NOTE: ALL EXISTING UNDERGROUND AND ABOVE GROUND UTILITY LOCATIONS, INVERTS AND SIZES ARE APPROXIMATE ONLY AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION. TIE IN POINTS SHALL BE POTHOLED AND LOCATIONS, INVERTS AND SIZES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

MVEA VOLLMER NORTH

EL PASO COUNTY, CO

GRADING, EROSION, & SEDIMENT CONTROL PLAN

MARCH 2021

Standard Notes for El Paso County Grading and Erosion Control Plans

1. Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off-site waters, including wetlands.

2. Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing.

3. A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SWMP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SWMP shall be located on site at all times during construction and shall be kept up to date with work progress and changes in the field.

4. Once the ESQCP is approved and a "Notice to Proceed"has been issued, the contractor may install the 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 affect 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.

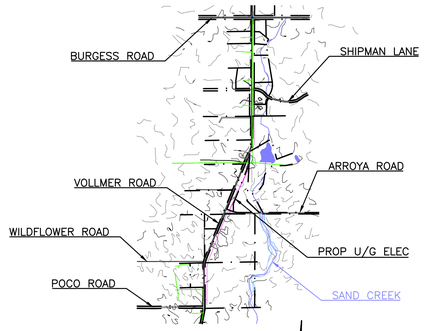
26. Prior to construction the permittee shall verify the location of existing utilities.

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.

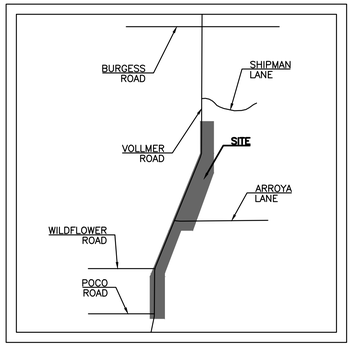
28. The soils report for this site has been prepared by _____N/A_____ and shall be considered a part of these plans.

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



SITE MAP
SCALE: 1"=2,000'



VICINITY MAP
N.T.S.

SHEET INDEX

SITE DATA

OWNER/PETITIONER:
MOUNTAIN VIEW ELECTRIC ASSOCIATION
11140 E. WOODMAN RD
PEYTON, CO 80831
MR. DAVID WALDNER, (719) 495-2283

PREPARER:
TERRA NOVA ENGINEERING, INC.
721 S 23RD STREET
COLORADO SPRINGS, CO 80904
(719) 635-6422 OFFICE
(719) 499-2255 MOBILE

DESCRIPTION OF ACTIVITIES:

THE DEVELOPER PROPOSES TO REMOVE OVERHEAD ELECTRIC UTILITIES AND REPLACE THEM WITH UNDERGROUND ELECTRIC UTILITIES AS WELL AS ASSOCIATED ELECTRIC VAULTS ALONG THE EAST SIDE OF VOLLMER ROAD. THE NEW UTILITY LINES WILL BE INSTALLED BY OPEN CUT EXCAVATION AND DIRECTIONAL BORE. THE SITE CONSISTS OF APPROXIMATELY 3.07 ACRES OF MOSTLY UNDEVELOPED PRAIRIE AREA LOCATED IN EL PASO COUNTY.

THE SITE CURRENTLY CONSISTS OF NATIVE GRASSES WITH AN ESTIMATED COVERAGE AREA OF APPROXIMATELY 70%. THERE IS AN EXISTING VEHICLE TRACKING PAD AND RECENTLY CONSTRUCTED SOIL BERM AT THE SOUTHERN AREA OF THE SITE WHICH WILL KEEP SEDIMENT FROM TRAVELING OFF SITE.

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. IT IS ANTICIPATED THAT CONSTRUCTION ACTIVITIES WILL OCCUR BETWEEN SPRING OF 2021 AND SUMMER 2021, AT WHICH POINT IT WILL BE CONSIDERED COMPLETED.

CONSTRUCTION PHASING IS ANTICIPATED TO OCCUR AS FOLLOWS:
PHASE 1:
PRIOR TO START OF CONSTRUCTION, INITIAL EROSION CONTROL MEASURES TO BE INSTALLED INCLUDE SEDIMENT CONTROL LOG (SCL) ALONG THE DOWNHILL SIDE OF DISTURBED AREA. ALSO INCLUDED IN THIS PHASE WILL BE INSTALLATION OF SEDIMENT CONTROL LOG (SCL) AROUND THE BASE OF ANY DIRT STOCKPILE AREAS. UNTIL THE STOCKPILE HAS BEEN REMOVED, THE SEDIMENT CONTROL LOG SHALL REMAIN IN PLACE AND BE MAINTAINED IN SUCH A WAY AS TO REDUCE TRANSFERENCE OF SEDIMENTATION OVER THE SITE.

PHASE 2:
ALL PREVIOUSLY INSTALLED BMP'S SHALL REMAIN IN PLACE UNTIL A LATER PHASE.

PHASE 3:
ANY AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL BE SEEDED IN ORDER TO ESTABLISH A VEGETATIVE COVER UNTIL THE FINAL LANDSCAPING IS INSTALLED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMP'S SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND VEGETATION HAS BEEN ESTABLISHED TO 70% ON AREAS NOT COVERED BY GRAVEL. ONCE VEGETATIVE COVER HAS BEEN ESTABLISHED AT 70% OF THE DISTURBED AREAS, SEDIMENT CONTROL LOG WILL BE REMOVED FROM ANY DIRT STOCKPILE AREAS. THE DIRT STOCKPILES (SP) WILL BE REMOVED AND RE-VEGETATED AS PART OF THIS PHASE.

PHASE 4:
FINAL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AT THIS POINT. THE PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

THE SOILS ON THIS SITE ARE NOTED AS PRING COARSE SANDY LOAM (71), 3% TO 8% SLOPES. THE SOILS ARE IN HYDROLOGIC SOIL GROUP B. THERE ARE NO WETLANDS ON THIS SITE.

THERE ARE NO POTENTIAL POLLUTANTS EXISTING OR PROPOSED FOR STORAGE ON THIS SITE.

THE RECEIVING WATERS FOR THIS AREA ARE SAND CREEK WITHIN THE SAND CREEK DRAINAGE BASIN. DRAINAGE TYPICALLY FLOWS FROM THE NORTHWEST TOWARDS THE SOUTHEAST ON THIS SITE.

THE PROPERTY OWNER OR OWNERS REPRESENTATIVE IS RESPONSIBLE FOR INSPECTING AND MAINTAINING THE SITE ON A REGULAR BASIS. INITIAL CRITERIA FOR THE OCCURRENCE OF INSPECTIONS IS AS FOLLOWS:
ONCE EVERY 14 DAYS OR
AFTER ANY PRECIPITATION OR SNOWMELT EVENT THAT SIGNIFICANT ENOUGH TO CAUSE SURFACE EROSION.
A WRITTEN RECORD OF INSPECTIONS SHALL BE KEPT BY THE OWNER OR OWNERS REPRESENTATIVE AND MADE AVAILABLE TO THE COUNTY UPON REQUEST. THIS WILL CONTINUE UNTIL THE SITE IS STABILIZED AND THE STOCKPILE IS NO LONGER NEEDED.

AREA

TOTAL AREA TO BE CLEARED, EXCAVATED, GRADED OR DISTURBED IS 3.07± ACRES.

VOLUME

EARTHWORK VOLUMES: N/A

ENGINEER'S STATEMENT

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

COLORADO LICENSED L DUCETT 32339 PROFESSIONAL ENGINEER

L DUCETT, P.E. #32339
FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

4/4/2021

OWNER'S STATEMENT

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

OWNER NAME: Garet Bohuslavsky DATE: 4/8/2021

EL PASO COUNTY APPROVAL

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

Approved
by Jeff Rice
El Paso County Planning and Community Development
On behalf of Elizabeth Nijkamp, Engineering Review Manager
10/11/2021 5:14:35 PM

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

COUNTY ESQCP #: CDR-21-007

GENERAL NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE SITE. THE OMISSION FROM OR THE INCLUSION OF UTILITY LOCATIONS ON THE PLANS IS NOT TO BE CONSIDERED AS THE NON-EXISTENCE OF OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES.

2. THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, BUILDINGS, FENCES, AND ROADWAYS FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE ABOVE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.

3. AS DETERMINED BY THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL # 08041C0535G, EFFECTIVE DATE DECEMBER 7, 2018, NO PORTIONS OF THIS SITE ARE LOCATED WITHIN A DESIGNATED 100-YEAR F.E.M.A. FLOODPLAIN.

4. THE MAJORITY OF WORK WILL NOT OCCUR IN THE COUNTY ROW.

EROSION CONTROL COST OPINION

1.	2,470 LF-SEDIMENT CONTROL LOGS $2.75/LF	$	6,792
2.	3 EA.-VEHICLE TRACKING CONTROL @ $1325.00/EA	$	3,975
3.	3.07 AC-SEEDING & MULCH @ $785/AC	$	2,410
4.	1 EA.-FUEL SPILL KIT @ $200.00/EA	$	200
5.	40% MAINTENANCE AND REPLACEMENT	$	5,351
	TOTAL	$	21,138

REVISIONS

NO.	DESCRIPTION	DATE

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

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc.
Creative Civil Engineering and Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
COVER SHEET

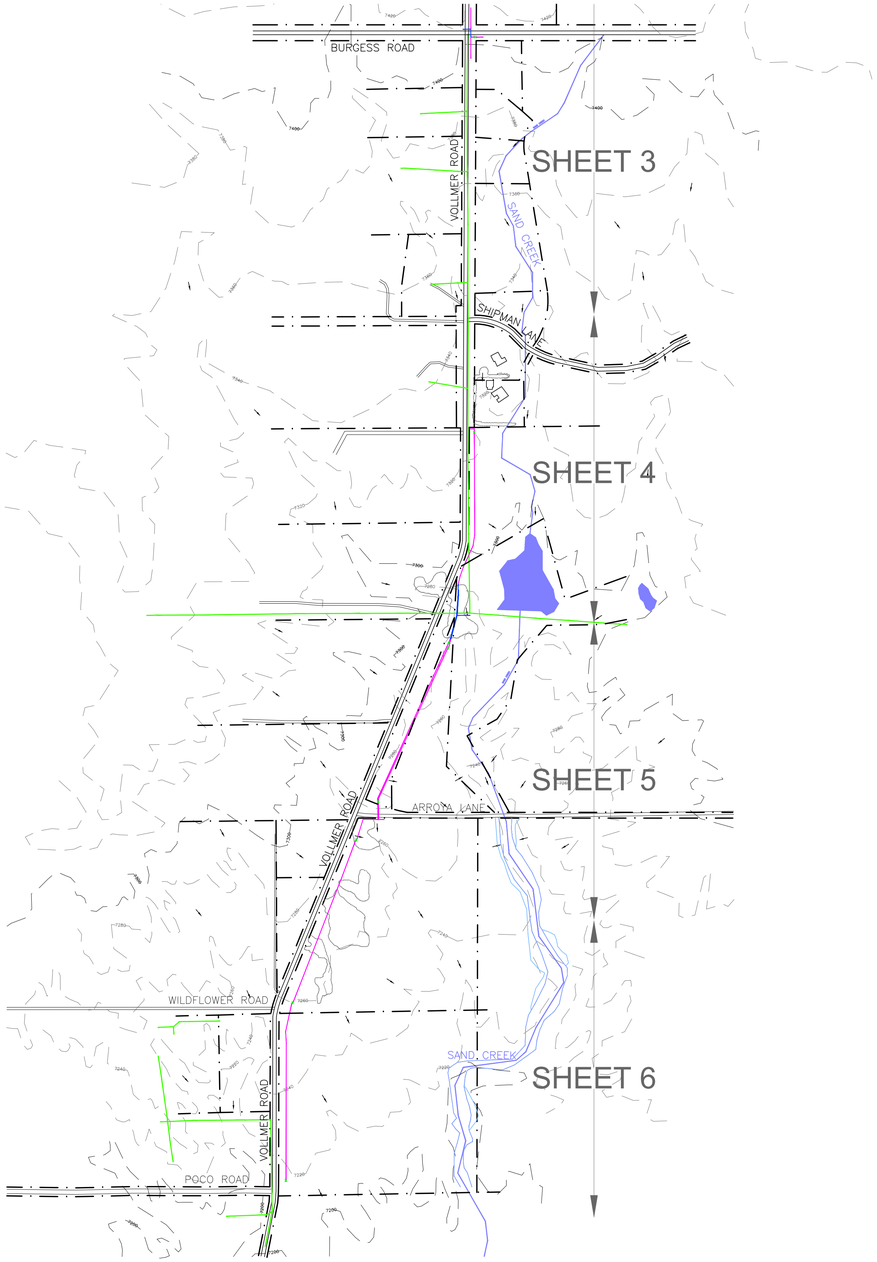
DESIGNED BY JF
DRAWN BY JF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 2104.00
DATE ISSUED 3/26/21
SHEET NO. 1 OF 9

MVEA VOLLMER NORTH

EL PASO COUNTY, CO

GRADING, EROSION, & SEDIMENT CONTROL PLAN

MARCH 2021

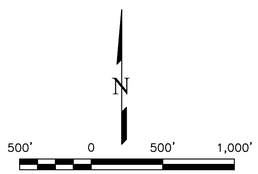


LEGEND

- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- 7260 EXISTING 100' CONTOUR
- 7260 EXISTING 20' CONTOUR
- EXISTING FLOW DIRECTION
- U/G ELECTRIC TO BE INSTALLED BY OPEN CUT EXCAVATION
- U/G ELECTRIC TO BE INSTALLED BY DIRECTIONAL BORE
- EXISTING SHRUBS/TREES
- EXISTING O/H ELECTRIC
- EXISTING PROPERTY LINE
- EXISTING CREEK
- EXISTING FEMA FLOODWAY
- EXISTING FEMA ZONE A

GRADING PLAN NOTES

1. PROJECT LOCATION IS IN EL PASO COUNTY COLORADO. APPROXIMATE SITE LOCATION IS AT LATITUDE 38.9910°, LONGITUDE -104.6632°.
2. ALL MEASUREMENTS ARE IN FEET, UNLESS SPECIFIED OTHERWISE.
3. FINAL STABILIZATION REQUIREMENTS SHALL BE BASED ON THE REQUIREMENTS OF THE STORM WATER POLLUTION PREVENTION PLAN.
4. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, UTILITIES AND CULVERTS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE PLANS.
5. CONTRACTOR TO PROTECT EXISTING UTILITIES AND MAINTAIN EXISTING DRAINAGE PATTERNS AT ALL TIMES.
6. CONTRACTOR TO VERIFY RIGHT OF WAY LIMITS PRIOR TO CONSTRUCTION.
7. EXISTING FEATURES (FENCE, MAILBOX, SIGN, ETC.) THAT ARE DISTURBED AS PART OF THE TEMPORARY IMPROVEMENT SHALL BE REINSTALLED OR REPLACED IN A CONDITION EQUAL TO OR BETTER THAN THE PRECONSTRUCTION CONDITION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL. TRAFFIC CONTROL SHALL MEET THE REQUIREMENTS OF THE COUNTY AND THE STATE DEPARTMENT OF TRANSPORTATION AND ALL RECOMMENDATIONS IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
9. CONTRACTOR SHALL CALL 811, ONE CALL ENTITIES PRIOR TO CONSTRUCTION. ALL HAZARDS SHALL BE ASSESSED PRIOR TO CONSTRUCTION.
10. EXCAVATED SOIL SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH.
11. WORK ALONG VOLLMER ROAD WILL BE DONE WITHIN A 20' EASEMENT GRANTED TO MOUNTAIN VIEW ELECTRIC.



SCALE: 1"=500'

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L DUCETT
COLORADO LICENSED
32339
PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

REVISIONS

NO.	DESCRIPTION	DATE

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

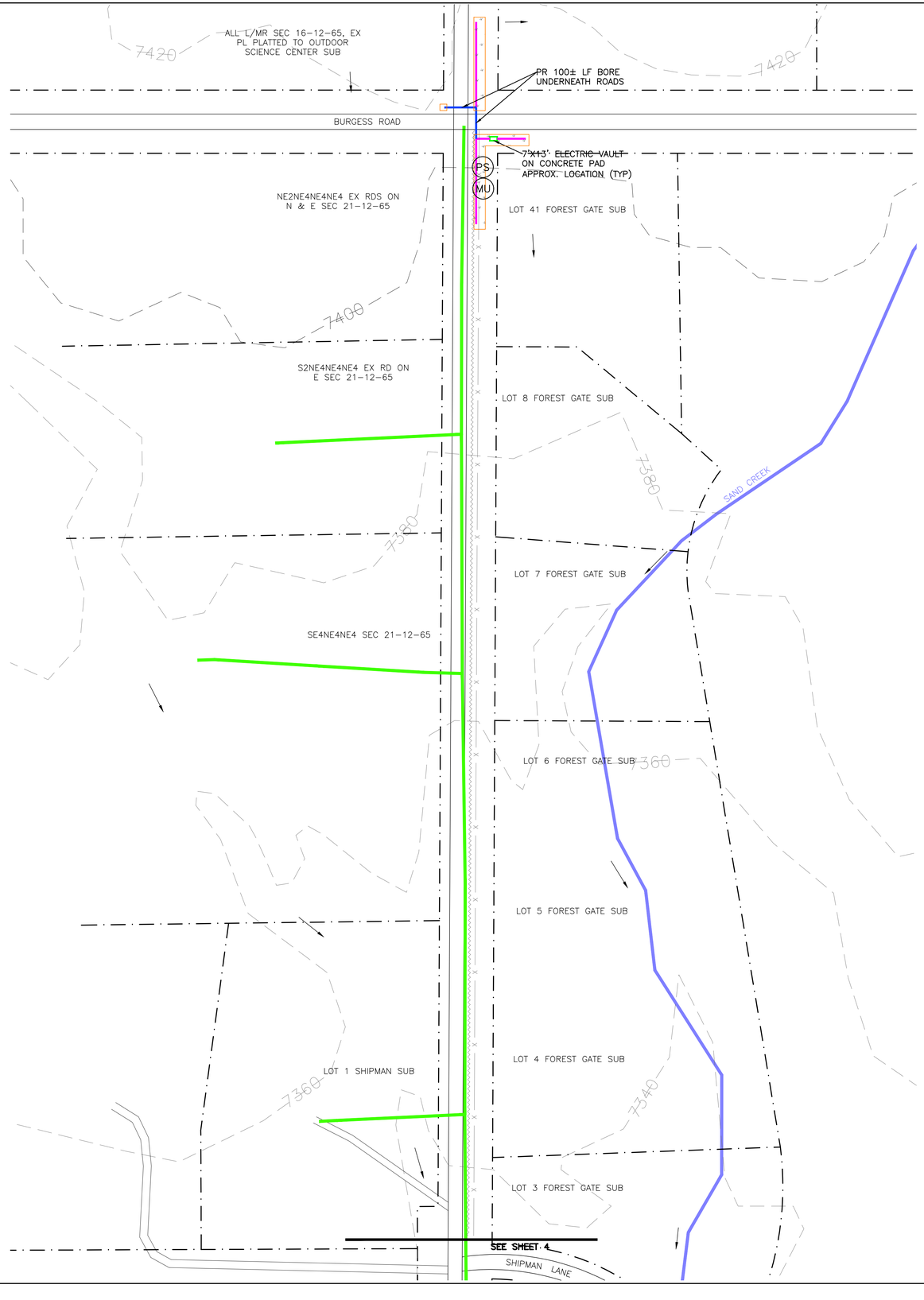
PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

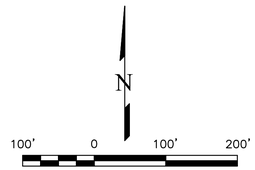
Terra Nova Engineering, Inc.
Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
SITE MAP

DESIGNED BY JF
DRAWN BY JF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 2104.00
DATE ISSUED 3/26/21
SHEET NO. 2 OF 9





SCALE: 1"=100'

GENERAL NOTES

1. SEDIMENT CONTROL LOGS SHOWN HERE MAY NEED TO BE ADJUSTED SO THAT THEY ARE PLACED ON THE DOWNHILL SIDE OF THE TRENCH. THE CONTRACTOR SHALL USE THEIR BEST JUDGEMENT ON PLACING THE EROSION CONTROL POINTS TO OFFER THE BEST PROTECTION TO DOWNSTREAM AREAS.
2. CONTRACTOR TO MARK UP PLAN SHOWING ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPS.
3. BROADCAST SEEDING SHALL BE PLACED OVER DISTURBED AREAS ONCE THE CONSTRUCTION IS DONE.
4. TOTAL LIMITS OF DISTURBANCE ESTIMATED TO BE APPROXIMATELY 3.07 AC.
5. WHEN WORK HAS BEEN COMPLETED, CONTRACTOR SHALL RETURN ANY DISTURBED SECTIONS OF ROADSIDE DITCH ALONG ROADS TO THEIR ORIGINAL GRADES.
6. MAX ALLOWABLE EXCAVATED/STOCKPILED SLOPE IS 2:1.
7. ARROYA ROAD WILL BE USED FOR ACCESS TO THE PROJECT. THIS ROAD WILL BE CLEARED/SWEPT AS NECESSARY TO REMOVE ANY SIGNIFICANT SEDIMENT ACCUMULATION AND PREVENT MIGRATION OF UNEVEN DIRT CLODS/MUD.
8. EXCAVATED SOIL SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH.
9. WORK ALONG VOLLMER ROAD WILL BE DONE WITHIN A 20' EASEMENT GRANTED TO MOUNTAIN VIEW ELECTRIC.

LEGEND

- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- 7200 EXISTING 100' CONTOUR
- 7260 EXISTING 20' CONTOUR
- EXISTING FLOW DIRECTION
- U/G ELEC TO BE INSTALLED BY OPEN CUT EXCAVATION
- U/G ELEC TO BE INSTALLED BY DIRECTIONAL BORE
- LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
- EXISTING SHRUBS/TREES
- EXISTING O/H ELECTRIC
- EXISTING PROPERTY LINE
- EXISTING CREEK
- EXISTING FEMA FLOODWAY
- EXISTING FEMA ZONE A
- EXISTING DITCH
- X EXISTING FENCE

EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL
SCL	SEDIMENT CONTROL LOG	SCL
VTC	VEHICLE TRACKING CONTOL	
PS MU	PERMANENT SEEDING AND MULCHING	
SSA	STABILIZED STAGING AREA	

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L. DUCETT, COLORADO LICENSED 32339 PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

REVISIONS		
NO.	DESCRIPTION	DATE

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

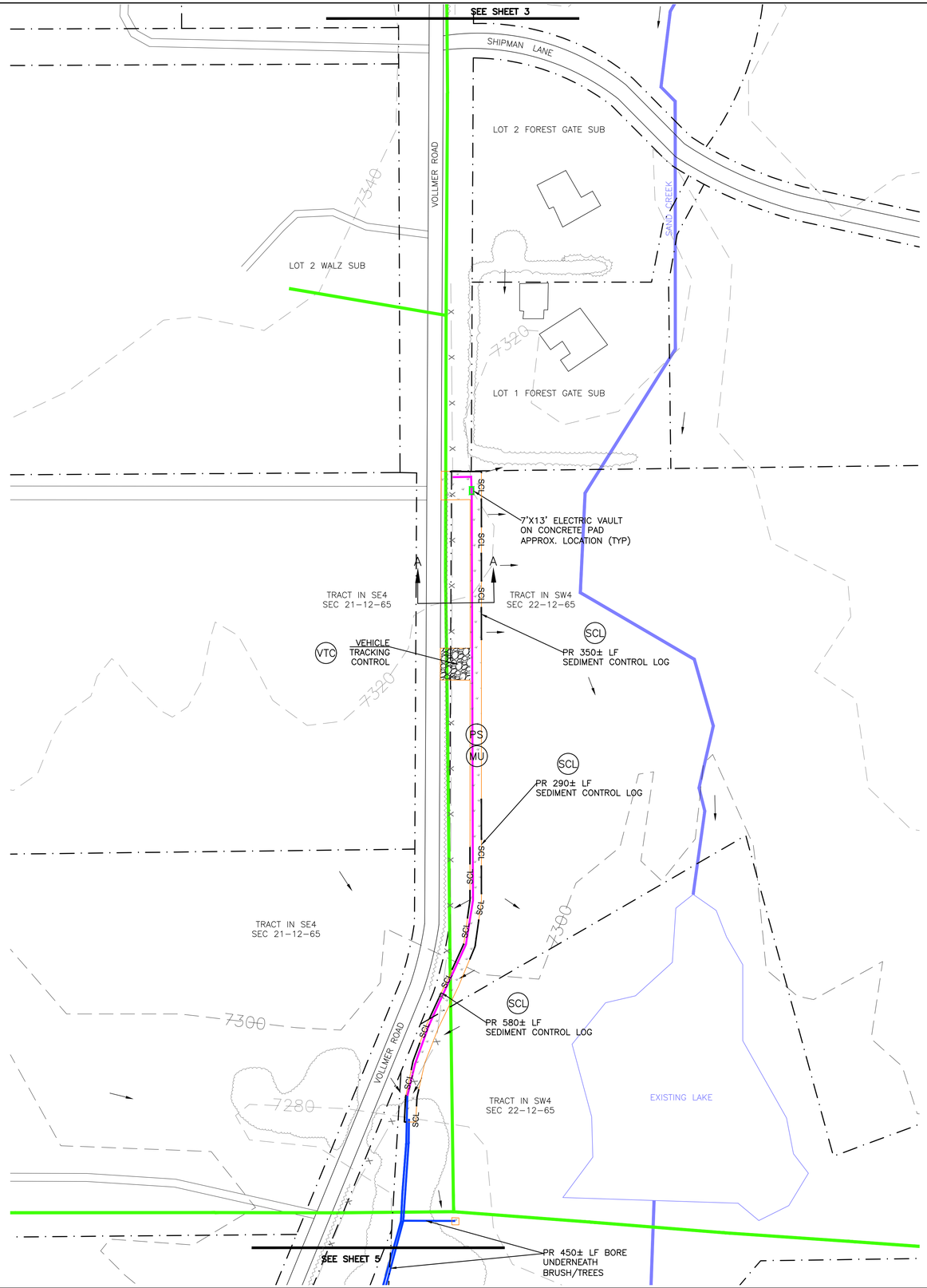
PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc. Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tneiinc.com

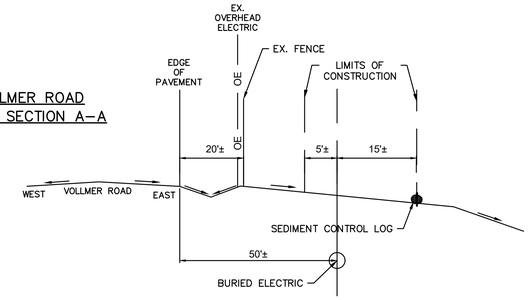
MVEA VOLLMER NORTH

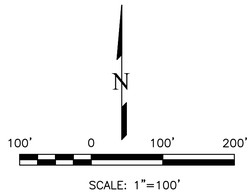
GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL PLAN

DESIGNED BY	LD
DRAWN BY	JF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2104.00
DATE ISSUED	3/26/21
SHEET NO.	3 OF 9



VOLLMER ROAD CROSS SECTION A-A





SCALE: 1"=100'

GENERAL NOTES

1. SEDIMENT CONTROL LOGS SHOWN HERE MAY NEED TO BE ADJUSTED SO THAT THEY ARE PLACED ON THE DOWNHILL SIDE OF THE TRENCH. THE CONTRACTOR SHALL USE THEIR BEST JUDGEMENT ON PLACING THE EROSION CONTROL POINTS TO OFFER THE BEST PROTECTION TO DOWNSTREAM AREAS.
2. CONTRACTOR TO MARK UP PLAN SHOWING ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPS.
3. BROADCAST SEEDING SHALL BE PLACED OVER DISTURBED AREAS ONCE THE CONSTRUCTION IS DONE.
4. TOTAL LIMITS OF DISTURBANCE ESTIMATED TO BE APPROXIMATELY 3.07 AC.
5. WHEN WORK HAS BEEN COMPLETED, CONTRACTOR SHALL RETURN ANY DISTURBED SECTIONS OF ROADSIDE DITCH ALONG ROADS TO THEIR ORIGINAL GRADES.
6. MAX ALLOWABLE EXCAVATED/STOCKPILED SLOPE IS 2:1.
7. ARROYA ROAD WILL BE USED FOR ACCESS TO THE PROJECT. THIS ROAD WILL BE CLEARED/SWEPT AS NECESSARY TO REMOVE ANY SIGNIFICANT SEDIMENT ACCUMULATION AND PREVENT MIGRATION OF UNEVEN DIRT CLODS/MUD.
8. EXCAVATED SOIL SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH.
9. WORK ALONG VOLLMER ROAD WILL BE DONE WITHIN A 20' EASEMENT GRANTED TO MOUNTAIN VIEW ELECTRIC.

LEGEND

- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- 7200 EXISTING 100' CONTOUR
- 7260 EXISTING 20' CONTOUR
- EXISTING FLOW DIRECTION
- U/G ELEC TO BE INSTALLED BY OPEN CUT EXCAVATION
- U/G ELEC TO BE INSTALLED BY DIRECTIONAL BORE
- LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
- EXISTING SHRUBS/TREES
- EXISTING O/H ELECTRIC
- EXISTING PROPERTY LINE
- EXISTING CREEK
- EXISTING FEMA FLOODWAY
- EXISTING FEMA ZONE A
- EXISTING DITCH
- X EXISTING FENCE

EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL
SCL	SEDIMENT CONTROL LOG	SCL
VTC	VEHICLE TRACKING CONTOL	
PS / MU	PERMANENT SEEDING AND MULCHING	
SSA	STABILIZED STAGING AREA	

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L. DUCETT, P.E.
COLORADO P.E. NO. 32339

4/4/2021

REVISIONS

NO.	DESCRIPTION	DATE

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

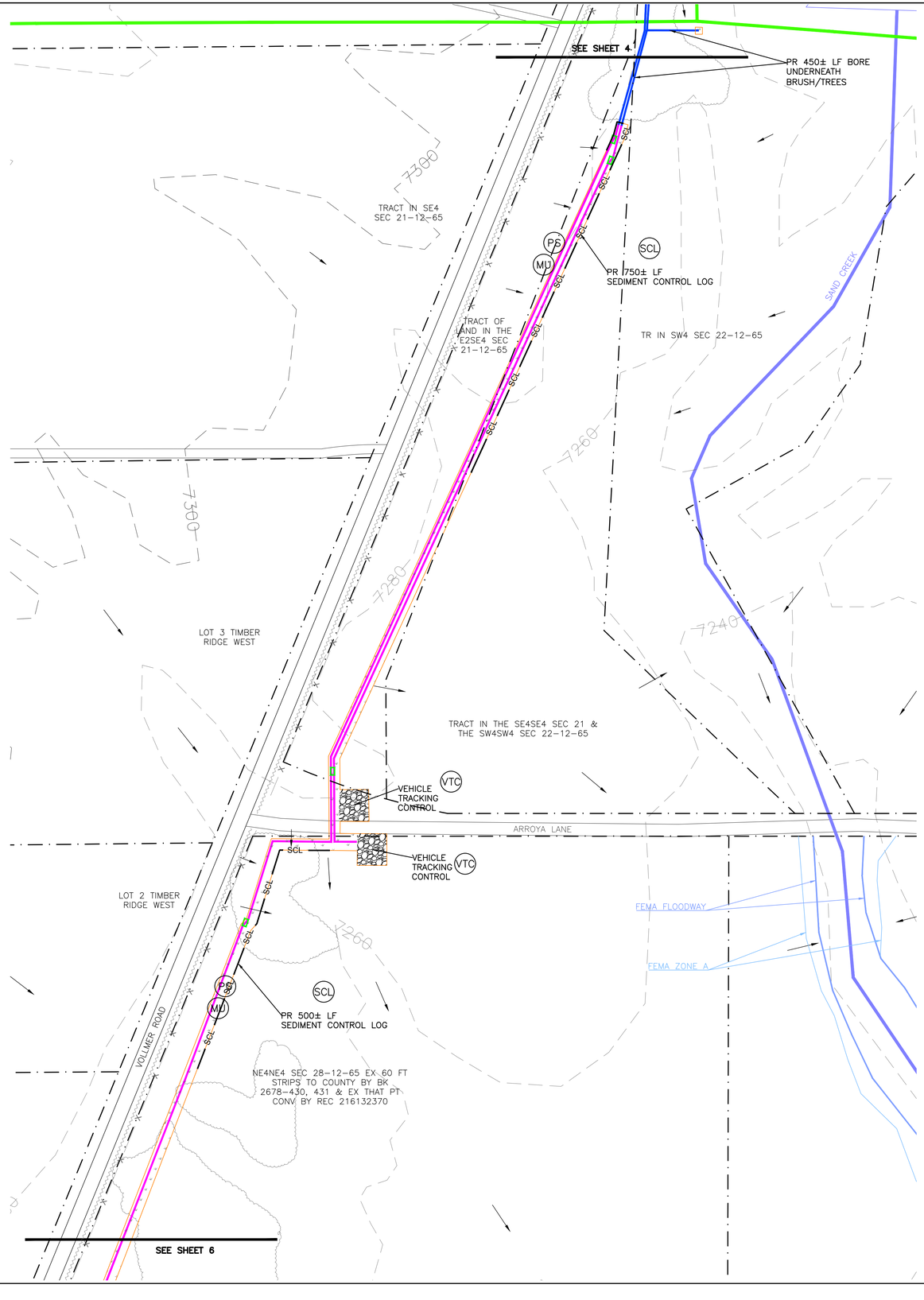
PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc.
Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tneinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL PLAN

DESIGNED BY	LD
DRAWN BY	JF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2104.00
DATE ISSUED	3/26/21
SHEET NO.	4 OF 9



N

100' 0 100' 200'

SCALE: 1"=100'

GENERAL NOTES

1. SEDIMENT CONTROL LOGS SHOWN HERE MAY NEED TO BE ADJUSTED SO THAT THEY ARE PLACED ON THE DOWNHILL SIDE OF THE TRENCH. THE CONTRACTOR SHALL USE THEIR BEST JUDGEMENT ON PLACING THE EROSION CONTROL POINTS TO OFFER THE BEST PROTECTION TO DOWNSTREAM AREAS.
2. CONTRACTOR TO MARK UP PLAN SHOWING ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPS.
3. BROADCAST SEEDING SHALL BE PLACED OVER DISTURBED AREAS ONCE THE CONSTRUCTION IS DONE.
4. TOTAL LIMITS OF DISTURBANCE ESTIMATED TO BE APPROXIMATELY 3.07 AC.
5. WHEN WORK HAS BEEN COMPLETED, CONTRACTOR SHALL RETURN ANY DISTURBED SECTIONS OF ROADSIDE DITCH ALONG ROADS TO THEIR ORIGINAL GRADES.
6. MAX ALLOWABLE EXCAVATED/STOCKPILED SLOPE IS 2:1.
7. ARROYA ROAD WILL BE USED FOR ACCESS TO THE PROJECT. THIS ROAD WILL BE CLEARED/SWEPT AS NECESSARY TO REMOVE ANY SIGNIFICANT SEDIMENT ACCUMULATION AND PREVENT MIGRATION OF UNEVEN DIRT CLODS/MUD.
8. EXCAVATED SOIL SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH.
9. WORK ALONG VOLLMER ROAD WILL BE DONE WITHIN A 20' EASEMENT GRANTED TO MOUNTAIN VIEW ELECTRIC.

LEGEND

- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- 7200 EXISTING 100' CONTOUR
- 7260 EXISTING 20' CONTOUR
- EXISTING FLOW DIRECTION
- U/G ELEC TO BE INSTALLED BY OPEN CUT EXCAVATION
- U/G ELEC TO BE INSTALLED BY DIRECTIONAL BORE
- LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
- EXISTING SHRUBS/TREES
- EXISTING O/H ELECTRIC
- EXISTING PROPERTY LINE
- EXISTING CREEK
- EXISTING FEMA FLOODWAY
- EXISTING FEMA ZONE A
- EXISTING DITCH
- X EXISTING FENCE

EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL
SCL	SEDIMENT CONTROL LOG	SCL
VTC	VEHICLE TRACKING CONTOL	
PS MU	PERMANENT SEEDING AND MULCHING	
SSA	STABILIZED STAGING AREA	

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L. DUCETT COLORADO LICENSED 32339 PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339

4/4/2021

REVISIONS		
NO.	DESCRIPTION	DATE

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

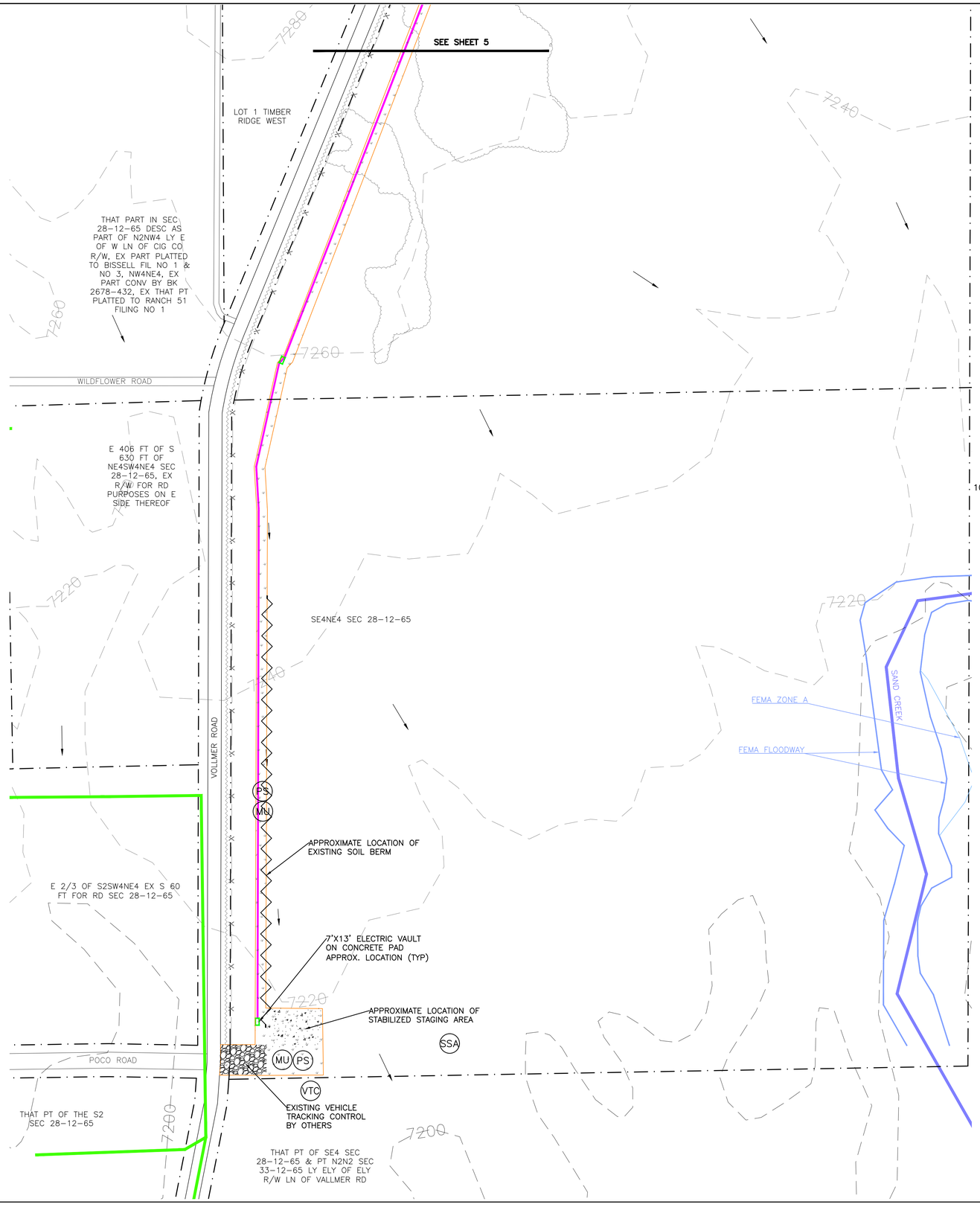
PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc. Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL PLAN

DESIGNED BY	LD
DRAWN BY	JF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2104.00
DATE ISSUED	3/26/21
SHEET NO.	5 OF 9



GENERAL NOTES

1. SEDIMENT CONTROL LOGS SHOWN HERE MAY NEED TO BE ADJUSTED SO THAT THEY ARE PLACED ON THE DOWNHILL SIDE OF THE TRENCH. THE CONTRACTOR SHALL USE THEIR BEST JUDGEMENT ON PLACING THE EROSION CONTROL POINTS TO OFFER THE BEST PROTECTION TO DOWNSTREAM AREAS.
2. CONTRACTOR TO MARK UP PLAN SHOWING ACTUAL FIELD INSTALLATION OF EROSION CONTROL BMPS.
3. BROADCAST SEEDING SHALL BE PLACED OVER DISTURBED AREAS ONCE THE CONSTRUCTION IS DONE.
4. TOTAL LIMITS OF DISTURBANCE ESTIMATED TO BE APPROXIMATELY 3.07 AC.
5. WHEN WORK HAS BEEN COMPLETED, CONTRACTOR SHALL RETURN ANY DISTURBED SECTIONS OF ROADSIDE DITCH ALONG ROADS TO THEIR ORIGINAL GRADES.
6. MAX ALLOWABLE EXCAVATED/STOCKPILED SLOPE IS 2:1.
7. ARROYA ROAD WILL BE USED FOR ACCESS TO THE PROJECT. THIS ROAD WILL BE CLEARED/SWEPT AS NECESSARY TO REMOVE ANY SIGNIFICANT SEDIMENT ACCUMULATION AND PREVENT MIGRATION OF UNEVEN DIRT CLODS/MUD.
8. EXCAVATED SOIL SHOULD BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH.
9. WORK ALONG VOLLMER ROAD WILL BE DONE WITHIN A 20' EASEMENT GRANTED TO MOUNTAIN VIEW ELECTRIC.

LEGEND

- EXISTING PAVED ROAD
- EXISTING DIRT ROAD
- 7200 EXISTING 100' CONTOUR
- 7260 EXISTING 20' CONTOUR
- EXISTING FLOW DIRECTION
- U/G ELEC TO BE INSTALLED BY OPEN CUT EXCAVATION
- U/G ELEC TO BE INSTALLED BY DIRECTIONAL BORE
- LIMITS OF DISTURBANCE/ CONSTRUCTION SITE BOUNDARY
- EXISTING SHRUBS/TREES
- EXISTING O/H ELECTRIC
- EXISTING PROPERTY LINE
- EXISTING CREEK
- EXISTING FEMA FLOODWAY
- EXISTING FEMA ZONE A
- EXISTING DITCH
- X EXISTING FENCE

EROSION CONTROL LEGEND

KEY	TITLE	SYMBOL
SCL	SEDIMENT CONTROL LOG	SCL
VTC	VEHICLE TRACKING CONTOL	
PS MU	PERMANENT SEEDING AND MULCHING	
SSA	STABILIZED STAGING AREA	

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

COLORADO LICENSED L DUCETT 32339 PROFESSIONAL ENGINEER

REVISIONS

NO.	DESCRIPTION	DATE

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

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

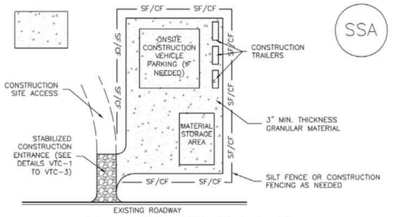
Terra Nova Engineering, Inc.
Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnsinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL PLAN

DESIGNED BY	LD
DRAWN BY	JF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2104.00
DATE ISSUED	3/26/21
SHEET NO.	6 OF 9

Stabilized Staging Area (SSA) SM-6



SSA–1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR
   –LOCATION OF STAGING AREA(S).
   –CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.

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

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

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

5. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

6. ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

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

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

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

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

SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

5. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.

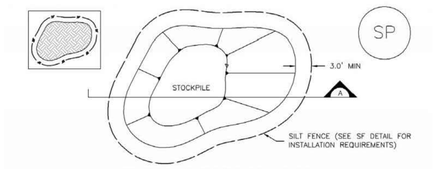
6. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.

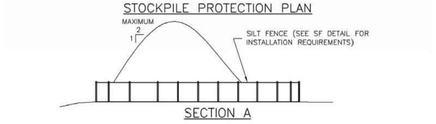
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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

Stockpile Management (SP) MM-2



STOCKPILE PROTECTION PLAN



SECTION A

SP–1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

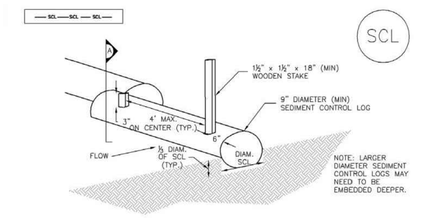
1. SEE PLAN VIEW FOR:
   –LOCATION OF STOCKPILES.
   –TYPE OF STOCKPILE PROTECTION.

2. 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.

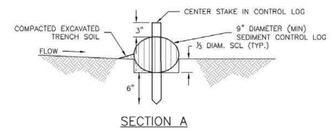
3. STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY 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.

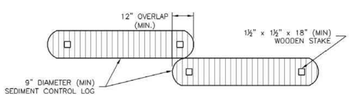
Sediment Control Log (SCL) SC-2



SEDIMENT CONTROL LOG



SECTION A



SEDIMENT CONTROL LOG JOINTS

SCL–1. SEDIMENT CONTROL LOG

MM-2 Stockpile Management (SM)

STOCKPILE 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.

STOCKPILE PROTECTION MAINTENANCE NOTES

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

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

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

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

Sediment Control Log (SCL) SC-2

SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.

2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPGRADIENT LAND-DISTURBING ACTIVITIES.

3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.

4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.

5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY ⅓ OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.

6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.

7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.

SEDIMENT CONTROL LOG MAINTENANCE NOTES

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

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

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

4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.

5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

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

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

REVISIONS

NO.	DESCRIPTION	DATE

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

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc.
Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL DETAILS

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

COLORADO REGISTERED L DUCETT 32339 PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

DESIGNED BY LD
DRAWN BY JF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 2104.00
DATE ISSUED 3/26/21
SHEET NO. 7 OF 9

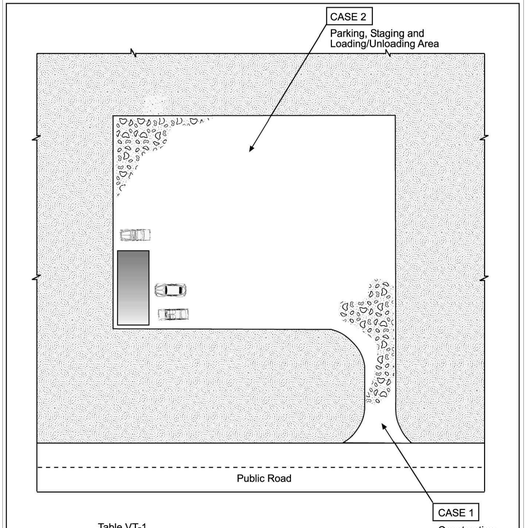


Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs
Storm Water Quality

Figure VT-1
Vehicle Tracking
Application Examples

DEN/M/153722.CS.CB/FigVT-1/9-99

or irrigation to wet and settle the seed bed. Firming of the seedbed following seeding will improve results during dry or warm seeding times.

Table 14-9. Recommended Seed Mix for High Water Table Conditions[1]

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/ Acre Drilled	Lbs PLS/Acre Broadcast or Hydroseeded
Redtop[2]	*Agrostis alba*	Warm	Sod	5,000,000	0.1	0.2
Switchgrass (Pathfinder)	*Panicum virgatum*	Warm	Sod/ Bunch	389,000	2.2	4.4
Western wheatgrass (Arriba)	*Pascopyrum smithii*	Cool	Sod	110,000	7.9	15.8
Indian saltgrass	*Distichlis spicata*	Warm	Sod	520,000	1.0	2.0
Wooly sedge	*Carex lanuginose*	Cool	Sod	400,000	0.1	0.2
Baltic rush	*Juncus balticus*	Cool	Sod	109,300,000	0.1	0.2
Prairie cordgrass	*Spartina pectinata*	Cool	Sod	110,000	1.0	2.0
Annual rye	*Lolium multiflorum*	Cool	Cover crop	227,000	10.0	20.0
				TOTAL	**22.4**	**44.8**
Wildflowers						
Nuttall's sunflower	*Helianthus nuttallii*	---	—	250,000	0.10	0.20
Wild bergamot	*Monarda fistulosa*	---	—	1,450,000	0.12	0.24
Yarrow	*Achillea millefolium*	---	—	2,770,000	0.06	0.12
Blue vervain	*Verbena hastata*	---	—		0.12	0.24
				TOTAL	**0.40**	**0.80**

[1]For portions of facilities located near or on the bottom or where wet soil conditions occur. Planting of potted nursery stock wetland plants 2-foot on-center is recommended for sites with wetland hydrology.
[2] Non-native

Mulching (MU) EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeding. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

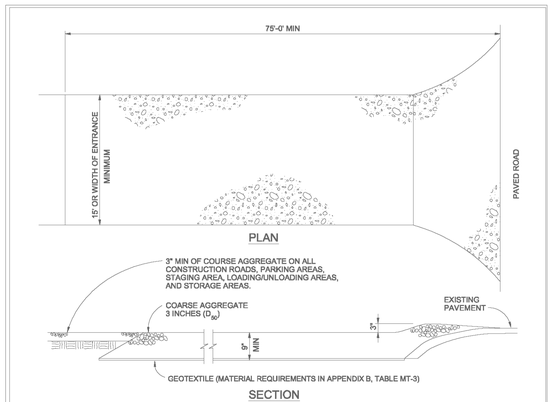
Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

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



VEHICLE TRACKING
NTS

VEHICLE TRACKING NOTES

INSTALLATION REQUIREMENTS

1. ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.

2. CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.

3. AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.

4. CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.

5. CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.

2. STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.

3. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.

4. STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.

5. OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

City of Colorado Springs
Stormwater Quality

Figure VT-2
Vehicle Tracking
Application Examples

Table 14-10. Recommended Seed Mix for Transition Areas[1]

Common Name (Variety)	Scientific Name	Growth Season	Growth Form	Seeds/Lb	Lbs PLS/Acre Drilled	Lbs PLS/Acre Broadcast or Hydroseeded
Sheep fescue (Durar)	*Festuca ovina*	Cool	Bunch	680,000	1.3	2.6
Western wheatgrass (Arriba)	*Pascopyrum smithii*	Cool	Sod	110,000	7.9	15.8
Alkali sacaton	*Spolobolus airoides*	Warm	Bunch	1,758,000	0.5	1.0
Slender wheatgrass	*Elymus trachycaulus*	Cool	Bunch	159,000	5.5	11.0
Canadian bluegrass (Ruebens)[1]	*Poa compressa*	Cool	Sod	2,500,000	0.3	0.6
Switchgrass (Pathfinder)	*Panicum virgatum*	Warm	Sod/ Bunch	389,000	1.3	2.6
Annual rye	*Lolium multiflorum*	Cool	Cover crop	227,000	10.0	20.0
				TOTAL	**26.8**	**53.6**
Wildflowers						
Blanket flower	*Faillardia aristata*	---	---	132,000	0.25	0.50
Prairie coneflower	*Ratibida columnaris*	---	---	1,230,000	0.20	0.40
Purple prairie clover	*Petalostemum purpurea*	---	---	210,000	0.20	0.40
Gayfeather	*Liatris punctata*	---	---	138,000	0.06	0.12
Flax	*Linum lewisii*	---	---	293,000	0.20	0.40
Penstemon	*Penstemon strictus*	---	---	592,000	0.20	0.40
Yarrow	*Achillea millefolium*	---	---	2,770,000	0.03	0.06
				TOTAL	**1.14**	**2.28**

[1]For side slopes or between wet and dry areas.
[2]Substitute 1.7 lbs PLS/acre of inland saltgrass (*Distichlis spicata)* in salty soils.

- 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 above).

- 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.

REVISIONS

NO.	DESCRIPTION	DATE

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

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc.
Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tnesinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL DETAILS

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

COLORADO P.E. NO. 32339 L. DUCETT
32339
PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

DESIGNED BY	LD
DRAWN BY	JF
CHECKED BY	LD
H-SCALE	AS SHOWN
V-SCALE	NA
JOB NO.	2104.00
DATE ISSUED	3/26/21
SHEET NO.	8 OF 9

Description

Earth dikes and drainage swales are temporary storm conveyance channels constructed either to divert runoff around slopes or to convey runoff to additional sediment control BMPs prior to discharge of runoff from a site. Drainage swales may be lined or unlined, but if an unlined swale is used, it must be well compacted and capable of resisting erosive velocities.

Photograph ED/DS-1. Example of an earth dike used to divert flows at a construction site. Photo courtesy of CDOT.

Appropriate Uses

Earth dikes and drainage swales are typically used to control the flow path of runoff at a construction site by diverting runoff around areas prone to erosion, such as steep slopes. Earth dikes and drainage swales may also be constructed as temporary conveyance features. This will direct runoff to additional sediment control treatment BMPs, such as sediment traps or basins.

Design and Installation

When earth dikes are used to divert water for slope protection, the earth dike typically consists of a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour. The dike is used in conjunction with a swale or a small channel upslope of the berm to convey the diverted water. Temporary diversion dikes can be constructed by excavation of a V-shaped trench or ditch and placement of the fill on the downslope side of the cut. There are two types of placement for temporary slope diversion dikes:

- A dike located at the top of a slope to divert upland runoff away from the disturbed area and convey it in a temporary or permanent channel.
- A diversion dike located at the base or mid-slope of a disturbed area to intercept runoff and reduce the effective slope length.

Depending on the project, either an earth dike or drainage swale may be more appropriate. If there is a need for cut on the project, then an excavated drainage swale may be better suited. When the project is primarily fill, then a conveyance constructed using a berm may be the better option.

All dikes or swales receiving runoff from a disturbed area should direct stormwater to a sediment control BMP such as a sediment trap or basin.

Earth Dikes and Drainage Swales	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

Unlined dikes or swales should only be used for intercepting sheet flow runoff and are not intended for diversion of concentrated flows.

Details with notes are provided for several design variations, including:

ED-1. Unlined Earth Dike formed by Berm

DS-1. Unlined Excavated Swale

DS-2. Unlined Swale Formed by Cut and Fill

DS-3. ECB-lined Swale

DS-4. Synthetic-lined Swale

DS-5. Riprap-lined Swale

The details also include guidance on permissible velocities for cohesive channels if unlined approaches will be used.

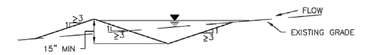
Maintenance and Removal

Inspect earth dikes for stability, compaction, and signs of erosion and repair. Inspect side slopes for erosion and damage to erosion control fabric. Stabilize slopes and repair fabric as necessary. If there is reoccurring extensive damage, consider installing rock check dams or lining the channel with riprap.

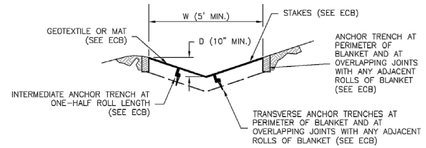
If drainage swales are not permanent, remove dikes and fill channels when the upstream area is stabilized. Stabilize the fill or disturbed area immediately following removal by revegetation or other permanent stabilization method approved by the local jurisdiction.

ED-1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM

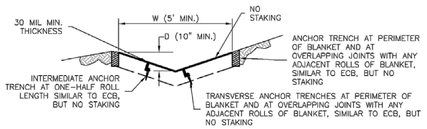
DS-1. COMPACTED UNLINED EXCAVATED SWALE



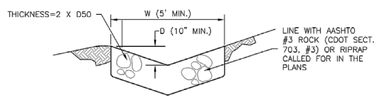
DS-2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL



DS-3. ECB LINED SWALE (CUT AND FILL OR BERM)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.
3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

EARTH DIKE AND DRAINAGE SWALE 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. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, 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.

REVISIONS

NO.	DESCRIPTION	DATE

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

PREPARED FOR:
MVEA
ATTN: DAVE WALDNER
11140 E. WOODMEN RD
PEYTON, CO 80831
(719) 495-2283

Terra Nova Engineering, Inc. Creative Civil Engineering Solutions
721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tneiinc.com

MVEA VOLLMER NORTH

GRADING, EROSION, & SEDIMENT CONTROL PLAN
EROSION CONTROL DETAILS

THIS DESIGN WAS PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF TERRA NOVA ENGINEERING, INC.

L DUCETT
COLORADO LICENSED
32339
PROFESSIONAL ENGINEER

L. DUCETT, P.E.
COLORADO P.E. NO. 32339
4/4/2021

DESIGNED BY LD
DRAWN BY JF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 2104.00
DATE ISSUED 3/26/21
SHEET NO. 9 OF 9