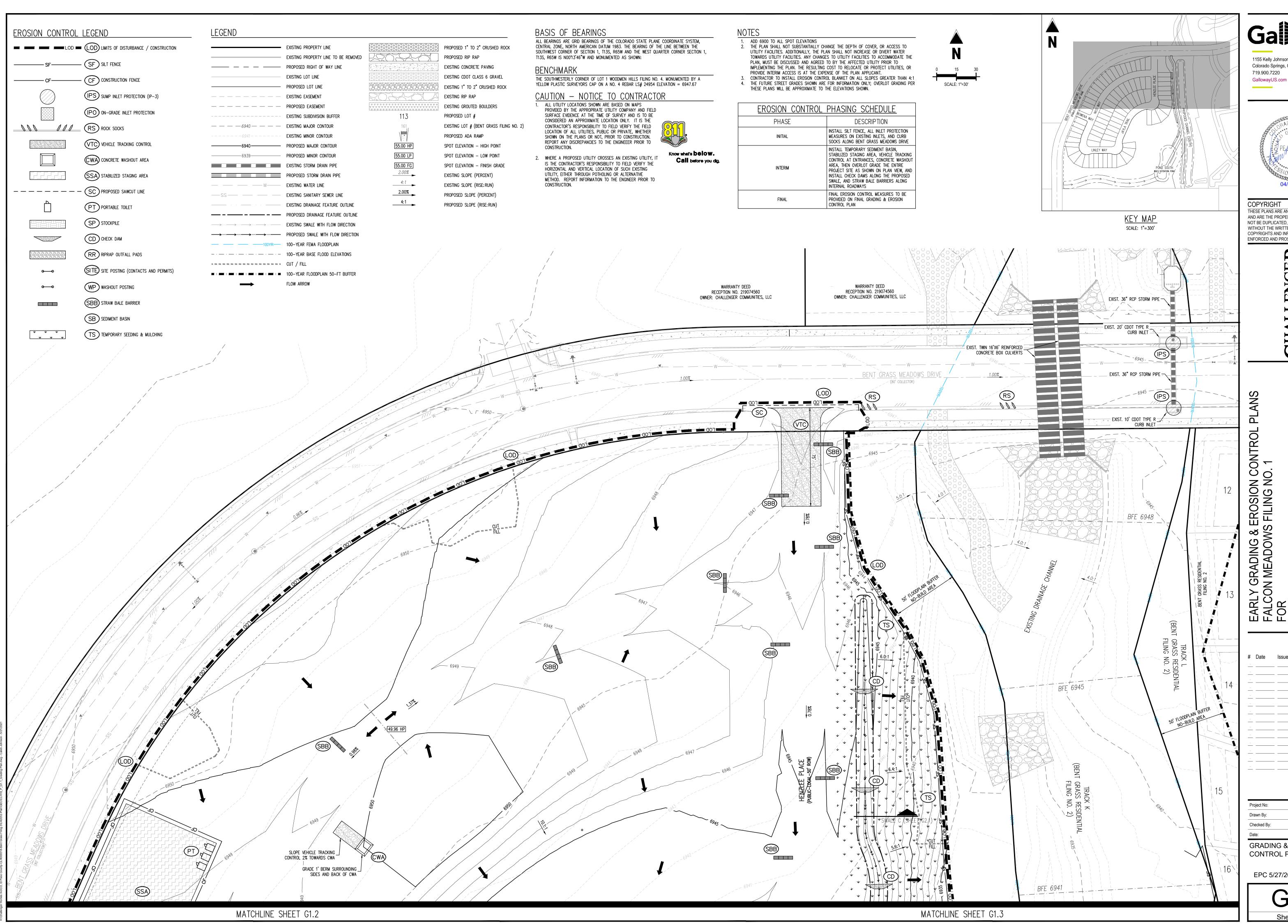
SENT GRASS MEADOWS DRI

Issue / Description	Ini

Project No:	CLH000018
Drawn By:	CMWJ
Checked By:	RGD
Date:	05/21/2021

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COVER SHEET



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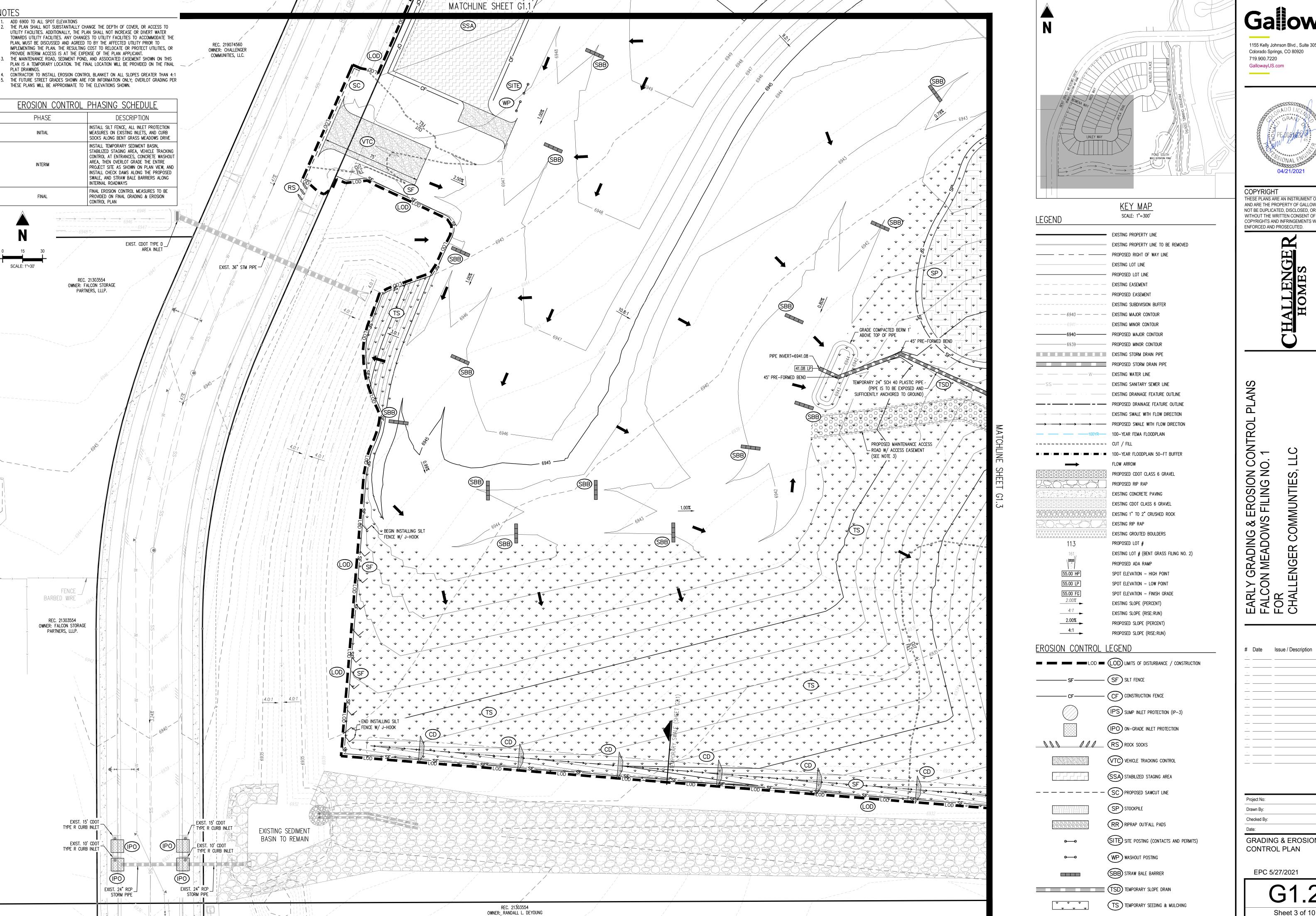
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CLH000018

GRADING & EROSION CONTROL PLAN

EPC 5/27/2021

Sheet 2 of 10



Galloway

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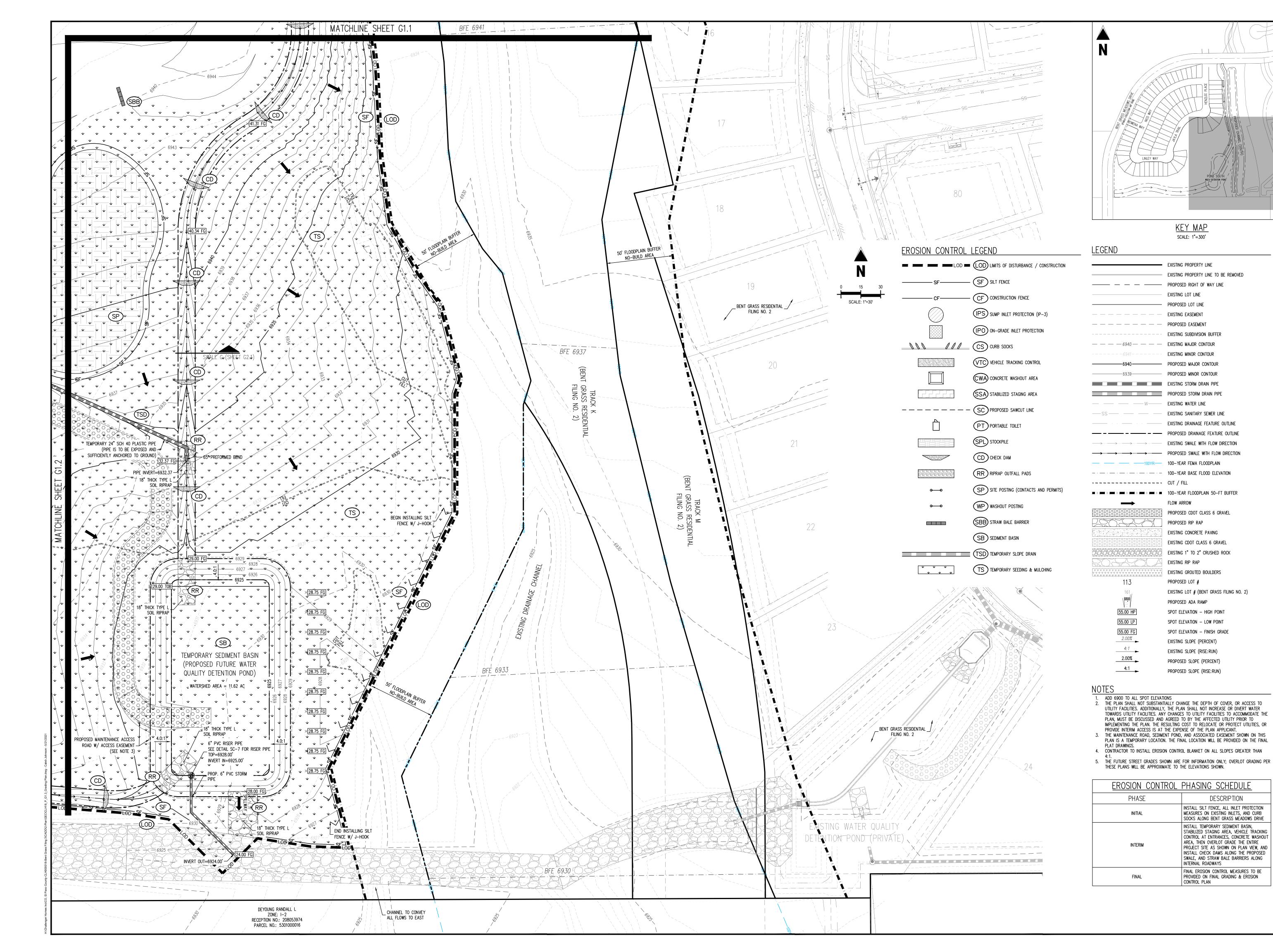


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GRADING & EROSION





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ARLY GRADING & FALCON MEADOWS

Date Issue / Description

CLH000018 CMWJ RGD Checked By: 05/21/2021

GRADING & EROSION CONTROL PLAN

EPC 5/27/2021

DESCRIPTION INSTALL SILT FENCE, ALL INLET PROTECTION MEASURES ON EXISTING INLETS, AND CURB

SOCKS ALONG BENT GRASS MEADOWS DRIVE INSTALL TEMPORARY SEDIMENT BASIN,

STABILIZED STAGING AREA, VEHICLE TRACKING CONTROL AT ENTRANCES, CONCRETE WASHOUT

PROJECT SITE AS SHOWN ON PLAN VIEW, AND

INSTALL CHECK DAMS ALONG THE PROPOSED

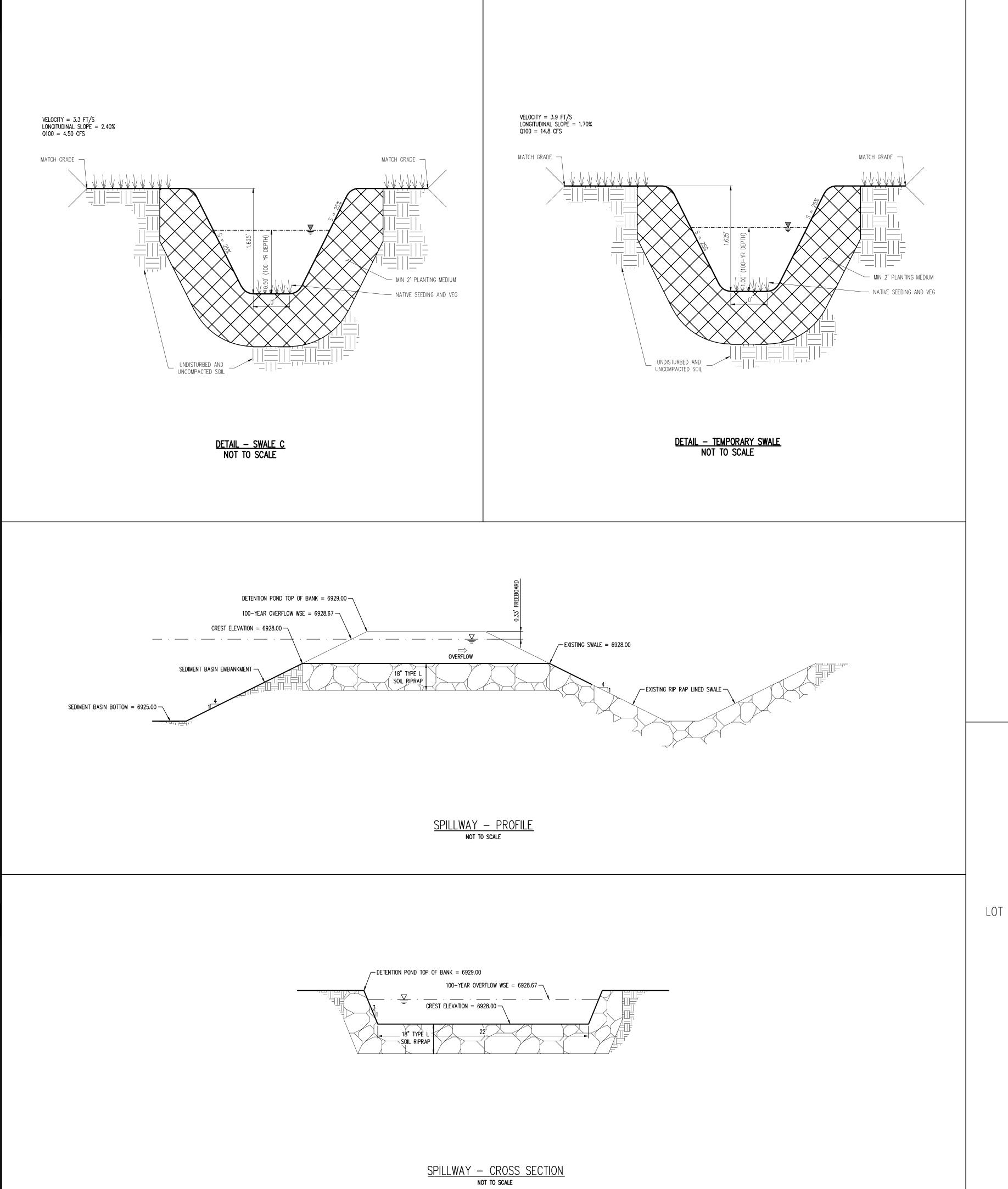
SWALE, AND STRAW BALE BARRIERS ALONG

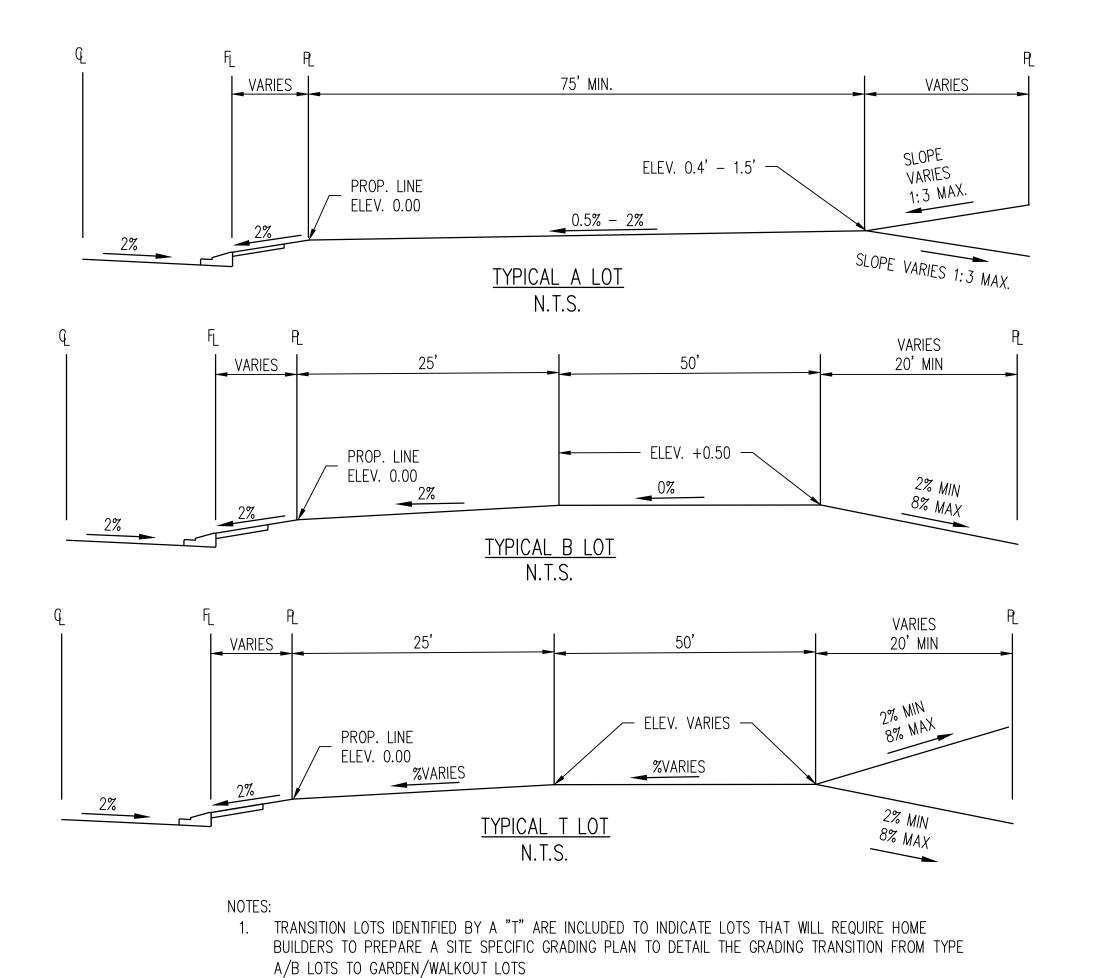
FINAL EROSION CONTROL MEASURES TO BE PROVIDED ON FINAL GRADING & EROSION CONTROL PLAN

INTERNAL ROADWAYS

AREA, THEN OVERLOT GRADE THE ENTIRE

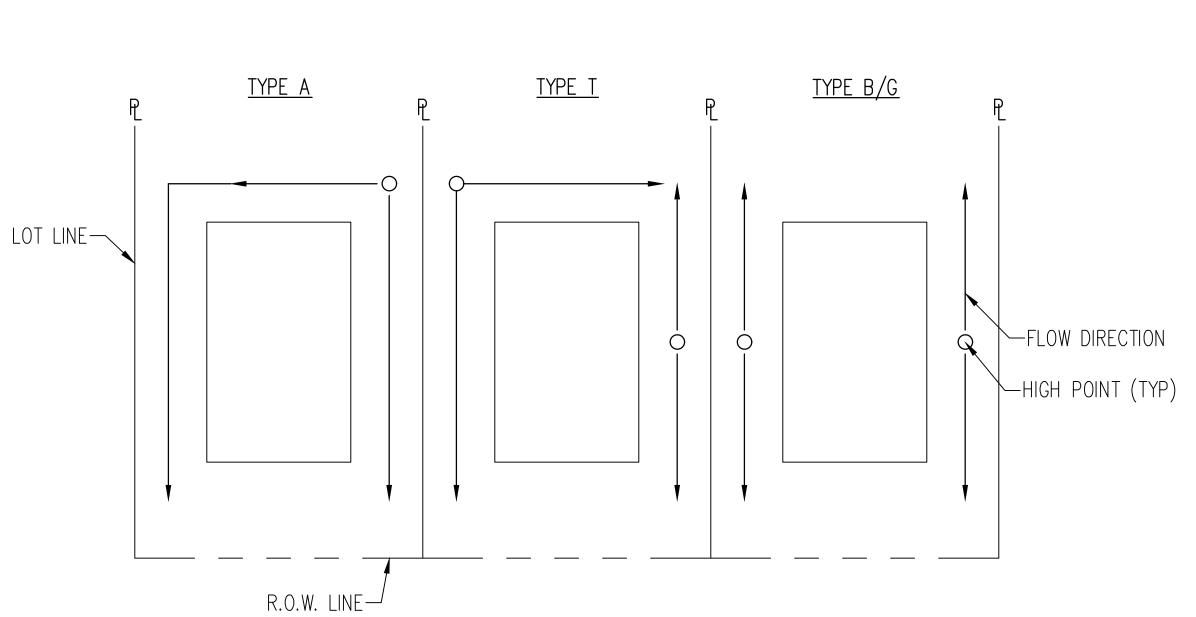
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2. THE DEVELOPER/HOME BUILDER SHALL INSTALL SIDE LOT SWALES TO MINIMIZE THE LOT TO LOT

DRAINAGE.





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ENFORCED AND PROSECUTED.

PLANS EARLY GRADING & EROSION CONTROL P FALCON MEADOWS FILING NO. 1 FOR CHALLENGER COMMUNTIES, LLC

CLH000018 RGD 05/21/2021

GRADING DETAILS

EPC 5/27/2021

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Urban Storm Drainage Criteria Manual Volume 3

Urban Storm Drainage Criteria Manual Volume 3

Urban Storm Drainage Criteria Manual Volume 3

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Silt Fence (SF)

November 2010

Urban Storm Drainage Criteria Manual Volume 3



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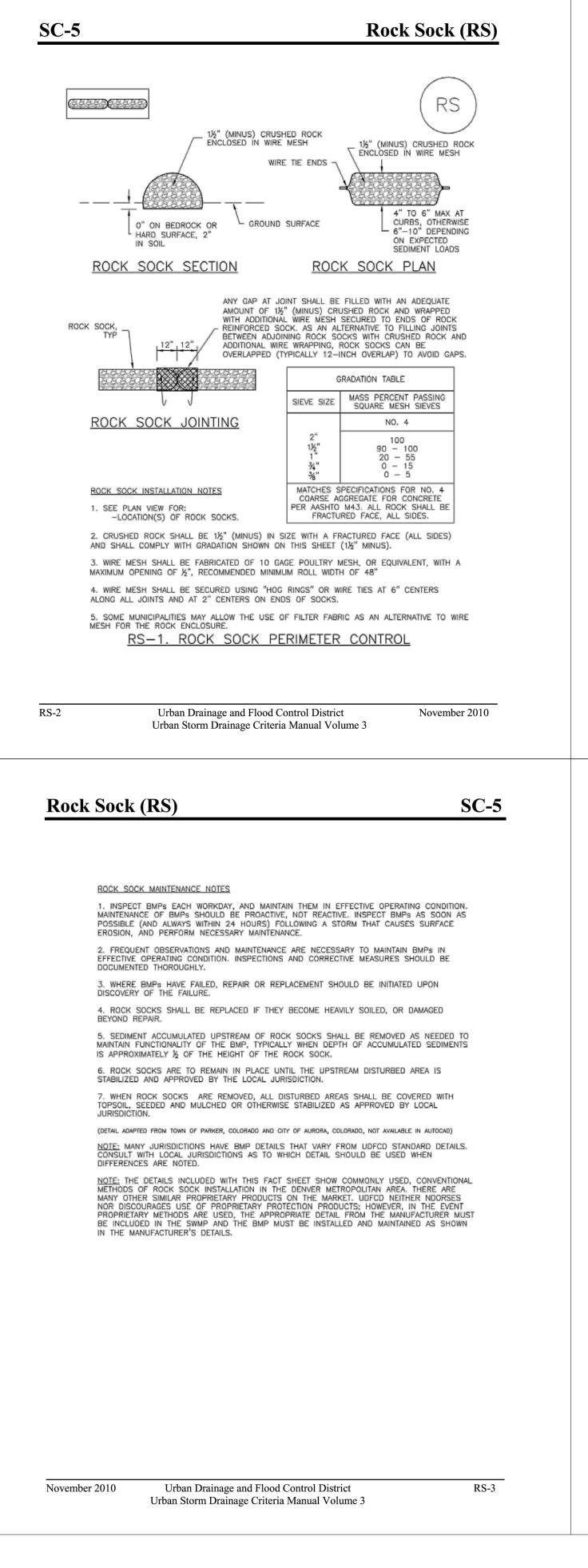
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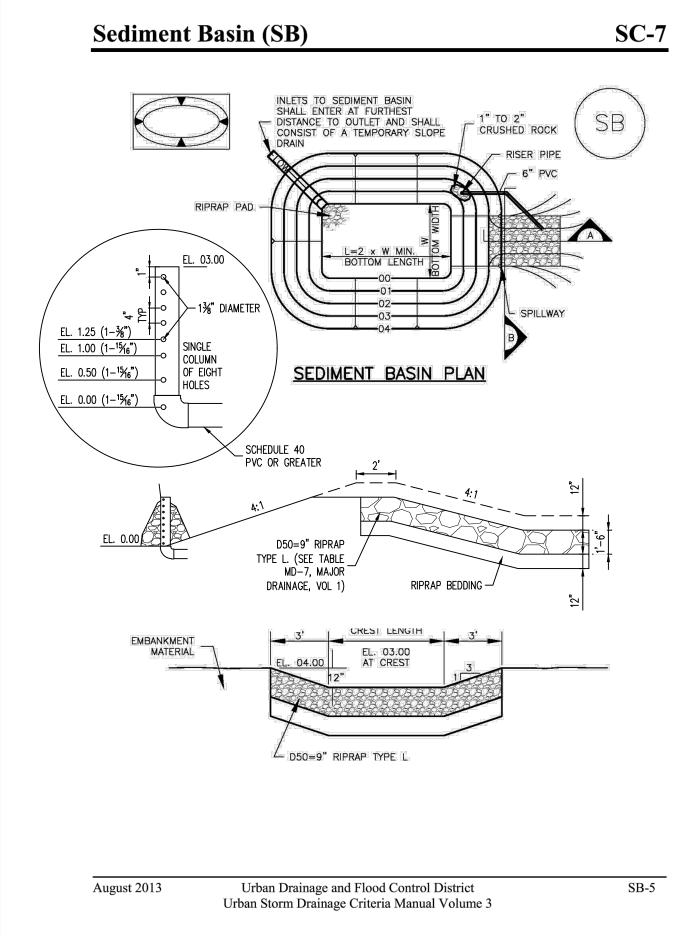
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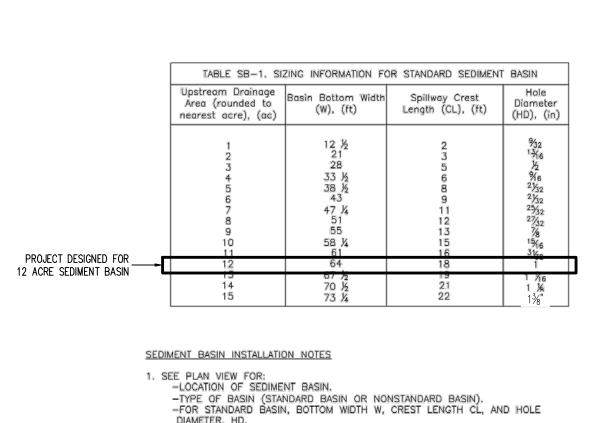
EROSION CONTROL DETAILS

EPC 5/27/2021

Sheet 6 of 10







SC-7

-FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE

Sediment Basin (SB)

3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS 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

2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA

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

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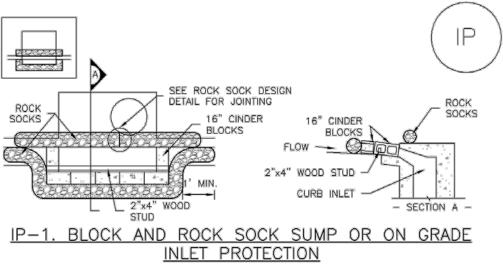
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SC-6

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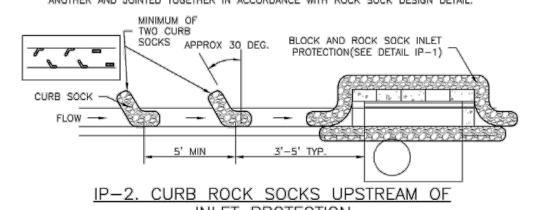
SB-7

Inlet Protection (IP



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.



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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Inlet Protection (IP)

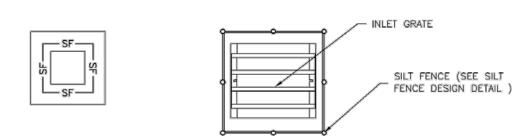
ROCK SOCK -

SEE ROCK SOCK DETAIL

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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Sediment Basin (SB)

SEDIMENT BASIN MAINTENANCE NOTES

DOCUMENTED THOROUGHLY.

DISCOVERY OF THE FAILURE.

BELOW THE SPILLWAY CREST).

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

LOCAL JURISDICTION.

EROSION, AND PERFORM NECESSARY MAINTENANCE.

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

FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

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

5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA

6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED

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

WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY

IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.

Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

 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 1/4 OF THE HEIGHT FOR

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

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

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

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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IN THE MANUFACTURER'S DETAILS.

August 2013

EROSION CONTROL DETAILS

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CLH000018 CMW.J

05/21/2021

RGD

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

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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SSA-3

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

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.

Urban Drainage and Flood Control District

Urban Storm Drainage Criteria Manual Volume 3

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

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN

EFFECTIVE OPERATING CONDITION, INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON

UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.

TOPSOIL, SEEDED AND MULCHED, OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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

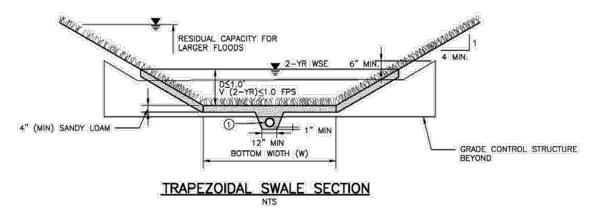
4. CONSTRUCTION FENCE SHALL BE REPAIRED OR REPLACED WHEN THERE ARE SIGNS OF DAMAGE SUCH AS RIPS OR SAGS. CONSTRUCTION FENCE IS TO REMAIN IN PLACE UNTIL THE

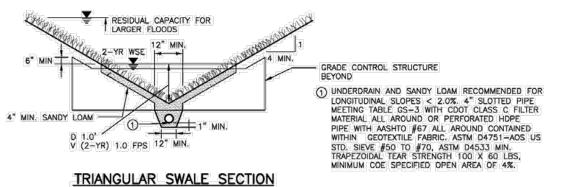
5. WHEN CONSTRUCTION FENCES ARE REMOVED, ALL DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE FENCE SHALL BE COVERED WITH

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

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

Grass Swale





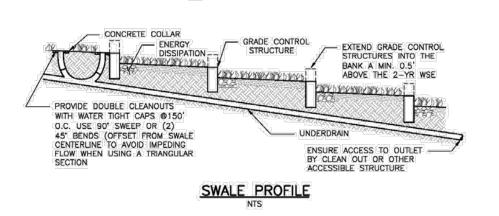


Figure GS-1. Grass Swale Profile and Sections

Design Example

The *UD-BMP* workbook, designed as a tool for both designer and reviewing agency is available at www.udfcd.org. This section provides a completed design form from this workbook as an example.

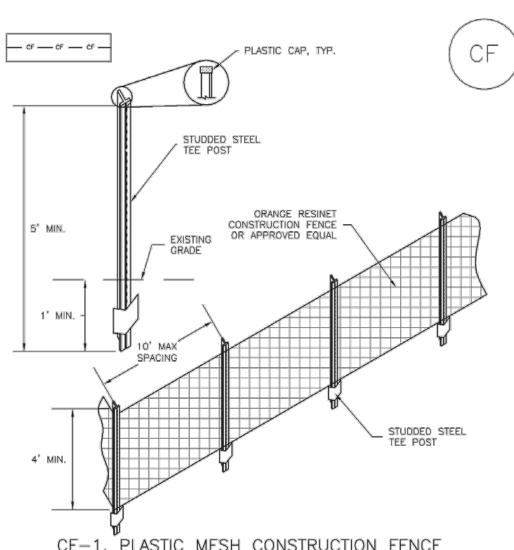
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November 2010

SM-4

TOP OF PIPE TO TOP OF EMBANKMENT EMBANKMENT BERM $\longrightarrow A$ PIPE MUST BE SUFFICIENTLY ANCHORED TO GROUN RIPRAP PAD SCH 40 PIPE 12"ø MIN. - WOVEN GEOTEXTILE TEMPORARY SLOPE DRAIN COMPACTED EMBANKMENT BERM 12" MIN SECTION A-A' 6x(PIPE Ø) RIPRAP PAD PLAN INSTALLATION NOTES MAINTENANCE NOTES FREQUENT OBSERVATIONS AND MAINTENANCE ARE I. THE LISTED DIMENSIONS ARE CONSIDERED NECESSARY TO MAINTAIN CONTROL MEASURES IN A MINIMUM; LARGER DRAINS CAN BE IMPLEMENTED BY THE CONTRACTOR. EFFECTIVE OPERATING CONDITION, INSPECTIONS AND DETAILS SHOW MINIMUM COVER; INCREASE CORRECTIVE MEASURES SHOULD BE DOCUMENTED COVER AS NECESSARY. THOROUGHLY. INSPECT INLETS AND OUTLETS AFTER STORMS TO PREVENT EXCESS CLOGGING. BREACHES IN PIPES SHOULD BE REPAIRED AS SOON AS FEASIBLY POSSIBLE. 3. INSPECT RIPRAP PAD AT OUTLET FOR SIGNS OF EROSION. IF SIGNS OF EROSION EXIST, ADDITIONAL ARMORING MAY BE INSTALLED. 4. TEMPORARY SLOPE DRAINS SHOULD REMAIN UNTIL THEY ARE NOT NEEDED, BUT SHOULD BE REMOVED BEFORE THE END OF CONSTRUCTION. 5. PERMANENTLY STABILIZE AREA AFTER TEMPORARY
SLOPE DRAINS ARE REMOVED. TEMPORARY SLOPE DRAIN STORMWATER 8/19/2020

SM-3 Construction Fence (CF)



CF-1. PLASTIC MESH CONSTRUCTION FENCE

CONSTRUCTION FENCE INSTALLATION NOTES

SEE PLAN VIEW FOR:
 -LOCATION OF CONSTRUCTION FENCE.

2. CONSTRUCTION FENCE SHOWN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

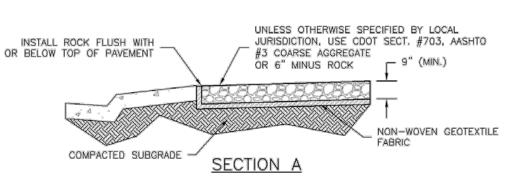
3. CONSTRUCTION FENCE SHALL BE COMPOSED OF ORANGE, CONTRACTOR-GRADE MATERIAL THAT IS AT LEAST 4' HIGH. METAL POSTS SHOULD HAVE A PLASTIC CAP FOR SAFETY. 4. STUDDED STEEL TEE POSTS SHALL BE UTILIZED TO SUPPORT THE CONSTRUCTION FENCE. MAXIMUM SPACING FOR STEEL TEE POSTS SHALL BE 10'.

5. CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO THE TOP, MIDDLE, AND

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Vehicle Tracking Control (VTC)

(WIDTH CAN BE LESS IF CONST VEHICLES ARE PHYSICALLY CONFINED ON SIDEWALK OR OTHER 75 **FOOT (MIN.)** PAVED SURFACE UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, USE - CDOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" MINUS ROCK NON-WOVEN GEOTEXTILE FABRIC BETWEEN SOIL AND ROCK



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

SM-4

Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

-LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S). -TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH,

2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.

3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS. 4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK. 6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES 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 TO THE STABILIZED

5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

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

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

ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.

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Date Issue / Description _____

CLH000018 Project No: CMW.J RGD Checked By 05/21/2021

EROSION CONTROL DETAILS

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EPC 5/27/2021

Sheet 8 of 10

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SSA-4

Construction Fence (CF)

DIFFERENCES ARE NOTED.

CONSTRUCTION FENCE MAINTENANCE NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE

November 2010

SM-3

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

Species ^a (Common name)	Growth Season ^b	Pounds of Pure Live Seed (PLS)/acre ^c	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	1/2
5. Millet	Warm	3 - 15	1/2 - 3/4
6. Sudangrass	Warm	5–10	1/2 - 3/4
7. Sorghum	Warm	5–10	1/2 - 3/4
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

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

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

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

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• Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or

recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long

ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may

mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an

 Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find

and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided

• On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory

for holding it in place. For steep slopes and special situations where greater control is needed, erosion

 Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for

Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and

• Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP

Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and

allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for

temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full

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

or straw mulch. Normally, use of these products will be restricted to relatively small areas.

effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be

applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation

steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass

Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead

with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the

have to be weighted to afford proper soil penetration.

control blankets anchored with stakes should be used instead of mulch.

of mulch. (See the ECM/TRM BMP for more information.)

for more information on general types of tackifiers.)

coverage of exposed soil on the area it is applied.

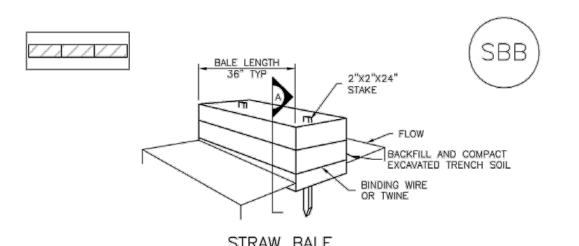
Maintenance and Removal

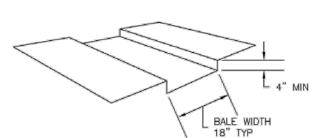
needed, to cover bare areas.

TS/PS-3

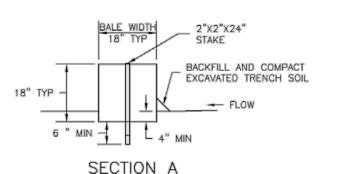
Mulching (MU)

Straw Bale Barrier (SBB)





TRENCH FOR STRAW BALE



SBB-1. STRAW BALE

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

Temporary and Permanent Seeding (TS/PS)

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

Potenical Crowth Crowth Souds/ Pounds of

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

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Temporary and Permanent Seeding (TS/PS)

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

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

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.

See Table TS/PS-3 for seeding dates.

June 2012

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

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

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

EC-2

2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL 3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND

4. WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.

5. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"X18"X18".

SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S)

STABILIZED AND APPROVED BY THE LOCAL JURISDICTION. 7. WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH

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.

Urban Storm Drainage Criteria Manual Volume 3

Temporary and Permanent Seeding (TS/PS)

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

	(Numbers in	l Grasses table reference able TS/PS-1)	Perennial Grasses		
Seeding Dates	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			✓	✓	

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

Protect seeded areas from construction equipment and vehicle access.

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

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Date Issue / Description _ ____

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EROSION CONTROL DETAILS

EPC 5/27/2021

should be avoided.

June 2012

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

Straw Bale Barrier (SBB)

STRAW BALE INSTALLATION NOTES

 SEE PLAN VIEW FOR: -LOCATION(S) OF STRAW BALES.

6. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES

7. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"X2"X24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

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.

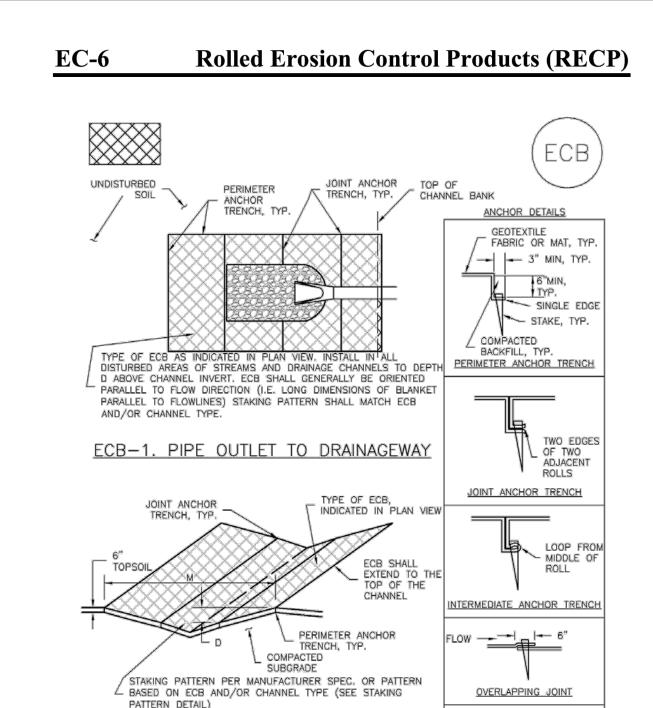
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE. 4. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.

5. SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/4. OF THE HEIGHT OF THE STRAW BALE BARRIER. 6. STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS

TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL

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

Urban Drainage and Flood Control District



RECP-6 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3

ECB-2. SMALL DITCH OR DRAINAGEWAY

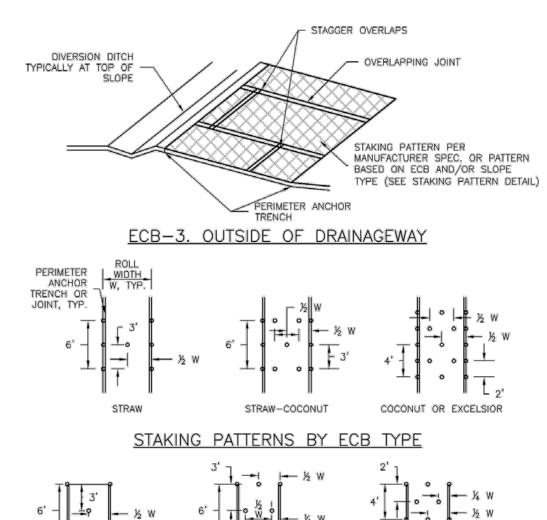
WOOD STAKE DETAIL

November 2010

Rolled Erosion Control Products (RECP)

EC-6

RECP-7



<u>STAKING</u>	PATTERNS BY	ECB IYPE	
6' - 1 3' W 6	3' 7 - 1	4'	- 4 w
4:1-3:1 SLOPES 2 [*]]	3:1-2:1 SLOPES	2:1 AND ST	
4" 20"		4' 10' 2'	ı
LOW FLOW CHA	ANNEL.	HIGH FLOW CHANNEL	
STAKING PATTER	NS BY SLOPE	OR CHANNEL	TYPE

Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 **Rolled Erosion Control Products (RECP)**

EROSION CONTROL BLANKET INSTALLATION NOTES SEE PLAN VIEW FOR:
 -LOCATION OF ECB.

-TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR). -AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.

2. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.

3. IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE

4. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL

5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE

6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.

7. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs 8. MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.

9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBS SHALL BE RESEEDED AND MULCHED.

10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

	TABLE ECB-1. ECB MATERIAL SPECIFICATIONS							
	TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**			
	STRAW*	_	100%	_	DOUBLE/ NATURAL			
	STRAW- COCONUT	30% MIN	70% MAX	-	DOUBLE/ NATURAL			
	COCONUT	100%	_	-	DOUBLE/ NATURAL			
					DOUBLE/ NATURAL			
	*STRAW ECBS MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL. **ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS							

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

Rolled Erosion Control Products (RECP)

EC-6

RECP-9

EROSION CONTROL BLANKET MAINTENANCE NOTES

November 2010

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

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

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

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

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DETAILS

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EROSION CONTROL