



El Paso County MS4 Post Construction Detention / Water Quality Facility Documentation Form

This document **must be completed and submitted** with required attachments to the County for projects requiring a detention and/or a water quality facility. A separate completed form must be submitted for each facility.

Project name: Timberridge Estates *** This sheet for the onsite extended detention basin.

Owner name: Timberridge Estates, LLC

Location Address: 9210 Arroya Lane, Colorado Springs

Latitude and Longitude: 38.984228d, -104.660840d

Assessor's Parcel #: 5222000023 Section: 22 Township: 12S Range: 65W

Expected Completion date: 2019

Project acreage: 34.9 Design Ponding Acres: 0.65 Design Storm: 100-yr

Design Engineer Email Address: L@tnesinc.com

To ensure compliance with C.R.S. 37-92-602(8), the completed Stormwater Detention and Infiltration Design Data Sheet **must be attached**. The form can be found here: <https://maperture.digitaldataservices.com/gvh/?viewer=cswdif#> (click on Download SDI Design Data Sheet)

List all permanent water quality control measure(s) (EDBs, rain gardens, etc): EDB

For all projects for which the constrained redevelopment sites standard is applied, provide an explanation of why it is not practicable to meet the full design standards. N/A

Attach Operations and Maintenance (O&M) Plan describing the operation and maintenance procedures that ensure the long-term observation, maintenance, and operation of control measure(s), including routine inspection frequencies and maintenance activities. If multiple, different water quality control measures are used at the same location, a separate O & M Plan must be provided for each facility.

Attach Private Detention Basin / Stormwater Quality Best Management Practice Maintenance Agreement and Easement addressing maintenance of BMPs that shall be binding on all subsequent owners of the permanent BMPs.

Attachments:

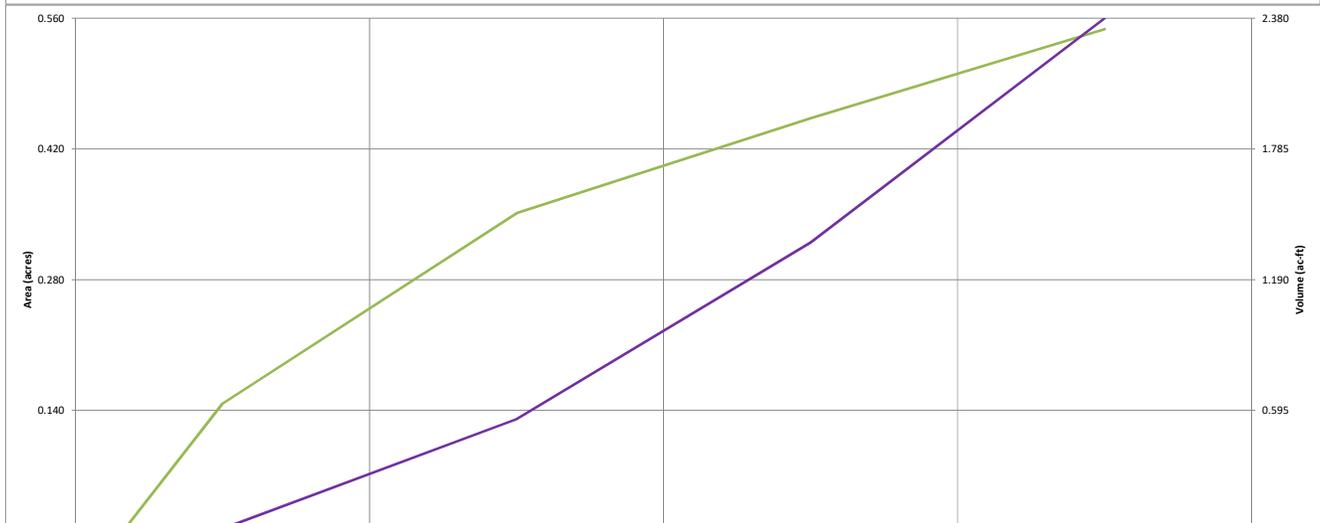
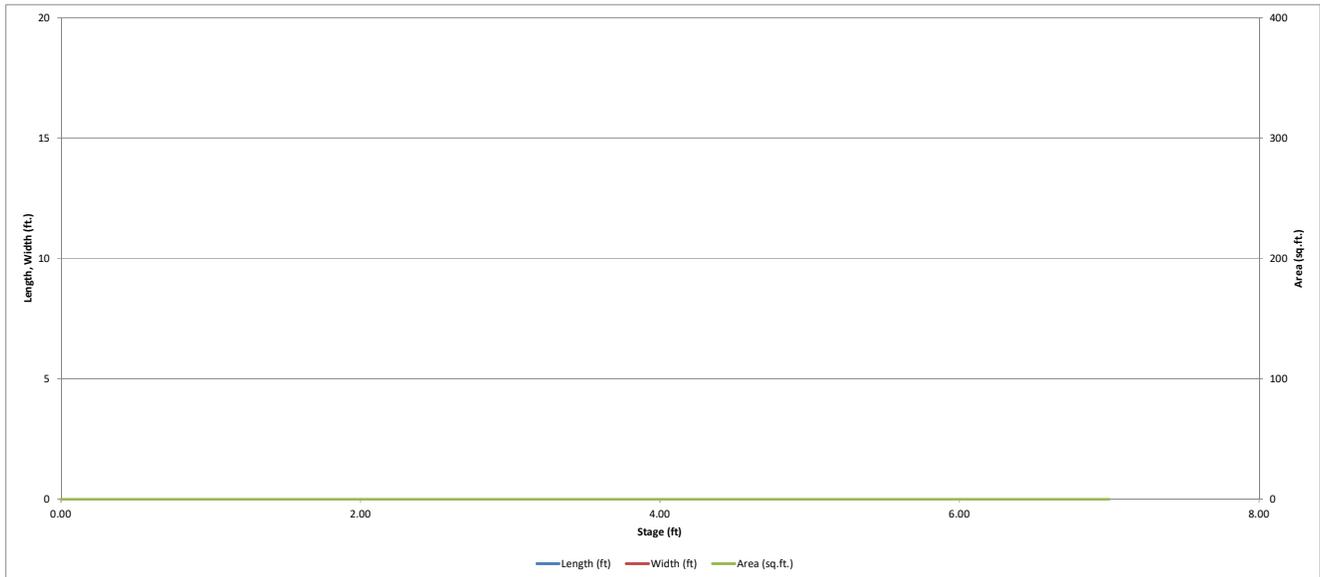
- Stormwater Detention and Infiltration Design Data Sheet
- O & M Plan
- Maintenance and Access Agreement

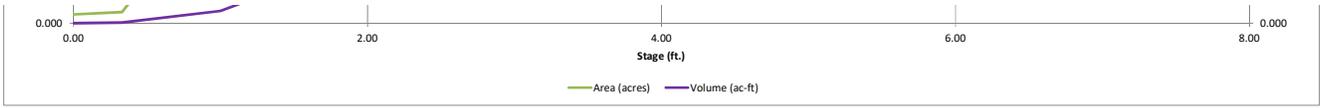
Review Engineer

EPC Project File No.

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

UD-Detention, Version 3.07 (February 2017)



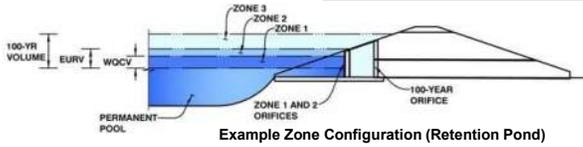


Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)

Project: **TIMBERRIDGE ESTATES**

Basin ID: **ONSITE CALCULATIONS FOR WATER QUALITY CAPTURE VOLUME ONLY**



	Stage (ft)	Zone Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.63	0.169	Orifice Plate
Zone 2 (EURV)	2.00	0.086	Orifice Plate
Zone 3 (100-year)	5.15	1.170	Weir&Pipe (Restrict)
		1.424	Total

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Underdrain Orifice Area =	N/A	ft ²
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Invert of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	2.00	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	8.00	inches
Orifice Plate: Orifice Area per Row =	1.02	sq. inches (diameter = 1-1/8 inches)

WQ Orifice Area per Row =	7.083E-03	ft ²
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	0.70	1.40					
Orifice Area (sq. inches)	1.02	1.02	1.02					
	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft ²
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox) and Grate (Flat or Sloped)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	2.00	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	4.00	N/A	feet
Overflow Weir Slope =	0.00	N/A	H:V (enter zero for flat grate)
Horiz. Length of Weir Sides =	4.00	N/A	feet
Overflow Grate Open Area % =	70%	N/A	% grate open area/total area
Debris Clogging % =	50%	N/A	%

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, Hc =	2.00	N/A	feet
Overflow Weir Slope Length =	4.00	N/A	feet
Grate Open Area / 100-yr Orifice Area =	2.28	N/A	should be ≥ 4
Overflow Grate Open Area w/o Debris =	11.20	N/A	ft ²
Overflow Grate Open Area w/ Debris =	5.60	N/A	ft ²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.50	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	30.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	30.00		inches

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	4.91	N/A	ft ²
Outlet Orifice Centroid =	1.25	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	3.14	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage =	5.30	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	40.00	feet
Spillway End Slopes =	8.00	H:V
Freeboard above Max Water Surface =	1.00	feet

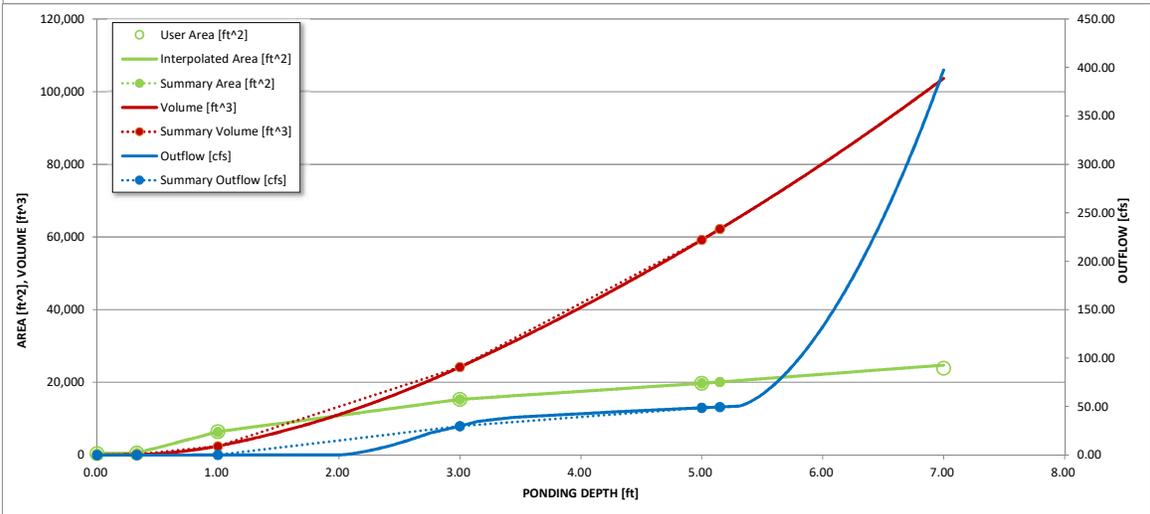
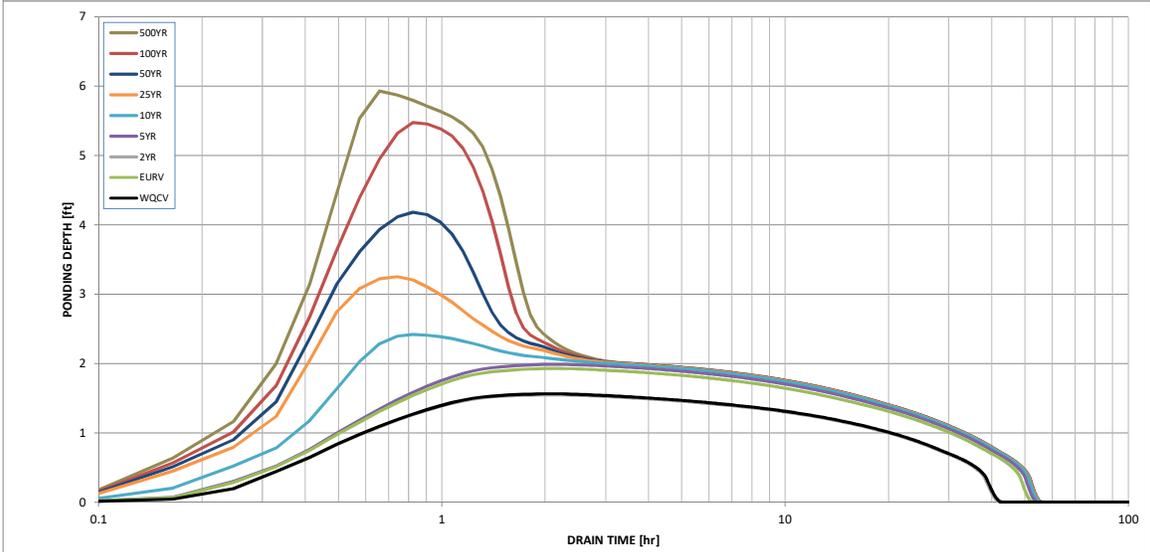
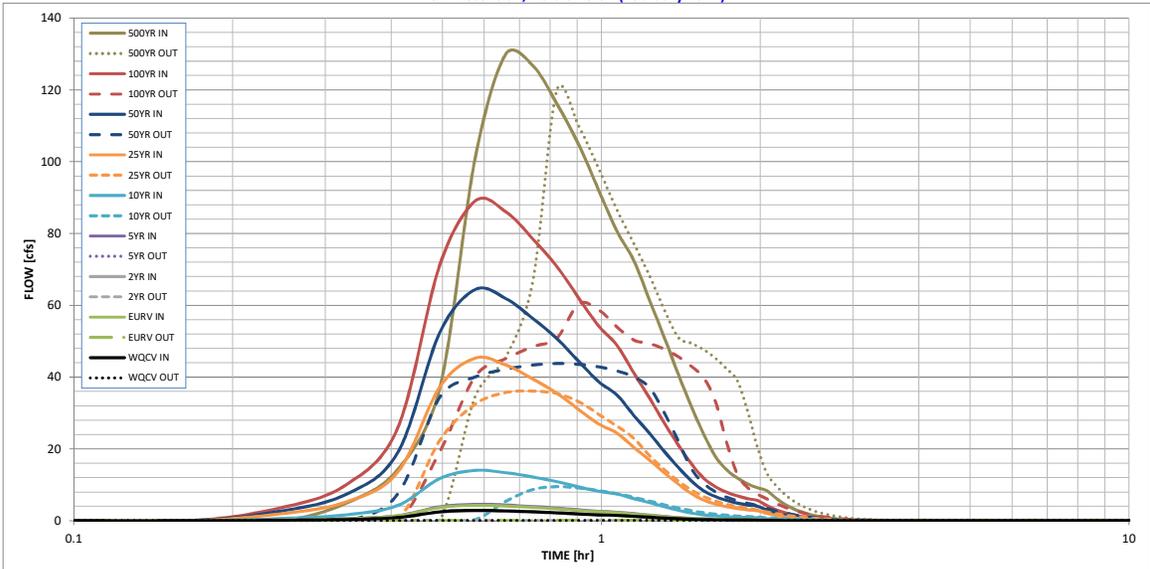
Spillway Design Flow Depth =	0.70	feet
Stage at Top of Freeboard =	7.00	feet
Basin Area at Top of Freeboard =	0.57	acres

Routed Hydrograph Results

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =									
One-Hour Rainfall Depth (in) =	0.53	1.07	1.19	1.50	1.75	2.00	2.25	2.52	3.00
Calculated Runoff Volume (acre-ft) =	0.169	0.254	0.165	0.269	0.836	2.742	3.922	5.463	8.059
OPTIONAL Override Runoff Volume (acre-ft) =									
Inflow Hydrograph Volume (acre-ft) =	0.168	0.253	0.165	0.269	0.836	2.742	3.921	5.461	8.048
Predevelopment Unit Peak Flow, q (cfs/acre) =	0.00	0.00	0.01	0.02	0.20	0.67	0.93	1.25	1.77
Predevelopment Peak Q (cfs) =	0.0	0.0	0.6	1.1	10.2	33.5	46.4	62.3	88.0
Peak Inflow Q (cfs) =	2.9	4.3	2.8	4.6	14.0	45.3	64.4	89.0	129.9
Peak Outflow Q (cfs) =	0.1	0.1	0.1	0.1	9.5	36.1	43.8	60.4	119.9
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.1	0.9	1.1	0.9	1.0	1.4
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Gate 1	Overflow Gate 1	Outlet Plate 1	Spillway	Spillway
Max Velocity through Gate 1 (fps) =	N/A	N/A	N/A	N/A	0.8	3.2	3.9	4.6	4.8
Max Velocity through Gate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	38	47	38	48	41	28	21	14	5
Time to Drain 99% of Inflow Volume (hours) =	40	49	40	51	49	41	38	34	28
Maximum Ponding Depth (ft) =	1.56	1.93	1.55	1.99	2.42	3.25	4.18	5.47	5.93
Area at Maximum Ponding Depth (acres) =	0.20	0.24	0.20	0.25	0.29	0.36	0.41	0.48	0.51
Maximum Volume Stored (acre-ft) =	0.155	0.235	0.151	0.250	0.366	0.644	1.005	1.578	1.805

Detention Basin Outlet Structure Design

UD-Detention, Version 3.07 (February 2017)



S-A-V-D Chart Axis Override

	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

TimberRidge Estates Metropolitan District Operations and Maintenance Manual Extended Detention Basin (on Tract A)

County Job No. SF-18-027

Extended detention basins have low to moderate maintenance requirements. Routine and non-routine maintenance is necessary to assure performance, enhance aesthetics, and protect structural integrity. Dry basins can result in nuisance complaints if not properly designed or maintained. Bio-degradable pesticides may be required to limit insect problems. Frequent debris removal and grass-mowing can reduce aesthetic complaints. If a shallow wetland or marshy area is included, mosquito breeding and nuisance odors could occur if the water becomes stagnant.

TimberRidge Estates Metropolitan District Contact Info

Contact Person: TBD

Phone: TBD

Email: TBD

Mailing Address: TBD

1. TimberRidge Estates Extended Detention Basins Maintained by TimberRidge Estates Metropolitan District.

There is a single Extended Detention Basin within TimberRidge Estates that the TimberRidge Estates Home Owners Association owns and maintains. The following are details of this detention basin. Attached to this manual is a map showing the detention basin location.

Extended Detention Basin on Tract A – Extended Detention Basin with WQCV. This full spectrum detention basin will be built in 2019. The final drainage report for TimberRidge Estates covers the drainage calculations for this pond.

2. Access

The Extended Detention Basin on Tract A can be accessed from Arroya Lane or by following the drainage channel down slope from Nature Refuge Way. There is a gravel access ramp on the southeast corner of the Extended Detention Basin.

3. Inspections

Inspection and Frequency

Annually inspect detention basin to insure that the basin continues to function as initially intended. The annual inspection should evaluate the forebay, pond side slopes, inflow channel, the spillway condition, the depth of sediment in the forebay, outlet structure, trash rack, downstream channel, and the condition of the downstream face of the pond. A site survey will be the best indication of excessive sediment buildup and

degradation of the spillway. In addition, an inspection of the vegetation on the berm, inside the detention area and the downstream face of the spillway should be conducted. Any bare areas should be noted and repaired using native grasses. Any sloughing or erosion of the embankment should be noted and repaired. Items to record will include any items inspected and the mowing frequency of the vegetation on the facility.

- Just before annual storm seasons (that is, April and May) and following significant rainfall events, inspect for litter and debris that may plug outlets. Of notable importance, the inspections should also include the water quality orifice plate and trash rack to ensure plugging has not occurred.
- A baseline survey should be performed at the time of construction and comparison surveys conducted every ten to twenty years after to monitor overall performance of the pond. Results of inspections should be recorded and kept at a central location for review and recording by the district.

Inspection Personnel

A qualified engineer, surveyor, or certified storm water inspector should conduct inspections of the facility.

4.0 Operations

No specific operating instructions are required.

5.0 Maintenance

Maintenance of the Extended Detention Basin shall be in accordance with the guidelines included in Table EDB-1, below.

Required Action	Maintenance Objective	Frequency of Action
Lawn mowing and lawn care	Occasional mowing to limit unwanted vegetation. Maintain irrigated turf grass as 2 to 4 inches tall and nonirrigated native turf grasses at 4 to 6 inches.	Routine – Depending on aesthetic requirements.
Debris and litter removal	Remove debris and litter from the entire pond to minimize outlet clogging and improve aesthetics. Outlet structure trash racks should be clear of any blockage.	Routine – Including just before annual storm seasons (that is, April and May) and following significant rainfall events.

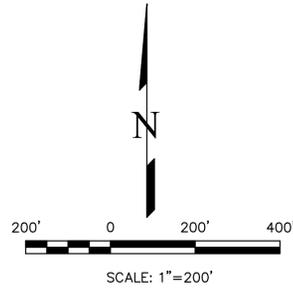
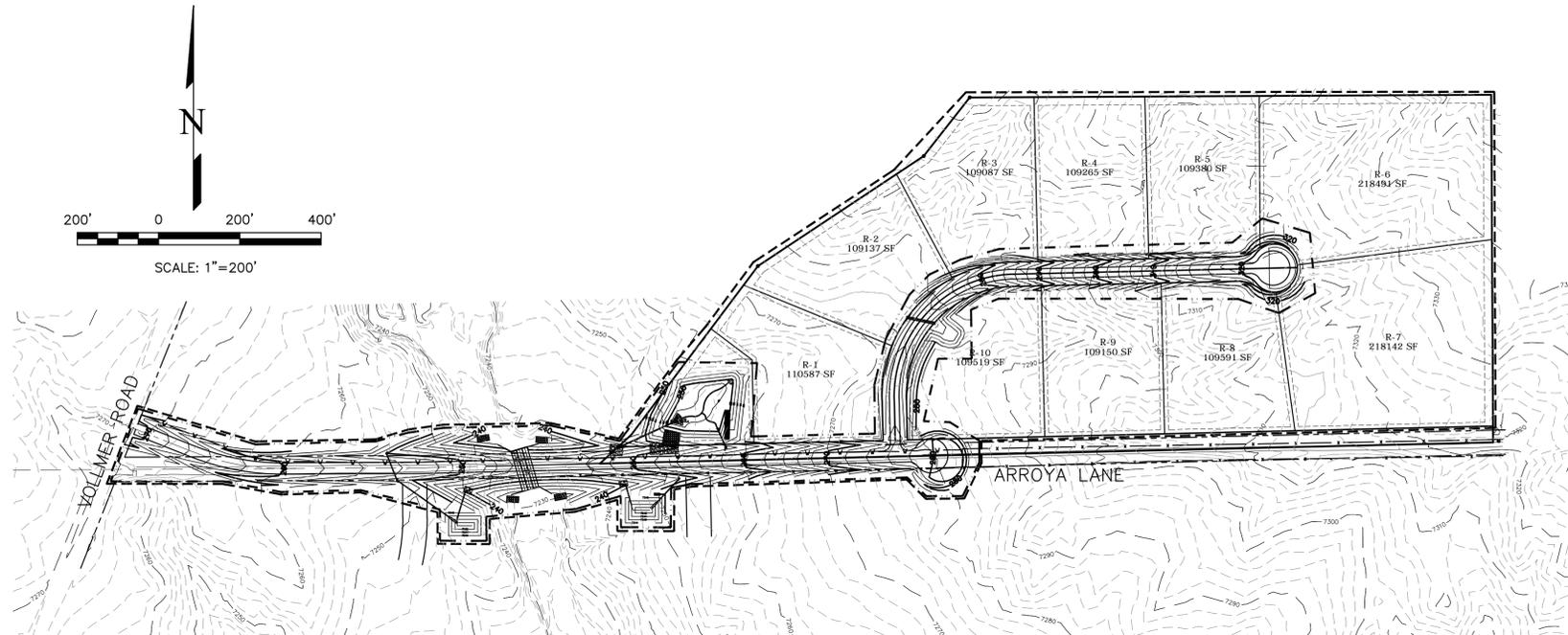
Erosion and sediment control	Repair and revegetate eroded areas in the basin and channels.	Nonroutine – Periodic and repair as necessary based on inspection.
Structural	Repair pond inlets, outlets, forebays, low flow channel liners, and energy dissipators whenever damage is discovered.	Nonroutine – Repair as needed based on regular inspections.
Inspections	Inspect basins to insure that the basin continues to function as initially intended. Examine the outlet for clogging, erosion, slumping, excessive sedimentation levels, overgrowth, embankment and spillway integrity, and damage to any structural element.	Routine – Annual inspection of hydraulic and structural facilities. Also check for obvious problems during routine maintenance visits, especially for plugging of outlets.
Nuisance control	Address odor, insects, and overgrowth issues associated with stagnant or standing water in the bottom zone.	Nonroutine – Handle as necessary per inspection or local complaints.
Sediment removal	Remove accumulated sediment from the forebay, micro-pool, and the bottom of the basin.	Nonroutine – Performed when sediment accumulation occupies 20 percent of the WQCV. This may vary considerably, but expect to do this every 10 to 20 years, as necessary per inspection if no construction activities take place in the tributary watershed. More often if they do. The forebay and the micro-pool will require more frequent cleanout than other areas of the basin, say every 1 or 2 years.

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

FEBRUARY 2019
SF-18-027



SHEET INDEX:

- 1 COVER SHEET
- 2 NOTES SHEET
- 3 GRADING PLAN - EAST
- 4 GRADING PLAN - WEST
- 5 GRADING PLAN DETAILS
- 6 GRADING PLAN DETAILS
- 7 GRADING PLAN DETAILS
- 8 EROSION CONTROL PLAN
- 9 EROSION CONTROL DETAILS
- 10 EROSION CONTROL DETAILS

CONTACT INFORMATION:

OWNER: TIMBERRIDGE ESTATES, LLC
2760 BROGANS BLUFF
COLORADO SPRINGS, COLORADO 80919
(719) 499-6752

CIVIL ENGINEER: TERRA NOVA ENGINEERING, INC.
721 S. 23RD STREET
COLORADO SPRINGS, COLORADO 80904
QUENTIN N. ARMIJO, P.E., (719) 635-6422

EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE
COLORADO SPRINGS, COLORADO 80910
(719) 520-6300

SOIL TYPES

ONSITE SOILS ARE HYDROLOGIC GROUP "B", KETTLE GRAVELLY LOAMY SAND (40), 3 TO 8 PERCENT SLOPES, KETTLE GRAVELLY LOAMY SAND (41), 8 TO 40 PERCENT SLOPES AND PRING COARSE SANDY LOAM (71)

BENCHMARKS

A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

BASIS OF BEARING

THE EAST LINE OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 65 WEST AND IS ASSUMED TO BEAR NORTH 0 DEGREES 18 MINUTES 04 SECONDS EAST 2640.26 FEET.

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.

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

OWNER'S STATEMENT

THE OWNER WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER NAME: _____ DATE: _____

SIGNED BY: _____

TITLE: _____

ADDRESS: _____

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, 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.

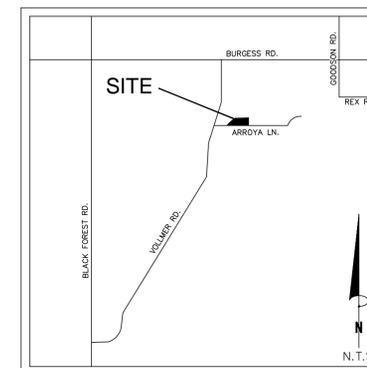
JENNIFER IRVINE, P.E.
COUNTY ENGINEER / ECM ADMINISTRATOR

DATE

EROSION CONTROL COST OPINION:

1. 2,525 LF-SILT FENCE @ \$4.00/LF	\$	10,100
2. 5,050 LF-SEDIMENT CONTROL LOGS \$4.00/LF	\$	20,200
3. 2 EA-VEHICLE TRACKING CONTROL @ \$1,325/ENTRANCE	\$	2,650
4. 8.8 AC-HYDROSEED @ \$1,000/AC	\$	8,800
5. 3,700 SY-EROSION CONTROL BLANKET @ \$8.00/SY	\$	29,600
6. 1 EA.-CONCRETE WASHOUT @ \$760/EA	\$	760
7. 40% MAINTENANCE AND REPLACEMENT	\$	28,844
TOTAL	\$	100,954

VICINITY MAP



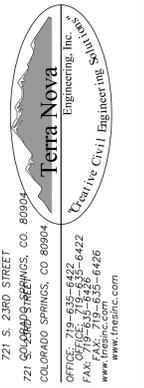
STILL NEED

1. TRACTS/EASEMENTS FOR SAND FILTERS - ONCE SIZE/LOCATION IS FINALED

REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE EL PASO COUNTY ENGINEER, TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND MOST DISSEMINATED BY WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN: SCOTT HENTIE
2760 BROGANS BLUFF
COLORADO SPRINGS, CO 80919
719.499.6752



TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
COVER SHEET

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE AS SHOWN
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 1 OF 12

N:\jobs\1733.00\Drawings\CD\173300_GEC.dwg, COVER, 2/28/2019 11:43:01 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

FEBUARY 2019

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- CONSTRUCTION MAY NOT COMMENCE UNTIL A CONSTRUCTION PERMIT IS OBTAINED FROM PLANNING AND COMMUNITY DEVELOPMENT (PCD) AND A PRE-CONSTRUCTION CONFERENCE IS HELD WITH PCD INSPECTIONS.
- 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.
- 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 TO REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. DURING CONSTRUCTION THE SWMP IS THE RESPONSIBILITY OF THE DESIGNATED STORMWATER MANAGER, SHALL BE LOCATED ON SITE AT ALL TIMES AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- 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 PCD INSPECTIONS STAFF.
- SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 21 CALENDAR DAYS AFTER FINAL GRADING, OR FINAL EARTH DISTURBANCE, HAS BEEN COMPLETED. DISTURBED AREAS AND STOCKPILES WHICH ARE NOT AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS SHALL ALSO BE MULCHED WITHIN 21 DAYS AFTER INTERIM GRADING. AN AREA THAT IS GOING TO REMAIN IN AN INTERIM STATE FOR MORE THAN 60 DAYS SHALL ALSO BE SEEDED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND BMPs SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED.
- TEMPORARY SOIL EROSION CONTROL FACILITIES SHALL BE REMOVED AND EARTH DISTURBANCE AREAS GRADED AND STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES PURSUANT TO STANDARDS AND SPECIFICATION PRESCRIBED IN THE DCM VOLUME II AND THE ENGINEERING CRITERIA MANUAL (ECM) APPENDIX I.
- ALL PERSONS ENGAGED IN EARTH DISTURBANCE SHALL IMPLEMENT AND MAINTAIN ACCEPTABLE SOIL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING BMPs IN CONFORMANCE WITH THE EROSION CONTROL TECHNICAL STANDARDS OF THE DRAINAGE CRITERIA MANUAL (DCM) VOLUME II AND IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SMWP).
- ALL TEMPORARY EROSION CONTROL FACILITIES INCLUDING BMPs AND ALL PERMANENT FACILITIES INTENDED TO CONTROL EROSION OF ANY EARTH DISTURBANCE OPERATIONS, SHALL BE INSTALLED AS DEFINED IN THE APPROVED PLANS, THE SWMP AND THE DCM VOLUME II AND MAINTAINED THROUGHOUT THE DURATION OF THE EARTH DISTURBANCE OPERATION.
- ANY EARTH DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY REDUCE 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.
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE DESIGNED TO LIMIT THE DISCHARGE TO A NON-EROSIVE VELOCITY.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO RUNOFF TO STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- EROSION CONTROL BLANKETING IS TO BE USED ON SLOPES STEEPER THAN 3:1.
- BUILDING, CONSTRUCTION, EXCAVATION, OR OTHER 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. BMPs MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- VEHICLE TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFFSITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- 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.
- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, AND SAND THAT MAY ACCUMULATE IN THE STORM SEWER OR OTHER DRAINAGE CONVEYANCE SYSTEM AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- 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.
- NO CHEMICALS ARE TO BE USED BY THE CONTRACTOR, WHICH HAVE THE POTENTIAL TO BE RELEASED IN STORMWATER UNLESS PERMISSION FOR THE USE OF A SPECIFIC CHEMICAL IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING THE USE OF SUCH CHEMICALS, SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE FLOW LINE OF THE CURB AND GUTTER OR IN THE DITCHLINE.
- INDIVIDUALS SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8, AND THE "CLEAN WATER ACT" (33 USC 1344), IN ADDITION TO THE REQUIREMENTS INCLUDED IN THE DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, OR COUNTY AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO ACTUAL CONSTRUCTION THE PERMITEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ENTECH ENGINEERING, INC. AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB 1 ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART. FOR INFORMATION OR APPLICATION MATERIALS CONTACT:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WOOD - PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT

EL PASO COUNTY STANDARD CONSTRUCTION NOTES:

- 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 & 2 AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION 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 (UNCC).
- 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 TIMES, INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 & 2
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
 - CDOT M & S STANDARDS.
- 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. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACE WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (PCD) INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- 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 STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY PUBLIC WORK DEPARTMENT AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY PWD, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- 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 OFF-SITE DISTURBANCE, GRADING OR CONSTRUCTION.

CONSTRUCTION SCHEDULE

BEGIN GRADING: SPRING 2019, END GRADING: FALL 2020

TRAFFIC CONTROL NOTE

THE CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL DEVICES AND MONITORING NECESSARY TO SAFELY COMPLETE THE WORK SHOWN IN THESE CONSTRUCTION DOCUMENTS IN CONFORMANCE WITH M.U.T.C.D. GUIDELINES. THE CONTRACTOR SHALL COMPLETE ALL NECESSARY WORK FOR PLAN REVIEW, PERMITS AND PROCESSING. TRAFFIC CONTROL WILL NOT BE PAID SEPARATELY BUT IS INCLUDED IN THE COST OF THE PROJECT.

UTILITY NOTES

- UTILITY LINE LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED.
- BURY DEPTH OF THE WATER MAIN ALONG ARROYA LANE TO BE CONFIRMED PRIOR TO STARTING ANY GRADING ABOVE THE WATER MAIN.

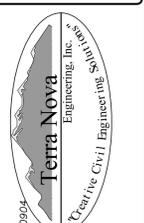
CONSTRUCTION NOTES:

- ALL WORK SHALL COMPLY WITH THE CODES AND POLICIES FOR EL PASO COUNTY.
- EXISTING TOPOGRAPHIC INFORMATION SHOWN ON THIS GRADING PLAN WAS OBTAINED FROM AERIAL CONTOURS. THE CONTRACTOR SHALL BE RESPONSIBLE TO EXAMINE THE SITE AND BE FAMILIAR WITH THE EXISTING CONDITIONS.
- DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS: BASE OF ALL CUTS AND FILLS - 12 INCHES, FULL DEPTH OF ALL EMBANKMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE RE-ESTABLISHMENT OF ALL SURVEY MONUMENTS DISTURBED WITHIN THE PROJECT LIMITS.
- THE CONTRACTOR SHALL PROTECT ALL WORK AREAS AND FACILITIES FROM FLOODING AT ALL TIMES. AREAS AND FACILITIES SUBJECTED TO FLOODING, REGARDLESS OF THE SOURCE OF WATER, SHALL BE PROMPTLY DEWATERED AND RESTORED.
- PRIOR TO PAVING OPERATIONS, THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED WITH A LOADED 988 FRONT-END LOADER OR SIMILAR HEAVY RUBBER Tired VEHICLE (GVW OF 50,000 POUNDS WITH 18 KIP PER AXLE AT TIRE PRESSURES OF 90 PSI) TO DETECT ANY SOFT OR LOOSE AREAS. IN AREAS WHERE SOFT OR LOOSE SOILS, PUMPING OR EXCESSIVE MOVEMENT IS OBSERVED, THE EXPOSED MATERIALS SHALL BE OVER-EXCAVATED TO A MINIMUM DEPTH OF TWO FEET BELOW PROPOSED FINAL GRADE OR TO A DEPTH AT WHICH SOILS ARE STABLE. AFTER THIS HAS BEEN COMPLETED, THE EXPOSED MATERIALS SHALL BE SCARIFIED TO A DEPTH OF 12 INCHES AND MOISTURE CONDITIONED. THE SUBGRADE SHALL THEN BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM D-698) AT 0 TO +4.0% OF OPTIMUM MOISTURE CONTENT FOR A-6 AND A-7-6 SOILS ENCOUNTERED. OTHER SUBGRADE TYPES SHALL BE UNIFORMLY COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY (ASTM D-1557) AT PLUS OR MINUS 2.0% OF OPTIMUM MOISTURE CONTENT. AREAS WHERE STABLE NATURAL SOILS ARE ENCOUNTERED AT PROPOSED SUBGRADE ELEVATION SHALL ALSO BE SCARIFIED (18 INCHES FOR A-7-6 SOILS BELOW FULL-DEPTH ASPHALT CONCRETE) AND COMPACTED AS OUTLINED ABOVE PRIOR TO PAVING OPERATIONS. SUBGRADE FILL SHALL BE PLACED IN SIX-INCH LIFTS AND UNIFORMLY COMPACTED, MEETING THE REQUIREMENTS AS PREVIOUSLY DESCRIBED.
- SUBGRADE MATERIALS DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED, DISPOSED OF AND REPLACED WITH APPROVED MATERIALS.
- FILL SHALL BE PLACED IN 8-INCH MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED PRIOR TO SUCCESSIVE LIFTS.
- THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DURING CONSTRUCTION ACTIVITIES AT ALL TIMES DURING GRADING AND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING EROSION AND SEDIMENT CONTROL MEASURES:
 - SEDIMENT CONTROL LOGS WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - SILT FENCE WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - PERMANENT SEEDING AND MULCHING WHERE NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
 - CONCRETE WASH AREAS.
 - VEHICLE TRACKING CONTROL.
 - SOIL STOCKPILING AREA.
 - MATERIALS STAGING AREA.
 THESE AND ALL EROSION CONTROL BEST MANAGEMENT PRACTICES AS SHOWN IN THE GRADING AND EROSION CONTROL PLANS SHALL BE STRICTLY ADHERED TO.
- FINISHED CONTOURS/ SPOT ELEVATIONS SHOWN HEREON REPRESENT FINISHED GRADES.

REVISIONS NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN: SCOTT HENITE
2760 BROGANS BLUFF
COLORADO SPRINGS, CO 80919
719.499.6752



721 S. 23RD STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6442
FAX: 719-635-6422
www.terranc.com
www.terranc.com

TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
NOTES SHEET

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE NA
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 2 OF 12

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

BENCHMARKS

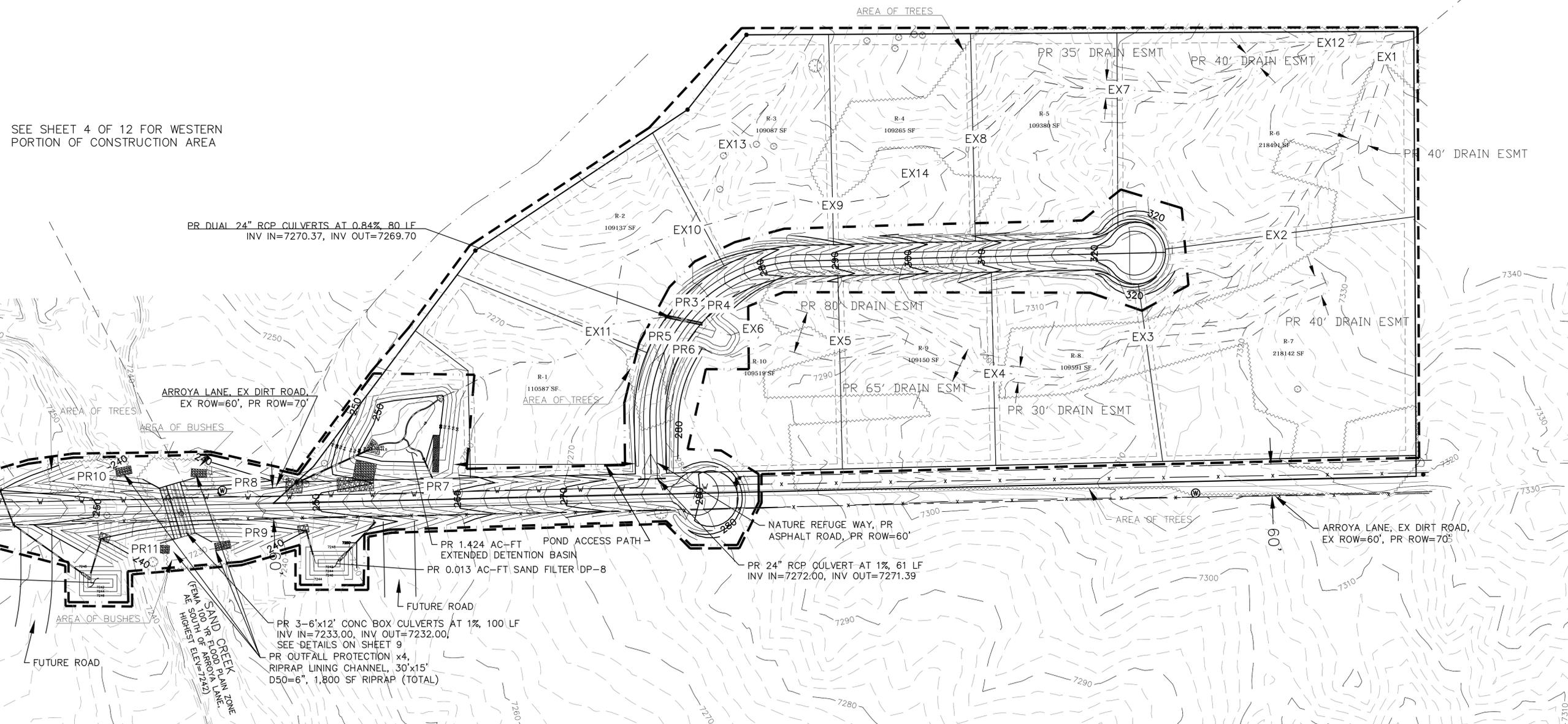
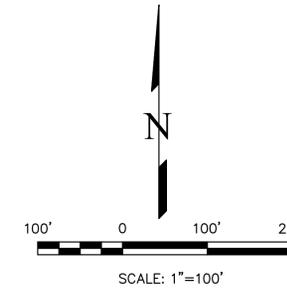
A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

NOTES

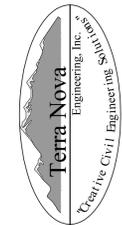
1. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.
2. SAND FILTER ACCESS WILL BE FROM THE FUTURE ROADS ADJACENT TO EACH SAND FILTER.
3. PROPOSED DRAINAGE EASEMENTS ARE BASED ON EXISTING CONDITIONS, 100-YEAR STORM EVENTS, 1' FREEBOARD, AND ARE PRELIMINARY.
4. DRAINAGE CHANNEL GRADING AND EASEMENT FOR LOTS R-1, R-2, R-3, AND R-4 HAVE NOT BEEN INCLUDED. THESE ITEMS WILL BE ADDRESSED ON A LOT BY LOT BASIS AS PART OF THE CONSTRUCTION PLANS FOR THE INDIVIDUAL LOTS.
5. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.

LEGEND

- EXISTING 2' CONTOUR
- 7260--- EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- 260--- PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- W --- EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE
- EX# / PR# OPEN CHANNEL FLOW CALC POINT
- AREA OF TREES/BRUSH LIMIT



SEE SHEET 4 OF 12 FOR WESTERN PORTION OF CONSTRUCTION AREA

REVISIONS NO. DESCRIPTION	UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEWING AGENCIES, THE TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND FOR THE PURPOSES AUTHORIZED BY WRITTEN AUTHORIZATION.
PREPARED FOR: TIMBERRIDGE ESTATES, LLC ATTN: SCOTT HENTIE 2760 BROGANS BLUFF COLORADO SPRINGS, CO 80919 719.499.6752	
721 S. 2900 STREET COLORADO SPRINGS, CO 80904 OFFICE: 719-635-6422 FAX: 719-635-6426 www.tneshinc.com	TIMBERRIDGE ESTATES 9210 ARROYA LANE GRADING & EROSION CONTROL PLAN GRADING PLAN - EAST
DESIGNED BY LD DRAWN BY DLF CHECKED BY LD H-SCALE 1"=100' V-SCALE NA JOB NO. 1733.00 DATE ISSUED 02/28/19 SHEET NO. 3 OF 12	

N:\jobs\1733.00\Drawings\CD\173300 GEC.dwg, GRAD #1, 2/28/2019 11:43:19 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

BENCHMARKS

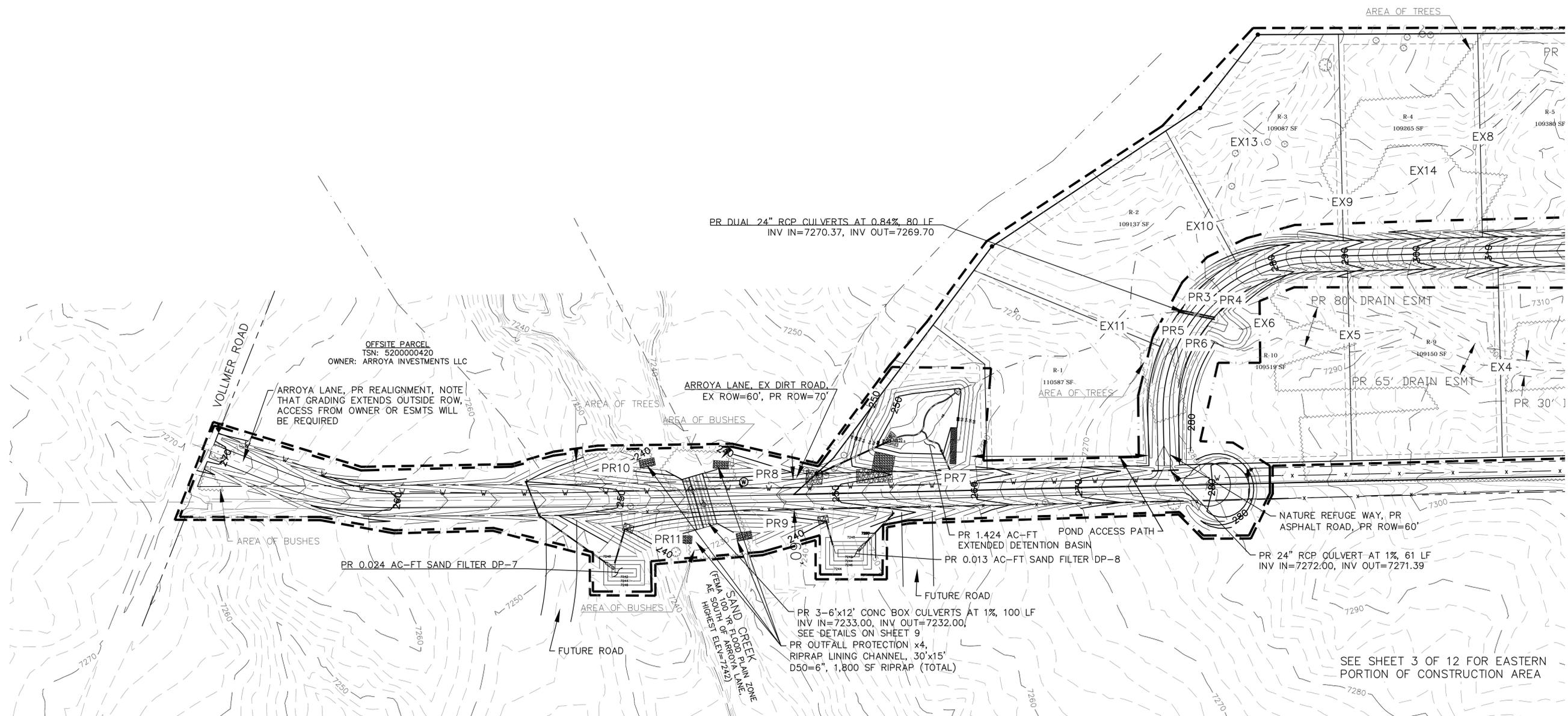
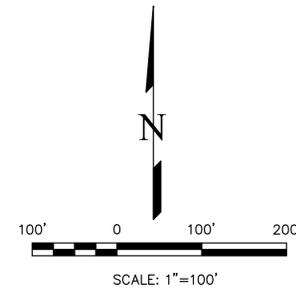
A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

NOTES

1. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.
2. SAND FILTER ACCESS WILL BE FROM THE FUTURE ROADS ADJACENT TO EACH SAND FILTER.
3. PROPOSED DRAINAGE EASEMENTS ARE BASED ON EXISTING CONDITIONS, 100-YEAR STORM EVENTS, 1' FREEBOARD, AND ARE PRELIMINARY.
4. DRAINAGE CHANNEL GRADING AND EASEMENT FOR LOTS R-1, R-2, R-3, AND R-4 HAVE NOT BEEN INCLUDED. THESE ITEMS WILL BE ADDRESSED ON A LOT BY LOT BASIS AS PART OF THE CONSTRUCTION PLANS FOR THE INDIVIDUAL LOTS.
5. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.

LEGEND

- EXISTING 2' CONTOUR
- 7260 EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- 260 PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- W EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE
- EX# / PR# OPEN CHANNEL FLOW CALC POINT
- AREA OF TREES/BRUSH LIMIT



REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEWING AGENCIES, THE REVIEWING AGENCIES, THE TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT IDENTIFIED BY THE PROJECT NUMBER AND WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN: SCOTT HENTIE
2760 BROGANS BLUFF
COLORADO SPRINGS, CO 80919
719.499.6752

721 S. 2900 STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAX: 719-635-6426
www.tneng.com

TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
GRADING PLAN - WEST

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=100'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 4 OF 12

N:\jobs\1733.00\Drawings\CD\173300 GEC.dwg, GRAD #2, 2/28/2019 11:43:29 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

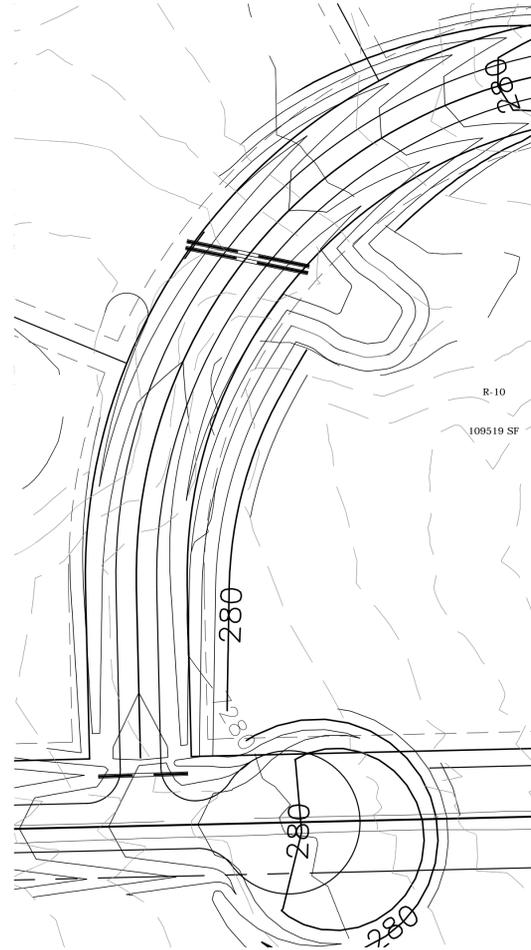
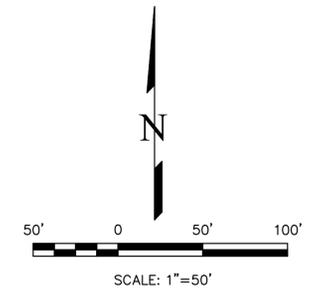
GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

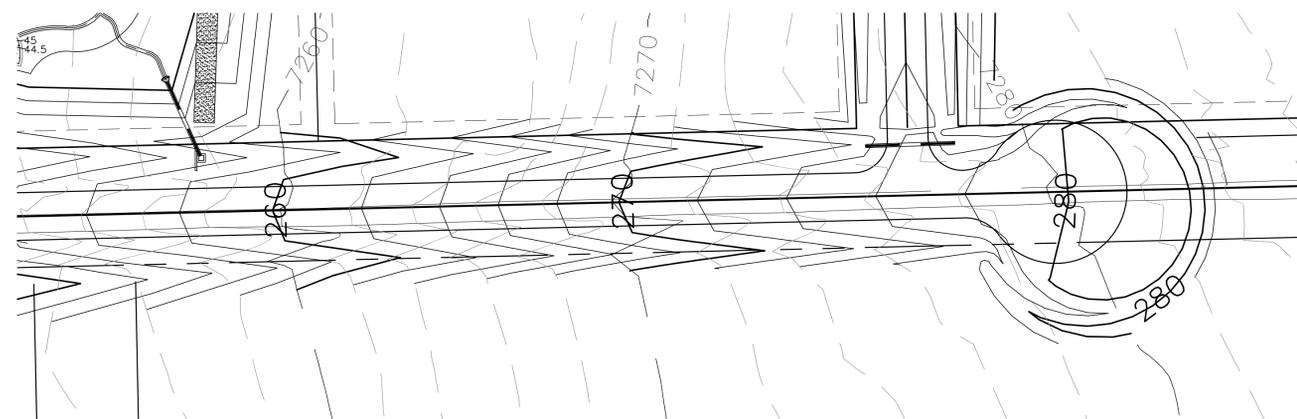
BENCHMARKS
 A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST
 PROPERTY CORNER,
 ELEV = 7,319.85' (NGVD-1929)

LEGEND

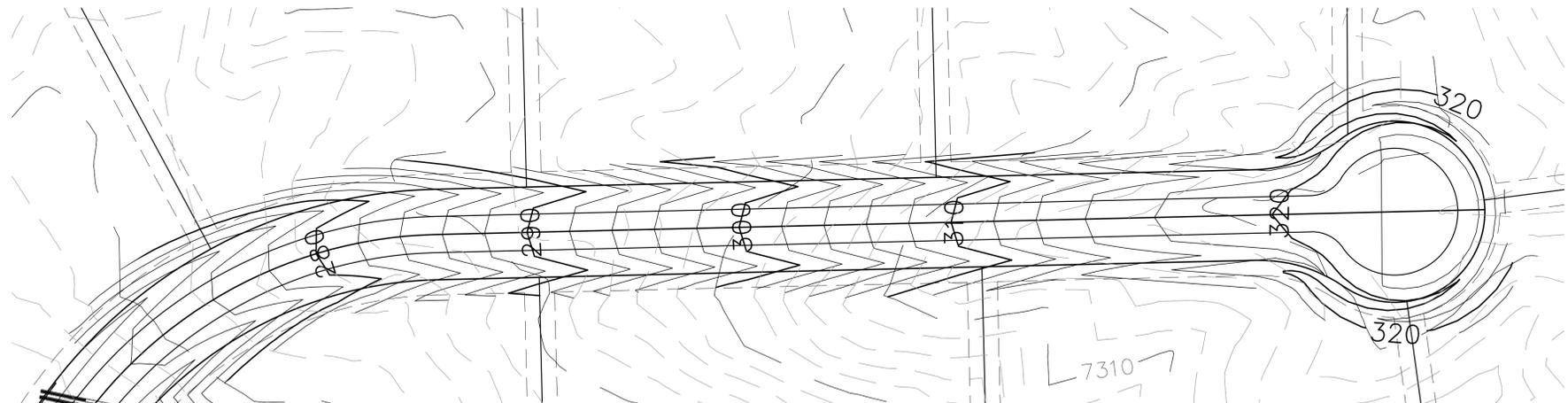
	EXISTING 2' CONTOUR
	EXISTING 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROPOSED 10' CONTOUR
	SURFACE FLOW CHANNEL
	PROPOSED DRAINAGE EASEMENT
	EXISTING WATER LINE
	CONSTRUCTION SITE BOUNDARY
	AREA OF SOIL DISTURBANCE
	EXISTING TREE



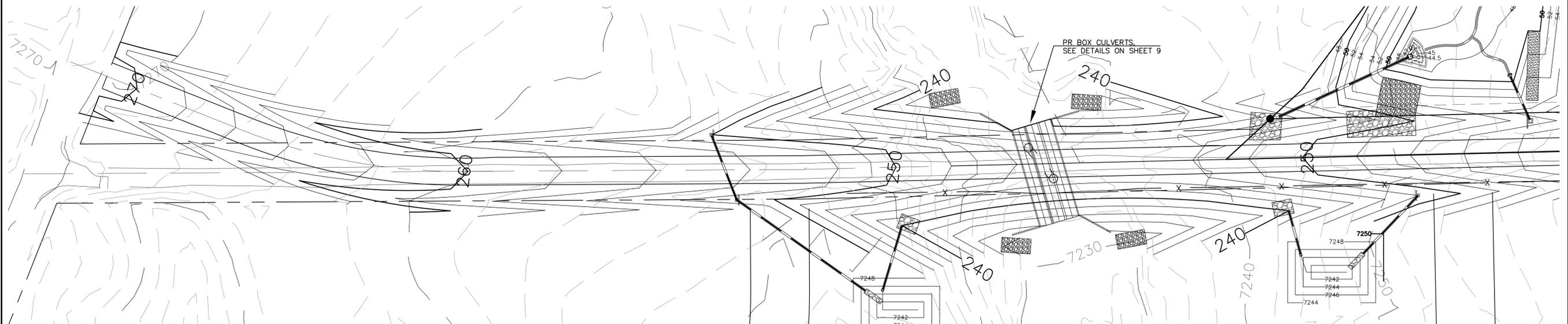
SOUTH PORTION NATURE REFUGE WAY DETAIL



EAST PORTION ARROYA LANE DETAIL



NORTH PORTION NATURE REFUGE WAY DETAIL



WEST PORTION ARROYA LANE DETAIL

REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEWING AGENCIES, THE REVIEWING AGENCIES, THE TERRA NOVA ENGINEERING, INC., APPROVES THEIR USE ONLY FOR THE PROJECT AND FOR THE MOST PART, BY WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
 ATTN: SCOTT HENTIE
 2760 BROGANS BLUFF
 COLORADO SPRINGS, CO 80919
 719.499.6752

721 S. 2900 STREET
 COLORADO SPRINGS, CO 80904
 OFFICE: 719-635-6422
 FAX: 719-635-6426
 www.tneshinc.com

Terra Nova
 Engineering, Inc.
 a terra nova inc. company
 a registered Civil Engineer

TIMBERRIDGE ESTATES
 9210 ARROYA LANE
 GRADING & EROSION CONTROL PLAN
 GRADING PLAN - DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=50'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 5 OF 12

N:\jobs\1733.00\Drawings\CD\173300 GEC.dwg, GRAD DETAILS #1, 2/28/2019 11:43:39 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

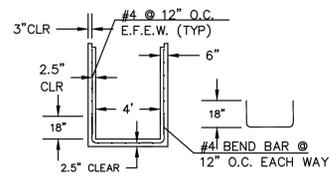
GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

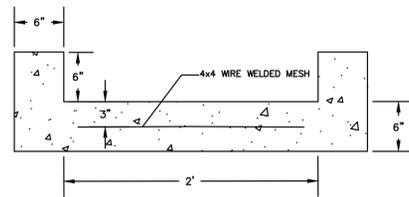
BENCHMARKS
 A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
 ELEV = 7,319.85' (NGVD-1929)

- LEGEND**
- EXISTING 2' CONTOUR
 - 7260 EXISTING 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - 260 PROPOSED 10' CONTOUR
 - SURFACE FLOW CHANNEL
 - PROPOSED DRAINAGE EASEMENT
 - W --- EXISTING WATER LINE
 - CONSTRUCTION SITE BOUNDARY
 - AREA OF SOIL DISTURBANCE
 - EXISTING TREE

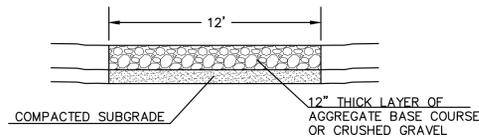
NOTES
 1. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.



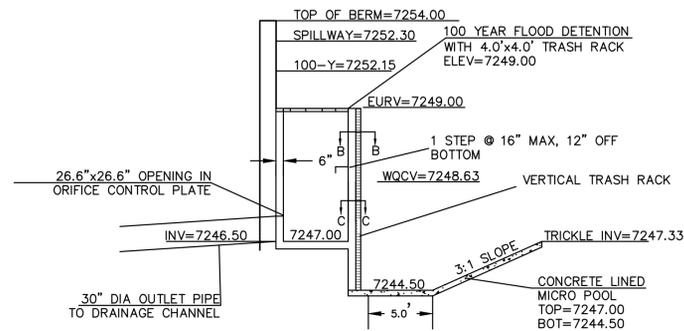
4'x4' OUTLET BOX STRUCTURAL DETAIL
 NOT TO SCALE



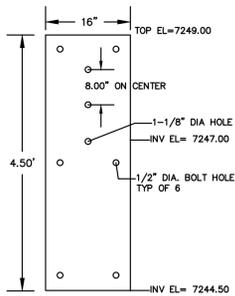
2' CONCRETE TRICKLE CHANNEL
 NOT TO SCALE



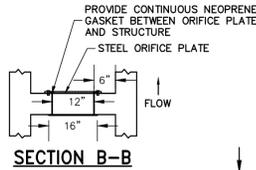
12' MAINTENANCE ACCESS ROAD SECTION
 NOT TO SCALE



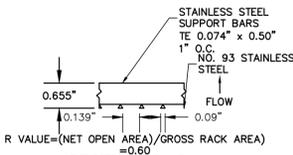
OUTLET STRUCTURE
 NOT TO SCALE



ORIFICE PLATE PERFORATED HOLE PATTERN
 NOT TO SCALE

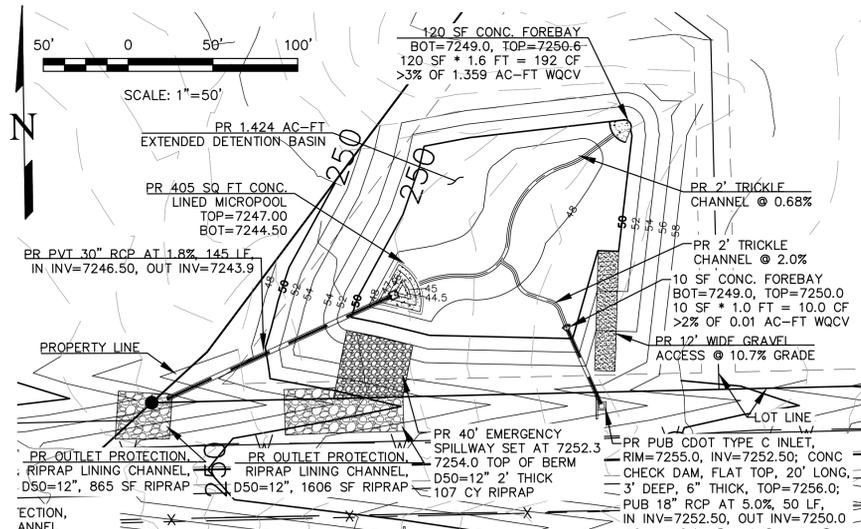


SECTION B-B
 NOT TO SCALE

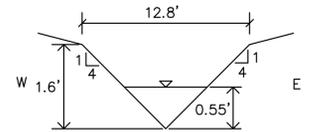


SECTION C-C
 NOT TO SCALE

POND OUTLET OVERALL DETAIL

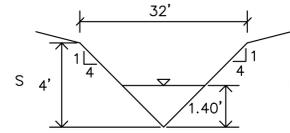


EXTENDED DETENTION BASIN DETAIL



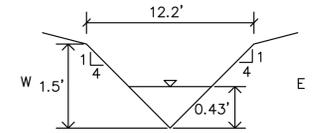
Q = 4.8 CFS
 SLOPE = 3.8%
 n VALUE = 0.03
 DEPTH = 0.55'
 VELOCITY = 4.00 FT/S

SWALE CROSS SECTION - PR3



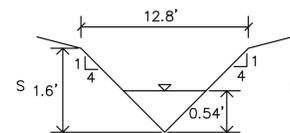
Q = 67.1 CFS
 SLOPE = 5.0%
 n VALUE = 0.03
 DEPTH = 1.40'
 VELOCITY = 8.56 FT/S
 *EXPANDED TO ALLOW FOR POSSIBLE FUTURE FLOW INCREASES
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR8



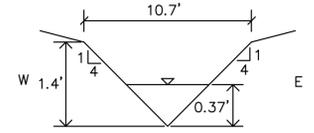
Q = 3.3 CFS
 SLOPE = 6.3%
 n VALUE = 0.03
 DEPTH = 0.43'
 VELOCITY = 4.37 FT/S
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR4



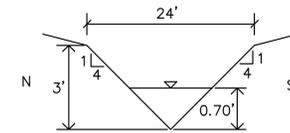
Q = 5.8 CFS
 SLOPE = 6.0%
 n VALUE = 0.03
 DEPTH = 0.54'
 VELOCITY = 4.97 FT/S
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR9



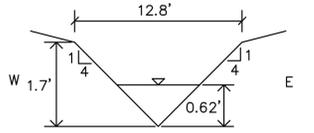
Q = 0.9 CFS
 SLOPE = 1.3%
 n VALUE = 0.03
 DEPTH = 0.37'
 VELOCITY = 1.79 FT/S

SWALE CROSS SECTION - PR5



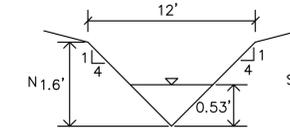
Q = 10.7 CFS
 SLOPE = 5.9%
 n VALUE = 0.03
 DEPTH = 0.70'
 VELOCITY = 5.84 FT/S
 *EXPANDED TO ALLOW FOR POSSIBLE FUTURE FLOW INCREASES
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR10



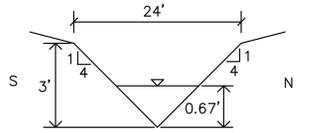
Q = 3.6 CFS
 SLOPE = 1.3%
 n VALUE = 0.03
 DEPTH = 0.62'
 VELOCITY = 2.53 FT/S

SWALE CROSS SECTION - PR6



Q = 5.9 CFS
 SLOPE = 7.8%
 n VALUE = 0.03
 DEPTH = 0.53'
 VELOCITY = 5.58 FT/S
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR11



Q = 8.3 CFS
 SLOPE = 5.2%
 n VALUE = 0.03
 DEPTH = 0.67'
 VELOCITY = 5.30 FT/S
 *EXPANDED TO ALLOW FOR POSSIBLE FUTURE FLOW INCREASES
 *REINFORCE CHANNEL SIDES, SEE NOTE 1

SWALE CROSS SECTION - PR7

REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE ENGINEERING AGENCIES, THE DESIGN SHALL BE THE RESPONSIBILITY OF TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED BY WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
 ATTN: SCOTT HENTIE
 2760 BROGANS BLUFF
 COLORADO SPRINGS, CO 80919
 719.499.6752



721 S. 2900 STREET
 COLORADO SPRINGS, CO 80904
 OFFICE: 719-635-6422
 FAX: 719-635-6426
 www.tneshinc.com

TIMBERRIDGE ESTATES
 9210 ARROYA LANE
 GRADING & EROSION CONTROL PLAN
 GRADING PLAN - DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=200'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 6 OF 12

N:\jobs\1733.00\Drawings\CD\173300_GEC.dwg, GRAD DETAILS #2, 2/28/2019 11:43:49 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

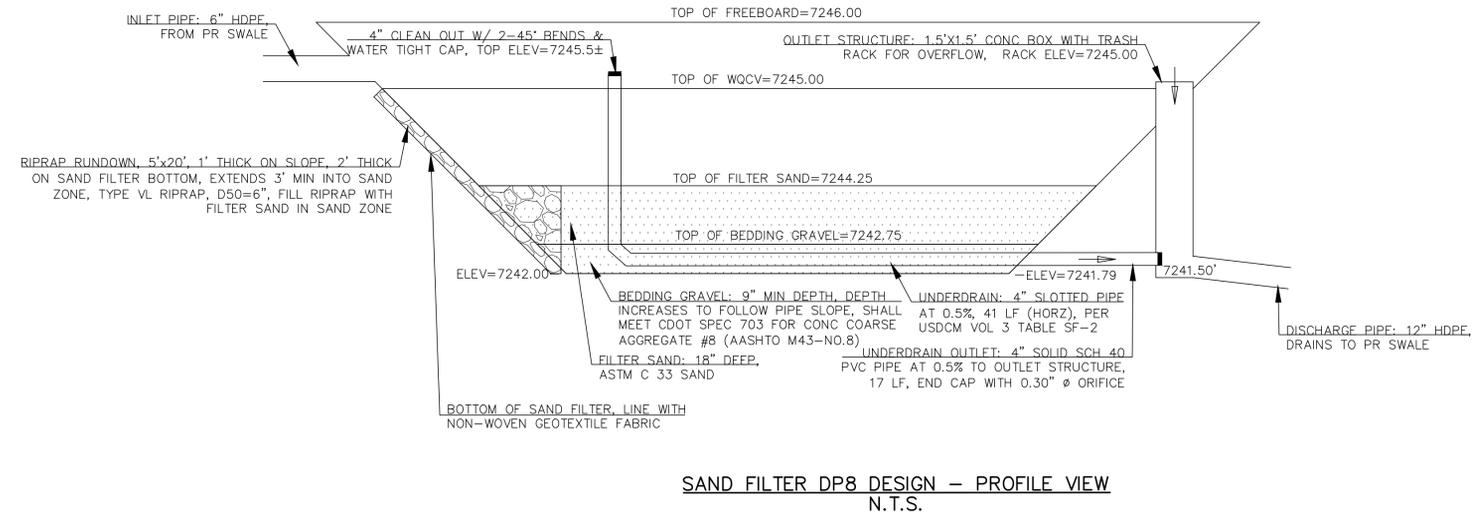
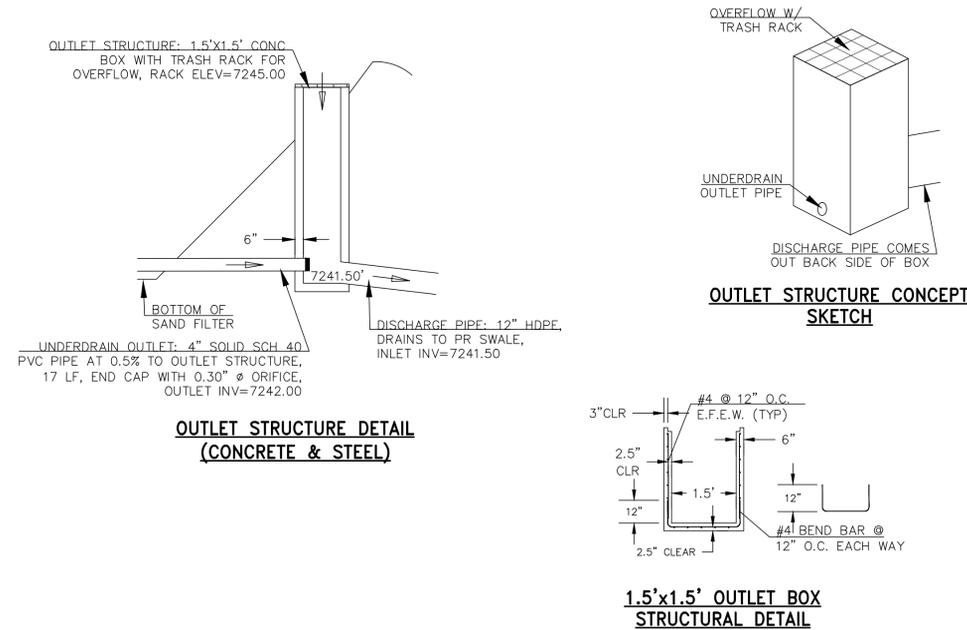
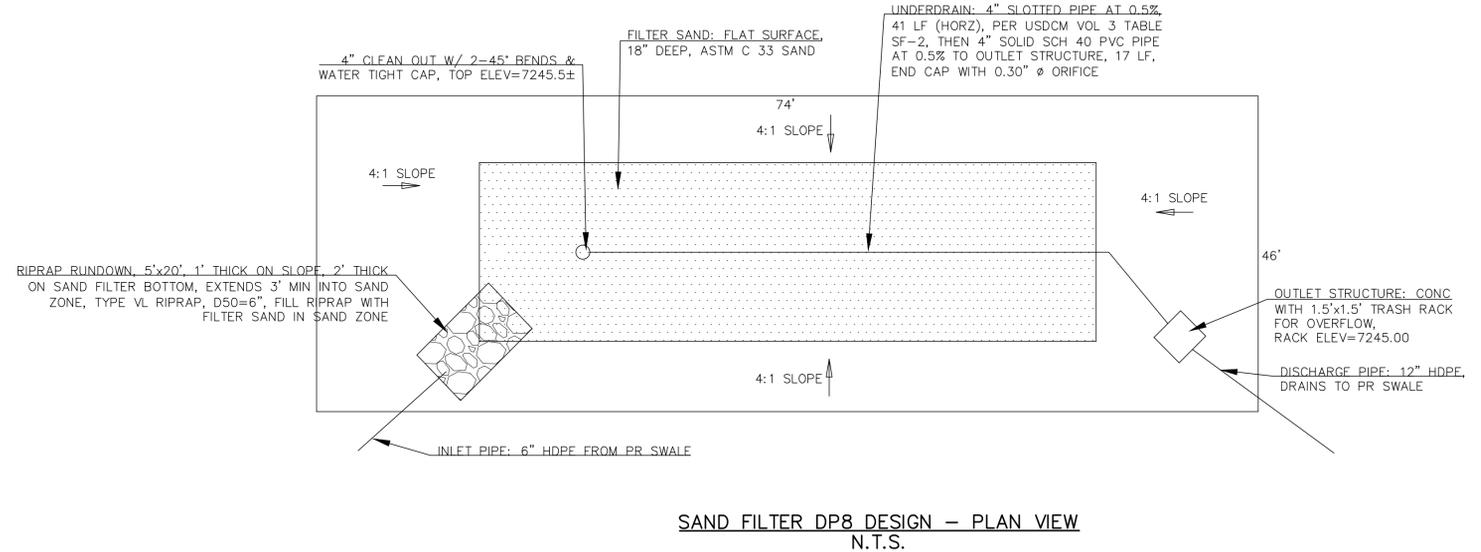
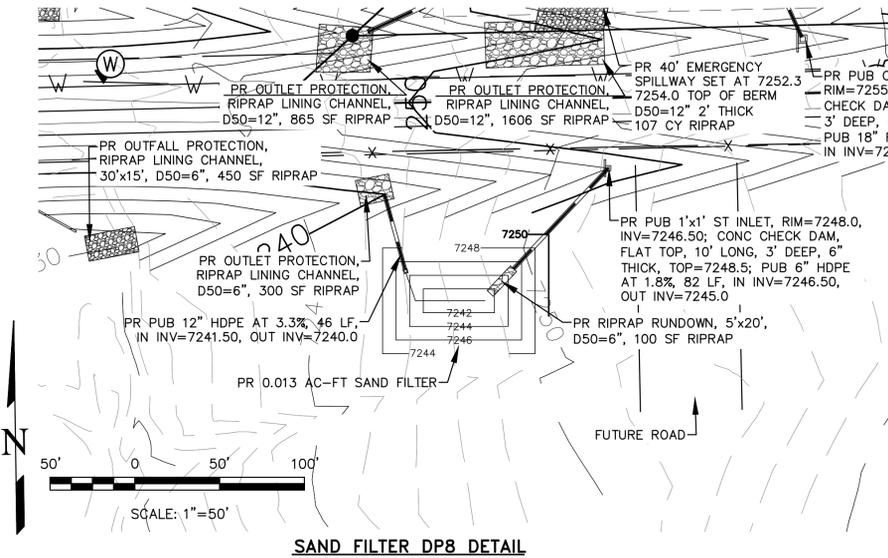
GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

BENCHMARKS
 A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
 ELEV = 7,319.85' (NGVD-1929)

- LEGEND**
- EXISTING 2' CONTOUR
 - - - - EXISTING 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - - - - PROPOSED 10' CONTOUR
 - SURFACE FLOW CHANNEL
 - PROPOSED DRAINAGE EASEMENT
 - W --- EXISTING WATER LINE
 - CONSTRUCTION SITE BOUNDARY
 - AREA OF SOIL DISTURBANCE
 - EXISTING TREE

NOTES
 1. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.



REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPLICABLE AGENCIES, THE REVIEWING ENGINEER, TERRA NOVA ENGINEERING, INC., APPROVES THEIR USE ONLY FOR THE PROJECT AND FOR THE MOST PART BY WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
 ATTN: SCOTT HENTIE
 2760 BROGANS BLUFF
 COLORADO SPRINGS, CO 80919
 719.499.6752

721 S. 2900 STREET
 COLORADO SPRINGS, CO 80904
 OFFICE: 719-635-6422
 FAX: 719-635-6426
 www.tneshinc.com

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=200'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 7 OF 12

N:\jobs\1733.00\Drawings\CD\173300 GEC.dwg, GRAD DETAILS #3, 2/28/2019 11:43:59 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

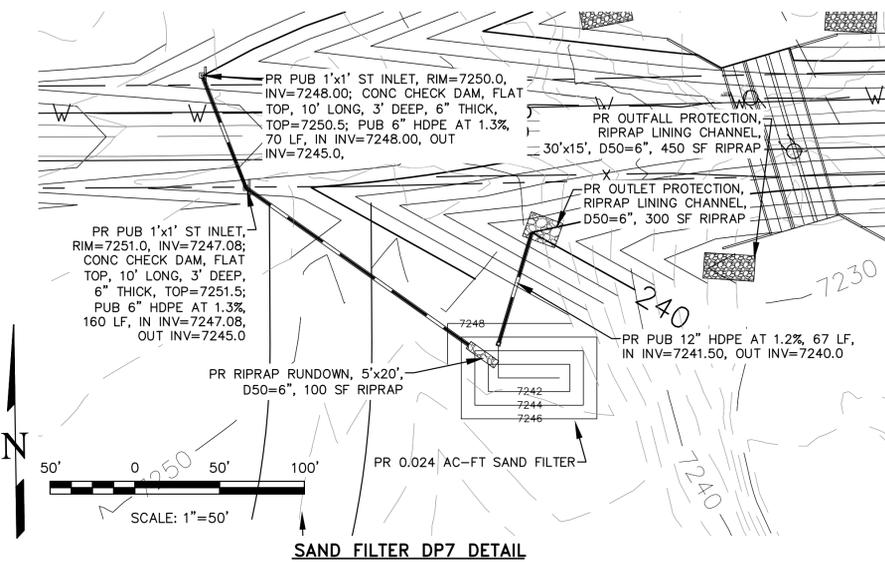
GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

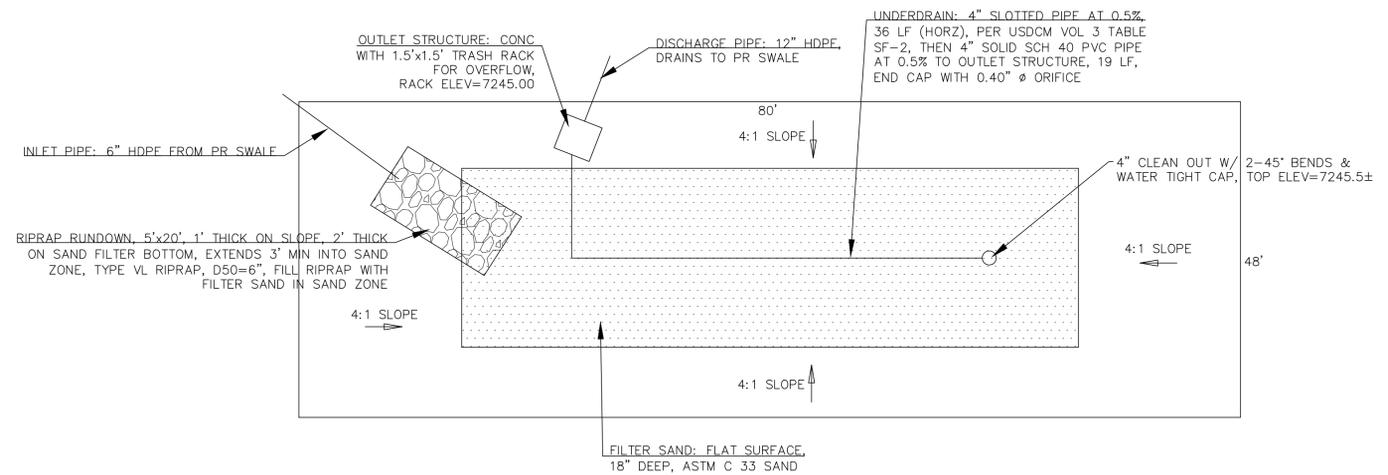
BENCHMARKS
 A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
 ELEV = 7,319.85' (NGVD-1929)

- LEGEND**
- EXISTING 2' CONTOUR
 - 7260 EXISTING 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - 260 PROPOSED 10' CONTOUR
 - SURFACE FLOW CHANNEL
 - PROPOSED DRAINAGE EASEMENT
 - W --- EXISTING WATER LINE
 - CONSTRUCTION SITE BOUNDARY
 - AREA OF SOIL DISTURBANCE
 - EXISTING TREE

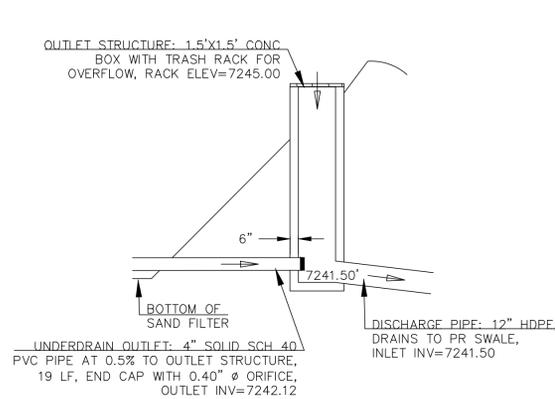
NOTES
 1. REINFORCE PROPOSED SWALES PR4, PR7, PR8, PR9, PR10, & PR11 WITH TURF REINFORCEMENT MATS (NORTH AMERICAN GREEN VMAX SC250, VMAX C350, OR SIMILAR). TURF REINFORCEMENT MATS ARE NOT REQUIRED FOR SWALE AREAS WITH RIPRAP.



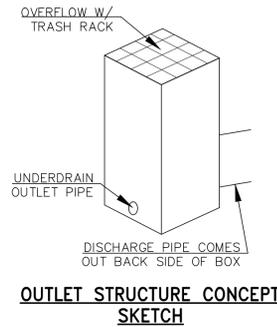
SAND FILTER DP7 DETAIL



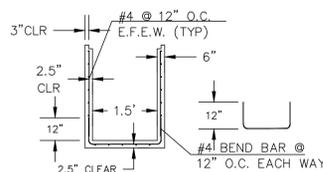
SAND FILTER DP7 DESIGN – PLAN VIEW
 N.T.S.



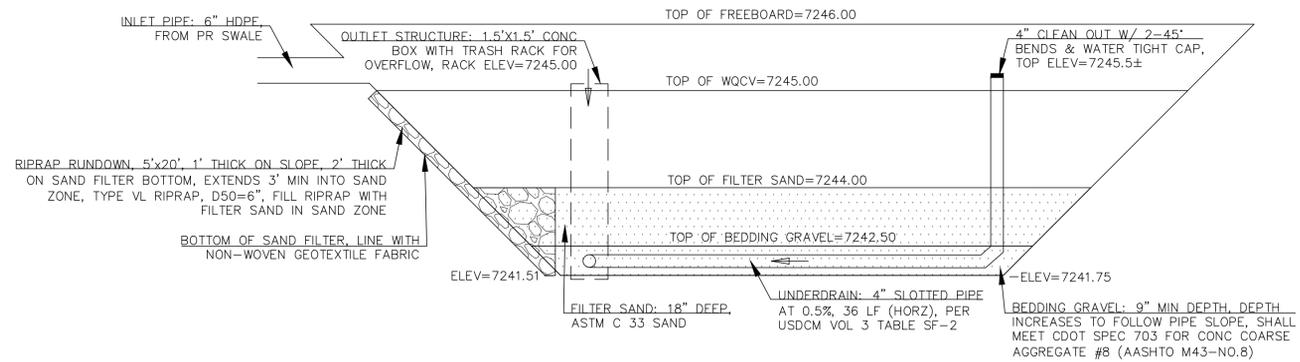
OUTLET STRUCTURE DETAIL
 (CONCRETE & STEEL)



OUTLET STRUCTURE CONCEPT SKETCH



1.5'x1.5' OUTLET BOX STRUCTURAL DETAIL



SAND FILTER DP7 DESIGN – PROFILE VIEW
 N.T.S.

REVISIONS	NO.	DESCRIPTION	DATE

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE ENGINEER, THE USER ASSUMES ALL LIABILITY FOR ANY ERRORS OR OMISSIONS. TERRA NOVA ENGINEERING, INC. APPROVES THEIR USE ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED BY WRITTEN AUTHORIZATION.

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
 ATTN: SCOTT HENTIE
 2760 BROGANS BLUFF
 COLORADO SPRINGS, CO 80919
 719.499.6752

721 S. 2960 STREET
 COLORADO SPRINGS, CO 80904
 OFFICE: 719-635-6422
 FAX: 719-635-6426
 www.tneshinc.com

Terra Nova
 Engineering, Inc.
 Certified Civil Engineer No. 101115

TIMBERRIDGE ESTATES
 9210 ARROYA LANE

GRADING & EROSION CONTROL PLAN
 GRADING PLAN – DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE 1"=200'
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 8 OF 12

N:\jobs\1733.00\Drawings\CD\173300 GEC.dwg, GRAD DETAILS #4, 2/28/2019 11:45:35 AM

TIMBERRIDGE ESTATES - 9210 ARROYA LANE

EL PASO COUNTY

GRADING & EROSION CONTROL PLAN

FEBRUARY 2019

BENCHMARKS

A #4 REBAR 28.3 FEET SOUTH AND 77.2 FEET WEST OF THE SOUTHEAST PROPERTY CORNER.
ELEV = 7,319.85' (NGVD-1929)

EROSION CONTROL NOTES

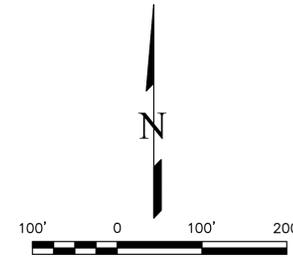
1. PERMANENT SEEDING AND MULCH IS TO BE APPLIED TO ALL DISTURBED AREAS OTHER THAN ROADWAYS. EROSION CONTROL BLANKETS MUST BE USED ALONG FLOW LINE PROPOSED DRAINAGE CHANNELS (3 FEET WIDE) AND ON DETENTION BASIN SIDES.
2. SAND FILTERS TO BE INSTALLED PRIOR TO THE PAVING OF ARROYA LANE. SAND FILTERS WILL NOT BE PUT INTO OPERATION WHILE ARROYA LANE IS STILL A GRAVEL ROAD.

EROSION CONTROL QUANTITIES

SILT FENCE: 2,525 LF
SEDIMENT CONTROL LOG: 5,050 LF
SEED & MULCH: 8.8 AC
EROSION CONTROL BLANKET: 3,700 SF

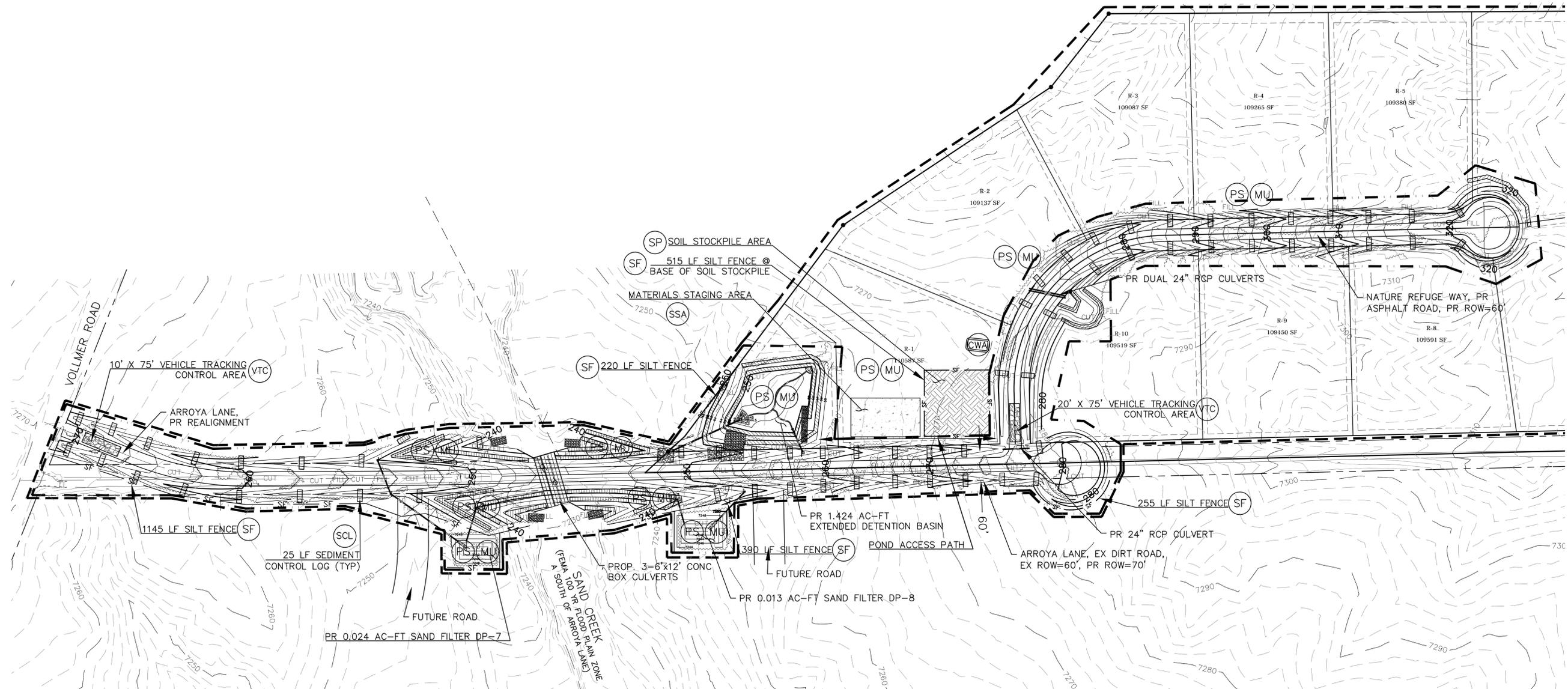
LEGEND

- EXISTING 2' CONTOUR
- 7260 EXISTING 10' CONTOUR
- PROPOSED 2' CONTOUR
- 260 PROPOSED 10' CONTOUR
- SURFACE FLOW CHANNEL
- PROPOSED DRAINAGE EASEMENT
- W EXISTING WATER LINE
- CONSTRUCTION SITE BOUNDARY
- AREA OF SOIL DISTURBANCE
- EXISTING TREE
- CUT FILL AREA BOUNDARY



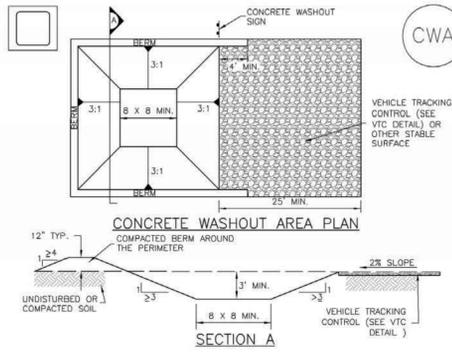
EROSION CONTROL LEGEND

- | KEY | TITLE | SYMBOL |
|-------|---|-----------|
| (SF) | SILT FENCE | —SF— |
| (SSA) | STABILIZED STAGING AREA | [Pattern] |
| (VTC) | VEHICLE TRACKING CONTROL | [Pattern] |
| (SP) | STOCKPILE MANAGEMENT WITH PROTECTION | [Pattern] |
| (CWA) | CONCRETE WASHOUT AREA | [Pattern] |
| (SCL) | SEDIMENT CONTROL LOG | [Pattern] |
| (MU) | MULCHING - HYDROSEED OR EROSION CONTROL BLANKET, ECB MUST BE USED WITHIN DRAINAGE CHANNELS & ON POND SIDES | (MU) |
| (PS) | PERMANENT SEEDING - HYDROSEED, SEED MIX PER COLORADO SPRINGS DRAINAGE CRITERIA MANUAL (MAY 2014) VOL 1, TABLE 14-12 | (PS) |



Concrete Washout Area (CWA)

MM-1



CWA-1. CONCRETE WASHOUT AREA

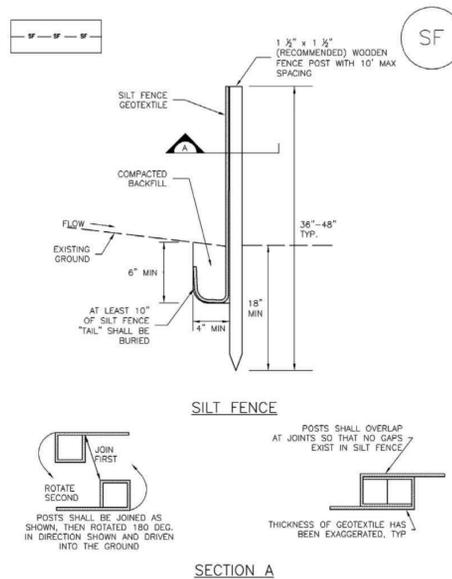
CWA INSTALLATION NOTES

- 1. SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION. 2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY...

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

Silt Fence (SF)

SC-1



SF-1. SILT FENCE

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 (2-3 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

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...

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

MM-1

Concrete Washout Area (CWA)

CWA 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...

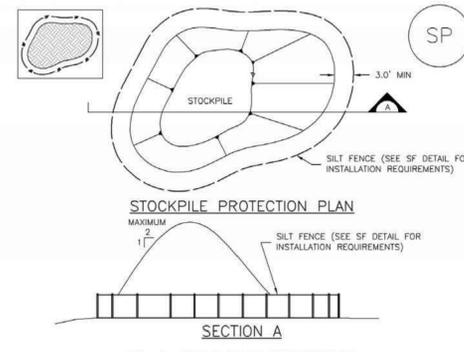
November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 CWA-4

SC-1

Silt Fence (SF)

Stockpile Management (SP)

MM-2



SP-1. STOCKPILE PROTECTION

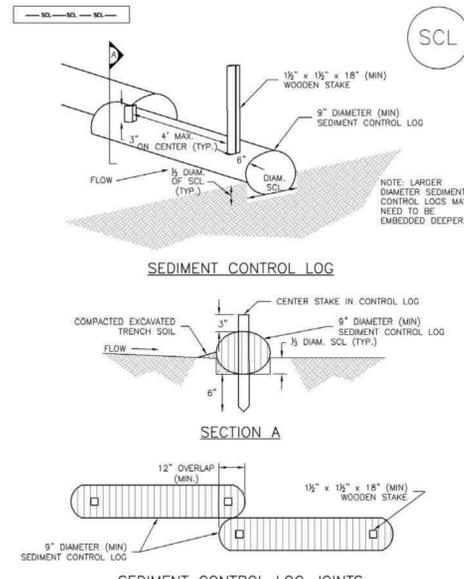
STOCKPILE PROTECTION INSTALLATION NOTES

- 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...

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

Sediment Control Log (SCL)

SC-2



SCL-1. SEDIMENT CONTROL LOG

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 UPGRADING LAND-DISTURBING ACTIVITIES.

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...

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

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...

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

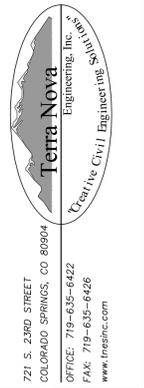
Sediment Control Log (SCL)

SC-2

November 2010 Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3 SCL-5

Table with columns: REVISIONS, NO., DESCRIPTION, DATE.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE REVIEWING AGENCIES... PREPARED FOR: TIMBERRIDGE ESTATES, LLC...

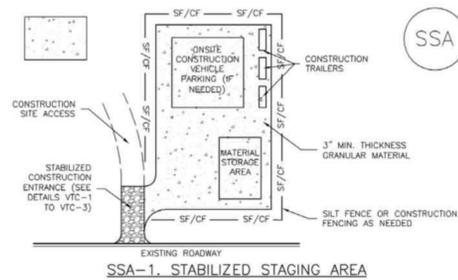


TIMBERRIDGE ESTATES 9210 ARROYA LANE GRADING & EROSION CONTROL PLAN - DETAILS

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, H-SCALE, V-SCALE, JOB NO., DATE ISSUED, SHEET NO.

N:\jobs\1733.00\Drawings\CD\173300_GEC.dwg, EC DETAILS #1, 2/28/2019 11:46:03 AM

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF STAGING AREA(S).
 - CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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

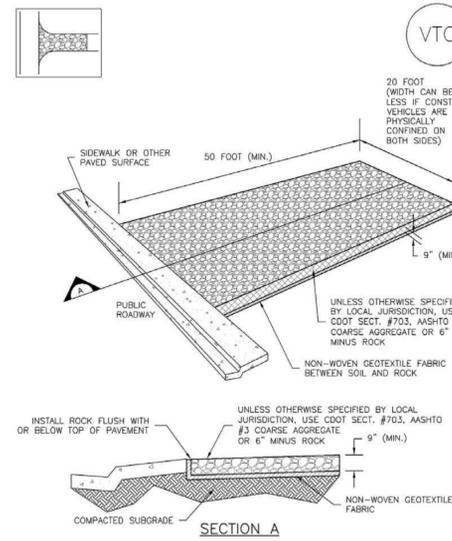
SM-6 Stabilized Staging Area (SSA)

STABILIZED STAGING AREA MAINTENANCE NOTES

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

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

Vehicle Tracking Control (VTC) SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

SM-4 Vehicle Tracking Control (VTC)

STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

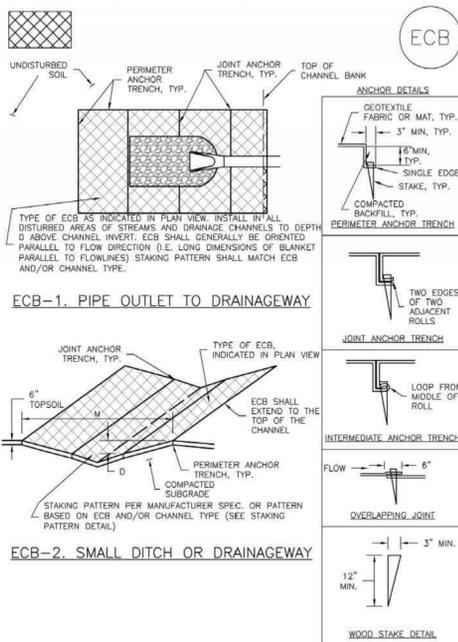
- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
- CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

- 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.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
 - SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

VTC-6 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)

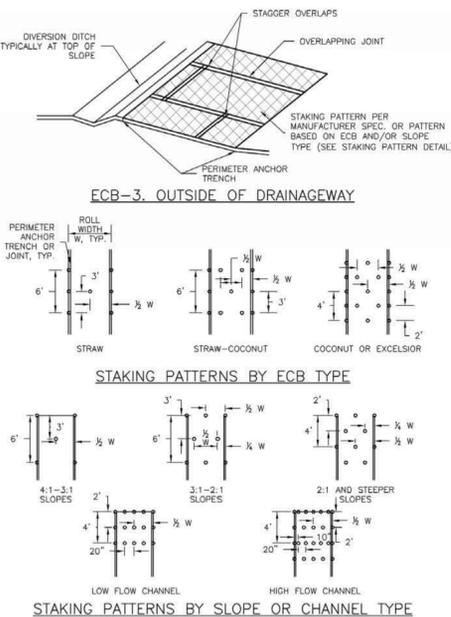


ECB-1. PIPE OUTLET TO DRAINAGEWAY

ECB-2. SMALL DITCH OR DRAINAGEWAY

RECP-6 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)



ECB-3. OUTSIDE OF DRAINAGEWAY

STAKING PATTERNS BY ECB TYPE

STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

November 2010 Urban Drainage and Flood Control District RECP-7
Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW**	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

**STRAW ECBs MAY ONLY BE USED OUTSIDE OF STRAIGHT AND DRAGGAGE CHANNELS.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

RECP-8 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET MAINTENANCE NOTES

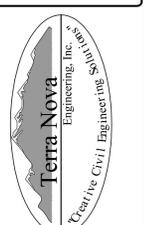
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 - ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)

RECP-9 Urban Drainage and Flood Control District November 2010
Urban Storm Drainage Criteria Manual Volume 3

NO.	REVISIONS	DESCRIPTION	DATE

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

PREPARED FOR:
TIMBERRIDGE ESTATES, LLC
ATTN: SCOTT HENIE
2760 BROGANS BLUFF
COLORADO SPRINGS, CO 80919
719.499.6752



721 S. 2960 STREET
COLORADO SPRINGS, CO 80904
OFFICE: 719-635-6422
FAK: 719-635-6426
www.tneng.com

TIMBERRIDGE ESTATES
9210 ARROYA LANE
GRADING & EROSION CONTROL PLAN
EROSION CONTROL PLAN - DETAILS

DESIGNED BY LD
DRAWN BY DLF
CHECKED BY LD
H-SCALE NA
V-SCALE NA
JOB NO. 1733.00
DATE ISSUED 02/28/19
SHEET NO. 12 OF 12

N:\jobs\1733.00\Drawings\CD\173300_GEC.dwg, EC DETAILS #2, 2/28/2019 11:46:13 AM

**PRIVATE DETENTION BASIN /
STORMWATER QUALITY BEST MANAGEMENT PRACTICE
MAINTENANCE AGREEMENT AND EASEMENT**

This PRIVATE DETENTION BASIN / STORMWATER QUALITY BEST MANAGEMENT PRACTICE MAINTENANCE AGREEMENT AND EASEMENT (Agreement) is made by and between EL PASO COUNTY by and through THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO (Board or County) and TIMBERRIDGE ESTATES, LLC (Developer) and TIMBERRIDGE ESTATES METROPOLITAN DISTRICT (Metro District), a quasi-municipal corporation and political subdivision of the State of Colorado. The above may occasionally be referred to herein singularly as “Party” and collectively as “Parties.”

Recitals

- A. WHEREAS, the District provides various municipal services to certain real property in El Paso County, Colorado referred to as The Retreat at TimberRidge; and
- B. WHEREAS, Developer is the owner of certain real estate (the Property or Subdivision) in El Paso County, Colorado, which Property is legally described in [Exhibit A](#) attached hereto and incorporated herein by this reference; and
- C. WHEREAS, Developer desires to plat and develop on the Property a subdivision to be known as TimberRidge Estates; and
- D. WHEREAS, the development of this Property will substantially increase the volume of water runoff and will decrease the quality of the stormwater runoff from the Property, and, therefore, it is in the best interest of public health, safety and welfare for the County to condition approval of this subdivision on Developer’s promise to construct adequate drainage, water runoff control facilities, and stormwater quality structural Best Management Practices (“BMPs”) for the subdivision; and
- E. WHEREAS, Chapter 8, Section 8.4.5 of the El Paso County Land Development Code, as periodically amended, promulgated pursuant to Section 30-28-133(1), Colorado Revised Statutes (C.R.S.), requires the County to condition approval of all subdivisions on a developer’s promise to so construct adequate drainage, water runoff control facilities, and BMPs in subdivisions; and
- F. WHEREAS, the Drainage Criteria Manual, Volume 2, as amended by Appendix I of the El Paso County Engineering Criteria Manual (ECM), as each may be periodically amended, promulgated pursuant to the County’s Colorado Discharge Permit System General Permit (MS4 Permit) as required by Phase II of the National Pollutant Discharge Elimination System (NPDES), which MS4 Permit requires that the County take measures to protect the quality of stormwater from sediment and other contaminants, requires subdividers, developers, landowners, and owners of facilities located in the County’s rights-of-way or easements to provide adequate permanent stormwater quality BMPs with new development or significant redevelopment; and
- G. WHEREAS, Section 2.9 of the El Paso County Drainage Criteria Manual provides for a developer’s promise to maintain a subdivision’s drainage facilities in the event the County does not assume such responsibility; and

H. WHEREAS, developers in El Paso County have historically chosen water runoff detention basins as a means to provide adequate drainage and water runoff control in subdivisions, which basins, while effective, are less expensive for developers to construct than other methods of providing drainage and water runoff control; and

I. WHEREAS, Developer desires to construct for the subdivision one detention basin/stormwater quality BMP(s) (“detention basin/BMP(s)”) as the means for providing adequate drainage and stormwater runoff control and to meet requirements of the County’s MS4 Permit, and to provide for operating, cleaning, maintaining and repairing such detention basin/BMP(s); and

J. WHEREAS, Developer desires to construct the detention basin/BMP(s) on property that is or will be platted as Tract A, TimberRidge Estates and as set forth on [Exhibit B](#) attached hereto; and

K. WHEREAS, Developer shall be charged with the duty of constructing the detention basin/BMP(s) and the Metro District shall be charged with the duties of operating, maintaining and repairing the detention basin/BMP(s) on the Property described in [Exhibit B](#); and

L. WHEREAS, it is the County’s experience that subdivision developers and property owners historically have not properly cleaned and otherwise not properly maintained and repaired these detention basins/BMPs, and that these detention basins/BMPs, when not so properly cleaned, maintained, and repaired, threaten the public health, safety and welfare; and

M. WHEREAS, the County, in order to protect the public health, safety and welfare, has historically expended valuable and limited public resources to so properly clean, maintain, and repair these detention basins/BMPs when developers and property owners have failed in their responsibilities, and therefore, the County desires the means to recover its costs incurred in the event the burden falls on the County to so clean, maintain and repair the detention basin/BMP(s) serving this Subdivision due to the Developer’s or the Metro District’s failure to meet its obligations to do the same; and

N. WHEREAS, the County conditions approval of this Subdivision on the Developer’s promise to so construct the detention basin/BMP(s), and further conditions approval on the Metro District’s promise to reimburse the County in the event the burden falls upon the County to so clean, maintain and/or repair the detention basin/BMP(s) serving this Subdivision; and

O. WHEREAS, the County could condition subdivision approval on the Developer’s promise to construct a different and more expensive drainage, water runoff control system and BMPs than those proposed herein, which more expensive system would not create the possibility of the burden of cleaning, maintenance and repair expenses falling on the County; however, the County is willing to forego such right upon the performance of Developer’s and the Metro District’s promises contained herein; and

P. WHEREAS, the County, in order to secure performance of the promises contained herein, conditions approval of this Subdivision upon the Developer’s grant herein of a perpetual Easement over a portion of the Property for the purpose of allowing the County to periodically access, inspect, and, when so necessary, to clean, maintain and/or repair the detention basin/BMP(s); and

Q. WHEREAS, Pursuant to Colorado Constitution, Article XIV, Section 18(2) and Section 29-1-203, Colorado Revised Statutes, governmental entities may cooperate and contract with each other to provide any function, services, or facilities lawfully authorized to each.

Agreement

NOW, THEREFORE, in consideration of the mutual Promises contained herein, the sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Incorporation of Recitals: The Parties incorporate the Recitals above into this Agreement.

2. Covenants Running with the Land: Developer and the Metro District agree that this entire Agreement and the performance thereof shall become a covenant running with the land, which land is legally described in Exhibit A attached hereto, and that this entire Agreement and the performance thereof shall be binding upon themselves, their respective successors and assigns.

3. Construction: Developer shall construct on that portion of the Property described in Exhibit B attached hereto and incorporated herein by this reference, one detention basin/BMP(s). Developer shall not commence construction of the detention basin/BMP(s) until the El Paso County Planning and Community Development Department (PCD) has approved in writing the plans and specifications for the detention basin/BMP(s) and this Agreement has been signed by all Parties and returned to the PCD. Developer shall complete construction of the detention basin/BMP(s) in substantial compliance with the County-approved plans and specifications for the detention basin/BMP(s). Failure to meet these requirements shall be a material breach of this Agreement, and shall entitle the County to pursue any remedies available to it at law or in equity to enforce the same. Construction of the detention basin/BMP(s) shall be substantially completed within one (1) year (defined as 365 days), which one year period will commence to run on the date the approved plat of this Subdivision is recorded in the records of the El Paso County Clerk and Recorder. Rough grading of the detention basin/BMP(s) must be completed and inspected by the El Paso County Planning and Community Development Department prior to commencing road construction.

In the event construction is not substantially completed within the one (1) year period, then the County may exercise its discretion to complete the project, and shall have the right to seek reimbursement from the Developer and its respective successors and assigns, for its actual costs and expenses incurred in the process of completing construction. The term actual costs and expenses shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tool and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the Provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

4. Maintenance: The Metro District agrees for itself and its successors and assigns that it will regularly and routinely inspect, clean and maintain the detention basin/BMP(s), and otherwise keep the same in good repair, all at its own cost and expense. No trees or shrubs that will impair the

structural integrity of the detention basin/BMP(s) shall be planted or allowed to grow on the detention basin/BMP(s).

5. Creation of Easement: Developer hereby grants the County and the Metro District a non-exclusive perpetual easement upon and across that portion of the Property described in Exhibit B. The purpose of the easement is to allow the County and the Metro District to access, inspect, clean, repair and maintain the detention basin/BMP(s); however, the creation of the easement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

6. County's Rights and Obligations: Any time the County determines, in the sole exercise of its discretion, that the detention basin/BMP(s) is not properly cleaned, maintained and/or otherwise kept in good repair, the County shall give reasonable notice to the Developer, the Metro District and their respective successors and assigns, that the detention basin/BMP(s) needs to be cleaned, maintained and/or otherwise repaired. The notice shall provide a reasonable time to correct the problem(s). Should the responsible parties fail to correct the specified problem(s), the County may enter upon the Property to so correct the specified problem(s). Notice shall be effective to the above by the County's deposit of the same into the regular United States mail, postage pre-paid. Notwithstanding the foregoing, this Agreement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

7. Reimbursement of County's Costs / Covenant Running With the Land: The Developer and the Metro District agree and covenant, for themselves, their respective successors and assigns, that they will reimburse the County for its costs and expenses incurred in the process of completing construction of, cleaning, maintaining, and/or repairing the detention basin/BMP(s) pursuant to the provisions of this Agreement.

The term "actual costs and expenses" shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tools and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney's fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

8. Contingencies of Subdivision Approval: Developer's and the Metro District's execution of this Agreement is a condition of subdivision approval. Additional conditions of this Agreement include, but are not limited to, the following:

- a. Conveyance of Tract A, TimberRidge Estates from Developer to the Metro District (which will include a reservation of easement in favor of the County for purposes of accessing, inspecting, cleaning, maintaining, and repairing the detention basin/BMP(s)), and recording of the Deed for the same; and
- b. A copy of the court order declaring the organization of the Metro District and a copy of the approved service plan establishing that the Metro District is obligated to inspect, clean, maintain, and repair the detention basin/BMP(s).

The County shall have the right, in the sole exercise of its discretion, to approve or disapprove any documentation submitted to it under the conditions of this Paragraph, including but not limited to, any separate agreement or amendment, if applicable, identifying any specific maintenance responsibilities not addressed herein. The County's rejection of any documentation submitted hereunder shall mean that the appropriate condition of this Agreement has not been fulfilled.

9. Agreement Monitored by El Paso County Planning and Community Development Department and/or El Paso County Department of Public Works: Any and all actions and decisions to be made hereunder by the County shall be made by the Director of the El Paso County Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works. Accordingly, any and all documents, submissions, plan approvals, inspections, etc. shall be submitted to and shall be made by the Director of the Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works.

10. Indemnification and Hold Harmless: To the extent authorized by law, Developer and the Metro District agree, for themselves, their respective successors and assigns, that they will indemnify, defend, and hold the County harmless from any and all loss, costs, damage, injury, liability, claim, lien, demand, action and causes of action whatsoever, whether at law or in equity, arising from or related to their respective intentional or negligent acts, errors or omissions or that of their agents, officers, servants, employees, invitees and licensees in the construction, operation, inspection, cleaning (including analyzing and disposing of any solid or hazardous wastes as defined by State and/or Federal environmental laws and regulations), maintenance, and repair of the detention basin/BMP(s), and such obligation arising under this Paragraph shall be joint and several. Nothing in this Paragraph shall be deemed to waive or otherwise limit the defense available to the County pursuant to the Colorado Governmental Immunity Act, Sections 24-10-101, *et seq.* C.R.S., or as otherwise provided by law.

11. Severability: In the event any Court of competent jurisdiction declares any part of this Agreement to be unenforceable, such declaration shall not affect the enforceability of the remaining parts of this Agreement.

12. Third Parties: This Agreement does not and shall not be deemed to confer upon or grant to any third party any right to claim damages or to bring any lawsuit, action or other proceeding against either the County, the Developer, the Metro District, or their respective successors and assigns, because of any breach hereof or because of any terms, covenants, agreements or conditions contained herein.

13. Solid Waste or Hazardous Materials: Should any refuse from the detention basin/BMP(s) be suspected or identified as solid waste or petroleum products, hazardous substances or hazardous materials (collectively referred to herein as "hazardous materials"), the Developer and the Metro District shall take all necessary and proper steps to characterize the solid waste or hazardous materials and properly dispose of it in accordance with applicable State and/or Federal environmental laws and regulations, including, but not limited to, the following: Solid Wastes Disposal Sites and Facilities Acts, §§ 30-20-100.5 – 30-20-119, C.R.S., Colorado Regulations Pertaining to Solid Waste Disposal Sites and Facilities, 6 C.C.R. 1007-2, *et seq.*, Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992k, and Federal Solid Waste Regulations 40 CFR Ch. I. The County shall not be responsible or liable for identifying, characterizing, cleaning up, or disposing of such solid waste or hazardous materials. Notwithstanding the previous sentence, should any refuse cleaned up and disposed of by the County be determined to be solid waste or hazardous materials, the Developer and the Metro District, but not the County, shall be

responsible and liable as the owner, generator, and/or transporter of said solid waste or hazardous materials.

14. Applicable Law and Venue: The laws, rules, and regulations of the State of Colorado and El Paso County shall be applicable in the enforcement, interpretation, and execution of this Agreement, except that Federal law may be applicable regarding solid waste or hazardous materials. Venue shall be in the El Paso County District Court.

15. Limitation on Developer’s Obligation and Liability: The obligation and liability of the Developer hereunder shall only continue until such time as the Final Plat as described in Paragraph Three (3) of the Recitals set forth above is recorded and the Developer completes the construction of the detention basin/BMP(s) and transfers all applicable maintenance and operation responsibilities to the Metro District. By execution of this agreement, the Metro District agrees to accept all responsibilities and to perform all duties assigned to it, including those of the Developer, as specified herein, upon transfer of Tract A from Developer to the Metro District.

IN WITNESS WHEREOF, the Parties affix their signatures below.

Executed this _____ day of _____, 20____, by:

TIMBERRIDGE ESTATES, LLC

By: _____
Bob Ormstom, Manager

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by Robert Homes, Authorized signing Agent, TimberRidge Estates, LLC.

Witness my hand and official seal.

My commission expires: _____

Notary Public

Executed this _____ day of _____, 20____, by:

TIMBERRIDGE ESTATES METROPOLITAN DISTRICT

By: _____
TBD, President

Attest:

By: _____
TBD, President

The foregoing instrument was acknowledged before me this _____ day of _____,
20____, by TBD, President, TimberRidge Estates Metropolitan District.

Witness my hand and official seal.

My commission expires: _____

Notary Public

Executed this _____ day of _____, 20____, by:

BOARD OF COUNTY COMMISSIONERS
OF EL PASO COUNTY, COLORADO

By: _____
Craig Dossey, Executive Director
Planning and Community Development Department
Authorized signatory pursuant to LDC

Attest:

County Clerk and Recorder

The foregoing instrument was acknowledged before me this _____ day of _____,
20____, by Craig Dossey, Executive Director, Planning and Community Development Department, as
attested to by _____, County Clerk and Recorder.

Witness my hand and official seal.

My commission expires: _____

Notary Public

Approved as to Content and Form:

Assistant County Attorney

Exhibit A – Legal Description

June 11, 2018

TimberRidge Estates

THOSE PORTIONS OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 21, OF THE SOUTHWEST QUARTER OF SECTION 22, THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 27 AND OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 28, ALL IN TOWNSHIP 12 SOUTH, RANGE 65 WEST OF THE 6TH P.M., EL PASO COUNTY, COLORADO, DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE EAST LINE OF THE SOUTHWEST QUARTER OF SECTION 22, TOWNSHIP 12 SOUTH, RANGE 65 WEST AND IS ASSUMED TO BEAR NORTH 0 DEGREES 18 MINUTES 04 SECONDS EAST 2640.26 FEET.

COMMENCING AT THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF SAID SECTION 22; THENCE SOUTH 88 DEGREES 38 MINUTES 37 SECONDS WEST ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING;

THENCE SOUTH 88 DEGREES 38 MINUTES 37 SECONDS WEST ALONG SAID SOUTH LINE 1300.52 FEET TO THE SOUTHWEST CORNER OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER;
THENCE SOUTH 0 DEGREES 54 MINUTES 40 SECONDS EAST ALONG THE EAST LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 27 A DISTANCE OF 40.00 FEET TO A LINE 40 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER;
THENCE SOUTH 88 DEGREES 38 MINUTES 52 SECONDS WEST ALONG SAID PARALLEL LINE 1330.97 FEET;
THENCE SOUTH 89 DEGREES 40 MINUTES 33 SECONDS WEST ALONG A LINE 40 FEET SOUTHERLY OF AND PARALLEL WITH THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 27 A DISTANCE OF 348.54 FEET;
THENCE EASTERLY 244.55 FEET ALONG A TANGENTIAL CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 640.00 FEET AND A CENTRAL ANGLE OF 21 DEGREES 53 MINUTES 35 SECONDS;
THENCE NORTH 68 DEGREES 26 MINUTES 02 SECONDS WEST TANGENT TO SAID CURVE 148.13 FEET TO THE EASTERLY RIGHT-OF-WAY LINE OF VOLLMER ROAD;
THENCE NORTH 21 DEGREES 40 MINUTES 10 SECONDS EAST ALONG SAID RIGHT-OF-WAY LINE 80.00 FEET;
THENCE SOUTH 68 DEGREES 26 MINUTES 02 SECONDS EAST 147.97 FEET;
THENCE EASTERLY 213.98 FEET ALONG A TANGENTIAL CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 560.00 FEET AND A CENTRAL ANGLE OF 21 DEGREES 53 MINUTES 35 SECONDS;

THENCE NORTH 89 DEGREES 40 MINUTES 33 SECONDS EAST TANGENT TO SAID CURVE AND ALONG A LINE 40 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF SAID SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 21 A DISTANCE OF 347.82 FEET;
THENCE NORTH 88 DEGREES 38 MINUTES 52 SECONDS EAST ALONG A LINE 40 FEET NORTH OF A PARALLEL WITH THE SOUTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 22 A DISTANCE OF 477.96 FEET;
THENCE NORTH 47 DEGREES 35 MINUTES 42 SECONDS EAST 105.23 FEET;
THENCE NORTH 36 DEGREES 59 MINUTES 01 SECONDS EAST 517.38 FEET;
THENCE NORTH 56 DEGREES 32 MINUTES 31 SECONDS EAST 489.24 FEET;
THENCE NORTH 38 DEGREES 17 MINUTES 19 SECONDS EAST 182.67 FEET;
THENCE NORTH 89 DEGREES 41 MINUTES 56 SECONDS EAST 1283.66 FEET;

PREPARED BY:

MARK S JOHANNES, COLORADO P.L.S. NO. 32439 DATE
FOR AND ON BEHALF OF COMPASS SURVEYING AND MAPPING, LLC
8015 CHANCELLOR DRIVE
COLORADO SPRINGS, CO 80920

Exhibit B – Pond Location

Tract A, TimberRidge Estates