CLOVERLEAF SUBDIVISION

A PARCEL OF LAND LOCATED IN THE NE QUARTER OF SECTION 23 AND THE NW QUARTER OF SECTION 24, TOWNSHIP 11 S, RANGE 67 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO **GRADING AND EROSION CONTROL PLANS**

Call before you dig.

BDIVIS S

SHEET **1** OF **11** JOB NO. **25158.01**

ABBREVIATIONS

ALGEBRAIC DIFFERENCE AHEAD ARCH ARCHITECT AMERICAN SOCIETY OF CIVIL **ENGINEERS** ASS'Y ASSEMBLY BB BOX BASE BNDY BOUNDARY

CURB & GUTTER CATV CABLE TELEVISION CATCH BASIN CONCRETE BOX CULVERT COLORADO DEPARTMENT OF TRANSPORTATION CUL-DE-SAC

CUBIC FOOT CFS COMPLETE IN PLACE CENTER LINE CLOMR CONDITIONAL LETTER OF MAP CMP CORRUGATED METAL PIPE

CLEAN OUT COCS CITY OF COLORADO SPRINGS CONC CONCRETE CORRUGATED STEEL PIPE COLORADO SPRINGS UTILITIES CTRB CONCRETE THRUST REDUCER

CUBIC YARD DBPS DRAINAGE BASIN PLANNING DRAINAGE EASEMENT DIAMETER DIP DWELLING UNITS

ENERGY GRADE LINE EOA EDGE OF ASPHALT ERCP ELLIPTICAL RCP ESMT EASEMENT EST ESTIMATE ΕX EXISTING FDR

FINAL DEVELOPMENT PLAN FINAL DRAINAGE REPORT FES FLARED END SECTION FINISHED FLOOR ELEVATION FINISHED GRADE FIRE HYDRANT FILING FIBER OPTIC CABLE GB GRADE BREAK

GAS EASEMENT GEOGRAPHIC INFORMATION SYSTEM GAS LINE GPS GLOBAL POSITIONING SYSTEM GATE VALVE GV HOT BITUMINOUS PAVEMENT HANDICAP HIGH DEFLECTION COUPLING HDPE HIGH DENSITY POLYETHYLENE HGL HYDRAULIC GRADE LINE

HMA HOT MIX ASPHALT HOA HOME OWNERS ASSOCIATION HIGH POINT HR HOUR INLET

IRRIGATION EASEMENT

THE LOCATIONS OF EXISTING ABOVE GROUND AND

UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE

INTERSECTION INVERT IRRIGATION KICK (THRUST) BLOCK POUND LANDSCAPE EASEMENT

LINEAR FOOT LOMR LETTER OF MAP REVISION LOW POINT LUMP SUM LEFT MAXIMUM MOISTURE DENSITY MDDP MASTER DEVELOPMENT DRAINAGE PLAN

MANHOLE MINIMUM MOUNTABLE SIDEWALK NORTH NRCP NON-REINFORCED CONCRETE PIPE OFFICIAL DEVELOPMENT PLAN OVERHEAD ELECTRIC

OVERHEAD UTILITY POINT OF CURVATURE POINT OF COMPOUND CURVATURE POINT OF CURB RETURN PRELIMINARY DEVELOPMENT PLAN PROFESSIONAL ENGINEER POINT OF INTERSECTION

PROPERTY LINE PROPOSED POINT OF REVERSE CURVATURE POINT OF TANGENCY PV PLUG VALVE POLYVINYL CHLORIDE RADIUS

PKWY PARKWAY

RCBC REINFORCED CONCRETE BOX CULVERT REINFORCED CONCRETE PIPE ROAD RIGHT OF WAY RIGHT SOUTH STEEL

SANITARY SEWER SQUARE FOOT STORM SEWER SQUARE YARD SY-IN SQUARE YARD INCH TOP BACK OF CURB TOP BACK OF WALK TBW

TELEPHONE TOA TOP OF ASPHALT TOB TOP OF BOX TOC TOP OF CURB OR CONCRETE TOP OF FOUNDATION TOP TOP OF PIPE TW TOP OF WALL TYP TYPICAL

UDFCD URBAN DRAINAGE AND FLOOD CONTROL DISTRICT UTILITY EASEMENT U&DE UTILITY & DRAINAGE EASEMENT UGE UNDERGROUND ELECTRIC VITRIFIED CLAY PIPE VCP VERTICAL POINT OF CURVATURE VERTICAL POINT OF

INTERSECTION VERTICAL POINT OF TANGENCY VTC VEHICLE TRACKING CONTROL WEST WATER LINE WATER MAIN

WRD WATER RESOURCES DEPARTMENT WATER SURFACE WSE WATER SURFACE ELEVATION WTR WATER YR YEAR

HWY-105 **BOWSTRING RD**

VICINITY MAP

COVER SHEET LEGEND & NOTES

 TYPICAL SECTIONS 4-6 - GRADING AND EROSION CONTROL PLANS

SHEET INDEX

7-11 - DETAILS

OWNER/DEVELOPER STATEMENT

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

CONTACTS:

PT CLOVERLEAF, LLC

JR ENGINEERING, LLC

ATTN: MIKE A. BRAMLETT

TRI-LAKES MONUMENT FPD

 $P \sim 719 - 476 - 0800$

P~303-267-6240

P~719-484-0911

MONUMENT, CO 80132

1845 WOODMOOR DRIVE

 $P \sim 719 - 488 - 2525$ EXT. 0

MONUMENT, CO 80132

1864 WOODMOOR DRIVE, SUITE 100

5475 TECH CENTER DRIVE, SUITE 235 COLORADO SPRINGS, CO 80919

16055 OLD FOREST POINT, SUITE 103

WOODMOOR WATER & SANITATION DISTRICT NO. 1

PCD File No.: SP202

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

RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO

VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2

YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER.

CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF

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 CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSIO

COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL,

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION

REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT

COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO

EL PASO COUNTY STATEMENT

DOCUMENT.

DIRECTORS DISCRETION.

JENNIFER IRVINE, P.E.

PREPARING THIS PLANS.

MIKE A. BRAMLETT, P.E.

COLORADO P.E. 32314

COUNTY ENGINEER/ECM ADMINISTRATOR

ENGINEER'S STATEMENT

FOR AND ON BEHALF OF JR ENGINEERING

COLORADO SPRINGS, CO 80920

OWNER/DEVELOPER

ENGINEER/SURVEYOR

DISTRICT

FIRE PROTECTION DISTRICT

JOE DESJARDIN PT CLOVERLEAF, LLC

1864 WOODMOOR DRIVE, SUITE 100 COLORADO SPRINGS. CÓ 80920

WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES.

32314

CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN

LAYER LINETYPE LEGEND GRADING AND EROSION CONTROL STANDARD NOTES UTILITIES LEGEND STORM WATER MANAGEMENT 1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, EXISTING **PROPOSED** EXISTING PROPOSED CHECK DAM CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER PHASE LINE THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS. STORM SEWER CONSTRUCTION FENCE MATCH LINE 2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND 폴찐듀유투! MANHOLE CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND SECTION LINE REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE (CWA) CONCRETE WASHOUT AREA STORM INLET BOUNDARY LINE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND PROPERTY LINE AREA INLET - SQUARE APPROVED, IN WRITING. INLET PROTECTION EASEMENT LINE AREA INLET - ROUND 3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND RIGHT OF WAY (LOC) STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION, MANAGEMENT OF THE LIMITS OF CONSTRUCTION FLARED END SECTION SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED R.O.W. A LINE EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL OUTLET PROTECTION BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD. RIPRAP CENTERLINE CITY LIMITS 4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL PERMANENT SEEDING THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A WIRE FENCE & MULCHING 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 CHAIN LINK FENCE SANITARY SEWER SEDIMENT BASIN WOOD FENCE LINE MARKER Mkr San^O 5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS MASONRY FENCE (SF) SERVICE MARKER TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE SILT FENCE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE. GUARDRAIL CLEAN-OUT (SSA) CONC. BARRIER STABILIZED STAGING AREA 6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE MANHOLE W/ DIRECTIONAL OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION FLOW ARROW CABLE TV IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE ELECTRIC _____ F ___ F ___ F ___ TEMPORARY STOCK PILE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION WATER LINE FIBER OPTIC CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN. LINE MARKER Mkr W[○] GAS MAIN TEMPORARY SWALE 7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING SERVICE MARKER CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS. IRRIGATION MAIN FIRE HYDRANT VEHICLE TRACKING CONTROL OIL/PETRO. MAIN 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 FIRE CONNECTION OVERHEAD UTILITY ______OHU_____OHU____ VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR MANHOLE EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION SANITARY SEWER CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE. BEND STORM DRAIN 9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY BLOW-OFF VALVE TELEPHONE PROPOSED CHANGES THAT AFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES WELL MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION. OWELL WATER MAIN RAW WATER LINE METER 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 SWALE/WATERWAY FLOWLINE VALVE 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 REDUCER STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED DIVERSION DITCH THRUST BLOCK DIVERSION CHANNEL 11. COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE CROSS FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES MAJOR DRAINAGE BASIN SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF PLUG W/ THRUST BLOCK COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND MINOR DRAINAGE BASIN VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S). TEE TOP OF SLOPE REVERSE ANCHOR 12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, TOE OF SLOPE THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION ANODE AND THE DISCHARGE OF SEDIMENT OFF SITE. EDGE OF WATER AIR & VACUUM 13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER INDEX CONTOUR VALVE ASSEMBLY SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW TRANSMISSION INTERMEDIATE CONTOUR GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM. BLOW-OFF ASSEMBLY 14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT GAS LINE LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE. MARKER DEPRESSION CONT. (INTER) $Mkr G^{\circ}$ 15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1. SERVICE MARKER TOP OF CUTS 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 TOE OF FILLS MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE. VALVE CUT AND FILL LINE 17. WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, PLUG SILT FENCE _____ SF ____ SF ____ SF ____ UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL TEE PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES. 100 YEAR FLOODPLAIN DRY UTILITIES 18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE 500 YEAR FLOODPLAIN CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY. CABLE TV MARKER FLOODWAY 19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, CABLE TELEVISION PEDESTAL BASE FLOOD ELEVATION **^** SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE ELECTRIC MARKER SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT. EDGE OF WETLANDS ELECTRIC SERVICE MARKER 20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT STONE WALL QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE ELECTRICAL PEDESTAL STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS. 1.00% STORMWATER FLOW ARROWS ELECTRICAL METER 21. NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS ELECTRICAL MANHOLE PERMISSION FÒR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED. FIBER-OPTIC MARKER Mkr FOO IRRIGATION PEDESTAL 22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY TELEPHONE MARKER Mkr T[○] SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES. TELEPHONE PEDESTAL TELEPHONE MANHOLE 23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES. UTILITY POLE 24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, GUY ANCHOR ARTICLÉ 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND GUY POLE 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 ONLY AT APPROVED CONSTRUCTION ACCESS POINTS. 26. PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES. 27. A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND. 28. THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING, INC. (DATED 04/07/2020) AND SHALL BE CONSIDERED A PART OF THESE PLANS. 29. CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT AND A PRECONSTRUCTION CONFERENCE IS HELD WITH PLANING AND COMMUNITY DEVELOPMENT INSPECTIONS. \mathbf{m} 30. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MÒRÉ, 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 ENGINEER'S STATEMENT DENVER, CO 80246-1530 ATTN: PERMITS UNIT PREPARED UNDER MY DIRECT SUPERVISION AND CONSEHALF OF JR ENGINEERING

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ENGINEERING

BRAMLETT, P.E.

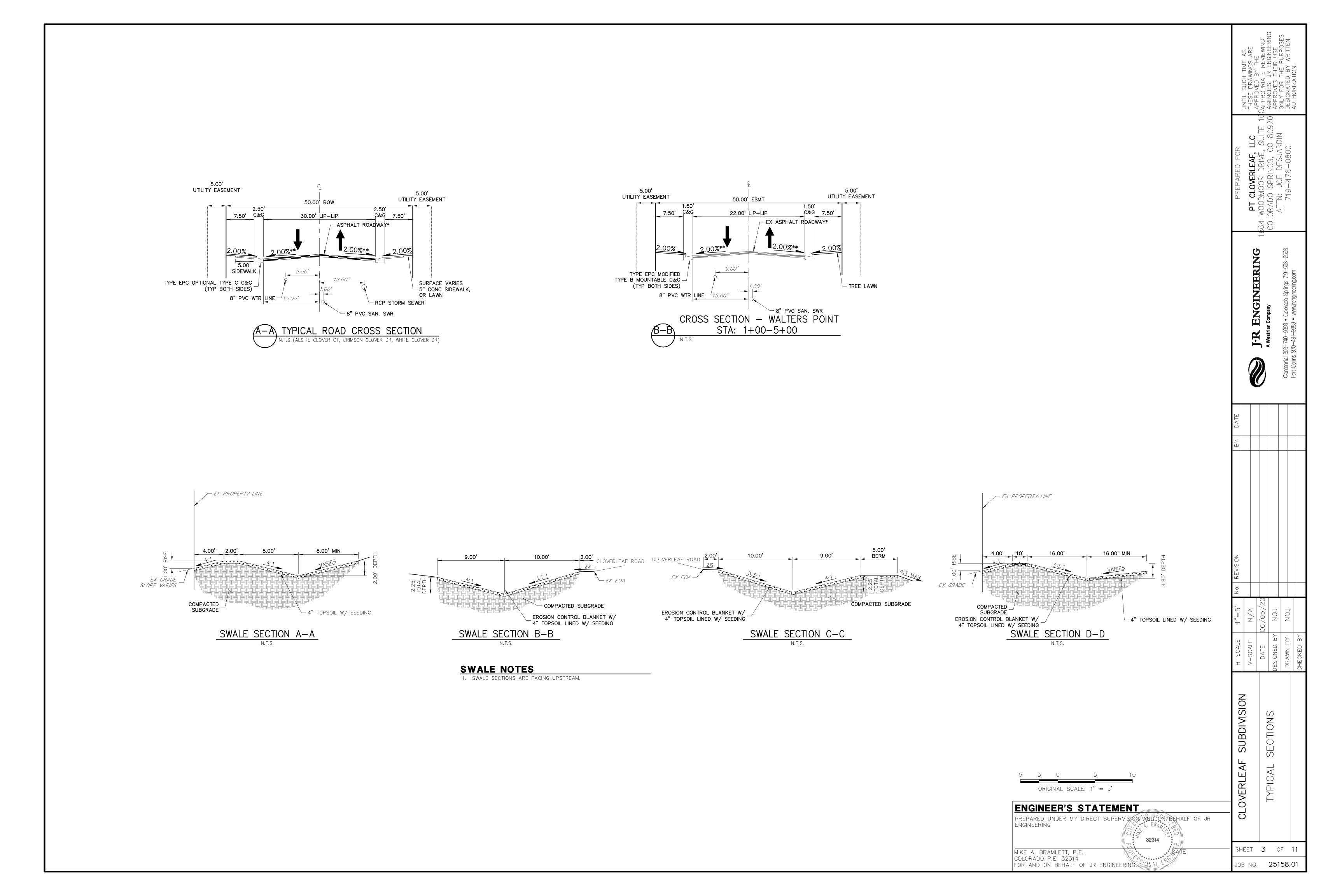
BRAMLETT, P.E.

COLORADO P.E. 32314

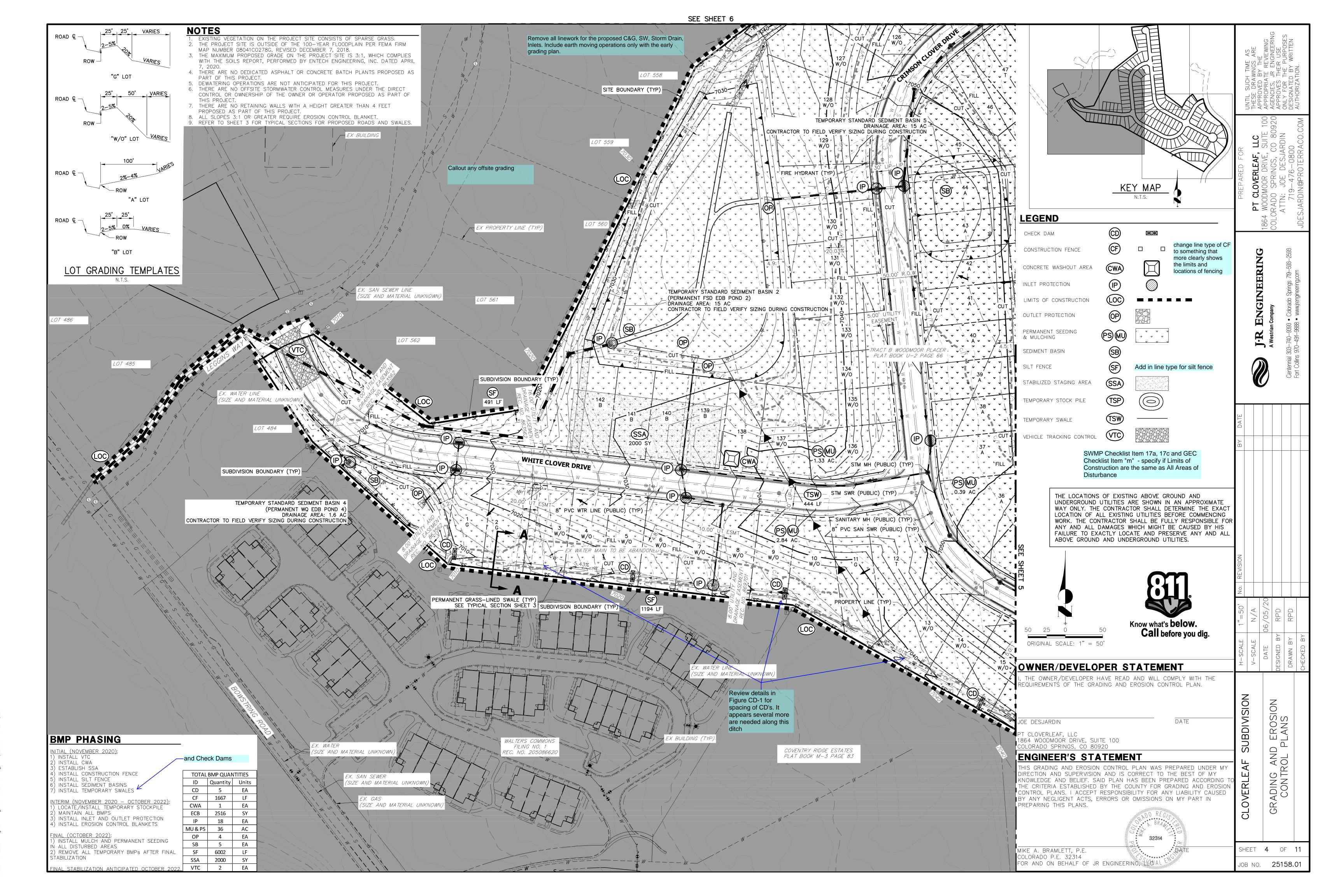
FOR AND ON BEHALF OF JR ENGINEERING

SHEET 2 OF 11

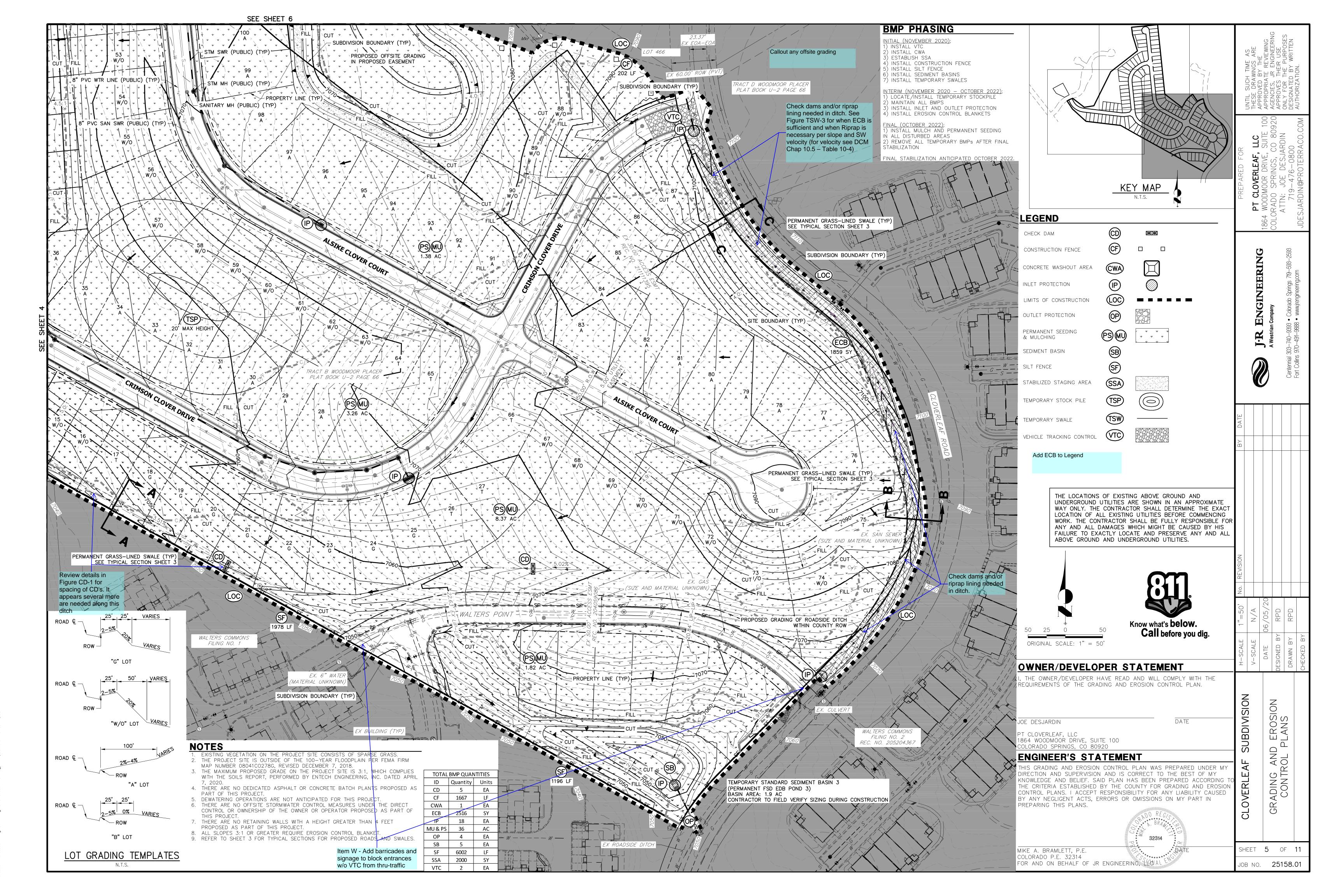
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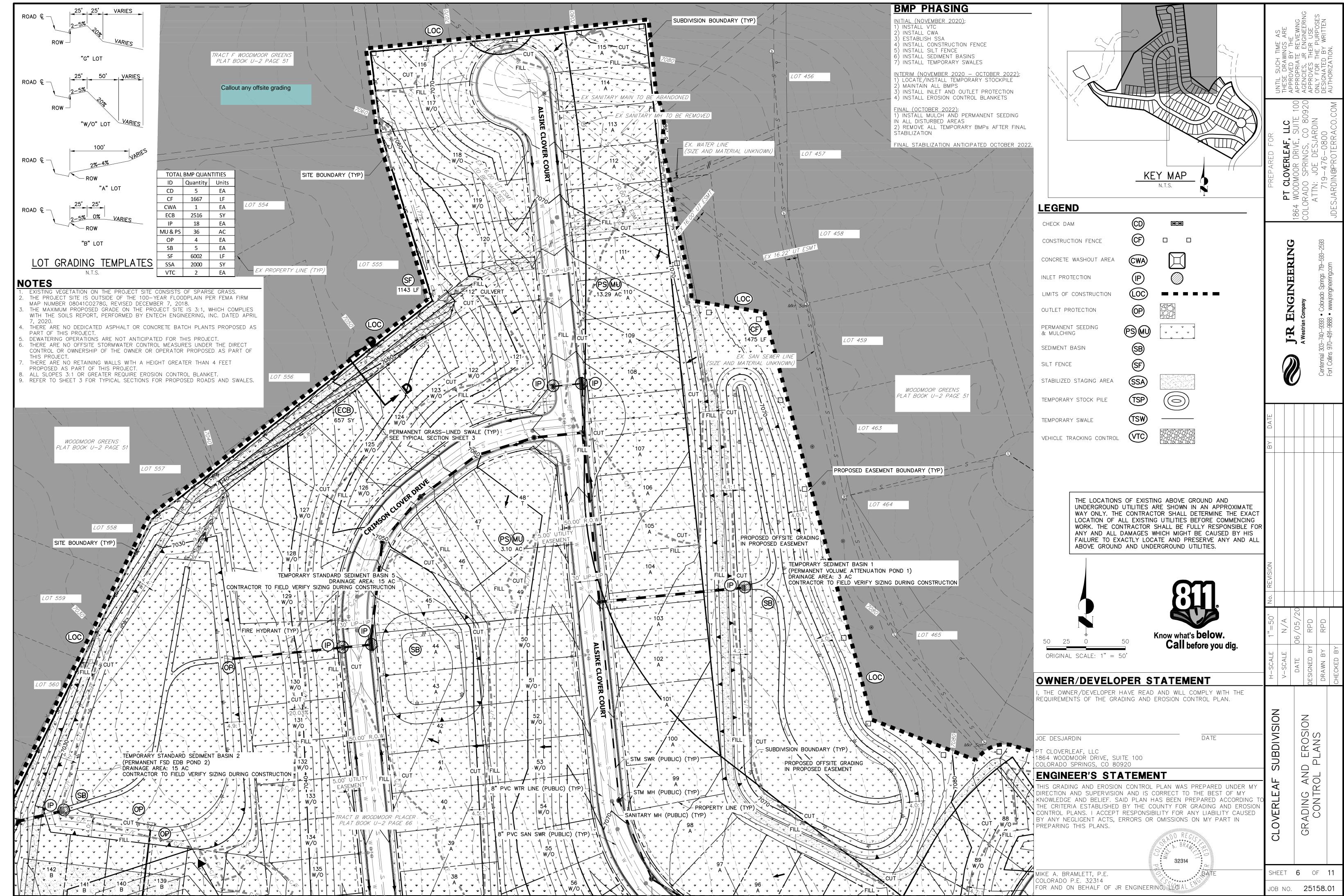
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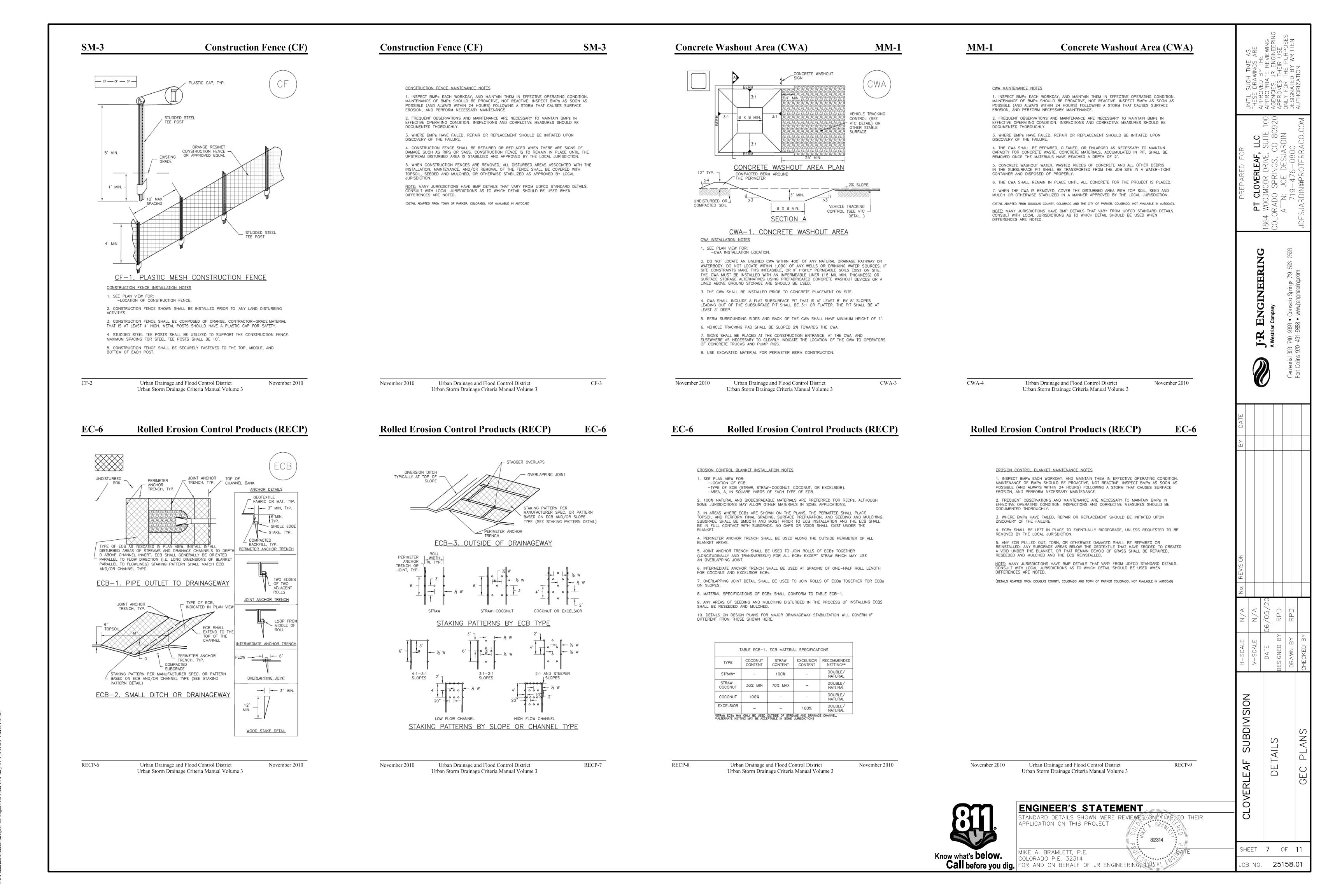


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SEE SHEET 4

SEE SHEET 5



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SEE ROCK SOCK DESIGN

BLOCKS

16" CINDER

2"x4" WOOD STUD

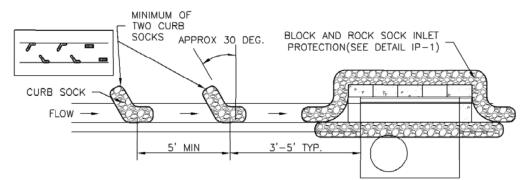
DETAIL FOR JOINTING 16" CINDER

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
- 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.

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

Inlet Protection (IP)

GENERAL INLET PROTECTION INSTALLATION NOTES

1. SEE PLAN VIEW FOR: -LOCATION OF INLET PROTECTION. -TYPE OF INLET PROTECTION (IP.1, IP.2, IP.3, IP.4, IP.5, IP.6)

2. INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.

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

INLET PROTECTION MAINTENANCE NOTES

DIFFERENCES ARE NOTED.

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 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.

Urban Drainage and Flood Control District

SEE ROCK SOCK DETAIL ROCK SOCK -

SC-6

SC-6

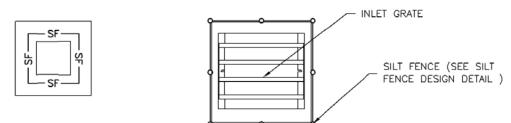
Inlet Protection (IP)

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

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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Mulching (MU)

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

Maintenance and Removal

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

Urban Drainage and Flood Control District June 2012 **Temporary Outlet Protection (TOP)**

CONCENTRATED

OVEREXCAVATION INLET PROTECTION INSTALLATION NOTES

IP-5. OVEREXCAVATION INLET PROTECTION

1. THIS FORM OF INLET PROTECTION IS PRIMARILY APPLICABLE FOR SITES THAT HAVE NOT YET REACHED FINAL GRADE AND SHOULD BE USED ONLY FOR INLETS WITH A RELATIVELY

2. WHEN USING FOR CONCENTRATED FLOWS, SHAPE BASIN IN 2:1 RATIO WITH LENGTH

IP-6. STRAW BALE FOR SUMP INLET PROTECTION

2. BALES SHALL BE PLACED IN A SINGLE ROW AROUND THE INLET WITH ENDS OF BALES

STRAW BALE BARRIER INLET PROTECTION INSTALLATION NOTES

1. SEE STRAW BALE DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.

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3. SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE OVEREXCAVATED AREA.

ROCK FILTER OR ROCK SOCK

SMALL CONTRIBUTING DRAINAGE AREA.

ORIENTED TOWARDS DIRECTION OF FLOW.

(USE IF FLOW

IS CONCENTRATED)

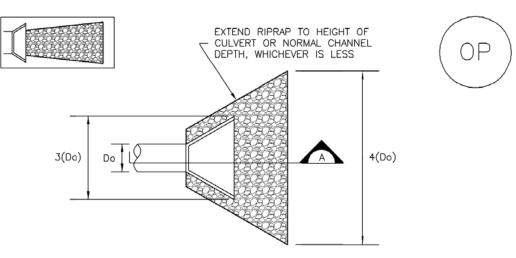
STRAW BALE (SEE STRAW

BALE DESIGN DETAIL)

TIGHTLY ABUTTING ONE ANOTHER.

Inlet Protection (IP)

August 2013



TEMPORARY OUTLET PROTECTION PLAN

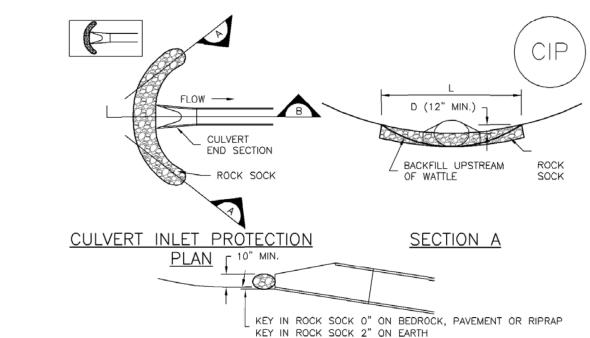
NON-WOVEN KEY IN TO 2 x D50 AROUND PERIMETER SECTION A

TABLE OP-1. TEMPORARY OUTLET PROTECTION APRON LENGTH, La DIAMETER, DISCHARGE, Q (CFS) (FT) (INCHES) (INCHES) 12

Urban Drainage and Flood Control District November 2010

OP-1. TEMPORARY OUTLET PROTECTION

Inlet Protection (IP)



<u>CIP-1. CULVERT INLET PROTECTION</u>

SECTION B

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

CULVERT INLET PROTECTION MAINTENANCE NOTES

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

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

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

4. SEDIMENT ACCUMULATED UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.

5. CULVERT INLET PROTECTION SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED AND APPROVED BY THE LOCAL JURISDICTION. (DETAILS ADAPTED FROM AURORA, COLORADO, NOT AVAILABLE IN AUTOCAD)

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

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Temporary Outlet Protection (TOP)

EC-8

SC-6

Δ.

TEMPORARY OUTLET PROTECTION INSTALLATION NOTES

 SEE PLAN VIEW FOR
 -LOCATION OF OUTLET PROTECTION. -DIMENSIONS OF OUTLET PROTECTION

2. DETAIL IS INTENDED FOR PIPES WITH SLOPE \le 10%. ADDITIONAL EVALUATION OF RIPRAP SIZING AND OUTLET PROTECTION DIMENSIONS REQUIRED FOR STEEPER SLOPES. 3. TEMPORARY OUTLET PROTECTION INFORMATION IS FOR OUTLETS INTENDED TO BE UTILIZED LESS THAN 2 YEARS.

TEMPORARY OUTLET PROTECTION INSPECTION AND 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

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 AURORA, COLORADO AND PREVIOUS VERSION OF VOLUME 3, NOT AVAILABLE IN AUTOCAD)

November 2010

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TOP-3

COLORADO P.E. 32314

ENGINEER'S STATEMENT

TANDARD DETAILS SHOWN WERE REVIEWED ONLY CASCITO THEIR APPLICATION ON THIS PROJECT 32314

IOB NO. **25158.01**

SHEET **8** OF **11**

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IP-8

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TOP-2 Urban Storm Drainage Criteria Manual Volume 3

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- D50=9" RIPRAP TYPE L

Stabilized Staging Area (SSA)

CONSTRUCTION

STABILIZED

STABILIZED STAGING AREA INSTALLATION NOTES

-LOCATION OF STAGING AREA(S).

FROM THE LOCAL JURISDICTION.

FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

EROSION, AND PERFORM NECESSARY MAINTENANCE.

UNDERLYING SUBGRADE BECOMES EXPOSED.

CONSTRUCTION

ENTRANCE (SEE -

DETAILS VTC-1 TO VTC-3)

SB-6

SM-6

Stabilized Staging Area (SSA)

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

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

STABILIZED STAGING AREA MAINTENANCE NOTES

58 1/4

Upstream Drainage Basin Bottom Width

SEDIMENT BASIN INSTALLATION NOTES

Area (rounded to

nearest acre), (ac)

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

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

(W), (ft)

Length (CL), (ft)

-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)

Diameter

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 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 ACRÉS.

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ONSITE CONSTRUCTION

VEHICLE

PARKING (IF

NEEDED)

AREA

— SF/CF — SF/CF →

SSA-1. STABILIZED STAGING AREA

2. STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE, OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.

3. STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.

SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

4. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT

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

4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR

-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL

Urban Drainage and Flood Control District

TRAILERS

3" MIN. THICKNESS

GRANULAR MATERIAL

FENCING AS NEEDED

SILT FENCE OR CONSTRUCTION

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Sediment Basin (SB)

SEDIMENT BASIN MAINTENANCE NOTES

DISCOVERY OF THE FAILURE.

BELOW THE SPILLWAY CREST).

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO)

LOCAL JURISDICTION.

August 2013

SM-6

SSA-4

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

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

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

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 DIFFERENCES ARE NOTED.

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

EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE

SB-7

SC-7

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SPACING GEOTEXTILE COMPACTED BACKFILL

1 ½" × 1 ½"

(RECOMMENDED) WOODEN

FENCE POST WITH 10' MAX

Silt Fence (SF)

___ SF ___ SF ___ SF __

November 2010

OF SILT FENCE "TAIL" SHALL BE BURIED

SILT FENCE POSTS SHALL OVERLAP AT JOINTS SO THAT NO GAPS 7 EXIST IN SILT FENCE/ ROTATE SECOND POSTS SHALL BE JOINED AS THICKNESS OF GEOTEXTILE HAS SHOWN, THEN ROTATED 180 DE BEEN EXAGGERATED, TYP IN DIRECTION SHOWN AND DRIVEN INTO THE GROUND

SECTION A

SF-1. SILT FENCE

SF-3

3 ـ

SC-1

Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES. 5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES

OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC

DOWN THE STAKE. 6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J—HOOK." THE "J—HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES. SILT FENCE MAINTENANCE NOTES

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

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

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE. 4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED

TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6". 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING,

TEARING, OR COLLAPSE. 6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION. (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

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

Urban Drainage and Flood Control District November 2010 Urban Drainage and Flood Control District

Urban Drainage and Flood Control District

November 2010

ENGINEER'S STATEMENT STANDARD DETAILS SHOWN WERE REVIEWED VONLY CASOTO THEIR APPLICATION ON THIS PROJECT 32314

MIKE A. BRAMLETT, P.E.

Know what's **below.** COLORADO P.E. 32314

SUBI

SHEET **9** OF **11**

OB NO. **25158.01**

SF-4

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Seeding dates for the highest success probability of perennial species along the Front Range are generally

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

Growth

Cool

Cool

Cool

Warm

Warm

Warm

Cool

Cool

Cool

is not disturbed or mowed closer than 8 inches.

Successful seeding of annual grass resulting in adequate plant growth will

wind and water erosion for an additional year. This assumes that the cover

usually produce enough dead-plant residue to provide protection from

Hydraulic seeding may be substituted for drilling only where slopes are

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.

steeper than 3:1 or where access limitations exist. When hydraulic

seeding is used, hydraulic mulching should be applied as a separate

(Common name)

. Spring wheat

Spring barley

4. Annual ryegrass

Oats

. Millet

6. Sudangrass

7. Sorghum

8. Winter wheat

9. Winter barley

10. Winter rye

11. Triticale

the mulch.

Pounds of

Pure Live Seed

(PLS)/acre

35 - 50

25 - 35

25 - 35

10 - 15

3 - 15

5 - 10

5 - 10

20–35

20 - 35

20 - 35

25 - 40

Planting

Depth

(inches)

1 - 2

1 - 2

1 - 2

 $\frac{1}{2} - \frac{3}{4}$

 $\frac{1}{2} - \frac{3}{4}$

 $\frac{1}{2} - \frac{3}{4}$

1 - 2

1 - 2

1 - 2

1 - 2

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

PLS/acre

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

Annual Grasses

(Numbers in table reference

species in Table TS/PS-1)

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

Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed

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

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

the site that fail to germinate or remain bare after the first growing season.

Protect seeded areas from construction equipment and vehicle access.

Cool

1,2,3

Warm

4

4,5,6,7

5,6,7

Perennial Grasses

Warm

Cool

 \checkmark

Seeding Dates

January 1–March 15

March 16-April 30

May 1–May 15

May 16–June 30

July 16–August 31

September 1–September 30

Fact Sheet for additional guidance.

and mulch these areas, as needed.

Maintenance and Removal

October 1–December 31

July 1–July 15

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OB NO. **25158.01**

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

Common ^a Name	Botanical Name	Growth Season ^b	Growth Form	Seeds/ Pound	Pounds o PLS/acre
Alakali Soil Seed Mix			1	1	
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	K				
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					
Ruebens Canadian bluegrass	Poa compressa 'Ruebens'	Cool	Sod	2,500,000	0.5

Arriba western wheatgrass

Sandy Soil Seed Mix

Camper little bluestem

Vaughn sideoats grama

Arriba western wheatgrass

Ephriam crested wheatgrass^a

Oahe Intermediate wheatgrass

Vaughn sideoats gramae

Lincoln smooth brome

Heavy Clay, Rocky Foothill Seed Mix

Blue grama

Prairie sandreed

Sand dropseed

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.

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

Warm

Warm

Warm

Cool

Cool

Cool

Warm

Cool

Cool

Bouteloua gracilis

Schizachyrium scoparium

Calamovilfa longifolia

Sporobolus cryptandrus

Bouteloua curtipendula

Agropyron intermedium

Bouteloua curtipendula

Bromus inermis levss

Agropyron smithii 'Arriba'

Agropyron smithii 'Arriba'

Growth

Form

bunchgrass

Bunch

Open sod

Bunch

Sod

Sod

Sod

Sod

Sod

825,000

240,000

5,298,000

191,000

175,000

115,000

191,000

130,000

See Table TS/PS-3 for seeding dates.

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

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.

also be necessary.

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3" MIN OF COURSE AGGREGATE ON ALL

AND STORAGE AREAS.

COARSE AGGREGATE

3 INCHES (D₅₀)

VEHICLE TRACKING NOTES

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH

AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY

GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.

LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.

City of Colorado Springs

Stormwater Quality

4. CONSTRUCTION ROADS, PARKING AREAS,

5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE

SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

EXCEPT FOR A SLIGHT OVERLAP.

INSTALLATION REQUIREMENTS

TO BE STABILIZED PRIOR TO CONSTRUCTION

CONSTRUCTION ROADS, PARKING AREAS,

STAGING AREA, LOADING/UNLOADING AREAS,

VEHICLE TRACKING

GEOTEXTILE (MATERIAL REQUIREMENTS IN APPENDIX B, TABLE MT-3)

PAVEMENT -

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND

3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING.

SEDIMENT IS NOT TO BE WASHED DOWN STORM

4. STORM SEWER INLET PROTECTION IS TO BE IN

PLACE, INSPECTED, AND CLEANED IF NECESSARY

5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES

Figure VT-2

Vehicle Tracking

Application Examples

STABILIZED AREAS, ESPECIALLY AFTER STORM

WHEN REPAIR IS NECESSARY

Stockpile Management (SP)

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Festuca ovina 'duriuscula'

Lolium perenne 'Citation'

Bromus inermis leyss

Cool

MM-2

TS/PS-4

Dural hard fescue

Citation perennial ryegrass

Total

Lincoln smooth brome

Stockpile Management (SM)

565.000

130,000

June 2012

STOCKPILE PROTECTION MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN FFFECTIVE 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

STOCKPILE PROTECTION MAINTENANCE NOTES

5. STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE

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

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

SP

SILT FENCE (SEE SF DETAIL FOR INSTALLATION REQUIREMENTS)

SILT FENCE (SEE SF DETAIL FOR

INSTALLATION REQUIREMENTS)

EROSION, AND PERFORM NECESSARY MAINTENANCE.

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

4. IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.

SP-1. STOCKPILE PROTECTION STOCKPILE PROTECTION INSTALLATION NOTES

STOCKPILE

STOCKPILE PROTECTION PLAN

1. SEE PLAN VIEW FOR:
-LOCATION OF STOCKPILES.
-TYPE OF STOCKPILE PROTECTION.

INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.

3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).

4. FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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November 2010

Parking, Staging and Loading/Unloading Area Public Road CASE 1 Table VT-1 Construction Case 1 Case 2 **Gravel Thickness** YES Filter Fabric Figure VT-1 City of Colorado Springs Vehicle Tracking

3-53

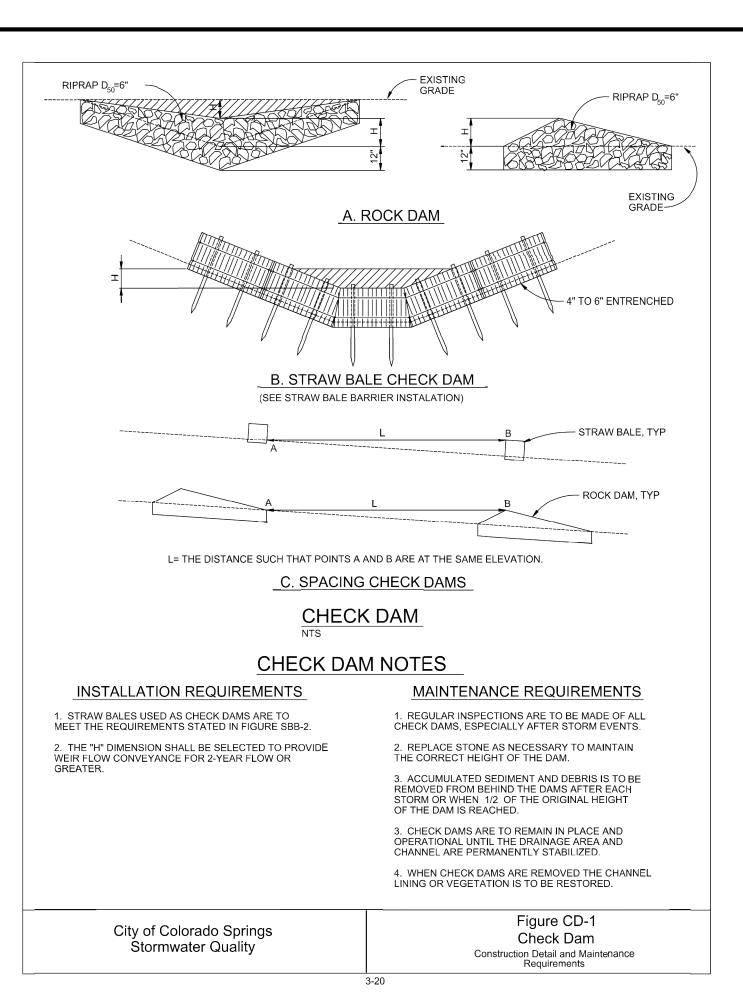
Application Examples

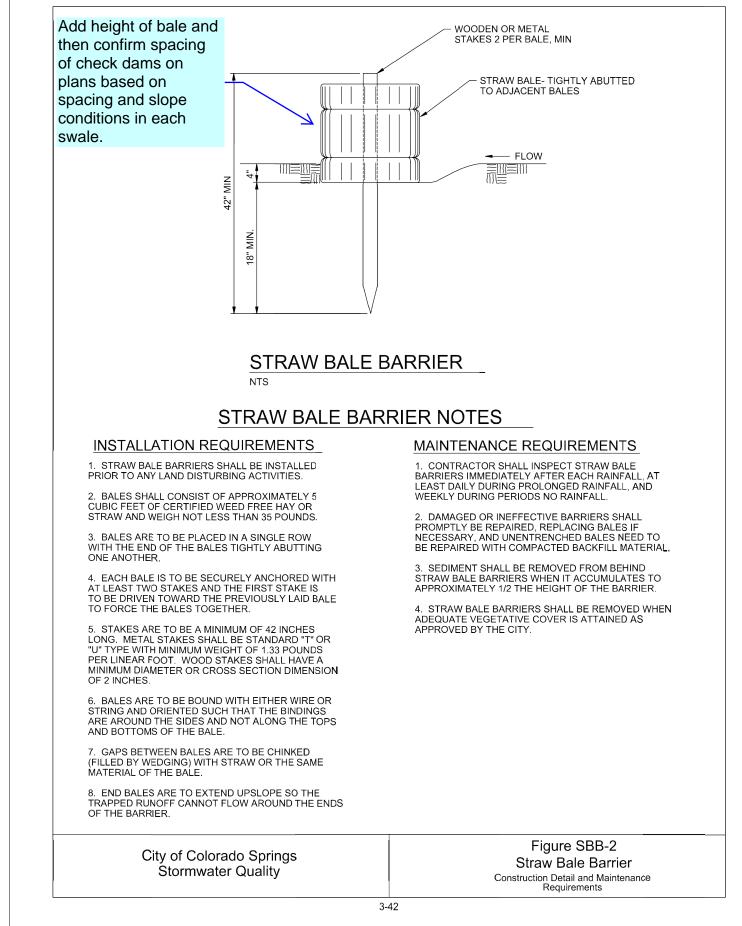
Storm Water Quality

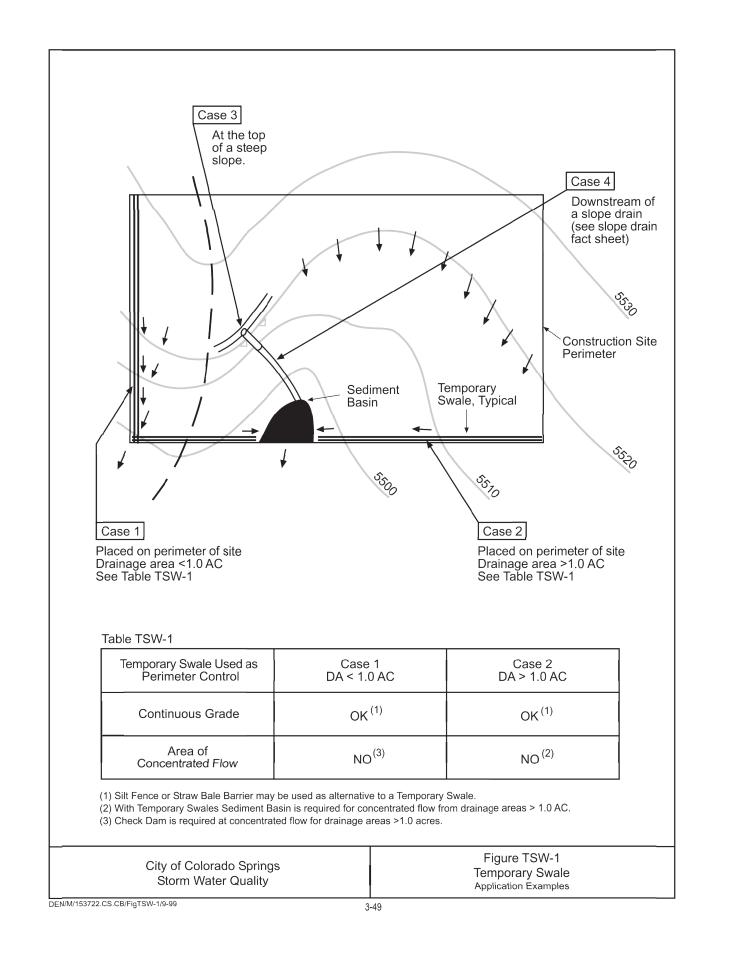
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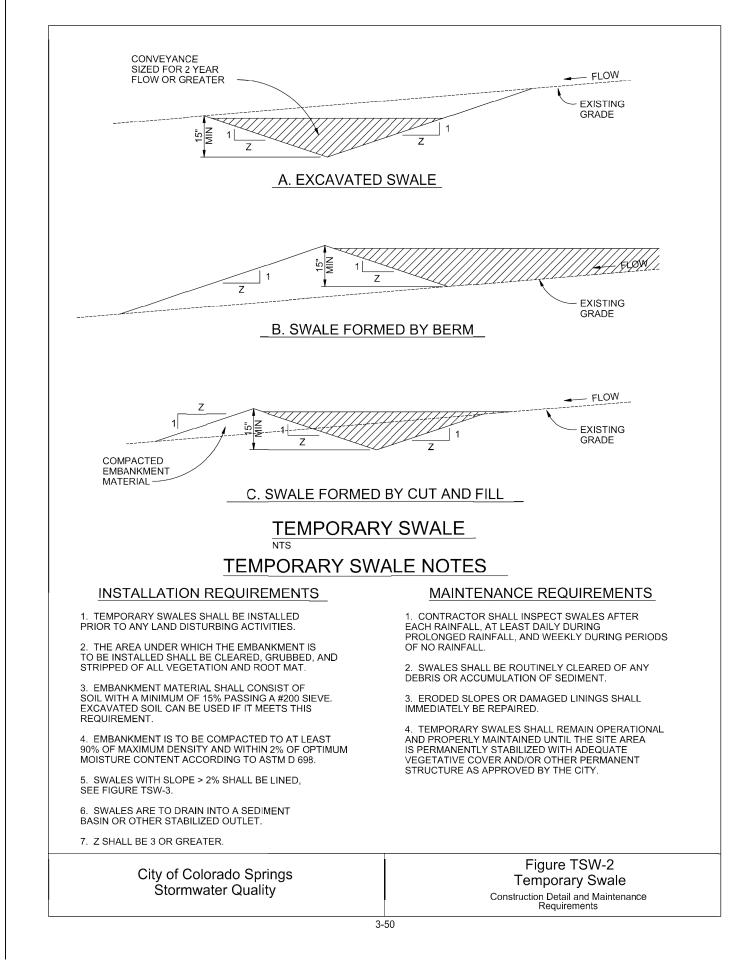
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Know what's **below.**

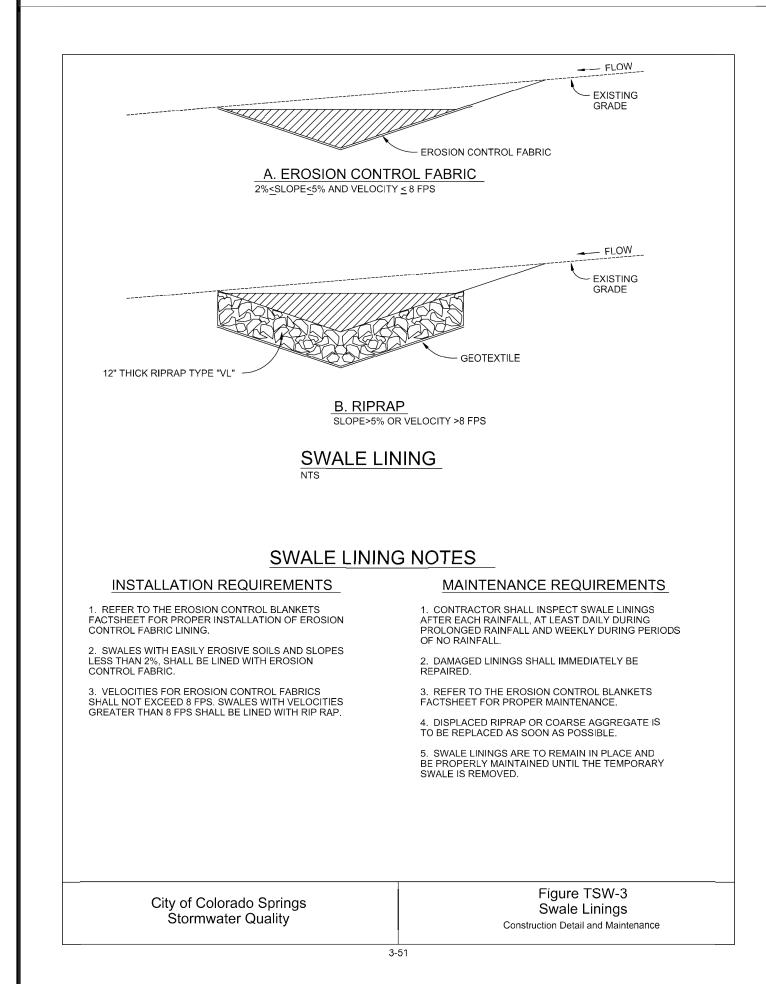








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MIKE A. BRAMLETT, P.E.

COLORADO P.E. 32314

FOR AND ON BEHALF OF JR ENGINEERING. MIKE A. BRAMLETT, P.E.

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