HOMESTEAD AT STERLING RANCH FILING NO. 2

COUNTY OF EL PASO, STATE OF COLORADO

SAND CREEK BANK STABILIZATION PLAN

MARCH 2020

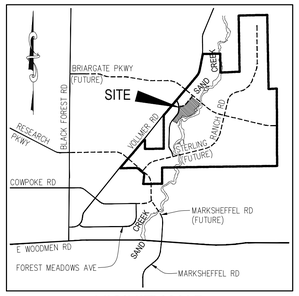
STANDARD CONSTRUCTION NOTES:

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO SPRINGS.
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIME INCLUDING THE FOLLOWING:
   3.1 EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
   3.2 CITY OF COLORADO SPRINGS/EL PASO COUNTY ENGINEERING CRITERA MANUAL VOLUMES 1 AND 2.
   3.3 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARDS SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION.
   3.4 CDOT M&S STANDARDS.
4. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ACCURACY SHOW EXISTING CONDITION BOTH ONSITE AND OFFSITE ON THE CONSTRUCTION PLANS. ANY MODIFICATION NECESSARY DUE TO CONFLICT OMISSIONS OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPERS RESPONSIBILITY TO RECTIFY.
5. ONCE THE ESQCP HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL BMPS AS INDICATED ON THE 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 DSD INSPECTIONS STAFF.
6. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORM WATER QUALITY CONTROL PERMIT (ESQCP), US ARMY CORPS OF ENGINEER ISSUED 401 AND/OR 404 PERMITS AND COUNTY AND STATE FUGITIVE DUST PERMITS.
7. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE CONSTRUCTION SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
8. ANY TEMPORARY SIGNAGE AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOW AND MUTCD CRITERIA.
9. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRE BY EL PASO COUNTY DOT INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
10. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFFSITE DISTURBANCE GRADING, OR CONSTRUCTION.

GRADING AND EROSION CONTROL NOTES:

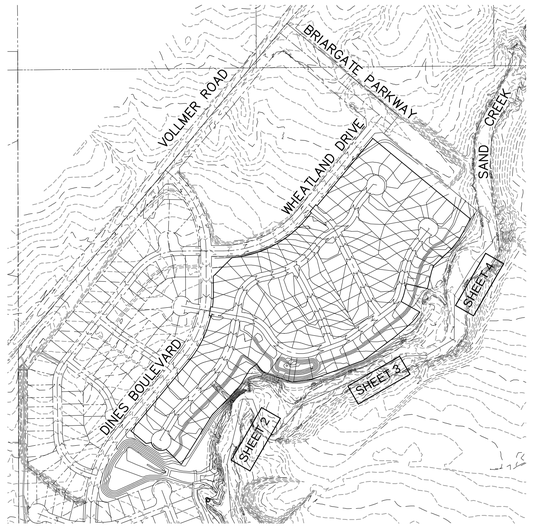
1. STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
2. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
3. A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
4. ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE 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.
5. CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
6. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
7. TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
8. FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
9. ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF 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 MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
12. ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF SITE.
13. CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
14. DURING DEWATERING OPERATIONS OF UNCONTAMINATED GROUND WATER MAY BE DISCHARGED ON SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
15. EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE 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 WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
18. TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
19. THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
20. THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO 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 CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ONSITE UNLESS PERMISSION FOR 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.
22. BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
23. NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
24. OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, CRS), AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE 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 CTL THOMPSON, INC., ENTITLED GEOTECHNICAL INVESTIGATION TIMBERLINE LANDSCAPING OFFICE AND WAREHOUSE, DATED MAY 5, 2017, AND SHALL BE CONSIDERED A PART OF THESE PLANS.
29. AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH 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
ATTN: PERMITS UNIT



VICINITY MAP

N.T.S.



SITE MAP

N.T.S.

TIMING: FEBRUARY 2020
ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING: SEPTEMBER 2020
EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETED:

AREAS 1.54 AC.
TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED:

RECEIVING WATERS: SAND CREEK

LEGEND

- EXISTING INDEX CONTOUR (10')
- EXISTING NOMINAL CONTOUR (2')
- PROPOSED INDEX CONTOUR (10')
- PROPOSED NOMINAL CONTOUR (2')

AGENCIES

OWNER:
SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903
JIM MORLEY (719) 471-1742

CIVIL ENGINEER:
M & S CIVIL CONSULTANTS, INC.
102 E. PIKES PEAK AVE., 5TH FLOOR
COLORADO SPRINGS, CO 80903
VIRGIL A. SANCHEZ P.E. (719) 955-5485

ENGINEERING DIVISION:
EL PASO COUNTY PLANNING
AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, CO 80910
JEFF RICE, P.E. (719) 520-6300

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

WATER RESOURCES
STERLING RANCH METRO DISTRICT
JDS-HYDRO CONSULTANTS
545 E. PIKES PEAK AVE., SUITE 300
COLORADO SPRINGS, CO 80903
JOHN MCGINN (719) 668-8769

FIRE DISTRICT:
BLACK FOREST FIRE PROTECTION DISTRICT
11445 TEACHOUT ROAD
COLORADO SPRINGS, CO 80908
CHIEF BRYAN JACK (719) 498-4300

GAS DEPARTMENT:
COLORADO SPRINGS UTILITIES
7710 DURANT DR.
COLORADO SPRINGS, CO 80947
TIM WENDT (719) 668-3556

ELECTRIC DEPARTMENT:
MOUNTAIN VIEW ELECTRIC
11140 E. WOODMEN ROAD
FALCON, CO 80831
(719) 495-2283

COMMUNICATIONS:
QWEST COMMUNICATIONS
(U.N.C.C. LOCATORS) (800) 922-1987
AT&T (LOCATORS) (719) 635-3674

ENGINEER'S STATEMENT:

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

3/02/2020

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160 — DATE
FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

OWNER'S STATEMENT:

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

JAMES F. MORLEY — DATE

SR LAND, LLC.
20 BOULDER, SUITE 201
COLORADO SPRINGS, CO 80903

BASIS OF BEARINGS:

THE SOUTH LINE OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION 34, TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M. AS MONUMENTED AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER (SW1/4) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624" AND AT THE SOUTHEAST CORNER OF SAID SOUTHWEST QUARTER (SW1/4) BY A 2-1/2" ALUMINUM CAP STAMPED "LS 11624", SAID LINE BEARS N 89°14'14" E, A DISTANCE OF 2,722.56 FEET.

BENCHMARKS:

1. THE TOP OF AN ALUMINUM SURVEYORS CAP, STAMPED "9853", AT THE SOUTHEAST BOUNDARY CORNER OF BARBARICK SUBDIVISION
   NORTHING = 411416.273
   EASTING = 235167.071
   ELEVATION = 7023.42
2. THE TOP OF A RED PLASTIC SURVEYORS CAP, ILLEGIBLE, AT THE NORTHWEST BOUNDARY CORNER OF PAWNEE RANCHEROS SUBDIVISION
   NORTHING = 410095.404
   EASTING = 235052.131
   ELEVATION = 7000.40
3. THE TOP OF A RED PLASTIC SURVEYORS CAP, STAMPED "38141", AT THE SOUTHWEST BOUNDARY CORNER OF BARBARICK SUBDISION
   NORTHING = 411399.962
   EASTING = 233849.817
   ELEVATION = 7030.82

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 AMMENDED.

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 THESE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FRO APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

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

SHEET INDEX

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS
DATE: 01/15/2020 — SHEET 1 OF 6 — GR01
PROJECT NO. 09-007 — SCALE: HORIZONTAL: N/A VERTICAL: N/A
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS

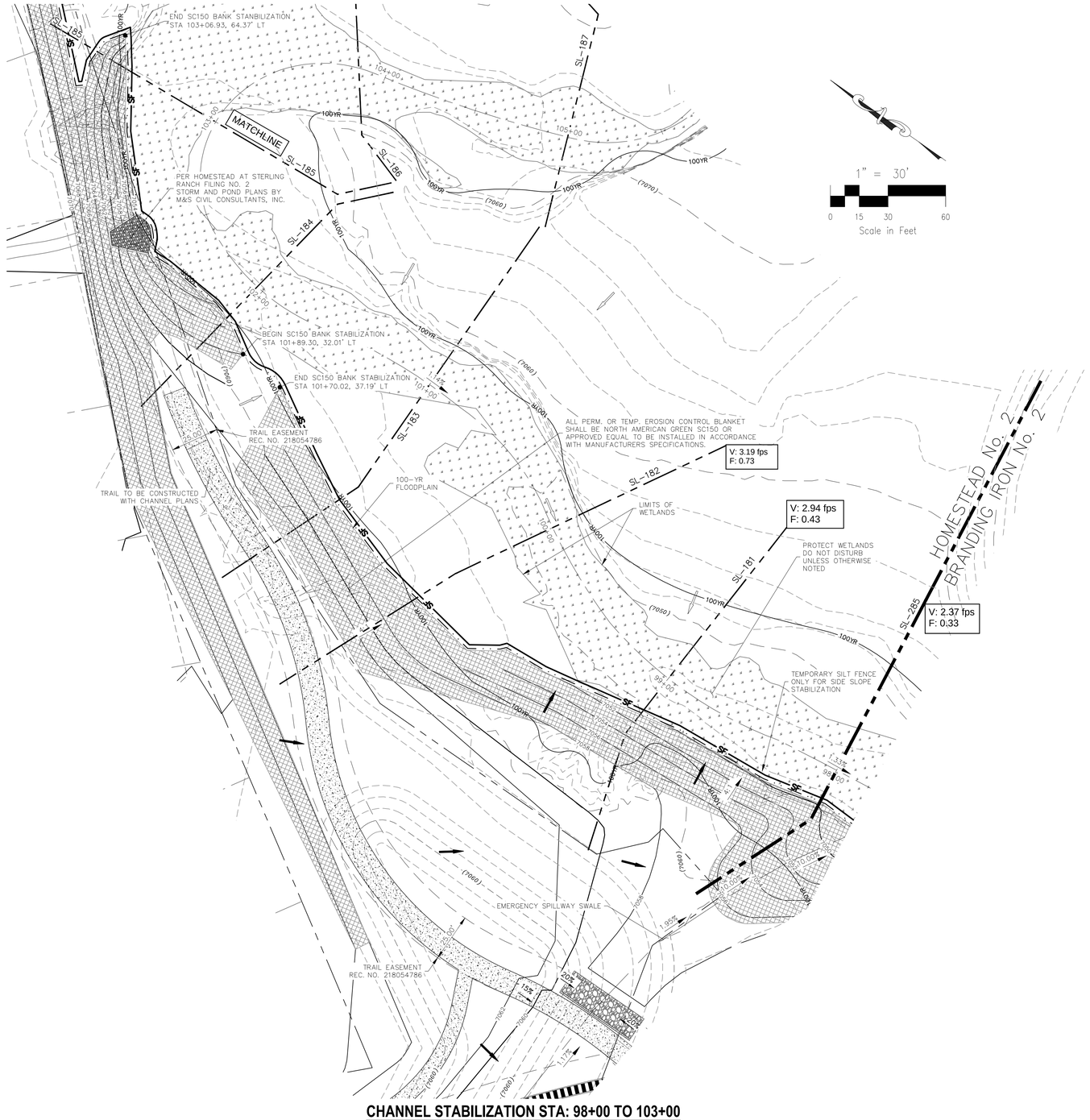
102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS: NO. | DATE: | BY: | DESCRIPTION: | APPR'D. BY: | DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR LIABILITY OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

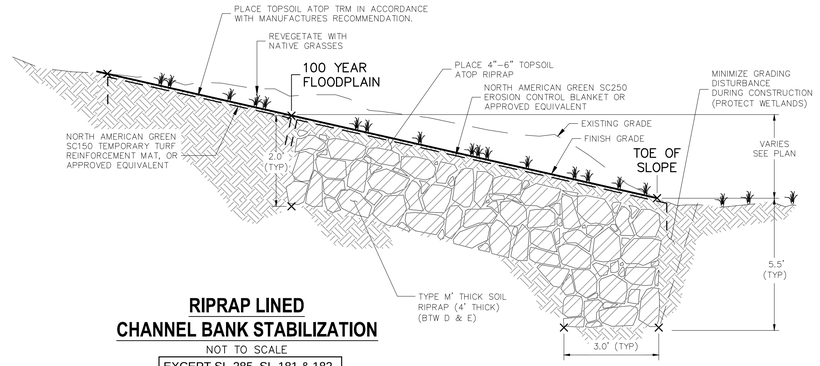


CHANNEL STABILIZATION STA: 98+00 TO 103+00

SCALE: 1"=30'

LEGEND

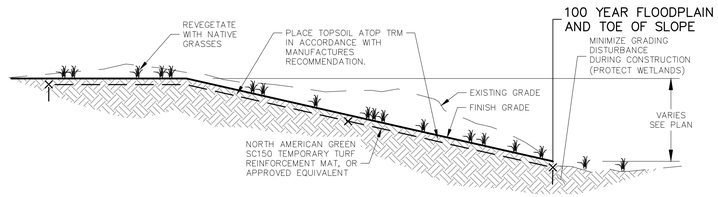
EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
	PROP MAJ CONT
	PROP MIN CONT
	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL) OVER BURIED TYPE M RIP RAP
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)
	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.



RIPRAP LINED CHANNEL BANK STABILIZATION

NOT TO SCALE

EXCEPT SL-285, SL-181 & 182



TURF REINFORCEMENT MAT LINED CHANNEL BANK STABILIZATION

NOT TO SCALE

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1-800-922-1987

HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007 | DESIGNED BY: VAS | DRAWN BY: ELY | CHECKED BY: VAS

SCALE: HORIZONTAL: N/A VERTICAL: N/A

DATE: 01/15/2020

SHEET 2 OF 6

GR02

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRV'D BY:	DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

File: O:\09002A\Sterling Ranch District\dwg\Const Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR02.dwg Plotstamp: 1/16/2020 1:02 PM

LEGEND

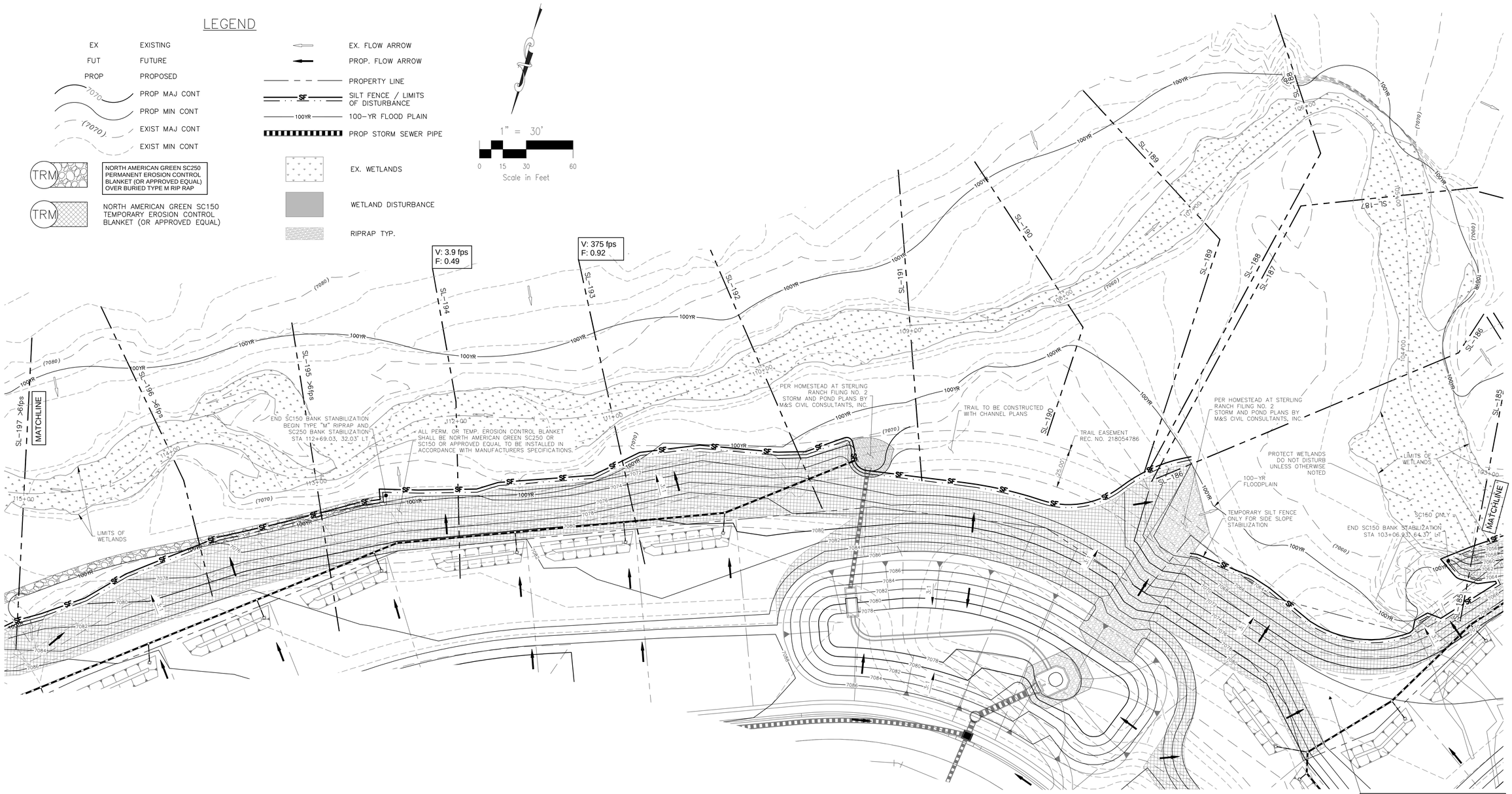
EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL) OVER BURIED TYPE M RIP RAP
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)

	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.

1" = 30'

0 15 30 60

Scale in Feet



CHANNEL STABILIZATION STA: 103+00 TO 115+00

SCALE: 1"=30'

SAND CREK TRAIL TO BE DESIGNED AND CONSTRUCTED WITH CHANNEL IMPROVEMENT PLANS BY KIOW ENGINEERING

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HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01/15/2020
SHEET 3 OF 6
GR03

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRV'D:	BY:	DATE:

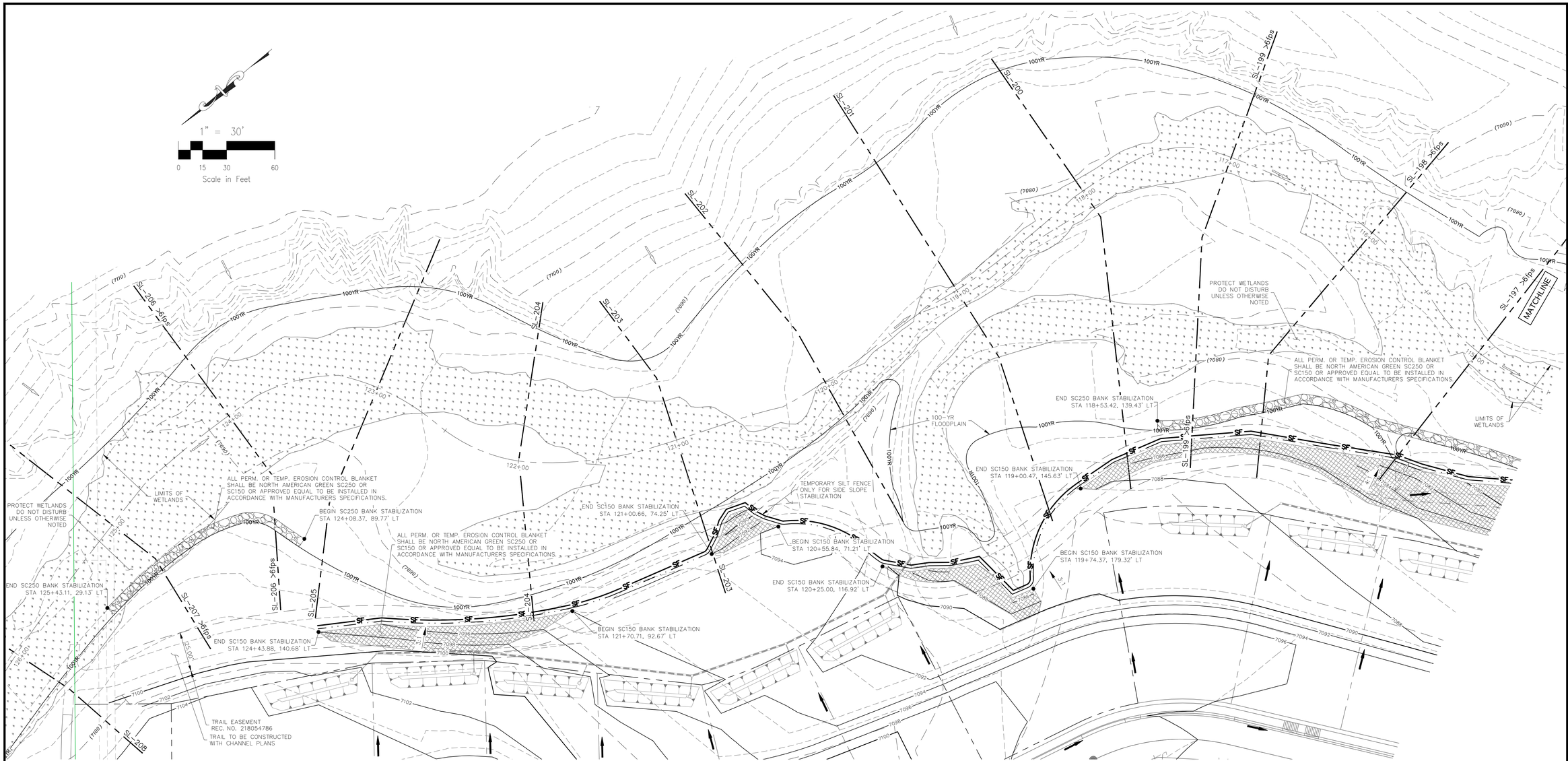
THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

1" = 30'

0 15 30 60

Scale in Feet



CHANNEL STABILIZATION STA: 115+00 TO 126+00

SCALE: 1"=30'

LEGEND

EX	EXISTING
FUT	FUTURE
PROP	PROPOSED
7070	PROP MAJ CONT
	PROP MIN CONT
(7070)	EXIST MAJ CONT
	EXIST MIN CONT
TRM	NORTH AMERICAN GREEN SC250 PERMANENT EROSION CONTROL BLANKET (OR APPROVED EQUAL) OVER BURIED TYPE M RIP RAP
TRM	NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET (OR APPROVED EQUAL)

	EX. FLOW ARROW
	PROP. FLOW ARROW
	PROPERTY LINE
SF	SILT FENCE / LIMITS OF DISTURBANCE
100YR	100-YR FLOOD PLAIN
	PROP STORM SEWER PIPE
	EX. WETLANDS
	WETLAND DISTURBANCE
	RIPRAP TYP.

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HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007
DESIGNED BY: VAS
DRAWN BY: ELY
CHECKED BY: VAS
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01/15/2020
SHEET 4 OF 6
GR04

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF MCS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

REGISTERED PROFESSIONAL ENGINEER
VIRGIL A. SANCHEZ
STATE OF COLORADO
NO. 37160

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRV'D.	BY:	DATE:

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CAUTION

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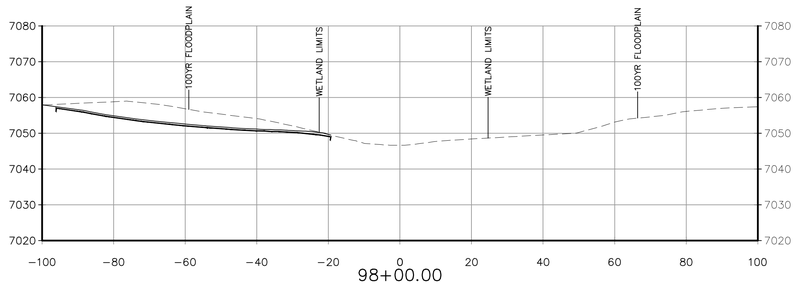

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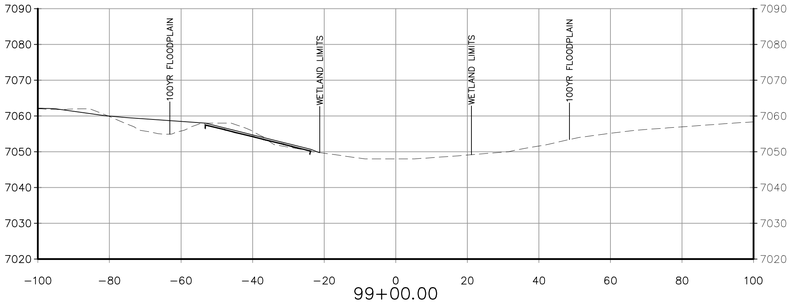

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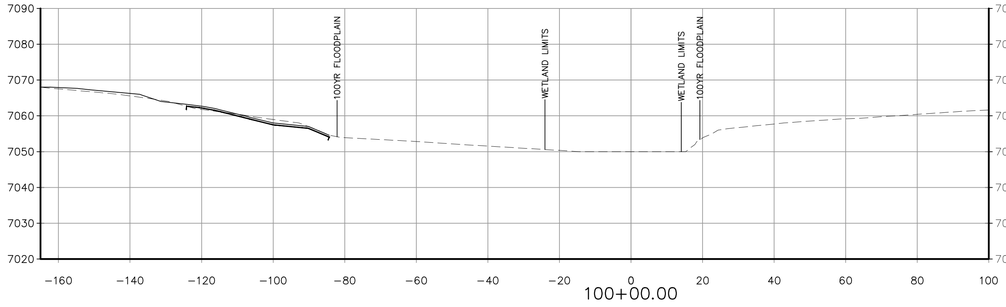

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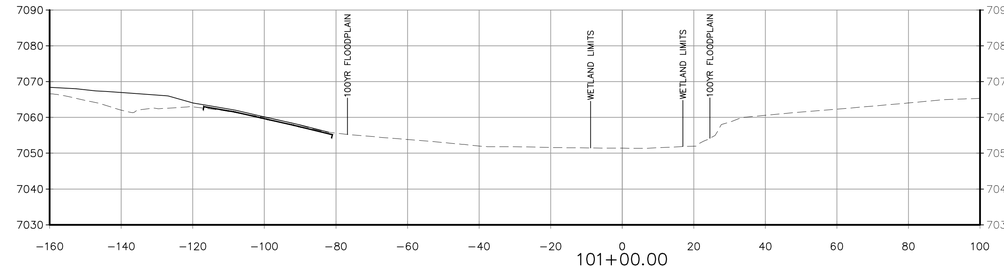

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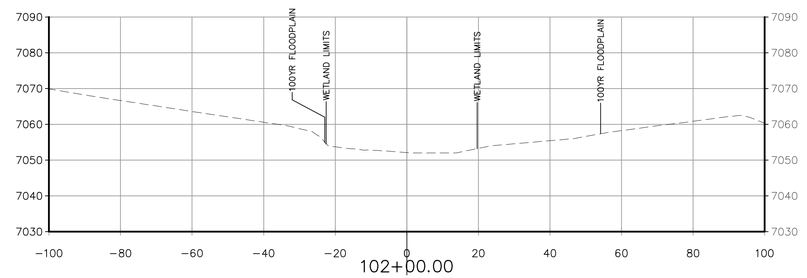


102+00.00

LEGEND

D50=24" SOIL RIPRAP

EROSION CONTROL MAT

EXISTING GROUND

PROPOSED FINISH GRADE

ADDITIONAL CROSS SECTIONS PROVIDED TO EPC

NORTH AMERICAN GREEN

A tensar company

Material and Performance Specification Sheet

North American Green
14649 Highway 41 North
Evansville, IN 47725
800-772-2040
FAX: 812-867-0247
www.nagreen.com

SC150 Erosion Control Blanket

The extended-term double net erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber with a functional longevity of up to 24 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 (1.59 x 1.59 cm) mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50 x 0.50 in (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread.

The SC150 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 Section 713.17 as a type 3.B Extended-term Erosion Control Blanket.*

The SC150 is also available with the DOT System™, which consists of installation staple patterns clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content		
Matrix	70% Straw Fiber	0.35 lbs/yd² (0.19 kg/m²)
	30% Coconut Fiber	0.15 lbs/yd² (0.08 kg/m²)
Nettings	Top – Heavyweight photodegradable with UV additives	3.0 lb/1000 ft² (1.47 kg/100 m²)
	Bottom – Lightweight Photodegradable	1.5 lb/1000 ft² (0.73 kg/100 m²)
Thread	Degradable	

SC150 is available in the following standard roll sizes:

Width	6.67 ft (2.03 m)	16 ft (4.87 m)
Length	108 ft (32.92 m)	108 ft (32.92 m)
Weight ± 10%	44 lbs (19.95 kg)	105.6 lbs (47.9 kg)
Area	80.0 yd² (66.9 m²)	192 yd² (165.5 m²)

Index Value Properties:

Property	Test Method	Typical
Thickness	ASTM D6525	0.39 in (9.91 mm)
Resiliency	ECTC Guidelines	75%
Water Absorbency	ASTM D1117	285%
Mass/Unit Area	ASTM 6475	11.44 oz/yd² (388 g/m²)
Swell	ECTC Guidelines	30%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	1.11 oz-in
Light Penetration	ECTC Guidelines	8.7%
Tensile Strength –MD	ASTM D6818	146.6 lbs/ft (2.17 kN/m)
Elongation – MD	ASTM D6818	26.9%
Tensile Strength – TD	ASTM D6818	147.6 lbs/ft (2.19 kN/m)
Elongation – TD	ASTM D6818	25.2%

Bench Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50 mm (2 in)/hr for 30 min	SLR** = 5.47
	100mm (4 in)/hr for 30 min	SLR** = 5.67
	150 mm (6 in)/hr for 30 min	SLR** = 5.88
ECTC Method 3 Shear Resistance	**Shear at 0.50 inch soil loss**	**2.72 lbs/ft²**
ECTC Method 4 Germination	Top Soil, Fescue, 21 day incubation	538% improvement of biomass

* Bench Scale tests should not be used for design purposes

** Soil Loss Ratio = Soil loss with Bare Soil/Soil Loss with RECP (soil loss is based on regression analysis)

Updated 3/09

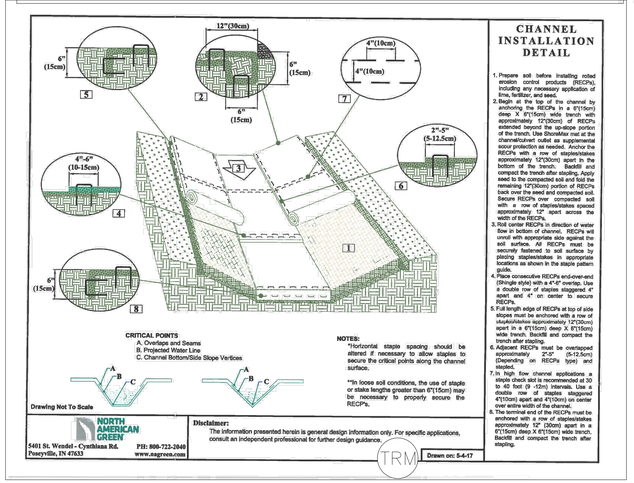
Performance Design Values:

Maximum Permissible Shear Stress	
Unvegetated Shear Stress	2.00 lbs/ft² (96 Pa)
Unvegetated Velocity	8.00 ft/s (2.44 m/s)

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.001	0.048	0.100
20-50 ft	0.051	0.079	0.145
≥ 50 ft (15.2 m)	0.10	0.110	0.190

Roughness Coefficients- Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.050
0.50 – 2.0 ft	0.050 – 0.018
≥ 2.0 ft (0.60 m)	0.018

Product Participant of: QDOR



CHANNEL INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs extended beyond the up-slope portion of the trench. Use Shoreline and at the channel/culvert outlet as supplemental reinforcement. Anchor the RECPs with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow (or perpendicular). RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
5. Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12" apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 2"-5" (5-12.5cm) (Depending on RECPs type) and stapled.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 -12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center across the width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12" (30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.

NOTES:
*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.
**In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

NORTH AMERICAN GREEN

A tensar company

Material and Performance Specification Sheet

North American Green
14649 Highway 41 North
Evansville, IN 47725
800-772-2040
FAX: 812-867-0247
www.nagreen.com

SC250 Turf Reinforcement Mat

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into a permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized netting with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form a permanent three-dimensional turf reinforcement matting.

The SC250 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 Section 713.18 as a type 5A, B, and C Permanent Turf Reinforcement Mat.*

Installation staple patterns shall be clearly marked on the turf reinforcement matting with environmentally safe paint. All mats shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Material Content		
Matrix	70% Straw / 30% Coconut fibers	0.35 lbs/yd² (0.19 kg/m²) / 0.15 lbs/yd² (0.08 kg/m²)
Nettings	Top and Bottom, UV stabilized Polypropylene	5 lb/1000 ft² (2.44 kg/100 m²)
	Middle, corrugated UV stabilized Polypropylene	24 lb/1000 ft² (11.7 kg/100 m²)
Thread	Polypropylene, UV stabilized	

SC250 is available in the following roll sizes:

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	34 lbs (15.42 kg)
Area	40.0 yd² (33.4 m²)

Index Value Properties:

Property	Test Method	Typical	Net Only
Thickness	ASTM D6525	0.72 in (18.3 mm)	0.48 in
Resiliency	ASTM 6524	35.2%	—
Density	ASTM D792	0.53 oz/in³	—
Mass/Unit Area	ASTM 6566	17.88 oz/yd² (606 g/m²)	—
Porosity	ECTC Guidelines	99%	—
Stiffness	ASTM D1388	222.65 oz-in	—
Light Penetration	ECTC Guidelines	8.9%	—
UV Stability	ASTM D4355/ 1000 hr	100%	100%
Tensile Strength MD	ASTM D6818	620 lbs/ft (9.05 kN/m)	655 lbs/ft
Elongation MD	ASTM D6818	35%	25%
Tensile Strength TD	ASTM D6818	737 lbs/ft (10.75 kN/m)	666 lbs/ft
Elongation TD	ASTM D6818	16%	16%

Bench Scale Testing* (NTPEP):

Test Method	Parameters	Results
ECTC Method 2 Rainfall	50 mm (2 in)/hr for 30 min	SLR** = 18.25
	100mm (4 in)/hr for 30 min	SLR** = 20.97
	150 mm (6 in)/hr for 30 min	SLR** = 22.74
ECTC Method 3 Shear Resistance	**Shear at 0.50 inch soil loss**	**7.7 lbs/ft²**
ECTC Method 4 Germination	Top Soil, Fescue, 21 day incubation	523% improvement of biomass

* Bench Scale tests should not be used for design purposes

** Soil Loss Ratio = Soil loss with Bare Soil/Soil Loss with RECP (soil loss is based on regression analysis)

Updated 3/09

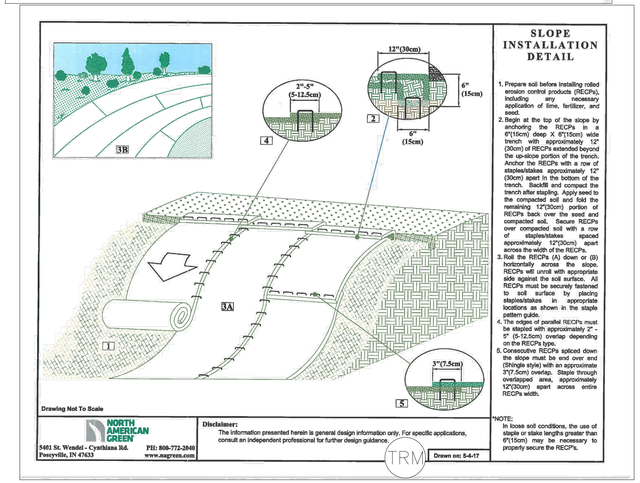
Performance Design Values:

Maximum Permissible Shear Stress		
	Short Duration	Long Duration
Phase 1 Unvegetated	3.0 lbs/ft² (144 Pa)	2.5 lbs/ft² (120 Pa)
Phase 2 Partially Veg.	8.0 lbs/ft² (383 Pa)	8.0 lbs/ft² (383 Pa)
Phase 3 Fully Veg.	10.0 lbs/ft² (480 Pa)	8.0 lbs/ft² (383 Pa)
Velocity Unveg	9.5 ft/s (2.89 m/s)	
Velocity Veg.	15 ft/s (4.6 m/s)	

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.0010	0.0209	0.0507
20-50 ft	0.0081	0.0266	0.0574
≥ 50 ft (15.2 m)	0.0455	0.0555	0.081

Roughness Coefficients- Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.040
0.50 – 2.0 ft	0.040 – 0.012
≥ 2.0 ft (0.60 m)	0.011

Product Participant of: QDOR



SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" (30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" – 5" (5-12.5cm) overlap depending on the RECPs type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

*NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485

CIVIL CONSULTANTS, INC.

HOMESTEAD AT STERLING RANCH FILING NO. 2

SAND CREEK BANK STABILIZATION PLANS

PROJECT NO. 09-007 | DATE: 01/15/2020 | SHEET 5 OF 6 | GR05

DESIGNED BY: VAS | HORIZONTAL: N/A | SCALE:
DRAWN BY: ELY | VERTICAL: N/A
CHECKED BY: VAS

FOR AND ON BEHALF OF MASS CIVIL CONSULTANTS, INC.

VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160

COLORADO REGISTERED SANCHEZ 37160 PROFESSIONAL ENGINEER

REVISIONS:

NO.	DATE:	BY:	DESCRIPTION:	APRV'D.	BY:	DATE:

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CAUTION

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FOR BURIED UTILITY INFORMATION
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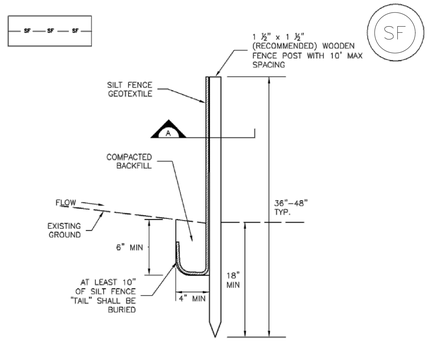
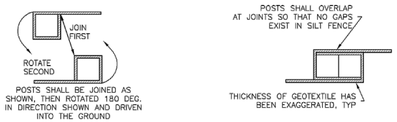
File: O:\09002A\Sterling Ranch District\Dwg\Const. Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR05.dwg Plotstamp: 1/6/2020 10:46 AM

Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF–1, SILT FENCE

SM

MULCHING NOTES

INSTALLATION REQUIREMENTS

1. ALL DISTURBED AREAS MUST BE MULCHED WITHIN 21 DAYS AFTER FINAL GRADE AND SEEDED AREAS ARE TO BE MULCHED WITHIN 24 HOURS AFTER SEEDING.

2. MATERIAL USED FOR MULCH CAN BE CERTIFIED CLEAN, WEED- AND SEED-FREE LONG STEMMED FIELD OR MARSH HAY, OR STRAW OF OATS, BARLEY, WHEAT, RYE, OR TRITICALE CERTIFIED BY THE COLORADO DEPARTMENT OF AGRICULTURE WEED FREE FORAGE CERTIFICATION PROGRAM.

3. HYDRAULIC MULCHING MATERIAL SHALL CONSIST OF VIRGIN WOOD FIBER MANUFACTURED FROM CLEAN WHOLE WOOD CHIPS. WOOD CHIPS CANNOT CONTAIN ANY GROWTH OR GERMINATION INHIBITORS OR BE PRODUCED FROM RECYCLED MATERIAL. GRAVEL CAN ALSO BE USED.

4. MULCH IS TO BE APPLIED EVENLY AT A RATE OF 2 TONS PER ACRE.

5. MULCH IS TO BE ANCHORED EITHER BY CRIMPING (TUCKING MULCH FIBERS 4 INCHES INTO THE SOIL), USING NETTING (USED ON SMALL AREAS WITH STEEP SLOPES), OR WITH A TACKIFIER.

6. HYDRAULIC MULCHING AND TACKIFIERS ARE NOT TO BE USED IN THE PRESENCE OF FREE SURFACE WATER.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL MULCHED AREAS.

2. MULCH IS TO BE REPLACED IMMEDIATELY IN THOSE AREAS IT HAS BEEN REMOVED, AND IF NECESSARY THE AREA SHOULD BE RESEEDED.

City of Colorado Springs Stormwater Quality	Figure MU-1 Mulching Construction Detail and Maintenance Requirements

3-30

SM

RECOMMENDED ANNUAL GRASSES

SPECIES (COMMON NAME)	GROWTH SEASON	SEEDING DATE	POUNDS OF PURE LIVE SEED (PLS) (PLS/ACRE)	PLANTING DEPTH (INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

GROUND SEEDING

TABLE TS-1

TEMPORARY SEEDING NOTES

INSTALLATION REQUIREMENTS

1. DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.

2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.

3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.

4. SEEDBED DEPTH IS TO BE 4 INCHES FOR SLOPES FLATTER THAN 2:1, AND 1 INCH FOR SLOPES STEEPER THAN 2:1.

5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NOXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNAPWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.

6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.

7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OR ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.

8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING).

9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.

2. AREAS WHERE GROWTH IS NOT OCCURRING QUICKLY OR THE MULCH HAS BEEN REMOVED SHALL BE RE-SEEDED AS SOON AS POSSIBLE AND RE-MULCHED IF NEEDED.

3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality	Figure TS-1 Temporary Seeding Construction Detail and Maintenance Requirements

3-47

EROSION CONTROL CRITERIA:

EROSION CONTROL MEASURES SHALL BE IMPLEMENTED IN A MANNER THAT WILL PROTECT PROPERTIES AND PUBLIC FACILITIES FROM THE ADVERSE EFFECTS OF EROSION AND SEDIMENTATION AS A RESULT OF CONSTRUCTION AND EARTHWORK ACTIVITIES WITHIN THE PROJECT SITE.

1. PRIOR TO START OF GRADING OPERATIONS, LOCATE AND SET THE SILT FENCE AND VEHICLE TRACKING CONTROL AS SHOWN ON THE EROSION CONTROL PLAN.

2. THE SILT FENCE SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL EROSION AND SEDIMENTATION POTENTIAL IS MITIGATED. REMOVAL OF SILT AND SEDIMENT COLLECTED BY THE SILT FENCES IS REQUIRED ONCE IT REACHES HALF THE HEIGHT OF THE SILT FENCES.

3. EROSION CONTROL DEVICES SHOULD BE CHECKED AFTER EVERY STORM OR NOT MORE THAN EVERY 14 DAYS. REPAIRS OR REPLACEMENT SHOULD BE MADE AS NECESSARY TO MAINTAIN PROPER PROTECTION.

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 THE 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 BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

SEEDING GUIDELINES:

SEEDBED PREPARATION

1. THE SEEDBED SHOULD BE WELL–SETTLED AND FIRM, BUT FRIABLE ENOUGH THAT THE SEED CAN BE PLACED AT THE SPECIFIED DEPTHS. COMPETITIVE STANDS OF WEEDS THAT ARE PRESENT BEFORE SEEDING MUST BE CONTROLLED BY SHALLOW TILLAGE OR BY APPLICATION OF HERBICIDES. SOILS THAT HAVE BEEN OVER–COMPACTED BY TRAFFIC OR EQUIPMENT, ESPECIALLY WHEN WET, SHOULD BE TILLED TO BREAK UP ROOTING–RESTRICTIVE LAYERS, THAN HARROWED, ROLLED, OR PACKED TO PREPARE THE REQUIRED FIRM SEEDBED.

FERTILIZER

2. FERTILIZER SHOULD BE APPLIED AT A RATE OF 50 POUNDS OF AVAILABLE NITROGEN PER ACRE AND 40 POUNDS OF AVAILABLE PHOSPATE PER ACRE. THE TIMING OF APPLICATION SHOULD BE IMMEDIATELY PRIOR TO SEEDING, AT THE TIME OF SEEDING, OR IMMEDIATELY FOLLOWING SEEDING, DEPENDING ON THE KIND OF FERTILIZER AND TYPE OF EQUIPMENT USED.

SEEDING

3. SEED SHOULD BE PLANTED WITH A GRASS DRILL ON ALL SLOPES OF 33% (3:1) OR FLATTER. SEED MAY BE BROADCAST BY HAND, BY MECHANICAL SPREADER, OR BY HYDRAULIC EQUIPMENT ON AREAS THAT ARE SMALL, TOO STEEP, OR NOT ACCESSIBLE FOR SEED DRILL OPERATIONS. SEED PLANTED WITH A DRILL SHOULD BE COVERED WITH SOIL TO A DEPTH OF 1/4 TO 3/4 INCH. SEED PLANTED BY THE BROADCAST METHOD SHALL BE INCORPORATED INTO THE SOIL SURFACE, NOT TO EXCEED A DEPTH OF 3/4 INCH, BY RAKING, HARROWING, OR OTHER PROVEN METHOD.

THE TIMING OF SEEDING IS FROM OCTOBER 15TH – MAY 31ST. SEED PLANTED IN THE LATE FALL WILL REMAIN DORMANT UNTIL SPRING, WHEN IT WILL GERMINATE.

MULCHING

4. SEEDED AREAS SHOULD BE MULCHED TO CONSERVE MOISTURE; PREVENT SURFACE COMPACTION OR CRUSTING; REDUCE RUNOFF AND EROSION; CONTROL INSECTS; AND HELP ESTABLISH PLANT COVER.

NATIVE HAY OR STRAW SHOULD BE APPLIED AT A RATE OF 4,000 POUNDS PER ACRE AND CRIMPED INTO THE GROUND. ON SLOPES GREATER THAN 3:1, AN AGRONOMY BLANKET SHOULD BE USED.

SUPPLEMENTAL WATER

5. IN LOW RAINFALL AREAS, WHERE WATER IS AVAILABLE AND WHERE RAPID ESTABLISHMENT IS NEEDED, IRRIGATION OF NEW SEEDING SHOULD BE PERFORMED DURING THE FIRST GROWING SEASON. WATER SHOULD BE APPLIED AT APPROXIMATELY ONE WEEK INTERVALS, AT A RATE OF 3/4 TO 1 INCH PER APPLICATION, WHEN RAINFALL IS DEFICIENT FOR PLANT DEVELOPMENT.

EROSION PROTECTION & REVEGETATION REQUIREMENTS "PER U.S.D.A. SOIL CONSERVATION SERVICE GUIDELINES"

1. PRACTICE NO. & NAME _____342 – CRITICAL AREA TREATMENT
   RANGE SITE _____ SANDY FOOTHILLS

2. PLANNED:

SEEDED PREP:
A METHOD_____
B DATES_____ OCT 15 – MAY 31
C CLEAN TILLED _____ XX
FIRM SEEDBED _____ XX
STUBBLE COVER _____
INTERSEED _____
OTHER _____

SEEDING OPERATION:
A METHOD:
DRILL _____ XX
INTERSEED _____
BROADCAST _____
B DRILL SPACING _____ 6–12"
TYPE _____ GRASS W/AGITATOR
C DATE _____ OCT 15 – MAY 31
D PLANTING DEPTH ___1/4 – 1/2"

FERTILIZER:
POUNDS ACTUAL PER ACRE N2 _____
(AVAILABLE)
P205 _____
K _____

WEED CONTROL: N/A

MOWING _____
CHEMICAL _____
DATES _____
SEE S.C.S. FOR SPECIFIC RECOMMENDATIONS AT HERBICIDE APPLICATION TIME.

MULCH:
KIND _____ LONG – STEM NATIVE HAY
AMOUNT _____ 4,000 POUNDS/ACRE
HOW APPLIED _____ N/A
HOW ANCHORED _____ CRIMPED
ANCHORAGE DEPTH _____ 4"

SEED:

VARIETY	SPECIES	REQUIRED PLS RATES PER ACRES (100%)		
GOSHEN	PRAIRIE SANDREED	6.5		
VAUGHN	SIDEOATS GRAMMA	9.0		
LOVINGTON	BLUE GRAMMA	3.0		
BLACKWELL	SWITCH GRASS	4.5		
PASTURA	LITTLE BLUESTEM	7.0		
(2) % OF SPECIES IN MIXTURE	PLS SEEDING RATE PER SPECIES/ACRE (1) X (2)	(4) PLANNED ACRE	(5) TOTAL PLS LBS./ (3) X (4)	
15	0.98	28.8	28.2	
25	2.25	28.8	64.8	
15	0.45	28.8	13.0	
20	0.90	28.8	25.9	
25	1.75	28.8	50.4	

NOTE
SEE URBAN DRAINAGE CRITERIA MANUAL (VOL. 3) FOR INSTALLATION AND MAINTENANCE (TYP)

FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES
FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
CALL 1–800–922–1987

HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK BANK STABILIZATION PLANS
PROJECT NO. 09–007 DESIGNED BY: VAS DRAWN BY: ELY CHECKED BY: VAS
SCALE: HORIZONTAL: N/A VERTICAL: N/A
DATE: 01/15/2020
SHEET 6 OF 6
GR06

102 E. PIKES PEAK AVE. 5TH FLOOR
COLORADO SPRINGS, CO 80903
PHONE: 719.955.5485
CIVIL CONSULTANTS, INC.

FOR AND ON BEHALF OF M&S CIVIL CONSULTANTS, INC.
VIRGIL A. SANCHEZ, COLORADO P.E. NO. 37160
REGISTERED PROFESSIONAL ENGINEER STATE OF COLORADO VIRGIL A. SANCHEZ 37160

REVISIONS: NO. DATE: BY: DESCRIPTION:
APPV'D. BY: DATE:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CAUTION

File: O:\09002A\Sterling Ranch District\Eng\Const Dwg\Grading & Erosion Control\Bank Stabilization\Homestead 2 bank plans\GR06.dwg Plotstamp: 1/16/2020 10:53 AM