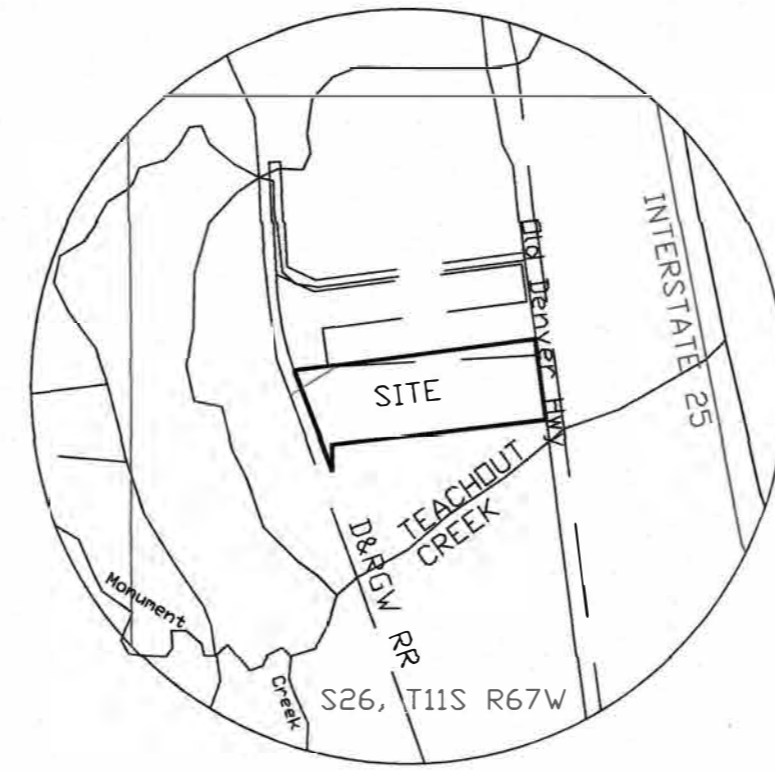
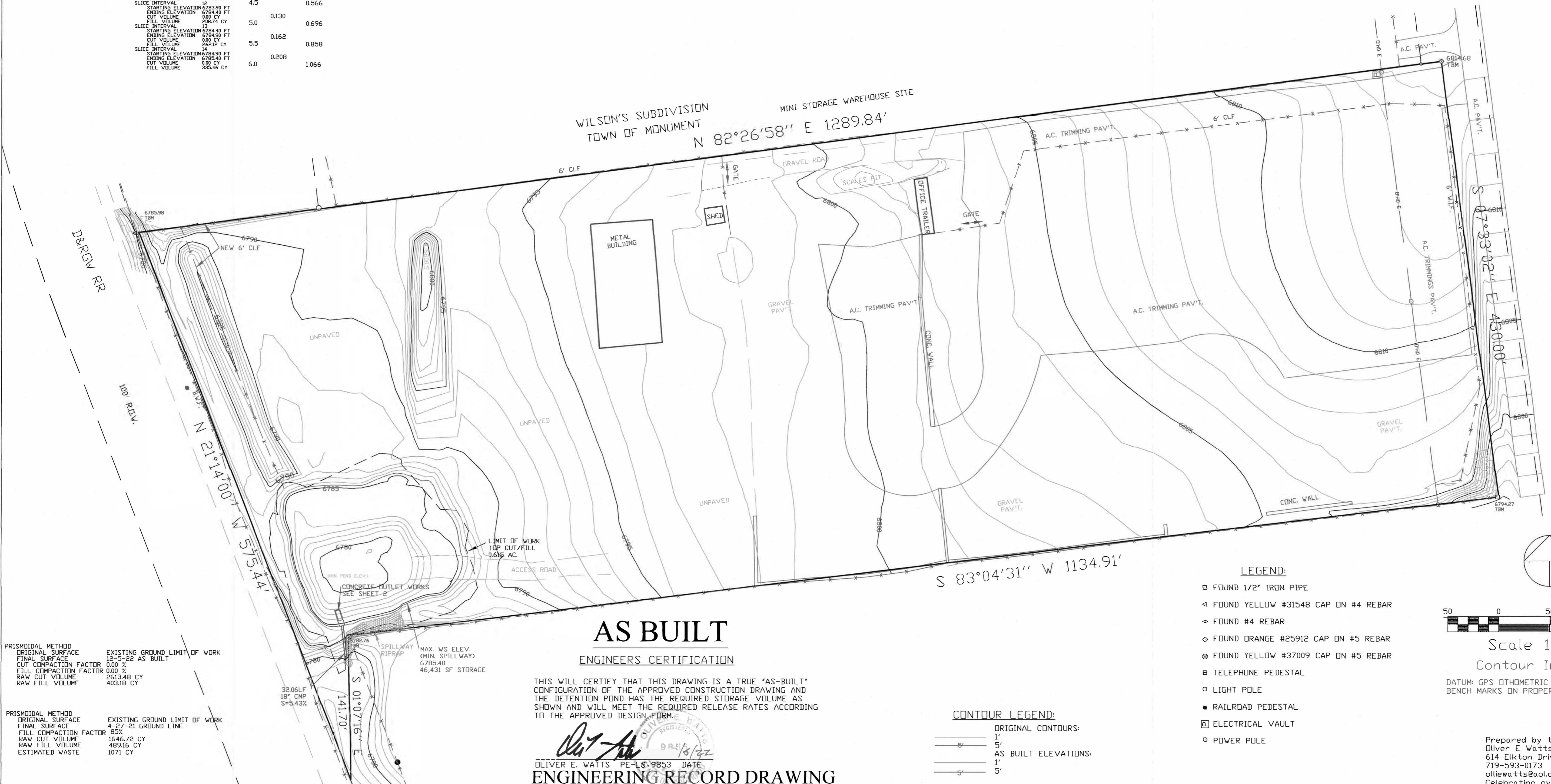


| PRISMOIDAL METHOD | 12-5-22 AS BUILT | 46.463CF | 1066 AF |
|------------------------|------------------|----------|---------|
| ORIGINAL SURFACE | AS BUILT | | |
| FINAL SURFACE | AS BUILT | | |
| CUT COMPACTION FACTOR | 0.00 % | | |
| FILL COMPACTION FACTOR | 0.00 % | | |
| RAW CUT VOLUME | 179.67 CY | | |
| RAW FILL VOLUME | 179.67 CY | | |
| VOLUME BY SLICE METHOD | | | |
| SLICE INTERVAL | 3 | DEPTH | V-AE |
| STARTING ELEVATION | 6779.40 FT | 0 | 3.23_4 |
| ENDING ELEVATION | 6779.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 0.5 | 0.025 | 3.23-4 |
| STARTING ELEVATION | 6779.90 FT | | |
| ENDING ELEVATION | 6780.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 1.0 | 0.025 | |
| STARTING ELEVATION | 6780.40 FT | | |
| ENDING ELEVATION | 6780.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 1.5 | 0.044 | 0.070 |
| STARTING ELEVATION | 6780.90 FT | | |
| ENDING ELEVATION | 6781.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 2.0 | 0.065 | 0.123 |
| STARTING ELEVATION | 6781.40 FT | | |
| ENDING ELEVATION | 6781.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 2.5 | 0.077 | 0.188 |
| STARTING ELEVATION | 6781.90 FT | | |
| ENDING ELEVATION | 6782.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 3.0 | 0.087 | 0.265 |
| STARTING ELEVATION | 6782.40 FT | | |
| ENDING ELEVATION | 6782.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 3.5 | 0.100 | 0.352 |
| STARTING ELEVATION | 6782.90 FT | | |
| ENDING ELEVATION | 6783.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 4.0 | 0.114 | 0.452 |
| STARTING ELEVATION | 6783.40 FT | | |
| ENDING ELEVATION | 6783.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 4.5 | 0.130 | 0.566 |
| STARTING ELEVATION | 6783.90 FT | | |
| ENDING ELEVATION | 6784.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 5.0 | 0.162 | 0.696 |
| STARTING ELEVATION | 6784.40 FT | | |
| ENDING ELEVATION | 6784.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 5.5 | 0.208 | 0.858 |
| STARTING ELEVATION | 6784.90 FT | | |
| ENDING ELEVATION | 6785.40 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |
| SLICE INTERVAL | 6.0 | 0.208 | 1.066 |
| STARTING ELEVATION | 6785.40 FT | | |
| ENDING ELEVATION | 6785.90 FT | | |
| FILL VOLUME | 0.00 CY | | |
| CUT VOLUME | 0.00 CY | | |



VICINITY MAP
1"=1000'



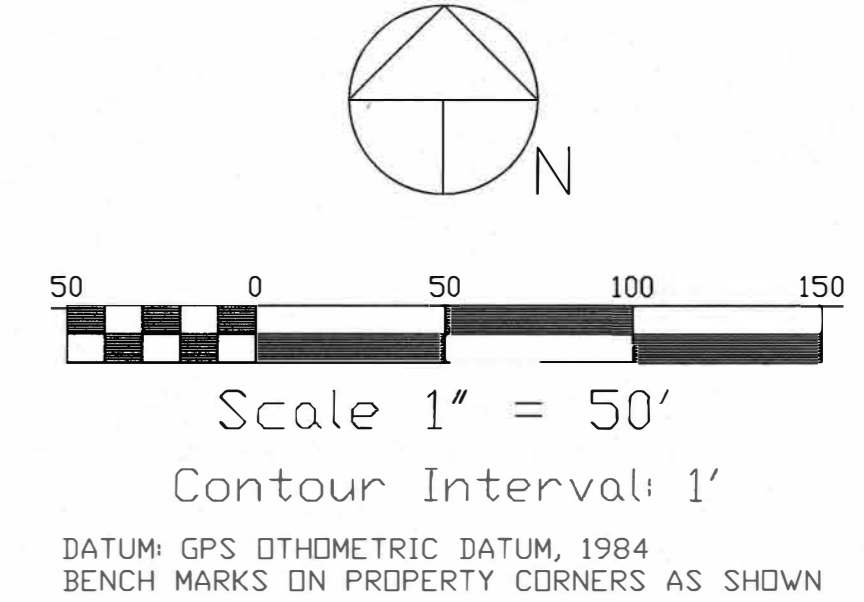
| PRISMOIDAL METHOD | EXISTING GROUND LIMIT OF WORK |
|------------------------|-------------------------------|
| ORIGINAL SURFACE | 12-5-22 AS BUILT |
| FINAL SURFACE | 4-27-21 GROUND LINE |
| CUT COMPACTION FACTOR | 0.00 % |
| FILL COMPACTION FACTOR | 0.00 % |
| RAW CUT VOLUME | 2613.48 CY |
| RAW FILL VOLUME | 463.18 CY |
| ESTIMATED WASTE | 1071 CY |

AS BUILT
ENGINEERS CERTIFICATION

THIS WILL CERTIFY THAT THIS DRAWING IS A TRUE "AS-BUILT" CONFIGURATION OF THE APPROVED CONSTRUCTION DRAWING AND THE DETENTION POND HAS THE REQUIRED STORAGE VOLUME AS SHOWN AND WILL MEET THE REQUIRED RELEASE RATES ACCORDING TO THE APPROVED DESIGN FORM.

Oliver E. Watts
OLIVER E. WATTS PE-LS-9853 DATE 9/15/22
ENGINEERING RECORD DRAWING

- LEGEND:**
- FOUND 1/2" IRON PIPE
 - ◊ FOUND YELLOW #31548 CAP ON #4 REBAR
 - ◊ FOUND #4 REBAR
 - ◊ FOUND ORANGE #25912 CAP ON #5 REBAR
 - ◊ FOUND YELLOW #37009 CAP ON #5 REBAR
 - ⊕ TELEPHONE PEDESTAL
 - LIGHT POLE
 - RAILROAD PEDESTAL
 - ⊞ ELECTRICAL VAULT
 - POWER POLE



DATUM: GPS DATUM, 1984
BENCH MARKS ON PROPERTY CORNERS AS SHOWN

Prepared by the office of:
Oliver E. Watts Consulting Engineer, Inc.
614 Elkton Drive Colorado Springs, CO 80907
719-593-0173
oliewatts@aol.com
Celebrating over 42 years in business

| | | | | | | |
|---|---|--|--|---|--|--------------------------|
| DRAWN BY: O.E. WATTS DATE: 10-23-19 DWG. NO.: 17-4858-04 SURVEYED BY: DEW, ESW, 10-24-16, 1-24-17, 4-18-19 | APPROVED BY: PROJ. NO.: DWG. NO.: | REVISIONS 1-18-21 REVISED PER COUNTY COMMENTS DEW 4-21-21 REVISED PER COUNTY COMMENTS DEW 6-25-21 REVISED PER COUNTY COMMENTS DEW 12-15-22 REVISED PER COUNTY COMMENTS DEW | OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS | PROJECT 16140 OLD DENVER ROAD PART NW1/4 SEC. 26, T.11S., R.67W. 6TH P.M. EL PASO COUNTY | SHT. NAME CONSTRUCTION DOCUMENT GRADING AND EROSION CONTROL PLAN | SHT. NO. 2 OF 5 |
|---|---|--|--|---|--|--------------------------|

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 (SMWP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. Management of the SMWP during construction is the responsibility of the designated Qualified Stormwater Manager or Certified Erosion Control Inspector. The SMWP 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 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 SMWP. 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

 VIVID ENGINEERING

 and shall be considered a part of these plans.

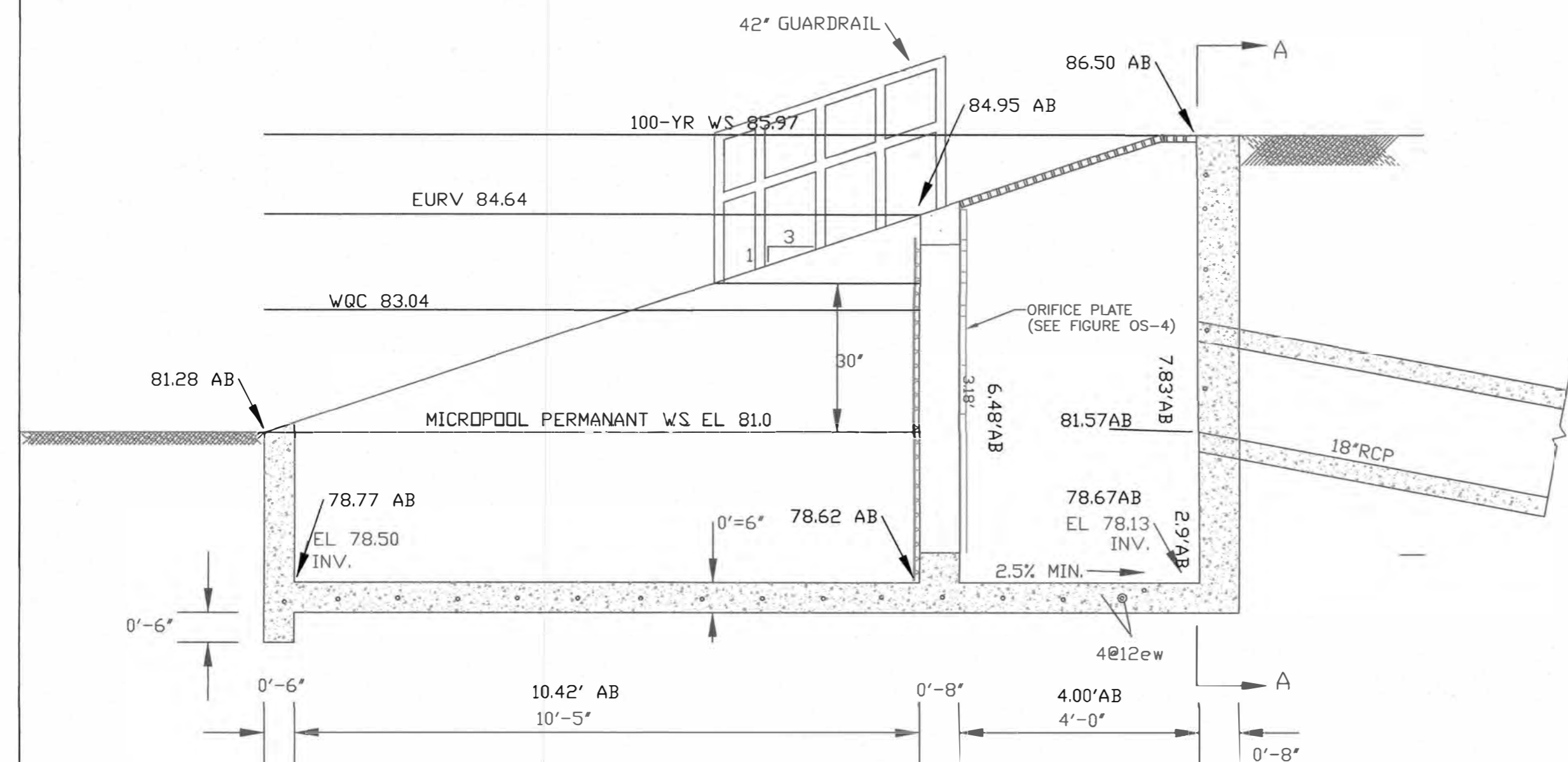
29. At least ten (10) days prior to the anticipated start of construction, for projects that will disturb one (1) acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application contains certification of completion of a stormwater management plan (SMWP), 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

AS BUILT



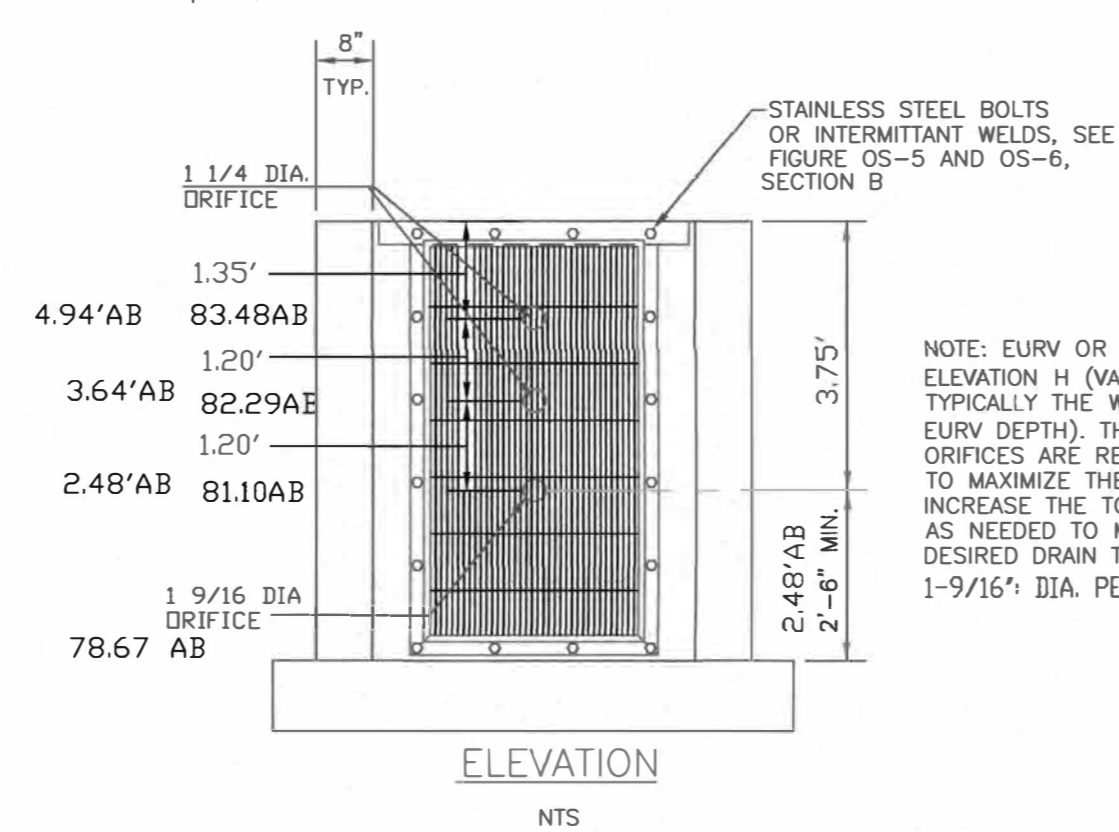
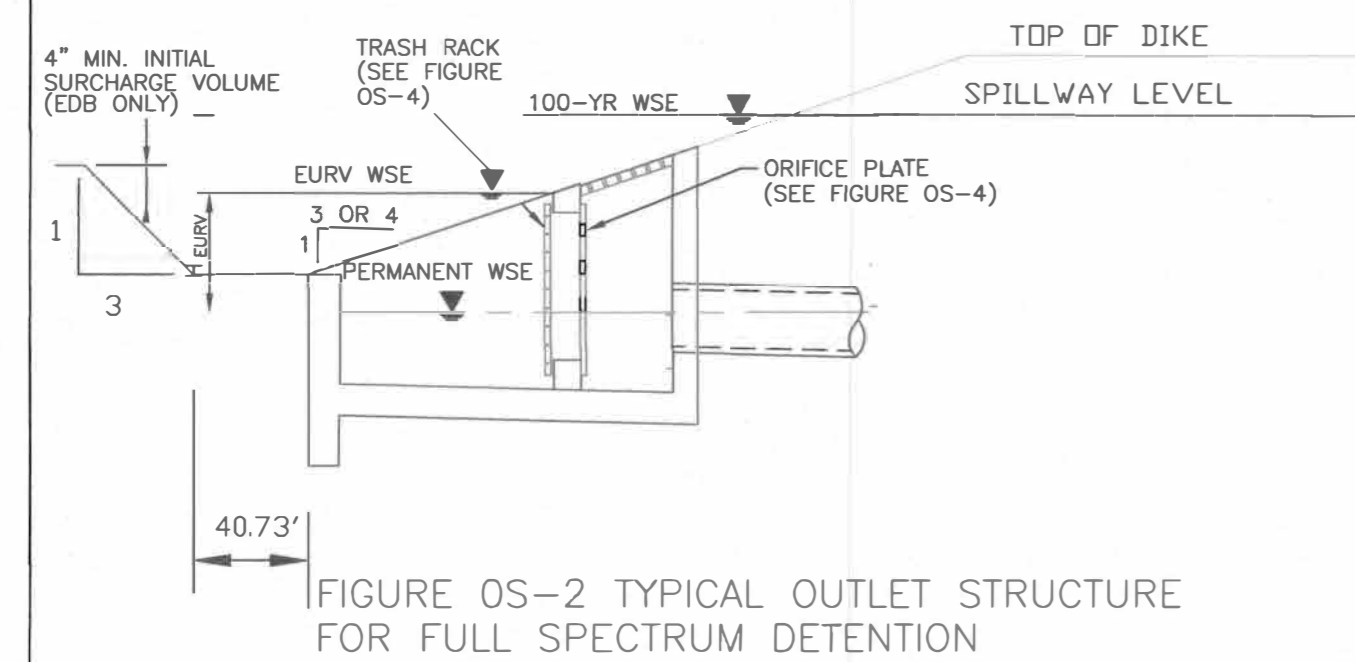
Prepared by the Office of:
 Oliver E. Watts, Consulting Engineer, Inc.
 614 Elkton Drive, Colorado Springs, CO 80907
 719-593-0173
 olliewatts@aol.com
 Celebrating over 42 years in business

| | | | | | |
|--|-------------------------------------|--|---|---|---------------------------|
| DRAWN BY: O.E. WATTS DATE: 10-23-19 DWG. NO.: 17-4958-05 | APPROVED BY: PROJ. NO.: DWG.: | REVISIONS 5-15-20 REVISED PER COUNTY REVIEW COMMENTS DEW 1-18-20 REVISED PER COUNTY REVIEW COMMENTS DEW | PROJECT 16140 OLD DENVER ROAD PART NW1/4 SEC. 26, T.11S., R.67W. 6TH P.M. EL PASO COUNTY | SHEET NAME CONSTRUCTION DOCUMENT NOTES PAGE | SHEET NO. 3 OF 5 |
|--|-------------------------------------|--|---|---|---------------------------|



OUTLET WORKS PROFILE
1/2"=1'-0"

NOTE:
ALL TRASH RACKS SHOULD BE
SIZED PER FIGURE OS-1



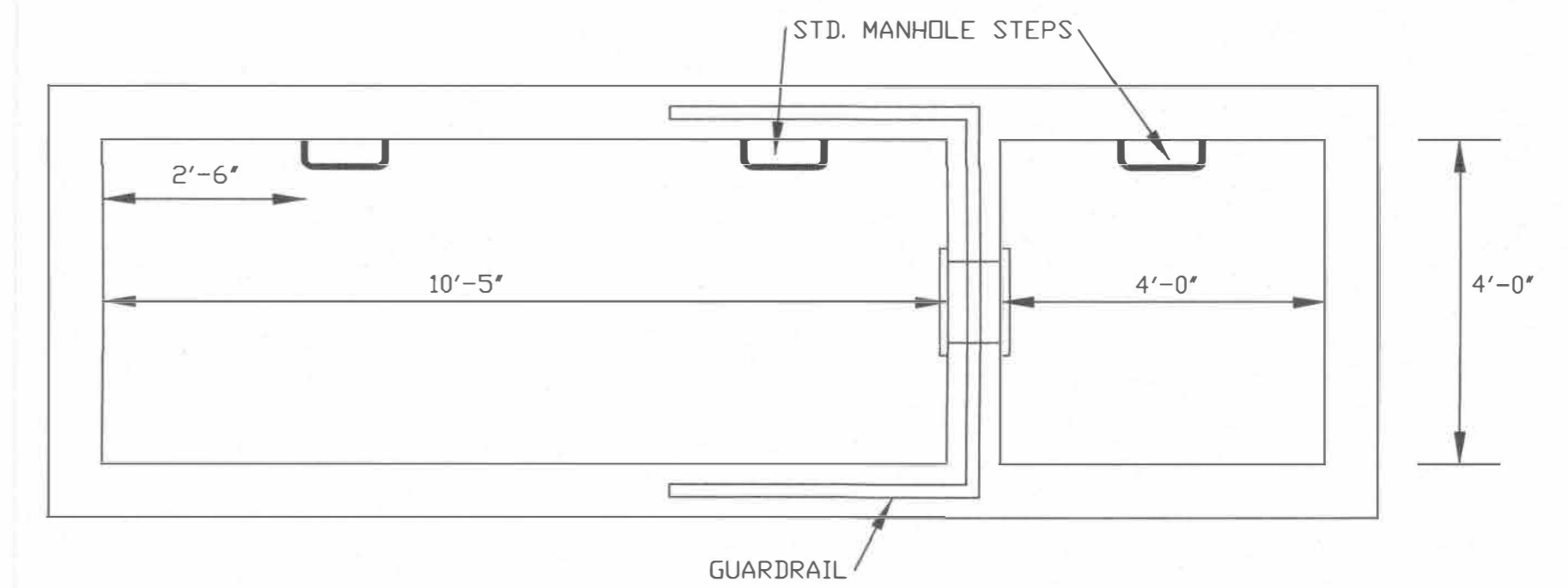
ORIFICE PLATE NOTES:

1. PROVIDE CONTINUOUS NEOPRENE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE.
 2. BOLT PLATE TO CONCRETE 12" ON CENTER MAX.
- EURV AND WQCV TRASH RACKS:
1. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
 2. BAR GATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
 3. TRASH RACK OPEN AREAS ARE FOR SPECIFIED TRASH RACK MATERIALS. TOTAL TRASH RACK SIZE MAY NEED TO BE ADJUSTED FOR MATERIALS HAVING DIFFERENT OPEN AREA/GROSS AREA RATIO (R VALUE).
 4. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

OVERFLOW SAFETY GRATES:

1. ALL SAFETY GRATES SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
2. SAFETY GRATES SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL GRATES SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. SAFETY GRATES SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF SAFETY GRATES SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.

FIGURE OS-4 ORIFICE PLATE AND TRASH RACK
DETAILS AND NOTES



OUTLET WORKS PLAN

1/2"=1'-0"

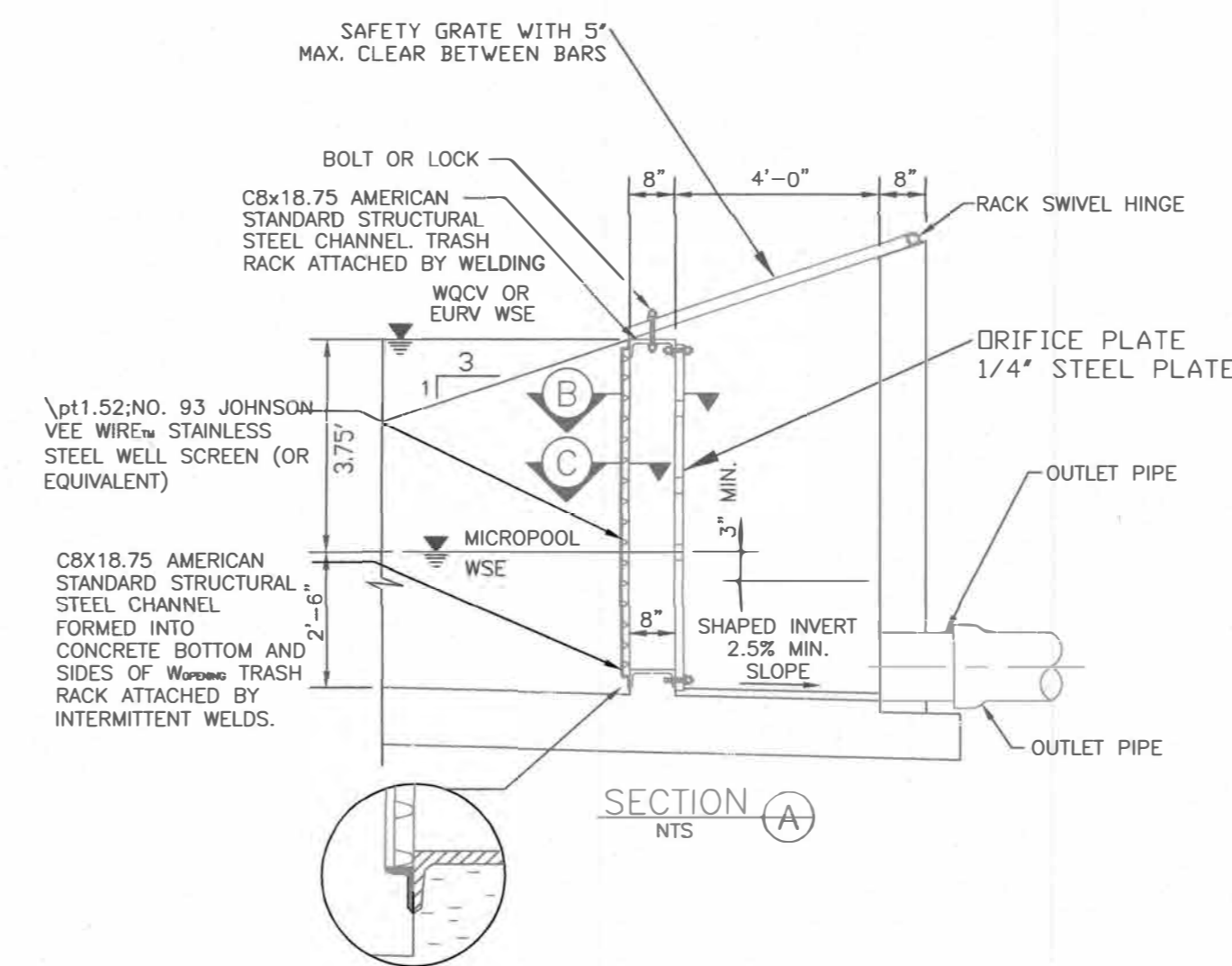


FIGURE OS-5 TYPICAL OUTLET STRUCTURE
WITH WELL SCREEN TRASH RACK

AS BUILT

ENGINEERS CERTIFICATION

THIS WILL CERTIFY THAT THIS DRAWING IS A TRUE "AS-BUILT" CONFIGURATION OF THE APPROVED CONSTRUCTION DRAWING AND THE DETENTION POND HAS THE REQUIRED STORAGE VOLUME AS SHOWN AND WILL MEET THE REQUIRED RELEASE RATES ACCORDING TO THE APPROVED DESIGN.

OLIVER E. WATTS, REGISTERED PROFESSIONAL ENGINEER, STATE OF COLORADO, NO. 9852, DATE 8/13/21

ENGINEERING RECORD DRAWING

DRAWN BY: O.E. WATTS
DATE: 1-18-21
DWG. NO.: 14-4958-07
SURVEYED BY: DEW, ESV THRU 4-18-19

APPROVED BY:
PROJ. NO.
DWG.

REVISIONS
4-27-21 REVISED PER CITY REVIEW COMMENTS DEW
7-6-21 REVISED PER CITY REVIEW COMMENTS DEW
12-5-22 REVISED TO AS BUILT DEW

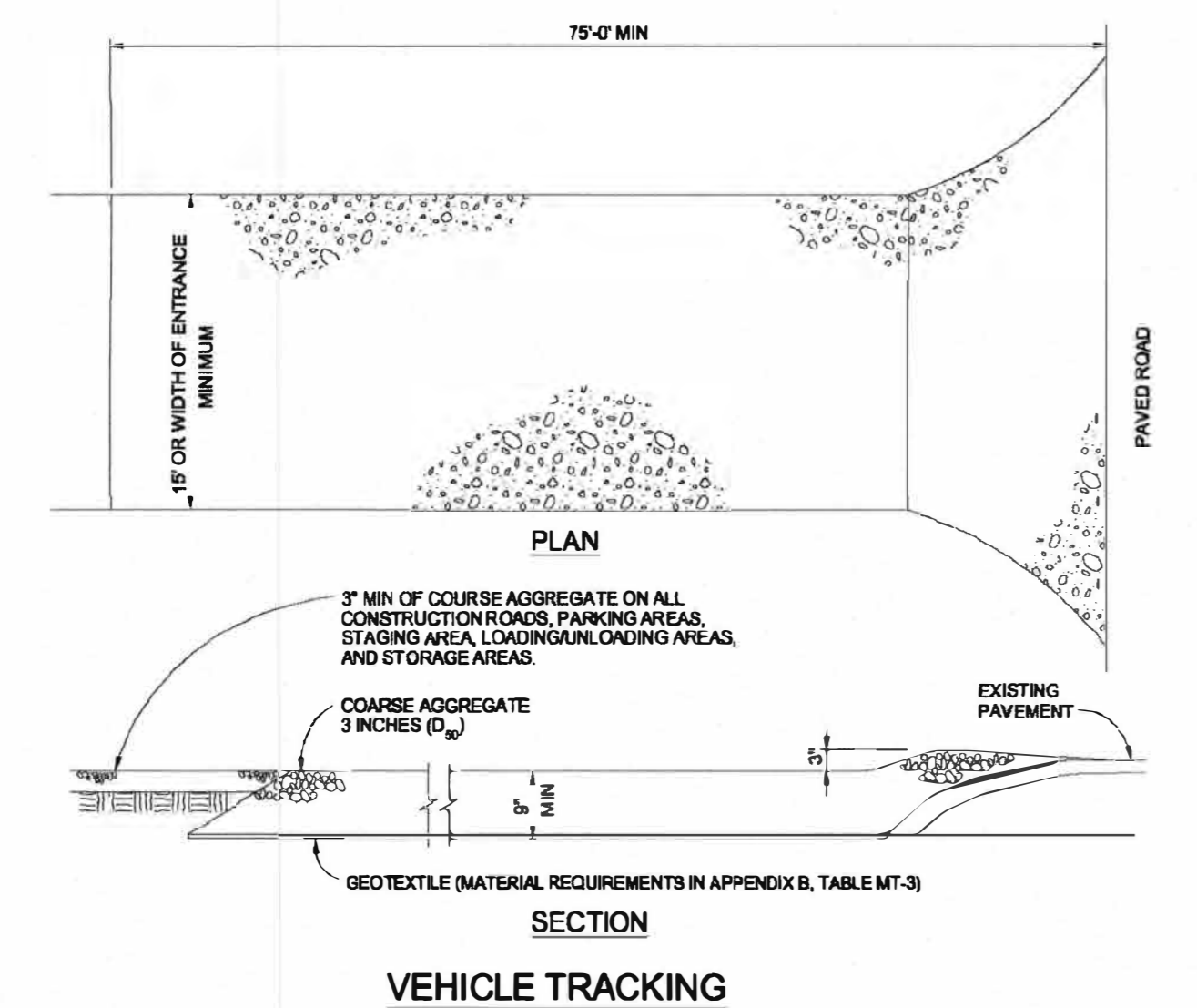
OLIVER E. WATTS
CONSULTING ENGINEER
COLORADO SPRINGS

PROJECT
16140 OLD DENVER ROAD
PART NW1/4 SEC. 26, T.11S., R.67W., 6TH P.M.
EL PASO COUNTY

SHT. NAME

EDB OUTLET DETAILS

SHT. NO.
4
OF
5



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.

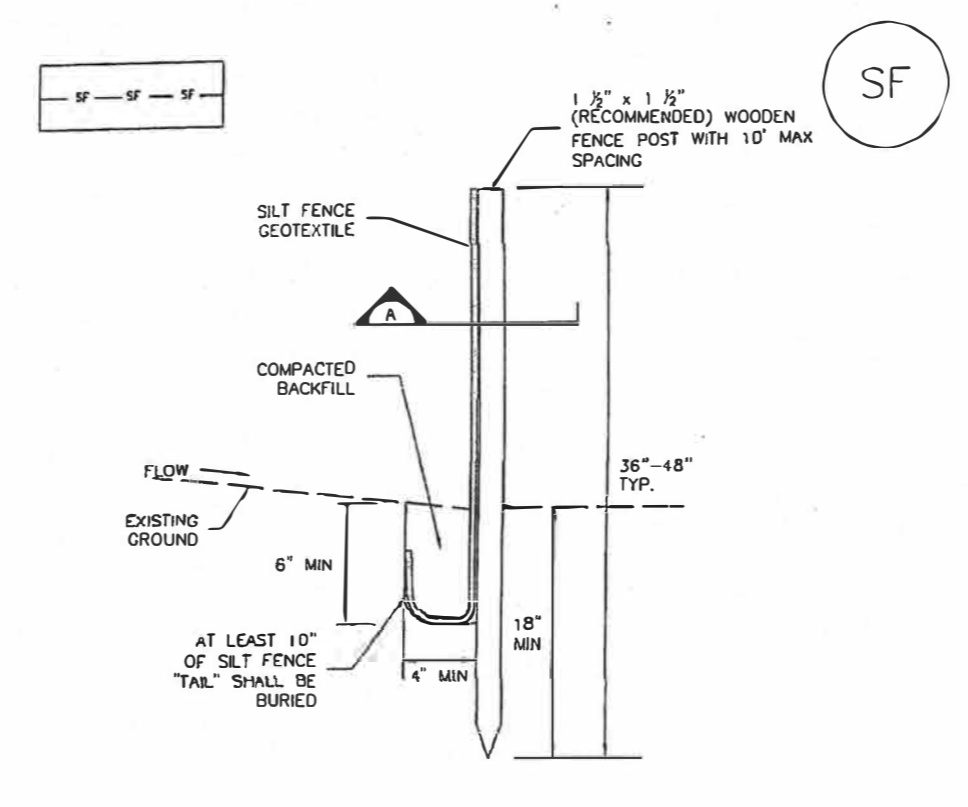
MAINTENANCE REQUIREMENTS

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

Silt Fence (SF) SC-1



SECTION A

SF-1. SILT FENCE

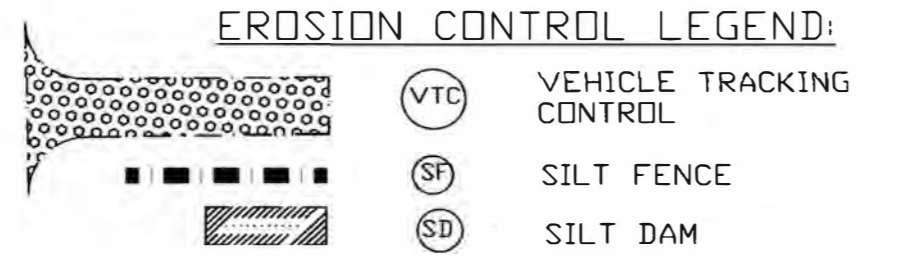
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SF-3

SC-1 Silt Fence (SF)

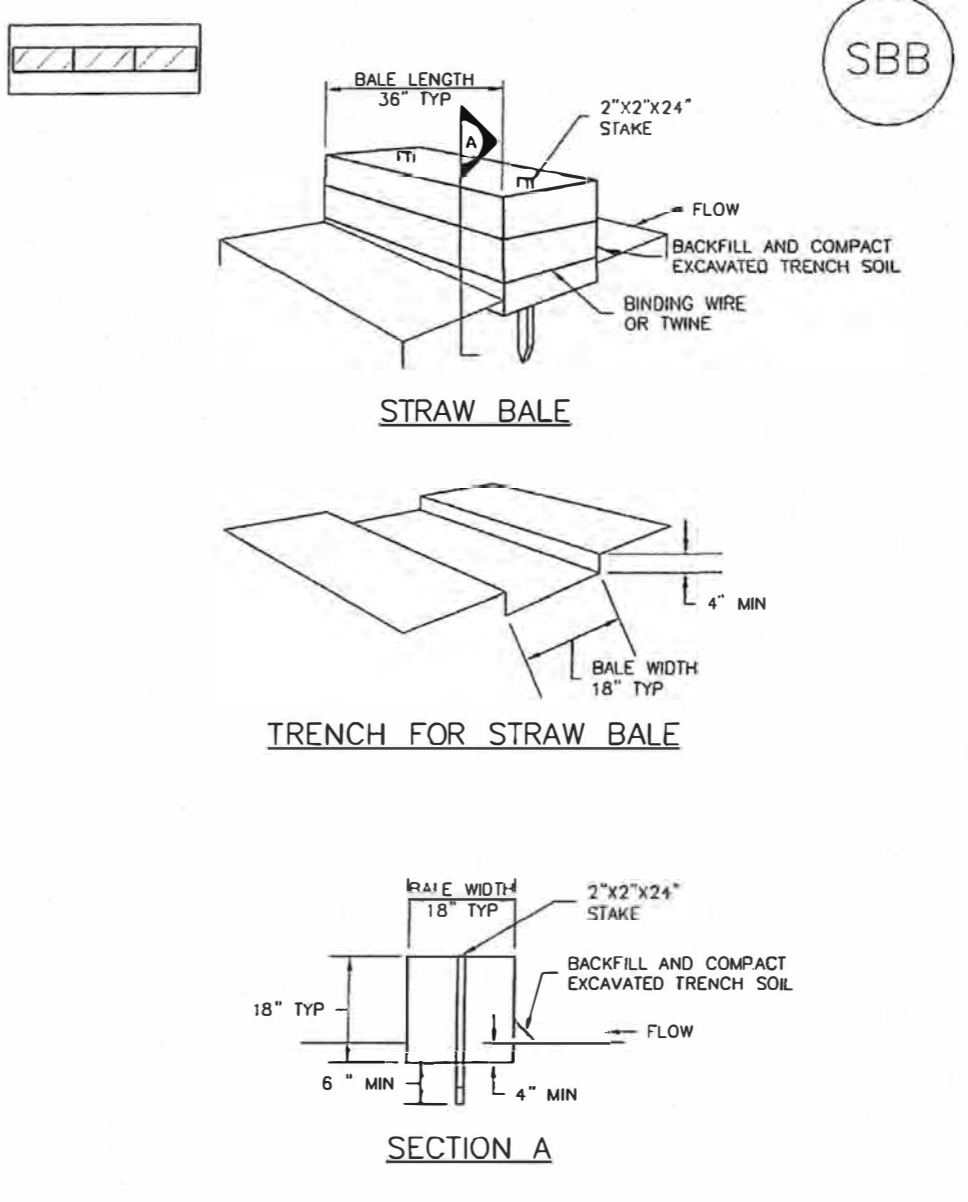
- SILT FENCE INSTALLATION NOTES**
1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
 2. A UNIFORM 6" x 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE, NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
 3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
 4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
 5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
 6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "U-HOOK." THE "U-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
 7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

- SILT FENCE MAINTENANCE NOTES**
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
 5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
 6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
 7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AERODRAW)
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.

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



SC-3 Straw Bale Barrier (SBB)



November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SBB-2

SC-3 Straw Bale Barrier (SBB)

- STRAW BALE INSTALLATION NOTES**
1. SEE PLAN VIEW FOR: -LOCATION(S) OF STRAW BALES.
 2. STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
 3. STRAW BALES SHALL CONSIST OF APPROXIMATELY 3 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
 4. WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
 5. STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
 6. A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
 7. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.
- STRAW BALE 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. STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
 5. SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6" OF THE HEIGHT OF THE STRAW BALE BARRIER.
 6. STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 7. WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.
- (DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AERODRAW)
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.

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

EPC 7/19/2021

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| DRAWN BY: D.E.WATTS | APPROVED BY: | REVISIONS: | OLIVER E. WATTS CONSULTING ENGINEER COLORADO SPRINGS | PROJECT 16140 OLD DENVER ROAD PART NW1/4 SEC. 26, T.11S., R.67W. 6TH P.M. EL PASO COUNTY | SHT. NAME CONSTRUCTION DOCUMENT GRADING AND EROSION CONTROL PLAN | SHT. NO. 5 OF 5 |
| DATE: 10 28 19 | PROJ. NO.: | | | | | |
| DWG. NO.: 17-4958-04B | DWG.: | | | | | |
| SURVEYED BY: DEW, ESU, 10-24-16, 1-24-17, 4-18-19 | | | | | | |