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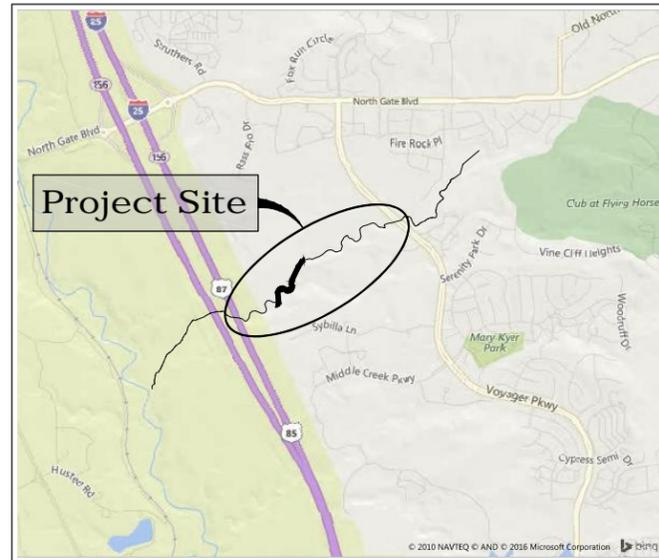
MONUMENT BRANCH CHANNEL RESTORATION

CITY OF COLORADO SPRINGS

PHASE 1 - 30% BID PLAN SET

SEPTEMBER 2016

MATRIX PROJECT No. 16.069.072



VICINITY MAP
N.T.S.



LOCATION MAP
SCALE: 1" = 1,000'

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APPROVED

SIGNED: _____ DATE: _____
CITY OF COLORADO SPRINGS

VERTICAL DATUM: THE ELEVATIONS ON THIS PROJECT ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988.

PROPERTY INFORMATION: PARCEL LINES AND PROPERTY OWNERSHIP INFORMATION SHOWN WERE PROVIDED BY THE EL PASO COUNTY PROPERTY APPRAISER'S OFFICE.



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PHASE 1 - 30% BID PLAN

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CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% DESIGN PLAN			
TITLE SHEET			
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 16.069.072	DESIGNED BY: AJS DRAWN BY: RAF CHECKED BY: GWT	SCALE: HORIZ N/A VERT. N/A	DATE ISSUED: September 2016 SHEET 01 OF 17 DRAWING No. TS01



Know what's below.
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GENERAL NOTES:

- THE LOCATIONS OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR TO CALL FOR UTILITY LOCATOR AT LEAST 3 CALENDAR DAYS BEFORE EXCAVATION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL ABOVE GROUND AND UNDERGROUND UTILITIES. IN THE EVENT THAT THE CONTRACTOR UTILITY VERIFICATION RESULTS IN EXISTING STRUCTURES OR UTILITIES BEING IN CONFLICT WITH THE PROPOSED WORK OF THIS CONTRACT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY UTILITIES AND COORDINATE ANY NEEDED MODIFICATIONS TO THE PROPOSED WORK.
- THE CONTRACTOR SHALL COORDINATE WITH ALL AFFECTED UTILITY OWNERS TO ESTABLISH THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT OR RELOCATION OF UTILITIES PRIOR TO THE START OF CONSTRUCTION.
- OVERHEAD UTILITIES ARE NOT INDICATED ON PROFILE OR SECTION DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND MAINTAINING IN CONTINUOUS OPERATION, ALL EXISTING STRUCTURES. NOT ALL POTENTIALLY IMPACTED STRUCTURES MAY BE SHOWN ON THE DRAWINGS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ALL STRUCTURES INCLUDING BUT NOT LIMITED TO STREETS, CURB AND GUTTER, BRIDGE PIERS AND ABUTMENTS, CREEK BANK PROTECTION OF VARIOUS TYPES, CREEK DROP STRUCTURES, SIGNS, PEDESTRIAN WALKS, RETAINING WALLS AND FENCING. IN THE EVENT THAT A STRUCTURE OR UTILITY IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR SHALL IMMEDIATELY NOTIFY UTILITIES IN WRITING AND MAKE REPAIRS IN ACCORDANCE WITH UTILITIES' REQUIREMENTS.
- THE CONTRACTOR SHALL CONFIRM THE RECEIPT OF ALL NECESSARY PERMITS AND APPROVALS BEFORE THE START OF CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF COLORADO SPRINGS UNLESS SPECIFICALLY DETAILED OTHERWISE ON THESE PLANS AND ASSOCIATED SPECIFICATIONS. ANY ELEMENT OF CONSTRUCTION WHICH IS NOT ADDRESSED EITHER BY THESE PLANS AND SPECIFICATIONS OR BY THE STANDARDS OF UTILITIES SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS, AND AGREEMENT DOCUMENTS.
- THE CONTRACTOR SHALL MAINTAIN AT THE SITE AT ALL TIMES ONE SIGNED COPY OF THE PROJECT DRAWINGS AND SPECIFICATIONS, ONE COPY OF THE STORMWATER MANAGEMENT PLAN AND ONE COPY OF ALL REQUIRED PERMITS.
- THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A WAY THAT THE AREA OF DISTURBANCE IS MINIMIZED. ALL EXISTING TREES, SHRUBS AND VEGETATION SHALL BE PROTECTED UNLESS OTHERWISE NOTED ON THE DRAWINGS. NO TREES SHALL BE REMOVED WITHOUT APPROVAL FROM THE CITY OF COLORADO SPRINGS.
- FOR ALL SITE GRADING, SMOOTH, PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING STABLE EXCAVATIONS AND TEMPORARY SLOPES AND FOR SATISFYING ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
- CONSTRUCTION OF THE PROPOSED WORK WILL TAKE PLACE WITHIN THE CHANNEL AND WATER CONTROL MEASURES WILL BE REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF DRAINAGE WATER FROM AREAS ADJACENT TO MONUMENT BRANCH AND FOR FLOW WITHIN MONUMENT BRANCH AND ITS TRIBUTARIES INCLUDING STORMWATER OUTFALLS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTABLISHING MEANS AND METHODS OF GROUND AND SURFACE WATER CONTROL APPROPRIATE FOR CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT DRAWINGS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AND PERMITS.
- THE CONTRACTOR SHALL PREPARE AND MAINTAIN THE STORMWATER MANAGEMENT PLAN AND OBTAIN THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THROUGH THE COLORADO DEPARTMENT OF PUBLIC HEALTH (CDPHE) AND ALL OTHER APPROPRIATE FEDERAL, STATE AND LOCAL PERMITS.
- THE CONTRACTOR SHALL PROVIDE DAILY ON-SITE SURVEY CONTROL.
- CONTRACTOR SHALL FENCE OFF CRITICAL AREAS TO BE PROTECTED AT THE DISCRETION OF THE CITY OF COLORADO SPRINGS.
- THE CONTRACTOR SHALL DEVELOP A TRAFFIC CONTROL PLAN. REFER TO SECTION 800 OF THE COLORADO SPRINGS STANDARD SPECIFICATIONS MANUAL.

ABBREVIATIONS

CL	CENTER LINE	APPROX.	APPROXIMATE
HCL	HORIZONTAL CONTROL LINE	MIN.	MINIMUM
DIA	DIAMETER	MAX.	MAXIMUM
EX/EXIST	EXISTING	HORIZ	HORIZONTAL
EL./ELEV	ELEVATION	VERT.	VERTICAL
FT.	FEET	DIST.	DISTANCE
INV.	INVERT	NTS	NOT TO SCALE
LF	LINEAR FEET	TYP	TYPICAL
LT	LEFT	O.C.	ON CENTER
N,S,E,W	NORTH, SOUTH, EAST, WEST	L.O.C.	LIMITS OF CONSTRUCTION
PL	PROPERTY LINE	RR	RAILROAD
ROW	RIGHT-OF-WAY	BCL	BANKFULL CONTROL LINE
RT	RIGHT	TCL	THALWEG CONTROL LINE
SF	SQUARE FEET		
STA.	STATION		

STANDARD SYMBOLS

	CENTER LINE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	L.O.C.
	CONSTRUCTION ACCESS
	ROW
	RAILROAD ROW
	PROTECT EXISTING VEGETATION

LEGEND

	PROPOSED KOIRWRAP 1200 AT DROP STRUCTURE (SEE TYPICAL SECTIONS & REVEGETATION PLAN FOR DETAILED FABRIC LIMITS AND FABRIC TYPES)
	PROPOSED TYPE M SOIL RIPRAP
	PROPOSED SCULPTED CONCRETE DROP STRUCTURE

REFERENCE DRAWINGS			
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PHASE 1 - 30% BID PLAN

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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
LEGEND AND GENERAL NOTES			
DESIGNED BY: AJS	SCALE: N/A	DATE ISSUED: September 2016	DRAWING No.
DRAWN BY: RAF	HORIZ: N/A	SHEET	02 OF 17
CHECKED BY: GWT	VERT: N/A		GN01



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LEGEND:

█	PHASE 1	GRADE CONTROL AND STREAM RESTORATION
█	PHASE 2	GRADE STABILIZATION AND STREAM RESTORATION
█	PHASE 3	GRADE STABILIZATION AND STREAM RESTORATION

PHASE 1 GRADING:
APPROXIMATE CUT = 23,484 CY
APPROXIMATE FILL = 26,520 CY



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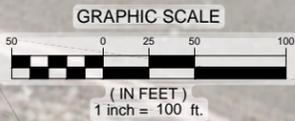


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PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
OVERALL PHASING PLAN			
DESIGNED BY: AJS	SCALE: 1" = 300'	DATE ISSUED: September 2016	DRAWING No. DR01
CHECKED BY: GWT	VERT: N/A	SHEET 03 OF 17	



LINE TABLE (TRIBUTARY)		
LINE #	LENGTH	DIRECTION
L1	8.48	N76° 51' 47.33"W
L2	251.32	N3° 56' 58.88"W
L3	30.15	S46° 15' 55.47"E
L4	58.44	N12° 20' 07.19"W
L5	334.48	N25° 42' 03.78"E
L6	152.27	N34° 14' 11.30"E
L7	131.38	N76° 40' 06.67"E
L8	57.30	S81° 06' 36.90"E
L9	120.61	N66° 30' 34.66"E
L10	41.94	N62° 57' 13.61"E

CURVE TABLE (TRIBUTARY)			
CURVE #	LENGTH	RADIUS	DELTA
C1	74.29	39.75	107.09
C2	22.19	80.00	15.89
C3	144.49	100.50	82.38
C4	55.04	80.00	39.42
C5	57.62	80.00	41.27
C6	144.76	98.50	84.20
C7	28.76	80.00	20.60
C8	88.29	133.00	38.04
C9	19.37	130.00	8.54
C10	29.62	40.00	42.43
C11	15.51	40.00	22.22
C12	28.26	50.00	32.38
C13	12.41	200.00	3.56

LINE TABLE (TRIBUTARY)		
LINE #	LENGTH	DIRECTION
L11	80.18	N81° 32' 17.45"E
L12	81.21	N85° 31' 59.00"E
L13	38.17	N49° 29' 15.88"E
L14	11.64	N31° 39' 11.47"E

CURVE TABLE (TRIBUTARY)			
CURVE #	LENGTH	RADIUS	DELTA
C16	25.36	233.91	6.21
C17	6.97	100.00	3.99
C18	78.64	125.00	36.05
C19	15.56	50.00	17.83

REFERENCE DRAWINGS			
X-069-MDG22334			
X-069-EX-IMAGE			
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PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
HORIZONTAL CONTROL PLAN			
DESIGNED BY: AJS	SCALE: HORIZ 1" = 100'	DATE ISSUED: September 2016	DRAWING No. HZ01
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EROSION CONTROL LEGEND

- SF SILT FENCE
- SBB STRAW BALE BARRIER
- VTC VEHICLE TRACKING CONTROL
- CWA CONCRETE WASHOUT
- CD CHECK DAM

NOTES

1. TOTAL DISTURBED AREA = ±5.7 AC.
2. REFER TO CITY OF COLORADO SPRINGS DRAINAGE CRITERIA MANUAL, VOLUME 11, CHAPTER 7 FOR STANDARD CONSTRUCTION BMP GUIDANCE.
3. REFER TO EL PASO COUNTY DRAINAGE CRITERIA MANUAL, CHAPTER 3, FOR CONSTRUCTION BMP FACT SHEETS AND STANDARDS.
4. ADDITIONAL CONSTRUCTION BMP GUIDANCE IS AVAILABLE IN THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 3, CHAPTER 7.
5. DISTURBED AREAS OUTSIDE OF THE DRAINAGE CHANNEL TO BE RESEDED (SEE REVEGETATION PLAN).

LEGEND

- CONSTRUCTION ACCESS
- CONSTRUCTION STAGING AREA



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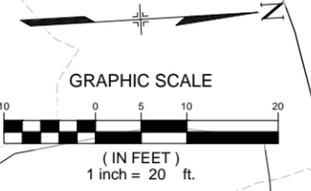
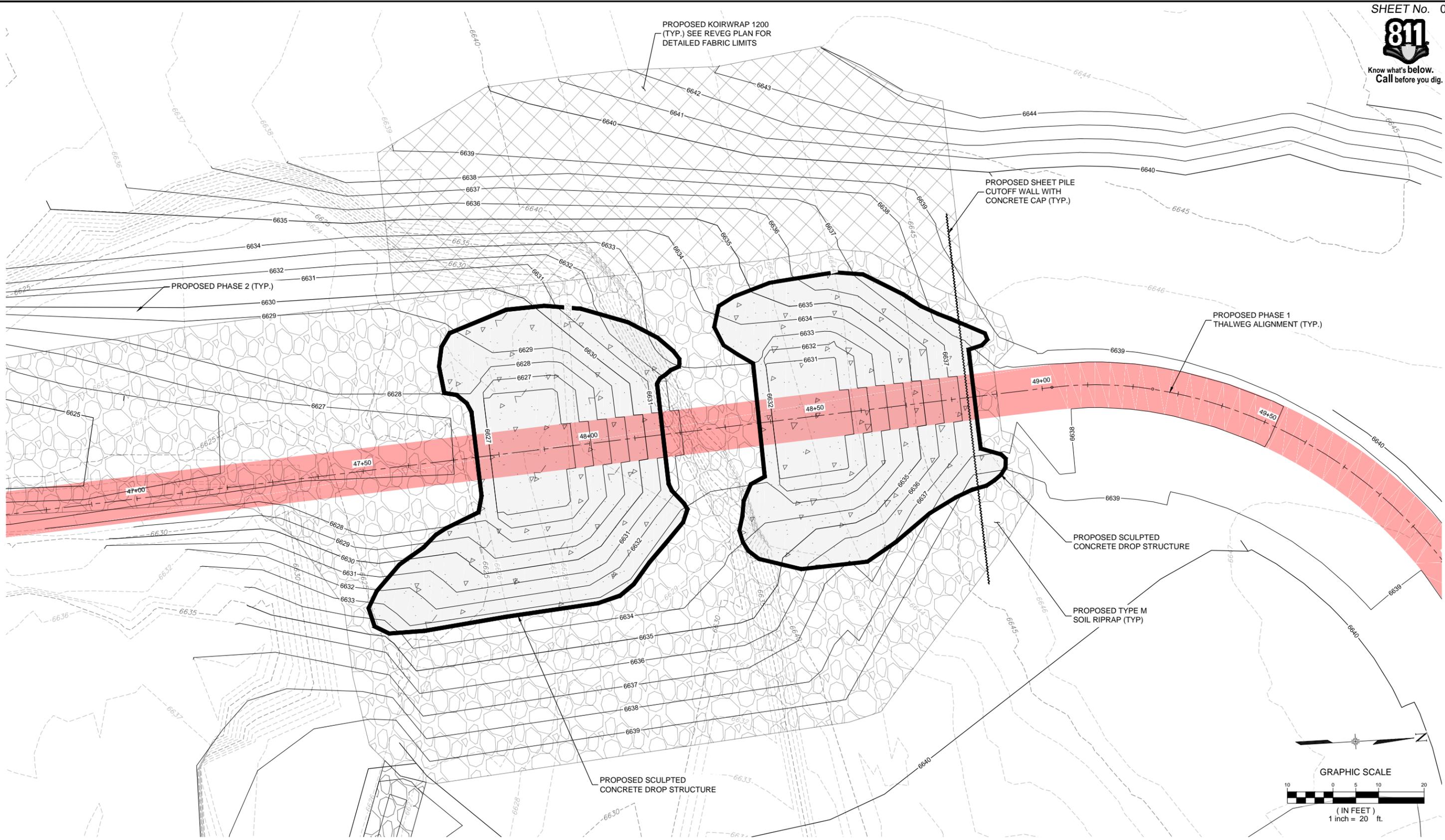
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PROJECT No. 16.069.072

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MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
EROSION CONTROL PLAN			
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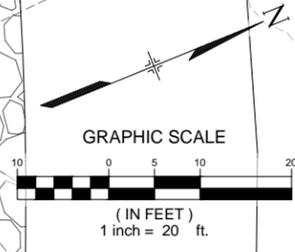
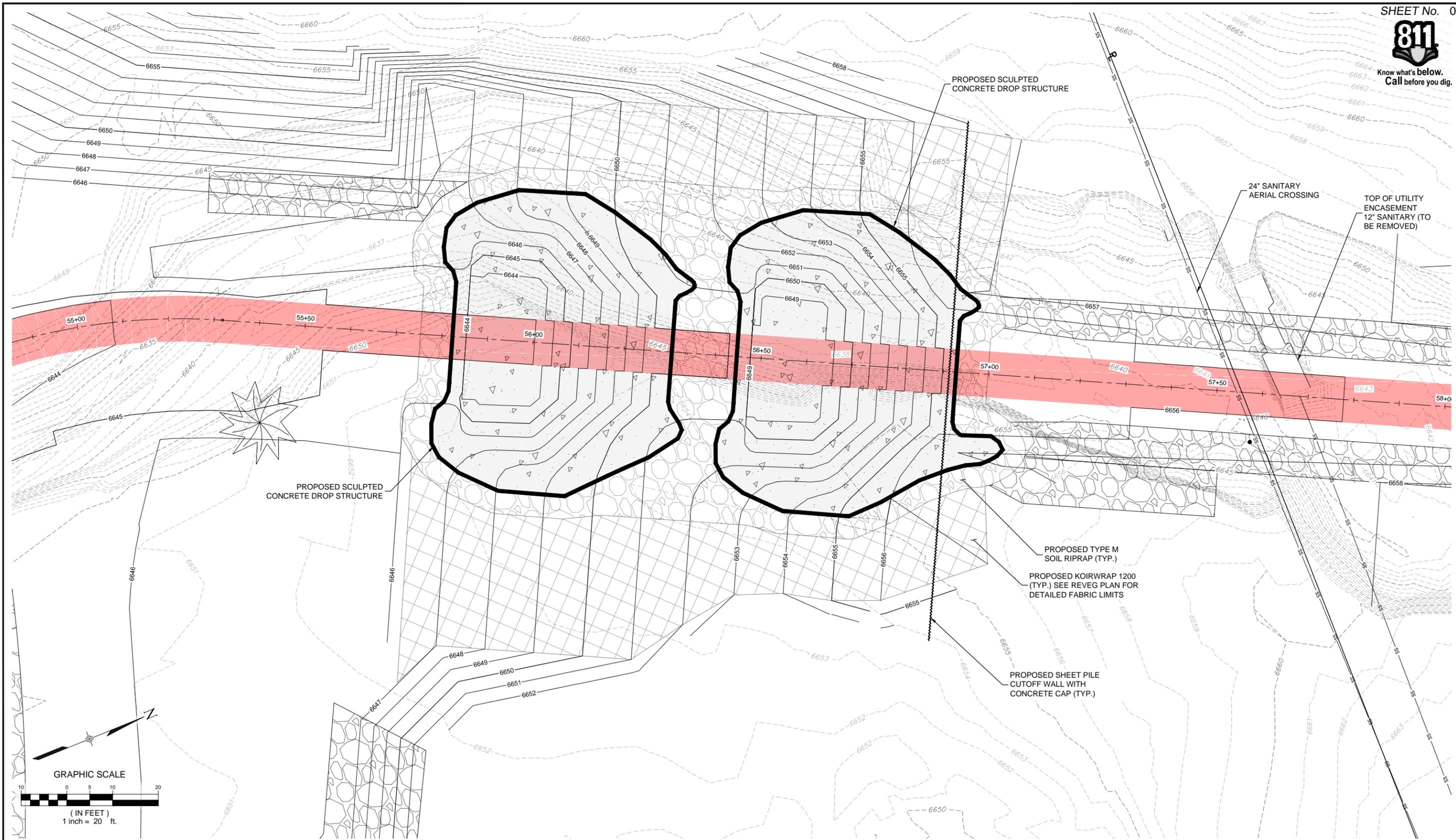
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CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION			
PHASE 1 - 30% BID PLAN			
GRADING PLAN			
SCULPTED CONCRETE DROP STRUCTURE (1)			
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REFERENCE DRAWINGS			
X-069-MDG2234			
X-069-EX-MADE			
X-069-EX-UTIL			
X-069-EX-PARCELS			
X-069-PR-GRAD			
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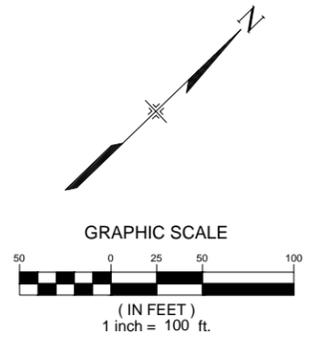
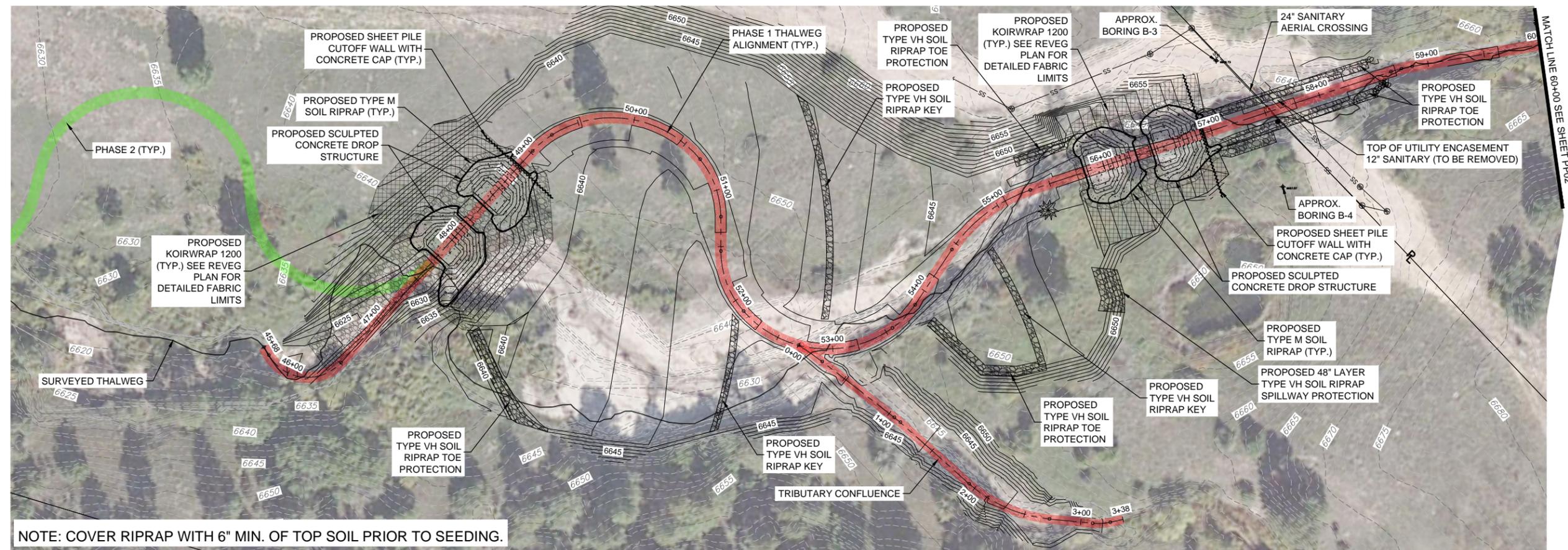
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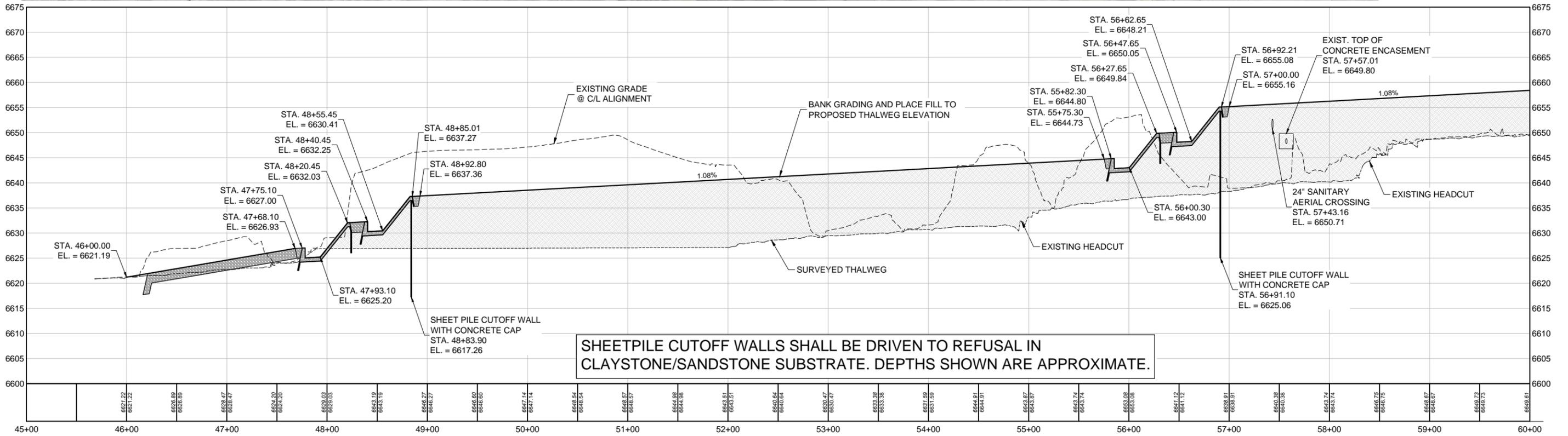
CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
GRADING PLAN SCULPTED CONCRETE DROP STRUCTURE (2)			
DESIGNED BY: AJS	SCALE: HORIZ 1" = 20'	DATE ISSUED: September 2016	DRAWING No. GD02
CHECKED BY: GWT	VERT. 1" = 5'	SHEET 07 OF 17	



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NOTE: COVER RIPRAP WITH 6" MIN. OF TOP SOIL PRIOR TO SEEDING.



SHEETPILE CUTOFF WALLS SHALL BE DRIVEN TO REFUSAL IN CLAYSTONE/SANDSTONE SUBSTRATE. DEPTHS SHOWN ARE APPROXIMATE.

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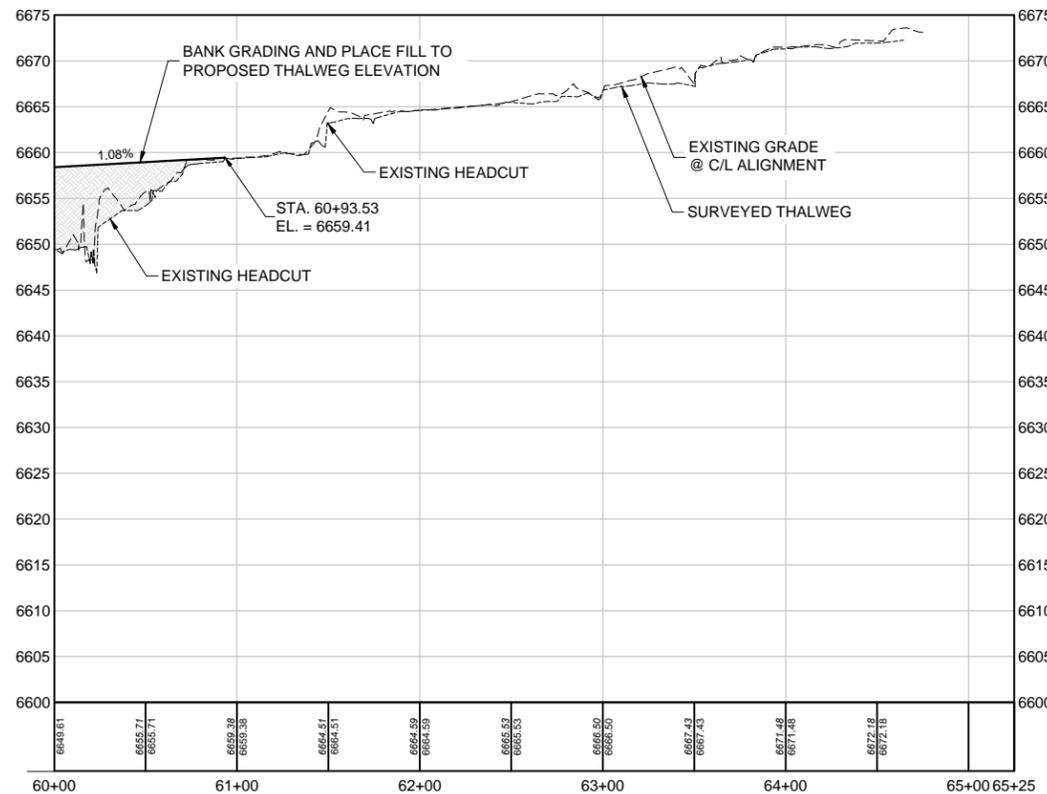
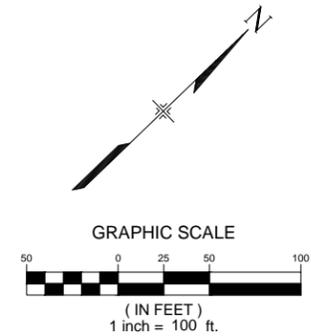
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PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
PLAN AND PROFILE STA. 45+68.04 TO STA. 60+00.00			
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MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
PLAN AND PROFILE STA. 60+00.00 TO STA. 65+00.00			
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CHECKED BY: RAF	VERT. 1" = 20'	SHEET 09 OF 17	PP02



LEGEND:

- WETLAND/ RIPARIAN SEED MIX
- UPLAND SEED MIX
- LIVE WILLOW STAKING
- SOIL WRAP LIFT (WITH KOIRWRAP 1200 OR APPROVED EQUAL)
- KOIRWRAP 1200 OR APPROVED EQUAL
- EROSION CONTROL BLANKET
- COTTONWOOD LONG POLES @ 25' O.C. (FIELD LOCATE)
- SHRUB, 1 GALLON (75 TOTAL)

NOTE: LIMITS OF RIPRAP ARE NOT SHOWN.



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CITY OF COLORADO SPRINGS

MONUMENT BRANCH CHANNEL RESTORATION
 PHASE 1 - 30% BID PLAN

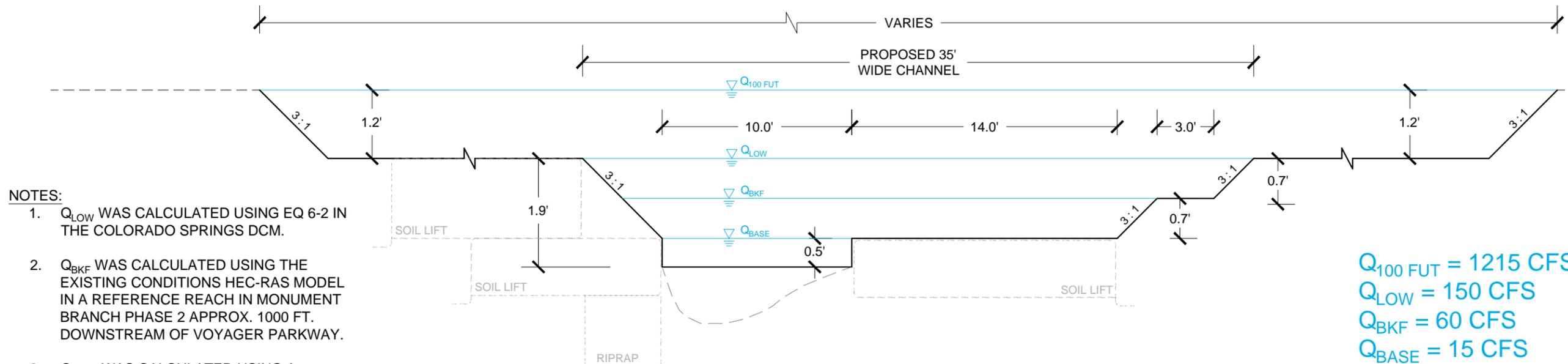
REVEGETATION PLAN

DESIGNED BY: AJS	SCALE: 1" = 100'	DATE ISSUED: September 2016	DRAWING No. RV01
CHECKED BY: RAF	HORIZ: 1" = 100'	SHEET: 10 OF 17	
	VERT: N/A		

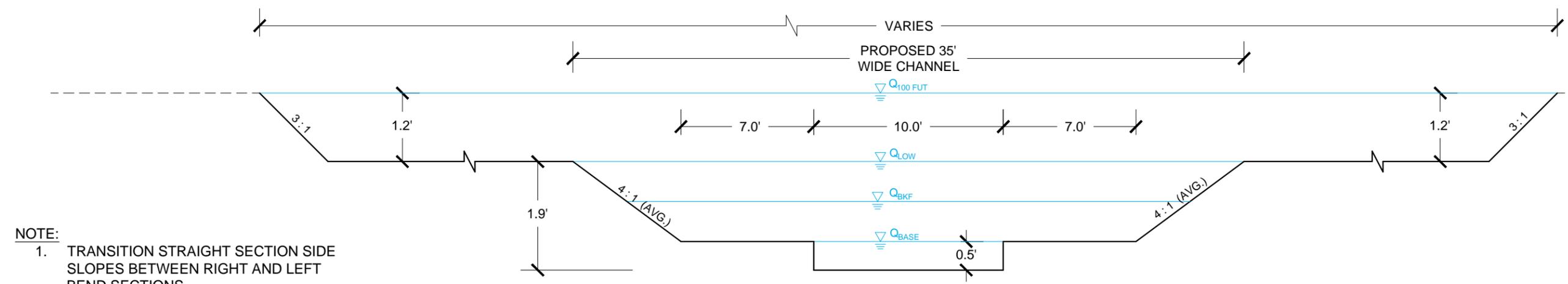
FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 16.069.072



Know what's below.
Call before you dig.



- NOTES:
1. Q_{LOW} WAS CALCULATED USING EQ 6-2 IN THE COLORADO SPRINGS DCM.
 2. Q_{BKF} WAS CALCULATED USING THE EXISTING CONDITIONS HEC-RAS MODEL IN A REFERENCE REACH IN MONUMENT BRANCH PHASE 2 APPROX. 1000 FT. DOWNSTREAM OF VOYAGER PARKWAY.
 3. Q_{BASE} WAS CALCULATED USING A REGIONAL BANKFULL REGRESSION EQUATION AND VERIFIED WITH OBSERVED REFERENCE REACH CONDITIONS.
 4. Q_{100 FUT} FROM MONUMENT CREEK WATERSHED MASTER PLAN STUDY.



- NOTE:
1. TRANSITION STRAIGHT SECTION SIDE SLOPES BETWEEN RIGHT AND LEFT BEND SECTIONS.

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PHASE 1 - 30% BID PLAN

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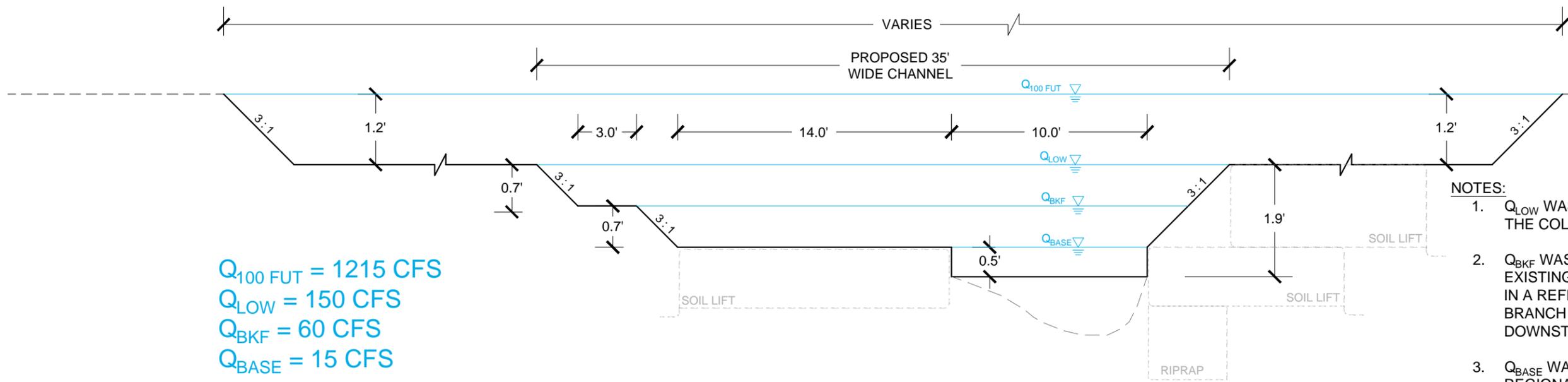
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CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
TYPICAL CHANNEL SECTION			
DESIGNED BY: AJS	SCALE: HORIZ N/A	DATE ISSUED: September 2016	DRAWING No. DT01
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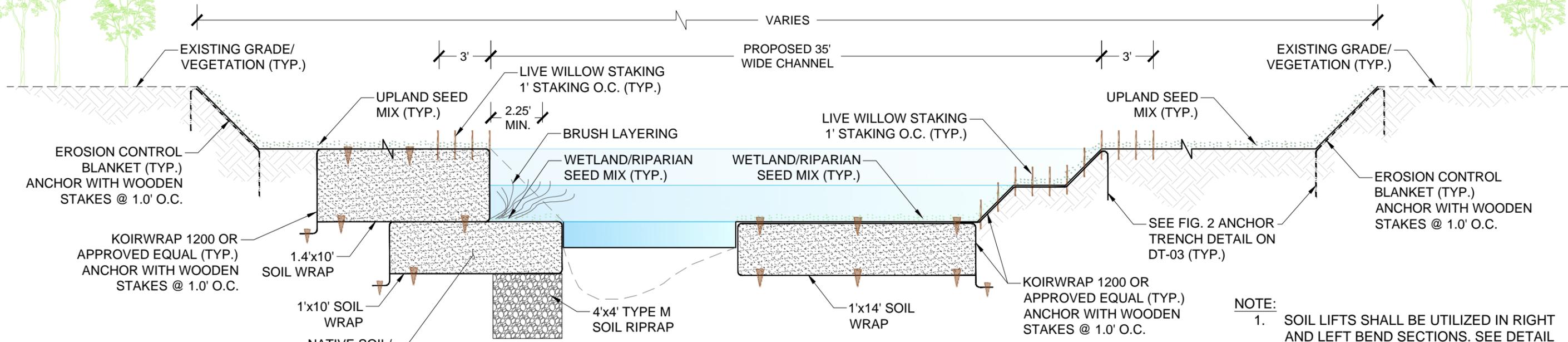
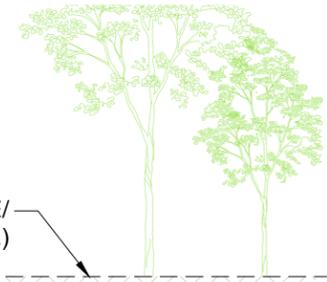
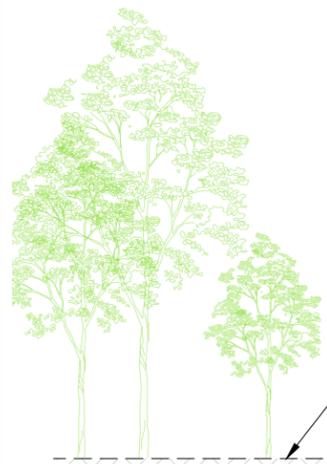


$Q_{100\text{ FUT}} = 1215\text{ CFS}$
 $Q_{\text{LOW}} = 150\text{ CFS}$
 $Q_{\text{BKF}} = 60\text{ CFS}$
 $Q_{\text{BASE}} = 15\text{ CFS}$

- NOTES:**
- Q_{LOW} WAS CALCULATED USING EQ 6-2 IN THE COLORADO SPRINGS DCM.
 - Q_{BKF} WAS CALCULATED USING THE EXISTING CONDITIONS HEC-RAS MODEL IN A REFERENCE REACH IN MONUMENT BRANCH PHASE 2 APPROX. 1000 FT. DOWNSTREAM OF VOYAGER PARKWAY.
 - Q_{BASE} WAS CALCULATED USING A REGIONAL BANKFULL REGRESSION EQUATION AND VERIFIED WITH OBSERVED REFERENCE REACH CONDITIONS.
 - $Q_{100\text{ FUT}}$ FROM MONUMENT CREEK WATERSHED MASTER PLAN STUDY.

**PHASE 1 DESIGN CHANNEL SECTION
(RIGHT BEND)**

NOT TO SCALE NOTE: 3:1 VERTICAL EXAGGERATION



PHASE 1 TYPICAL PLANTING / SEEDING / SOIL LIFT SECTION

NOT TO SCALE NOTE: 3:1 VERTICAL EXAGGERATION

- NOTE:**
- SOIL LIFTS SHALL BE UTILIZED IN RIGHT AND LEFT BEND SECTIONS. SEE DETAIL ON DT-03 FOR ADDITIONAL INFORMATION.

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PHASE 1 - 30% BID PLAN

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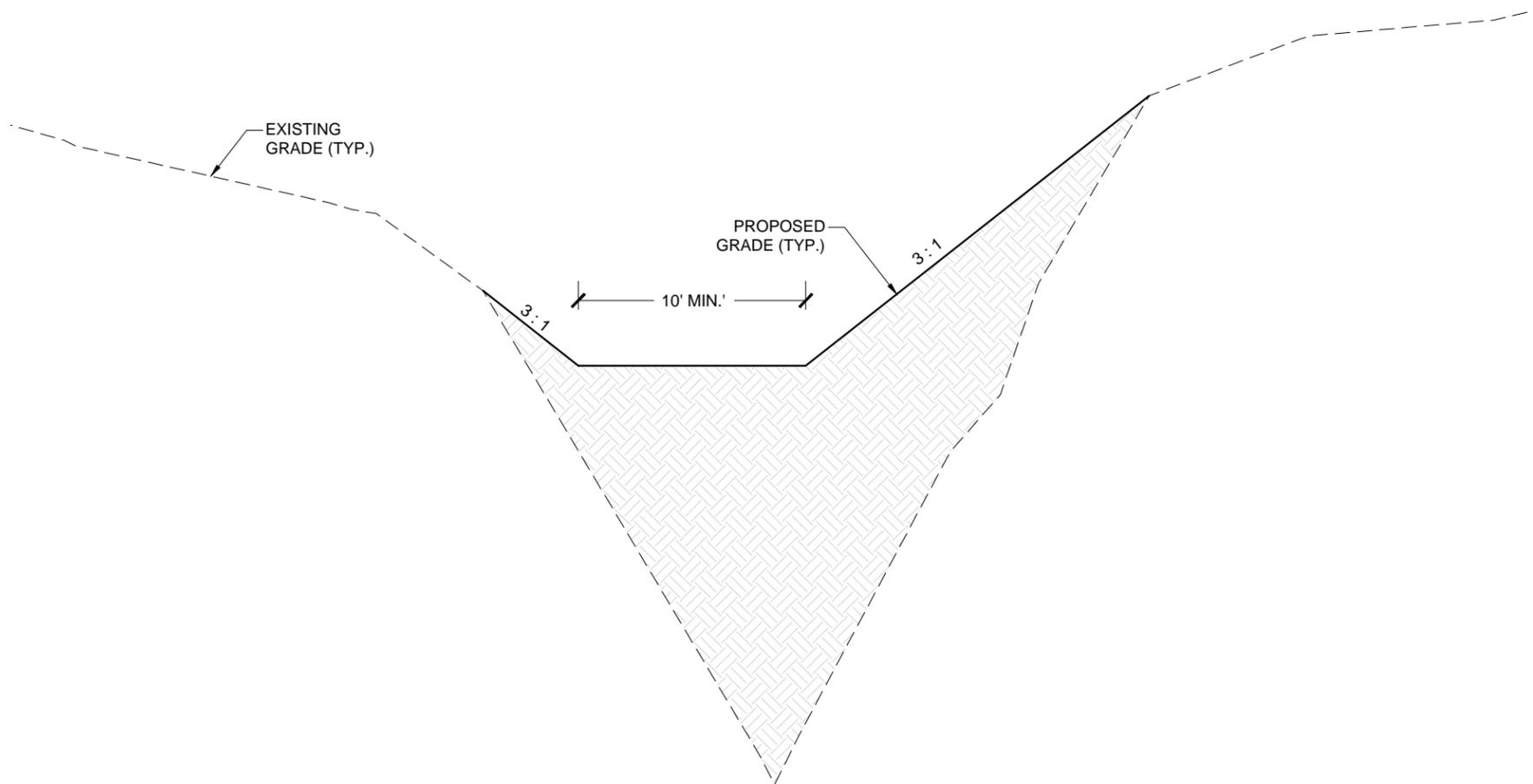
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 PROJECT No. 16.069.072

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TYPICAL CHANNEL SECTION			
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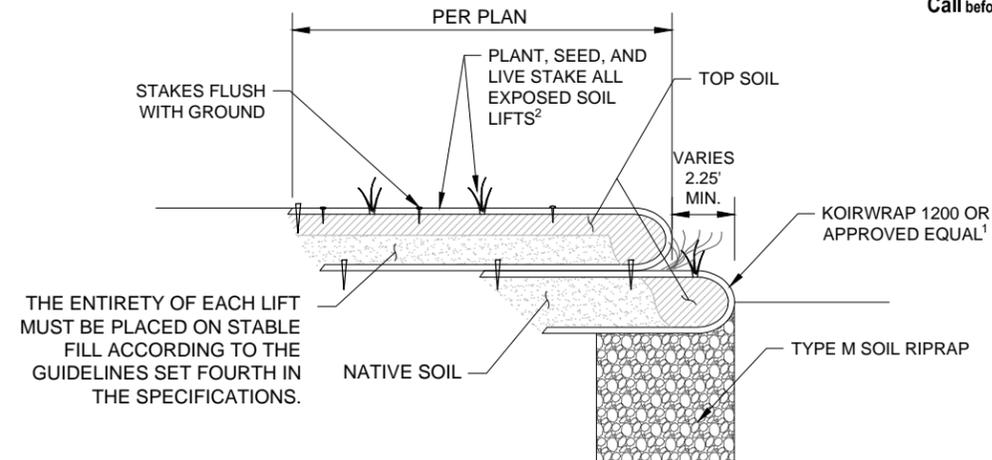


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Call before you dig.



PHASE 1 TYPICAL TRIBUTARY SECTION

NOT TO SCALE NOTE: 2:1 VERTICAL EXAGGERATION



NOTE: COMPACT SOIL TO THE REQUIRED DEGREE OF COMPACTION SPECIFIED IN SECTION 621.051 "GENERAL FILL REQUIREMENTS". SPREAD SEEDING ON THE PORTION OF THE LIFT THAT WILL BE EXPOSED TO SUNLIGHT PER THE REVEGETATION PLAN SHOWN IN THE DRAWINGS. STRETCH THE EROSION CONTROL FABRIC OVER THE COMPACTED SOIL AND EXTEND TOWARDS THE SLOPE. ANCHOR THE EROSION CONTROL FABRIC USING WEDGE STAKES AT 3' SPACING IN A KEY TRENCH. THIS BASE LIFT FORMS THE FOUNDATION FOR THE UPPER LIFTS AND PROVIDES ADEQUATE STABILITY TO THE SLOPE.

SOIL LIFT DETAIL
NTS

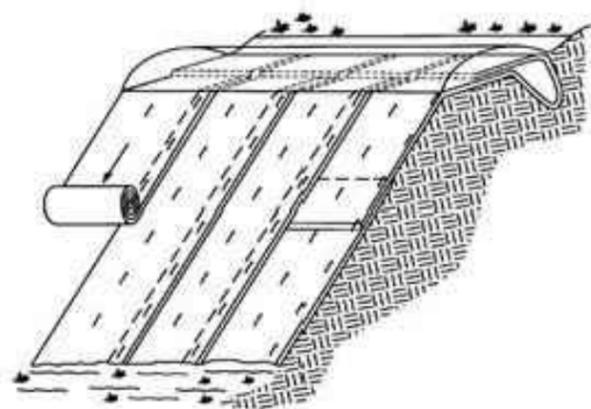


FIG. 1

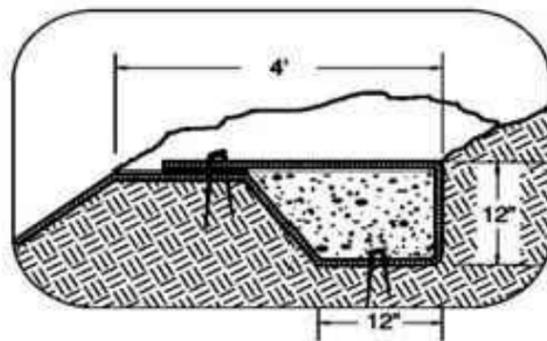


FIG. 2

KOIR WRAP (OR SIMILAR) INSTALLATION ON SLOPES

NTS

1. BEGIN AT THE TOP OF THE SLOPE AND ANCHOR BLANKETS IN A 12" DEEP AND 12" WIDE INITIAL ANCHOR TRENCH (SEE FIG.2) AND ANCHOR WITH STAPLES AT 18" SPACING.
2. UNROLL BLANKET DOWN SLOPE IN THE DIRECTION OF THE WATER FLOW (SEE FIG.1). THE BLANKET SHOULD NOT BE STRETCHED BUT SHOULD HAVE FULL CONTACT WITH THE SOIL. ANCHOR BLANKET USING STAPLES OR STAKES. SEE "STAPLE PATTERN GUIDE FOR SLOPES" ON THE BELOW.
3. OVERLAP EDGES OF ADJACENT PARALLEL ROLLS BY APPROXIMATELY 6" AND ANCHOR WITH STAPLES AT 24" TO 36" SPACING DEPENDING ON THE SLOPE.
4. WHEN BLANKETS HAVE TO BE SPLICED, PLACE UPPER BLANKET END OVER LOWER BLANKET END (SHINGLE STYLE) WITH 12" OVERLAP AND ANCHOR WITH TWO STAGGERED ROWS OF STAPLES AT 12" SPACING.
5. ANCHOR, FILL AND COMPACT ENDS OF BLANKETS IN 12" DEEP AND 6" WIDE TERMINAL ANCHOR TRENCH. ANCHOR WITH STAPLES AT 18" SPACING.

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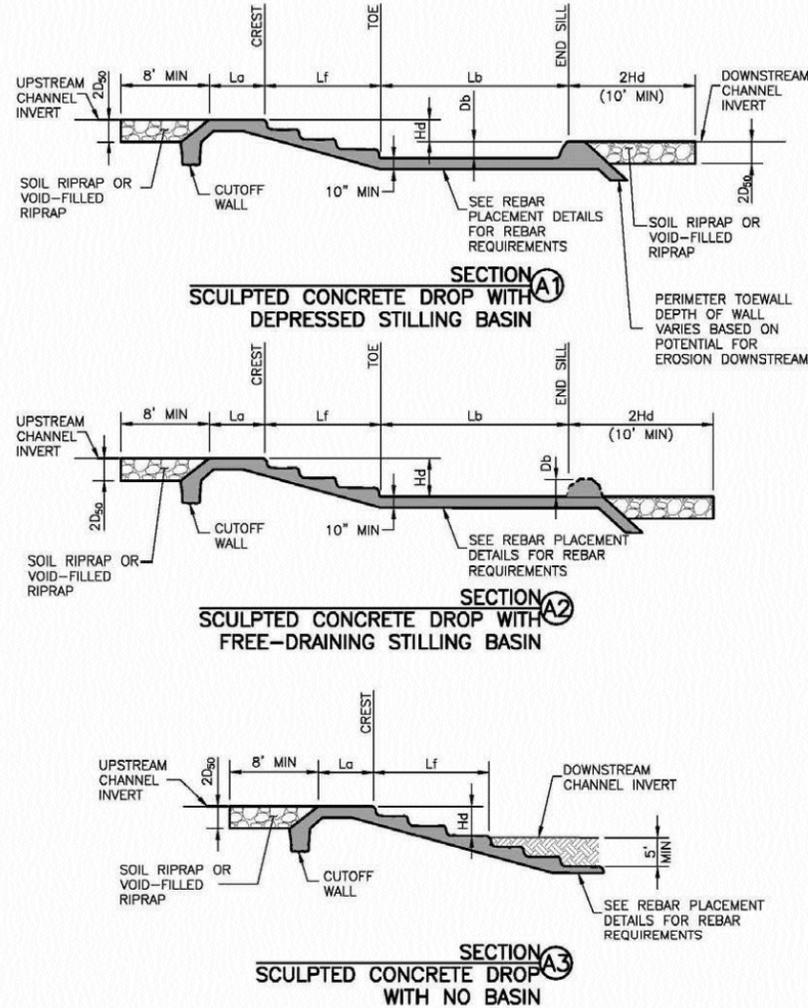
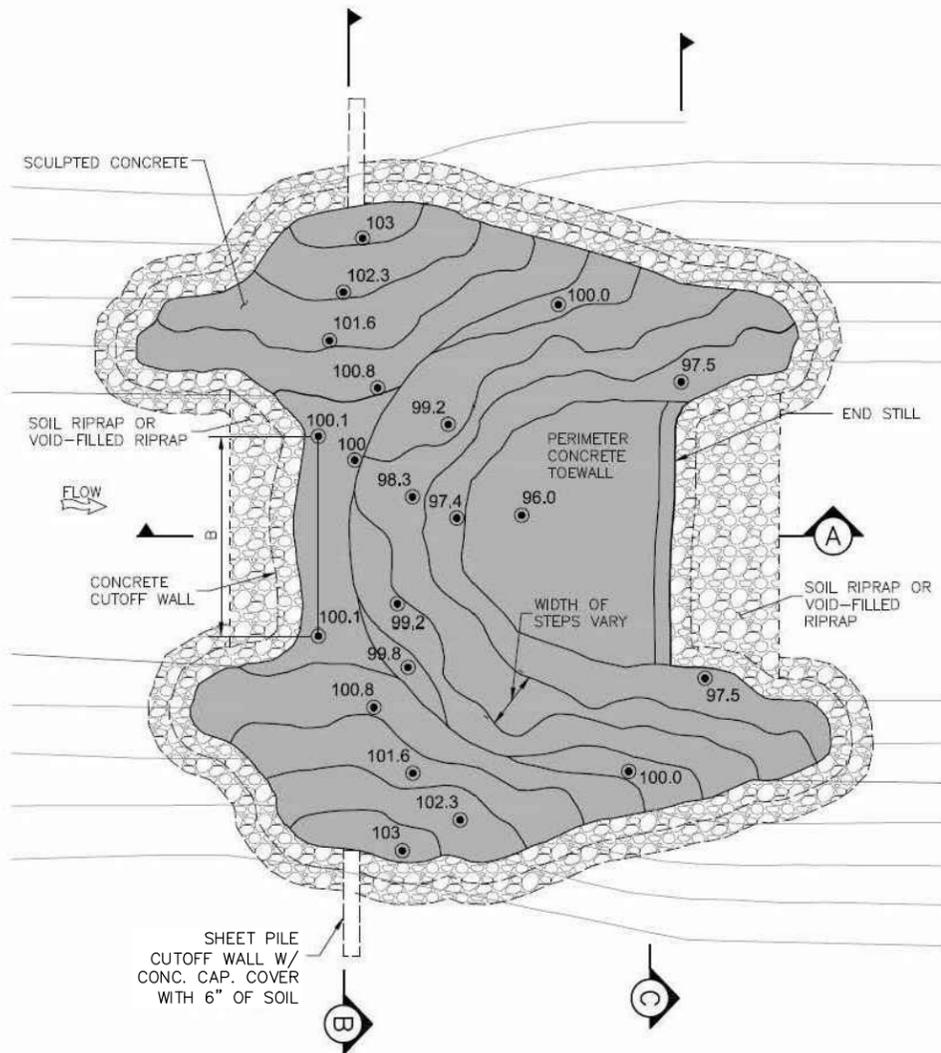
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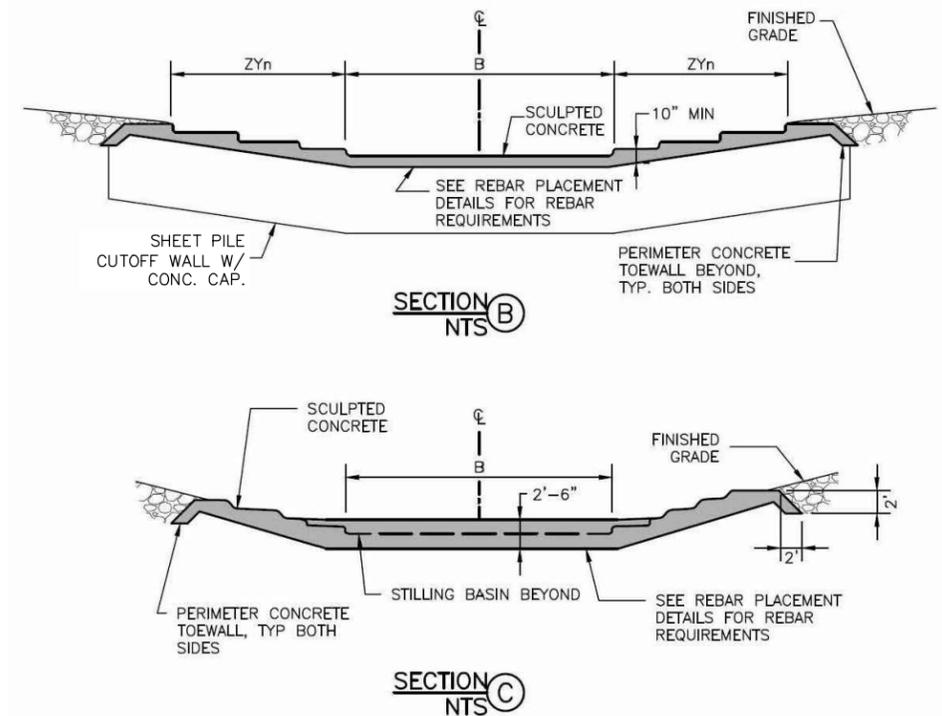
CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
TYPICAL TRIBUTARY SECTION AND CONSTRUCTION DETAILS			
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CHECKED BY: GWT			DT03



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Photograph 9-10. This drop structure located along Oak Hills Tributary represents a complex design example. CONTRACTOR MUST PROVIDE SAMPLE ON-SITE PER SPECIFICATIONS.



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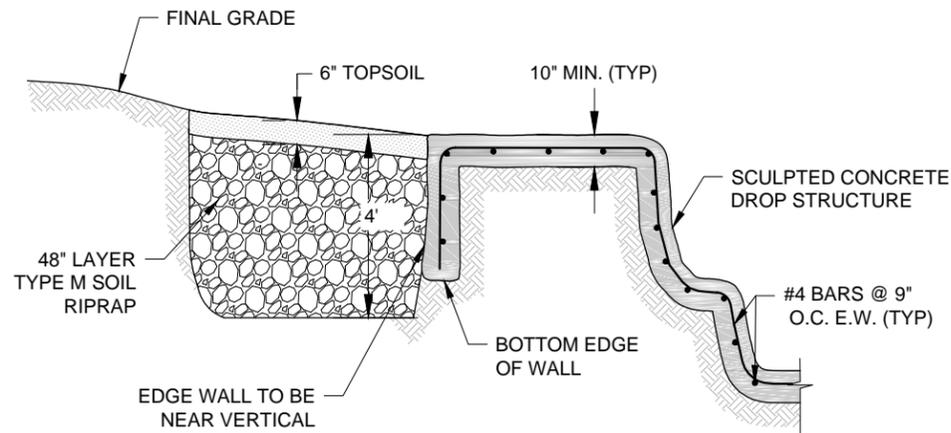
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TYPICAL GRADE CONTROL DETAILS SCULPTED CONCRETE DROP STRUCTURE			
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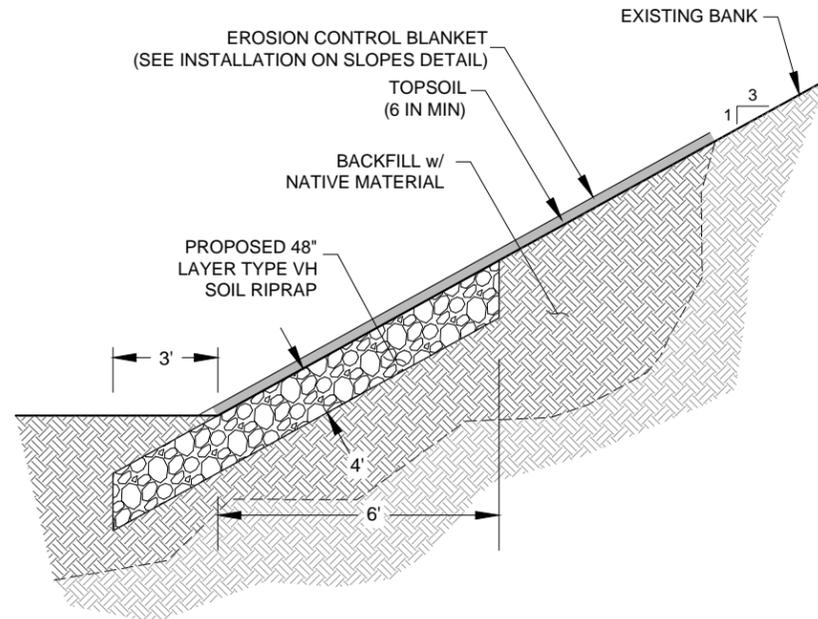
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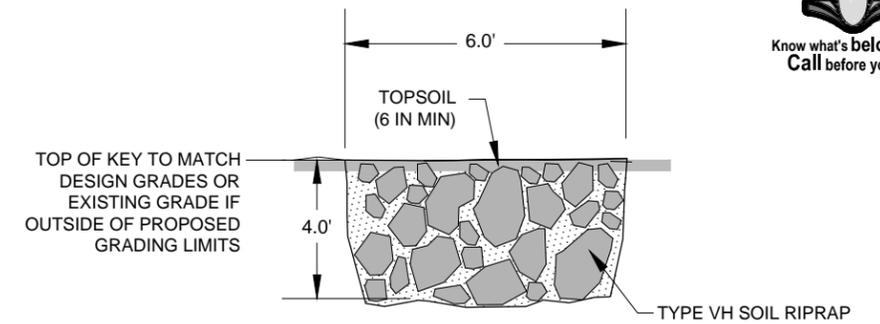
NOTES:

1. DETAIL APPLIES TO THE PERIMETER OF THE ENTIRE STRUCTURE
2. SEE THE REBAR PLACEMENT DETAIL FOR CLEARANCE FROM TOP AND BOTTOM OF THE STRUCTURE

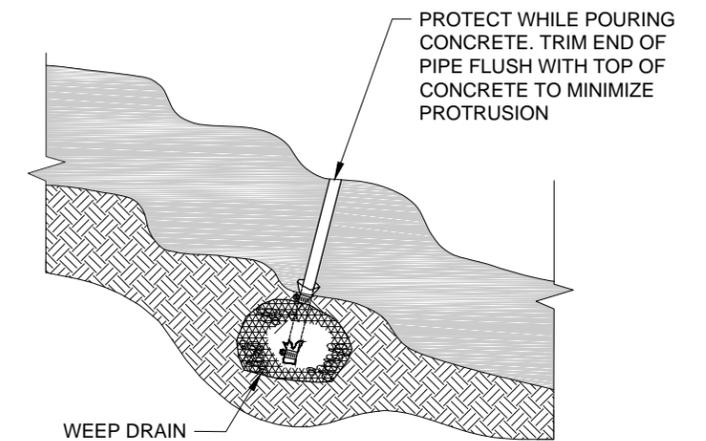
STRUCTURE EDGE WALL DETAIL (SC)
NTS



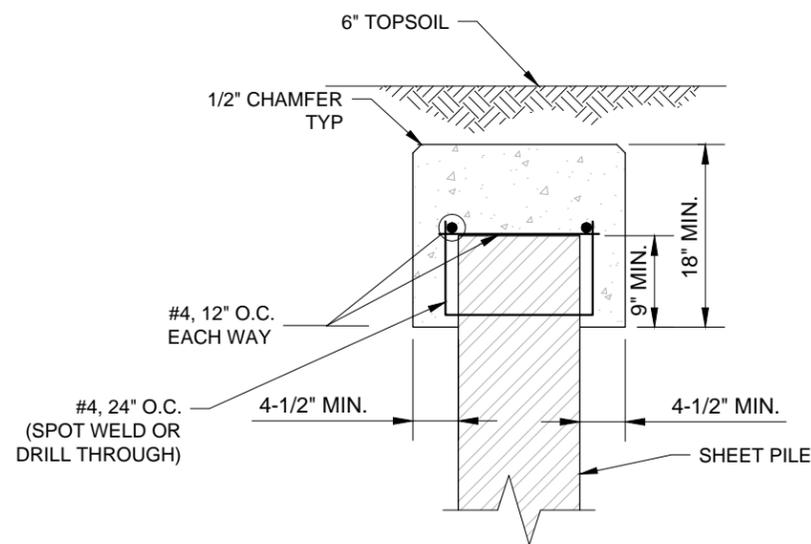
RIPRAP TOE PROTECTION
NTS



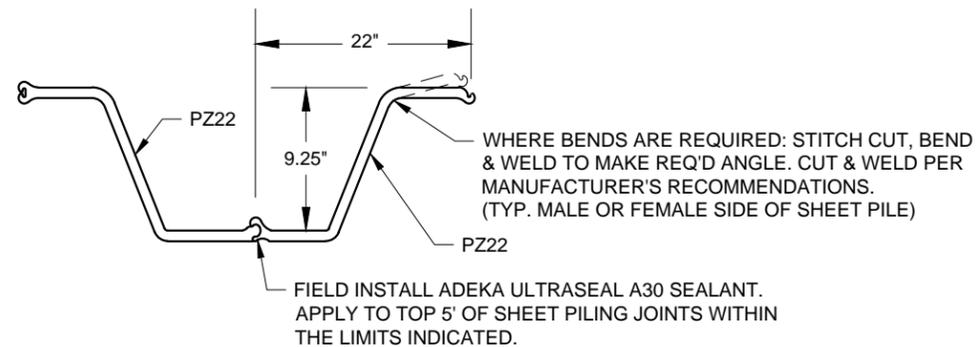
TYPICAL SECTION - BURIED RIPRAP KEY
NTS



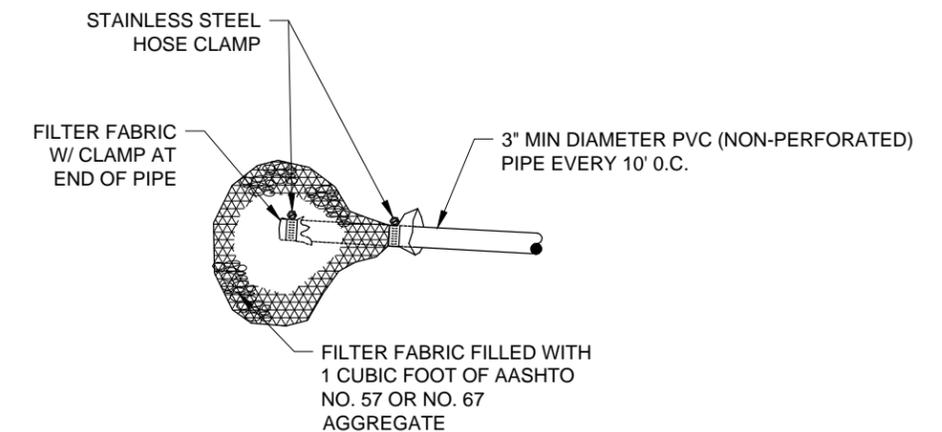
WEEP DRAINS (SCULPTED CONCRETE)
NTS



CONCRETE SHEET PILE CAP
NTS



PZ22 SHEET PILE DETAIL
NTS



WEEP DRAINS (SCULPTED CONCRETE)
NTS

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PHASE 1 - 30% BID PLAN

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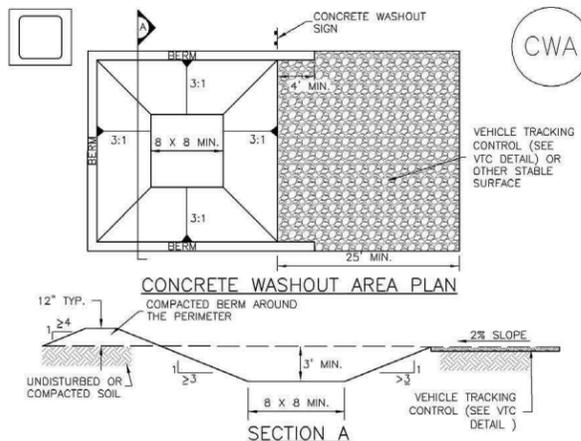
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<p>FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC. PROJECT No. 16.069.072</p>		<p>DESIGNED BY: AJS DRAWN BY: RAF CHECKED BY: GWT</p>	<p>SCALE: HORIZ N/A VERT. N/A</p> <p>DATE ISSUED: September 2016 SHEET 15 OF 17</p> <p>DRAWING No. DT05</p>



Know what's below.
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Concrete Washout Area (CWA)

MM-1



CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR: -CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

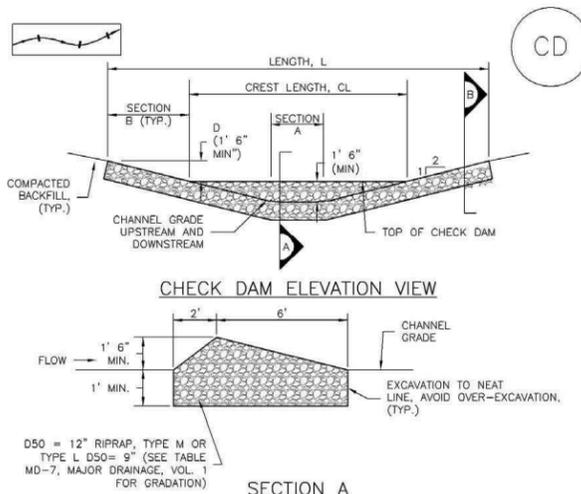
November 2010

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

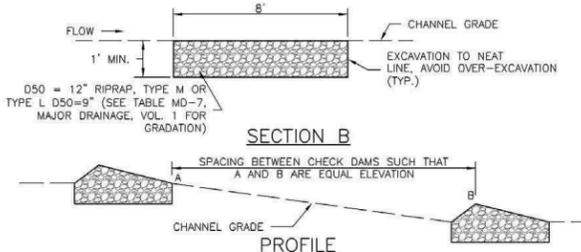
CWA-3

Check Dams (CD)

EC-12



CD-1. CHECK DAM



November 2010

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

CD-3

EC-12

Check Dams (CD)

CHECK DAM INSTALLATION NOTES

- SEE PLAN VIEW FOR: -LOCATION OF CHECK DAMS. -CHECK DAM TYPE (CHECK DAM OR REINFORCED CHECK DAM). -LENGTH (L), CREST LENGTH (CL), AND DEPTH (D).
- CHECK DAMS INDICATED ON INITIAL SWMP SHALL BE INSTALLED AFTER CONSTRUCTION FENCE, BUT PRIOR TO ANY UPSTREAM LAND DISTURBING ACTIVITIES.
- RIPRAP UTILIZED FOR CHECK DAMS SHOULD BE OF APPROPRIATE SIZE FOR THE APPLICATION. TYPICAL TYPES OF RIPRAP USED FOR CHECK DAMS ARE TYPE M (D50 12") OR TYPE L (D50 9").
- RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'.
- THE ENDS OF THE CHECK DAM SHALL BE A MINIMUM OF 1' 6" HIGHER THAN THE CENTER OF THE CHECK DAM.

CHECK DAM 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.
- SEDIMENT ACCUMULATED UPSTREAM OF THE CHECK DAMS SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS WITHIN 1/2 OF THE HEIGHT OF THE CREST.
- CHECK DAMS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN CHECK DAMS ARE REMOVED, EXCAVATIONS SHALL BE FILLED WITH SUITABLE COMPACTED BACKFILL. DISTURBED AREA SHALL BE SEEDDED AND MULCHED AND COVERED WITH GEOTEXTILE OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

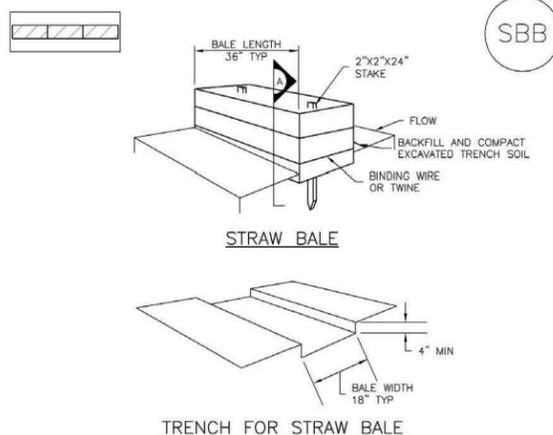
CD-4

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Urban Storm Drainage Criteria Manual Volume 3

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SC-3

Straw Bale Barrier (SBB)



TRENCH FOR STRAW BALE

SBB-2

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

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Straw Bale Barrier (SBB)

SC-3

STRAW BALE INSTALLATION NOTES

- SEE PLAN VIEW FOR: -LOCATION(S) OF STRAW BALES.
- STRAW BALES SHALL CONSIST OF CERTIFIED WEED FREE STRAW OR HAY. LOCAL JURISDICTIONS MAY REQUIRE PROOF THAT BALES ARE WEED FREE.
- STRAW BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF STRAW OR HAY AND WEIGH NOT LESS THAN 35 POUNDS.
- WHEN STRAW BALES ARE USED IN SERIES AS A BARRIER, THE END OF EACH BALE SHALL BE TIGHTLY ABUTTING ONE ANOTHER.
- STRAW BALE DIMENSIONS SHALL BE APPROXIMATELY 36"x18"x18".
- A UNIFORM ANCHOR TRENCH SHALL BE EXCAVATED TO A DEPTH OF 4". STRAW BALES SHALL BE PLACED SO THAT BINDING TWINE IS ENCOMPASSING THE VERTICAL SIDES OF THE BALE(S). ALL EXCAVATED SOIL SHALL BE PLACED ON THE UPHILL SIDE OF THE STRAW BALE(S) AND COMPACTED.
- TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE 2"x2"x24". WOODEN STAKES SHALL BE DRIVEN 6" INTO THE GROUND.

STRAW BALE MAINTENANCE NOTES

- 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.
- STRAW BALES SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR DAMAGED BEYOND REPAIR.
- SEDIMENT ACCUMULATED UPSTREAM OF STRAW BALE BARRIER SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE STRAW BALE BARRIER.
- STRAW BALES ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
- WHEN STRAW BALES ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAILS ADAPTED FROM TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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PHASE 1 - 30% BID PLAN

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PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
EROSION CONTROL DETAILS			
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Know what's below.
Call before you dig.

SC-1

Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

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

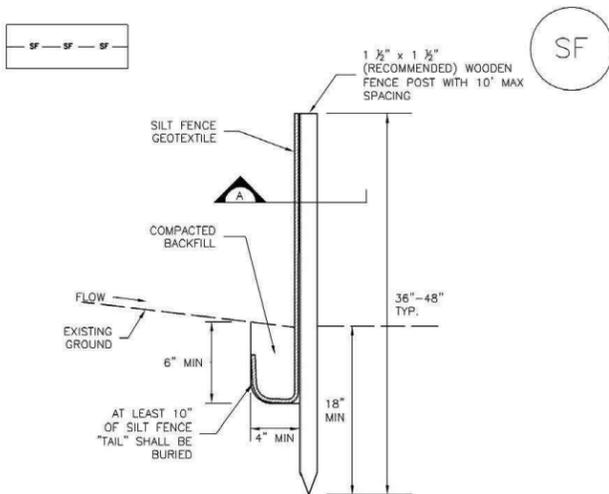
SILT FENCE MAINTENANCE NOTES

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

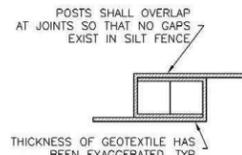
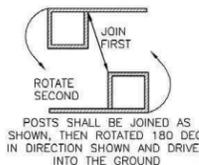
(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

Silt Fence (SF)

SC-1



SILT FENCE

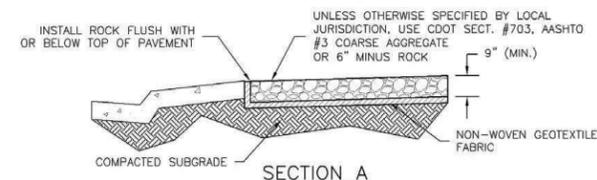
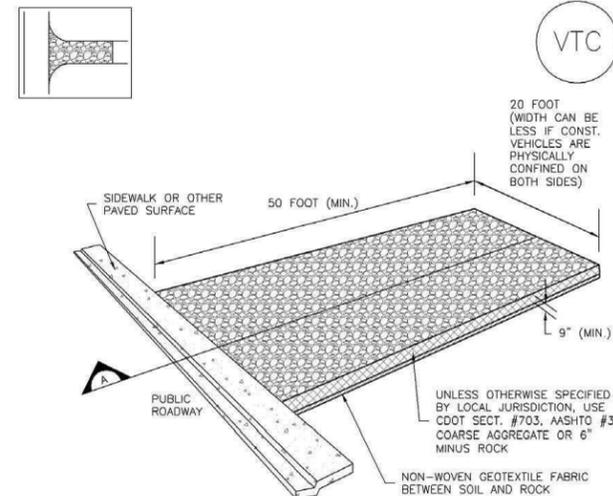


SECTION A

SF-1. SILT FENCE

Vehicle Tracking Control (VTC)

SM-4



VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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

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

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

1. SEE PLAN VIEW FOR
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXITS(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
2. 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.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. 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

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
 5. 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)

REFERENCE DRAWINGS	No.	DATE	DESCRIPTION REVISIONS	BY
X-069-MDG22x34				
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CTB FILE: Matrix(black).ctb				
PLOT DATE: September 6, 2016 5:37:33 PM				
THIS DRAWING IS CURRENT AS OF PLOT DATE AND MAY BE SUBJECT TO CHANGE.				

PHASE 1 - 30% BID PLAN

NOTICE:
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FOR AND ON BEHALF OF
MATRIX DESIGN GROUP, INC.
PROJECT No. 16.069.072

CITY OF COLORADO SPRINGS			
MONUMENT BRANCH CHANNEL RESTORATION PHASE 1 - 30% BID PLAN			
EROSION CONTROL DETAILS			
DESIGNED BY: AJS	SCALE: HORIZ N/A	DATE ISSUED: September 2016	DRAWING No. DT07
CHECKED BY: RAF	VERT. N/A	SHEET 17 OF 17	