STORM DRAINAGE INFRASTRUCTURE NOTES

1. ALL STORM DRAINAGE IMPROVEMENTS ARE SUBJECT TO COMPLIANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, M & S STANDARDS, AND ALL STANDARD SPECIAL PROVISIONS CURRENTLY USED BY CDOT, WITH THE MODIFICATIONS SET FORTH IN THE TOWN OF PARKER'S STORM DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL (SDECM), AS AMENDED.

2. THE CONTRACTOR SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8 CRS), THE "PROTECTION OF FISHING STREAMS" TITLE 33, ARTICLE 5, CRS), THE "CLEAN WATER ACT" (33 USC 1344), "CHERRY CREEK RESERVOIR CONTROL REGULATION NO. 72" (5 CCR 1002–72), THE REGULATION PROMULGATED, CERTIFICATION OR PERMITS ISSUES, AND THE REQUIREMENTS PRESENTED IN THE SDECM REVISION TO SECTION 107 AND THE CONSTRUCTION BMP PLAN. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND WATER QUALITY CONTROL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, OR STATE AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

3. INSPECTIONS: CONSTRUCTION SHALL NOT BEGIN UNTIL A GRADING PERMIT HAS BEEN ISSUED FOR THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN OF PARKER ENGINEERING DEPARTMENT (PUBLIC WORKS) TO SCHEDULE INSPECTIONS A MINIMUM OF 48 HOURS PRIOR THE CONSTRUCTION OF ALL DRAINAGE INFRASTRUCTURE (STORM SEWERS, INLETS, MANHOLES, ENERGY DISSIPATERS, RIPRAP, GROUTED BOULDERS, DETENTION POND OUTLET STRUCTURES, FOREBAYS, TRICKLE CHANNELS, ETC). FAILURE TO NOTIFY THE ENGINEERING DEPARTMENT FOR INSPECTIONS MAY RESULT IN NON–ACCEPTANCE OF THE INFRASTRUCTURE BY THE TOWN. URBAN DRAINAGE AND FLOOD CONTROL DISTRICT MUST ALSO BE NOTIFIED IN A SIMILAR MANNER FOR ALL MAINTENANCE ELIGIBLE DRAINAGE INFRASTRUCTURES (CONSULT WITH STORMWATER ENGINEERING DIVISION).

4. STRUCTURAL BACKFILL (CDOT CLASS 1) SHALL BE COMPACTED TO CONFORM TO CDOT STANDARD SPECIFICATION 203.03. STRUCTURAL BACKFILL (CDOT CLASS 2) SHALL CONFORM TO CDOT STANDARD SPECIFICATION 203.07. AT THE CONTRACTOR'S OPTION, STRUCTURAL BACKFILL (SQUEEGEE) MEETING THE GRADATION REQUIREMENTS CONTAINED IN REVISION OF SECTION 206 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM, MAY BE SUBSTITUTED FOR STRUCTURE BACKFILL (CLASS 1) OR CLASS 2) FOR BACKFILLING OF CULVERT PIPES, STORM SEWER PIPES, MANHOLES AND INLET STRUCTURES; HOWEVER, THE TOP 2 FEET BELOW SUBGRADE ELEVATION SHALL BE THE REQUIRED EMBANKMENT MATERIAL.

5. ALL EXCAVATIONS SHALL MEET OSHA REQUIREMENTS.

6. TESTING: PROBATIONARY ACCEPTANCE OF STORM DRAINAGE IMPROVEMENTS WILL BE CONTINGENT UPON SATISFACTORY TESTING RESULTS. IN ALL CASES WHERE TESTS INDICATE COMPACTION LESS THAN THAT REQUIRED BY TOWN SPECIFICATIONS, ADDITIONAL COMPACTION AND TESTS WILL BE REQUIRED UNTIL THE SPECIFICATIONS ARE MET. FREQUENCY OF TESTING WILL BE AS FOLLOWS:
1 TEST FOR SUBGRADE AND 1 TEST FOR BACKFILL AT EVERY ABOVE GROUND APPURTENANCE (MANHOLES, INLETS, ETC)
1 TEST EVERY 200 LF OF MAINLINE TRENCH EVERY 1 FOOT OF BACKFILL LIFT AND WITHIN 1 FOOT FROM ALL STRUCTURES.

7. ALLOWABLE STORM SEWER CONDUIT MATERIAL WITHIN THE TOWN OF PARKER SHALL BE LIMITED TO REINFORCED CONCRETE PIPE (RCP) CONFORMING TO CDOT STANDARD SPECIFICATION 706.02.

8. ALL RCP JOINTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C443. RUBBER GASKETS SHALL BE USED ON ALL PIPE JOINTS CONFORMING TO ASTM C443. ALL RCP SECTIONS SHALL BE JOINED IN SUCH A MANNER THAT THE ENDS ARE FULLY ENTERED AND THE INNER SURFACES ARE REASONABLE FLUSH. AVERAGE JOINT GAP THAT EXCEEDS ½ INCH SHALL BE FILLED WITH AN APPROVED FLEXIBLE PLASTIC SEALANT.

9. JOINT RESTRAINTS AND TOE–WALLS, CONFORMING TO CDOT M&S STANDARD PLAN NO. M–601–11 SHALL BE USED ON ALL RCP FLARED END SECTION OUTFALLS.

10. EPOXY COATED REBAR SHALL BE USED AS REINFORCING STEEL ON ALL STORM INLETS AND STRUCTURES. REFERENCE CDOT M&S STANDARD PLAN NO. M–604–10, 11, 12, AND 13.

11. CDOT CLASS D CONCRETE SHALL BE USED FOR ALL CONCRETE DRAINAGE STRUCTURES.

12. PRE–CAST INLETS AND MANHOLE BASES SHALL NOT BE USED WITHIN THE TOWN OF PARKER RIGHT–OF–WAY, WITH THE EXCEPTION OF CDOT TYPE C AND D INLETS.

13. TWO– (2) MANHOLE ACCESS POINTS ARE REQUIRED ON ALL TYPE "R" CURB INLETS GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH AS PRESENTED IN CDOT M&S STANDARD PLAN NO. M–604–12.

14. ALL GROUTING (BOULDERS, RIPRAP) SHALL BE IN ACCORDANCE WITH THE REVISION OF SECTION 506 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM.

15. ALL BOULDERS AND RIPRAP SHALL BE SELECTED AND PLACED IN ACCORDANCE WITH THE REVISION OF SECTION 506 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM.

16. CONTRACTOR SHALL REFER TO THE TOWN OF PARKER'S CONSTRUCTION BEST MANAGEMENT PRACTICES DETAILS AND NOTES FOR ALL REQUIREMENTS RELATING TO RE–VEGETATION, SEDIMENT AND EROSION CONTROL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES.

17. PIPE BELLS SHALL NOT BE CAST INTO MANHOLE BASES OR INLETS.

DROP STRUCTURE TABULATION

INDEX			ITEM NO.	CONTRACT ITEM	UNIT	GSB	
BOOK	PAGE	SHEET				PLAN	AS CONST.
			206	FILTER MATERIAL (CLASS A)	CY	1690	
			206	FILTER MATERIAL (CLASS C)	CY	61	
			206	STRUCTURE EXCAVATION	CY	130	
			206	STRUCTURE BACKFILL (CLASS 1)	CY	118	
			207	TOPSOIL	CY	832	
			501	STEEL SHEET PILING (TYPE II)	SF	11710	
			506	RIPRAP (12 INCH)	CY	76	
			506	SOIL RIPRAP (12 INCH)	CY	2884	
			506	SOIL RIPRAP (18 INCH)	CY	977	
			506	24 INCH GROUTED BOULDER	CY	602	
			601	CONCRETE CLASS D (BOX CULVERT)	CY	47	
			602	REINFORCING STEEL	LB	2352	
			602	REINFORCING STEEL (EPOXY COATED)	LB	740	
			603	48 INCH REINFORCED CONCRETE PIPE (CIP)	LF	187	
			603	48 INCH REINFORCED CONCRETE END SECTION	EA	1	
			603	10X3 FOOT CONCRETE BOX CULVERT (PRECAST)	LF	90	
			604	INLET TYPE D (10 FOOT)	EA	1	
			604	INLET SPECIAL	EA	1	
			619	8 INCH PLASTIC PIPE	LF	268	

NOTES:

1. 24 INCH GROUTED RIPRAP SHALL BE PAID FOR AS 24 INCH GROUTED BOULDERS.
2. SEE CBMP PLANS FOR TABULATION OF EROSION CONTROL ITEMS.
3. FOR UNCLASSIFIED EXCAVATION SEE EARTHWORK SUMMARY. COST OF EXCAVATION FOR ALL GROUTED BOULDERS AND SOIL RIPRAP IS INCLUDED IN THE COST OF THE BID ITEM.
4. DROP STRUCTURE TABULATION QUANTITIES HAVE BEEN CARRIED FORWARD TO THE SUMMARY OF APPROXIMATE QUANTITIES SHEETS.
5. 10X3 FOOT CONCRETE BOX CULVERT (PRECAST) QUANTITY SHOWN IS FOR THE DUAL BOX CULVERT AT CHEROKEE TRAIL.
6. THE PRESENCE OF GROUNDWATER IS ANTICIPATED AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING DURING CONSTRUCTION FOR ALL STORM SEWER AND DROP STRUCTURE INFRASTRUCTURE. DEWATERING SHALL BE INCLUDED IN THE COST OF THE WORK AND NOT PAID FOR SEPARATELY.
7. THE SUGGESTED SEQUENCING FOR DEWATERING WHEN CONSTRUCTING THE DROP STRUCTURES INCLUDES CONSTRUCTING THE SHEET PILE CUTOFF WALLS FIRST, THEN INSTALLING DEWATERING WELLS OR TRENCHES TO DEWATER BELOW THE PROPOSED LOWEST EXCAVATION LIMITS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL APPLICABLE DEWATERING PERMITS AND TREATMENT (AS REQUIRED) OF DISCHARGE FROM DEWATERING OPERATIONS.

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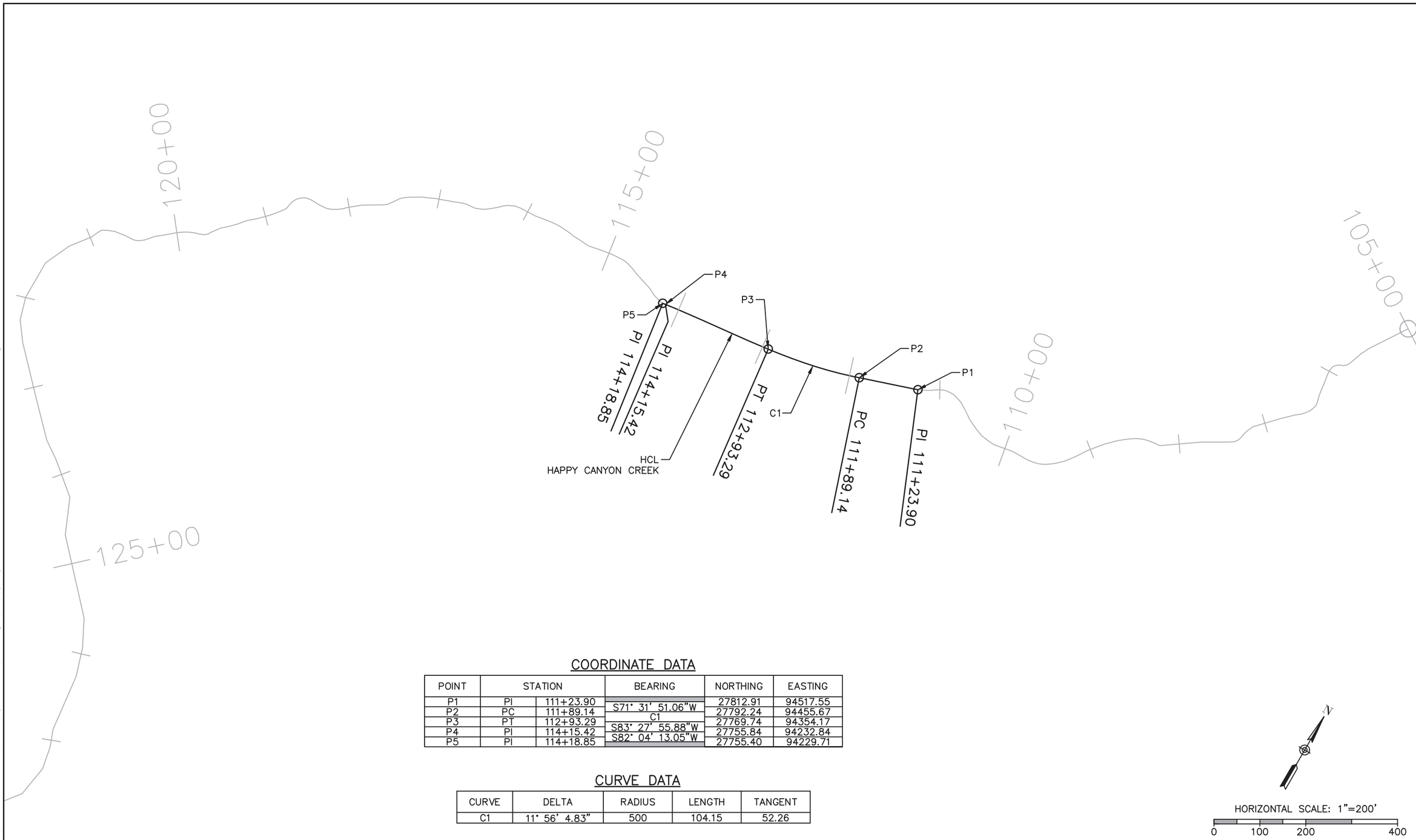
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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE TABULATION

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	Drainage	Sheets:	DD–01 of 22

Project No./Code

Sheet Number 65



COORDINATE DATA

POINT	STATION		BEARING	NORTHING	EASTING
P1	PI	111+23.90		27812.91	94517.55
P2	PC	111+89.14	S71° 31' 51.06"W	27792.24	94455.67
P3	PT	112+93.29	C1	27769.74	94354.17
P4	PI	114+15.42	S83° 27' 55.88"W	27755.84	94232.84
P5	PI	114+18.85	S82° 04' 13.05"W	27755.40	94229.71

CURVE DATA

CURVE	DELTA	RADIUS	LENGTH	TANGENT
C1	11° 56' 4.83"	500	104.15	52.26

HORIZONTAL SCALE: 1"=200'

0 100 200 400

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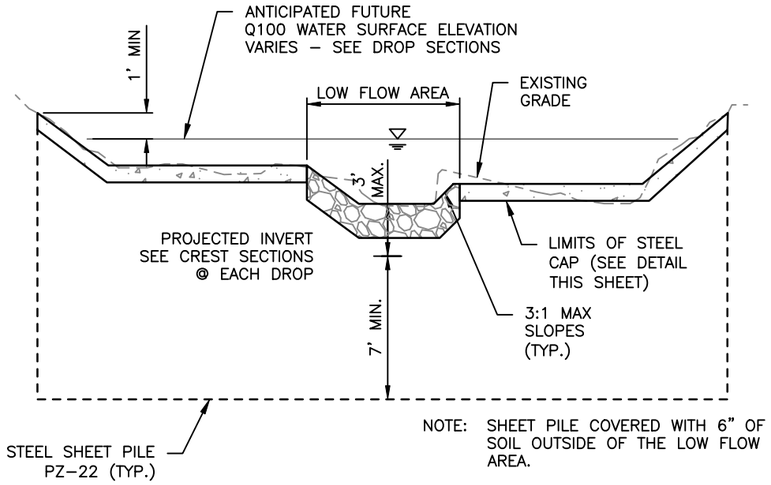
BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
HCL GEOMETRY LAYOUT

Designer: CDT
Detailer: KLT
Subset: Drainage
Structure Numbers:
Sheets: DD-02 of 22

Project No./Code

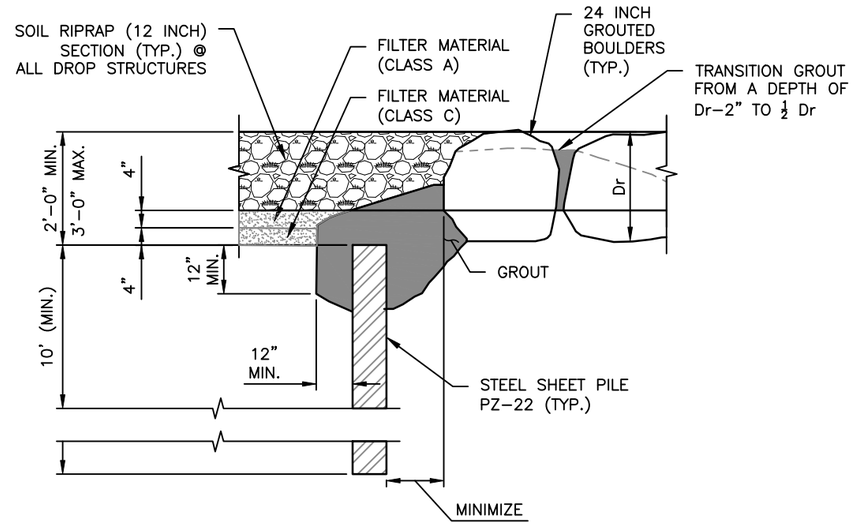
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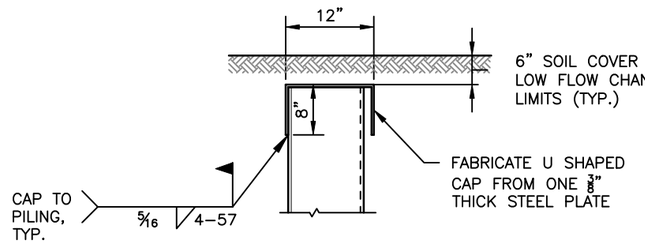
SHEET PILE TYPICAL SECTION

N.T.S.



SHEET PILE CUTOFF CONNECTION (GROUTED BOULDER)

N.T.S.



NOTE: STEEL CAP REQUIRED OUTSIDE OF GROUTED BOULDER SECTION ONLY. ALL INCIDENTAL ITEMS REQUIRED FOR THE STEEL SHEET PILE CAP SHALL BE INCLUDED IN THE COST OF STEEL SHEET PILING (TYPE II).

STEEL SHEET PILE CAP DETAIL

N.T.S.

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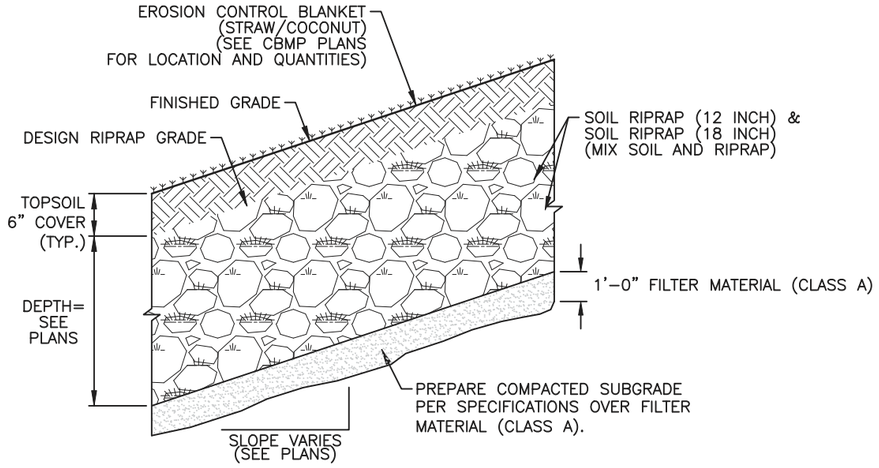
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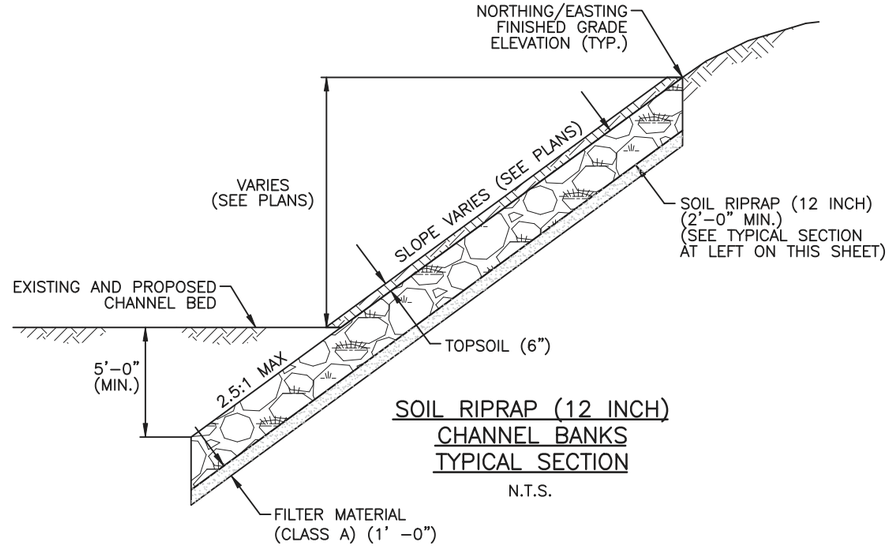
As Constructed	BELFORD–HAPPY CANYON CREEK HAPPY CANYON CREEK DROP STRUCTURE SHEET PILE DETAILS			Project No./Code
No Revisions:				
Revised:	Designer: CDT	Structure Numbers		
Void:	Detailer: KLT			Sheet Number 67
	Subset: Drainage	Sheets: DD–03 of 22		

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SOIL RIPRAP (12 INCH) & SOIL RIPRAP (18 INCH)
TYPICAL SECTION

N.T.S.



SOIL RIPRAP (12 INCH)
CHANNEL BANKS
TYPICAL SECTION

N.T.S.

RIPRAP AND SOIL RIPRAP GRADATION				
UDFCD RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D_{50}* (INCHES)	BID ITEM DESCRIPTION
TYPE M	70 – 100	21	12	RIPRAP (12 INCH)
	50 – 70	18		
	35 – 50	12		SOIL RIPRAP (12 INCH)
	2 – 10	4		
TYPE H	70 – 100	30	18	RIPRAP (18 INCH)
	50 – 70	24		
	35 – 50	18		SOIL RIPRAP (18 INCH)
	2 – 10	6		
TYPE VH	70 – 100	42	24	24 INCH GROUTED BOULDER
	50 – 70	33		
	35 – 50	24		
	2 – 10	9		

SOIL RIPRAP (12 INCH) & SOIL RIPRAP (18 INCH) NOTES:

1. ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2–INCHES GREATER THAN THE THICKNESS SHOWN.

2. WHERE "SOIL RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE–MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: 65% RIPRAP AND 35% SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKED LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERKAL CONSIST PRIMARILY OF SOIL; THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT SOIL.

3. WHERE SPECIFIED (TYPICALLY AS "BURIED SOIL RIPRAP"), A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF THE MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.

4. ALL SOIL RIPRAP THAT IS BURIED WITH THE TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

2. CRIMP MULCH AS CALLED FOR IN THE CBMP PLANS AND SPECIFICATIONS.

3. SEE DD–03 FOR SOIL RIPRAP AT DROP STRUCTURES.

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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DETAILS

Designer: CDT
Detailer: KLT
Subset: Drainage
Structure Numbers:
Sheets: DD–04 of 22

Project No./Code:
Sheet Number 68

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GROUT NOTES

BOULDER PLACEMENT NOTES:

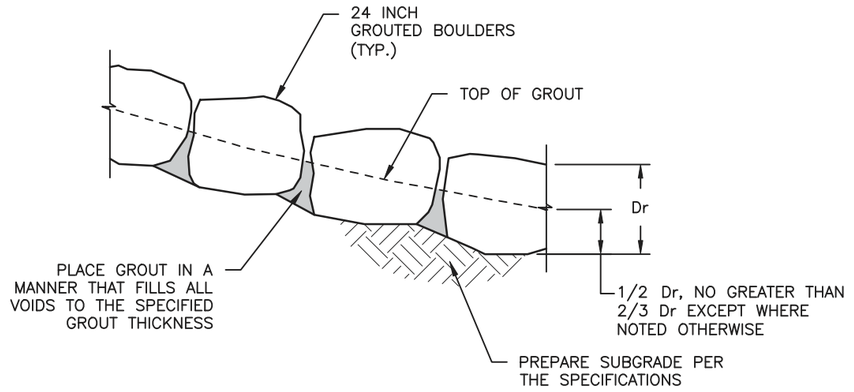
1. PLACE BOULDERS WITH THE REQUIRED BOULDER HEIGHT VERTICAL. PLACE BOULDERS AS TIGHTLY TOGETHER AS POSSIBLE (WITHOUT TOUCHING) WHILE PROVIDING ENOUGH ROOM BETWEEN THEM TO THOROUGHLY VIBRATE THE GROUT AND TO ENSURE NO GAPS IN THE GROUT. THE SMALL DIMENSION OF A 2X4 CAN BE USED AS A GUIDE TO CHECK MINIMUM SPACING.
2. BEFORE GROUTING, CLEAN ALL DIRT AND MATERIAL FROM ROCK THAT COULD PREVENT THE GROUT FROM BINDING TO THE ROCK. KEEP BOULDERS FROM TOUCHING. AVOID SLIDING BOULDERS AGAINST SUBGRADE TO PROPERLY POSITION.

MATERIAL SPECIFICATIONS:

1. ALL GROUT SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH EQUAL TO 3200 PSI.
2. ONE CUBIC YARD OF GROUT SHALL HAVE A MINIMUM OF SIX (6) SACKS OF TYPE II PORTLAND CEMENT.
3. A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.
4. THE AGGREGATE SHALL BE COMPRISED OF 70% NATURAL SAND (FINES) AND 30% 3/8–INCH ROCK (COARSE).
5. THE GROUT SLUMP SHALL BE BETWEEN 4–INCHES TO 6–INCHES.
6. AIR ENTRAINMENT SHALL BE BETWEEN 5.5% AND 7.5%.
7. TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.
8. COLOR ADDITIVE IN REQUIRED AMOUNTS SHALL BE USED WHEN SO SPECIFIED BY CONTRACT.

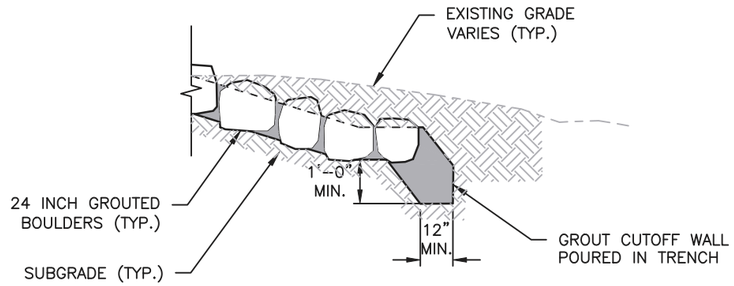
GROUT PLACEMENT SPECIFICATIONS:

1. SPECIAL PROCEDURES SHALL BE REQUIRED FOR GROUT PLACEMENT WHEN THE AIR TEMPERATURES ARE LESS THAN 40°F OR GREATER THAN 90°F. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER OF THE PROCEDURES TO BE USED FOR PROTECTING THE GROUT.
2. GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) GROUT PUMP USING A 2–INCH DIAMETER (MAXIMUM) NOZZLE.
3. FULL DEPTH PENETRATION OF THE GROUT INTO THE BOULDER VOIDS SHALL BE ACHIEVED BY INJECTING GROUT STARTING WITH THE NOZZLE NEAR THE BOTTOM AND RAISING IT AS THE GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
4. ALL GROUT BETWEEN BOULDERS SHALL BE TREATED WITH A BROOM FINISH.
5. AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED AND FREE OF GROUT.
6. ALL FINISHED GROUT SURFACES SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM C309.



GROUTED BOULDER PLACEMENT DETAIL

N.T.S.

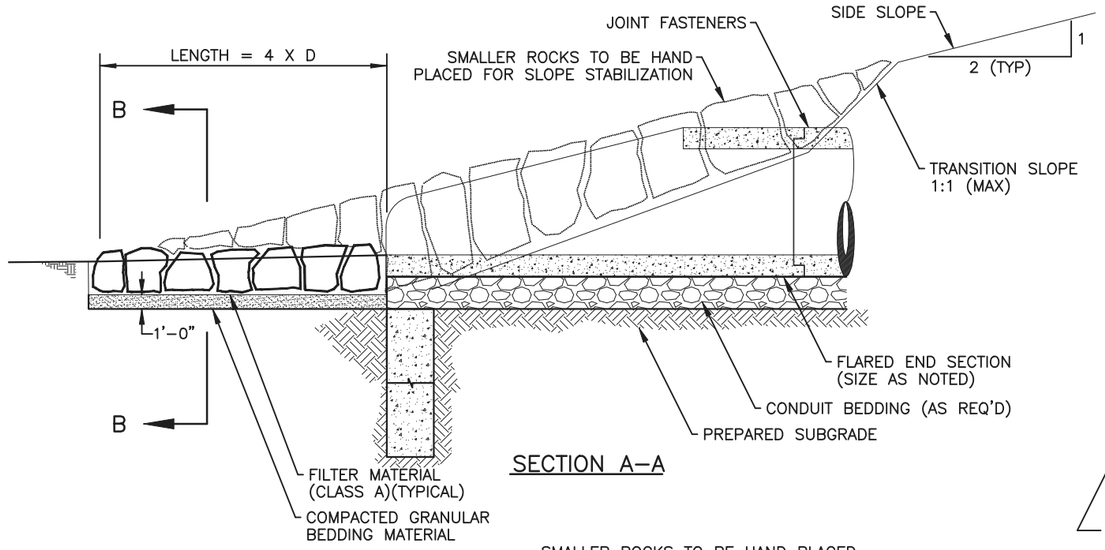


STRUCTURE EDGE WALL DETAIL

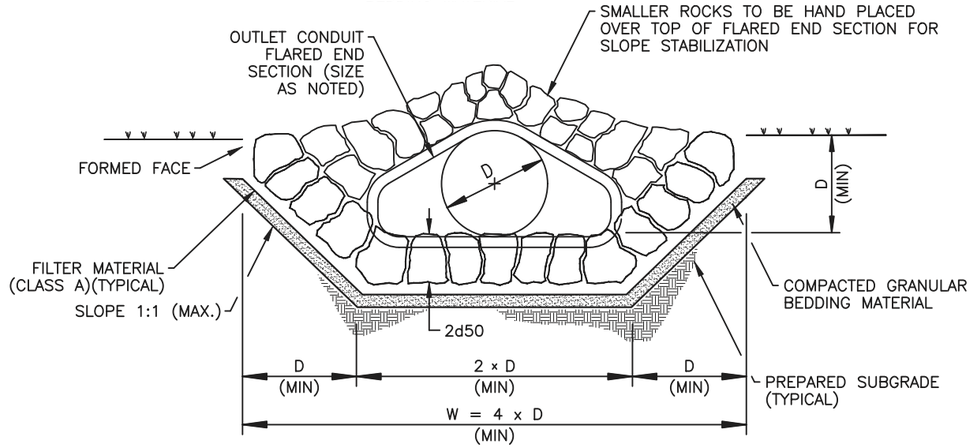
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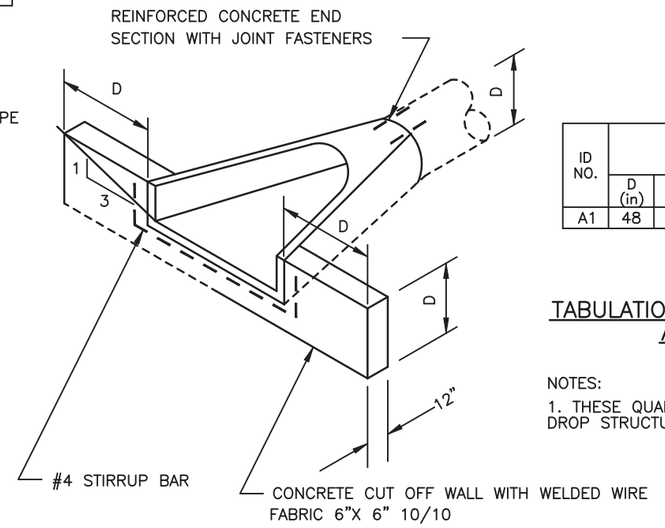
Print Date: 3/13/2018 9:15:36 AM		Sheet Revisions			Manhard CONSULTING LTD	As Constructed	BELFORD–HAPPY CANYON CREEK HAPPY CANYON CREEK DROP STRUCTURE DETAIL	Project No./Code
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SECTION A–A



SECTION B–B



ID NO.	DIMENSIONS					QUANTITIES	
	D (in)	W (ft)	L (ft)	RIPRAP TYPE	d50 (in)	RIPRAP (12 INCH) (CY)	FILTER MATERIAL (CLASS A) (CY)
A1	48	16	16	M	12	19	9

TABULATION OF RIPRAP AND GEOTEXTILE MATERIAL AT CULVERT INLETS & OUTLETS

NOTES:

1. THESE QUANTITIES HAVE BEEN CARRIED FORWARD TO THE DROP STRUCTURE TABULATION.

CONCRETE TOEWALL AND END SECTION FOR REINFORCED CONCRETE PIPE

NOTES:

1. D= INSIDE DIAMETER OF REINFORCED CONCRETE PIPE.
2. CONCRETE FOR THE TOEWALL SHALL BE CONCRETE CLASS D (WALL)
3. EACH REINFORCED CONCRETE END SECTION SHALL BE CONNECTED TO THE REINFORCED CONCRETE PIPE WITH CONCRETE PIPE JOINT FASTENERS (2–EACH). CONCRETE PIPE JOINT FASTENERS SHALL BE INCLUDED IN THE COST OF THE REINFORCED CONCRETE END SECTION.
4. ALL CONCRETE, REINFORCING, CONNECTIONS, STRUCTURE EXCAVATION, AND EXTRA WORK REQUIRED TO CONSTRUCT THE CONCRETE TOEWALL SHALL BE INCLUDED IN THE COST OF 48 INCH RCES.
5. ALL REINFORCED CONCRETE PIPE EXTENSIONS SHALL HAVE A CONCRETE COLLAR AND SHALL BE INCLUDED IN THE COST OF THE REINFORCED CONCRETE PIPE.
6. REMOVED RIPRAP MAY BE UTILIZED FOR RIPRAP (12 INCH) UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

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	Date	Comments	Initials

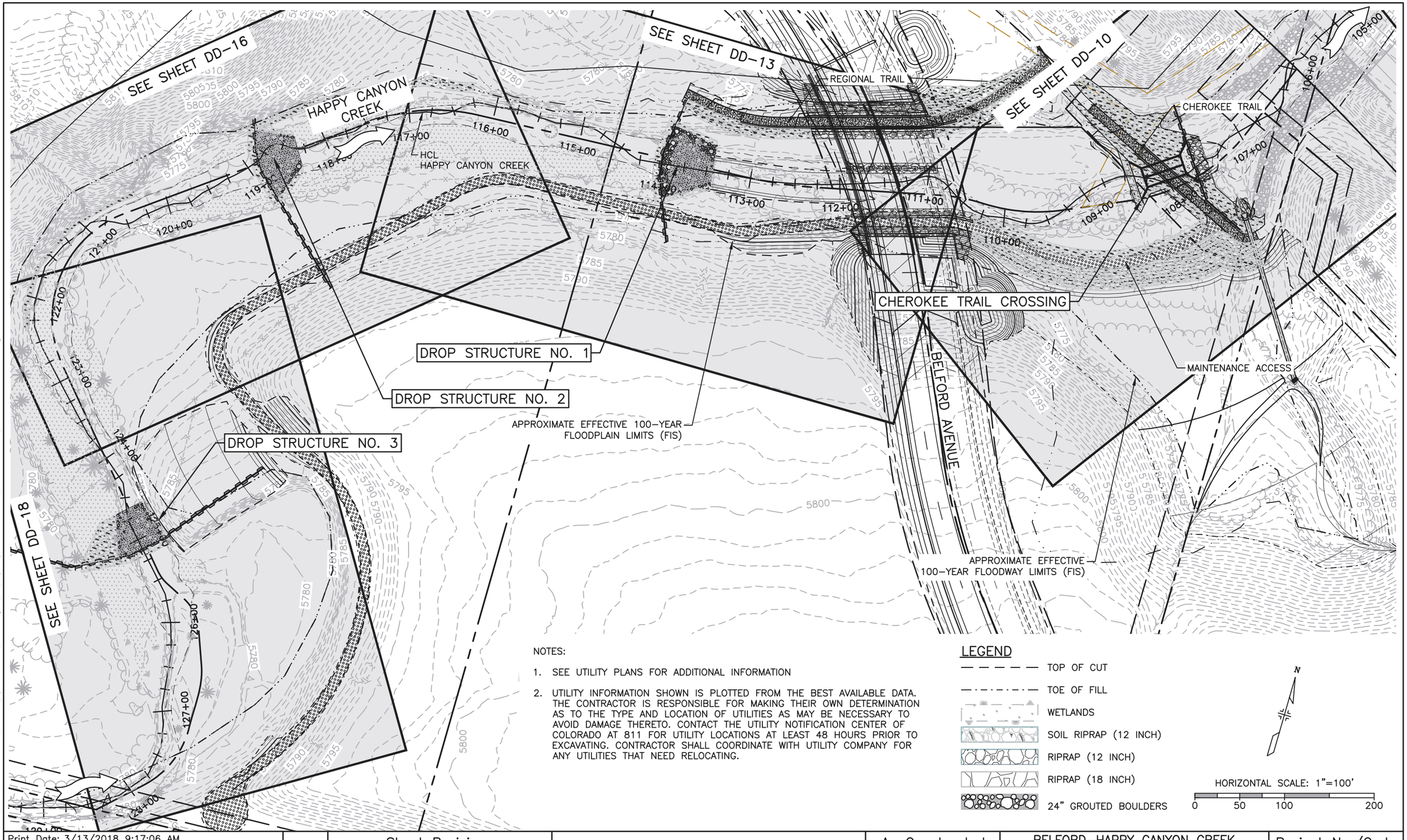
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BELFORD–HAPPY CANYON CREEK DRAINAGE
OUTLET PROTECTION DETAILS

Designer: CDT
Detailer: KLT
Subset: Drainage
Structure Numbers:
Sheets: DD–06 of 22

Project No./Code:
Sheet Number 70



NOTES:

1. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION
2. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.

LEGEND

- TOP OF CUT
- TOE OF FILL
- WETLANDS
- SOIL RIPRAP (12 INCH)
- RIPRAP (12 INCH)
- RIPRAP (18 INCH)
- 24" GROUTED BOULDERS

N

HORIZONTAL SCALE: 1"=100'

0 50 100 200

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE PLAN

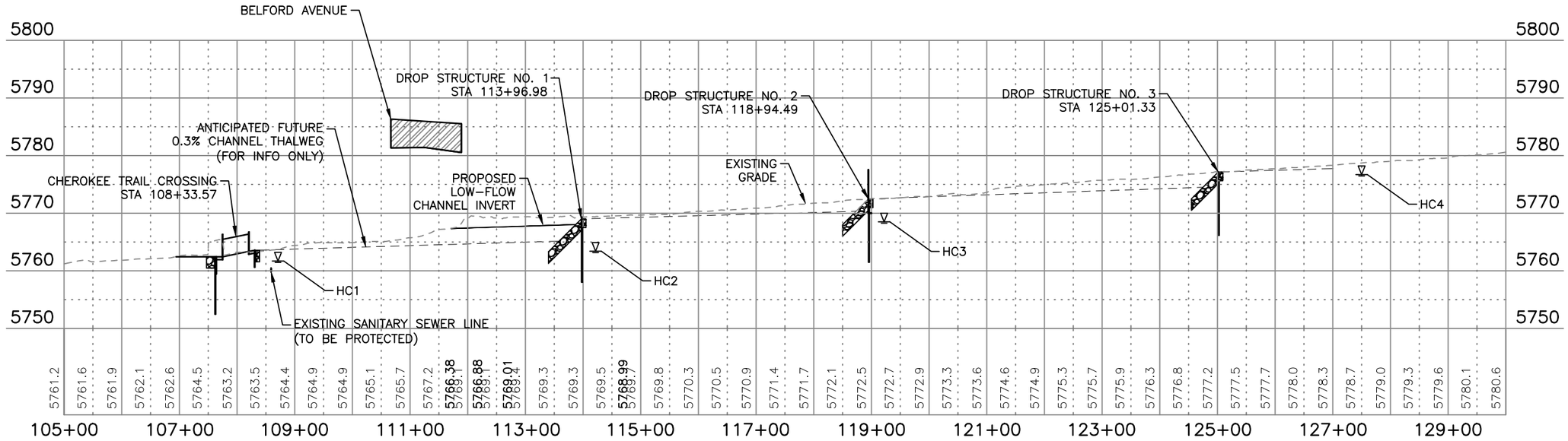
Designer: CDT
Detailer: KLT
Subset: Drainage
Structure Numbers:
Sheets: DD-07 of 22

Project No./Code

Sheet Number 71

NOTES

1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION.



HAPPY CANYON CREEK PROFILE

HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=20'

0' 100' 200' 400'

0' 10' 20' 40'

▽ APPROX. GROUNDWATER ELEVATION

GROUNDWATER ELEVATIONS	
TEST BORING ID	APPROX. DEPTH BELOW SURFACE (FT.)
HC1	−2.0
HC2	−6.0
HC3	−4.0
HC4	−2.0

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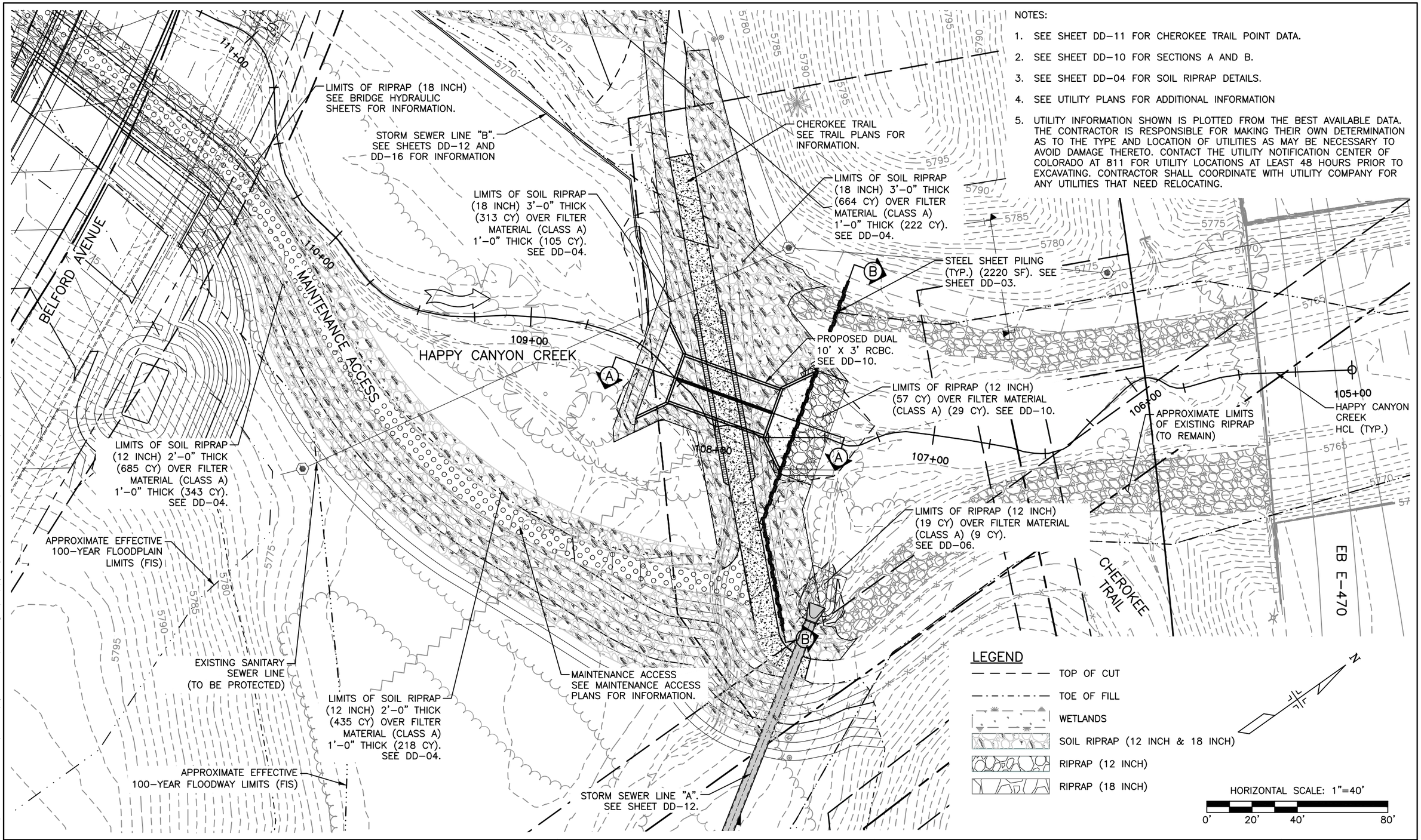
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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
PROFILE

Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD-08 of 22

Project No./Code

Sheet Number 72



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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
CHEROKEE TRAIL PLAN

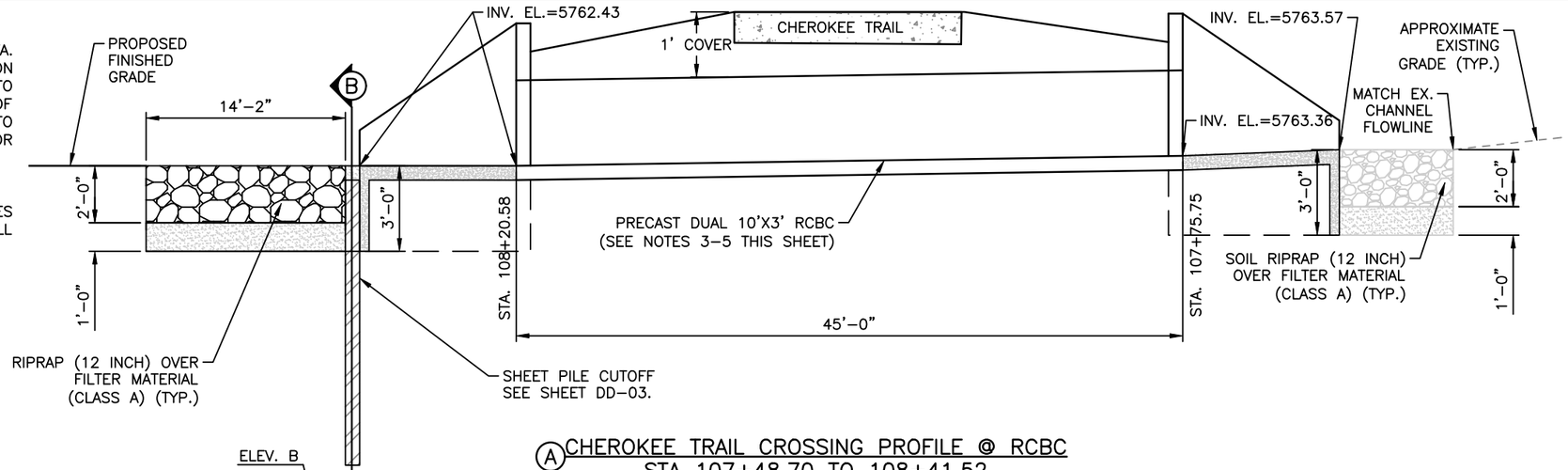
Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-09 of 22

Project No./Code

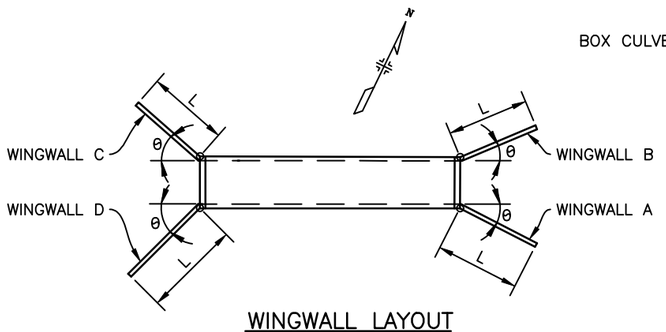
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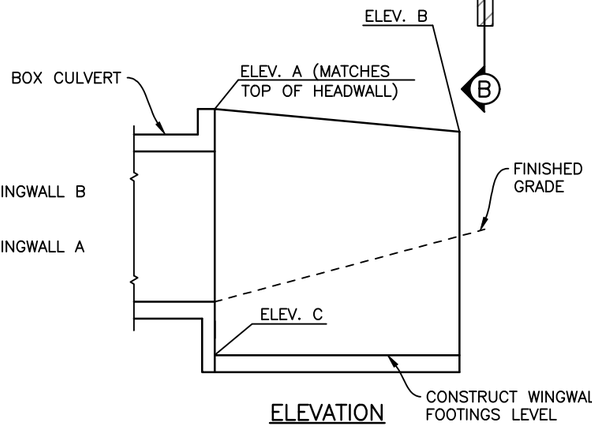
1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION.
3. PRECAST BOX CULVERT MUST CONFORM TO CDOT M-STANDARDS M-603-2.
4. FOR CAST-IN-PLACE END SECTIONS, USE M-601-2 FOR WALL THICKNESSES AND REINFORCEMENT SIZE AND SPACINGS WITH S=10 FT, R=6 FT, AND FILL HEIGHT = 0-5 FT.
5. FOR WINGWALLS AND CONCRETE APRON, USE M-601-20.



(A) CHEROKEE TRAIL CROSSING PROFILE @ RCBC
STA 107+48.70 TO 108+41.52
N.T.S.

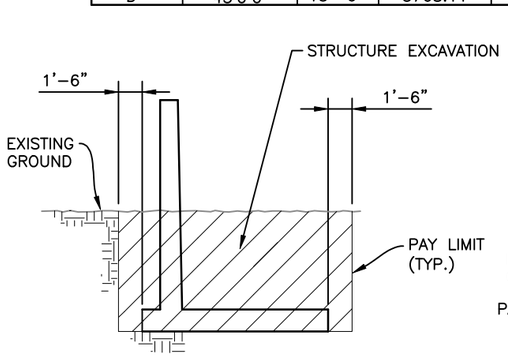


WINGWALL LAYOUT AT BOX CULVERT

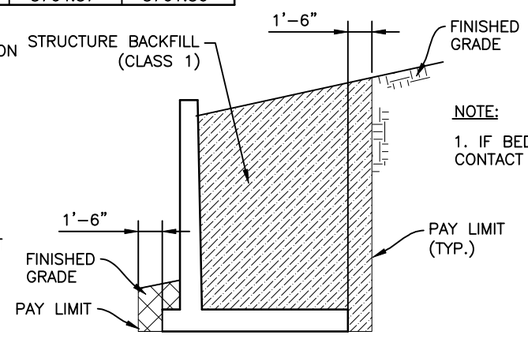


ELEVATION WINGWALLS

WINGWALL	θ	L	ELEV. A	ELEV. B	ELEV. C
A	45°0'0"	15'-6"	5767.18	5763.43	5760.43
B	45°0'0"	15'-6"	5767.18	5763.43	5760.43
C	45°0'0"	15'-6"	5768.11	5764.57	5761.36
D	45°0'0"	15'-6"	5768.11	5764.57	5761.36



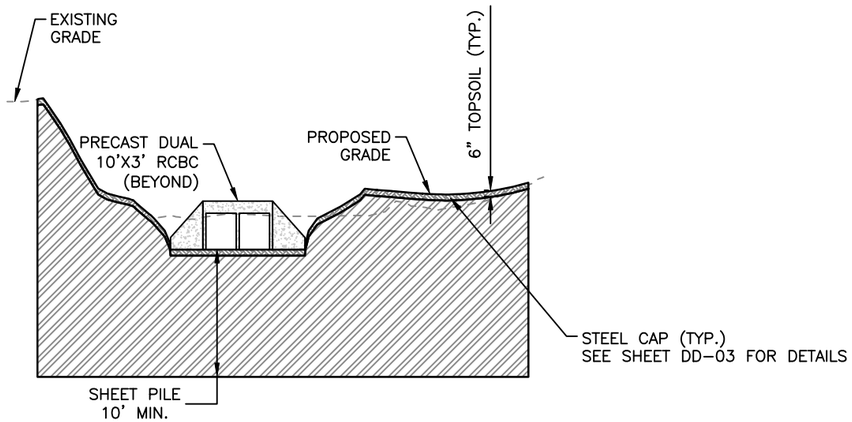
WINGWALLS EXCAVATION



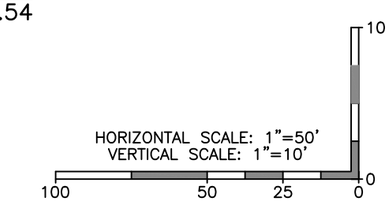
WINGWALLS BACKFILL

NOTE:

1. IF BEDROCK IS ENCOUNTERED, CONTACT ENGINEER PRIOR TO PROCEEDING.



(B) CREST SECTION
STA 107+63.54



HAPPY CANYON CREEK HYDRAULICS

Q100= 8,303 C.F.S
Q100 VELOCITY = 6.11 F.P.S
FROUDE No.=0.31

FOR INFO ONLY

CHEROKEE TRAIL CROSSING

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
CHEROKEE TRAIL PROFILE/DETAILS

Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD-10 of 22

Project No./Code:
Sheet Number 74

HAPPY CANYON CREEK CHEROKEE TRAIL STEEL SHEET PILE CUTOFF WALL POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W1	27865.91	94895.02	5767.95	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W2	27887.19	94849.78	5767.36	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W3	27979.15	94785.85	5774.82	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.

HAPPY CANYON CREEK CHEROKEE TRAIL GRADING POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
G1	27872.10	94962.88	5779.00	FINISHED GRADE EL.
G2	27823.77	94932.12	5779.00	FINISHED GRADE EL.
G3	27808.04	94890.63	5779.00	FINISHED GRADE EL.
G4	27766.29	94809.24	5779.00	FINISHED GRADE EL.
G5	27745.18	94744.70	5779.00	FINISHED GRADE EL.

HAPPY CANYON CREEK CHEROKEE TRAIL SOIL RIPRAP POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SR1	27769.57	94610.15	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR2	27835.00	94932.41	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR3	27801.00	94604.71	5765.86	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR4	27800.34	94633.29	5767.10	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR5	27797.05	94661.68	5769.72	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR6	27804.21	94763.47	5770.47	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR7	27862.90	94848.01	5766.25	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR8	27885.85	94800.95	5767.60	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR9	27876.75	94787.62	5765.88	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR10	27853.55	94783.45	5766.72	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR11	27913.61	94738.94	5766.30	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR12	27871.26	94540.03	5768.10	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR13	27892.28	94575.67	5770.18	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR14	27920.57	94605.87	5772.85	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR15	27943.91	94626.32	5774.60	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR16	27967.25	94646.78	5775.74	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR17	27912.28	94510.88	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR18	27925.40	94519.82	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR19	27937.08	94566.65	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR20	27941.85	94573.12	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR21	27962.56	94597.66	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR22	27970.79	94607.21	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR23	27995.66	94624.88	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR24	27980.34	94661.67	5776.11	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR25	27988.53	94666.66	5776.90	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR26	27956.85	94747.12	5773.49	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR27	27965.72	94770.00	5773.56	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR28	27950.72	94782.27	5766.42	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR29	27953.26	94821.86	5765.14	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR30	27913.37	94849.59	5764.89	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR31	27904.16	94855.99	5765.02	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR32	27881.83	94903.47	5766.84	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR33	27890.55	94916.56	5771.36	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.
SR34	27878.94	94919.88	5772.38	SOIL RIPRAP (18 INCH) – FINISHED GRADE EL.

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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
CHEROKEE TRAIL POINT DATA DETAIL

Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD–11 of 22

Project No./Code

Sheet Number 75

I.D.	NORTHING & EASTING	ITEM	LENGTH	PAY DEPTH	INV. IN	INV. OUT	NOTES
A1	N: 27899.87, E: 94884.63	48" RCES, RIPRAP			5763.28	5763.00	SEE DD-06 FOR DETAIL
A2		48" RCP	187'				
A3	N: 27721.77, E: 95000.49	TYPE D INLET		10'	5770.36	5769.79	CONNECT TO EX. 42" RCP
B1	N: 27914.54, E: 94715.62					5765.00	
B2		8" PLASTIC PIPE	27'				
B3	N: 27926.90, E: 94693.26					5765.13	45 DEGREE ELBOW/CLEANOUT
B4		8" PLASTIC PIPE	241'				

NOTES:

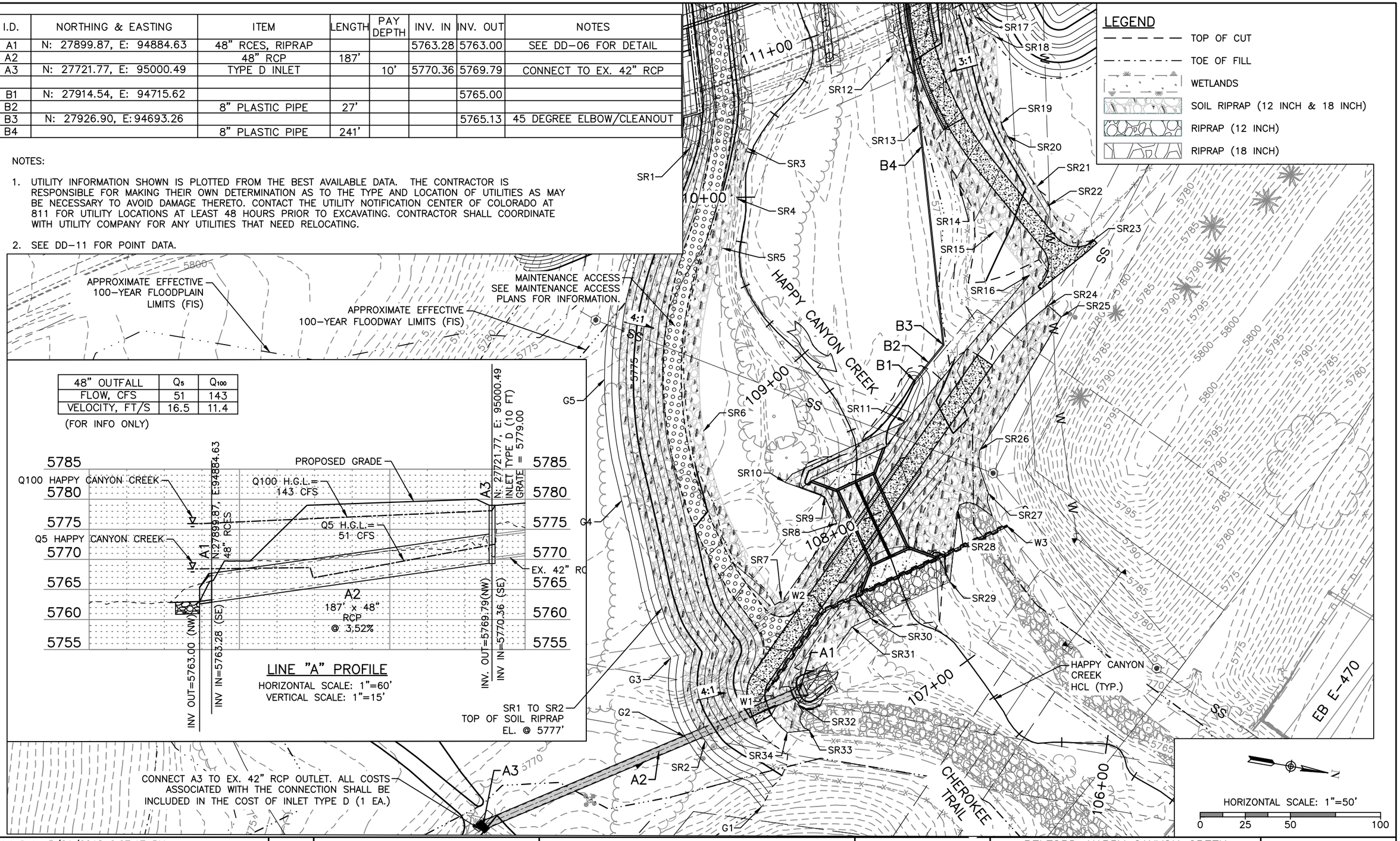
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2. SEE DD-11 FOR POINT DATA.

48" OUTFALL	Q_5	Q_{100}
FLOW, CFS	51	143
VELOCITY, FT/S	16.5	11.4

(FOR INFO ONLY)

LINE "A" PROFILE

HORIZONTAL SCALE: 1"=60'
VERTICAL SCALE: 1"=15'



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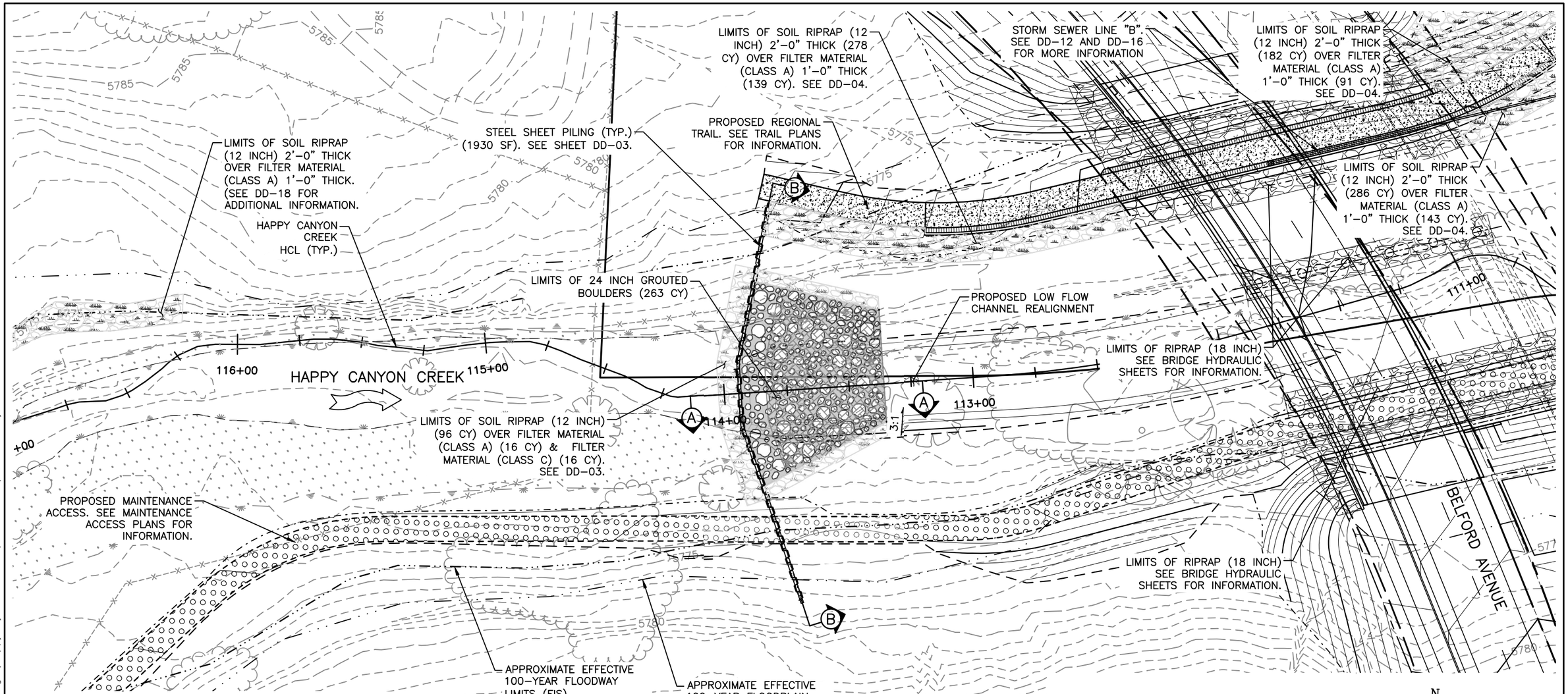
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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
CHEROKEE TRAIL GRADING DETAIL

Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-12 of 22

Project No./Code

Sheet Number 76



NOTES:

1. SEE SHEET DD-15 FOR DROP NO. 1 POINT DATA.
2. SEE SHEET DD-14 FOR SECTIONS A AND B.
3. SEE SHEET DD-04 FOR SOIL RIPRAP DETAILS.
4. SEE SHEET DD-05 FOR GROUTED BOULDER DETAILS.
5. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION
6. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.

LEGEND

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- TOE OF FILL
- WETLANDS
- SOIL RIPRAP (12 INCH)
- RIPRAP (18 INCH)
- 24" GROUTED BOULDERS
- 24" GROUTED BOULDERS (BURIED)

N

HORIZONTAL SCALE: 1"=40'

0' 20' 40' 80'

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 1 PLAN

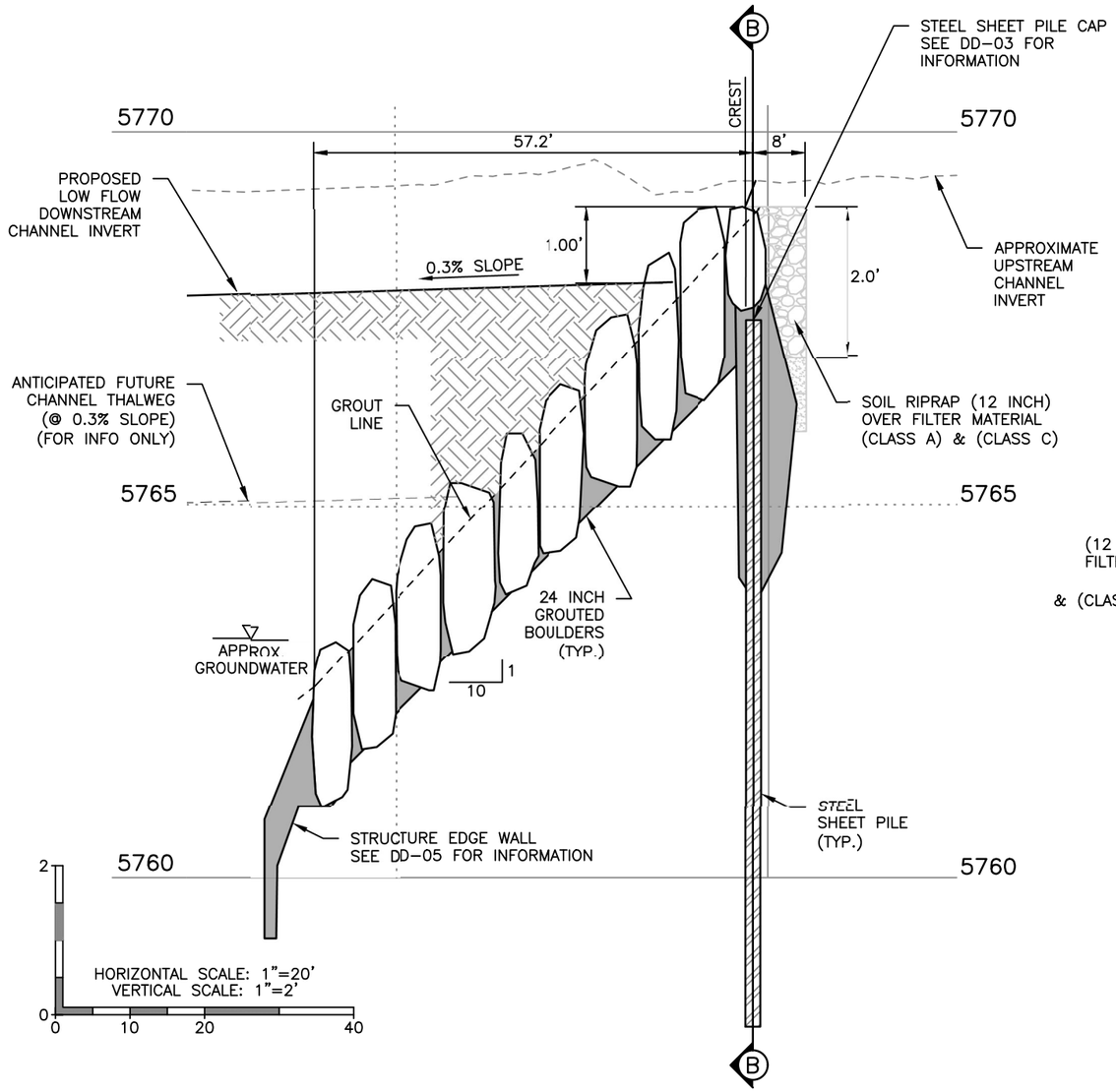
Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-13 of 22

Project No./Code

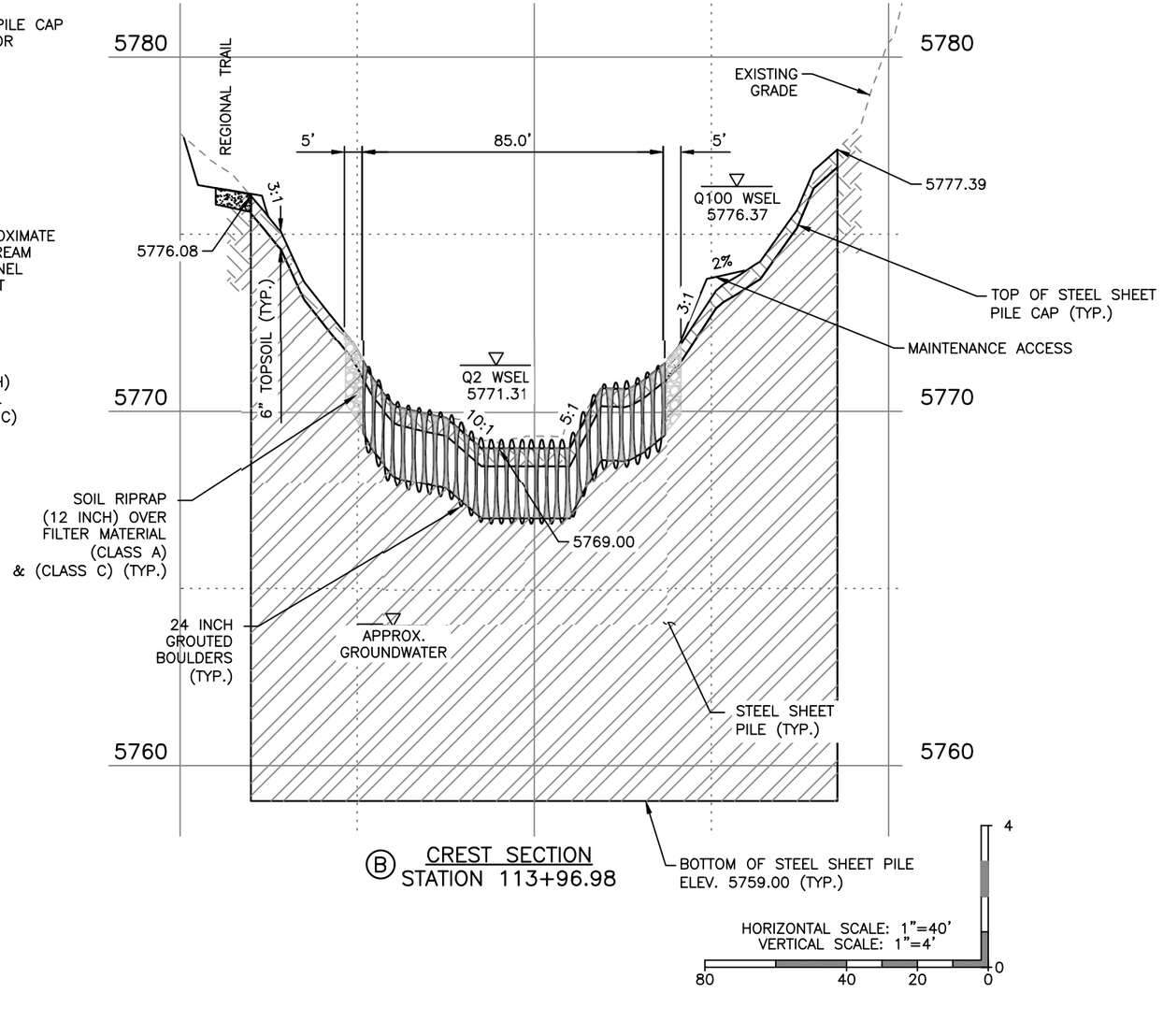
Sheet Number 77

NOTES

1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION.



Ⓐ GROUTED BOULDER DROP NO. 1 PROFILE
STA 113+39.80 TO 114+04.98



Ⓑ CREST SECTION
STATION 113+96.98

HAPPY CANYON CREEK HYDRAULICS

Q100= 8,303 C.F.S
Q100 VELOCITY = 14.17 F.P.S
FROUDE No.=0.93

FOR INFO ONLY

DROP STRUCTURE NO. 1

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No Revisions:				
Revised:	Designer: CDT	Structure Numbers		
Void:	Detailer: ZJG			Sheet Number 78
	Subset: Drainage	Sheets:	DD-14 of 22	

HAPPY CANYON CREEK DROP STRUCTURE NO. 1 STEEL SHEET PILE CUTOFF WALL POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W1	27675.42	94283.50	5777.39	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W2	27745.87	94255.72	5767.00	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W3	27770.71	94252.88	5767.00	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W4	27834.84	94262.40	5776.14	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 1 GROUTED BOULDER POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
GB1	27721.52	94265.85	5771.33	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB2	27745.93	94256.22	5769.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB3	27770.77	94253.37	5769.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB4	27803.26	94258.21	5771.31	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB5	27794.60	94308.20	5763.28	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB6	27749.89	94313.32	5763.28	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB7	27748.38	64266.00	5768.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB8	27770.60	94263.46	5768.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 1 SOIL RIPRAP POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SR1	27821.75	94260.96	5774.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR2	27816.88	94288.38	5772.05	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR3	27814.14	94331.42	5770.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR4	27821.34	94373.78	5769.37	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR5	27831.26	94408.21	5769.24	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR6	27713.51	94259.36	5772.32	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR7	27744.91	94247.28	5770.17	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR8	27769.75	94244.43	5769.27	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR9	27809.53	94250.06	5772.74	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR10	27808.21	94258.94	5772.14	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR11	27799.78	94307.61	5770.41	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR12	27794.60	94308.20	5770.01	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR13	27749.89	94313.32	5770.02	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR14	27744.44	94313.95	5770.34	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR15	27716.81	94267.71	5771.86	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.

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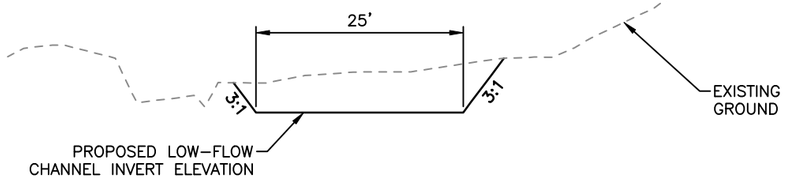
BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 1 POINT DATA DETAIL

Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD–15 of 22

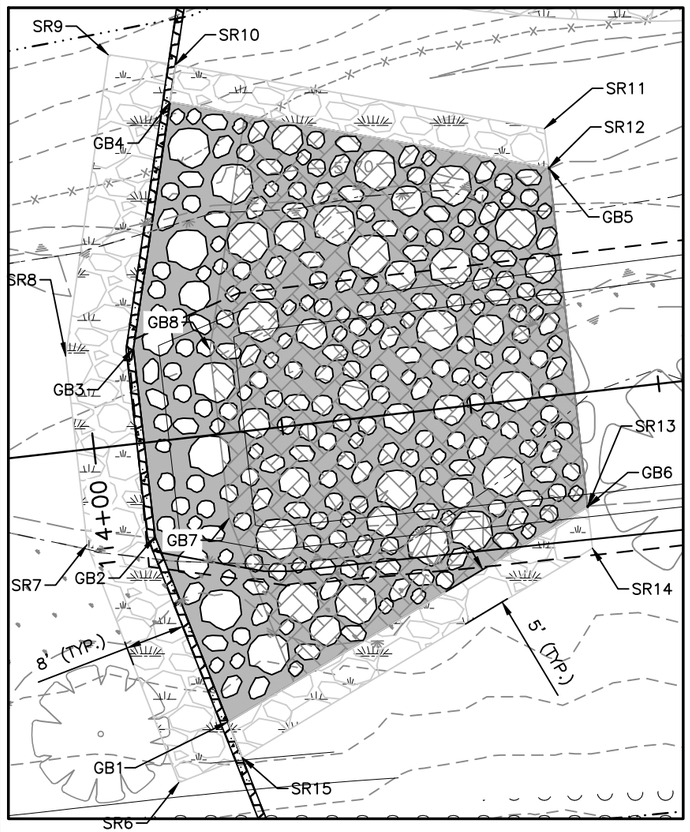
Project No./Code

Sheet Number 79

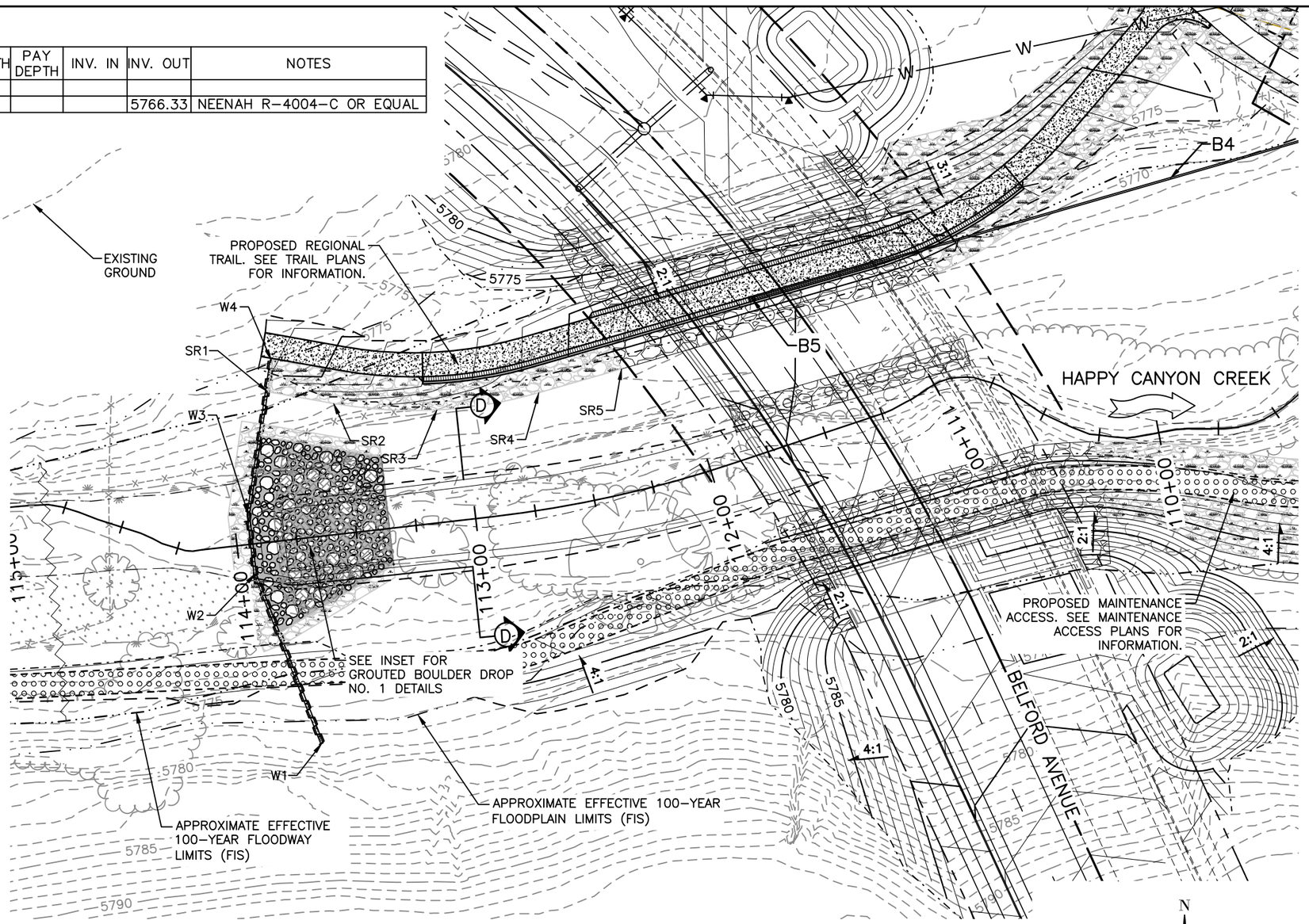
I.D.	NORTHING & EASTING	ITEM	LENGTH	PAY DEPTH	INV. IN	INV. OUT	NOTES
B4		8" PLASTIC PIPE	241'				
B5	N: 27860.43, E: 94462.48	INLET SPECIAL				5766.33	NEENAH R-4004-C OR EQUAL



Ⓓ TYPICAL CHANNEL SECTION
N.T.S.



DROP NO. 1 DETAILS
HORIZONTAL SCALE: 1"=20'



NOTES:

1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. SEE SHEET DD-15 FOR DROP NO. 1 POINT DATA.

N

HORIZONTAL SCALE: 1"=50'
0 25 50 100

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 1 GRADING DETAIL

Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-16 of 22

Project No./Code

Sheet Number 80

HAPPY CANYON CREEK DROP STRUCTURE NO. 2 STEEL SHEET PILE CUTOFF WALL POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W1	27522.92	93938.45	5780.50	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W2	27627.11	93827.62	5770.47	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W3	27648.48	93814.39	5770.47	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W4	27680.82	93804.64	5780.50	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 2 CHANNEL REVETMENT SOIL RIPRAP POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CR1	27384.46	93620.98	5776.96	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR2	27409.72	93613.85	5776.89	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR3	27455.43	93616.23	5776.93	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR4	27504.52	93635.29	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR5	27521.43	93646.91	5777.11	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR6	27547.94	93676.17	5776.07	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR7	27561.71	93693.16	5776.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR8	27566.68	93697.18	5776.04	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR9	27681.39	93814.88	5776.99	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR10	27699.52	93838.94	5776.86	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR11	27713.46	93854.66	5777.09	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR12	27724.95	93872.92	5776.90	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR13	27732.94	93886.34	5777.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR14	27743.41	93902.84	5777.05	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR15	27754.96	93929.13	5776.62	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR16	27765.52	93944.63	5775.94	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR17	27769.88	93961.99	5775.77	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR18	27781.73	93978.73	5775.97	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR19	27782.09	94006.03	5775.95	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
CR20	27787.18	94029.84	5776.06	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 2 GROUTED BOULDER POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
GB1	27602.62	93854.40	5774.52	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB2	27618.57	93837.43	5772.47	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB3	27655.65	93812.75	5772.47	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB4	27669.08	93808.70	5774.43	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB5	27673.96	93851.91	5768.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB6	27644.22	93870.17	5768.00	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 2 DROP STRUCTURE SOIL RIPRAP POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SR1	27592.36	93852.18	5775.35	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR2	27622.59	93820.43	5772.58	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR3	27644.06	93807.13	5772.41	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR4	27671.40	93798.60	5779.30	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR5	27675.20	93818.23	5773.98	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR6	27678.68	93848.83	5773.30	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR7	27673.98	93851.74	5773.00	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR8	27644.22	93870.17	5772.27	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR9	27638.87	93873.48	5773.38	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR10	27598.92	93858.34	5775.22	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.

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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 2 POINT DATA DETAIL

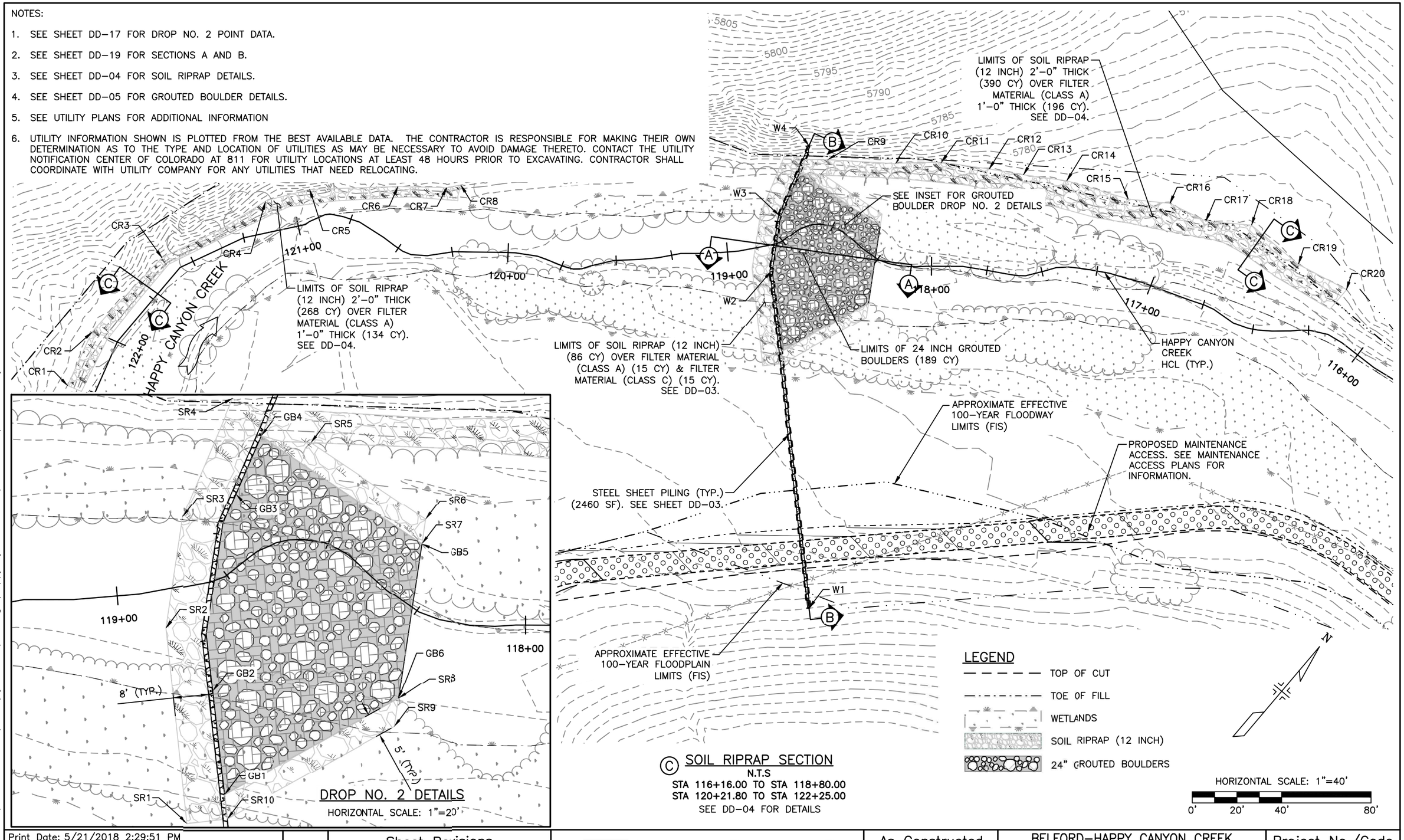
Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD–17 of 22

Project No./Code:

Sheet Number 81

NOTES:

1. SEE SHEET DD–17 FOR DROP NO. 2 POINT DATA.
2. SEE SHEET DD–19 FOR SECTIONS A AND B.
3. SEE SHEET DD–04 FOR SOIL RIPRAP DETAILS.
4. SEE SHEET DD–05 FOR GROUTED BOULDER DETAILS.
5. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION
6. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.



DROP NO. 2 DETAILS
HORIZONTAL SCALE: 1"=20'

© SOIL RIPRAP SECTION
N.T.S
STA 116+16.00 TO STA 118+80.00
STA 120+21.80 TO STA 122+25.00
SEE DD–04 FOR DETAILS

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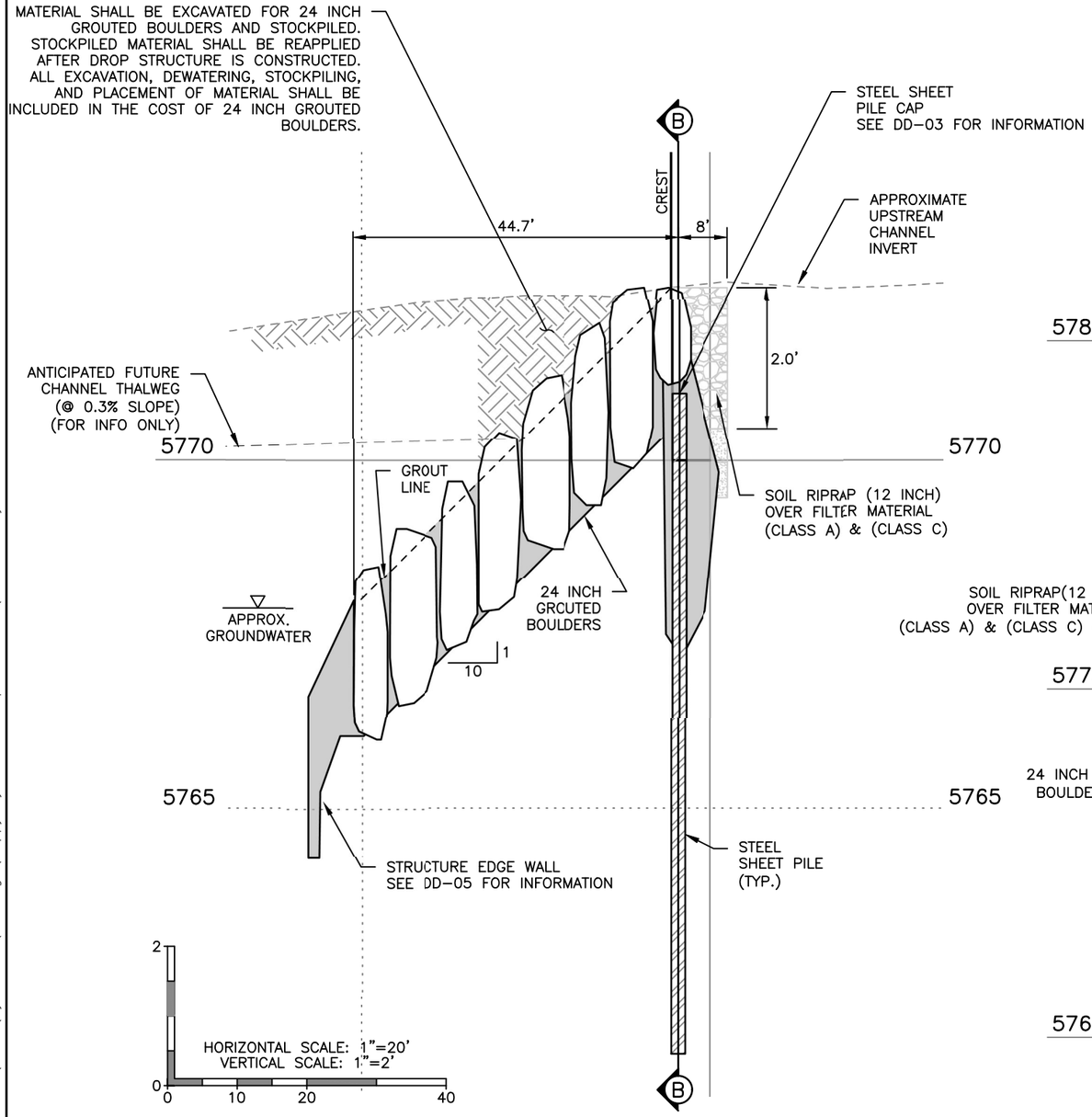
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No Revisions:
Revised:
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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 2 PLAN

Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD–18 of 22

Project No./Code

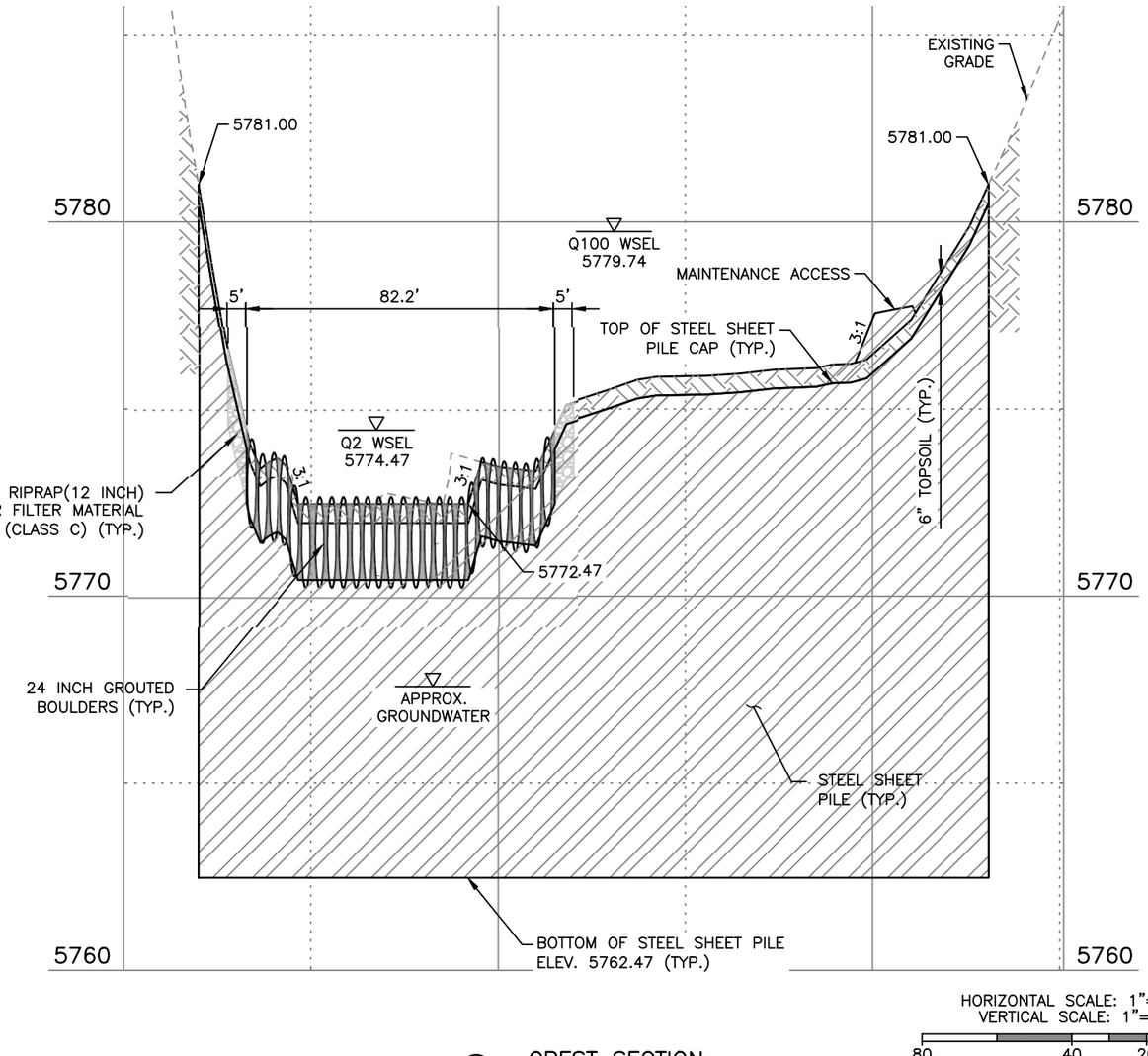
Sheet Number 82



Ⓐ GROUTED BOULDER DROP NO. 2 PROFILE
STA 118+49.81 TO 119+02.49

NOTES

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Ⓑ CREST SECTION
STATION 118+94.49

HAPPY CANYON CREEK HYDRAULICS

Q100= 8,303 C.F.S
Q100 VELOCITY = 11.93 F.P.S
FROUDE No.=0.79
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DROP STRUCTURE NO. 2

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 2 PROFILE/DETAILS

Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-19 of 22

Project No./Code

Sheet Number 83

HAPPY CANYON CREEK DROP STRUCTURE NO. 3 STEEL SHEET PILE CUTOFF WALL POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
W1	27309.13	93921.77	5783.50	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W2	27304.40	93917.95	5780.00	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W3	27208.88	93840.75	5779.50	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W4	27201.63	93834.88	5775.63	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W5	27174.38	93805.42	5775.06	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W6	27143.34	93746.45	5777.76	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.
W7	27143.34	93585.23	5783.50	STEEL SHEET PILE WALL – TOP OF STEEL CAP EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 3 BANK GRADING POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
G1	27326.07	93919.34	5787.00	FINISHED GRADE EL.
G2	27306.20	93950.35	5787.00	FINISHED GRADE EL.
G3	27290.13	93942.45	5782.50	FINISHED GRADE EL.
G4	27195.58	93861.83	5780.00	FINISHED GRADE EL.
G5	27228.32	93816.93	5780.00	FINISHED GRADE EL.
G6	27270.93	93781.27	5780.00	FINISHED GRADE EL.
G7	27367.70	93861.41	5782.50	FINISHED GRADE EL.
G8	27322.50	93895.78	5782.50	FINISHED GRADE EL.
G9	27343.38	93895.03	5786.00	FINISHED GRADE EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 3 GROUTED BOULDER POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
GB1	27168.76	93793.68	5778.19	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB2	27173.42	93802.52	5777.14	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB3	27201.27	93833.76	5777.14	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB4	27203.54	93835.78	5778.40	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB5	27234.88	93801.59	5772.49	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.
GB6	27213.15	93778.09	5772.49	24 INCH GROUTED BOULDER – TOP OF BOULDER EL.

HAPPY CANYON CREEK DROP STRUCTURE NO. 3 SOIL RIPRAP POINT DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SR1	27140.46	93759.22	5778.01	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR2	27168.09	93811.14	5777.07	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR3	27195.43	93840.70	5777.55	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR4	27201.78	93845.94	5779.67	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR5	27238.29	93805.27	5779.59	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR6	27234.88	93801.59	5778.14	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR7	27213.15	93778.09	5777.80	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.
SR8	27199.57	93763.41	5777.80	SOIL RIPRAP (12 INCH) – FINISHED GRADE EL.

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BELFORD–HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 3 POINT DATA DETAIL

Designer: CDT
Detailer: ZJG
Subset: Drainage
Structure Numbers:
Sheets: DD–20 of 22

Project No./Code

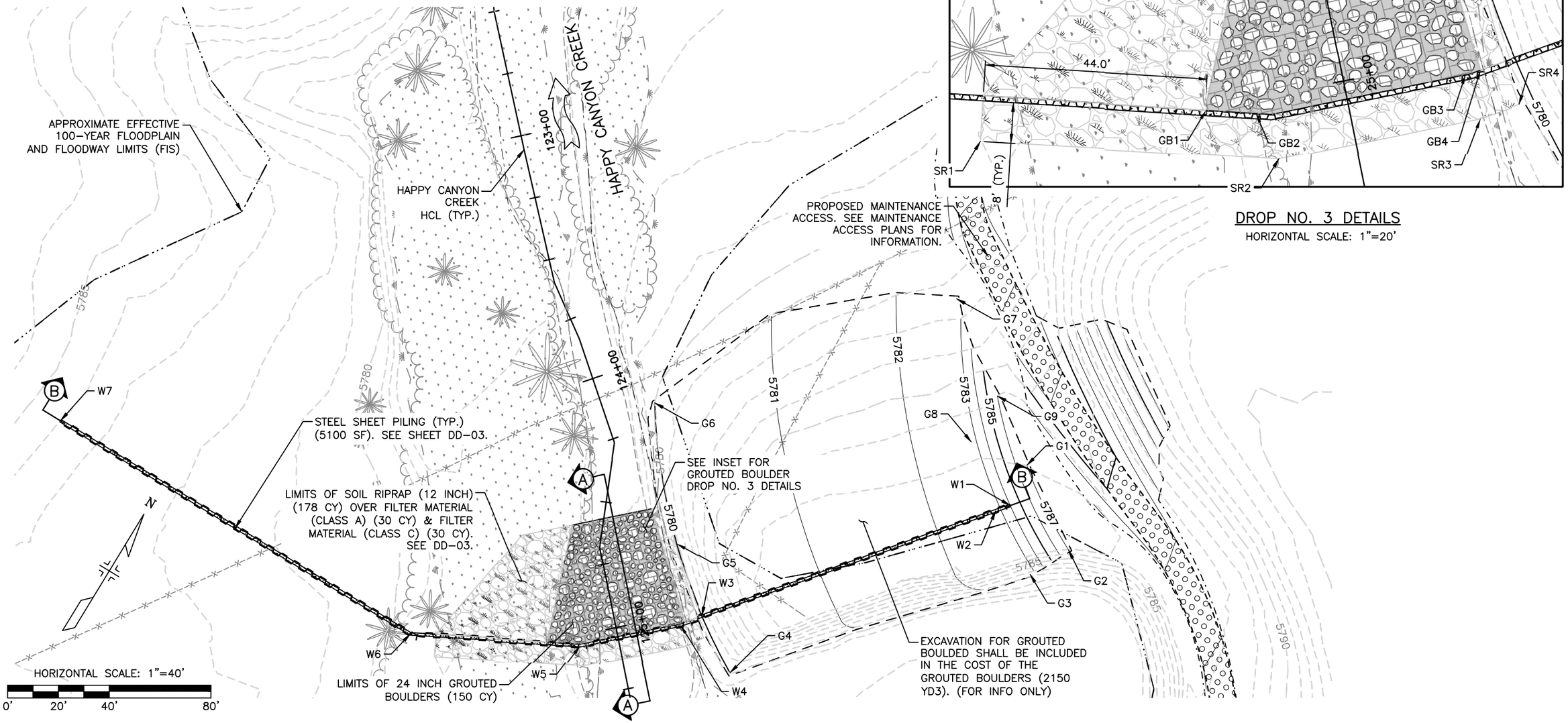
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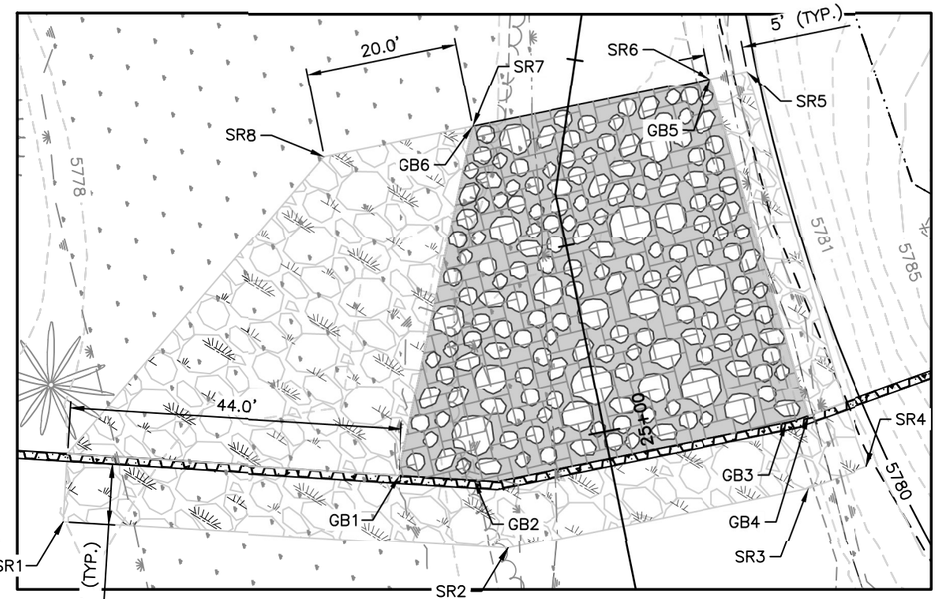
NOTES:

1. SEE SHEET DD-20 FOR DROP NO. 3 POINT DATA.
2. SEE SHEET DD-22 FOR SECTIONS A & B.
3. SEE SHEET DD-04 FOR SOIL RIPRAP DETAILS.
4. SEE SHEET DD-05 FOR GROUTED BOULDER DETAILS.
5. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION
6. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.

LEGEND

- TOP OF CUT
- TOE OF FILL
- WETLANDS
- SOIL RIPRAP (12 INCH)
- 24" GROUTED BOULDERS (BURIED)





DROP NO. 3 DETAILS

HORIZONTAL SCALE: 1"=20'

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BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
DROP NO. 3 PLAN

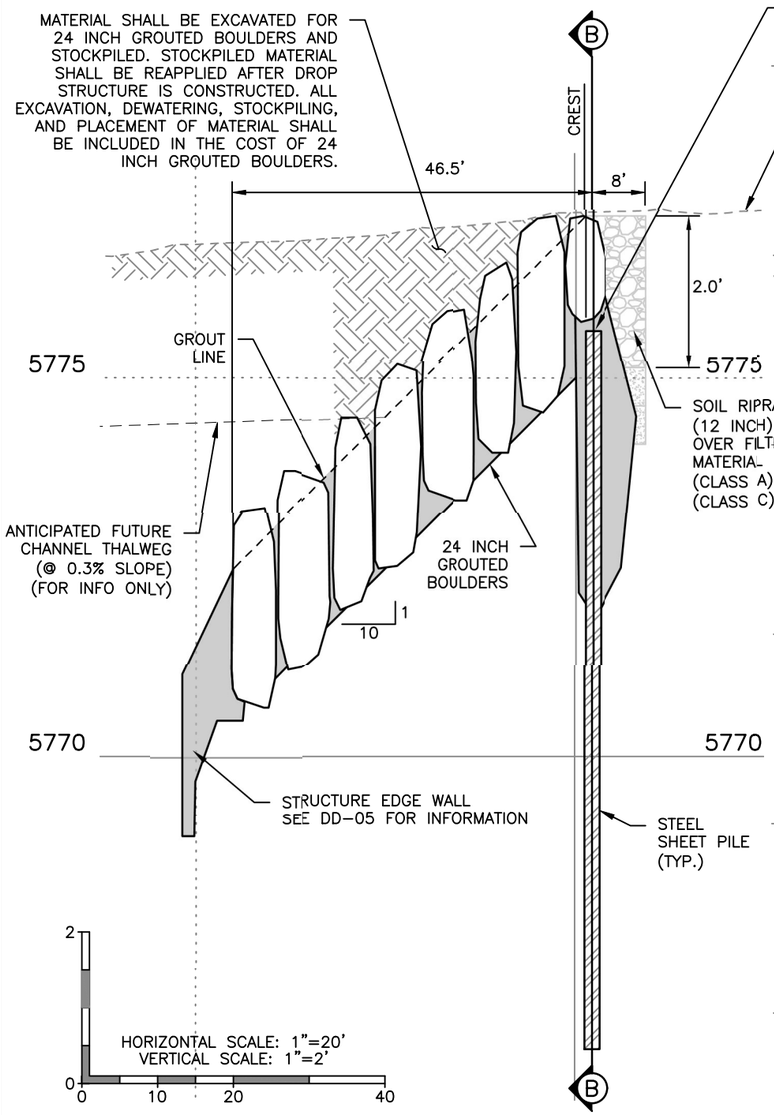
Designer:	CDT	Structure Numbers	
Detailer:	ZJG		
Subset:	Drainage	Sheets:	DD-21 of 22

Project No./Code

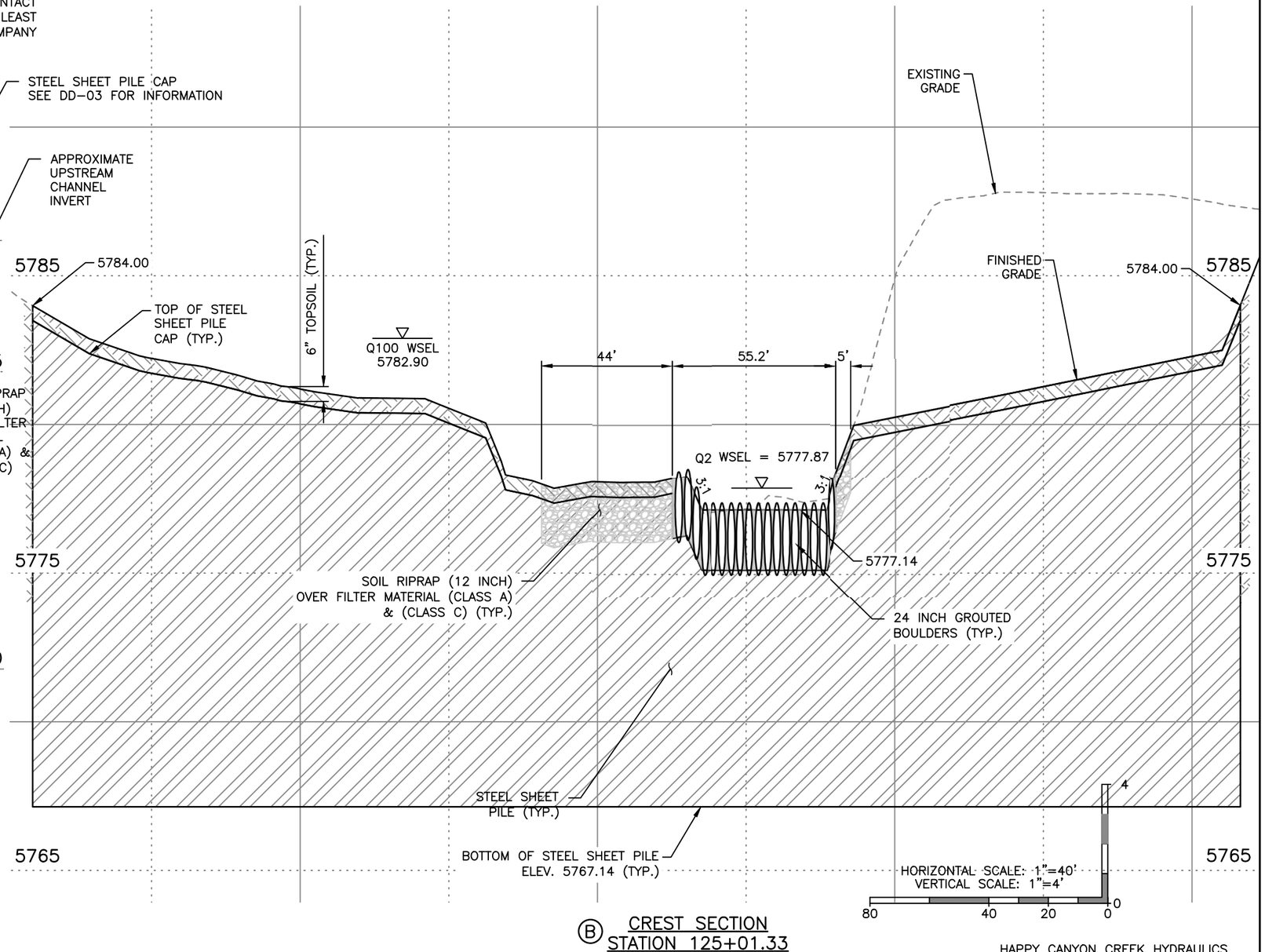
Sheet Number 85

NOTES

1. UTILITY INFORMATION SHOWN IS PLOTTED FROM THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 FOR UTILITY LOCATIONS AT LEAST 48 HOURS PRIOR TO EXCAVATING. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR ANY UTILITIES THAT NEED RELOCATING.
2. SEE UTILITY PLANS FOR ADDITIONAL INFORMATION.



Ⓐ GROUTED BOULDER DROP NO. 3 PROFILE
STA 124+54.81 TO 125+09.33



Ⓑ CREST SECTION
STATION 125+01.33

HAPPY CANYON CREEK HYDRAULICS

Q100= 8,303 C.F.S
Q100 VELOCITY = 10.80 F.P.S
FROUDE No.=0.77
FOR INFO ONLY

DROP STRUCTURE NO. 3

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No Revisions:	Designer: CDT	Structure Numbers		
Revised:	Detailer: ZJG			
Void:	Subset: Drainage	Sheets: DD-22 of 22		Sheet Number 86

PARKER
COLORADO

CONSTRUCTION PLANS

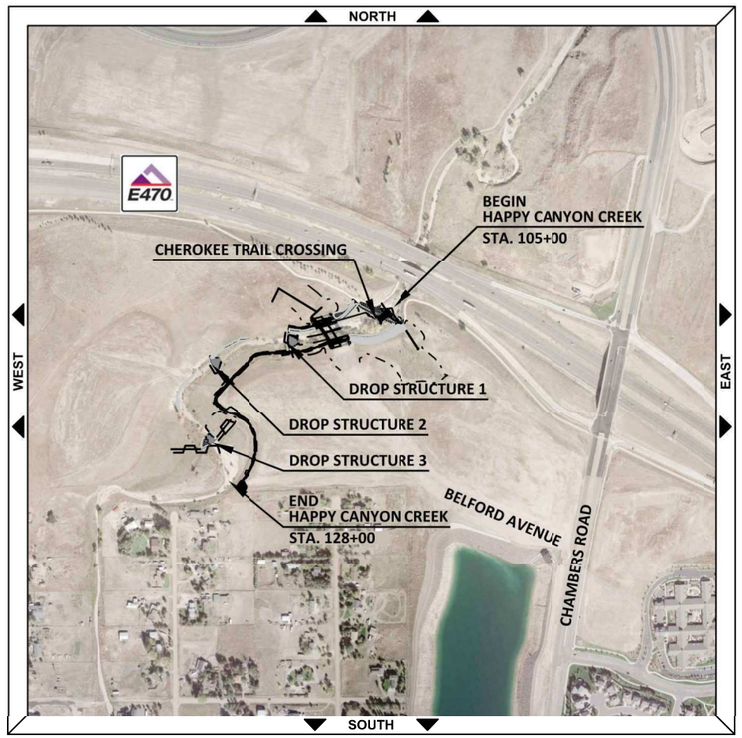
CONSTRUCTION BEST MANAGEMENT PRACTICES

BELFORD AVENUE BRIDGE AND HAPPY CANYON CREEK

TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO

SCALE OF ORIGINAL DRAWINGS

ON PLAN 1" = 80'



INDEX OF SHEETS

SHEET NO.	SUBSET SHEETS	DESCRIPTION
83	EL–1	CBMP TITLE SHEET
84	ET–1	TABULATION OF EROSION CONTROL QUANTITIES
85–86	EI–1 TO EI–2	INITIAL CBMP PLAN
87–88	EN–1 TO EN–2	INTERIM CBMP PLAN
89–90	EF–1 TO EN–2	FINAL CBMP PLAN
91–125	ED–1 TO ED–35	CBMP STANDARD NOTES AND DETAILS

TOWN OF PARKER APPROVALS

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWNS STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATION. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON–SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, PUBLIC WORKS DIRECTOR — DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER – STORMWATER — DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER – TRANSPORTATION — DATE

BASIS OF BEARING:

THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 6, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN BEING MONUMENTED AS SHOWN HEREON HAVING A BEARING OF NORTH 00°29'49" WEST, AS DETERMINED BY GPS OBSERVATION FROM NGS CONTROL POINTS IN THE COLORADO CENTRAL ZONE, STATE PLAN COORDINATE SYSTEM, TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO.

BENCHMARKS: (COMPARK SOUTH)

SOURCE BENCHMARKS:

DOUGLAS COUNTY BM 1.115010
A DOUGLAS COUNTY GIS MONUMENT SET IN CONCRETE LOCATED APPROXIMATELY 130 FEET SOUTHWESTERLY OF THE CENTERLINE OF CHAMBERS ROAD AND 95 FEET NORTHWESTERLY OF THE CENTERLINE OF COMPARK BOULEVARD.

ELEVATION = 5752.84 (NAVD 88)

SITE BENCHMARKS:

A NO. 5 REBAR WITH 2" ALUMINUM CAP STAMPED "LS 28286, 2001" FOUND AT THE SOUTHWEST CORNER OF SECTION 6, T6S, R66W LOCATED ON THE WEST LINE OF FIRST STREET APPROXIMATELY 1000 FEET NORTH OF ELM AVENUE.

ELEVATION = 5845.51

A 2.5" IRON PIPE WITH 3.25" ALUMINUM CAP STAMPED "PLS 12405, 1997" FOUND AT THE SOUTHEAST CORNER OF SECTION 6, T6S, R66W LOCATED APPROXIMATELY 960 FEET NORTH OF THE CENTERLINE OF AVENTERRA PARKWAY AND APPROXIMATELY 1050 FEET WEST OF THE CENTERLINE OF CHAMBERS ROAD.

ELEVATION = 5808.06

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BELFORD–HAPPY CANYON CREEK
CBMP TITLE SHEET

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	EROSION	Sheets:	EL–1 of 1

Project No./Code

Sheet Number 87

TABULATION OF EROSION CONTROL QUANTITIES

DRAWING NUMBER	CHECK DAM (CD)	*CONCRETE WASHOUT STRUCTURE (CWA)	*VEHICLE TRACKING CONTROL (VTC)	*STABILIZED STAGING AREA (SSA)	SEEDING (NATIVE) (SMC)	MULCHING (WEED FREE STRAW) (SMC)	*CULVERT PROTECTION (CP)	DEWATERING (D)	*SEDIMENT CONTROL LOG (12 INCH) (SCL)	EROSION CONTROL BLANKET (STRAW/COCONUT) (ECB)	DIVERSION DITCH (DD)	CONSTRUCTION FENCE (CF)	SILT FENCE (SF)	#INLET PROTECTION AREA INLETS NOT IN PAVEMENT (IPAN)	##ROUGH CUT STREET CONTROL (RCSC)	TEMPORARY SEDIMENT BASIN (TSB)	TEMPORARY STREAM CONTROL (TSC)	(PTP)
	LF	EACH	EACH	SY	ACRE	ACRE	LF	LS	LF	SY	LF	LF	LF	EA	LF	EA	EA	
INITIAL (EI–1)	275	2	2	2300			40		1798		312	8838	1361				4	
INTERIM (EN–1)							60	1	1885					1	480	2		
FINAL (EF–1)					6.3	6.3				6180								
PROJECT TOTALS	275	2	2	2300	6.3	6.3	100	1	3683	6180	312	8838	1361	1	480	2	4	

1. THESE QUANTITIES HAVE BEEN TAKEN FORWARD TO THE SUMMARY OF APPROXIMATE QUANTITIES.
2. FOR DETAILS, SEE CBMP STANDARD NOTES AND DETAILS.
3. CHECK DAMS ARE NOT TO BE REMOVED UNLESS DIRECTED BY THE PROJECT ENGINEER.
4. MULCH TACKIFIER IS REQUIRED AND IS INCLUDED IN THE COST OF MULCHING.
5. SEE CBMP SHEETS FOR ADDITIONAL PLACEMENT INFORMATION.
6. LOCATION OF STOCKPILES, INCLUDING TOPSOIL, IMPORTED AGGREGATES, EXCESS MATERIALS, STORAGE AND STAGING AREAS FOR EQUIPMENT FUEL, LUBRICANT, CHEMICAL (AND OTHER MATERIALS), WASTE STORAGE, BORROW AND DISPOSAL AREAS SHALL BE LOCATED PRIOR TO CONSTRUCTION WITH IN THE DEFINED LIMITS OF CONSTRUCTION BY THE PROJECT ENGINEER.

* THESE ITEMS SHALL BE PAID FOR AS PLACE AND REMOVE.
\# THESE ITEMS SHALL BE PAID FOR AS INLET PROTECTION (EACH).
\## ROUGH CUT STREET CONTROL SHALL BE PAID FOR AS AGGREGATE BAG (LF)

ADDITIONAL SEDIMENT/EROSION CONTROL:
IT IS ESTIMATED THAT BLADING (120 HORSEPOWER), DOZING (100 HORSEPOWER), COMBINATION LOADER (125 HORSEPOWER) AND/OR BACKHOE (75 HORSEPOWER) AND/OR LABORER MAY BE REQUIRED FOR MISCELLANEOUS EROSION CONTROL WORK AS DIRECTED BY THE ENGINEER. WORK SHALL BE PAID FOR AS 208 SEDIMENT REMOVAL AND DISPOSAL (40 HRS). EROSION CONTROL MANAGEMENT WILL BE REQUIRED FOR THIS PROJECT AND SHALL BE PAID FOR AS 208 EROSION CONTROL MANAGEMENT (30 DAYS).

WATER CONTROL NOTES – TEMPORARY STREAM CONTROL

1. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A WATER CONTROL PLAN TO THE TOWN OF PARKER FOR REVIEW AND APPROVAL TWO WEEKS PRIOR TO BEGINNING CONSTRUCTION. WATER CONTROL INCLUDES CHANNEL BASE FLOW, STORMWATER RUNOFF, AND GROUNDWATER. THE CONTRACTOR'S WATER CONTROL PLAN SHALL INCLUDE ALL MEANS AND METHODS NECESSARY IN CONVEYING A CLEAN WATER DIVERSION FOR WATER THROUGH AND FROM THE PROJECT SITE SO THAT THE WATER QUALITY OR PROPERTY DOWNSTREAM OF THE PROJECT LIMITS ARE NOT IMPACTED NEGATIVELY FROM THE PROJECT'S CONSTRUCTION ACTIVITIES.

2. THE CONTRACTOR'S MEANS AND METHODS INCLUDED IN THE CONTRACTOR'S APPROVED WATER CONTROL PLAN MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: PLASTIC LINED DIVERSION DITCHES, TEMPORARY PIPING, HOSES, CUTOFF WALLS, CHECK DAMS, PUMPS, GENERATORS, SOUND PROOFING, TEMPORARY POWER, SHEET PILE, SHORING, SEDIMENT TRAPS, SEDIMENT BASINS, FILTER BAGS, REINFORCED ROCK BERMS, STREAM CROSSINGS, RIPRAP PADS, RIPRAP, CRUSHED ROCK AND ANY OTHER WATER CONTROL MEASURES NECESSARY AND APPROVED BY THE TOWN OF PARKER.

3. GIVEN THE NATURE OF THE PROJECT SITE'S TERRAIN AND SCOPE OF WORK, THE CONTRACTOR'S WATER CONTROL PLAN AND PROPOSAL SHALL ACCOUNT FOR THE NEED TO RELOCATE WATER CONTROL MEASURES AS NEEDED BASED ON THE CONTRACTOR'S ACTUAL CONSTRUCTION SEQUENCE AND SELECTED MEANS AND METHODS.

4. WATER QUALITY SHALL BE ONE OF THE CONTRACTOR'S PRIMARY CONCERNS. THE CONTRACTOR'S IMPLEMENTED WATER CONTROL PLAN WILL BE INSPECTED DAILY. IF FOR ANY REASON THE CONTRACTOR'S IMPLEMENTED WATER CONTROL PLAN NEEDS CORRECTIVE ACTION OR IF THE CONTRACTOR IS DIRECTED BY THE TOWN OF PARKER OR THE OWNER'S REPRESENTATIVE TO MAKE REPAIRS, THE CONTRACTOR SHALL MAKE SUCH CORRECTIONS IMMEDIATELY.

5. THE APPROXIMATE 2–YR DISCHARGE FOR HAPPY CANYON CREEK IS 309 CFS. THE AVERAGE BASE FLOW RATE IS UNKNOWN. THE ESTIMATED AVERAGE BASE FLOW RATE IS APPROXIMATELY 1 CFS.

6. ALL STREAM DIVERSION DITCHES NEED TO BE PLASTIC LINED AT A MINIMUM AS DIRECTED BY THE TOWN OF PARKER.

7. ALL TEMPORARY STREAM CROSSINGS SHALL BE COMPLETELY RIPRAP REINFORCED AND HAVE PLASTIC LINING UNDER THE RIPRAP. THE CONTRACTOR'S SELECTED STREAM CROSSING SHALL ACCOMMODATE PASSAGE FOR BASE FLOWS AND AT NO TIME SHALL CONTRACTORS' EQUIPMENT HAVE DIRECT CONTACT WITH ANY STREAM FLOW.

8. ALL INCIDENTAL WATER CONTROL ITEMS SHALL BE PAID FOR AS TEMPORARY STREAM CROSSING (EA).

CBMP LEGEND

- CD — CHECK DAM
- CF — CONSTRUCTION FENCE
- CP — CULVERT PROTECTION
- CWA — CONCRETE WASHOUT AREA
- D — DEWATERING
- DD — DIVERSION DITCH
- ECB — EROSION CONTROL BLANKET (STRAW/COCONUT)
- IPAN — INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT
- LOC — LIMITS OF CONSTRUCTION
- PTP — PORTABLE TOILET PROTECTION
- RCSC — ROUGH CUT STREET CONTROL
- SCL — SEDIMENT CONTROL LOG (12 INCH)
- SF — SILT FENCE
- SMC — SEEDING MULCHING AND CRIMPING
- SSA — STABILIZED STAGING AREA
- TSB — TEMPORARY SEDIMENT BASIN
- TSC — TEMPORARY STREAM CONTROL
- VTC — VEHICLE TRACKING CONTROL

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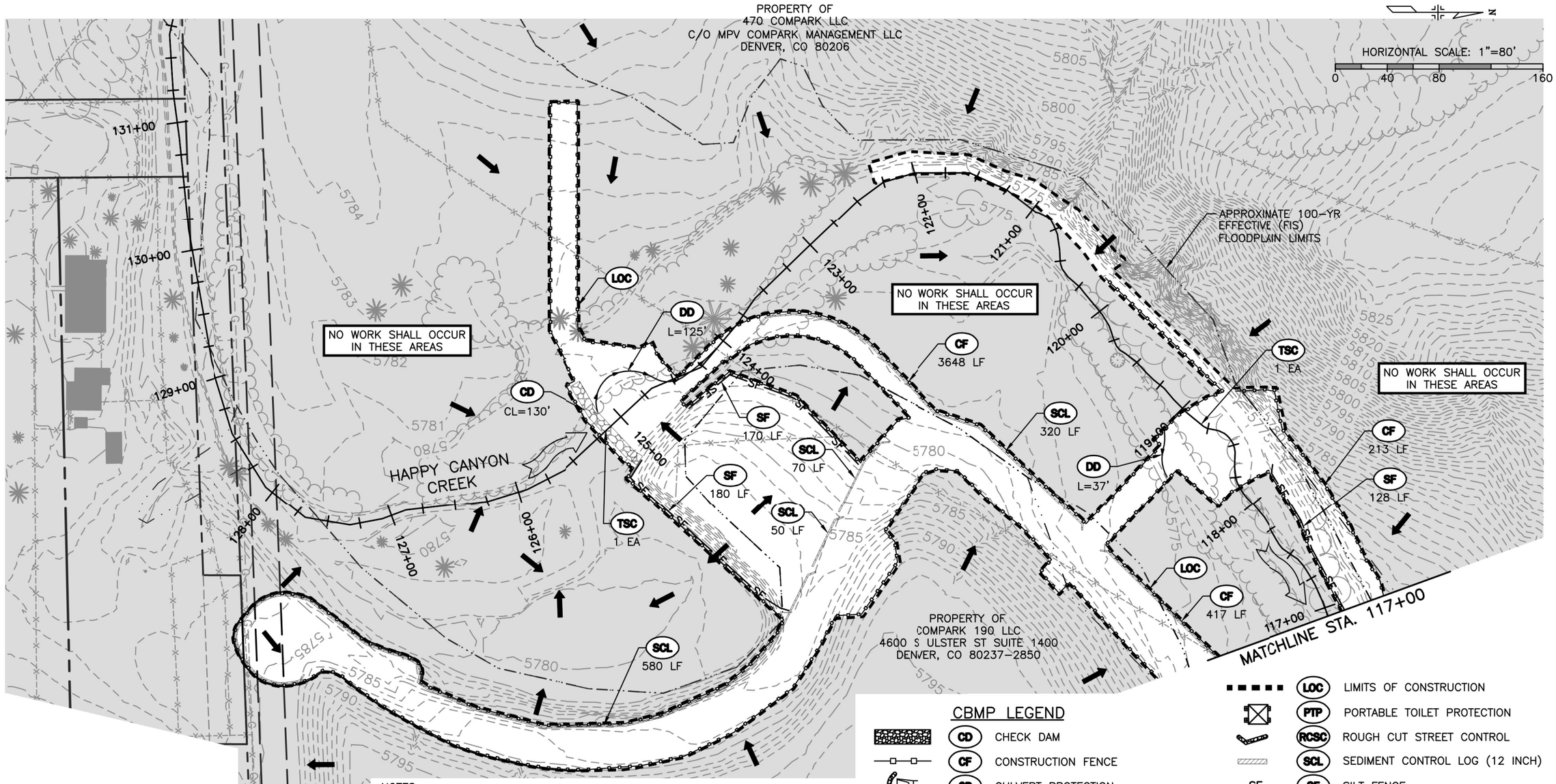
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Revised:
Void:

BELFORD–HAPPY CANYON CREEK
TABULATION OF
EROSION CONTROL QUANTITIES

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	EROSION	Sheets:	ET–1 of 1

Project No./Code

Sheet Number 88



LEGEND

- TOP OF CUT
- TOE OF FILL
- LIMITS OF CONSTRUCTION
- GENERAL FLOW DIRECTION
- WETLANDS

NOTES:

1. TEMPORARY CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
2. ALL DIRTY STREETS, CURBS, GUTTER, SIDEWALKS, LITTER AND OTHER CONSTRUCTION TRASH/DEBRIS, ETC. MUST BE THOROUGHLY CLEANED THROUGHOUT THE DAY AS THESE AREAS BECOME SOILED. NO EXCEPTIONS WILL BE MADE.
3. NO WORK SHALL OCCUR ON ANY AREA ADJACENT TO THE PROJECT OUTSIDE THE LIMITS OF CONSTRUCTION.

CBMP LEGEND

CD	CHECK DAM	
CF	CONSTRUCTION FENCE	
CP	CULVERT PROTECTION	
CWA	CONCRETE WASHOUT AREA	
D	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET (STRAW/COCONUT)	
IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT	
LOC	LIMITS OF CONSTRUCTION	
PTP	PORTABLE TOILET PROTECTION	
RCSC	ROUGH CUT STREET CONTROL	
SCL	SEDIMENT CONTROL LOG (12 INCH)	
SF	SILT FENCE	
SMC	SEEDING MULCHING AND CRIMPING	
SSA	STABILIZED STAGING AREA	
TSB	TEMPORARY SEDIMENT BASIN	
TSC	TEMPORARY STREAM CONTROL (SEE WATER CONTROL NOTES ON ET-1)	
VTC	VEHICLE TRACKING CONTROL	

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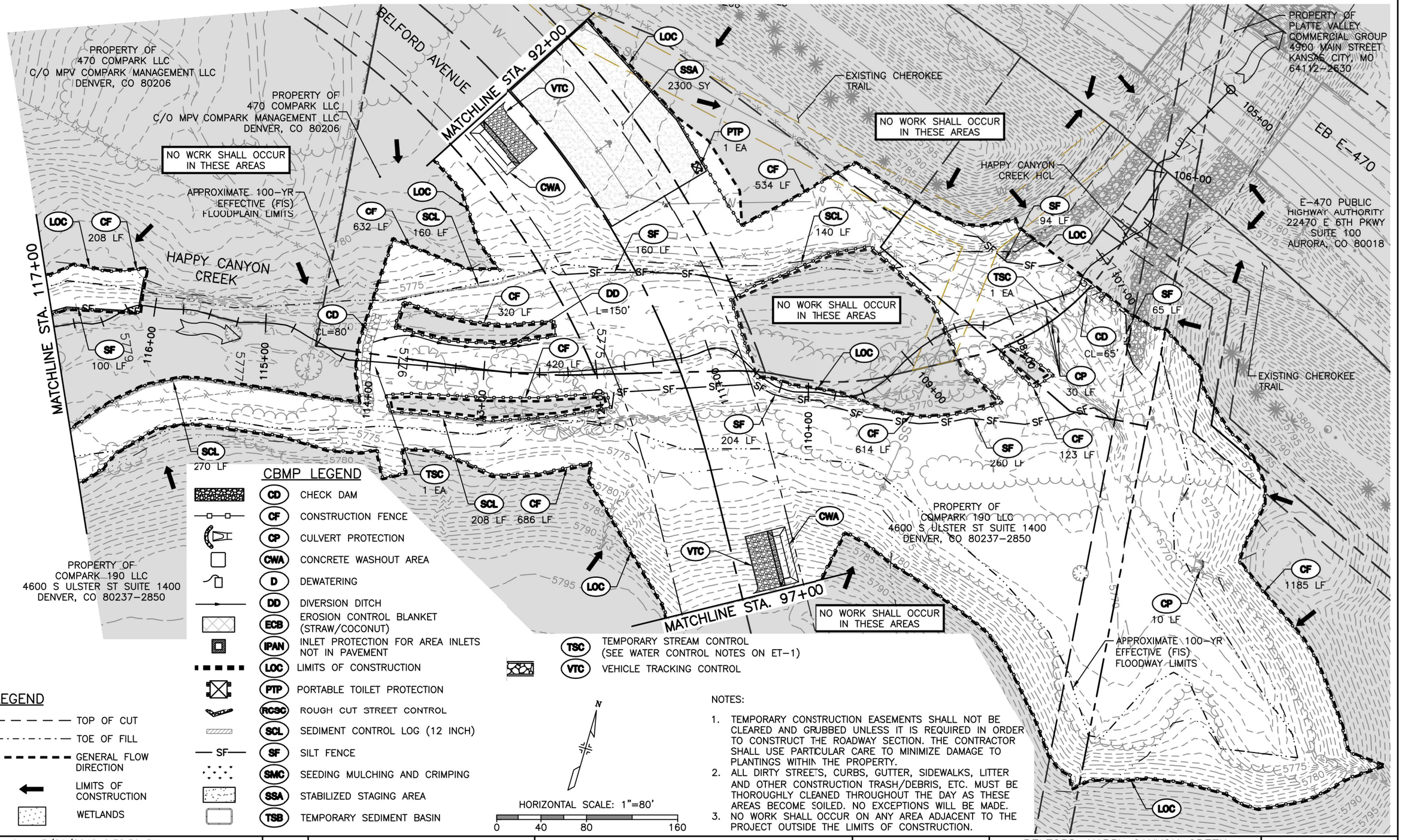
PEORIA & BELFORD INTERSECTION
HAPPY CANYON CREEK DROP STRUCTURE
INITIAL CBMP PLAN

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	Erosion	Sheets:	EI-1 of 2

Project No./Code

Sheet Number 89

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CBMP LEGEND

CD	CHECK DAM	
CF	CONSTRUCTION FENCE	
CP	CULVERT PROTECTION	
CWA	CONCRETE WASHOUT AREA	
D	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET (STRAW/COCONUT)	
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SSA	STABILIZED STAGING AREA	
TSB	TEMPORARY SEDIMENT BASIN	
TSC	TEMPORARY STREAM CONTROL (SEE WATER CONTROL NOTES ON ET-1)	
VTC	VEHICLE TRACKING CONTROL	

LEGEND

- TOP OF CUT
- TOE OF FILL
- GENERAL FLOW DIRECTION
- LIMITS OF CONSTRUCTION
- WETLANDS

HORIZONTAL SCALE: 1"=80'

0 40 80 160

NOTES:

1. TEMPORARY CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
2. ALL DIRTY STREETS, CURBS, GUTTER, SIDEWALKS, LITTER AND OTHER CONSTRUCTION TRASH/DEBRIS, ETC. MUST BE THOROUGHLY CLEANED THROUGHOUT THE DAY AS THESE AREAS BECOME SOILED. NO EXCEPTIONS WILL BE MADE.
3. NO WORK SHALL OCCUR ON ANY AREA ADJACENT TO THE PROJECT OUTSIDE THE LIMITS OF CONSTRUCTION.

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Sheet Revisions

R-X	Date	Comments	Intials

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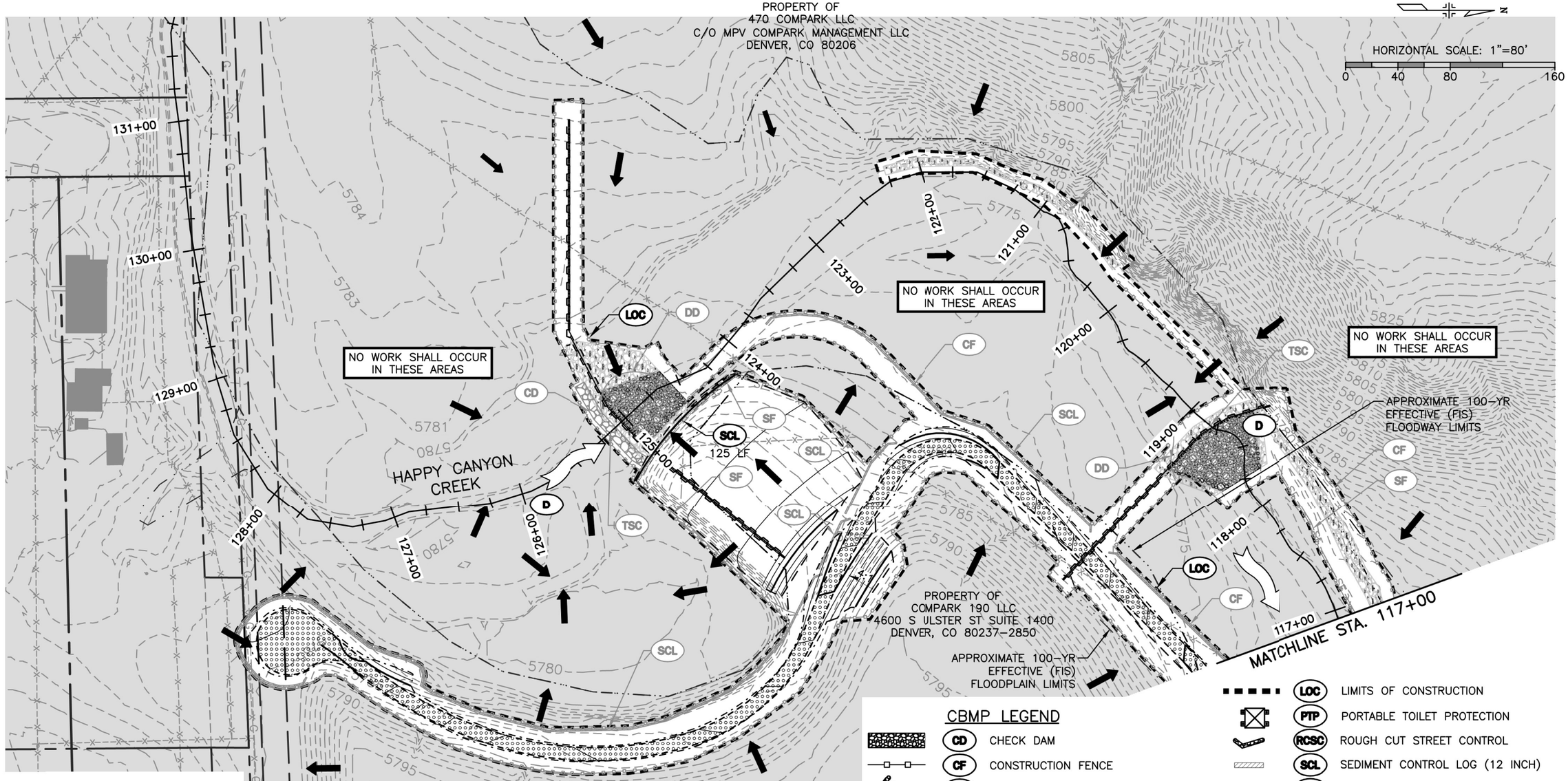
BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
INITIAL CBMP PLAN

Designer: CDT
Detailer: KLT
Subset: Erosion
Structure Numbers:
Sheets: EI-2 of 2

Project No./Code

Sheet Number 90

I:\115360-01 - Compark at Belford\CADD\Erosion\Drawings\Happy Cyn Creek Drop Structure\, Zach.Grady



LEGEND

- TOP OF CUT
- TOE OF FILL
- LIMITS OF CONSTRUCTION
- GENERAL FLOW DIRECTION
- WETLANDS

NOTES:

1. TEMPORARY CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
2. * EROSION CONTROL ITEMS INSTALLED IN THE INITIAL EROSION CONTROL PLAN SHALL REMAIN IN PLACE FOR INTERIM PHASES OF CONSTRUCTION AND SHALL BE REMOVED, MODIFIED OR REPLACED AT THE DIRECTION OF THE PROJECT ENGINEER. THESE ITEMS SHALL BE PAID FOR AS PLACE AND REMOVE.
3. NO WORK SHALL OCCUR ON ANY AREA ADJACENT TO THE PROJECT OUTSIDE THE LIMITS OF CONSTRUCTION.

CBMP LEGEND

CD	CHECK DAM		LOC	LIMITS OF CONSTRUCTION	
CF	CONSTRUCTION FENCE		PTP	PORTABLE TOILET PROTECTION	
CP	CULVERT PROTECTION		RCSC	ROUGH CUT STREET CONTROL	
CWA	CONCRETE WASHOUT AREA		SCL	SEDIMENT CONTROL LOG (12 INCH)	
D	DEWATERING	SF	SF	SILT FENCE	
DD	DIVERSION DITCH		SMC	SEEDING MULCHING AND CRIMPING	
ECB	EROSION CONTROL BLANKET (STRAW/COCONUT)		SSA	STABILIZED STAGING AREA	
IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT		TSB	TEMPORARY SEDIMENT BASIN	
			TSC	TEMPORARY STREAM CONTROL (SEE WATER CONTROL NOTES SHEET ET-1)	
			VTC	VEHICLE TRACKING CONTROL	

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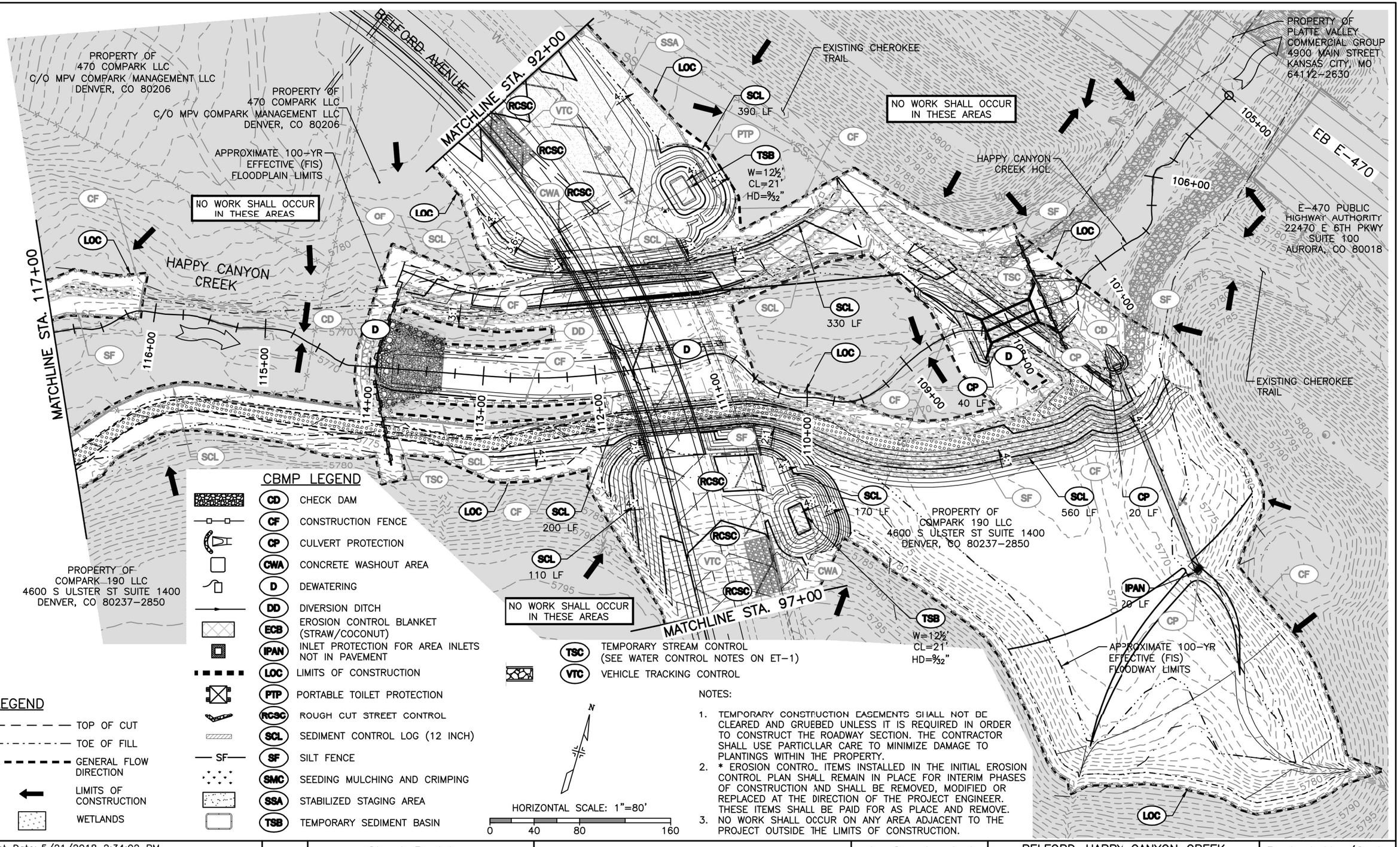
BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
INTERIM CBMP PLAN

Designer: CDT
Detailer: KLT
Subset: Erosion
Structure Numbers:
Sheets: EN-1 of 2

Project No./Code:

Sheet Number 91

I:\115360-01 - Compark at Belford\CADD\Erosion\Drawings\Happy Cyn Creek Drop Structure\, Zach.Grady



NOTES:

1. TEMPORARY CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICULAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
2. * EROSION CONTRO_ ITEMS INSTALLED IN THE INITIAL EROSION CONTROL PLAN SHALL REMAIN IN PLACE FOR INTERIM PHASES OF CONSTRUCTION AND SHALL BE REMOVED, MODIFIED OR REPLACED AT THE DIRECTION OF THE PROJECT ENGINEER. THESE ITEMS SHALL BE PAID FOR AS PLACE AND REMOVE.
3. NO WORK SHALL OCCUR ON ANY AREA ADJACENT TO THE PROJECT OUTSIDE THE LIMITS OF CONSTRUCTION.

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Revised:
Void:

BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
INTERIM CBMP PLAN

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	Erosion	Sheets:	EN-2 of 2

Project No./Code

Sheet Number 92

I:\115360-01 - Compark at Belford\CADD\Erosion\Drawings\Happy Cyn Creek Drop Structure\, Zach.Grady

PROPERTY OF
470 COMPARK LLC
C/O MPV COMPARK MANAGEMENT LLC
DENVER, CO 80206

HORIZONTAL SCALE: 1"=80'
0 40 80 160

131+00 130+00 129+00 128+00 127+00 126+00 125+00 124+00 123+00 122+00 121+00 120+00 119+00 118+00 117+00

HAPPY CANYON CREEK

NO WORK SHALL OCCUR IN THESE AREAS

NO WORK SHALL OCCUR IN THESE AREAS

NO WORK SHALL OCCUR IN THESE AREAS

APPROXIMATE 100-YR EFFECTIVE (FIS) FLOODWAY LIMITS

PROPERTY OF
COMPARK 190 LLC
4600 S ULSTER ST SUITE 1400
DENVER, CO 80237-2850

APPROXIMATE 100-YR EFFECTIVE (FIS) FLOODPLAIN LIMITS

MATCHLINE STA. 117+00

LOC REMOVE
DD REMOVE
CD REMOVE
CF REMOVE
TSC REMOVE
SCL REMOVE
SF REMOVE
SMC
D REMOVE
ECB (STRAW/COCONUT) 228 SY

LEGEND

- TOP OF CUT
- TOE OF FILL
- LIMITS OF CONSTRUCTION
- GENERAL FLOW DIRECTION
- WETLANDS

NOTES:

1. TEMPORARY CONSTRUCTION EASEMENTS SHALL NOT BE CLEARED AND GRUBBED UNLESS IT IS REQUIRED IN ORDER TO CONSTRUCT THE ROADWAY SECTION. THE CONTRACTOR SHALL USE PARTICLLAR CARE TO MINIMIZE DAMAGE TO PLANTINGS WITHIN THE PROPERTY.
2. * EROSION CONTROL ITEMS INSTALLED IN THE INITIAL EROSION CONTROL PLAN SHALL REMAIN IN PLACE FOR INTERIM PHASES OF CONSTRUCTION AND SHALL BE REMOVED, MODIFIED OR REPLACED AT THE DIRECTION OF THE PROJECT ENGINEER. THESE ITEMS SHALL BE PAID FOR AS PLACE AND REMOVE.
3. NO WORK SHALL OCCUR ON ANY AREA ADJACENT TO THE PROJECT OUTSIDE THE LIMITS OF CONSTRUCTION.

CBMP LEGEND

CD	CHECK DAM	
CF	CONSTRUCTION FENCE	
CP	CULVERT PROTECTION	
CWA	CONCRETE WASHOUT AREA	
D	DEWATERING	
DD	DIVERSION DITCH	
ECB	EROSION CONTROL BLANKET (STRAW/COCONUT)	
IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT	
LOC	LIMITS OF CONSTRUCTION	
PTP	PORTABLE TOILET PROTECTION	
RCSC	ROUGH CUT STREET CONTROL	
SCL	SEDIMENT CONTROL LOG (12 INCH)	
SF	SILT FENCE	
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SSA	STABILIZED STAGING AREA	
TSB	TEMPORARY SEDIMENT BASIN	
TSC	TEMPORARY STREAM CONTROL (SEE WATER CONTROL NOTES SHEET ET-1)	
VTC	VEHICLE TRACKING CONTROL	

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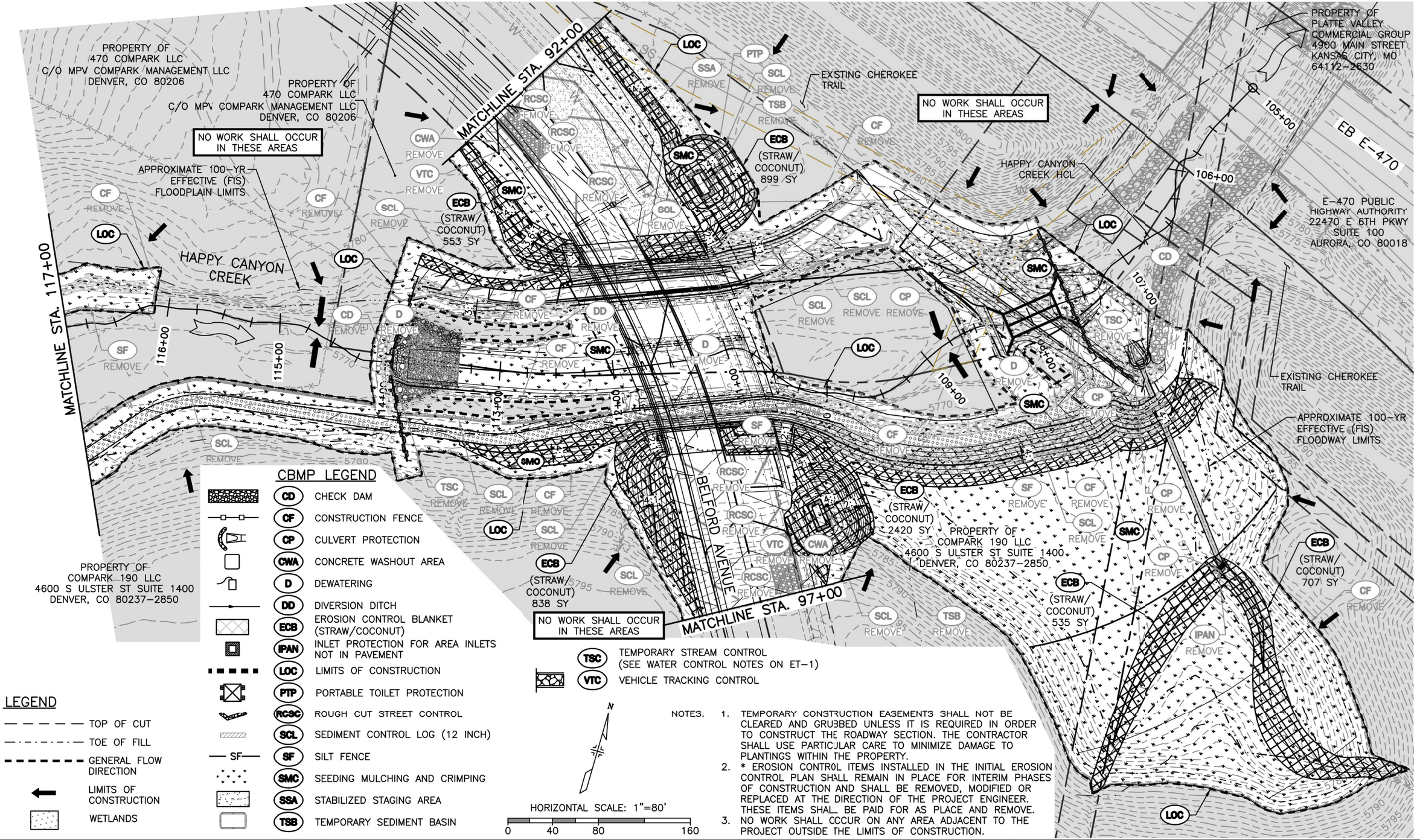
As Constructed
No Revisions:
Revised:
Void:

BELFORD-HAPPY CANYON CREEK
HAPPY CANYON CREEK DROP STRUCTURE
FINAL CEMP PLAN

Designer: CDT
Detailer: KLT
Subset: Erosion
Structure Numbers:
Sheets: EF-1 of 2

Project No./Code

Sheet Number 93



I:\115360-01 - Compark at Belford\CADD\Erosion\Drawings\Happy Cyn Creek Drop Structure\, Zach.Grady

Print Date: 5/21/2018 2:35:13 PM		As Constructed	BELFORD–HAPPY CANYON CREEK HAPPY CANYON CREEK DROP STRUCTURE FINAL CEMP PLAN
File Name: H115360-01DROP02?rosion-FIN.dwg		No Revisions:	Designer: CDT; Structure Numbers:
Horizontal Scale: 1"=80' Vertical Scale: N.T.S.		Revised:	Detailer: KLT
FELSBURG HOLT & ULLEVIG 6300 South Syracuse Way, Suite 600 Centennial, CO 80111 tel 303.721.1440 fax 303.721.0832		Void:	Subset: Erosion; Sheets: EF-2 of 2

R-X	Sheet Revisions		
	Date	Comments	Intials

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Project No./Code

Sheet Number 94

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

1. GRADING, DRILLING, CLEARING, EXCAVATING, BACK-FILLING, SOIL STRIPPING, SOIL IMPORTING EXPORTING OR ANY OTHER FORM OF SOIL DISTURBANCE SHALL NOT COMMENCE UNTIL A TOWN OF PARKER GRADING/EXCAVATION PERMIT HAS BEEN ISSUED.

2. THE TOWN OF PARKER GRADING/EXCAVATION PERMIT IS VALID FOR A PERIOD OF 2 YEARS FROM THE DATE OF ISSUANCE. ANY LAPSE IN PERMIT COVERAGE MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND/OR FINES.

3. ALL EROSION AND SEDIMENT CONTROL BMPS SHALL BE INSTALLED ACCORDING TO THE CBMP PLAN INSTALLATION NOTES AND DETAILS AND/OR PERMITTED VARIANCES. ALL MATERIALS, WORKMANSHIP AND INSTALLATION METHODS ARE SUBJECT TO INSPECTION BY THE TOWN'S INSPECTOR. THE TOWN OF PARKER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS, WORKMANSHIP AND/OR INSTALLATION METHODS THAT DO NOT CONFORM TO THE CBMP PLAN AND/OR PERMITTED VARIANCES.

4. THE EROSION CONTROL SUPERVISOR SHALL REVISE OR MODIFY THE EROSION AND SEDIMENT CONTROL MEASURES IF IT BECOMES APPARENT THAT THE ORIGINAL PLAN IS INADEQUATE, OR AS A RESULT OF DEFICIENCIES IDENTIFIED DURING INSPECTIONS PERFORMED BY THE TOWN'S INSPECTOR.

5. THE INSTALLATION OF ADDITIONAL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS) MAY BE REQUIRED OF THE EROSION CONTROL SUPERVISOR, PROPERTY OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS AT ANY TIME THROUGHOUT THE DURATION OF THE PROJECT CONSTRUCTION AND/OR SUBSEQUENT REVEGETATION PERIOD.

6. THE EROSION CONTROL SUPERVISOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE NOTICE OF NUISANCE REPORTS (a.k.a, CONSTRUCTION SITE RUNOFF CONTROL INSPECTION REPORTS), APPROVED CBMP PLAN(S) AND THE TOWN OF PARKER STORM DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL.

7. THE EROSION CONTROL SUPERVISOR SHALL BE READILY AVAILABLE TO DISCUSS AND CORRECT ANY PROBLEMS THAT MAY ARISE RELATING TO GRADING, EROSION AND SEDIMENT CONTROL.

8. IF IT IS ANTICIPATED THAT ALL OR A PORTION OF THE PROJECT WILL OCCUR DURING SEASONS SUSCEPTIBLE TO SNOWFALL, THE USE OF CERTAIN EROSION AND SEDIMENT CONTROL BMPS ADJACENT TO PUBLIC ROADWAYS MAY NEED TO BE RECONSIDERED DUE TO THE NATURE OF SNOW REMOVAL OPERATIONS. AN APPROVED ALTERNATIVE MAY BE NECESSARY TO MINIMIZE DAMAGE FROM THESE OPERATIONS. THE TOWN OF PARKER ASSUMES NO RESPONSIBILITY FOR DAMAGE TO ANY BMPS AS A RESULT OF SNOW PLOWING AND SNOW REMOVAL.

9. AREAS OF LAND DISTURBANCE EQUAL TO 40 ACRES OR GREATER SHALL NOT BE EXPOSED FOR MORE THAN 30 CONSECUTIVE DAYS WITHOUT TEMPORARY OR PERMANENT STABILIZATION.

10. AUTHORIZED EXEMPTIONS MAY BE ALLOWED TO THE 40-ACRE LIMIT FOR REMOVAL AND STORAGE OF CUT MATERIAL WHERE (A) GEOTECHNICAL LIMITATIONS RESTRICT THE USE OF TEMPORARY OR PERMANENT STABILIZATION OF THE STORED MATERIAL (E.G., SWELLING SOILS, ROCK) AND (B) WHEN THE OWNER CAN DEMONSTRATE THAT THE 40-ACRE LIMIT IS PHYSICALLY AND/OR FINANCIALLY IMPRACTICABLE. FOR SITES GRANTED THIS EXEMPTION, A PHASING AND EARTHWORK QUANTITIES PLAN SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT AND APPROVED PRIOR TO THE COMMENCEMENT OF LAND DISTURBANCE ACTIVITIES. SUBMITTAL REQUIREMENTS INCLUDE:

    (I) PHASING PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.

    (II) EARTHWORK QUANTITY PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.

    (III) BMP PLAN SHOWING SPECIFIC EROSION AND SEDIMENT CONTROLS FOR EACH PHASE.

Town of Parker COLORADO

CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

GEN NOTES 1 OF 4 Oct. 2013

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

11. ANY EROSION AND SEDIMENT CONTROL BMPS THAT ARE DAMAGED OR IN NEED OF MAINTENANCE OR REPLACEMENT SHALL BE CORRECTED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.

12. ALL DEFICIENCIES LISTED ON THE NOTICE OF NUISANCE FORM SHALL BE COMPLETED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES. ALL REQUIRED ACTIONS MUST BE IN THE CORRECTED FORM DURING THE FOLLOW-UP INSPECTION.

13. THE EROSION CONTROL SUPERVISOR IS RESPONSIBLE FOR ENSURING THAT ALL STREETS, CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, PARKING LOTS, ALLEYS, TRICKLE CHANNELS, AND/OR OTHER IMPERVIOUS SURFACES IMPACTED BY CONSTRUCTION ACTIVITIES ARE THOROUGHLY CLEANED THROUGHOUT THE DAY IF THEY BECOME SOILED. THESE AREAS MUST ALSO BE THOROUGHLY CLEAN BEFORE THE END OF THE WORK DAY.

14. 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.

15. ALL TRASH RECEPTACLES ON SITE SHALL BE FREE OF HOLES, CRACKS, GAPS, AND/OR OTHER PERMEABLE AREAS THAT MAY ALLOW FOR THE DISCHARGE OF POLLUTANTS.

16. ALL TRASH RECEPTACLES ON SITE SHALL BE EMPTIED AT A FREQUENCY AS TO ENSURE THAT THE TRASH REMAINS CONFINED TO THE RECEPTACLE.

17. ALL LOOSE TRASH AND LITTER ASSOCIATED WITH THE PROJECT MUST BE REMOVED AND PROPERLY DISCARDED ON A DAILY BASIS.

18. ALL PORTABLE TOILETS SHALL BE STAKED DOWN AT ALL TIMES USING U-SHAPED REBAR STAKES. THE PORTABLE TOILETS SHALL ALSO BE PLACED A MINIMUM DISTANCE OF 10 FEET FROM ALL IMPERVIOUS SURFACES, INCLUDING, BUT NOT LIMITED TO STREETS CURBS, GUTTERS, SIDEWALKS AND PARKING LOTS.

19. THE EROSION CONTROL SUPERVISOR SHALL MAINTAIN STRICT ADHERENCE TO THE LIMITS OF CONSTRUCTION AND PROPERTY LIMITS FOR ALL MATERIALS, VEHICLES AND EQUIPMENT. FAILURE TO ABIDE BY THIS REQUIREMENT MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER.

20. ALL CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE THROUGH THE APPROVED ACCESS POINT(S). A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL APPROVED ACCESS POINTS TO THE SITE. EXCEPTIONS MAY BE CONSIDERED FOR CONSTRUCTION ACTIVITY OCCURRING IMMEDIATELY ADJACENT TO PAVED AREAS AND WHERE ALTERNATIVE BMP'S ARE IMPLEMENTED. SUCH ACTIVITY MAY INCLUDE, BUT NOT BE LIMITED TO RESIDENTIAL CONSTRUCTION, UTILITY CONSTRUCTION, ETC.

21. NO PERMANENT SLOPES GREATER THAN 3:1 ARE ALLOWED.

22. ALL PERMANENT SLOPES STEEPER THAN 4:1 (HORIZONTAL TO VERTICAL) SHALL REQUIRE EROSION CONTROL BLANKET(S). TEMPORARY SLOPES IN TEMPORARY SEDIMENT BASINS THAT ARE STEEPER THAN 4:1 MAY REQUIRE EROSION CONTROL BLANKETS.

23. THE EROSION CONTROL SUPERVISOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ADVERSE IMPACTS THAT OCCUR TO NEIGHBORING PROPERTIES. THE EROSION CONTROL SUPERVISOR MUST OBTAIN PERMISSION FROM LAND OWNERS PRIOR TO ENTERING SUCH PROPERTY.

24. A WATER SOURCE SHALL BE AVAILABLE ONSITE DURING CONSTRUCTION ACTIVITIES, AND UTILIZED TO MINIMIZE FUGITIVE DUST. ALTERNATIVE BMPS MAY BE REQUIRED IF INITIAL ATTEMPTS TO SUPPRESS DUST ARE UNSUCCESSFUL.

Town of Parker COLORADO

CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

GEN NOTES 2 OF 4 Oct. 2013

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No Revisions:
Revised:
Void:

BELFORD-HAPPY CANYON CREEK
CBMP STANDARD
NOTES AND DETAILS

Designer:	CDT	Structure Numbers	
Detailer:	KLT		
Subset:	Erosion	Sheets:	ED-1 of 35

Project No./Code

Sheet Number 95

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

25. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS, INCLUDING CONCRETE WASHOUT WATER, WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDES BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER, DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) PER 25-8-601, AND THE TOWN OF PARKER. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER AND THE CDPHE. SPILLS THAT POSE AN IMMEDIATE SAFETY HAZARD SHALL BE REPORTED TO 911.

26. THE CLEANING OF CONCRETE TRUCKS AND EQUIPMENT IS RESTRICTED TO THE APPROVED CONCRETE WASHOUT LOCATION ON THE JOB SITE. CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO STATE WATERS OR STORM SEWER SYSTEMS.

27. VEHICLE AND EQUIPMENT DEGREASING IS PROHIBITED ON THE JOB SITE.

28. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH THE TOWN'S INSPECTOR. A STATE PERMIT MAY BE REQUIRED FOR DEWATERING. THE EROSION CONTROL SUPERVISOR IS RESPONSIBLE FOR OBTAINING AND ADHERING TO ALL APPLICABLE PERMITS.

29. HYDRAULIC SEEDING AND/OR HYDRAULIC MULCHING ARE ONLY ALLOWED IN AREAS UNDER TEMPORARY OR PERMANENT IRRIGATION OR FOR THE PURPOSE OF TEMPORARY SOIL STABILIZATION.

30. APPLICABLE CONSTRUCTION BMPS SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL ALL LANDSCAPING HAS BEEN INSTALLED AND THE DESIRABLE VEGETATION HAS REACHED A POINT IN WHICH EROSION AND SEDIMENTATION IS NO LONGER A CONCERN AS DETERMINED BY THE TOWN'S INSPECTOR.

31. GRADING SECURITY RELEASE REQUIREMENTS:

    1) DEVELOPABLE PROPERTY: IN ORDER FOR THE GRADING SECURITY TO BE RELEASED, THE SITE MUST MEET ITEMS A-H OR ITEM I (BELOW).

    A. ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
    B. UNIFORM PERENNIAL VEGETATION COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST SEVENTY PERCENT (70%) OF PRE-DISTURBANCE LEVELS.
    C. ALL CBMPS HAVE BEEN PROPERLY REMOVED FROM THE SITE.
    D. IF ANY EROSION IS PRESENT, IT IS INSIGNIFICANT AND IS NOT LEAVING THE SITE AND/OR LEADING INTO ANY ON-SITE DRAINAGE INFRASTRUCTURE THAT MAY CONVEY SURFACE WATER OFF SITE.
    E. WEEDS REPRESENT NO MORE THAN FIFTY PERCENT (50%) OF THE TOTAL VEGETATION ON THE SITE.
    F. NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
    G. THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
    H. WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
    I. A NEW GRADING PERMIT AND REPLACEMENT SECURITY HAS BEEN SUBMITTED AND APPROVED

    FOR THE APPLICABLE SITE OR ASSIGNMENT AS PROVIDED BY SECTION 11.10.150 OF THE TOWN OF PARKER MUNICIPAL CODE. IT IS THE PROPERTY OWNER'S OBLIGATION AT THE TIME OF CLOSING TO ENSURE THAT THE NEW SITE OWNER HAS PROVIDED THE TOWN WITH A REPLACEMENT SECURITY.

Town of Parker COLORADO

CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

GEN NOTES 3 OF 4 Oct. 2013

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

2) NONDEVELOPABLE PROPERTY: IN ORDER FOR THE GRADING SECURITY TO BE RELEASED, THE SITE MUST MEET ITEMS A-H AND J, OR ITEMS I AND J (BELOW).

A. ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
B. ALL CBMPS HAVE BEEN PROPERLY REMOVED FROM THE SITE.
C. EROSION IS NEGLIGIBLE, IF EVEN PRESENT.
D. THE VEGETATION REPRESENTS A PERENNIAL STAND OF A DENSE, UNIFORM SURFACE OF GRASS WITH NO AREA GREATER THAN ONE (1) SQUARE FOOT THAT IS BARREN OF DESIRABLE VEGETATION. INFREQUENT, WIDELY SCATTERED AREAS WHERE NATIVE VEGETATION HAS NOT YET TAKEN HOLD MAY QUALIFY FOR ACCEPTANCE AT THE DISCRETION OF THE TOWN.
E. WEEDS REPRESENT NO MORE THAN TEN PERCENT (10%) OF THE TOTAL VEGETATION ON SITE.
F. NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
G. THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
H. WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
I. A NEW GRADING PERMIT AND REPLACEMENT SECURITY HAS BEEN SUBMITTED AND APPROVED FOR THE APPLICABLE SITE OR THE GRADING PERMIT HAS BEEN ASSIGNED AS PROVIDED BY SECTION 11.10.150 OF THE TOWN OF PARKER MUNICIPAL CODE. IT IS THE PROPERTY OWNER'S OBLIGATION, AT THE TIME OF CLOSING ON THE SALE OF A SITE THAT IS SUBJECT TO A GRADING PERMIT, TO ENSURE THAT THE NEW PROPERTY OWNER HAS PROVIDED THE TOWN WITH A REPLACEMENT SECURITY.
J. ALL KNOWN DRAINAGE ISSUES ASSOCIATED WITH THE PROJECT HAVE BEEN MITIGATED AND A SUFFICIENT AMOUNT OF TIME HAS PASSED TO ENSURE THAT SUCH ISSUES HAVE BEEN CORRECTED. THIS REQUIREMENT DOES NOT INCLUDE THOSE DRAINAGE ISSUES ORIGINATING ON RESIDENTIAL LOTS.

(D) NOXIOUS WEEDS MUST BE CONTROLLED AS PROVIDED UNDER STATE LAW AND SECTION 6.01.260 OF THE TOWN OF PARKER MUNICIPAL CODE. FAILURE TO CONTROL NOXIOUS WEEDS ON THE SITE MAY CONSTITUTE A NUISANCE, SUBJECT TO THE PENALTIES CONTAINED IN THE CODE.

DEFINITIONS:

DEVELOPABLE PROPERTY MEANS ANY LAND THAT HAS BEEN GRADED AND IS PART OF A PLATTED LOT OR PLATTED TRACT OF RECORD, THAT WAS PLATTED FOR FUTURE DEVELOPMENT, INCLUDING RESIDENTIAL HOME CONSTRUCTION OR PUBLIC IMPROVEMENTS.

NONDEVELOPABLE PROPERTY MEANS LAND THAT HAS BEEN GRADED AND WILL NOT BE FURTHER DISTURBED AS PART OF ANY FUTURE DEVELOPMENT. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO: PARKS, OPEN SPACE, HOMEOWNER ASSOCIATION OR BUSINESS ASSOCIATION PLATTED TRACTS, DETENTION PONDS AND DRAINAGEWAYS.

32. FAILURE TO COMPLY WITH ANY OF THE REQUIREMENTS DESCRIBED IN THIS SECTION MAY RESULT IN THE ISSUANCE OF: A NOTICE OF INTENT TO ISSUE A STOP WORK ORDER, A STOP WORK ORDER AND/OR THE REMEDIES/PENALTIES DESCRIBED IN CHAPTER 11.10 OF THE TOWN OF PARKER MUNICIPAL CODE.

33. ANY PERSON CONVICTED OF VIOLATING ANY PROVISION OF THE TOWN OF PARKER, GRADING & EARTH MOVEMENT SECTION OF THE MUNICIPAL CODE SHALL BE GUILTY OF A MISDEMEANOR AND, UPON CONVICTION, BE PUNISHED BY A FINE OF NOT MORE THAN FOUR HUNDRED NINETY NINE DOLLARS ($499.00) FOR EACH SEPARATE OFFENSE. EACH DAY A VIOLATION CONTINUES SHALL CONSTITUTE A SEPARATE OFFENSE. THE TOWN ALSO MAY SEEK IN MUNICIPAL COURT AN INJUNCTION, ABATEMENT, RESTITUTION OR ANY OTHER REMEDY TO PREVENT, ENJOIN, ABATE OR REMOVE THE VIOLATION. A PERSON CONVICTED OF VIOLATING CHAPTER 11.10 OF THE TOWN OF PARKER MUNICIPAL CODE SHALL BE LIABLE FOR THE ACTUAL COST OF REHABILITATING THE PROPERTY. THE COSTS MAY BE RECOVERED AS RESTITUTION IN MUNICIPAL COURT PROCEEDINGS OR IN A SEPARATE CIVIL ACTION.

34. THE TOWN OF PARKER RESERVES THE RIGHT TO ALLOW MODIFICATIONS AND SUBSTITUTIONS TO THE CBMP NOTES AND DETAILS WHEN SUCH MODIFICATIONS AND SUBSTITUTIONS OFFER THE SAME LEVEL OF PROTECTION AS THE STANDARD REQUIREMENTS BASED UPON THE SPECIFIC SITUATION, AS DETERMINED BY TOWN STAFF. DUE TO THE INSIGNIFICANCE AND REGULARITY OF SUCH MODIFICATIONS AND SUBSTITUTIONS, THE APPROVAL OF SUCH VARIATIONS MAY NOT BE DOCUMENTED BY TOWN STAFF.

Town of Parker COLORADO

CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

GEN NOTES 4 OF 4 Oct. 2013

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Sheet Revisions

Date	Comments	Initials

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Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

As Constructed
No Revisions:
Revised:
Void:

BELFORD-HAPPY CANYON CREEK
CBMP STANDARD
NOTES AND DETAILS

Designer: CDT
Detailer: KLT
Subset: Erosion
Structure Numbers:
Sheets: ED-2 of 35

Project No./Code

Sheet Number 96