

CITY OF MISSOULA

GRANT CREEK RESTORATION AND FLOOD CONTROL

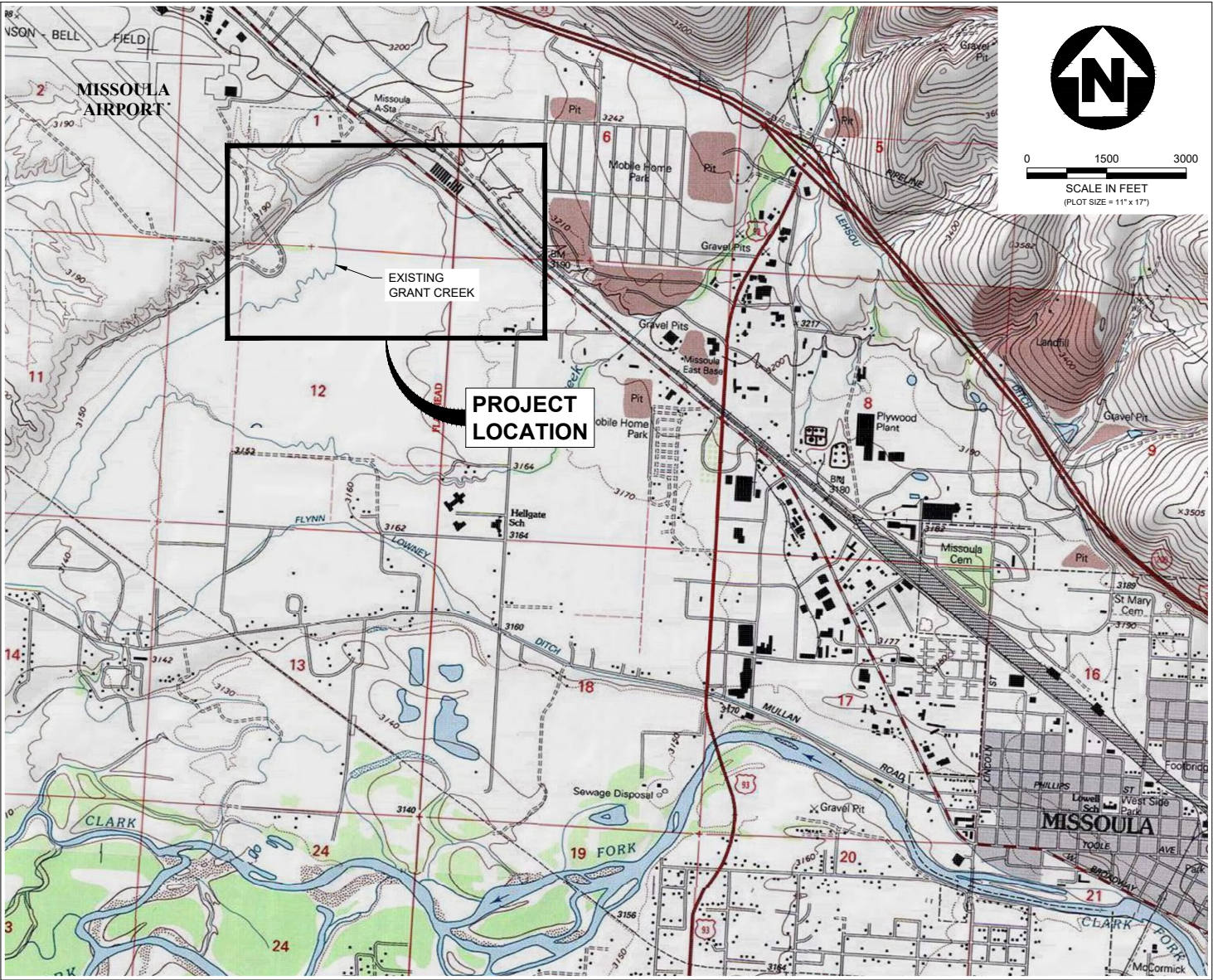
MISSOULA, MONTANA

ENGINEER OF RECORD	APPLICABLE PLAN SHEETS
Donny Pfeifer, P.E.  Donny Pfeifer	B. TYPICAL SECTIONS B.3 F. TRAIL PLAN, PROFILE, AND CROSS SECTIONS F.1–F.19
Dan March, P.E., CFM  Dan March	A. GENERAL INFORMATION A.1–A.9 B. TYPICAL SECTIONS B.1–B.2 C. GRANT CREEK PLAN, PROFILE & CROSS SECTIONS C.1–C.21 D. FLOODPLAIN SWALE PLAN, PROFILE & CROSS SECTIONS D.1–D.2 E. STORMWATER DRAIN PLAN, PROFILE & DETAILS E.1–E.2 G. REVEGETATION PLAN G.1–G.3 H. CONSTRUCTION DETAILS H.1–H.2
	APPROVED BY CITY OF MISSOULA



PLANS PREPARED FOR

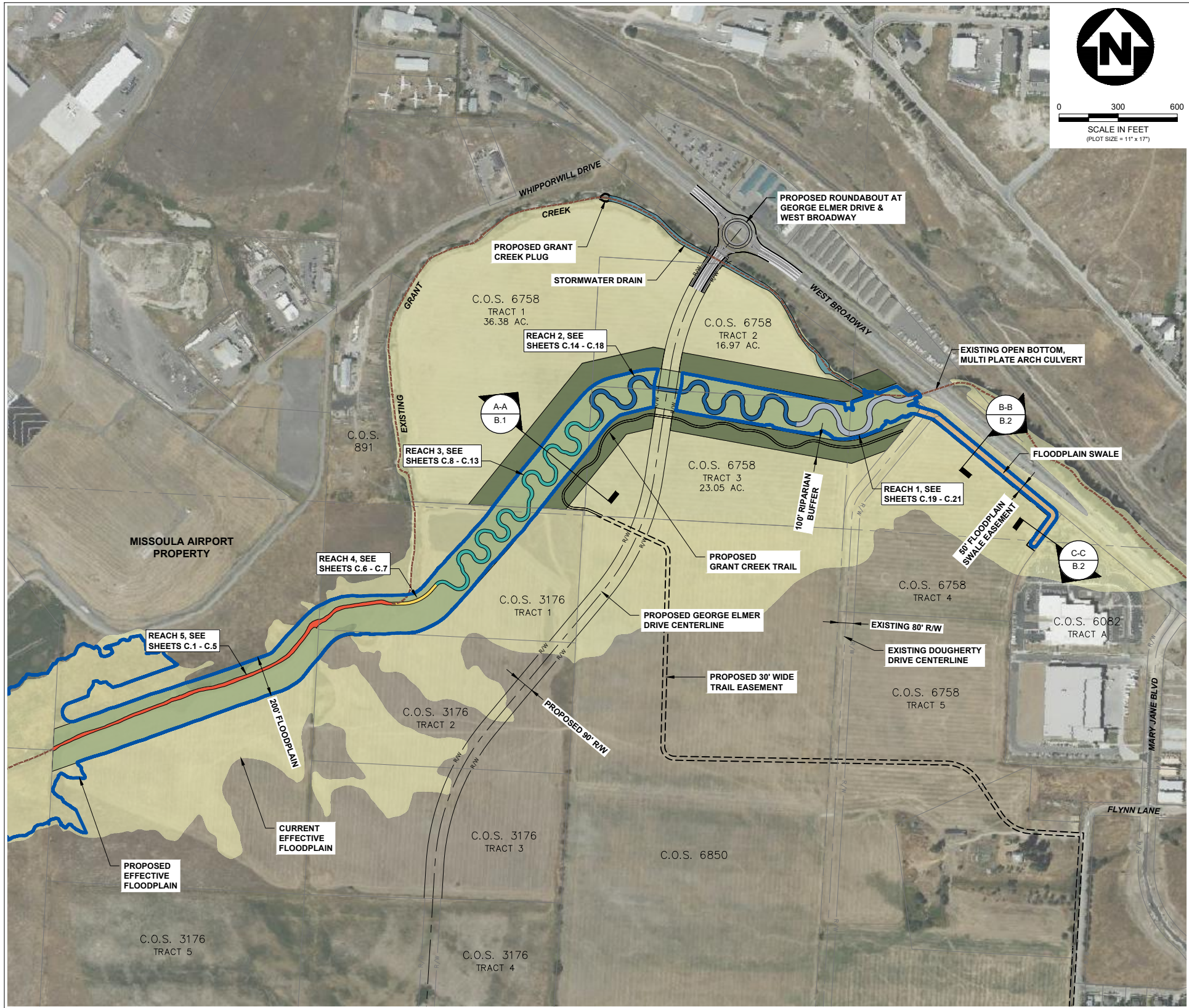
CITY OF MISSOULA



PROJECT
LOCATION



PROJECT MANAGER
D. PFEIFER



1 PROJECT OVERVIEW
SCALE: 1" = 300'

SHEET INDEX

A. GENERAL INFORMATION

- A.1 COVER
- A.2 PROJECT OVERVIEW AND SHEET INDEX
- A.3 LEGEND AND ABBREVIATIONS
- A.4 GENERAL NOTES
- A.5 GRANT CREEK - MASS HAUL VIEW AND ESTIMATED QUANTITIES
- A.6 FLOODPLAIN SWALE - MASS HAUL VIEW AND ESTIMATED QUANTITIES
- A.7 EARTHWORK STOCKPILING AND - ALTERNATE BID SCHEDULES
- A.8 SURVEY CONTROL POINTS
- A.9 FLOODPLAIN CENTERLINE ALIGNMENT

B. TYPICAL SECTIONS

- B.1 GRANT CREEK FLOODPLAIN AND CHANNEL
- B.2 FLOODPLAIN SWALE
- B.3 GRANT CREEK TRAIL TYPICAL SECTION

C. GRANT CREEK PLAN, PROFILE & CROSS SECTIONS

- REACH 5
 - C.1 PLAN AND PROFILE - STA 500+00 TO STA 510+50
 - C.2 PLAN AND PROFILE - STA 510+50 TO STA 519+16.68
 - C.3 CROSS SECTIONS - STA 500+00 TO STA 506+00
 - C.4 CROSS SECTIONS - STA 508+00 TO STA 514+00
 - C.5 CROSS SECTIONS - STA 516+00 TO STA 518+00
- REACH 4
 - C.6 PLAN AND PROFILE - STA 400+00 TO STA 402+56.84
 - C.7 CROSS SECTIONS - STA 400+00 TO STA 402+00
- REACH 3
 - C.8 PLAN AND PROFILE - STA 300+00 TO STA 311+75
 - C.9 PLAN AND PROFILE - STA 311+75 TO STA 323+36
 - C.10 CROSS SECTIONS - STA 300+00 TO STA 305+30
 - C.11 CROSS SECTIONS - STA 306+90 TO STA 312+25.13
 - C.12 CROSS SECTIONS - STA 314+00 TO STA 319+70
 - C.13 CROSS SECTIONS - STA 321+50 TO STA 323+10
- REACH 2
 - C.14 PLAN AND PROFILE - STA 200+00 TO STA 209+50
 - C.15 PLAN AND PROFILE - STA 209+50 TO STA 218+64.90
 - C.16 CROSS SECTIONS - STA 200+00 TO STA 205+75
 - C.17 CROSS SECTIONS - STA 207+00 TO STA 211+25
 - C.18 CROSS SECTIONS - STA 213+00 TO STA 218+50
- REACH 1
 - C.19 PLAN AND PROFILE - STA 100+00 TO STA 108+21.80
 - C.20 CROSS SECTIONS - STA 100+00 TO STA 106+50
 - C.21 CROSS SECTIONS - STA 108+00

D. FLOODPLAIN SWALE PLAN, PROFILE & CROSS SECTIONS

- D.1 PLAN AND PROFILE - STA 0+00 TO STA 13+00
- D.2 CROSS SECTIONS - STA 3+00 TO STA 12+00

LEGEND

- 200' FLOODPLAIN
- 100' RIPARIAN BUFFER
- FLOODPLAIN SWALE
- STORMWATER DRAIN
- CURRENT EFFECTIVE FLOODPLAIN
- PROPOSED EFFECTIVE FLOODPLAIN
- REACH 5 STREAM CHANNEL
- REACH 4 STREAM CHANNEL
- REACH 3 STREAM CHANNEL
- REACH 2 STREAM CHANNEL
- REACH 1 STREAM CHANNEL
- EXISTING GRANT CREEK
- PROPERTY LINE
- SECTION LINE
- PROPOSED TRAIL
- PROPOSED TRAIL EASEMENT

E. STORMWATER DRAIN PLAN, PROFILE & DETAILS

- E.1 PLAN AND PROFILE - STA 0+00 TO STA 19+00
- E.2 ENLARGED GRANT CREEK PLUG - PLAN, PROFILE, AND SECTION VIEWS

F. TRAIL PLAN, PROFILE AND CROSS SECTIONS

- F.1 VICINITY MAP
- F.2 PLAN & PROFILE - STA 10+00 TO 12+30
- F.3 PLAN & PROFILE - STA 12+30 TO 14+80
- F.4 PLAN & PROFILE - STA 14+80 TO 17+30
- F.5 PLAN & PROFILE - STA 17+30 TO 19+80
- F.6 PLAN & PROFILE - STA 19+80 TO 22+30
- F.7 PLAN & PROFILE - STA 22+30 TO 24+80
- F.8 PLAN & PROFILE - STA 24+80 TO 27+30
- F.9 PLAN & PROFILE - STA 27+30 TO 29+80
- F.10 PLAN & PROFILE - STA 29+80 TO 32+30
- F.11 PLAN & PROFILE - STA 32+30 TO 33+00
- F.12 - F.19 CROSS SECTIONS

G. REVEGETATION PLAN

- G.1 PLANTING PLAN
- G.2 PLANTING SCHEDULE
- G.3 PLANTING DETAILS

H. CONSTRUCTION DETAILS

- H.1 CONSTRUCTION DETAILS (1 OF 2)
- H.2 CONSTRUCTION DETAILS (2 OF 2)

I. GRANT CREEK CROSSING

- I.1 ROAD PLAN AND PROFILE
- I.2 CULVERT GENERAL LAYOUT

J. DOUGHERTY DRIVE CROSSING

- J.1 ROAD PLAN AND PROFILE
- J.2 CULVERT GENERAL LAYOUT

FLOODPLAIN DESIGN CRITERIA

REACH 5				
REACH LENGTH	STREAM LENGTH	SINUOSITY	RADIUS OF CURVATURE (MIN)	STREAM SLOPE
1,900 FT	1916.68 FT	1	N/A	0.09%

REACH 4				
REACH LENGTH	STREAM LENGTH	SINUOSITY	RADIUS OF CURVATURE (MIN)	STREAM SLOPE
300 FT	256.84 FT	0.9	200 FT	-0.35%

REACH 3				
REACH LENGTH	STREAM LENGTH	SINUOSITY	RADIUS OF CURVATURE (MIN)	STREAM SLOPE
1,168 FT	2,336 FT	2	40 FT	0.04%

REACH 2				
REACH LENGTH	STREAM LENGTH	SINUOSITY	RADIUS OF CURVATURE (MIN)	STREAM SLOPE
1,097 FT	1,864.9 FT	1.7	45 FT	0.22%

REACH 1				
REACH LENGTH	STREAM LENGTH	SINUOSITY	RADIUS OF CURVATURE (MIN)	STREAM SLOPE
587 FT	821.8 FT	1.4	60 FT	0.78%

REVISION	DATE	DESCRIPTION

DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
PROJECT OVERVIEW AND SHEET INDEX

SHEET
OF
A.2 A.9

ABBREVIATIONS

LEGEND

ALUMINUM CAP	AC
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	AASHTO
AMERICAN NATIONAL STANDARDS INSTITUTE	ANSI
AND	&
AVENUE	AVE.
BALLED AND BURLAPPED	B&B
BEGIN VERTICAL CURVE ELEVATION	BVCE
BEGIN VERTICAL CURVE STATION	BVCS
BEGINNING POINT	BP
BRASS CAP	BC
CENTERLINE	CL, C/L
CONTROL POINT	CP
CUBIC YARD	CY
DIAMETER	DIA., D, Ø
DRY DENSITY	DD
EAST	E
ELEVATION	ELEV., EL.
END POINT	EP
END VERTICAL CURVE ELEVATION	EVCE
END VERTICAL CURVE STATION	EVCS
FINISH GROUND	FG
FOOT (MEASUREMENT)	FT. OR '
FOUND	FND
INCH	IN. OR "
LENGTH OF VERTICAL CURVE	LVC
LIQUID LIMIT	LL
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	MUTCD
MAXIMUM	MAX.
MILIMETER	MM
MINIMUM	MIN.
MOISTURE CONTENT	MC
NORTH	N
NORTH AMERICAN DATUM	NAD
NORTH AMERICAN VERTICAL DATUM	NAVD
NUMBER	NO.
ON CENTER	OC
OUNCE	OZ
PERCENT	PCT. OR %
PLASTIC LIMIT	PL
POINT OF CURVE	PC
POINT OF INTERSECTION	PI
POINT OF TANGENT	PT
POINT OF VERTICAL INTERSECTION	PVI
QUANTITIES	QUANT., QTY
RADIUS	R
REBAR	RB
SQUARE FOOT	FT², FT2 OR SF
STANDARD	STD
STATION	STA
TOP BACK OF CURB	TBC
TYPICAL	TYP

	EXISTING	PROPOSED
EDGE OF ASPHALT		
EDGE OF GRAVEL		
ROAD CENTERLINE		
DITCH/SWALE		
SIGNS		
MINOR CONTOUR		
MAJOR CONTOUR		
FENCE		
NATURAL GAS LINE		
OVERHEAD POWER LINE		
UNDERGROUND POWER LINE		
FIBER OPTIC LINE		
UNDERGROUND TELEPHONE		
POWER POLE		
POWER POLE ANCHOR		
UTILITY BOX		
VEGETATION		
RECORD ROADWAY RIGHT-OF-WAY LINE		
RECORD RIGHT-OF-WAY LINE		
CURB AND GUTTER		
DRAINAGE SUMP		
CONSTRUCTION LIMITS		
CONTROL POINT		
ASPHALT CONCRETE PAVEMENT		
CONCRETE		
BOLLARD		
WELL / GROUND WATER MONITORING		
BORE HOLE		
TOPSOIL AND SEEDING		
FIRE HYDRANT		
WATER BLOW-OFF VALVE		
WATER VALVE		
WATER LINE		
SEWER MANHOLE		
SEWER LINE		
STORM DRAIN MANHOLE		

	EXISTING	PROPOSED
APPROACH PIPE/CULVERT		
TEMPORARY CONSTRUCTION EASEMENT		

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
LEGEND AND ABBREVIATIONS

GENERAL NOTES

1. SPECIFICATIONS: CONSTRUCT THE PROJECT IN COMPLIANCE WITH THE PROJECT SPECIFICATIONS AND TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) AND BEST MANAGEMENT PRACTICES. THE PROJECT SPECIFICATIONS ARE DERIVED FROM THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS (MPWSS) 7TH EDITION AND HAVE BEEN REVISED AND SUPPLEMENTED FOR THIS PROJECT.
2. EROSION CONTROL PLAN: THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AN EROSION CONTROL PLAN TO THE CITY PERMITTING FOR APPROVAL PRIOR TO BEGINNING ANY WORK. WORK WILL NOT BE CONDUCTED UNTIL THE DEPARTMENT OF ENVIRONMENTAL QUALITY STORMWATER POLLUTION PREVENTION PLAN HAS BEEN APPROVED BY THE CITY ENGINEER. THE CONTRACTOR WILL PROVIDE AND INSTALL BEST MANAGEMENT PRACTICES TO PREVENT RUNOFF FROM THE CONSTRUCTION SITE FROM ENTERING DIRECTLY INTO THE ADJACENT WATERWAYS.
3. GENERAL STORM WATER PERMITS: THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING AND COMPLETING ALL REQUIREMENTS OF THE MPDES STORM WATER PERMIT ADMINISTERED UNDER THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY. AN AUTHORIZATION UNDER THE GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY IS REQUIRED FOR CONSTRUCTION ACTIVITIES THAT INCLUDE CLEARING, EXCAVATING, GRADING, GRUBBING, OR PLACEMENT/REMOVAL OF EARTH MATERIAL WITH A TOTAL AREA OF ONE OR MORE ACRES. ADDITIONAL INFORMATION IS PROVIDED IN THE SPECIFICATIONS.
4. CITY OF MISSOULA STORM WATER PERMIT: THE CONTRACTOR SHALL OBTAIN A REQUIRED CITY OF MISSOULA STORM WATER PERMIT. THE CONTRACTOR MUST SUBMIT ALL REQUIRED FORMS TO THE ENGINEER SO THAT THE ENGINEER CAN TURN IN SAID FORMS TO CITY OF MISSOULA ENGINEERING AS PART OF THE STAGE 6 PROCESS IN ORDER FOR CITY OF MISSOULA ENGINEERING TO ACCEPT INFRASTRUCTURE. THE CONTRACTOR IS ALSO REQUIRED TO SUBMIT TO THE CITY OF MISSOULA A COPY OF THE NOTICE OF INTENT (NOI) PROVIDED TO MT DEQ, A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PROVIDED TO MT DEQ AND A COPY OF MT DEQ'S CONFIRMATION LETTER.
5. UTILITIES: UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NOT ALL EXISTING UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS OF ALL UTILITIES THAT MAY BE IMPACTED BY THIS PROJECT. THE CONTRACTOR SHALL COORDINATE ALL UTILITY RELOCATIONS WITH THE UTILITY PROVIDERS AT NO COST TO THE OWNER.
6. COORDINATION WITH LANDOWNERS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH LANDOWNERS ADJACENT TO THE PROJECT TO SCHEDULE NECESSARY WORK ON DRIVEWAYS, APPROACHES, AND OTHER WORK THAT MAY AFFECT ACCESS TO THEIR PROPERTIES.

DESIGN STANDARDS

1. ROADWAYS: STREETS WERE DESIGNED TO MISSOULA CITY PUBLIC WORKS STANDARDS AND SPECIFICATIONS (MCPWSS) INCLUDING DRAWINGS AND CONFORM TO GUIDANCE SET FORTH IN AASHTO GREEN BOOK: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2018 7TH EDITION.
2. TRAILS: TRAILS WERE DESIGNED TO CITY OF MISSOULA STANDARDS & DETAILS AND CONFORM TO GUIDANCE SET FORTH IN THE AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES.

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.

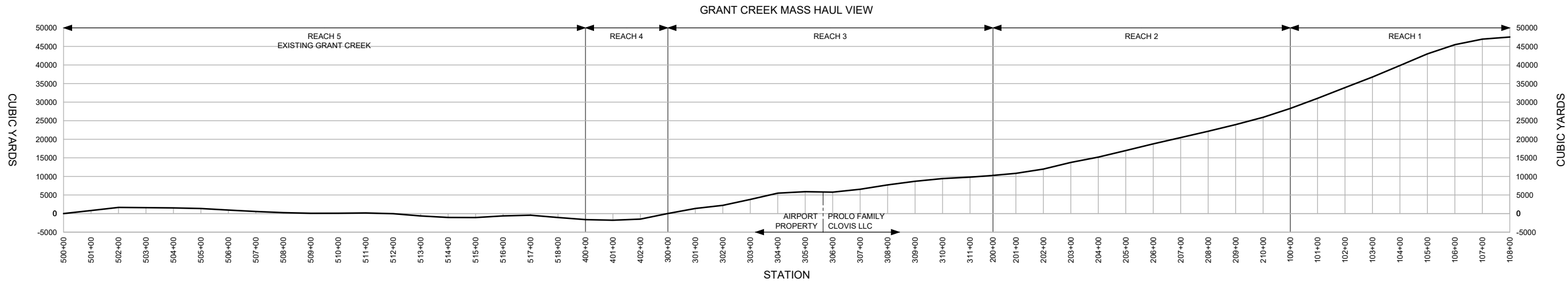


ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
GENERAL NOTES

SHEET OF	
A.4	A.9



ESTIMATED QUANTITIES							
STATION	CUT AREA	FILL AREA	CUT VOL	FILL VOL	CUMULATIVE CUT VOL	CUMULATIVE FILL VOL	CUMULATIVE NET VOL
500+00.00	0.00 SF	0.00 SF	0.00 CY	0.00 CY	0.00 CY	0.00 CY	0.00 CY
501+00.00	464.64 SF	27.21 SF	860.44 CY	50.40 CY	860.44 CY	50.40 CY	810.04 CY
502+00.00	411.52 SF	390.98 SF	1622.52 CY	774.43 CY	2482.96 CY	824.82 CY	1658.14 CY
503+00.00	348.42 SF	403.78 SF	1407.30 CY	1471.77 CY	3890.26 CY	2296.59 CY	1593.67 CY
504+00.00	395.80 SF	382.19 SF	1378.17 CY	1455.51 CY	5268.44 CY	3752.10 CY	1516.34 CY
505+00.00	404.46 SF	500.81 SF	1481.96 CY	1635.20 CY	6750.39 CY	5387.30 CY	1363.10 CY
506+00.00	407.22 SF	539.71 SF	1503.11 CY	1926.89 CY	8253.51 CY	7314.18 CY	939.32 CY
507+00.00	483.57 SF	561.44 SF	1649.61 CY	2039.16 CY	9903.12 CY	9353.34 CY	549.77 CY
508+00.00	427.71 SF	512.77 SF	1687.56 CY	1989.27 CY	11590.67 CY	11342.62 CY	248.06 CY
509+00.00	470.87 SF	482.58 SF	1664.03 CY	1843.24 CY	13254.70 CY	13185.86 CY	68.85 CY
510+00.00	492.40 SF	474.19 SF	1783.83 CY	1771.80 CY	15038.53 CY	14957.66 CY	80.88 CY
511+00.00	498.80 SF	476.16 SF	1835.55 CY	1759.91 CY	16874.09 CY	16717.56 CY	156.52 CY
512+00.00	418.30 SF	531.74 SF	1696.54 CY	1891.99 CY	18570.63 CY	18609.56 CY	-38.93 CY
513+00.00	413.25 SF	552.63 SF	1516.30 CY	2123.98 CY	20086.93 CY	20733.54 CY	-646.62 CY
514+00.00	484.49 SF	562.54 SF	1662.47 CY	2065.12 CY	21749.40 CY	22798.66 CY	-1049.26 CY
515+00.00	435.81 SF	368.76 SF	1698.10 CY	1726.52 CY	23447.50 CY	24525.18 CY	-1077.68 CY
516+00.00	558.68 SF	359.29 SF	1766.75 CY	1316.59 CY	25214.24 CY	25841.77 CY	-627.52 CY
517+00.00	457.17 SF	542.87 SF	1887.24 CY	1703.98 CY	27101.48 CY	27545.75 CY	-444.26 CY

ESTIMATED QUANTITIES							
STATION	CUT AREA	FILL AREA	CUT VOL	FILL VOL	CUMULATIVE CUT VOL	CUMULATIVE FILL VOL	CUMULATIVE NET VOL
518+00.00	420.65 SF	669.32 SF	1625.60 CY	2244.79 CY	28727.08 CY	29790.54 CY	-1063.46 CY
400+00.00	518.26 SF	576.63 SF	1738.72 CY	2307.31 CY	30465.80 CY	32097.85 CY	-1632.04 CY
401+00.00	442.46 SF	359.82 SF	1771.21 CY	1931.74 CY	32237.01 CY	34029.59 CY	-1792.58 CY
402+00.00	595.21 SF	209.02 SF	1858.72 CY	1562.12 CY	34095.73 CY	35591.71 CY	-1495.98 CY
300+00.00	704.85 SF	143.17 SF	2382.24 CY	871.75 CY	36477.97 CY	36463.46 CY	14.51 CY
301+00.00	673.90 SF	503.75 SF	2553.23 CY	1198.00 CY	39031.20 CY	37661.47 CY	1369.74 CY
302+00.00	660.88 SF	376.27 SF	2471.82 CY	1629.67 CY	41503.02 CY	39291.14 CY	2211.88 CY
303+00.00	991.31 SF	414.32 SF	3059.63 CY	1464.06 CY	44562.65 CY	40755.20 CY	3807.45 CY
304+00.00	707.46 SF	367.33 SF	3159.94 CY	1470.61 CY	47722.59 CY	42225.81 CY	5496.78 CY
305+00.00	524.60 SF	653.30 SF	2281.60 CY	1890.05 CY	50004.19 CY	44115.86 CY	5888.33 CY
306+00.00	619.41 SF	555.37 SF	2118.53 CY	2238.27 CY	52122.72 CY	46354.13 CY	5768.59 CY
307+00.00	611.28 SF	257.57 SF	2279.04 CY	1505.45 CY	54401.76 CY	47859.58 CY	6542.18 CY
308+00.00	529.82 SF	246.78 SF	2113.13 CY	933.99 CY	56514.90 CY	48793.58 CY	7721.32 CY
309+00.00	518.93 SF	277.03 SF	1942.12 CY	970.03 CY	58457.02 CY	49763.60 CY	8693.42 CY
310+00.00	438.38 SF	289.52 SF	1772.79 CY	1049.17 CY	60229.81 CY	50812.78 CY	9417.03 CY
311+00.00	359.06 SF	295.48 SF	1476.74 CY	1083.34 CY	61706.55 CY	51896.11 CY	9810.43 CY
200+00.00	465.52 SF	251.57 SF	1022.63 CY	678.45 CY	62729.18 CY	52574.56 CY	10154.62 CY
201+00.00	654.59 SF	247.98 SF	2068.93 CY	1391.39 CY	64798.11 CY	53965.96 CY	10832.15 CY

ESTIMATED QUANTITIES							
STATION	CUT AREA	FILL AREA	CUT VOL	FILL VOL	CUMULATIVE CUT VOL	CUMULATIVE FILL VOL	CUMULATIVE NET VOL
202+00.00	655.14 SF	223.20 SF	2460.69 CY	1317.58 CY	67258.80 CY	55283.54 CY	11975.26 CY
203+00.00	727.13 SF	194.93 SF	2559.76 CY	774.33 CY	69818.56 CY	56057.86 CY	13760.70 CY
204+00.00	611.54 SF	143.38 SF	2446.54 CY	1011.92 CY	72265.10 CY	57069.78 CY	15195.32 CY
205+00.00	673.00 SF	188.82 SF	2378.77 CY	615.20 CY	74643.87 CY	57684.98 CY	16958.89 CY
206+00.00	692.07 SF	204.63 SF	2527.90 CY	728.62 CY	77171.78 CY	58413.60 CY	18758.17 CY
207+00.00	642.26 SF	212.03 SF	2470.98 CY	771.60 CY	79642.75 CY	59185.20 CY	20457.55 CY
208+00.00	701.08 SF	212.23 SF	2487.67 CY	785.68 CY	82130.42 CY	59970.88 CY	22159.54 CY
209+00.00	633.61 SF	159.27 SF	2471.65 CY	687.98 CY	84602.07 CY	60658.85 CY	23943.22 CY
210+00.00	785.26 SF	194.27 SF	2627.53 CY	654.71 CY	87229.60 CY	61313.57 CY	25916.04 CY
100+00.00	926.96 SF	217.04 SF	3112.12 CY	747.61 CY	90341.73 CY	62061.17 CY	28280.55 CY
101+00.00	931.27 SF	158.23 SF	3441.16 CY	694.96 CY	93782.89 CY	62756.13 CY	31026.76 CY
102+00.00	783.67 SF	0.00 SF	3175.81 CY	293.02 CY	96958.70 CY	63049.15 CY	33909.55 CY
103+00.00	811.05 SF	0.00 SF	2852.41 CY	0.00 CY	99811.10 CY	63049.15 CY	36761.95 CY
104+00.00	924.81 SF	60.67 SF	3210.60 CY	107.09 CY	103021.70 CY	63156.24 CY	39865.46 CY
105+00.00	849.01 SF	21.25 SF	3284.85 CY	151.71 CY	106306.55 CY	63307.95 CY	42998.60 CY
106+00.00	506.61 SF	0.00 SF	2510.40 CY	39.35 CY	108816.96 CY	63347.30 CY	45469.65 CY
107+00.00	300.84 SF	0.00 SF	1495.27 CY	0.00 CY	110312.23 CY	63347.30 CY	46964.93 CY
108+00.00	0.00 SF	0.00 SF	557.11 CY	0.00 CY	110869.34 CY	63347.30 CY	47522.04 CY

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

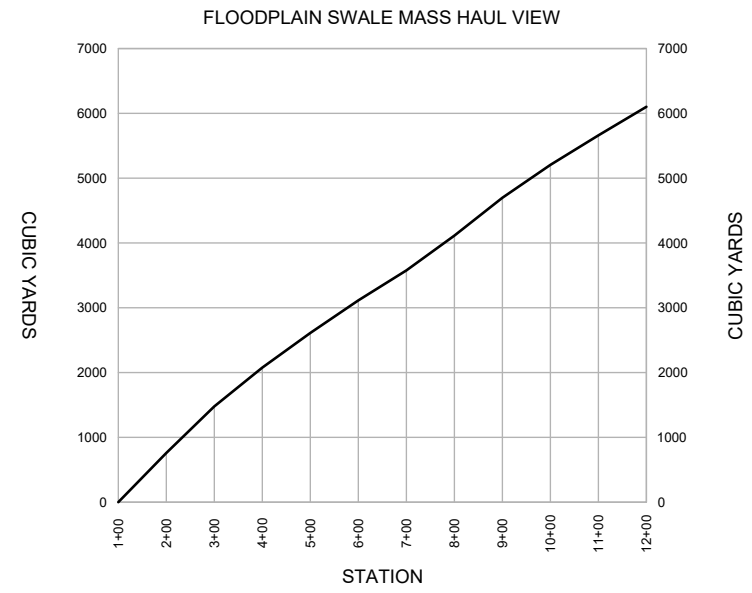
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
GRANT CREEK
MASS HAUL VIEW AND ESTIMATED QUANTITIES

SHEET
OF
A.5 A.9



ESTIMATED QUANTITIES							
STATION	CUT AREA	FILL AREA	CUT VOL	FILL VOL	CUMULATIVE CUT VOL	CUMULATIVE FILL VOL	CUMULATIVE NET VOL
1+00.00	204.06 SF	0.00 SF	0.00 CY	0.00 CY	0.00 CY	0.00 CY	0.00 CY
2+00.00	206.45 SF	0.00 SF	760.06 CY	0.00 CY	760.06 CY	0.00 CY	760.06 CY
3+00.00	181.02 SF	0.00 SF	717.47 CY	0.00 CY	1477.53 CY	0.00 CY	1477.53 CY
4+00.00	142.91 SF	0.00 SF	599.51 CY	0.00 CY	2077.04 CY	0.00 CY	2077.04 CY
5+00.00	145.25 SF	0.00 SF	533.62 CY	0.00 CY	2610.66 CY	0.00 CY	2610.66 CY
6+00.00	126.49 SF	0.00 SF	503.22 CY	0.00 CY	3113.88 CY	0.00 CY	3113.88 CY
7+00.00	123.65 SF	0.00 SF	463.21 CY	0.00 CY	3577.09 CY	0.00 CY	3577.09 CY
8+00.00	165.84 SF	0.00 SF	536.09 CY	0.00 CY	4113.18 CY	0.00 CY	4113.18 CY
9+00.00	149.68 SF	0.00 SF	584.30 CY	0.00 CY	4697.48 CY	0.00 CY	4697.48 CY
10+00.00	124.24 SF	0.00 SF	507.25 CY	0.00 CY	5204.73 CY	0.00 CY	5204.73 CY
11+00.00	121.08 SF	0.00 SF	455.55 CY	0.00 CY	5660.28 CY	0.00 CY	5660.28 CY
12+00.00	115.60 SF	0.00 SF	440.53 CY	0.00 CY	6100.81 CY	0.00 CY	6100.81 CY

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

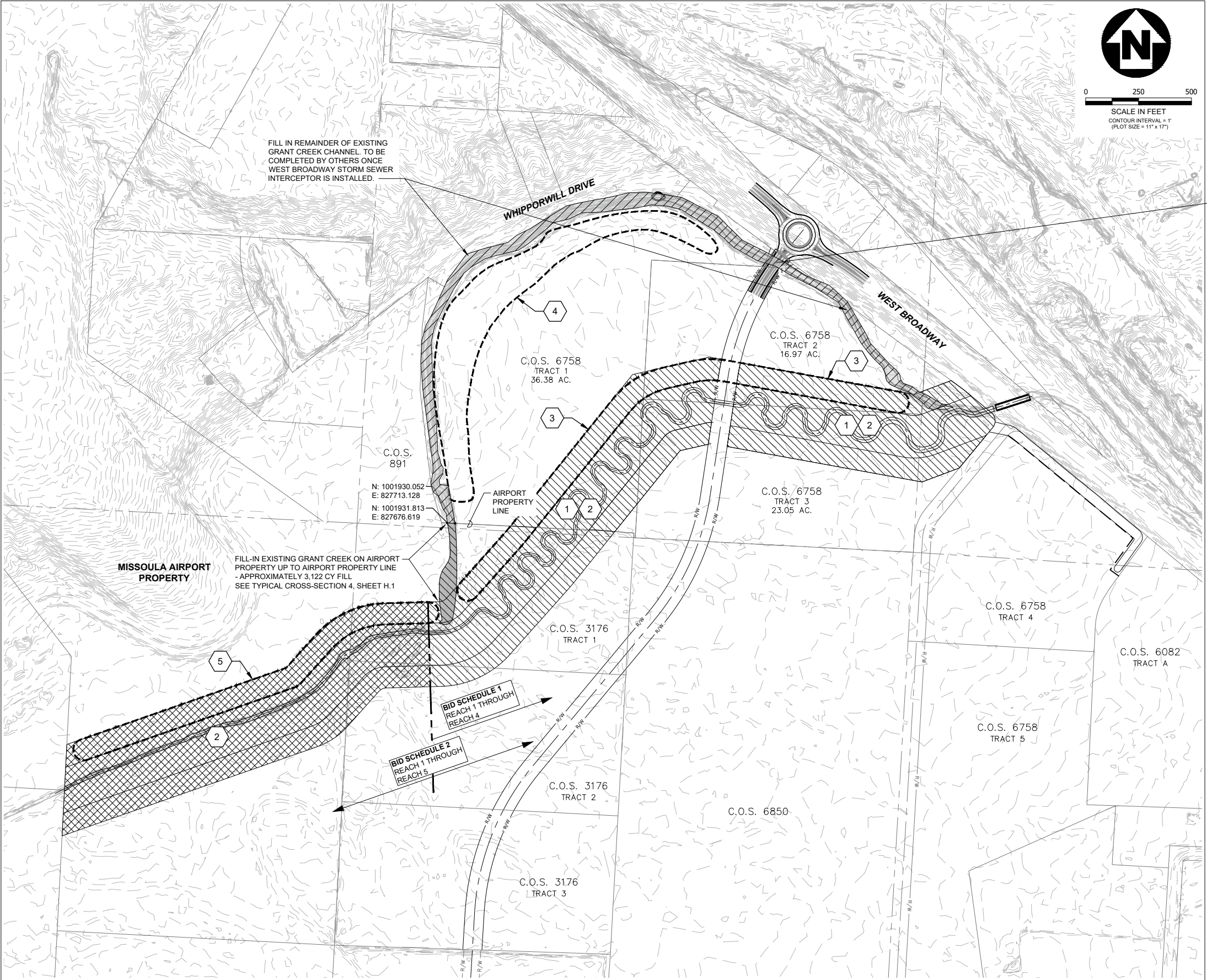
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
FLOODPLAIN SWALE
MASS HAUL VIEW AND ESTIMATED QUANTITIES



LEGEND

REACH 1 - 4

REACH 5

EARTHWORK STOCKPILING

- NOTES:**
- CONTRACTOR TO INSTALL AND LEAVE ACCESS ROAD WITHIN THE GEORGE ELMER RIGHT-OF-WAY EASEMENT LIMITS. THE ACCESS ROAD WILL HAVE A CULVERT WITH DIAMETER NO LESS THAN 48" AND WILL BE SUFFICIENT TO ALLOW REASONABLE ACCESS FOR PICKUP AND TRAILER USED BY THE CITY OF MISSOULA FOR WATERING OF PLANTINGS AND VEGETATION ON THE NORTH SIDE OF GRANT CREEK. ALL LABOR, MATERIALS, AND EQUIPMENT RELATED TO CONSTRUCT THE ACCESS ROAD WILL BE INCIDENTAL TO OTHER BID ITEMS AND NOT MEASURED OR PAID SEPARATELY.
 - BID SCHEDULE LIMITS:
*BID SCHEDULE 1 = REACH 1 - 4
*BID SCHEDULE 2 = REACH 1 - 5

- KEY NOTES:**
- 1

BID SCHEDULE 1
TOTAL EXCAVATION MATERIAL
APPROXIMATELY 87,517 CY
- 2

BID SCHEDULE 2
TOTAL EXCAVATION MATERIAL
APPROXIMATELY 119,043 CY
- 3

BID ALTERNATE 1A
EXCAVATION MATERIAL STOCKPILE LOCATION
APPROXIMATELY 57,093 CY (PERMANENT FILL APPROXIMATELY 30,424,
ALL NON-PERMANENT FILL TO BE PLACED ON WEST SIDE OF CHANNEL)
- 4

BID ALTERNATE 1B & 2B
EXCAVATION MATERIAL STOCKPILE LOCATION
0 CY TO 100,000 CY
- 5

BID ALTERNATE 2A
EXCAVATION MATERIAL STOCKPILE LOCATION APPROXIMATELY 87,644
CY (PERMANENT FILL APPROXIMATELY 31,399 CY. ALL NON-PERMANENT
FILL TO BE PLACED ON WEST SIDE OF CHANNEL)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.

HDR

DJ&A

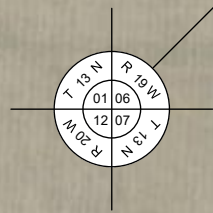
ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
EARTHWORK STOCKPILING AND
ALTERNATE BID SCHEDULES



0 250 500
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



VERTICAL DATUM: NAVD88

SURVEY CONTROL POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1003548.726	828822.516	3165.70	1-1/4" YPC 4468S
2	1003453.788	828951.491	3164.50	1-1/4" YPC 4468S
3	1003429.711	828933.753	3163.20	1-1/4" YPC 4468S
4	1002726.306	829894.125	3165.00	2" AL CAP MDT CP43
5	1002560.461	830115.631	3164.80	1-1/4" YPC 4468S
6	1002395.491	830314.896	3163.10	1-3/4" OPC 5609S
7	1002353.713	830396.749	3162.20	1-1/4" YPC 4468S
8	1002071.436	830737.598	3163.80	4X4 CONC MON 450+00
9	1001932.556	830905.299	3163.70	1-1/4" YPC 4468S
10	1001792.988	829877.057	3157.00	3" AL CAP ILLEGIBLE
11	1001973.361	829966.411	3158.60	1-3/4" OPC 5609S
12	1002066.308	824624.237	3199.80	IRON PIPE W/ LARGE SPIKE
13	1001930.445	827250.765	3158.20	2" AL CAP 4468S
14	1000006.796	825834.334	3149.80	1-1/4" YPC 4468S
15	999938.035	827143.393	3153.20	1-1/4" YPC SORENSON & CO
16	999895.327	828446.617	3157.30	1-1/4" YPC 3713S

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

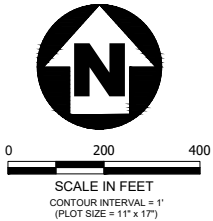
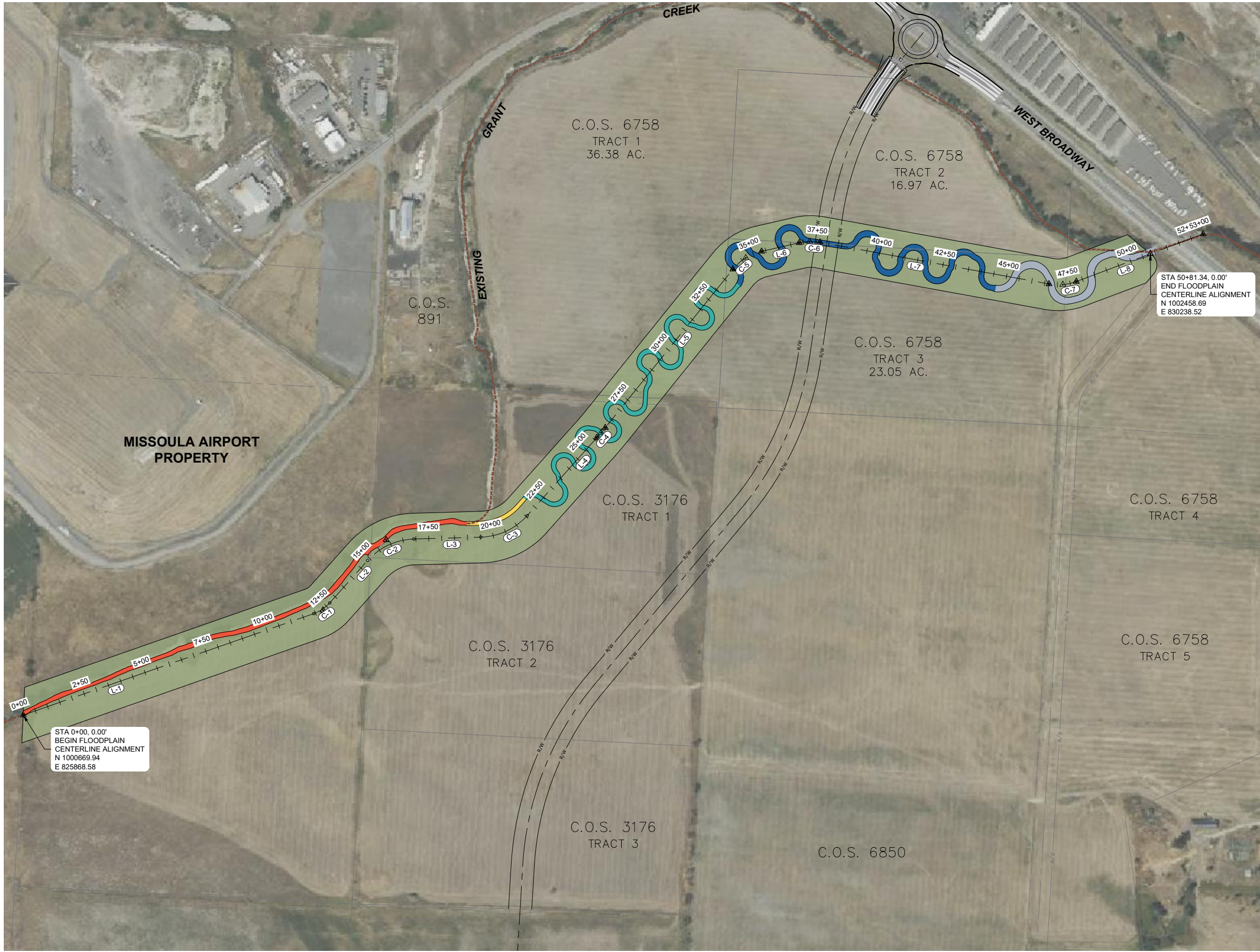
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
SURVEY CONTROL POINTS

SHEET
OF
A.8 A.9



FLOODPLAIN CENTERLINE ALIGNMENT TABLE							
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION
L-1	0+00.00	N 1000669.940 E 825868.578	11+92.69	N 1001063.386 E 826994.503	1192.69'	NA	N70°44'18\"E
C-1	11+92.69	N 1001063.386 E 826994.503	12+68.43	N 1001104.992 E 827056.827	75.74'	150.00'	N56°16'25\"E
L-2	12+68.43	N 1001104.992 E 827056.827	14+88.92	N 1001269.340 E 827203.817	220.49'	NA	N41°48'33\"E
C-2	14+88.92	N 1001269.340 E 827203.817	16+92.08	N 1001352.576 E 827383.049	203.16'	250.00'	N65°05'23\"E
L-3	16+92.08	N 1001352.576 E 827383.049	19+52.29	N 1001359.976 E 827643.155	260.21'	NA	N88°22'13\"E
C-3	19+52.29	N 1001359.976 E 827643.155	21+55.66	N 1001443.367 E 827822.525	203.37'	250.00'	N65°03'57\"E
L-4	21+55.66	N 1001443.367 E 827822.525	25+60.87	N 1001745.624 E 828092.410	405.21'	NA	N41°45'42\"E
C-4	25+60.87	N 1001745.624 E 828092.410	26+11.65	N 1001784.346 E 828125.257	50.78'	1000.00'	N40°18'25\"E
L-5	26+11.65	N 1001784.346 E 828125.257	34+00.32	N 1002398.533 E 828619.994	788.66'	NA	N38°51'07\"E
C-5	34+00.32	N 1002398.533 E 828619.994	35+34.09	N 1002468.082 E 828731.356	133.78'	200.00'	N58°00'50\"E
L-6	35+34.09	N 1002468.082 E 828731.356	36+84.06	N 1002501.369 E 828877.585	149.97'	NA	N77°10'33\"E
C-6	36+84.06	N 1002501.369 E 828877.585	37+64.81	N 1002503.130 E 828957.766	80.75'	200.00'	N88°44'31\"E
L-7	37+64.81	N 1002503.130 E 828957.766	46+67.20	N 1002341.651 E 829845.596	902.40'	NA	S79°41'30\"E
C-7	46+67.20	N 1002341.651 E 829845.596	47+74.91	N 1002351.148 E 829951.579	107.70'	200.00'	N84°52'51\"E
L-8	47+74.91	N 1002351.148 E 829951.579	50+81.34	N 1002458.695 E 830238.516	306.43'	NA	N69°27'12\"E

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.

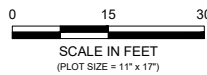
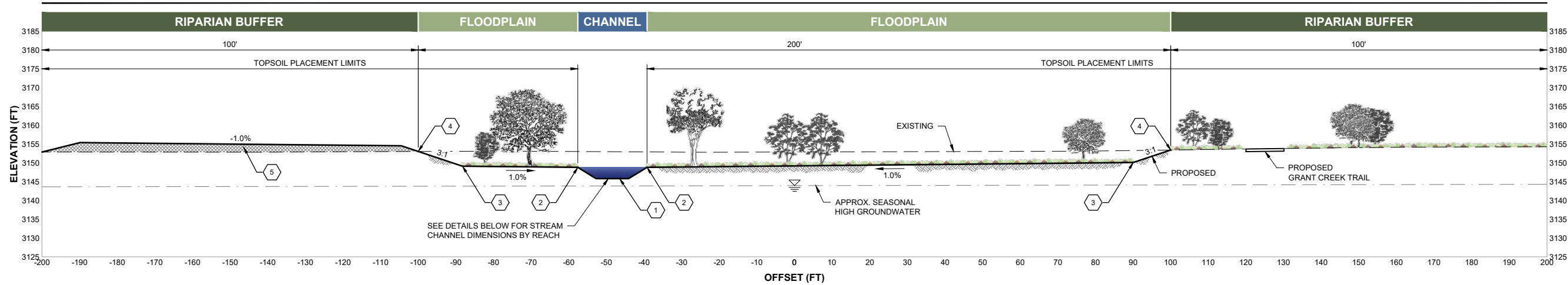


ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

A. GENERAL INFORMATION
FLOODPLAIN CENTERLINE ALIGNMENT

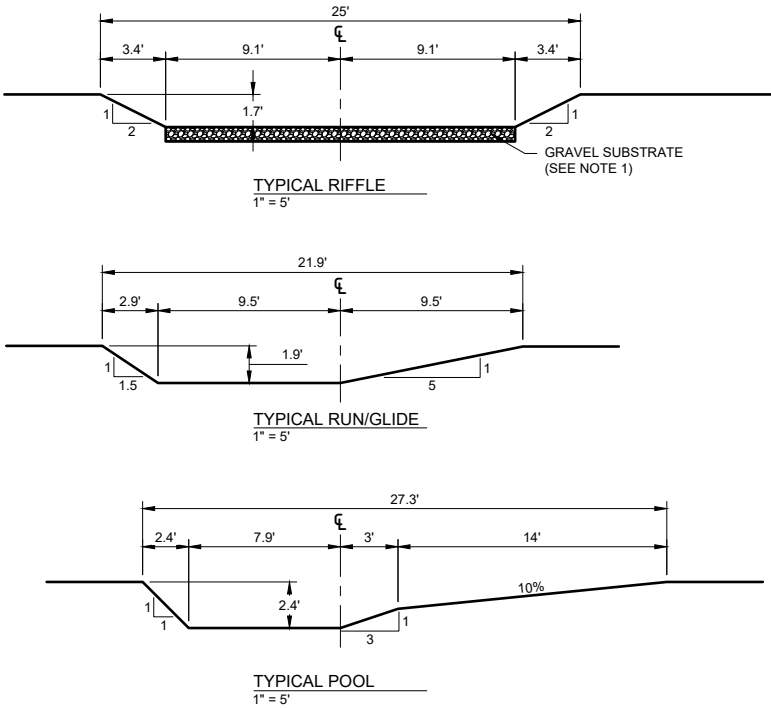
GRANT CREEK CROSS SECTION: A-A



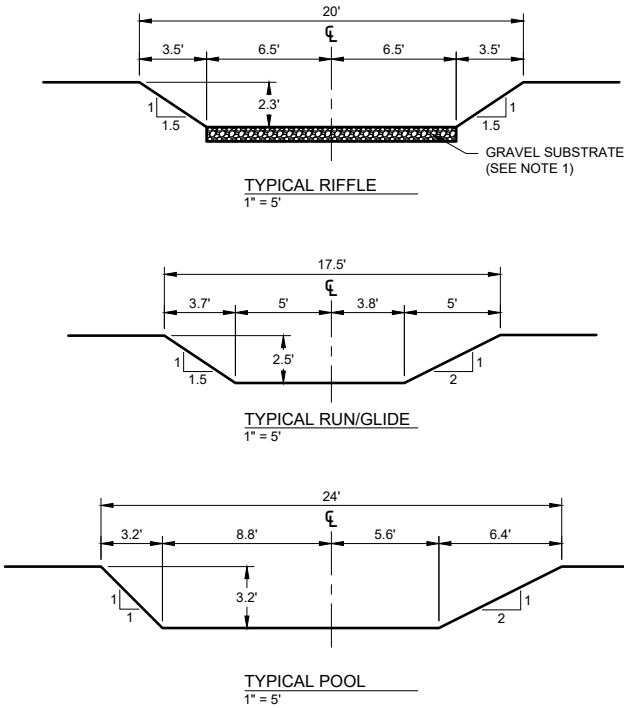
A-A
A.2
TYPICAL CROSS SECTION VIEW
GRANT CREEK FLOODPLAIN AND CHANNEL
SCALE: 1" = 15'

- KEY NOTES:
- 1 CHANNEL BOTTOM
 - 2 TOP OF CHANNEL
 - 3 TOE OF BANK
 - 4 TOP OF BANK (POINT OF INTERSECTION WITH EXISTING GROUND)
 - 5 1' TO 2' HIGH SPOIL BANK

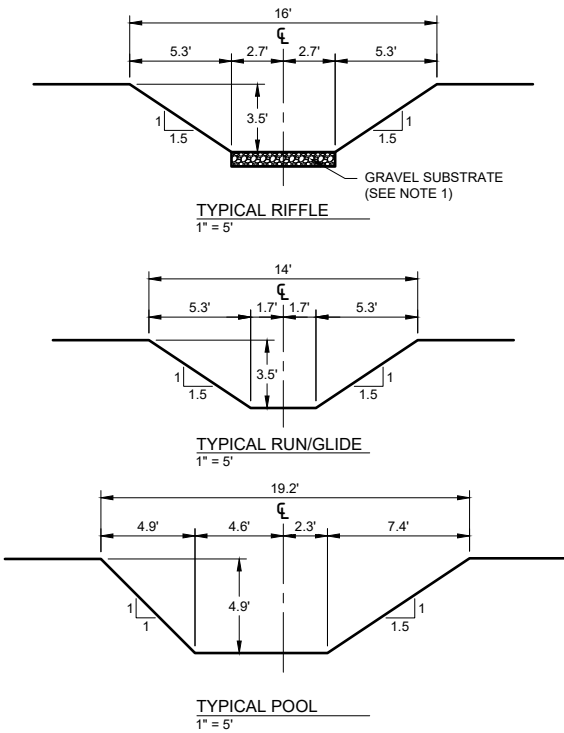
REACH 1



REACH 2



REACH 3 & 4



GRAVEL SUBSTRATE GRADATION	
SIZE	% SMALLER DIA.
6"	90%
4"	50%
2"	20%
1"	<10%

- NOTE:
- INSTALL GRAVEL SUBSTRATE LAYER FOR ALL RIFFLE SECTIONS. LAYER TO BE 9" THICK WITH THE GRADATION SHOWN IN THE GRAVEL SUBSTRATE GRADATION TABLE THIS SHEET.
 - CROSS SECTIONS ARE TO BE CONSTRUCTED WITH A SMOOTH TRANSITION BETWEEN DIFFERENT CROSS SECTION TYPES.
 - FURNISH AND PLACE 4" MIN. DEPTH OF TOPSOIL ON ALL EXCAVATION AND EMBANKMENT SLOPES. THE FINAL FINISH GRADE IS INCLUSIVE OF THE TOPSOIL DEPTH.

1
TYPICAL STREAM CHANNEL CROSS SECTIONS
SCALE: AS SHOWN

REVISION	DATE	DESCRIPTION

DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.

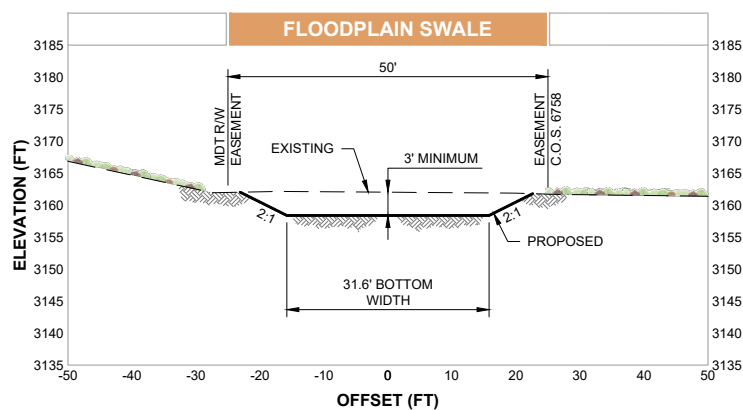


GRANT CREEK
RFC PLANS

B. TYPICAL SECTIONS
GRANT CREEK FLOODPLAIN AND CHANNEL

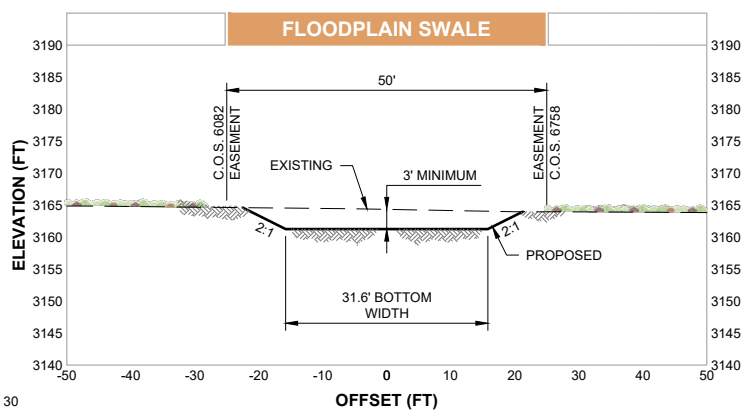
SHEET
OF
B.1 B.3

FLOODPLAIN SWALE CROSS SECTION: B-B

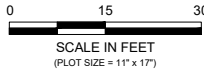


TYPICAL CROSS SECTION VIEW
FLOODPLAIN SWALE - STA 3+25 TO STA 11+00
SCALE: 1" = 15'

FLOODPLAIN SWALE CROSS SECTION: C-C



TYPICAL CROSS SECTION VIEW
FLOODPLAIN SWALE - STA 11+00 TO STA 13+00
SCALE: 1" = 15'



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

B. TYPICAL SECTIONS
FLOODPLAIN SWALE

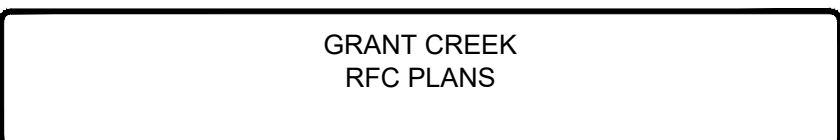
SHEET	OF
B.2	B.3



STA 10+00 TO 32+34.19

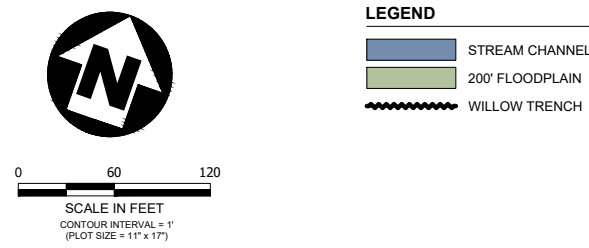
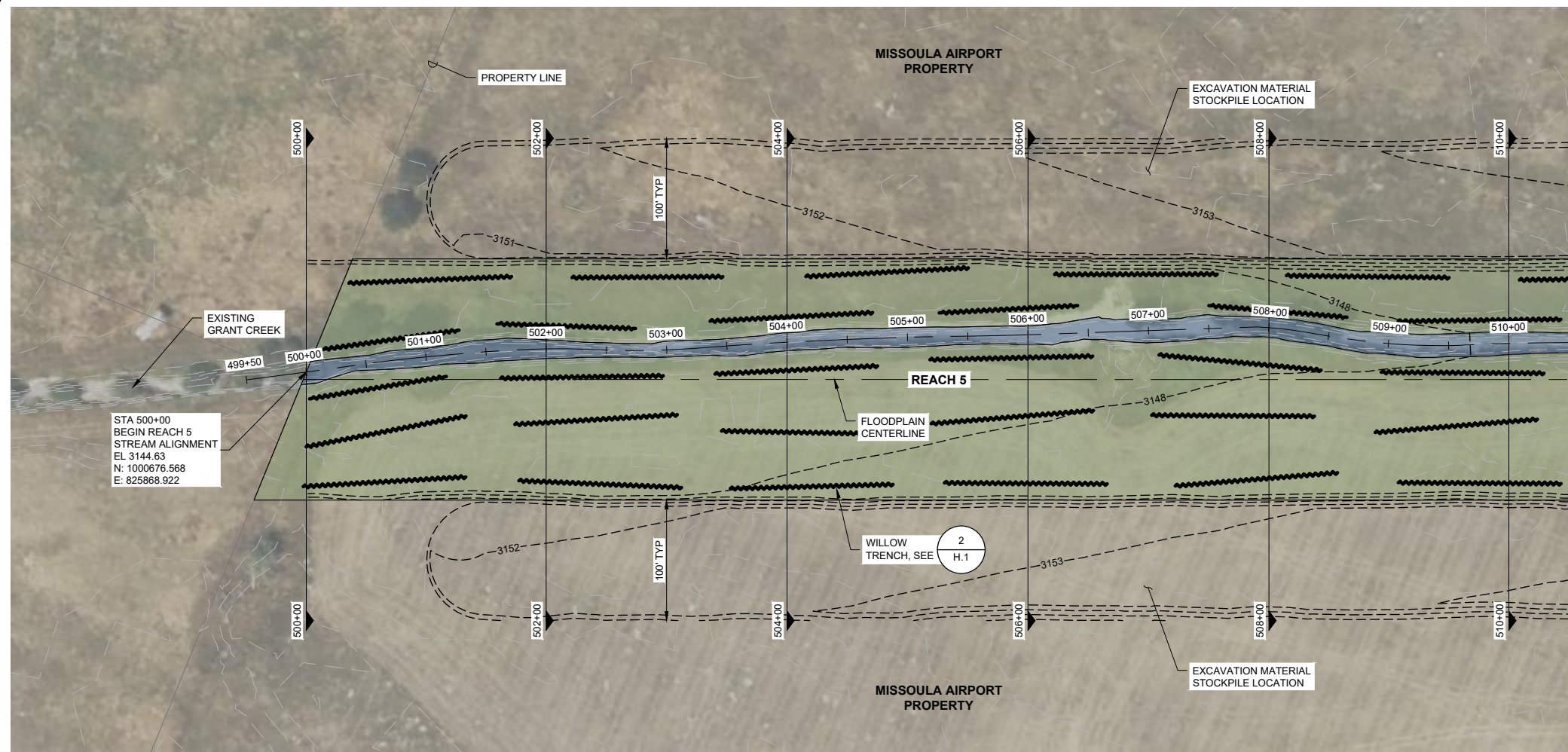
NOTES:

DESIGNER BB PROJ. NO. 7065.01
DRAWN BB DATE 2/2025
CHECKED DP SURVEYED DJA P.C.

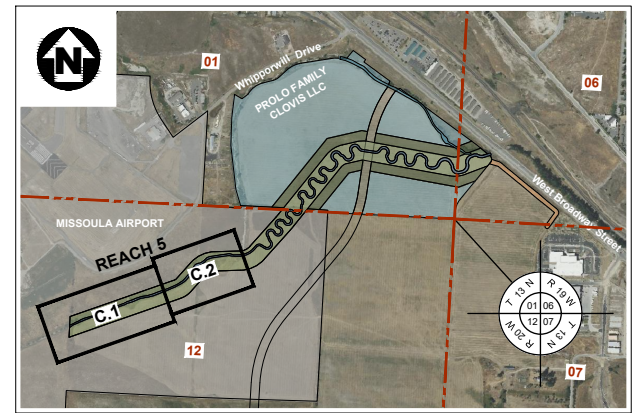
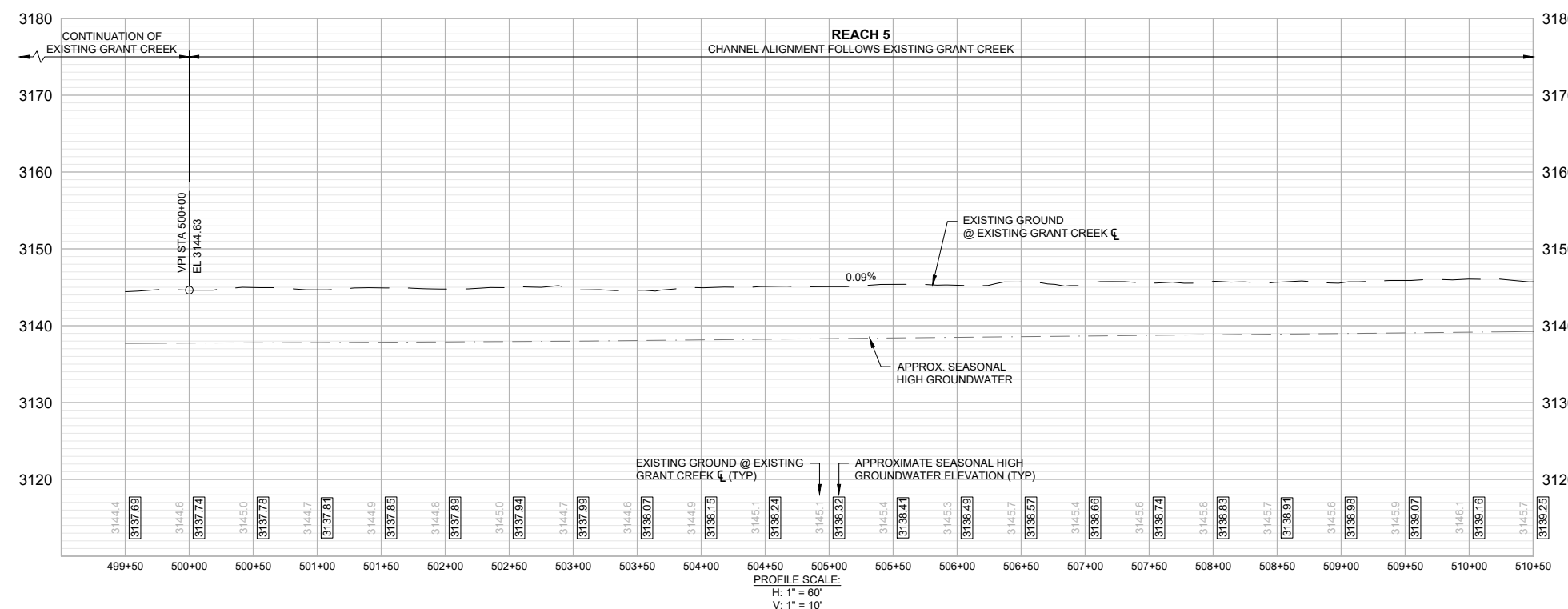


B. TYPICAL SECTIONS
GRANT CREEK TRAIL TYPICAL SECTION

SHEET
OF
B.3 B.3



- NOTES:
1. EACH WILLOW TRENCH SHALL BE APPROXIMATELY 2' WIDE x 135' L, AND SPACED ~35' APART IN ANY DIRECTION.
 2. EXISTING CHANNEL WITHIN REACH 5 IS TO BE LEFT UNDISTURBED.



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

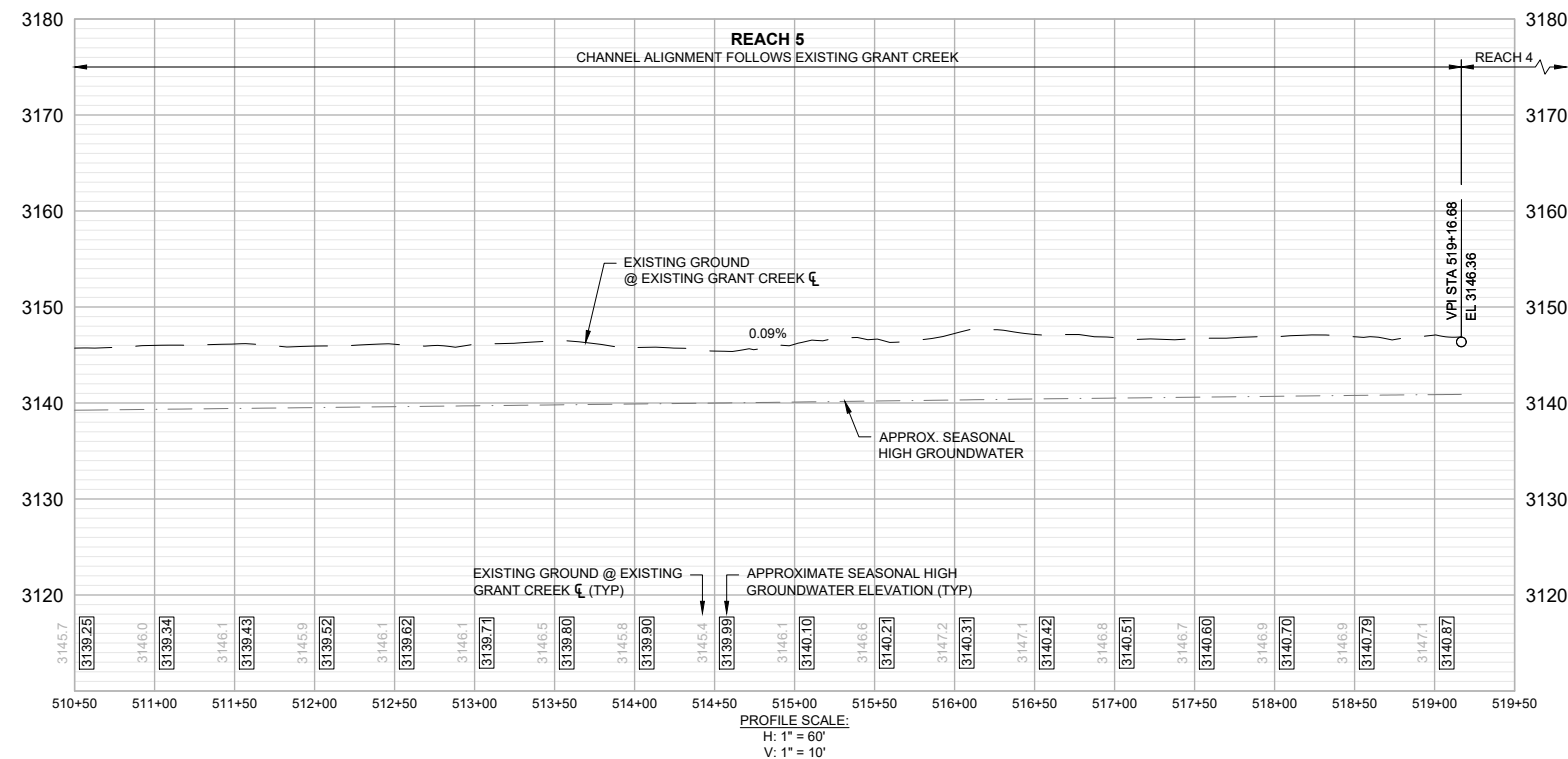
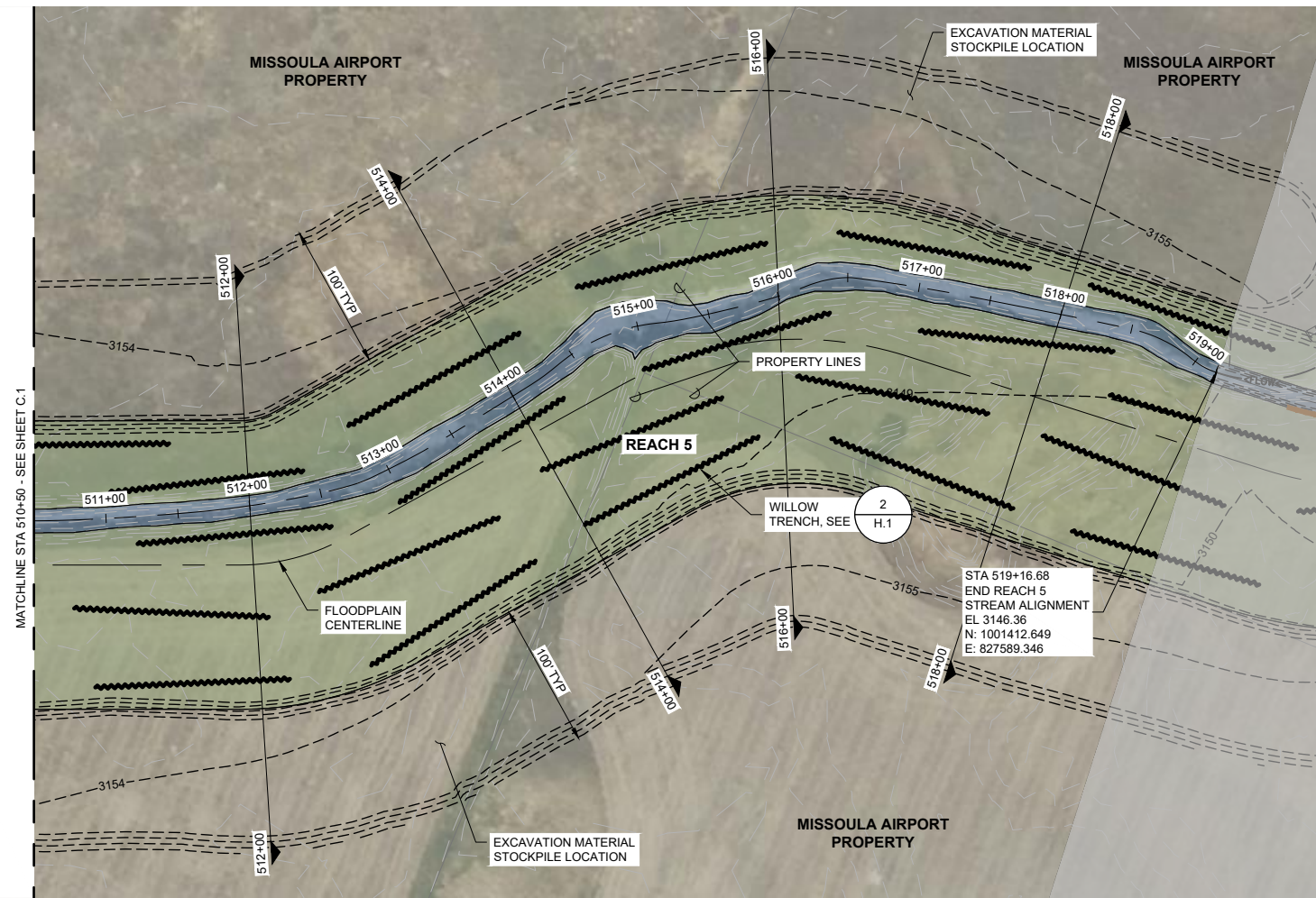
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



GRANT CREEK RFC PLANS

C. GRANT CREEK REACH 5 - PLAN AND PROFILE STA 500+00 TO STA 510+50

SHEET	OF
C.1	C.21



0 60 120
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

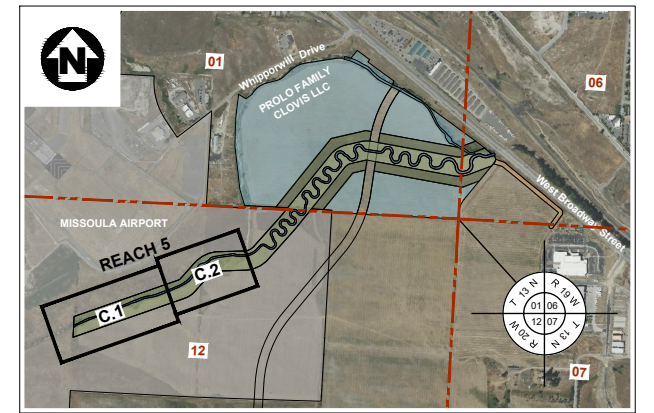
- NOTES:
1. EACH WILLOW TRENCH SHALL BE APPROXIMATELY 2' WIDE x 135' L, AND SPACED ~35' APART IN ANY DIRECTION.
 2. EXISTING CHANNEL WITHIN REACH 5 IS TO BE LEFT UNDISTURBED.

LEGEND

STREAM CHANNEL

200' FLOODPLAIN

WILLOW TRENCH



MAP KEY
SCALE: 1" = 1,000'

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

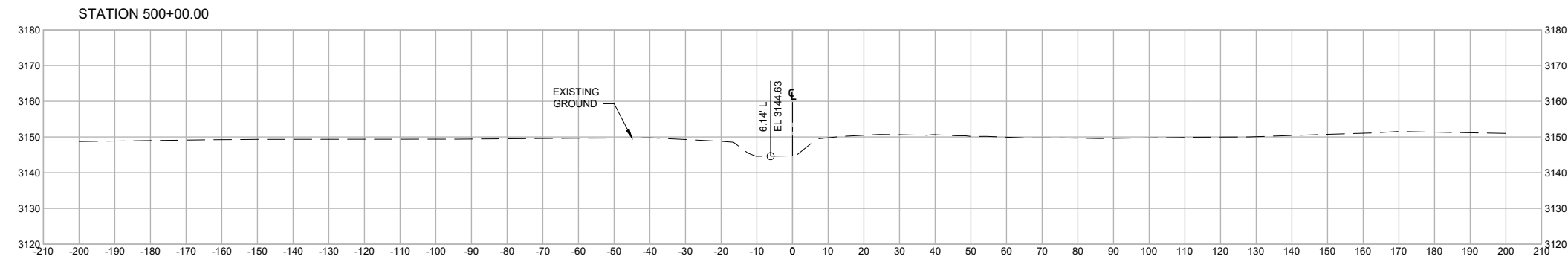
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.

HR **DJ&A** ENGINEERS
PLANNERS
SURVEYORS

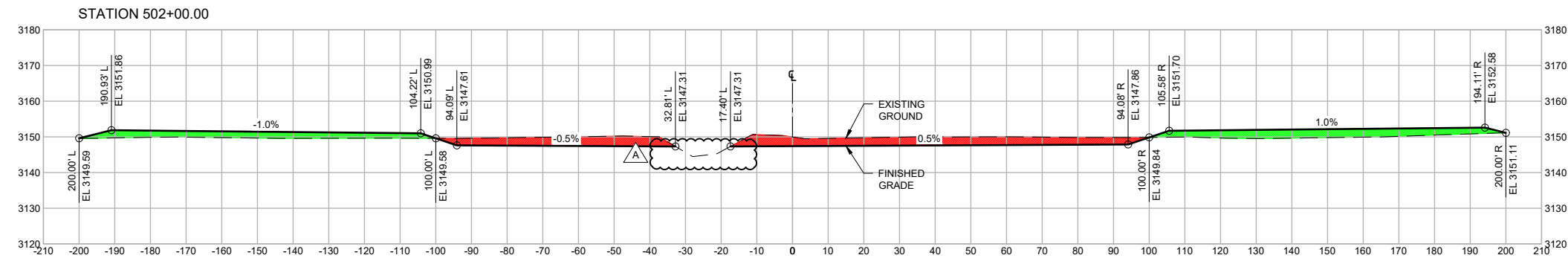
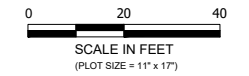
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 5 - PLAN AND PROFILE
STA 510+50 TO STA 519+16.68

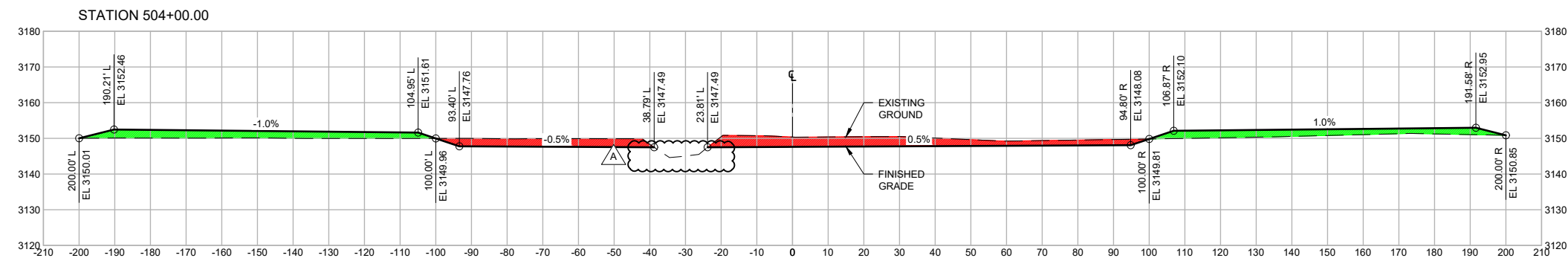
SHEET
OF
C.2 C.21



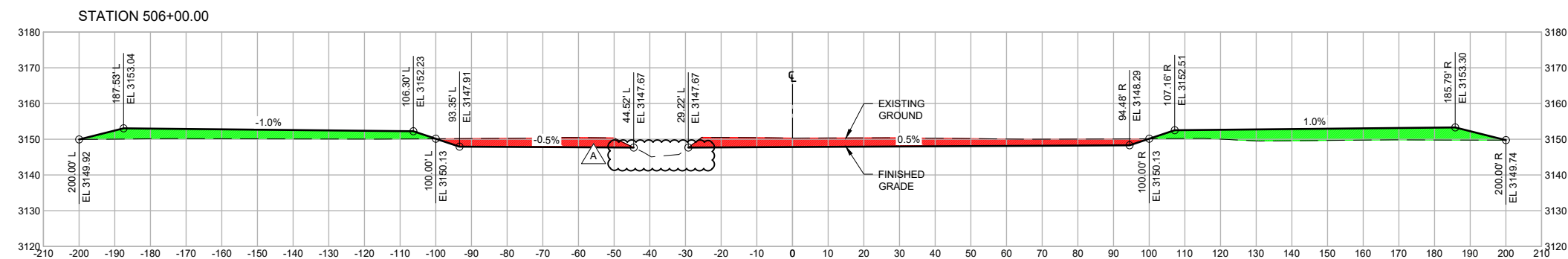
EARTHWORK AT STATION 500+00.00	
CUT AREA	0.00 SqFt
FILL AREA	0.00 SqFt
CUT VOLUME	0.00 CuYd
FILL VOLUME	0.00 CuYd
CUMULATIVE CUT VOL	0.00 CuYd
CUMULATIVE FILL VOL	0.00 CuYd
CUMULATIVE NET VOLUME	0.00 CuYd



EARTHWORK AT STATION 502+00.00	
CUT AREA	410.50 SqFt
FILL AREA	363.23 SqFt
CUT VOLUME	1512.38 CuYd
FILL VOLUME	1338.22 CuYd
CUMULATIVE CUT VOL	1512.38 CuYd
CUMULATIVE FILL VOL	1338.22 CuYd
CUMULATIVE NET VOLUME	174.15 CuYd



EARTHWORK AT STATION 504+00.00	
CUT AREA	395.31 SqFt
FILL AREA	356.10 SqFt
CUT VOLUME	2980.92 CuYd
FILL VOLUME	2661.02 CuYd
CUMULATIVE CUT VOL	4493.29 CuYd
CUMULATIVE FILL VOL	3999.24 CuYd
CUMULATIVE NET VOLUME	494.05 CuYd



EARTHWORK AT STATION 506+00.00	
CUT AREA	407.03 SqFt
FILL AREA	511.05 SqFt
CUT VOLUME	2969.98 CuYd
FILL VOLUME	3209.89 CuYd
CUMULATIVE CUT VOL	7463.28 CuYd
CUMULATIVE FILL VOL	7209.13 CuYd
CUMULATIVE NET VOLUME	254.15 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
A	11/06/2024	ADDENDUM #1

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

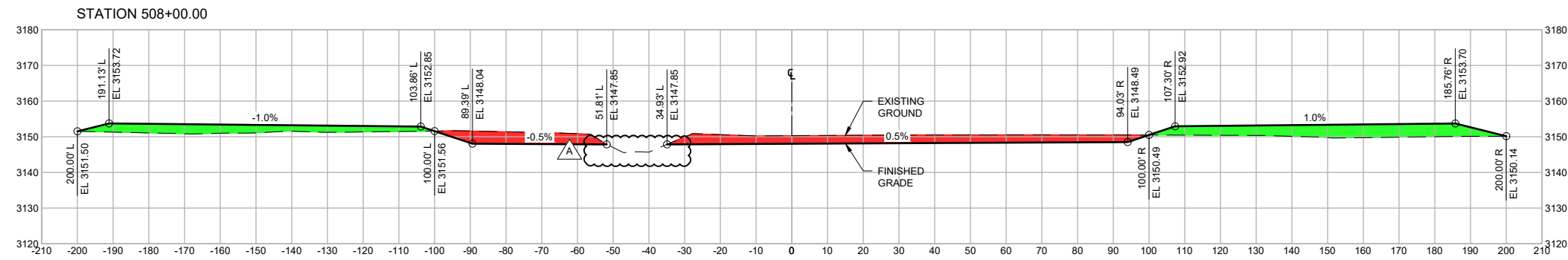
CHECKED DM SURVEYED DJA,P.C.



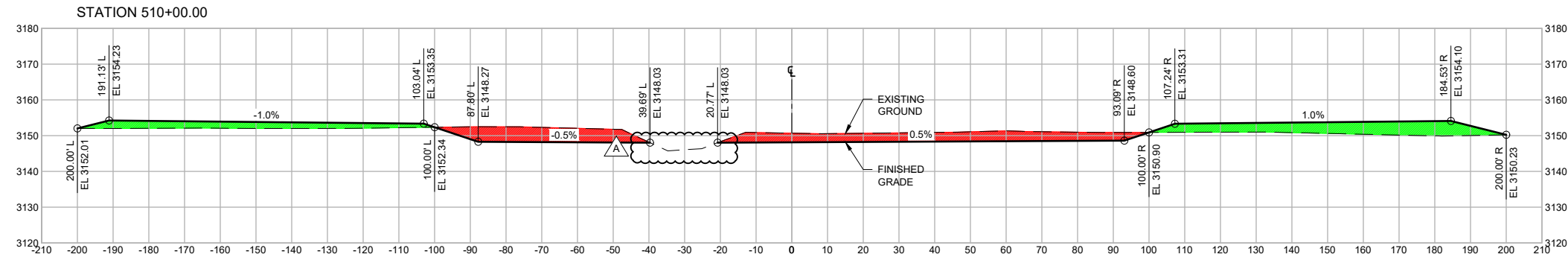
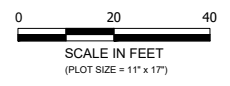
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 5 - CROSS SECTIONS
STA 500+00 TO STA 506+00

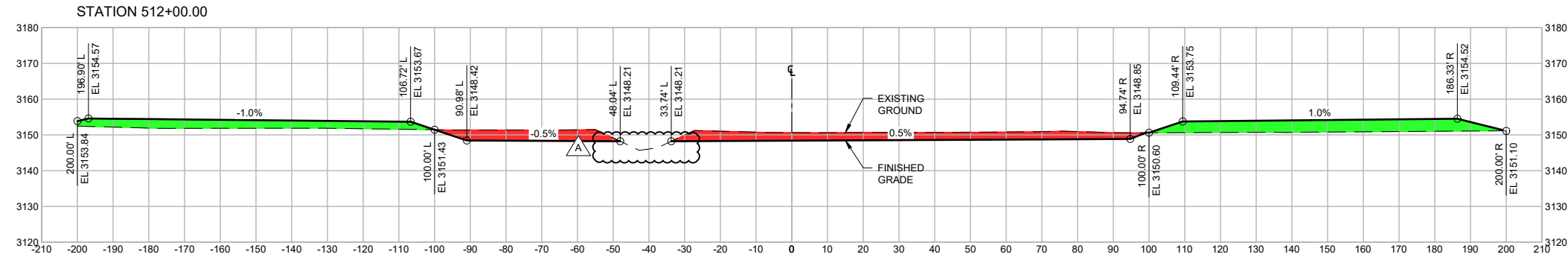
SHEET
OF
C.3 C.21



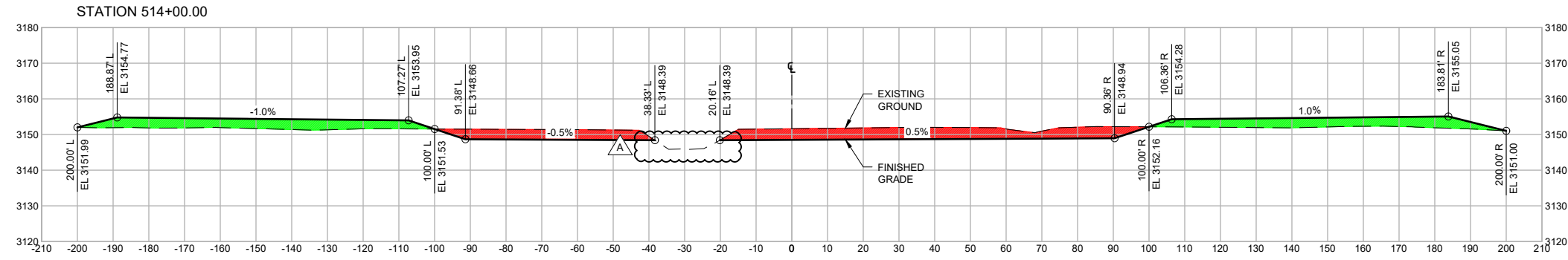
EARTHWORK AT STATION 508+00.00	
CUT AREA	428.05 SqFt
FILL AREA	484.25 SqFt
CUT VOLUME	3090.91 CuYd
FILL VOLUME	3683.89 CuYd
CUMULATIVE CUT VOL	10554.18 CuYd
CUMULATIVE FILL VOL	10893.02 CuYd
CUMULATIVE NET VOLUME	-338.84 CuYd



EARTHWORK AT STATION 510+00.00	
CUT AREA	492.41 SqFt
FILL AREA	445.93 SqFt
CUT VOLUME	3392.15 CuYd
FILL VOLUME	3427.96 CuYd
CUMULATIVE CUT VOL	13946.34 CuYd
CUMULATIVE FILL VOL	14320.98 CuYd
CUMULATIVE NET VOLUME	-374.65 CuYd



EARTHWORK AT STATION 512+00.00	
CUT AREA	419.85 SqFt
FILL AREA	512.20 SqFt
CUT VOLUME	3409.56 CuYd
FILL VOLUME	3619.35 CuYd
CUMULATIVE CUT VOL	17355.90 CuYd
CUMULATIVE FILL VOL	17940.33 CuYd
CUMULATIVE NET VOLUME	-584.43 CuYd

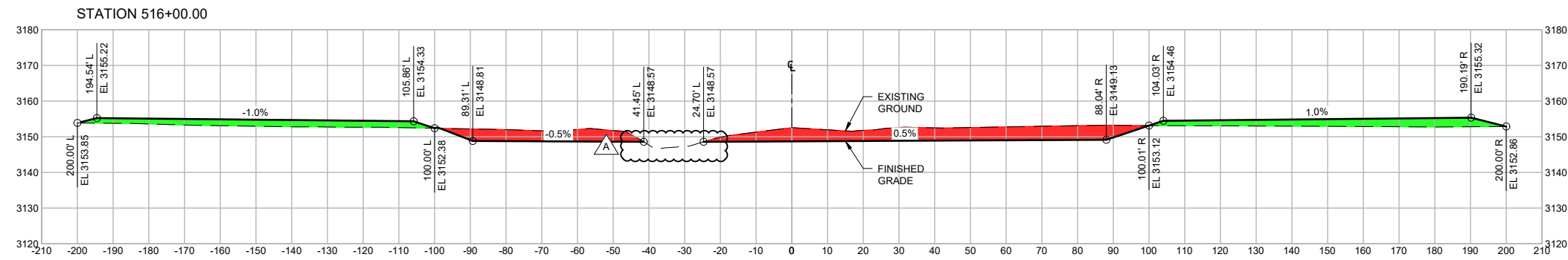


EARTHWORK AT STATION 514+00.00	
CUT AREA	503.84 SqFt
FILL AREA	479.65 SqFt
CUT VOLUME	3703.92 CuYd
FILL VOLUME	4040.70 CuYd
CUMULATIVE CUT VOL	21059.82 CuYd
CUMULATIVE FILL VOL	21981.03 CuYd
CUMULATIVE NET VOLUME	-921.21 CuYd

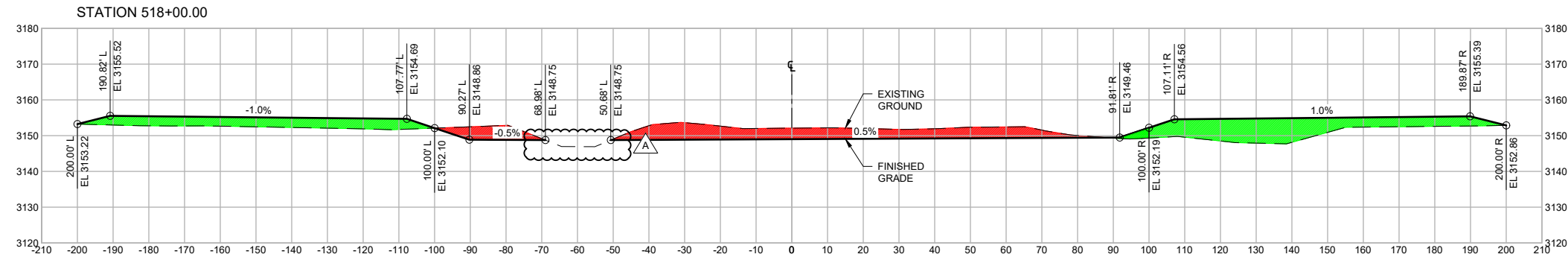
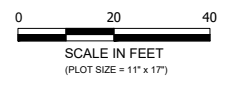
- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)



EARTHWORK AT STATION 516+00.00	
CUT AREA	558.57 SqFt
FILL AREA	348.39 SqFt
CUT VOLUME	3577.98 CuYd
FILL VOLUME	2817.21 CuYd
CUMULATIVE CUT VOL	24637.80 CuYd
CUMULATIVE FILL VOL	24798.24 CuYd
CUMULATIVE NET VOLUME	-160.44 CuYd



EARTHWORK AT STATION 518+00.00	
CUT AREA	475.63 SqFt
FILL AREA	677.74 SqFt
CUT VOLUME	3464.35 CuYd
FILL VOLUME	3276.68 CuYd
CUMULATIVE CUT VOL	28102.16 CuYd
CUMULATIVE FILL VOL	28074.92 CuYd
CUMULATIVE NET VOLUME	27.23 CuYd

- EXCESS EMBANKMENT (AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK (NOT AVAILABLE FOR EXPORT)

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
A	11/06/2024	ADDENDUM #1

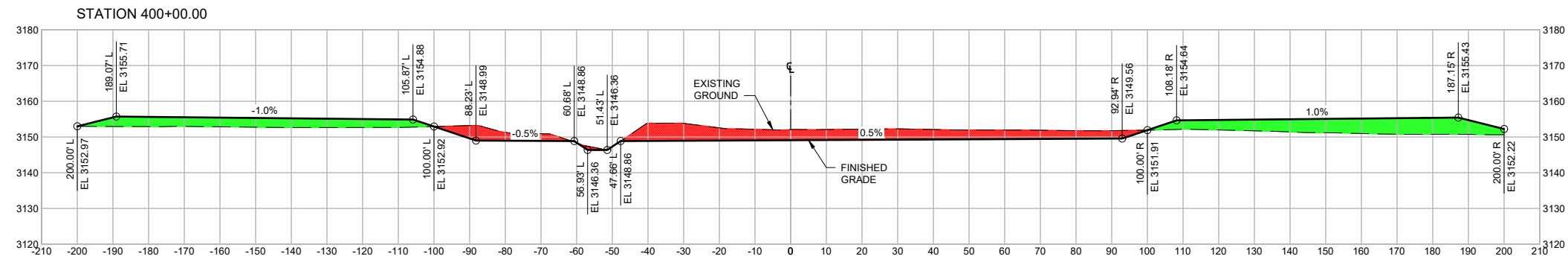
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



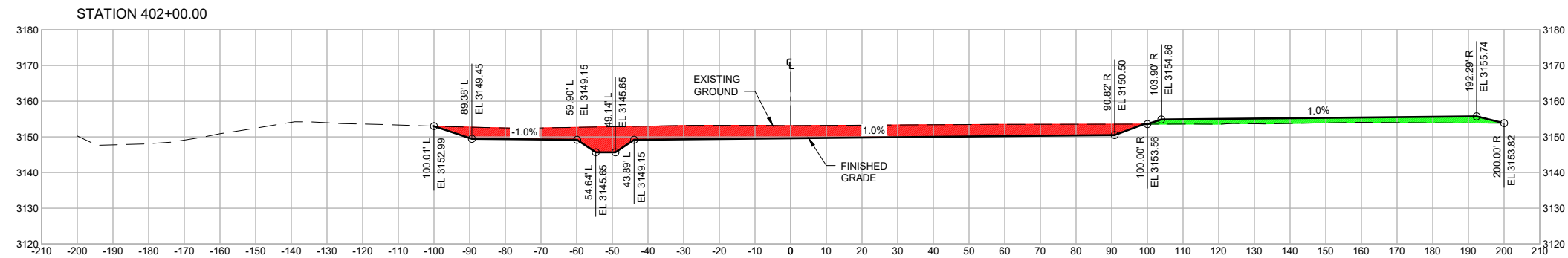
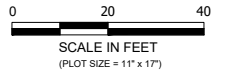
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 5 - CROSS SECTIONS
STA 516+00 TO STA 518+00

SHEET	OF
C.5	C.21



EARTHWORK AT STATION 400+00.00	
CUT AREA	518.26 SqFt
FILL AREA	576.63 SqFt
CUT VOLUME	0.00 CuYd
FILL VOLUME	0.00 CuYd
CUMULATIVE CUT VOL	0.00 CuYd
CUMULATIVE FILL VOL	0.00 CuYd
CUMULATIVE NET VOLUME	0.00 CuYd



EARTHWORK AT STATION 402+00.00	
CUT AREA	689.94 SqFt
FILL AREA	140.76 SqFt
CUT VOLUME	5333.08 CuYd
FILL VOLUME	3744.81 CuYd
CUMULATIVE CUT VOL	5333.08 CuYd
CUMULATIVE FILL VOL	3744.81 CuYd
CUMULATIVE NET VOLUME	1588.28 CuYd

	EXCESS EMBANKMENT (AVAILABLE FOR EXPORT)
	1' - 2' HIGH SPOIL BANK (NOT AVAILABLE FOR EXPORT)

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

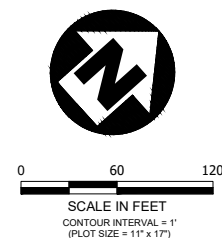
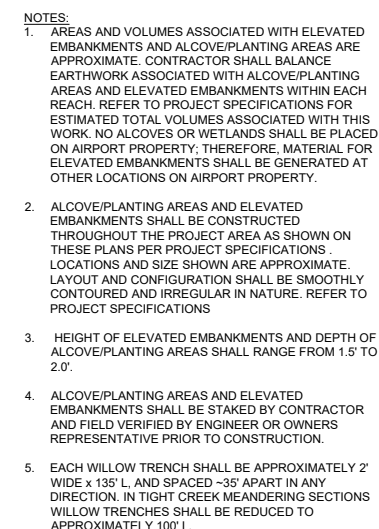
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 4 - CROSS SECTIONS
STA 400+00 TO STA 402+00

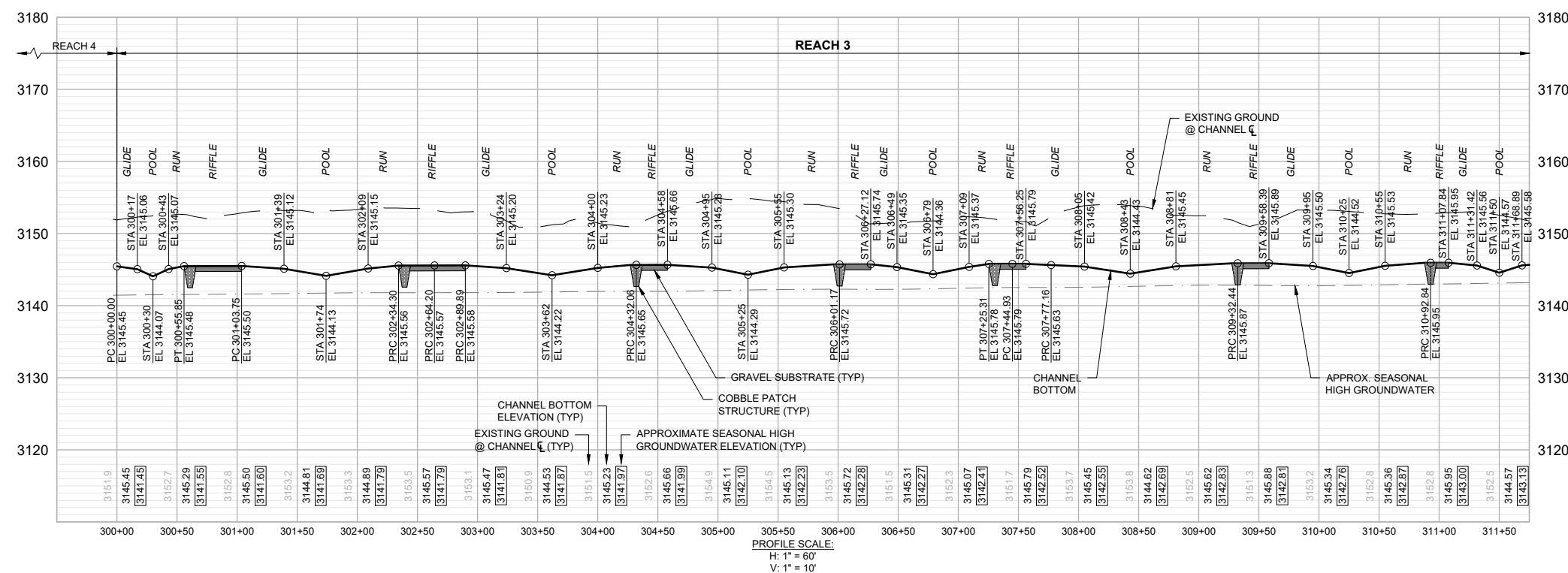
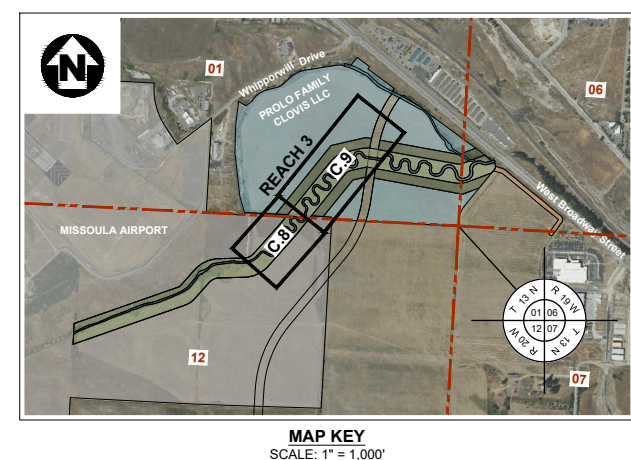
SHEET
OF
C.7 C.21



LEGEND

	200' FLOODPLAIN
	100' RIPARIAN BUFFER
	ELEVATED EMBANKMENT
	ALCOVE/PLANTING AREAS
	BRUSH MATRIX BANK TREATMENT
	WILLOW TRENCH
	STREAM CHANNEL POOL
	STREAM CHANNEL RUN/GLIDE
	COBBLE PATCH STRUCTURE
	GRAVEL SUBSTRATE, 9-INCH DEPTH

REACH 3 STREAM ALIGNMENT TABLE							
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION
C-2	300+00.00	N 1001510.800 E 827813.580	300+55.85	N 1001518.169 E 827864.472	55.85'	40.00'	N81°45'42"E
L-3	300+55.85	N 1001518.169 E 827864.472	301+03.75	N 1001492.955 E 827905.199	47.90'	NA	S58°14'18"E
C-3	301+03.75	N 1001492.955 E 827905.199	302+34.30	N 1001563.186 E 827957.665	130.55'	44.00'	N36°45'42"E
C-4	302+34.30	N 1001563.186 E 827957.665	302+64.20	N 1001589.247 E 827944.485	29.89'	40.00'	N26°49'40"W
C-5	302+64.20	N 1001589.247 E 827944.485	302+89.89	N 1001612.354 E 827934.283	25.70'	40.00'	N23°49'21"W
C-6	302+89.89	N 1001612.354 E 827934.283	304+32.06	N 1001651.993 E 828001.814	142.17'	40.00'	N59°35'16"E
C-7	304+32.06	N 1001651.993 E 828001.814	306+01.17	N 1001704.502 E 828048.723	169.12'	40.50'	N41°46'35"E
C-8	306+01.17	N 1001704.502 E 828048.723	307+25.31	N 1001783.083 E 828063.973	124.13'	40.03'	N10°58'59"E
L-4	307+25.31	N 1001783.083 E 828063.973	307+44.93	N 1001779.738 E 828083.304	19.62'	NA	S80°11'00"E
C-9	307+44.93	N 1001779.738 E 828083.304	307+77.16	N 1001759.756 E 828106.619	32.24'	30.00'	S49°24'04"E
C-10	307+77.16	N 1001759.756 E 828106.619	309+32.44	N 1001808.179 E 828153.899	155.28'	38.00'	N44°18'56"E
C-11	309+32.44	N 1001808.179 E 828153.899	310+92.84	N 1001862.012 E 828202.579	160.39'	40.00'	N42°07'20"E
C-12	310+92.84	N 1001862.012 E 828202.579	312+00.13	N 1001875.335 E 828279.331	107.29'	40.00'	N80°09'10"E



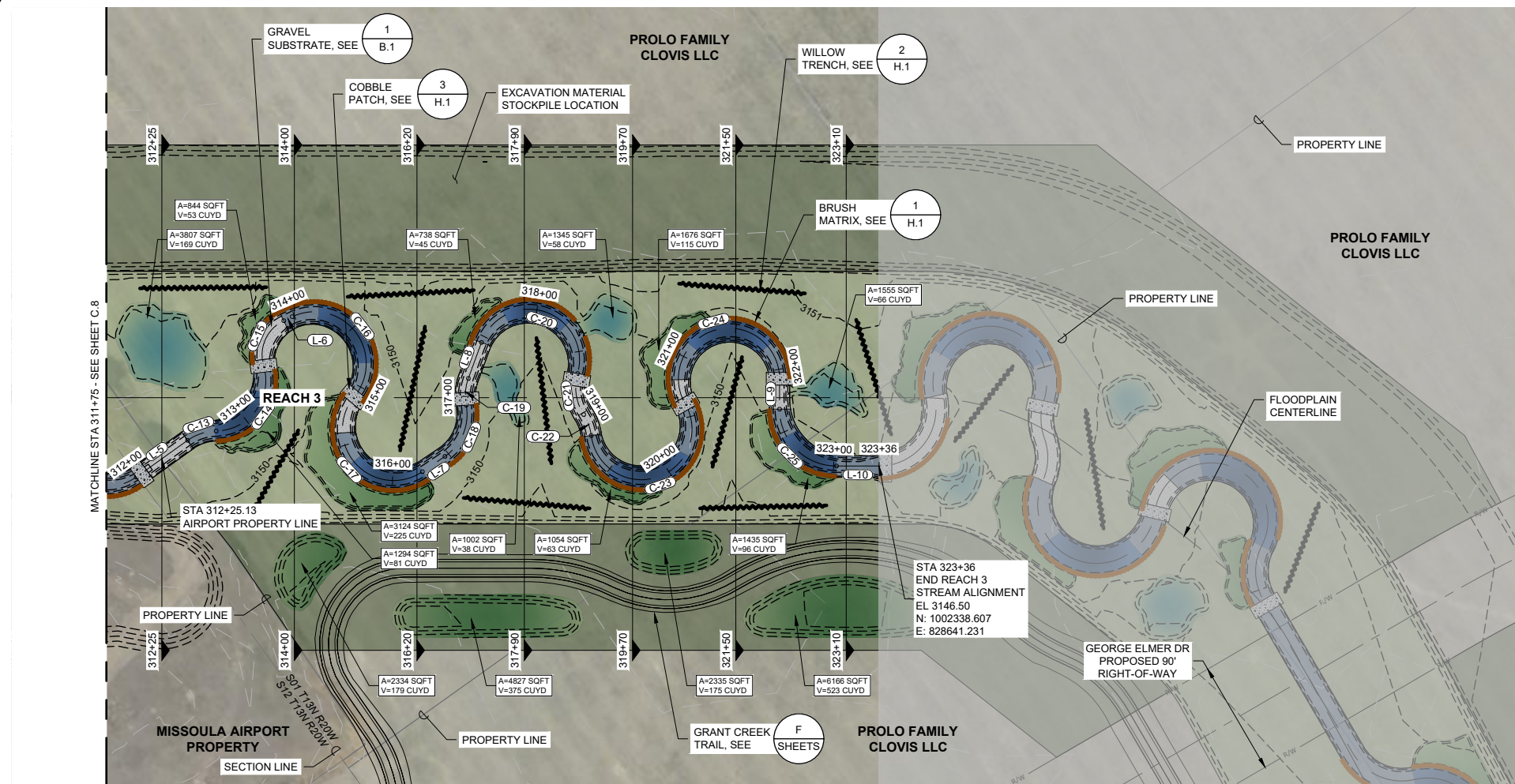
REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.

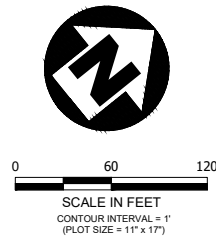
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 3 - PLAN AND PROFILE
STA 300+00 TO STA 311+75

SHEET
OF
C.8 C.21

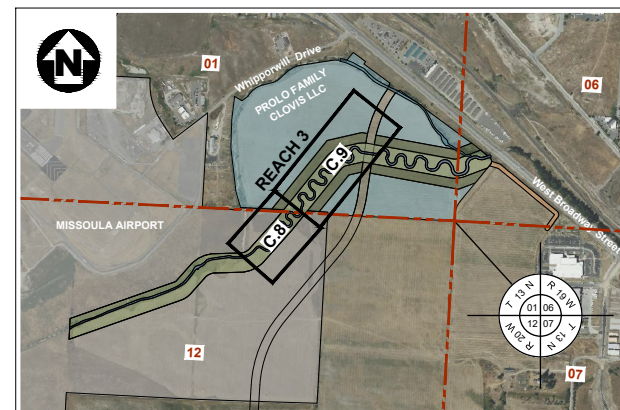
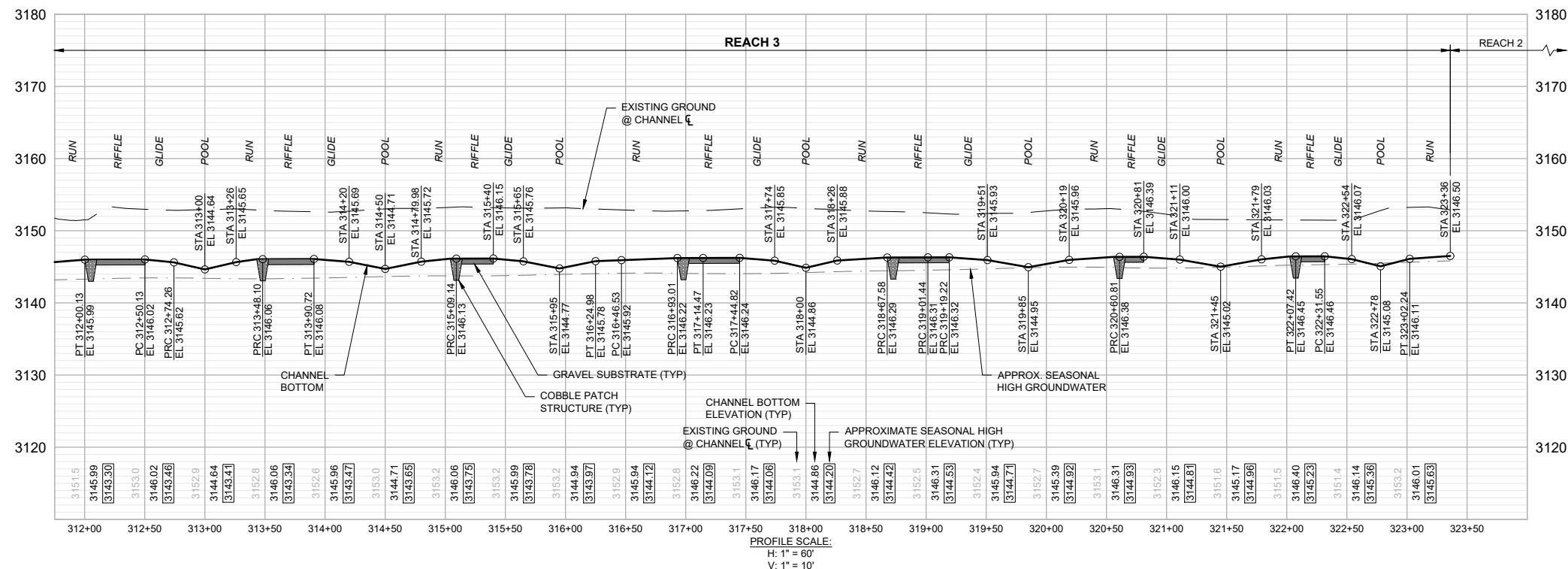


- NOTES:
- AREAS AND VOLUMES ASSOCIATED WITH ELEVATED EMBANKMENTS AND ALCOVE/PLANTING AREAS ARE APPROXIMATE. CONTRACTOR SHALL BALANCE EARTHWORK ASSOCIATED WITH ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS WITHIN EACH REACH. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED TOTAL VOLUMES ASSOCIATED WITH THIS WORK.
 - ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE CONSTRUCTED THROUGHOUT THE PROJECT AREA AS SHOWN ON THESE PLANS PER PROJECT SPECIFICATIONS. LOCATIONS AND SIZE SHOWN ARE APPROXIMATE. LAYOUT AND CONFIGURATION SHALL BE SMOOTHLY CONTOURED AND IRREGULAR IN NATURE. REFER TO PROJECT SPECIFICATIONS.
 - HEIGHT OF ELEVATED EMBANKMENTS AND DEPTH OF ALCOVE/PLANTING AREAS SHALL RANGE FROM 1.5' TO 2.0'.
 - ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE STAKED BY CONTRACTOR AND FIELD VERIFIED BY ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.
 - EACH WILLOW TRENCH SHALL BE APPROXIMATELY 2' WIDE x 135' L. AND SPACED -35' APART IN ANY DIRECTION. IN TIGHT CREEK MEANDERING SECTIONS WILLOW TRENCHES SHALL BE REDUCED TO APPROXIMATELY 100' L.



LEGEND	
	200' FLOODPLAIN
	100' RIPARIAN BUFFER
	ELEVATED EMBANKMENT
	ALCOVE/PLANTING AREAS
	BRUSH MATRIX BANK TREATMENT
	WILLOW TRENCH
	STREAM CHANNEL POOL
	STREAM CHANNEL RUN/GLIDE
	COBBLE PATCH STRUCTURE
	GRAVEL SUBSTRATE, 9-INCH DEPTH

REACH 3 STREAM ALIGNMENT TABLE									
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION		
L-5	312+00.13	N 1001875.335 E 828279.331	312+50.13	N 1001925.251 E 828282.219	50.00'	NA	N03°18'40"E		
C-13	312+50.13	N 1001925.251 E 828282.219	312+74.26	N 1001947.498 E 828290.577	24.13'	40.00'	N20°35'33"E		
C-14	312+74.26	N 1001947.498 E 828290.577	313+48.10	N 1002009.116 E 828274.053	73.84'	40.00'	N15°00'45"W		
C-15	313+48.10	N 1002009.116 E 828274.053	313+90.72	N 1002043.919 E 828256.170	42.62'	30.00'	N27°11'43"W		
L-6	313+90.72	N 1002043.919 E 828256.170	313+98.16	N 1002051.147 E 828257.906	7.43'	NA	N13°30'28"E		
C-16	313+98.16	N 1002051.147 E 828257.906	315+09.14	N 1002049.677 E 828337.963	110.98'	41.00'	S88°56'53"E		
C-17	315+09.14	N 1002049.677 E 828337.963	316+24.98	N 1002054.361 E 828418.027	115.85'	40.50'	N86°39'06"E		
L-7	316+24.98	N 1002054.361 E 828418.027	316+46.53	N 1002075.832 E 828419.795	21.54'	NA	N04°42'27"E		
C-18	316+46.53	N 1002075.832 E 828419.795	316+93.01	N 1002114.393 E 828398.783	46.49'	40.00'	N28°35'09"W		
L-8	317+14.47	N 1002128.981 E 828383.403	317+44.82	N 1002154.959 E 828367.702	30.35'	NA	N31°08'53"W		
C-20	317+44.82	N 1002154.959 E 828367.702	318+67.58	N 1002198.765 E 828434.579	122.76'	40.00'	N56°46'27"E		
C-21	318+67.58	N 1002198.765 E 828434.579	319+01.44	N 1002182.116 E 828462.901	33.85'	40.00'	S59°32'58"E		
C-22	319+01.44	N 1002182.116 E 828462.901	319+19.22	N 1002176.393 E 828479.579	17.78'	40.00'	S71°03'44"E		
C-23	319+19.22	N 1002176.393 E 828479.579	320+60.81	N 1002249.960 E 828506.736	141.59'	40.00'	N20°15'42"E		
C-24	320+60.81	N 1002249.960 E 828506.736	322+07.42	N 1002320.634 E 828537.984	146.61'	40.00'	N23°51'07"E		
L-9	322+07.42	N 1002320.634 E 828537.984	322+31.55	N 1002305.496 E 828556.777	24.13'	NA	S51°08'53"E		
C-25	322+31.55	N 1002305.496 E 828556.777	323+02.24	N 1002312.312 E 828620.050	70.69'	45.00'	N83°51'07"E		
L-10	323+02.24	N 1002312.312 E 828620.050	323+36.00	N 1002338.607 E 828641.231	33.76'	NA	N38°51'07"E		



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

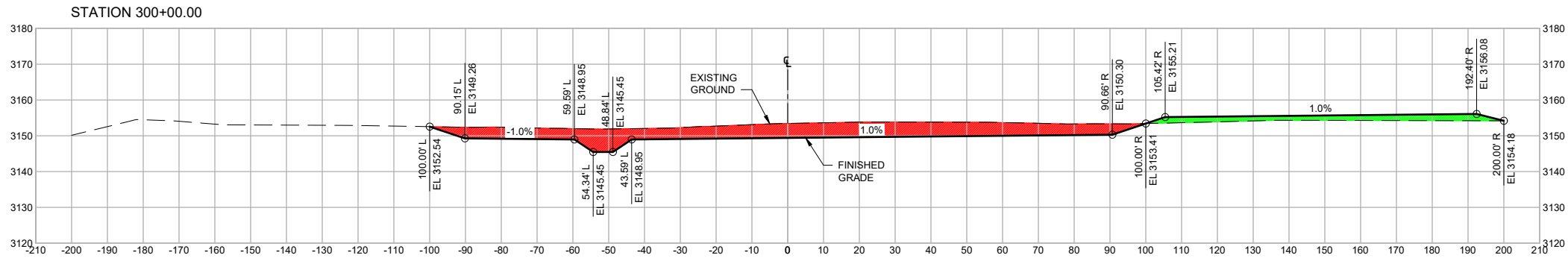
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJA,P.C.



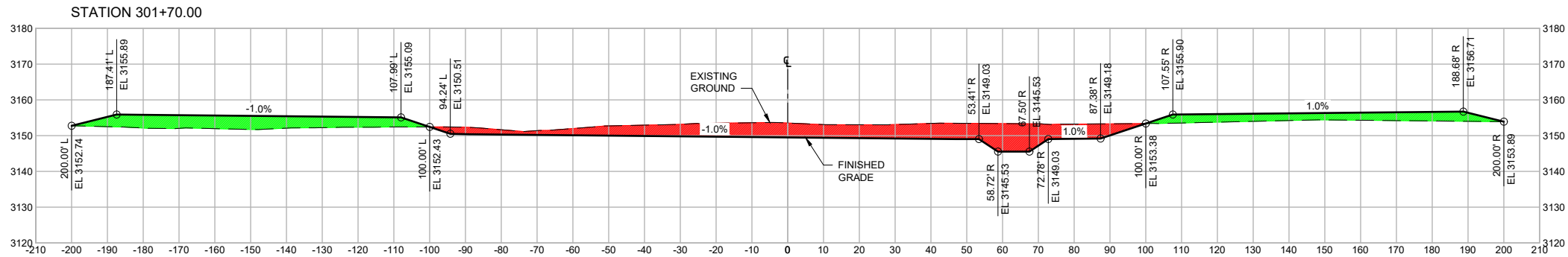
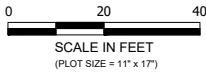
GRANT CREEK RFC PLANS

C. GRANT CREEK REACH 3 - PLAN AND PROFILE STA 311+75 TO STA 323+36

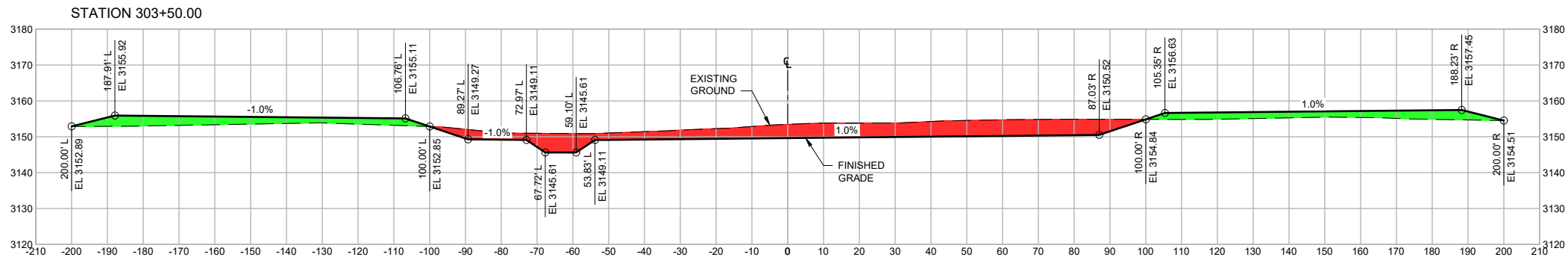
SHEET
OF
C.9 C.21



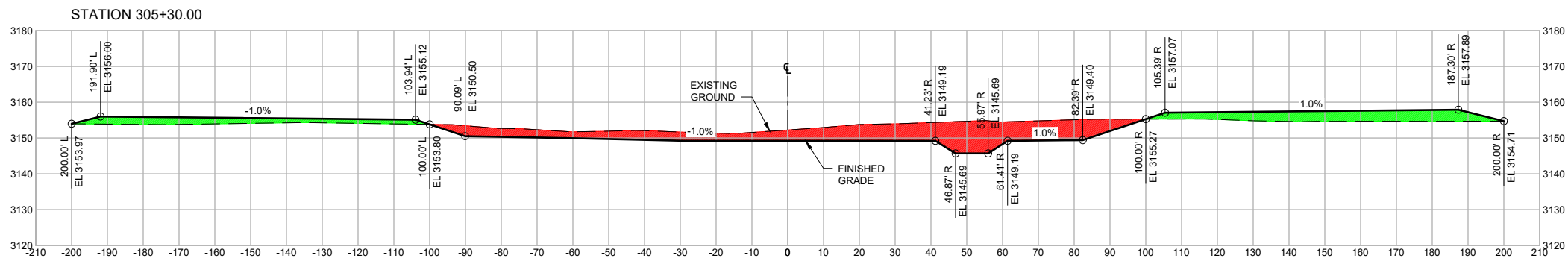
EARTHWORK AT STATION 300+00.00	
CUT AREA	704.85 SqFt
FILL AREA	143.17 SqFt
CUT VOLUME	0.00 CuYd
FILL VOLUME	0.00 CuYd
CUMULATIVE CUT VOL	0.00 CuYd
CUMULATIVE FILL VOL	0.00 CuYd
CUMULATIVE NET VOLUME	0.00 CuYd



EARTHWORK AT STATION 301+70.00	
CUT AREA	688.79 SqFt
FILL AREA	506.61 SqFt
CUT VOLUME	2473.61 CuYd
FILL VOLUME	1153.31 CuYd
CUMULATIVE CUT VOL	2473.61 CuYd
CUMULATIVE FILL VOL	1153.31 CuYd
CUMULATIVE NET VOLUME	1320.31 CuYd



EARTHWORK AT STATION 303+50.00	
CUT AREA	677.15 SqFt
FILL AREA	379.18 SqFt
CUT VOLUME	2568.66 CuYd
FILL VOLUME	1665.72 CuYd
CUMULATIVE CUT VOL	5042.28 CuYd
CUMULATIVE FILL VOL	2819.02 CuYd
CUMULATIVE NET VOLUME	2223.25 CuYd



EARTHWORK AT STATION 305+30.00	
CUT AREA	730.38 SqFt
FILL AREA	389.97 SqFt
CUT VOLUME	2127.67 CuYd
FILL VOLUME	1162.68 CuYd
CUMULATIVE CUT VOL	7169.95 CuYd
CUMULATIVE FILL VOL	3981.70 CuYd
CUMULATIVE NET VOLUME	3188.25 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

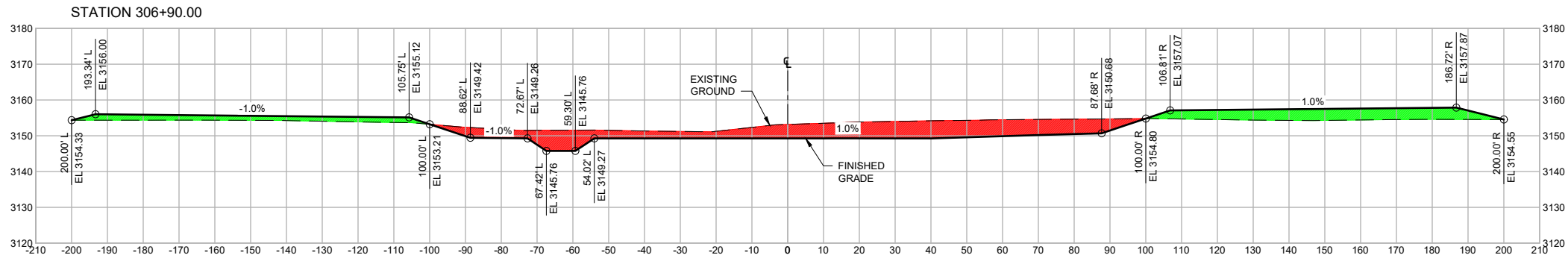
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



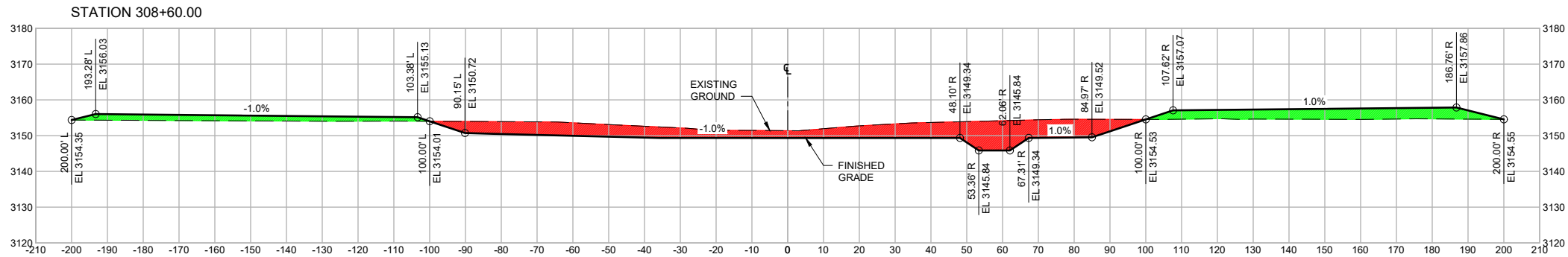
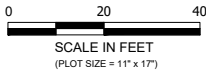
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 3 - CROSS SECTIONS
STA 300+00 TO STA 305+30

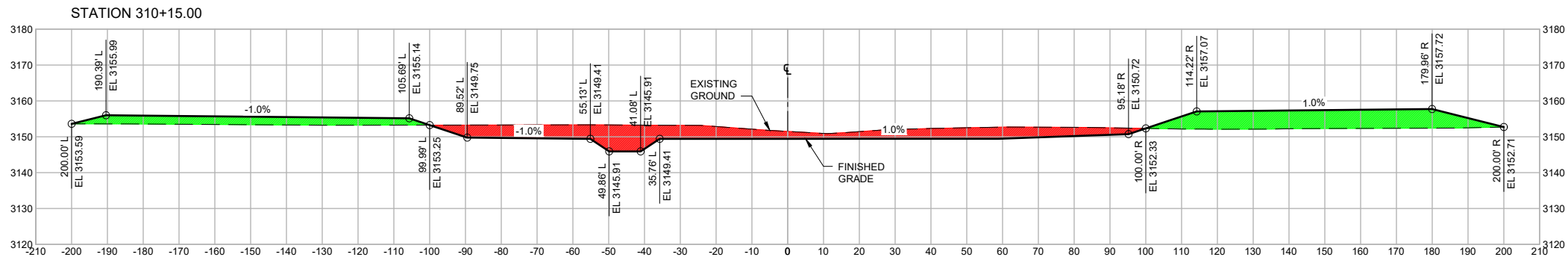
SHEET
OF
C.10 C.21



EARTHWORK AT STATION 306+90.00	
CUT AREA	694.74 SqFt
FILL AREA	402.61 SqFt
CUT VOLUME	1639.39 CuYd
FILL VOLUME	911.75 CuYd
CUMULATIVE CUT VOL	8809.34 CuYd
CUMULATIVE FILL VOL	4893.45 CuYd
CUMULATIVE NET VOLUME	3915.89 CuYd

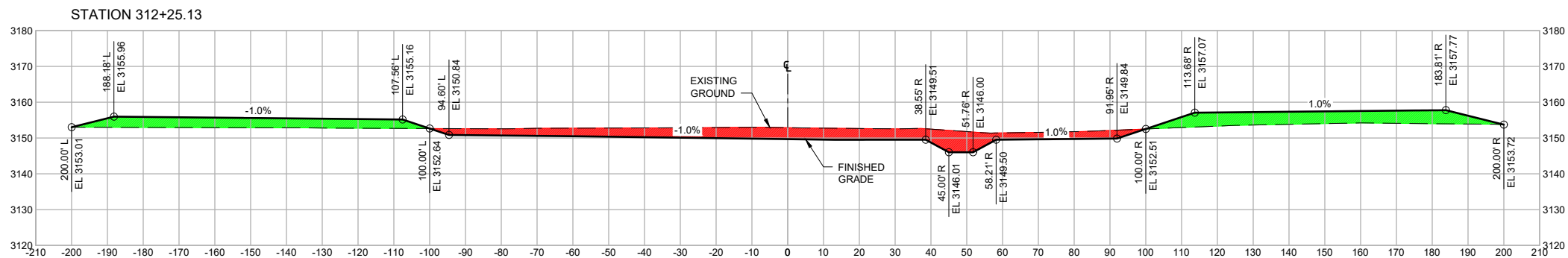


EARTHWORK AT STATION 308+60.00	
CUT AREA	722.57 SqFt
FILL AREA	395.36 SqFt
CUT VOLUME	1936.40 CuYd
FILL VOLUME	1119.23 CuYd
CUMULATIVE CUT VOL	10745.75 CuYd
CUMULATIVE FILL VOL	6012.68 CuYd
CUMULATIVE NET VOLUME	4733.06 CuYd



EARTHWORK AT STATION 310+15.00	
CUT AREA	623.91 SqFt
FILL AREA	632.70 SqFt
CUT VOLUME	1884.61 CuYd
FILL VOLUME	1438.92 CuYd
CUMULATIVE CUT VOL	12630.35 CuYd
CUMULATIVE FILL VOL	7451.61 CuYd
CUMULATIVE NET VOLUME	5178.74 CuYd

AIRPORT PROPERTY
PROLO FAMILY CLOVIS LLC



EARTHWORK AT STATION 312+25.13	
CUT AREA	532.87 SqFt
FILL AREA	555.19 SqFt
CUT VOLUME	2345.78 CuYd
FILL VOLUME	2408.84 CuYd
CUMULATIVE CUT VOL	14976.13 CuYd
CUMULATIVE FILL VOL	9860.45 CuYd
CUMULATIVE NET VOLUME	5115.68 CuYd

NOTES:

- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
- CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
- ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
- EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

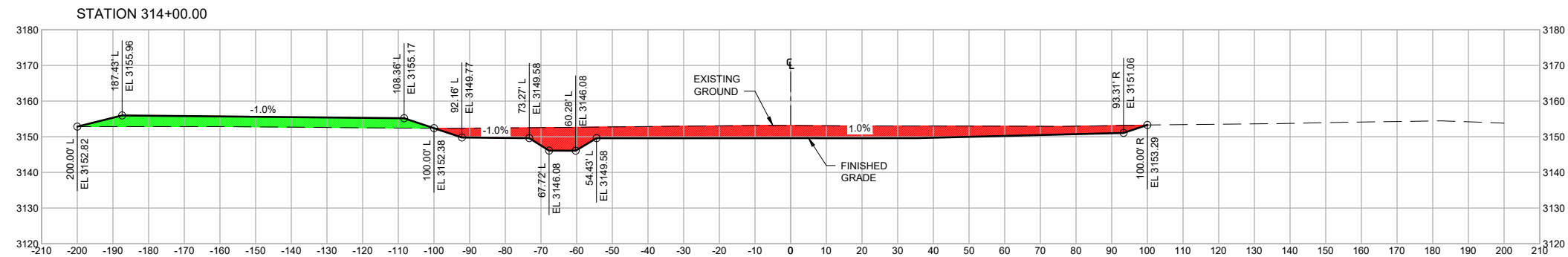
CHECKED DM SURVEYED DJ&A, P.C.



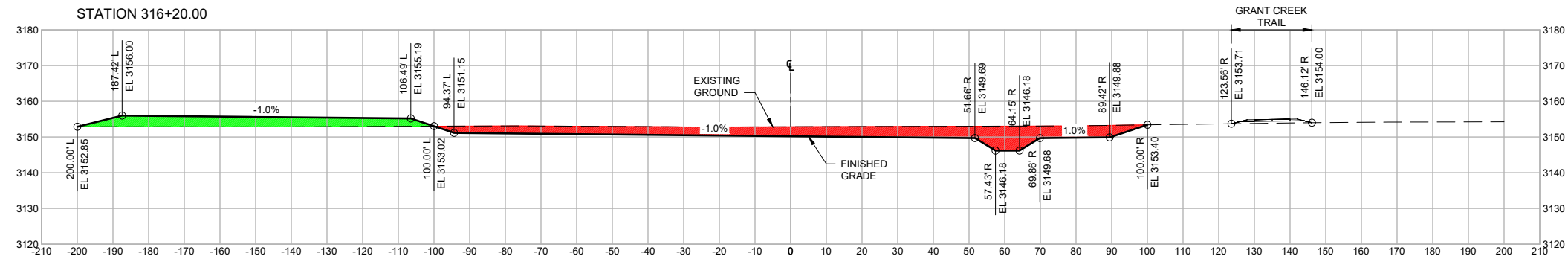
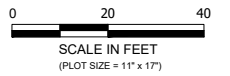
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 3 - CROSS SECTIONS
STA 306+90 TO STA 312+25.13

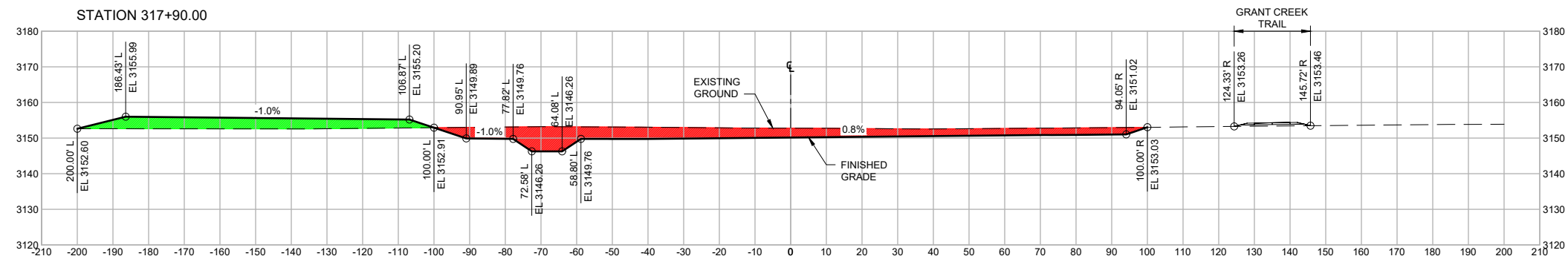
SHEET
OF
C.11 C.21



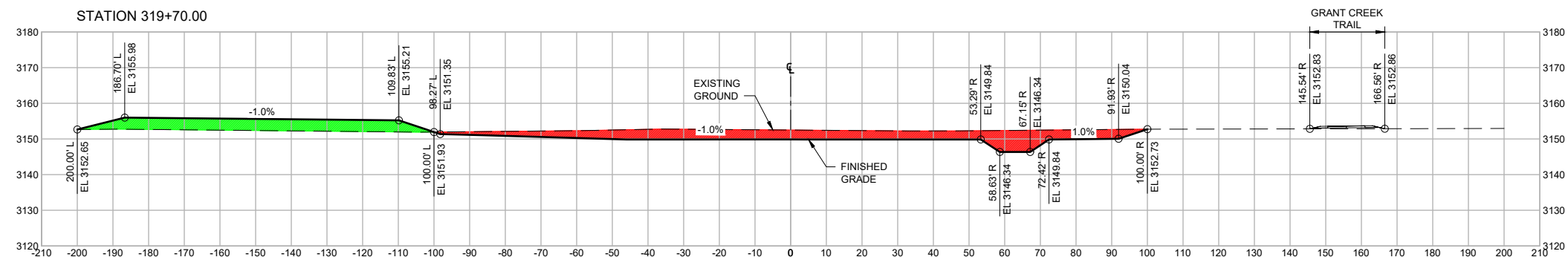
EARTHWORK AT STATION 314+00.00	
CUT AREA	635.02 SqFt
FILL AREA	258.84 SqFt
CUT VOLUME	2266.94 CuYd
FILL VOLUME	1580.07 CuYd
CUMULATIVE CUT VOL	17243.07 CuYd
CUMULATIVE FILL VOL	11440.52 CuYd
CUMULATIVE NET VOLUME	5802.55 CuYd



EARTHWORK AT STATION 316+20.00	
CUT AREA	565.60 SqFt
FILL AREA	246.29 SqFt
CUT VOLUME	2156.26 CuYd
FILL VOLUME	907.19 CuYd
CUMULATIVE CUT VOL	19399.33 CuYd
CUMULATIVE FILL VOL	12347.71 CuYd
CUMULATIVE NET VOLUME	7051.62 CuYd



EARTHWORK AT STATION 317+90.00	
CUT AREA	555.34 SqFt
FILL AREA	267.43 SqFt
CUT VOLUME	1763.66 CuYd
FILL VOLUME	808.26 CuYd
CUMULATIVE CUT VOL	21162.98 CuYd
CUMULATIVE FILL VOL	13155.97 CuYd
CUMULATIVE NET VOLUME	8007.01 CuYd



EARTHWORK AT STATION 319+70.00	
CUT AREA	504.80 SqFt
FILL AREA	288.04 SqFt
CUT VOLUME	1681.67 CuYd
FILL VOLUME	881.12 CuYd
CUMULATIVE CUT VOL	22844.66 CuYd
CUMULATIVE FILL VOL	14037.09 CuYd
CUMULATIVE NET VOLUME	8807.56 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

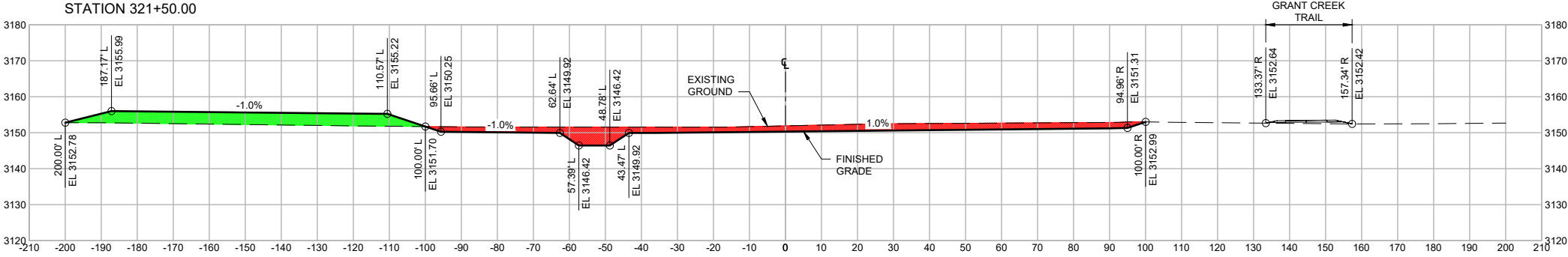
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



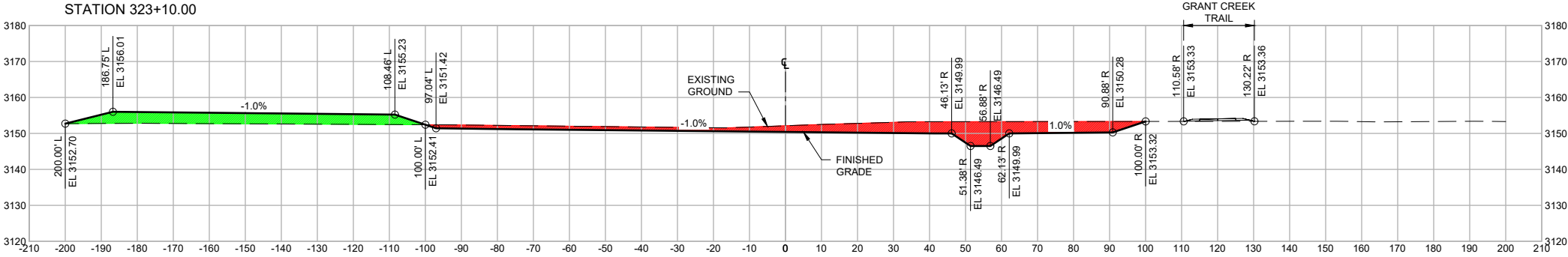
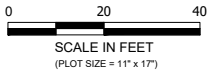
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 3 - CROSS SECTIONS
STA 314+00 TO STA 319+70

SHEET
OF
C.12 C.21



EARTHWORK AT STATION 321+50.00	
CUT AREA	371.21 SqFt
FILL AREA	296.22 SqFt
CUT VOLUME	1325.01 CuYd
FILL VOLUME	883.72 CuYd
CUMULATIVE CUT VOL	24169.67 CuYd
CUMULATIVE FILL VOL	14920.81 CuYd
CUMULATIVE NET VOLUME	9248.86 CuYd



EARTHWORK AT STATION 323+10.00	
CUT AREA	421.49 SqFt
FILL AREA	266.04 SqFt
CUT VOLUME	1282.53 CuYd
FILL VOLUME	909.69 CuYd
CUMULATIVE CUT VOL	25452.19 CuYd
CUMULATIVE FILL VOL	15830.50 CuYd
CUMULATIVE NET VOLUME	9621.70 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

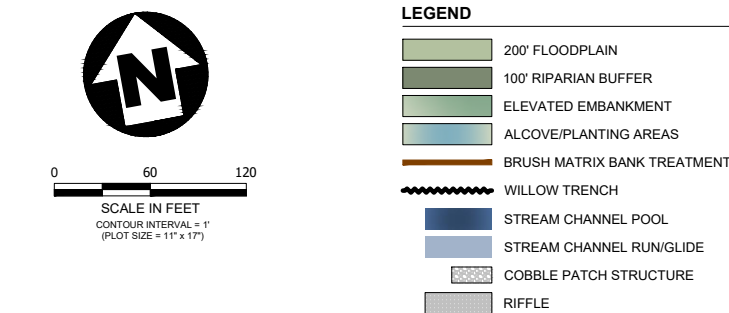
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 3 - CROSS SECTIONS
STA 321+50 TO STA 323+10

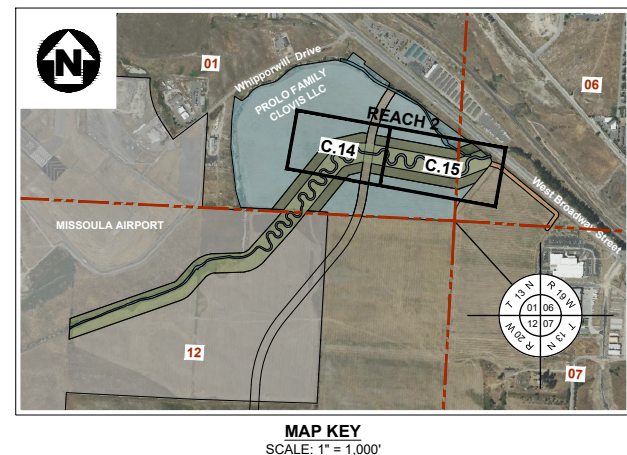
SHEET
OF
C.13 C.21



NOTES:

1. AREAS AND VOLUMES ASSOCIATED WITH ELEVATED EMBANKMENTS AND ALCOVE/PLANTING AREAS ARE APPROXIMATE. CONTRACTOR SHALL BALANCE EARTHWORK ASSOCIATED WITH ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS WITHIN EACH REACH. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED TOTAL VOLUMES ASSOCIATED WITH THIS WORK.
2. ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE CONSTRUCTED THROUGHOUT THE PROJECT AREA AS SHOWN ON THESE PLANS PER PROJECT SPECIFICATIONS. LOCATIONS AND SIZE SHOWN ARE APPROXIMATE. LAYOUT AND CONFIGURATION SHALL BE SMOOTHLY CONTOURED AND IRREGULAR IN NATURE. REFER TO PROJECT SPECIFICATIONS
3. HEIGHT OF ELEVATED EMBANKMENTS AND DEPTH OF ALCOVE/PLANTING AREAS SHALL RANGE FROM 1.5' TO 2.0'.
4. ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE STAKED BY CONTRACTOR AND FIELD VERIFIED BY ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. EACH WILLLOW TREND SHALL BE APPROXIMATELY 2' WIDE X 135' L, AND SPACED ~35' APART IN ANY DIRECTION. IN TIGHT CREEK MEandering SECTIONS WILLOW TRENCHES SHALL BE REDUCED TO APPROXIMATELY 100' L.

REACH 2 STREAM ALIGNMENT TABLE						
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD. LINE/CHORD DIRECTION
C-26	200+00.00	N 1002338.607 E 828641.231	200+81.10	N 1002407.423 E 828625.620	81.10'	45.00' N12°46'52"W
C-27	200+81.10	N 1002407.423 E 828625.620	202+47.22	N 1002472.457 E 828682.835	166.12'	45.00' N41°20'24"E
C-28	202+47.22	N 1002472.457 E 828682.835	202+77.23	N 1002454.326 E 828706.051	30.01'	45.00' S52°00'40"E
C-29	202+77.23	N 1002454.326 E 828706.051	203+11.82	N 1002432.231 E 828731.554	34.59'	45.00' S49°05'46"E
C-30	203+11.82	N 1002432.231 E 828731.554	204+71.36	N 1002485.494 E 828806.603	159.54'	46.50' N54°38'11"E
C-31	204+71.36	N 1002485.494 E 828806.603	206+28.07	N 1002534.945 E 828880.234	156.71'	45.00' N56°06'51"E
C-32	206+28.07	N 1002534.945 E 828880.234	206+73.07	N 1002508.839 E 828914.591	45.00'	45.00' S52°46'10"E
L-11	206+73.07	N 1002508.839 E 828914.591	208+13.07	N 1002487.949 E 829053.023	140.00'	NA S81°25'07"E
C-33	208+13.07	N 1002487.949 E 829053.023	208+70.30	N 1002512.920 E 829100.281	57.23'	45.00' N62°08'53"E
C-34	208+70.30	N 1002512.920 E 829100.281	209+95.64	N 1002489.232 E 829185.632	125.34'	45.00' S74°29'18"E

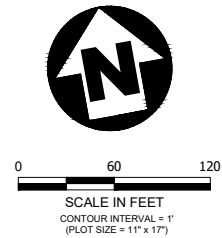
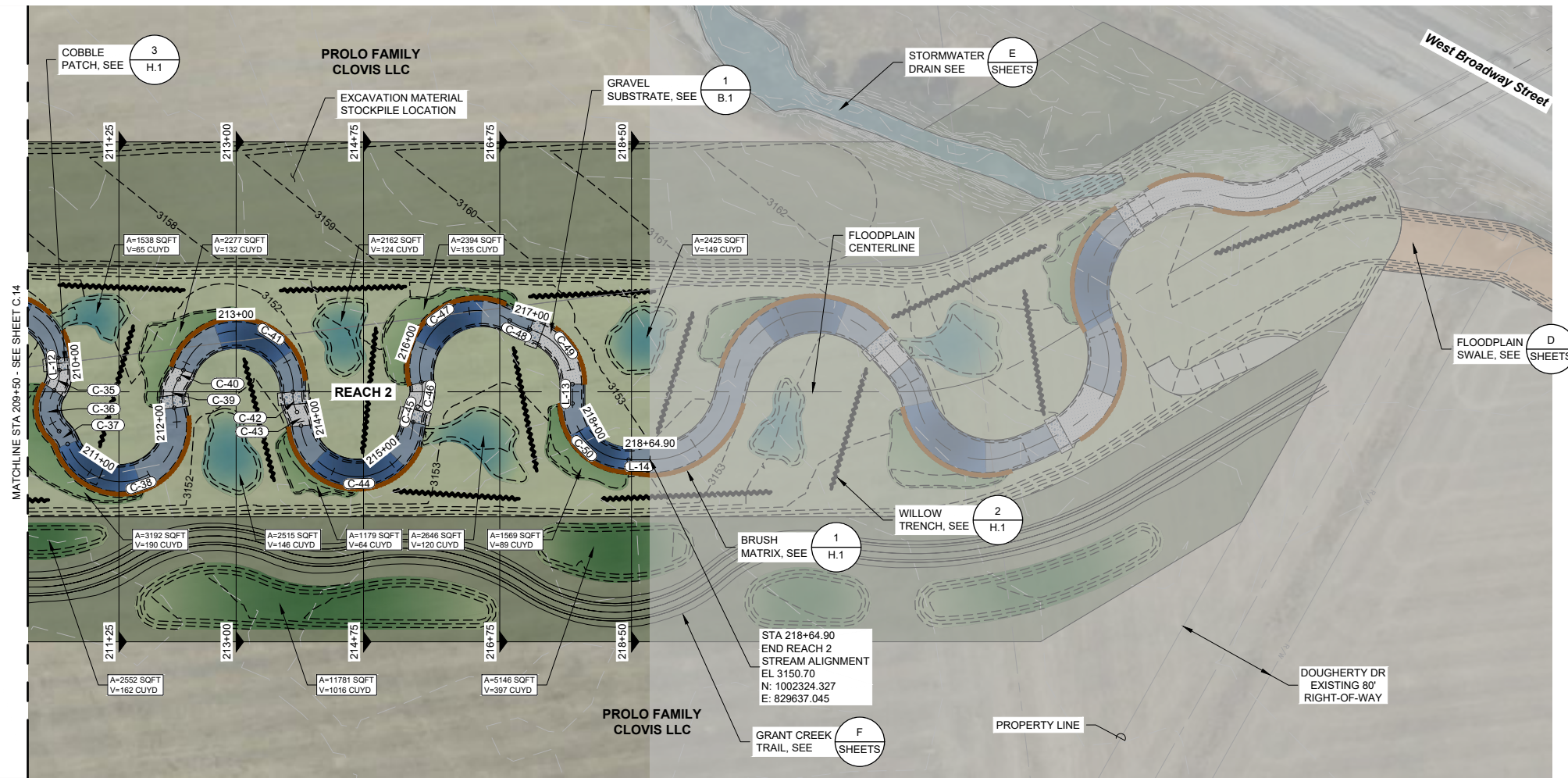
[illegible]

DESIGNER	<u>DM</u>	PROJ. NO.	<u>7065.01</u>
DRAWN	<u>JW</u>	DATE	<u>08/01/2024</u>
CHECKED	<u>DM</u>	SURVEYED	<u>DJ&A, P.C.</u>

GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 2 - PLAN AND PROFILE
STA 200+00 TO STA 209+50

SHEET
OF
C.14 C.21

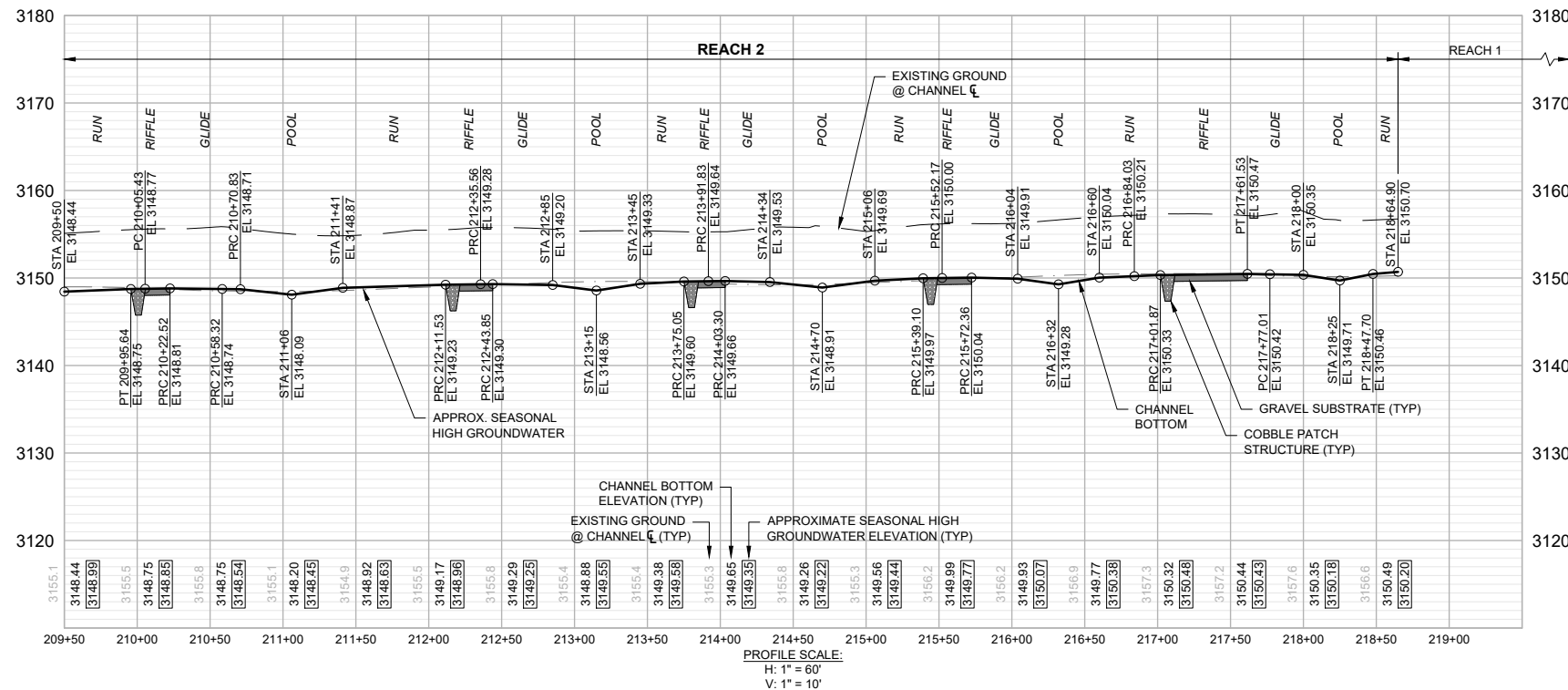


LEGEND

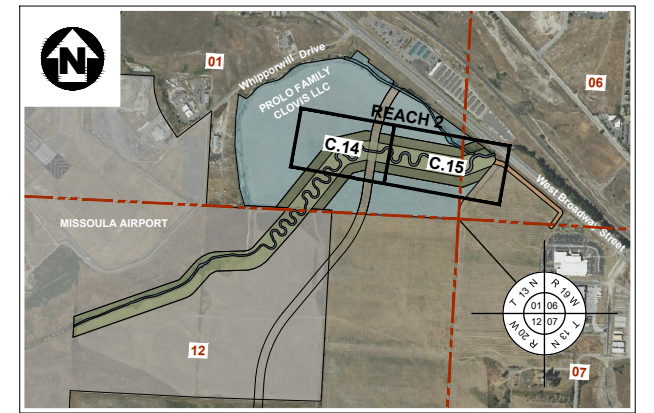
[Light Green Box]	200' FLOODPLAIN
[Dark Green Box]	100' RIPARIAN BUFFER
[Light Blue Box]	ELEVATED EMBANKMENT
[Light Blue Box]	ALCOVE/PLANTING AREAS
[Orange Box]	FLOODPLAIN SWALE
[Blue Box]	STORMWATER DRAIN
[Orange Line]	BRUSH MATRIX BANK TREATMENT
[Wavy Line]	WILLOW TRENCH
[Dark Blue Box]	STREAM CHANNEL POOL
[Light Blue Box]	STREAM CHANNEL RUN/GLIDE
[Patterned Box]	COBBLE PATCH STRUCTURE
[Patterned Box]	RIFFLE

REACH 2 STREAM ALIGNMENT TABLE

NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION
L-12	209+95.64	N 1002489.232 E 829185.632	210+05.43	N 1002479.487 E 829184.726	9.79'	NA	S05°18'30"W
C-35	210+05.43	N 1002479.487 E 829184.726	210+22.52	N 1002464.289 E 829177.676	17.08'	25.00'	S24°53'07"W
C-36	210+22.52	N 1002464.289 E 829177.676	210+58.32	N 1002431.525 E 829175.711	35.81'	25.00'	S03°25'57"W
C-37	210+58.32	N 1002431.525 E 829175.711	210+70.83	N 1002420.151 E 829180.601	12.51'	25.00'	S23°15'40"E
C-38	210+70.83	N 1002420.151 E 829180.601	212+11.53	N 1002433.447 E 829269.610	140.70'	45.00'	N81°30'16"E
C-39	212+11.53	N 1002433.447 E 829269.610	212+35.56	N 1002455.238 E 829277.313	24.03'	25.00'	N19°27'59"E
C-40	212+35.56	N 1002455.238 E 829277.313	212+43.85	N 1002461.785 E 829282.336	8.29'	25.00'	N37°29'58"E
C-41	212+43.85	N 1002461.785 E 829282.336	213+75.05	N 1002428.967 E 829365.524	131.21'	45.00'	S68°28'13"E
C-42	213+75.05	N 1002428.967 E 829365.524	214+03.30	N 1002412.078 E 829367.001	16.78'	30.00'	S00°57'50"E
C-43	214+03.30	N 1002412.078 E 829367.001	215+52.17	N 1002387.877 E 829455.854	135.80'	45.00'	S81°32'57"E
C-44	215+52.17	N 1002387.877 E 829455.854	215+72.36	N 1002399.396 E 829461.718	13.07'	25.00'	N26°58'51"E
C-45	215+72.36	N 1002399.396 E 829461.718	216+84.03	N 1002417.988 E 829468.058	20.19'	25.00'	N18°49'48"E
C-46	216+84.03	N 1002417.988 E 829468.058	217+01.87	N 1002444.016 E 829560.950	17.84'	50.00'	S55°25'57"E
C-47	217+01.87	N 1002444.016 E 829560.950	217+77.01	N 1002394.965 E 829583.902	59.66'	45.00'	S27°40'24"E
C-48	217+77.01	N 1002394.965 E 829583.902	218+64.90	N 1002327.404 E 829620.123	70.69'	45.00'	S34°41'30"E
C-49	218+64.90	N 1002327.404 E 829620.123	219+00.00	N 1002324.327 E 829637.045	17.20'	NA	S79°41'30"E



- NOTES:**
- AREAS AND VOLUMES ASSOCIATED WITH ELEVATED EMBANKMENTS AND ALCOVE/PLANTING AREAS ARE APPROXIMATE. CONTRACTOR SHALL BALANCE EARTHWORK ASSOCIATED WITH ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS WITHIN EACH REACH. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED TOTAL VOLUMES ASSOCIATED WITH THIS WORK.
 - ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE CONSTRUCTED THROUGHOUT THE PROJECT AREA AS SHOWN ON THESE PLANS PER PROJECT SPECIFICATIONS. LOCATIONS AND SIZE SHOWN ARE APPROXIMATE. LAYOUT AND CONFIGURATION SHALL BE SMOOTHLY CONTOURED AND IRREGULAR IN NATURE. REFER TO PROJECT SPECIFICATIONS.
 - HEIGHT OF ELEVATED EMBANKMENTS AND DEPTH OF ALCOVE/PLANTING AREAS SHALL RANGE FROM 1.5' TO 2.0'.
 - ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE STAKED BY CONTRACTOR AND FIELD VERIFIED BY ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.
 - EACH WILLOW TRENCH SHALL BE APPROXIMATELY 2' WIDE x 135' L, AND SPACED ~35' APART IN ANY DIRECTION. IN TIGHT CREEK MEANDERING SECTIONS WILLOW TRENCHES SHALL BE REDUCED TO APPROXIMATELY 100' L.



MAP KEY
 SCALE: 1" = 1,000'

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

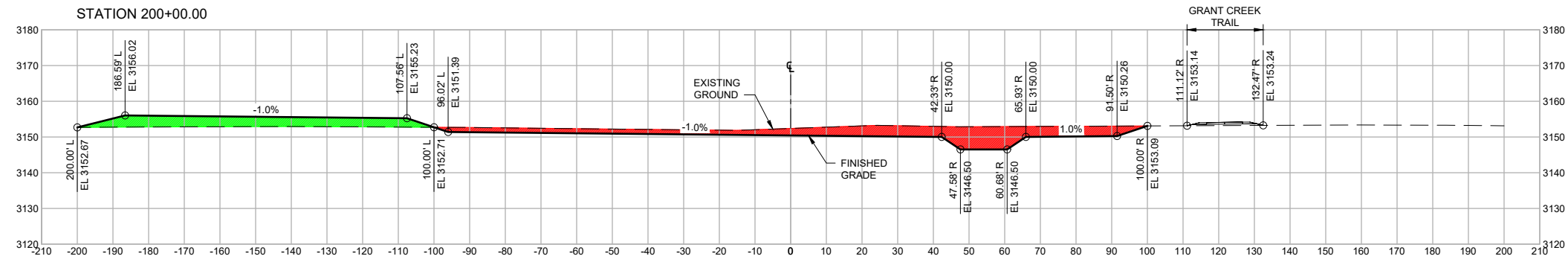
DESIGNER DM PROJ. NO. 7065.01
 DRAWN JW DATE 08/01/2024
 CHECKED DM SURVEYED DJA, P.C.



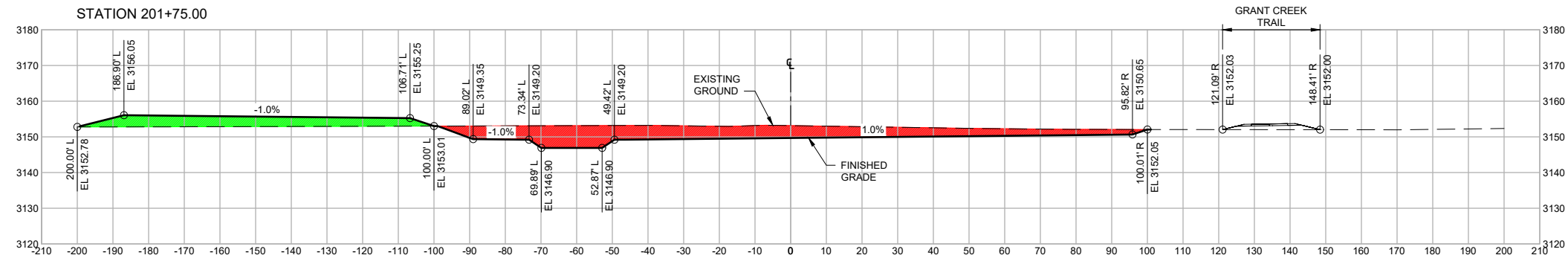
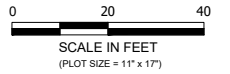
GRANT CREEK RFC PLANS

C. GRANT CREEK REACH 2 - PLAN AND PROFILE STA 209+50 TO STA 218+64.90

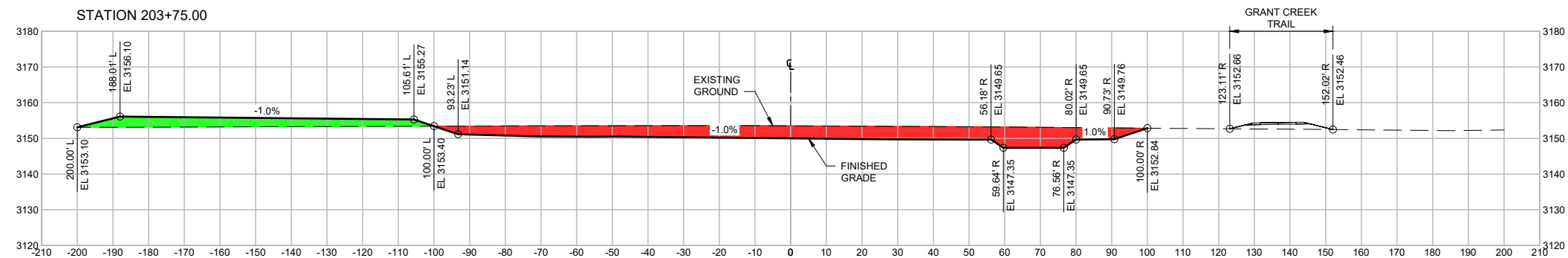
SHEET
OF
C.15 C.21



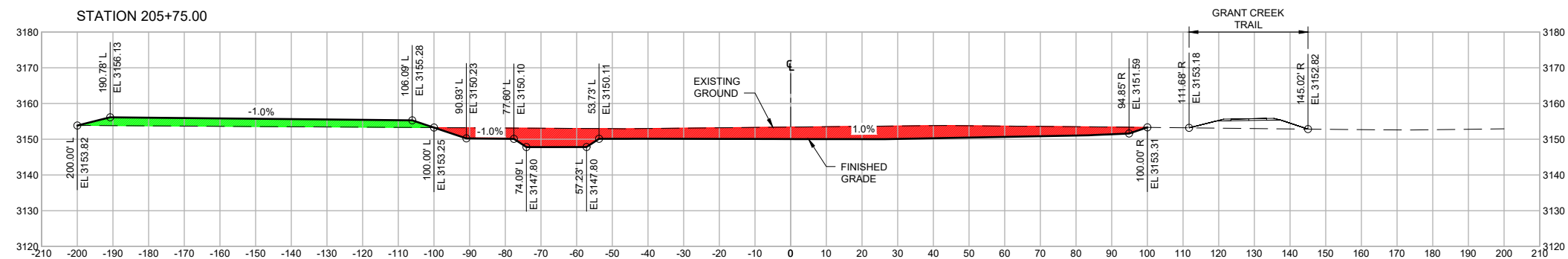
EARTHWORK AT STATION 200+00.00	
CUT AREA	465.52 SqFt
FILL AREA	251.57 SqFt
CUT VOLUME	0.00 CuYd
FILL VOLUME	0.00 CuYd
CUMULATIVE CUT VOL	0.00 CuYd
CUMULATIVE FILL VOL	0.00 CuYd
CUMULATIVE NET VOLUME	0.00 CuYd



EARTHWORK AT STATION 201+75.00	
CUT AREA	628.15 SqFt
FILL AREA	251.52 SqFt
CUT VOLUME	1715.87 CuYd
FILL VOLUME	1150.79 CuYd
CUMULATIVE CUT VOL	1715.87 CuYd
CUMULATIVE FILL VOL	1150.79 CuYd
CUMULATIVE NET VOLUME	565.08 CuYd



EARTHWORK AT STATION 203+75.00	
CUT AREA	676.50 SqFt
FILL AREA	225.05 SqFt
CUT VOLUME	2972.52 CuYd
FILL VOLUME	1623.98 CuYd
CUMULATIVE CUT VOL	4688.38 CuYd
CUMULATIVE FILL VOL	2774.77 CuYd
CUMULATIVE NET VOLUME	1913.61 CuYd



EARTHWORK AT STATION 205+75.00	
CUT AREA	634.53 SqFt
FILL AREA	200.11 SqFt
CUT VOLUME	2077.26 CuYd
FILL VOLUME	673.64 CuYd
CUMULATIVE CUT VOL	6765.64 CuYd
CUMULATIVE FILL VOL	3448.41 CuYd
CUMULATIVE NET VOLUME	3317.24 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

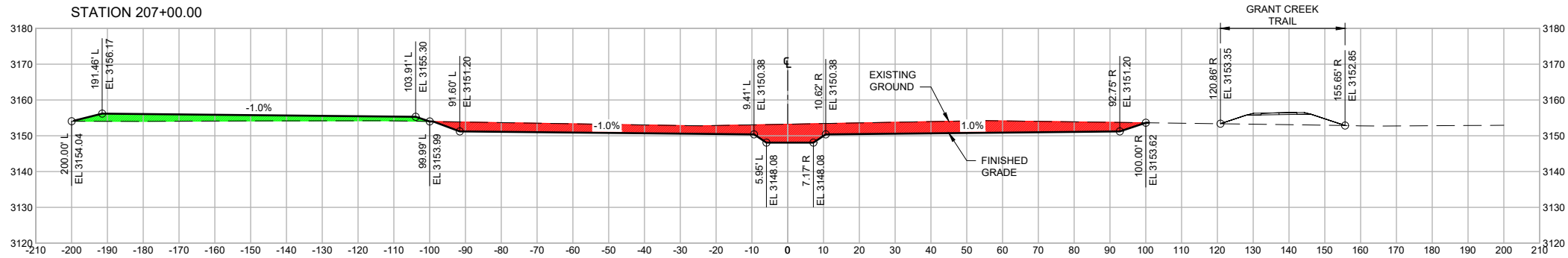
CHECKED DM SURVEYED DJ&A, P.C.



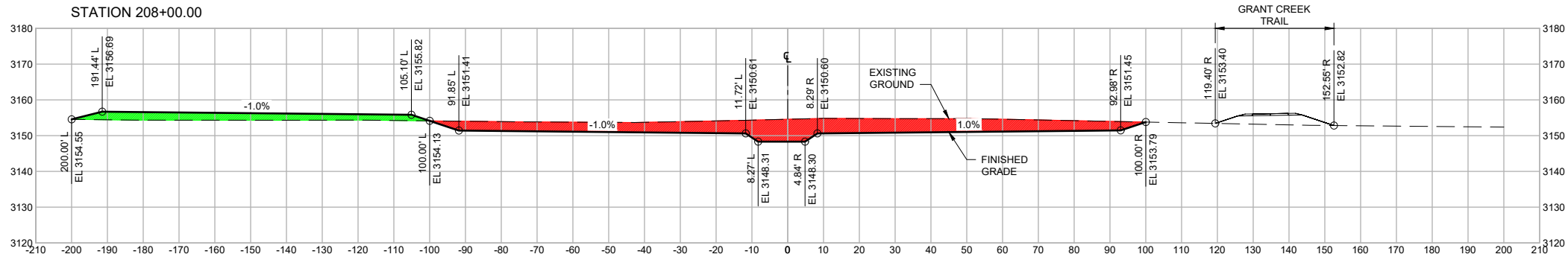
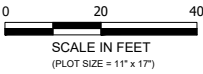
GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 2 - CROSS SECTIONS
STA 200+00 TO STA 205+75

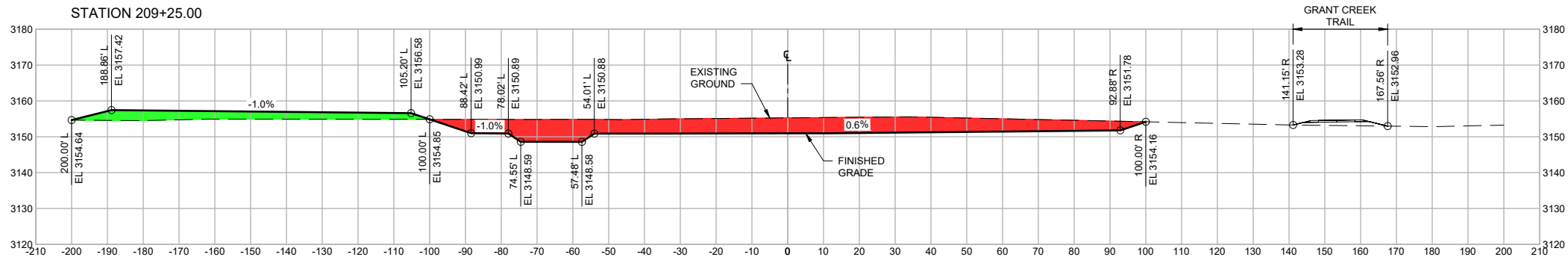
SHEET
OF
C.16 C.21



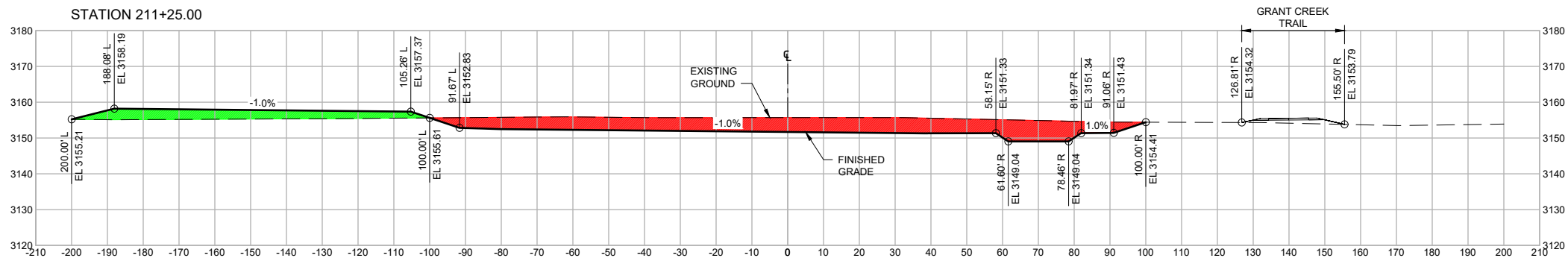
EARTHWORK AT STATION 207+00.00	
CUT AREA	570.33 SqFt
FILL AREA	153.63 SqFt
CUT VOLUME	2001.51 CuYd
FILL VOLUME	905.39 CuYd
CUMULATIVE CUT VOL	8767.15 CuYd
CUMULATIVE FILL VOL	4353.80 CuYd
CUMULATIVE NET VOLUME	4413.36 CuYd



EARTHWORK AT STATION 208+00.00	
CUT AREA	665.30 SqFt
FILL AREA	182.14 SqFt
CUT VOLUME	2281.13 CuYd
FILL VOLUME	701.20 CuYd
CUMULATIVE CUT VOL	11048.29 CuYd
CUMULATIVE FILL VOL	5055.00 CuYd
CUMULATIVE NET VOLUME	5993.29 CuYd



EARTHWORK AT STATION 209+25.00	
CUT AREA	789.29 SqFt
FILL AREA	204.53 SqFt
CUT VOLUME	2548.06 CuYd
FILL VOLUME	677.34 CuYd
CUMULATIVE CUT VOL	13596.35 CuYd
CUMULATIVE FILL VOL	5732.34 CuYd
CUMULATIVE NET VOLUME	7864.00 CuYd



EARTHWORK AT STATION 211+25.00	
CUT AREA	755.12 SqFt
FILL AREA	227.99 SqFt
CUT VOLUME	2779.90 CuYd
FILL VOLUME	778.53 CuYd
CUMULATIVE CUT VOL	16376.24 CuYd
CUMULATIVE FILL VOL	6510.88 CuYd
CUMULATIVE NET VOLUME	9865.36 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

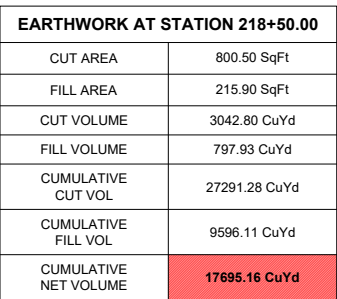
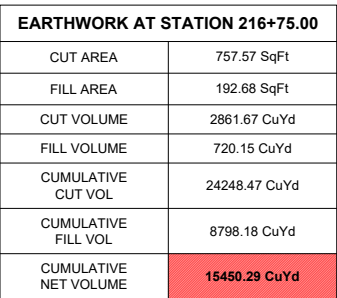
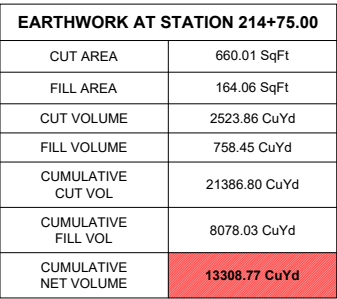
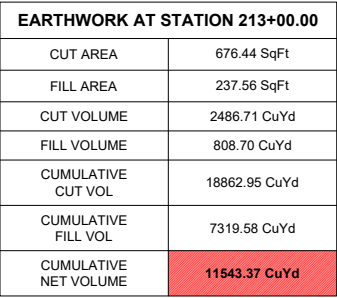
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 2 - CROSS SECTIONS
STA 207+00 TO STA 211+25

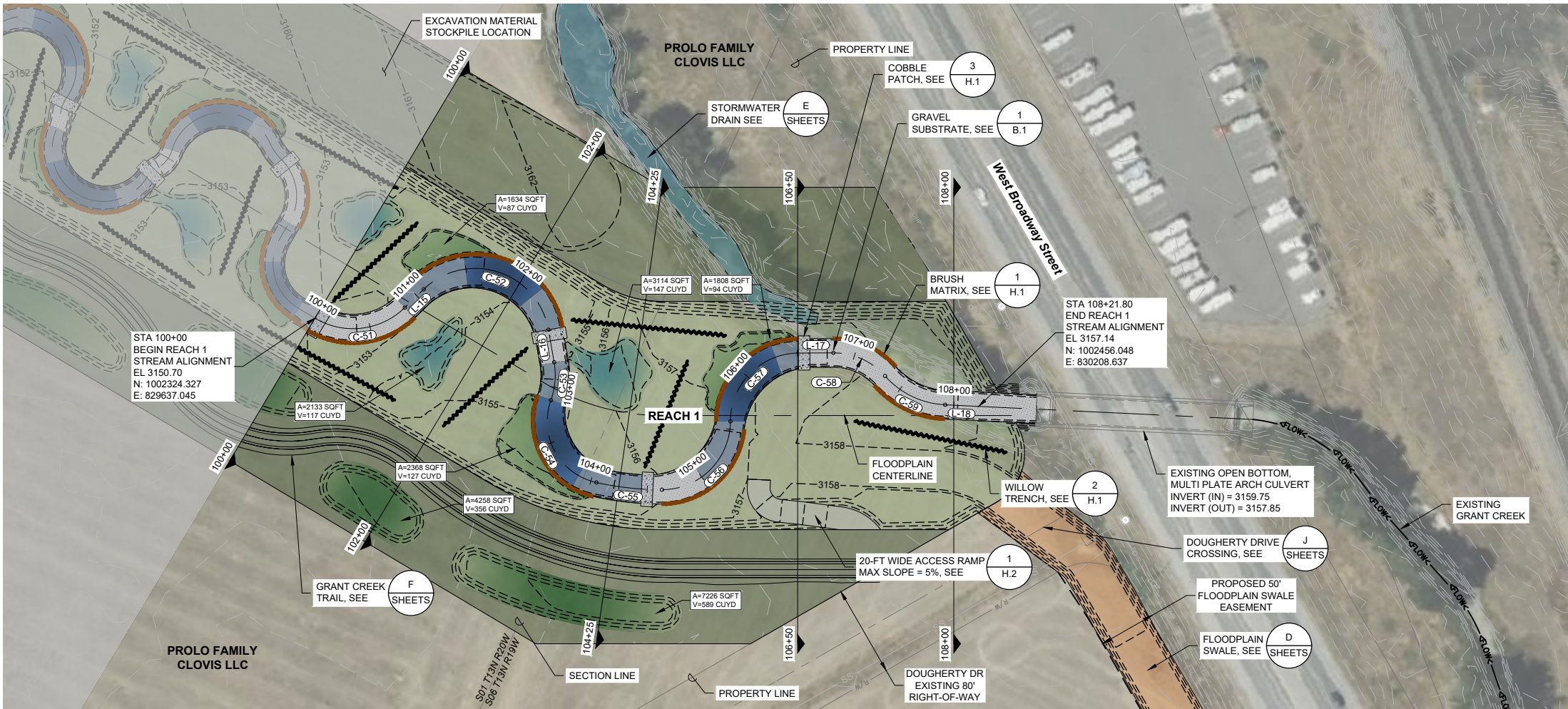
SHEET
OF
C.17 C.21



 EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

SHEET
OF
C.18 C.21



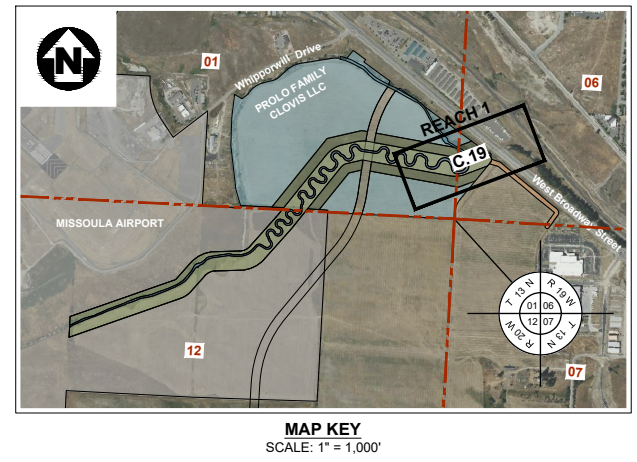
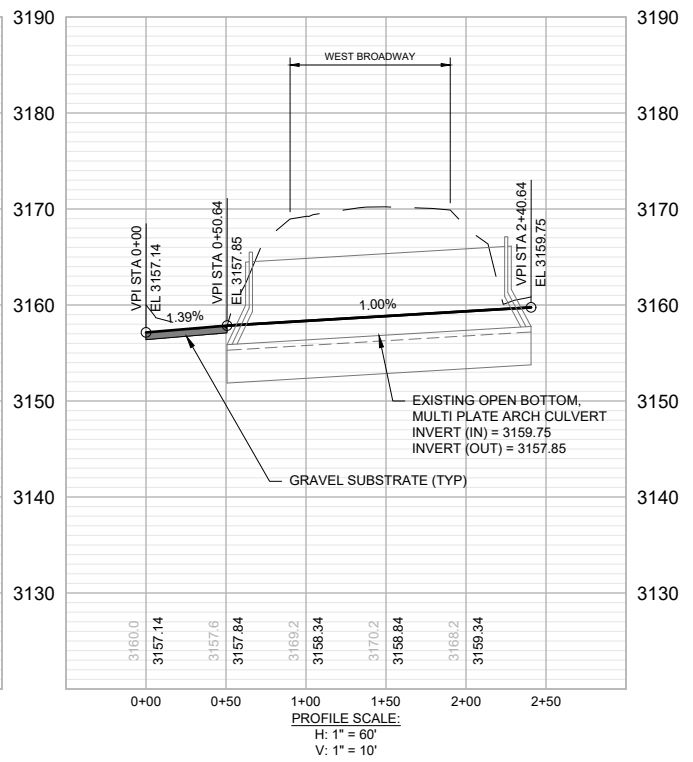
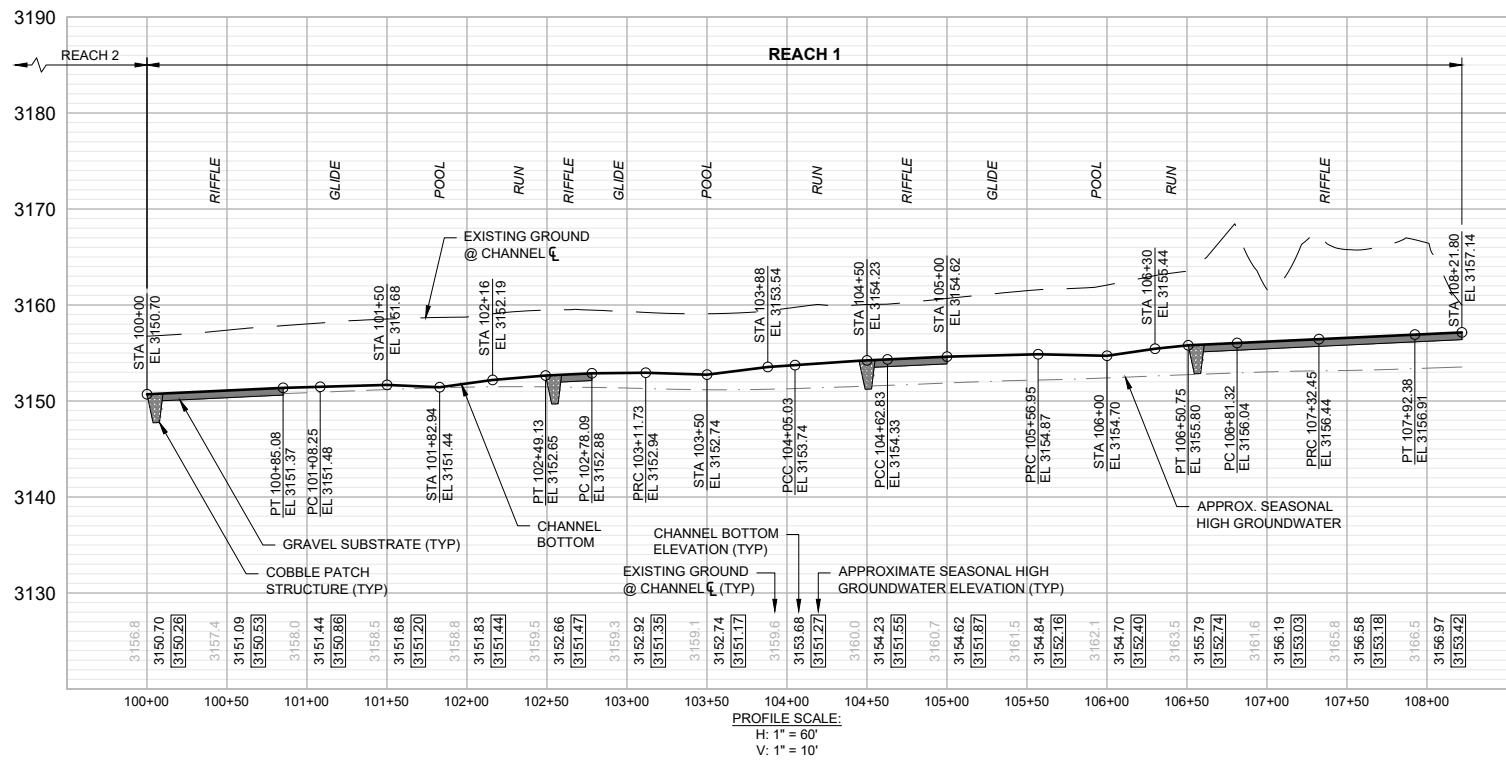
LEGEND

- 200' FLOODPLAIN
- 100' RIPARIAN BUFFER
- ELEVATED EMBANKMENT
- ALCOVE/PLANTING AREAS
- FLOODPLAIN SWALE
- STORMWATER DRAIN
- BRUSH MATRIX BANK TREATMENT
- WILLOW TRENCH
- STREAM CHANNEL POOL
- STREAM CHANNEL RUN/GLIDE
- COBBLE PATCH STRUCTURE
- GRAVEL SUBSTRATE, 9-INCH DEPTH

NOTES:

- AREAS AND VOLUMES ASSOCIATED WITH ELEVATED EMBANKMENTS AND ALCOVE/PLANTING AREAS ARE APPROXIMATE. CONTRACTOR SHALL BALANCE EARTHWORK ASSOCIATED WITH ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS WITHIN EACH REACH. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED TOTAL VOLUMES ASSOCIATED WITH THIS WORK.
- ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE CONSTRUCTED THROUGHOUT THE PROJECT AREA AS SHOWN ON THESE PLANS PER PROJECT SPECIFICATIONS. LOCATIONS AND SIZE SHOWN ARE APPROXIMATE. LAYOUT AND CONFIGURATION SHALL BE SMOOTHLY CONTOURED AND IRREGULAR IN NATURE. REFER TO PROJECT SPECIFICATIONS.
- HEIGHT OF ELEVATED EMBANKMENTS AND DEPTH OF ALCOVE/PLANTING AREAS SHALL RANGE FROM 1.5' TO 2.0'.
- ALCOVE/PLANTING AREAS AND ELEVATED EMBANKMENTS SHALL BE STAKED BY CONTRACTOR AND FIELD VERIFIED BY ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.
- EACH WILLOW TRENCH SHALL BE APPROXIMATELY 2' WIDE x 135' L, AND SPACED ~35' APART IN ANY DIRECTION. IN TIGHT CREEK MEANDERING SECTIONS WILLOW TRENCHES SHALL BE REDUCED TO APPROXIMATELY 100' L.

REACH 1 STREAM ALIGNMENT TABLE							
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION
C-51	100+00.00	N 1002324.327 E 829637.045	100+85.08	N 1002360.491 E 829707.438	85.08'	65.00'	N62°48'30"E
L-15	100+85.08	N 1002360.491 E 829707.438	101+08.25	N 1002381.433 E 829717.341	23.17'	NA	N25°18'30"E
C-52	101+08.25	N 1002381.433 E 829717.341	102+49.13	N 1002386.644 E 829832.104	140.88'	65.00'	N87°24'01"E
L-16	102+49.13	N 1002386.644 E 829832.104	102+78.09	N 1002361.697 E 829846.803	28.96'	NA	S30°30'28"E
C-53	102+78.09	N 1002361.697 E 829846.803	103+11.73	N 1002329.670 E 829855.795	33.64'	65.00'	S15°40'55"E
C-54	103+11.73	N 1002329.670 E 829855.795	104+05.03	N 1002276.034 E 829918.490	93.30'	55.00'	S49°27'09"E
C-55	104+05.03	N 1002276.034 E 829918.490	104+62.83	N 1002290.281 E 829974.392	57.80'	265.00'	N75°42'08"E
C-56	104+62.83	N 1002290.281 E 829974.392	105+56.95	N 1002367.400 E 830009.563	94.12'	60.00'	N24°30'56"E
C-57	105+56.95	N 1002367.400 E 830009.563	106+50.75	N 1002444.406 E 830044.436	93.80'	60.00'	N24°21'50"E
L-17	106+50.75	N 1002444.406 E 830044.436	106+81.32	N 1002455.290 E 830073.010	30.58'	NA	N69°08'58"E
C-58	106+81.32	N 1002455.290 E 830073.010	107+32.45	N 1002452.210 E 830122.506	51.12'	60.00'	S86°26'25"E
C-59	107+32.45	N 1002452.210 E 830122.506	107+92.38	N 1002447.047 E 830180.631	59.94'	75.00'	S84°55'25"E
L-18	107+92.38	N 1002447.047 E 830180.631	108+21.80	N 1002456.048 E 830208.637	29.42'	NA	N72°10'57"E



REVISION	DATE	DESCRIPTION
1	08/01/2024	DESIGN
2	08/01/2024	DRAWN
3	08/01/2024	CHECKED
4	08/01/2024	SURVEYED

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.

DR

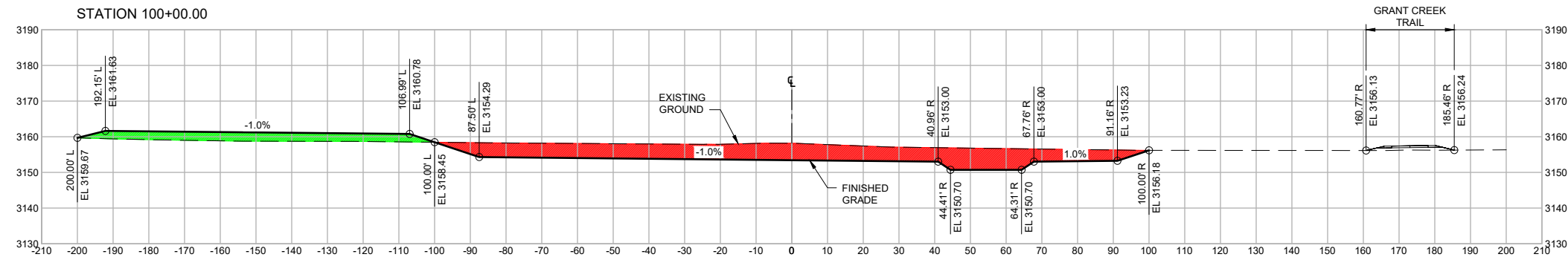
DJ&A

ENGINEERS
PLANNERS
SURVEYORS

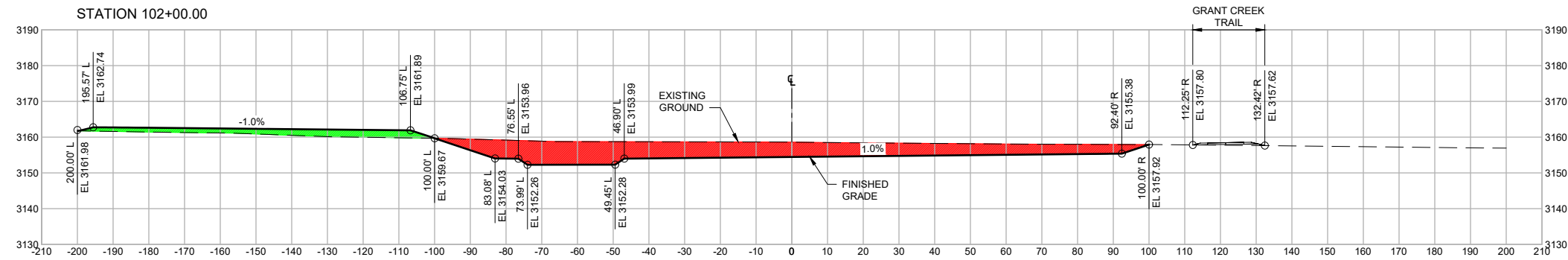
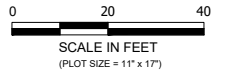
GRANT CREEK RFC PLANS

C. GRANT CREEK REACH 1 - PLAN AND PROFILE STA 100+00 TO STA 108+21.80

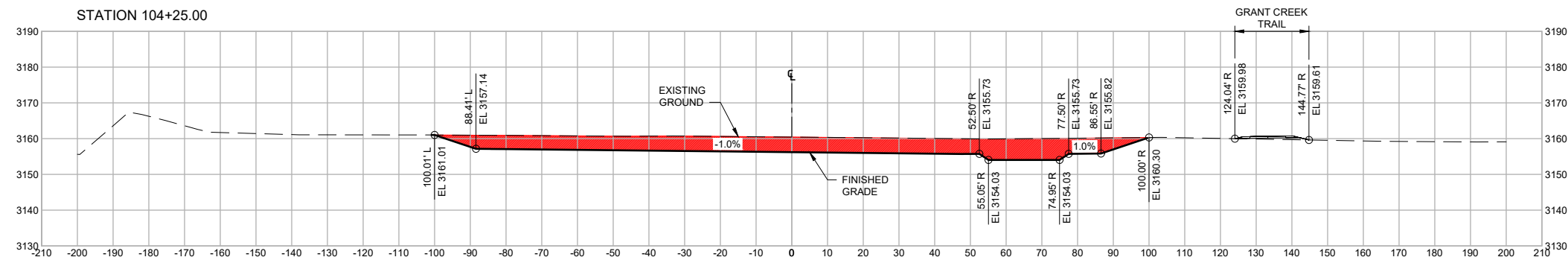
SHEET	OF
C.19	C.21



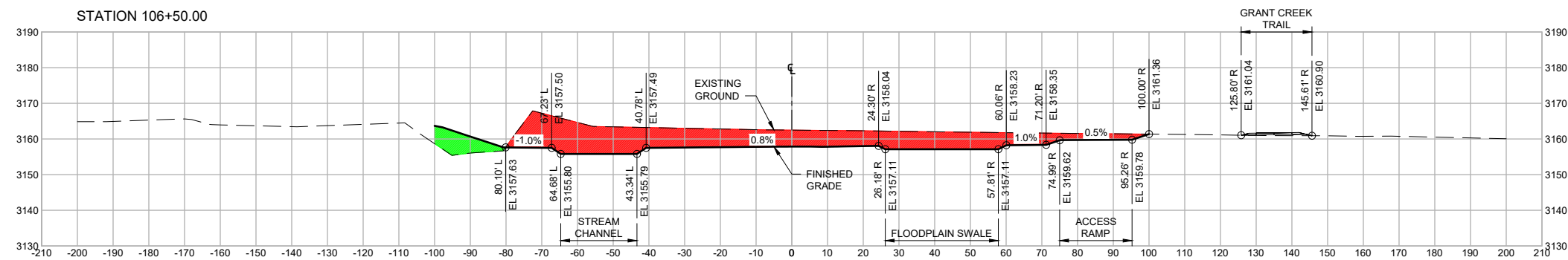
EARTHWORK AT STATION 100+00.00	
CUT AREA	813.46 SqFt
FILL AREA	217.04 SqFt
CUT VOLUME	0.00 CuYd
FILL VOLUME	0.00 CuYd
CUMULATIVE CUT VOL	0.00 CuYd
CUMULATIVE FILL VOL	0.00 CuYd
CUMULATIVE NET VOLUME	0.00 CuYd



EARTHWORK AT STATION 102+00.00	
CUT AREA	791.98 SqFt
FILL AREA	147.48 SqFt
CUT VOLUME	4109.30 CuYd
FILL VOLUME	933.04 CuYd
CUMULATIVE CUT VOL	4109.30 CuYd
CUMULATIVE FILL VOL	933.04 CuYd
CUMULATIVE NET VOLUME	3176.26 CuYd



EARTHWORK AT STATION 104+25.00	
CUT AREA	814.47 SqFt
FILL AREA	0.00 SqFt
CUT VOLUME	4212.34 CuYd
FILL VOLUME	235.02 CuYd
CUMULATIVE CUT VOL	8321.63 CuYd
CUMULATIVE FILL VOL	1168.06 CuYd
CUMULATIVE NET VOLUME	7153.58 CuYd



EARTHWORK AT STATION 106+50.00	
CUT AREA	884.16 SqFt
FILL AREA	85.54 SqFt
CUT VOLUME	4628.95 CuYd
FILL VOLUME	212.75 CuYd
CUMULATIVE CUT VOL	12950.58 CuYd
CUMULATIVE FILL VOL	1380.80 CuYd
CUMULATIVE NET VOLUME	11569.78 CuYd

- NOTES:
- CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 - CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 - ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 - EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)

1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

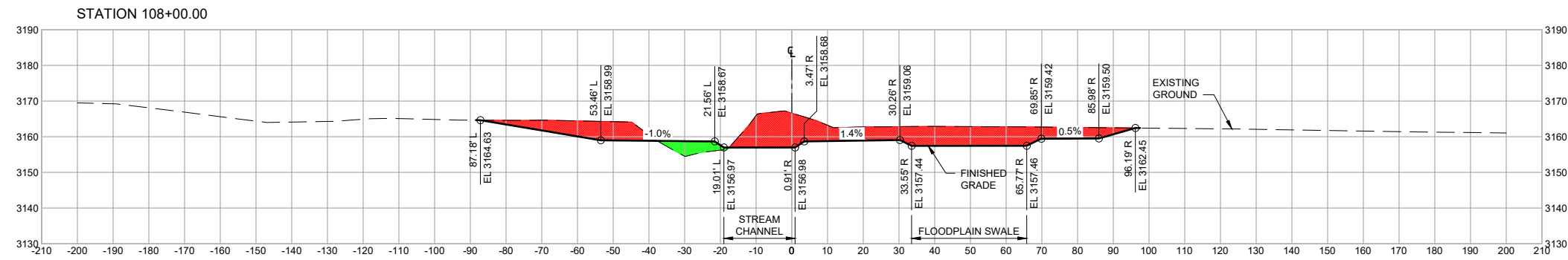
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 1 - CROSS SECTIONS
STA 100+00 TO STA 106+50

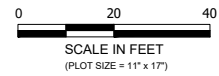
SHEET
OF
C.20 C.21



- NOTES:
1. CUT AND FILL AREA LISTED IN EARTHWORK TABLE REPRESENT AREA SHOWN IN SECTION CUT ONLY.
 2. CUT AND FILL VOLUMES ARE CALCULATED BETWEEN THE STATION SPECIFIED IN THE SECTION AND PREVIOUS SECTION STATION.
 3. ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT SHOWN IN GRADING SECTIONS.
 4. EARTHWORK VOLUMES FOR ELEVATED EMBANKMENT AND ALCOVE/PLANTING AREAS ARE NOT INCLUDED IN SUMMARY TABLES. REFER TO PROJECT SPECIFICATIONS FOR ESTIMATED VOLUMES.

EARTHWORK AT STATION 108+00.00	
CUT AREA	704.15 SqFt
FILL AREA	49.29 SqFt
CUT VOLUME	4024.08 CuYd
FILL VOLUME	341.62 CuYd
CUMULATIVE CUT VOL	16974.66 CuYd
CUMULATIVE FILL VOL	1722.43 CuYd
CUMULATIVE NET VOLUME	15252.24 CuYd

- EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)
- 1' - 2' HIGH SPOIL BANK
(NOT AVAILABLE FOR EXPORT)



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01

DRAWN JW DATE 08/01/2024

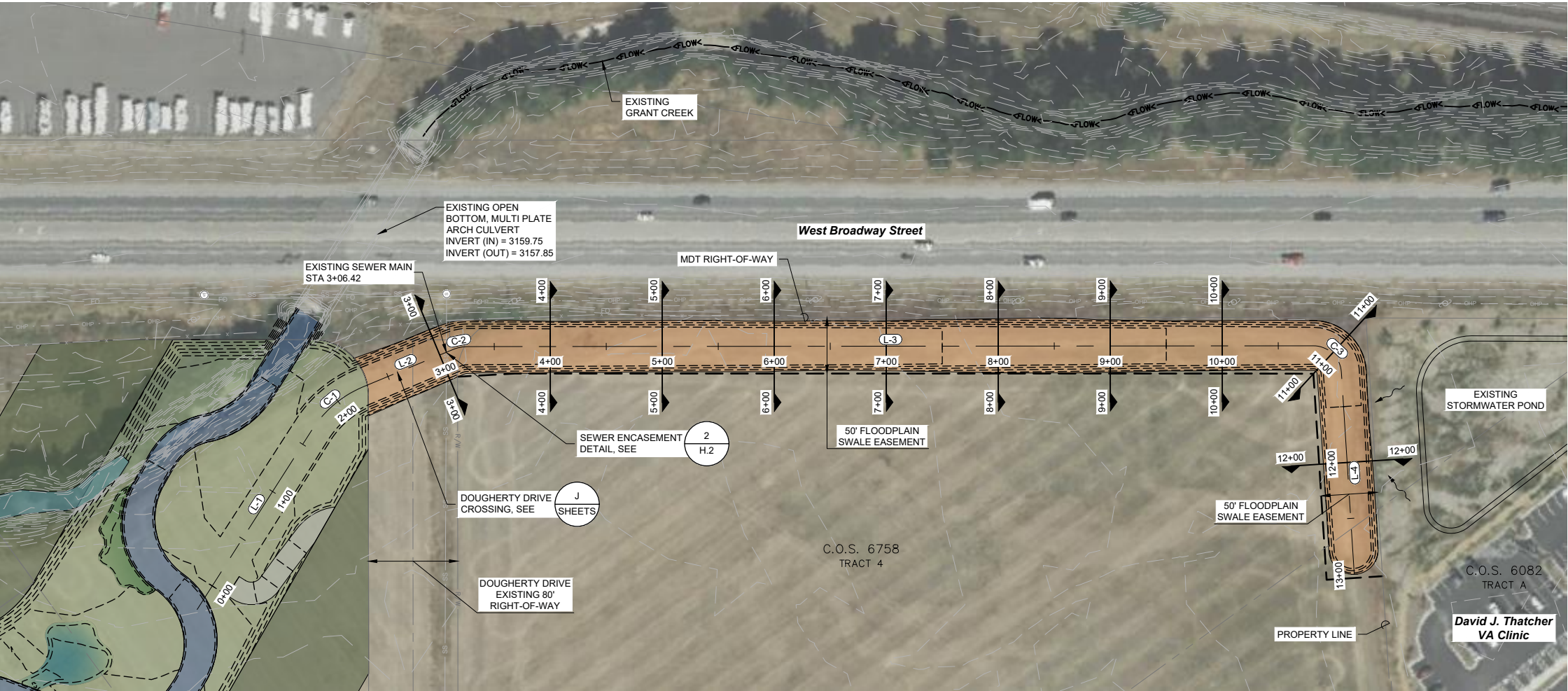
CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

C. GRANT CREEK
REACH 1 - CROSS SECTIONS
STA 108+00

SHEET
OF
C.21 C.21

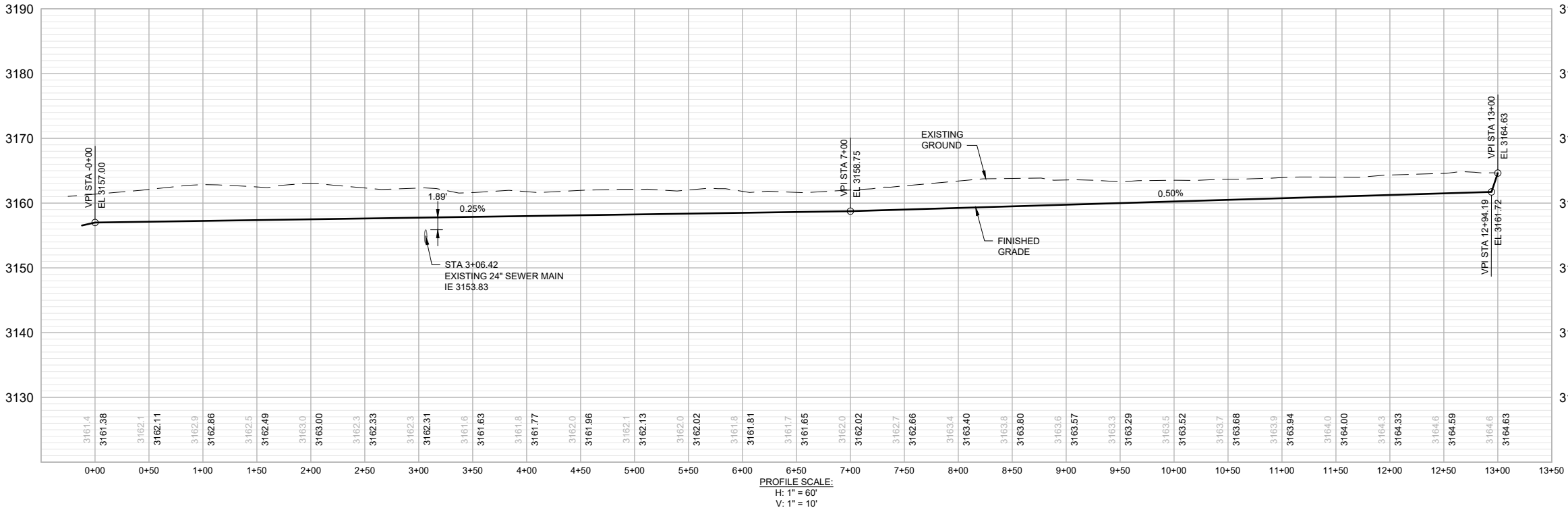


0 60 120
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")

LEGEND

- STREAM CHANNEL
- 200' FLOODPLAIN
- 100' RIPARIAN BUFFER
- ELEVATED EMBANKMENT
- ALCOVE/PLANTING AREAS
- FLOODPLAIN SWALE
- STORMWATER DRAIN

FLOODPLAIN SWALE ALIGNMENT TABLE							
NO.	START STA.	START COORD.	END STA.	END COORD.	LEN.	RAD.	LINE/CHORD DIRECTION
L-1	0+00.00	N 1002340.382 E 830036.674	1+65.39	N 1002390.988 E 830194.129	165.39'	NA	N72°10'57"E
C-1	1+65.39	N 1002390.988 E 830194.129	2+26.23	N 1002391.395 E 830254.031	60.84'	100.00'	N89°36'41"E
L-2	2+26.23	N 1002391.395 E 830254.031	3+12.56	N 1002366.096 E 830336.572	86.33'	NA	S72°57'35"E
C-2	3+12.56	N 1002366.096 E 830336.572	3+26.30	N 1002359.624 E 830348.598	13.74'	35.00'	S61°42'35"E
L-3	3+26.30	N 1002359.624 E 830348.598	10+81.36	N 1001878.940 E 830930.880	755.06'	NA	S50°27'35"E
C-3	10+81.36	N 1001878.940 E 830930.880	11+19.05	N 1001844.991 E 830935.208	37.69'	25.00'	S07°15'54"E
L-4	11+19.05	N 1001844.991 E 830935.208	13+00.00	N 1001698.470 E 830829.029	180.95'	NA	S35°55'47"W



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

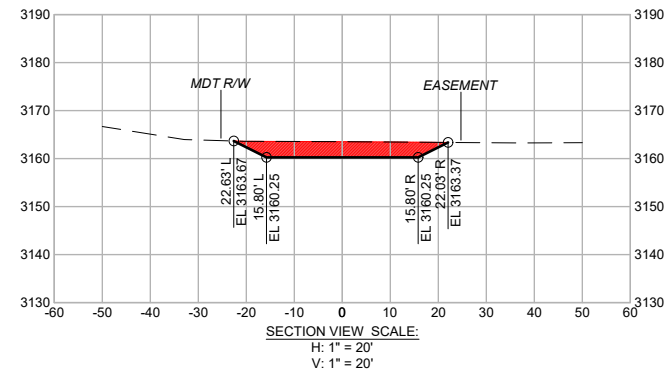
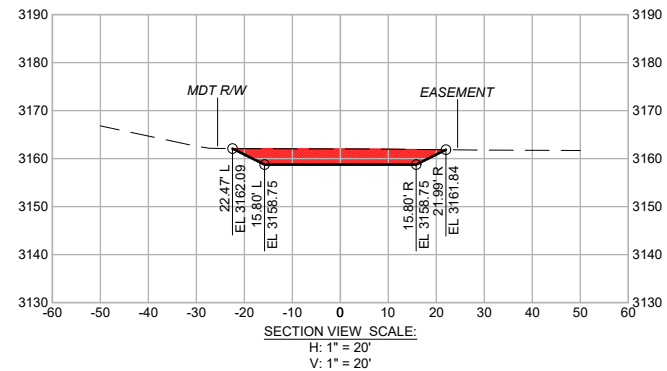
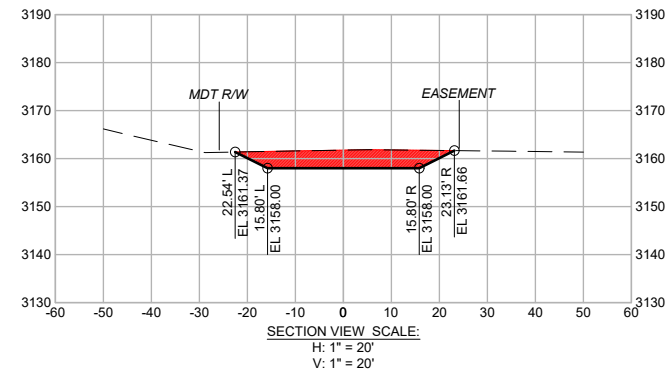
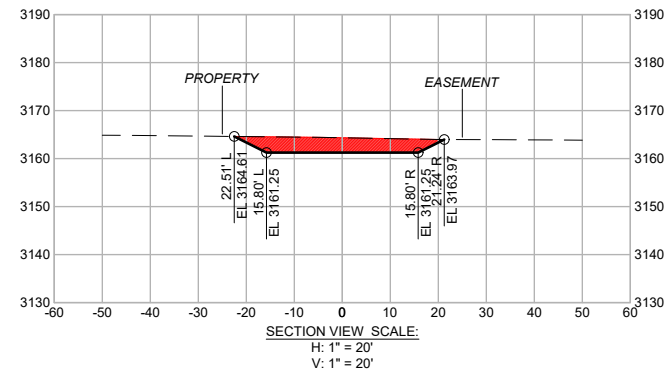
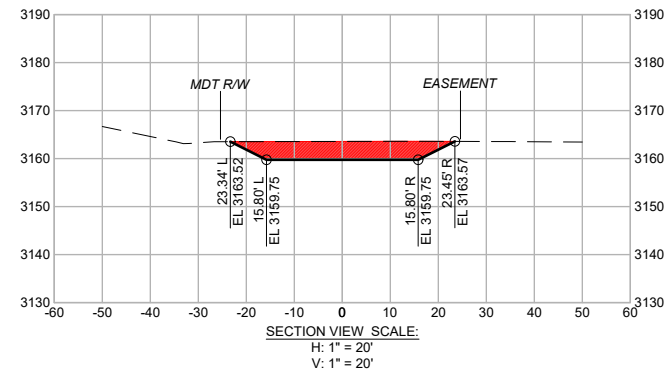
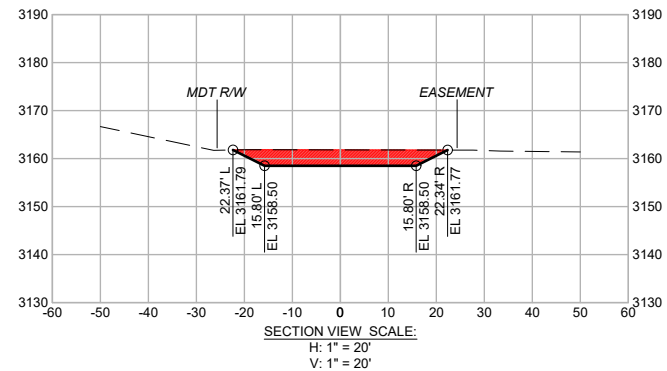
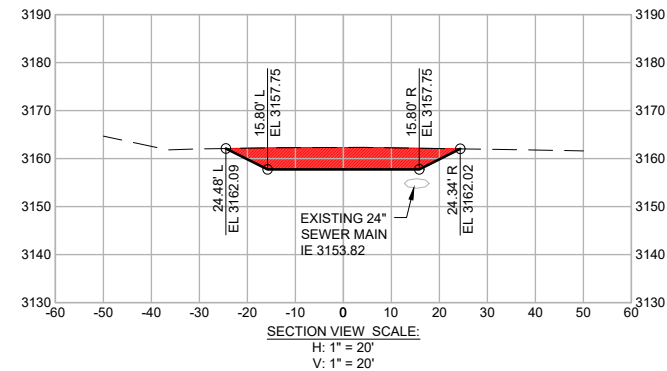
DESIGNER DM PROJ. NO. 7065.01
DRAWN JW DATE 08/01/2024
CHECKED DM SURVEYED DJ&A, P.C.



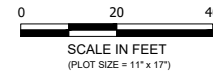
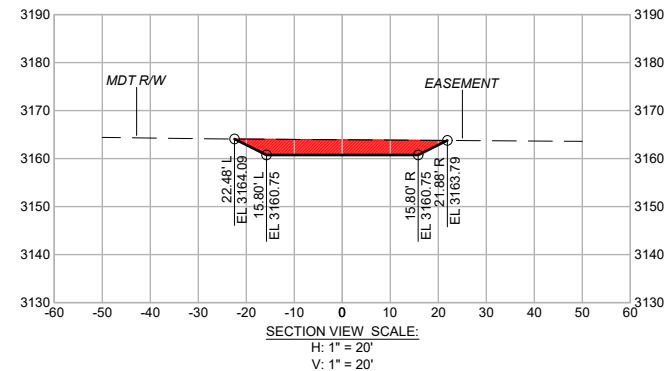
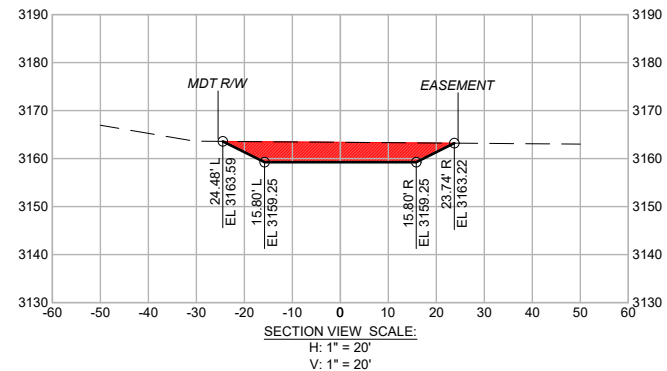
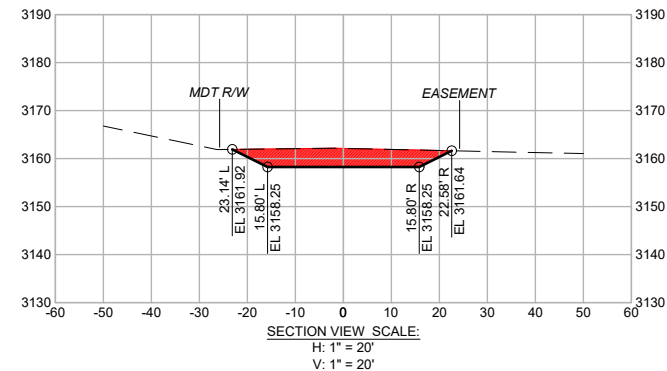
GRANT CREEK
RFC PLANS

D. FLOODPLAIN SWALE
PLAN AND PROFILE
STA 0+00 TO STA 13+00

SHEET
OF
D.1 D.2



EXCESS EMBANKMENT
(AVAILABLE FOR EXPORT)



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

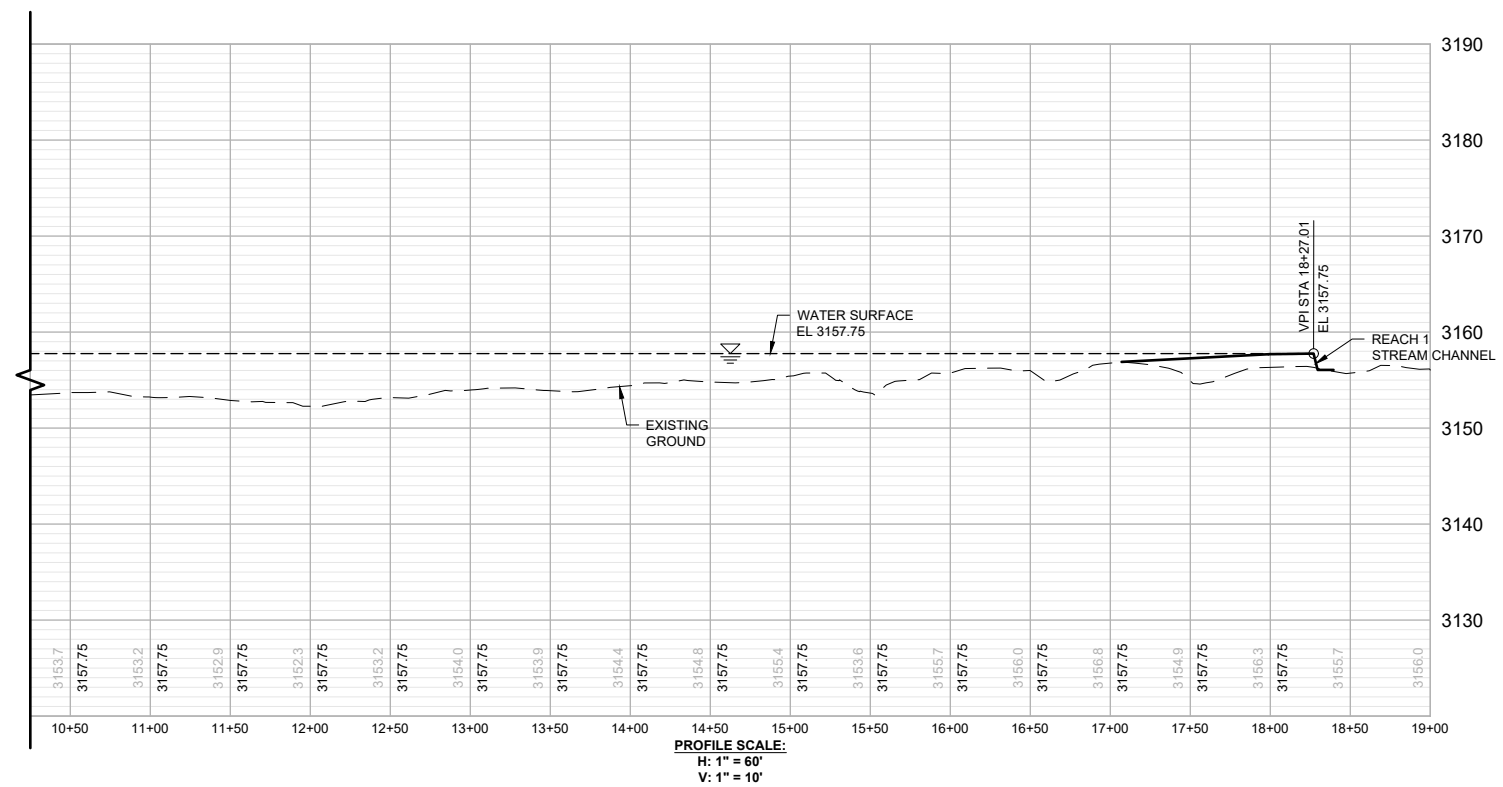
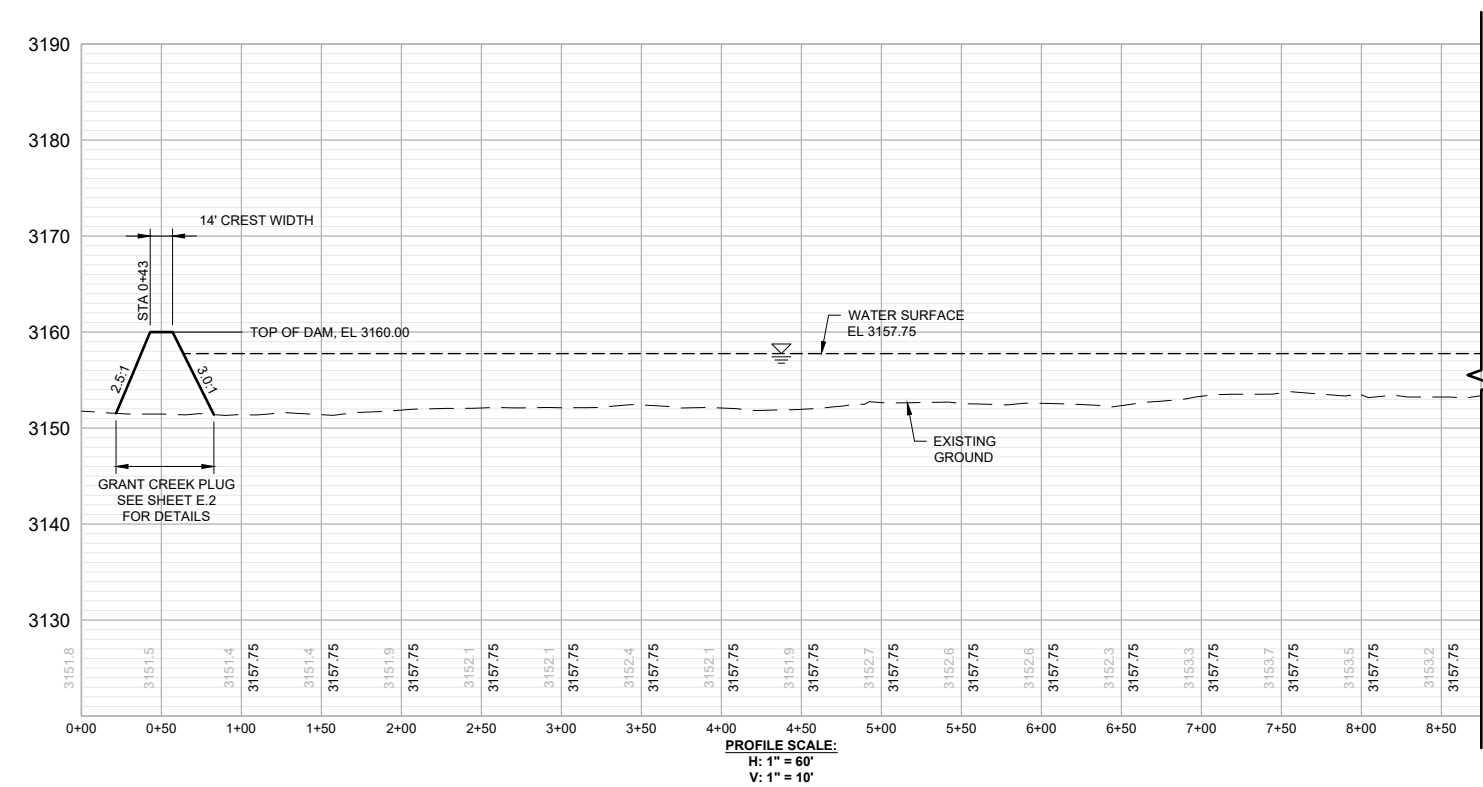
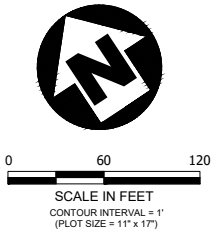
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



GRANT CREEK
RFC PLANS

D. FLOODPLAIN SWALE
CROSS SECTIONS
STA 3+00 TO STA 12+00

SHEET	OF
D.2	D.2



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



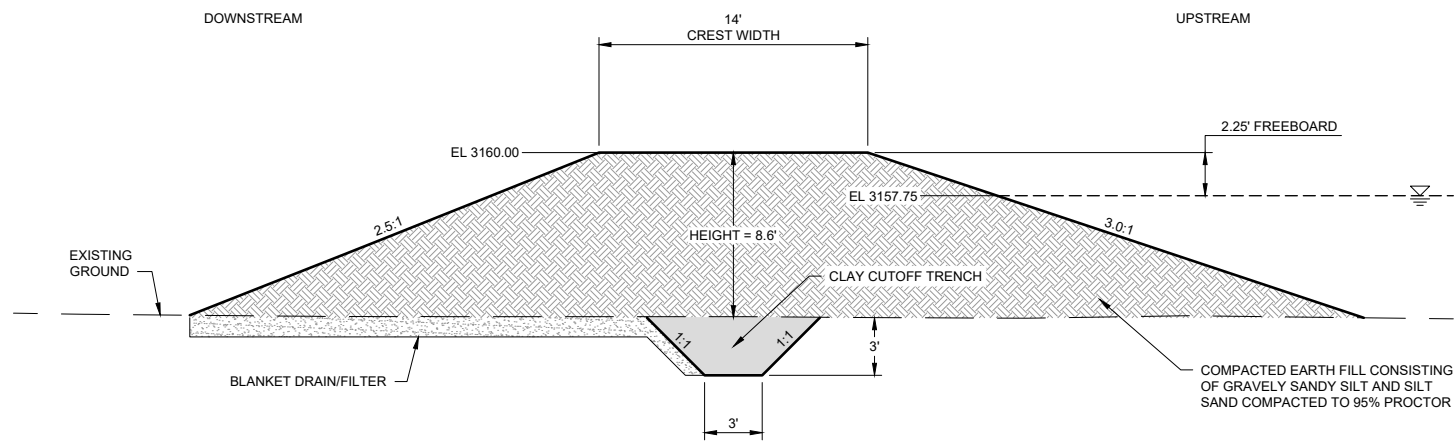
GRANT CREEK
RFC PLANS

E. STORMWATER DRAIN
PLAN AND PROFILE
STA 0+00 TO STA 19+00

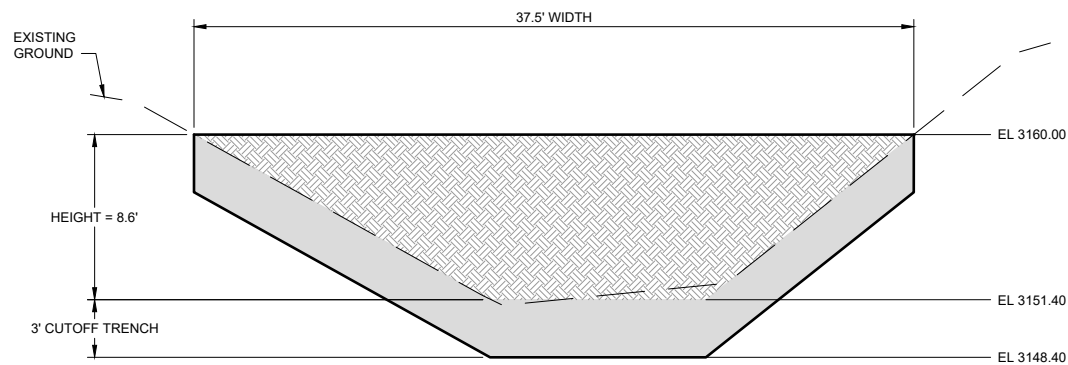
SHEET	OF
E.1	E.2



1
-
GRANT CREEK PLUG - PLAN VIEW
SCALE: 1" = 10'



2
-
GRANT CREEK PLUG - PROFILE VIEW
SCALE: 1" = 5'



A
-
GRANT CREEK PLUG - SECTION VIEW
SCALE: 1" = 5'

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

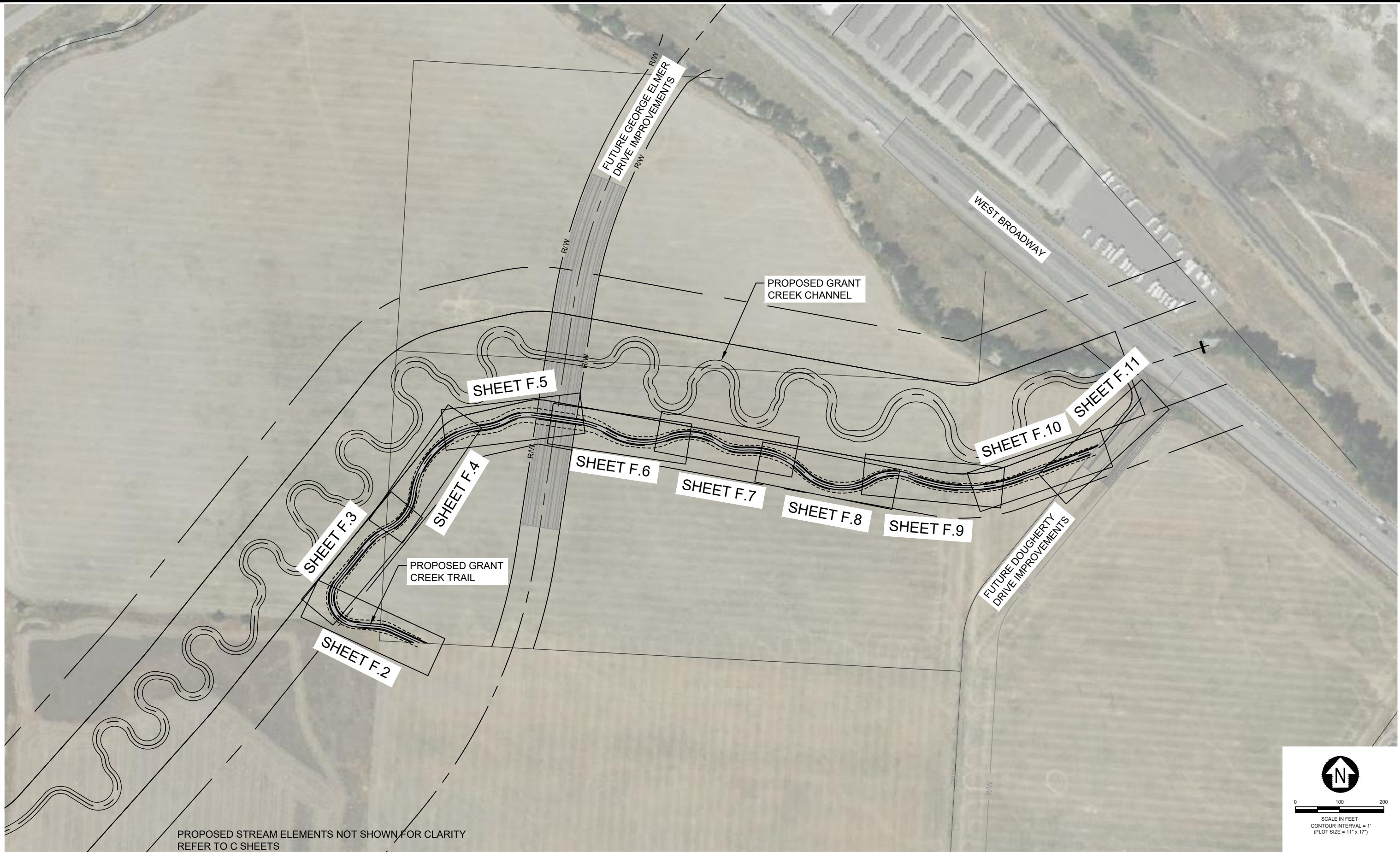
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



GRANT CREEK
RFC PLANS

E. STORMWATER DRAIN
ENLARGED GRANT CREEK PLUG
PLAN, PROFILE, AND SECTION VIEWS

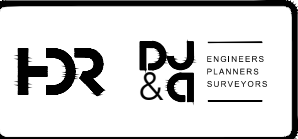
SHEET	OF
E.2	E.2



PROPOSED STREAM ELEMENTS NOT SHOWN FOR CLARITY
REFER TO C SHEETS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJ&A, P.C.

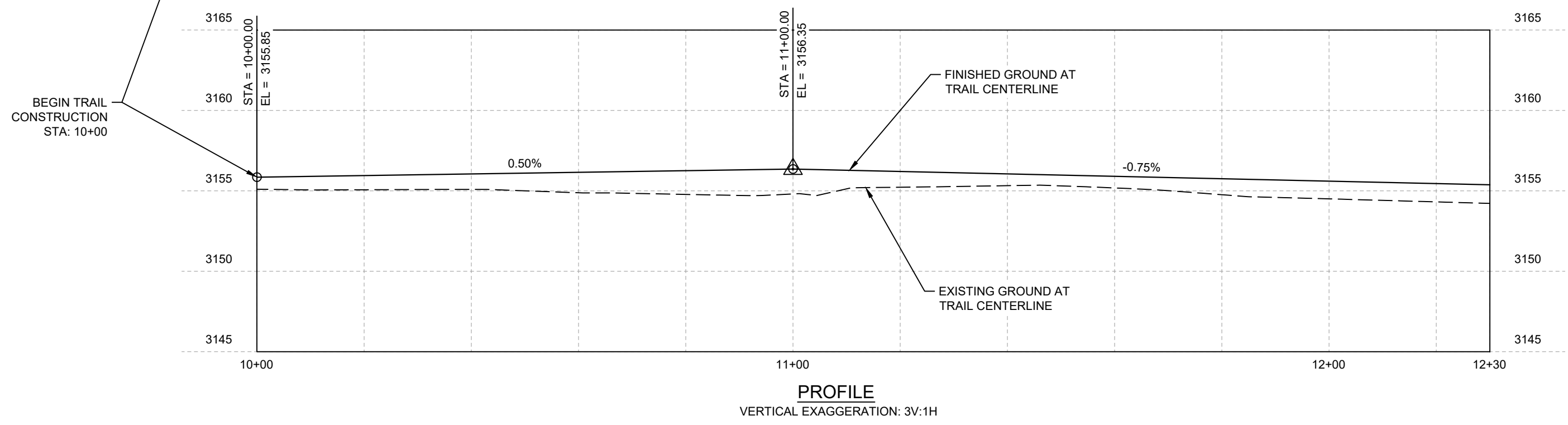
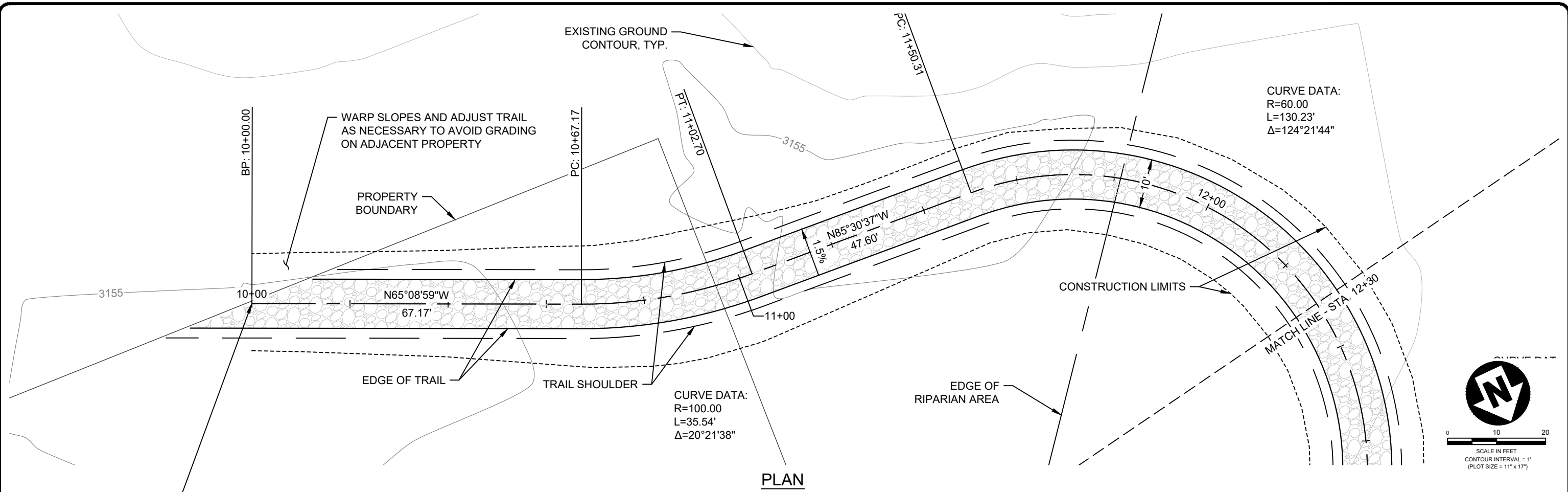


GRANT CREEK
RFC PLANS

F. TRAIL PLANS
VICINITY MAP

SHEET OF	F.1 F.19
-------------	-------------

2/2025 10:11 BRUCKER C:\P\ARCH\INVEST\10352\2025\7065.01 GRANT CREEK TRAIL - 10x17.DWG



2/2/25 10:11 BRUCKER C:\P\WORK\IN\WEST\11033\2025\7065.GRANT CREEK TRAIL - PLAN.DWG

REVISION	DATE	DESCRIPTION
-	-	-

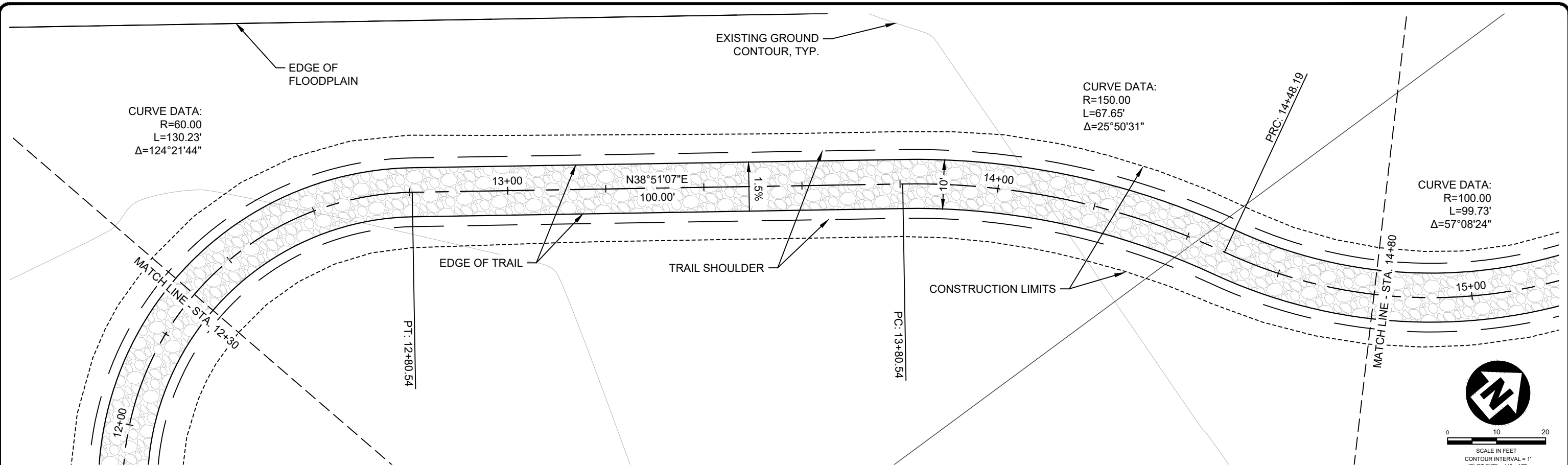
DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2/25
CHECKED	DP	SURVEYED	DJ&A, P.C.



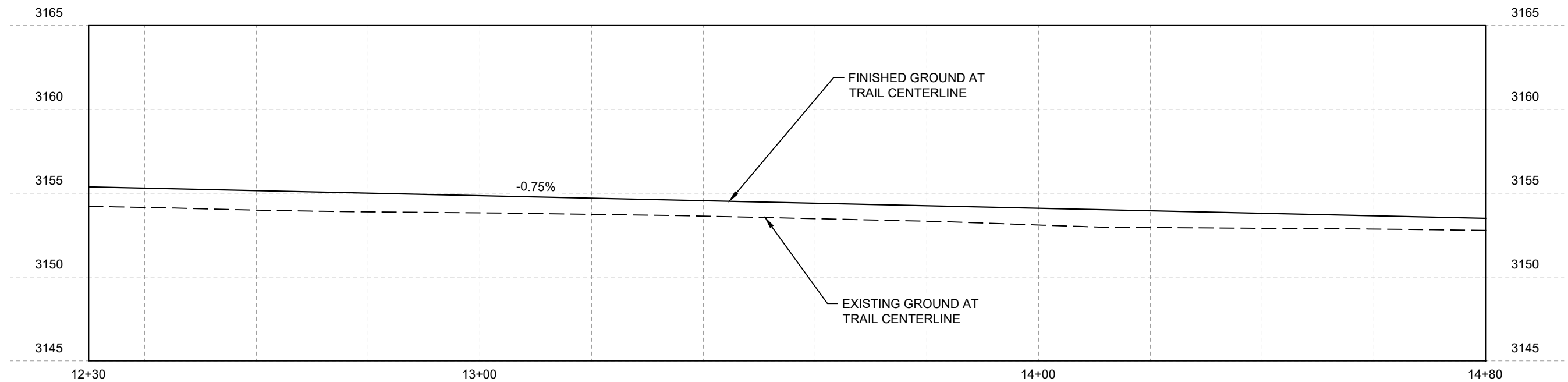
GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 10+00.00 TO 12+30.00

SHEET	OF
F.2	F.19



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	D&A, P.C.

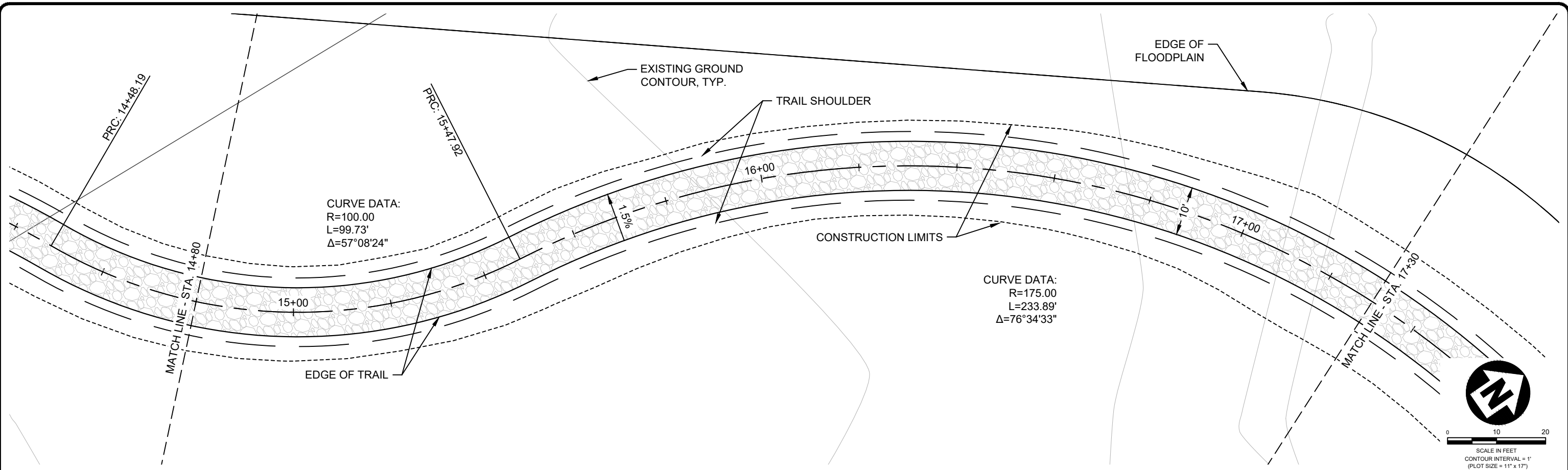


GRANT CREEK
RFC PLANS

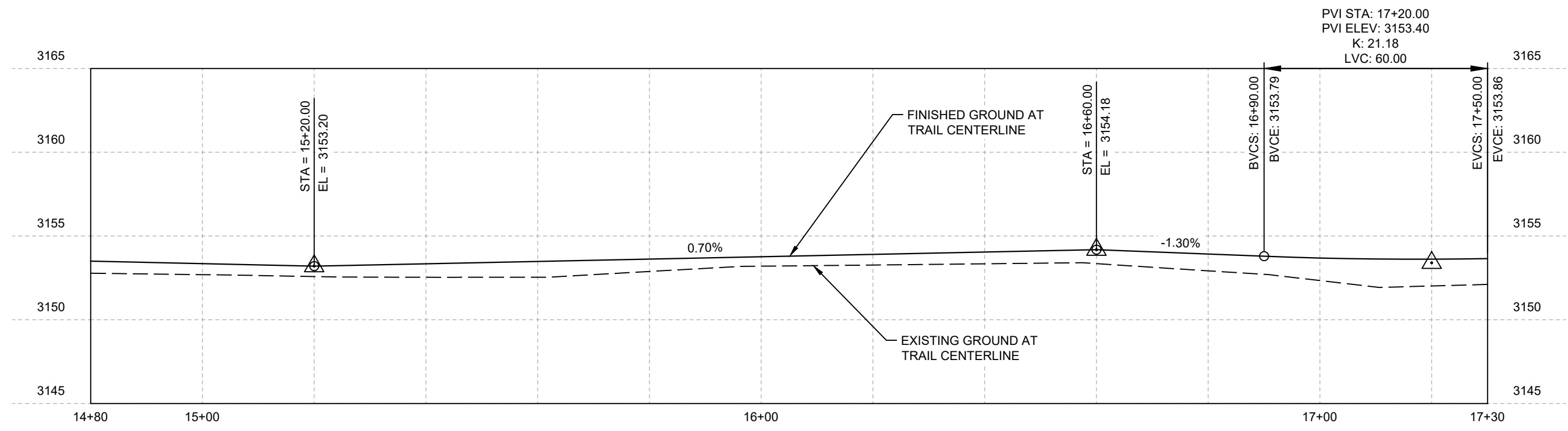
F. TRAIL PLANS
PLAN & PROFILE
STA 12+30.00 TO 14+80.00

SHEET	OF
F.3	F.19

2/10/25 10:11 BRUCKER C:\P\WORK\INVEST\11\035\2702\7065.GRANT CREEK TRAIL - PLAN.DWG



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-

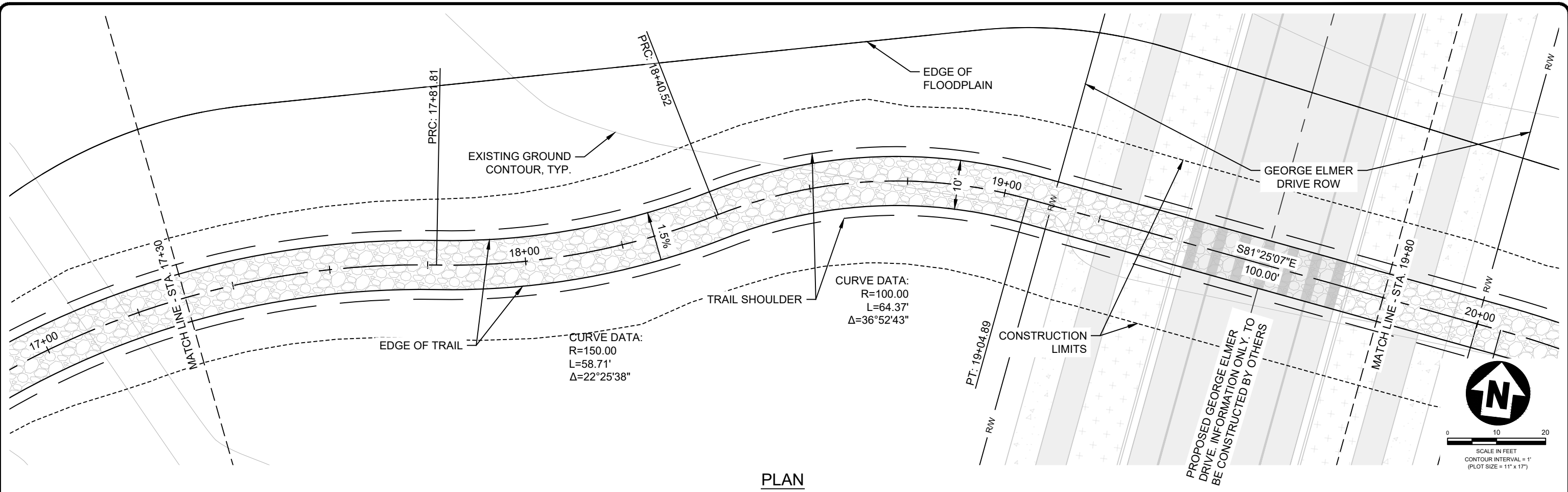
DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	D&A, P.C.



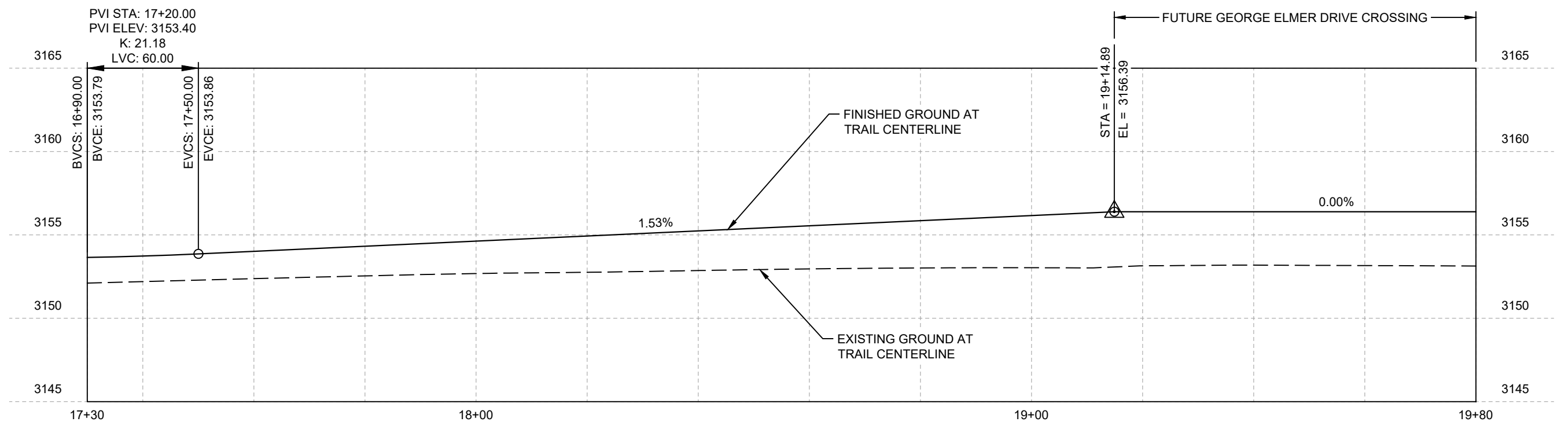
GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 14+80.00 TO 17+30.00

SHEET	OF
F.4	F.19



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

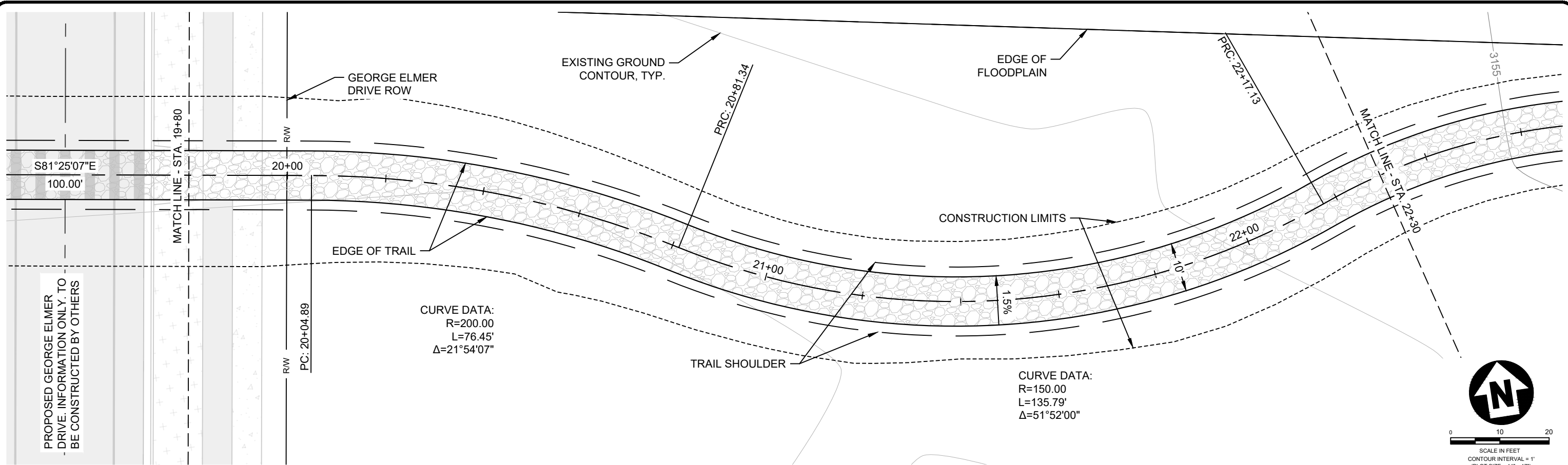
DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJA, P.C.



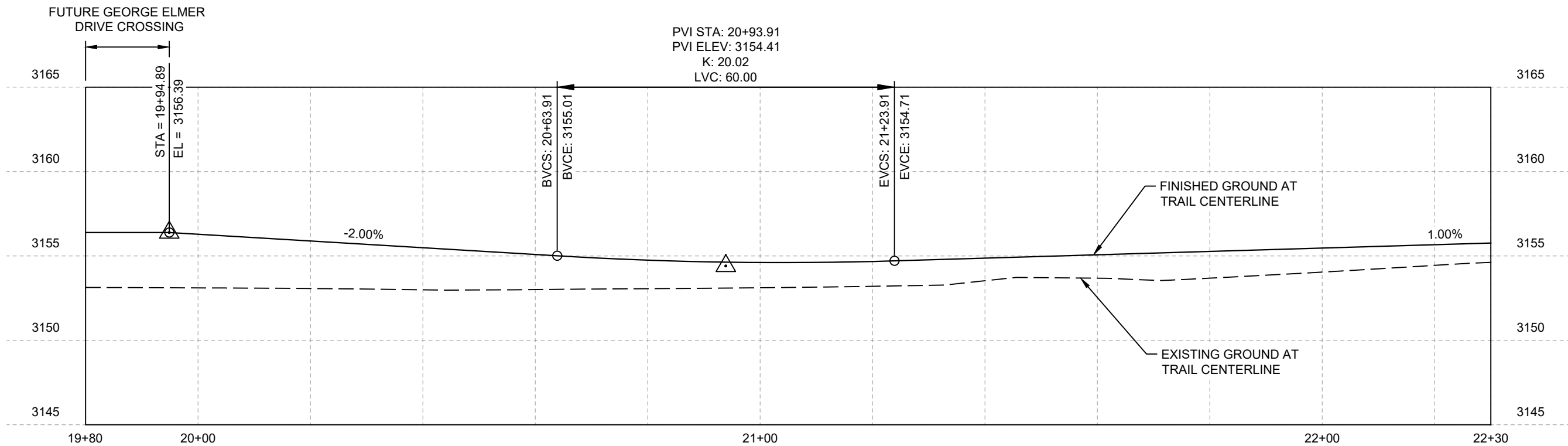
GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 17+30.00 TO 19+80.00

SHEET OF	F.19
-------------	------



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJA P.C.

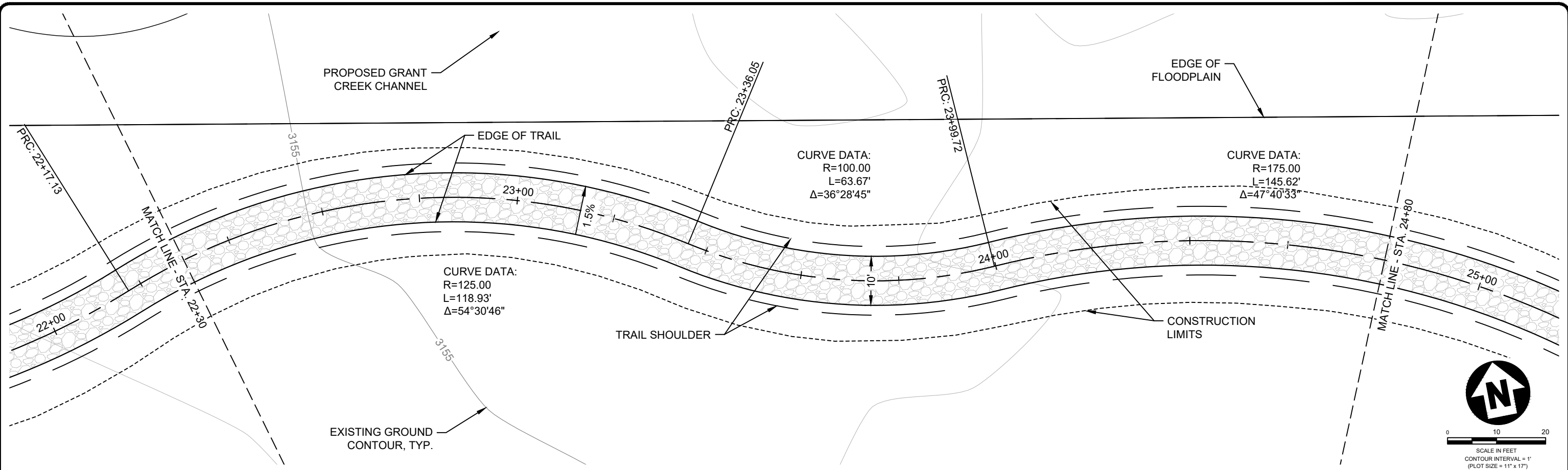


GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 19+80.00 TO 22+30.00

SHEET	OF
F.6	F.19

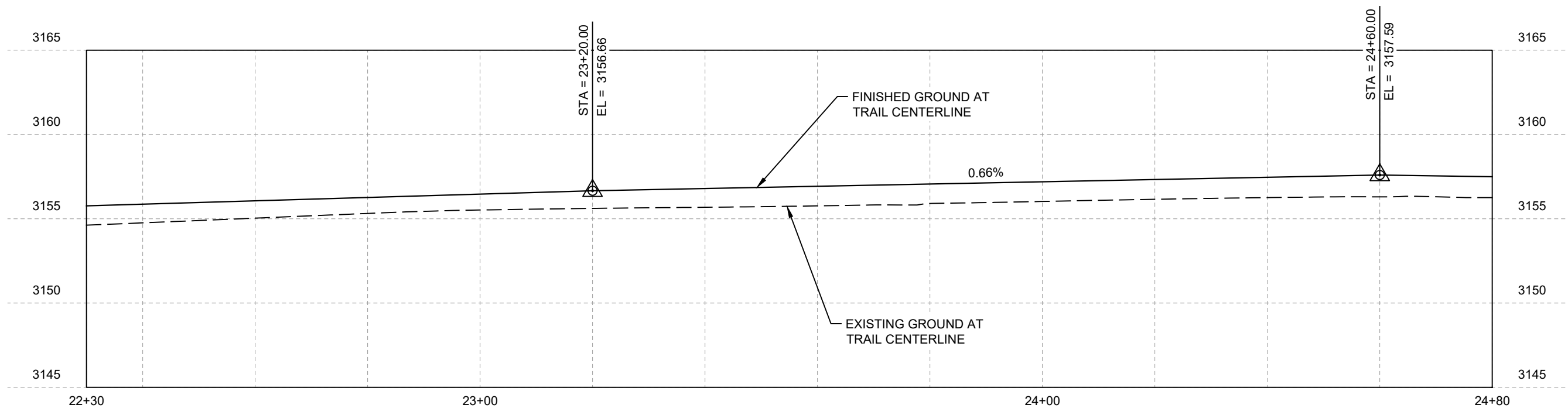
2/2025 10:11 BRUCKER C:\P\ARCH\INVEST\10\3527062\7065.01 GRANT CREEK TRAIL - PLAN.DWG



PLAN



0 10 20
SCALE IN FEET
CONTOUR INTERVAL = 1'
(PLOT SIZE = 11" x 17")



PROFILE
VERTICAL EXAGGERATION: 3V:1H

21025-10-11-BROOKER C:\P\WORK\INVEST\1103\21025-10-11-BROOKER GRANT CREEK TRAIL - PLAN.DWG

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	DJ&A P.C.

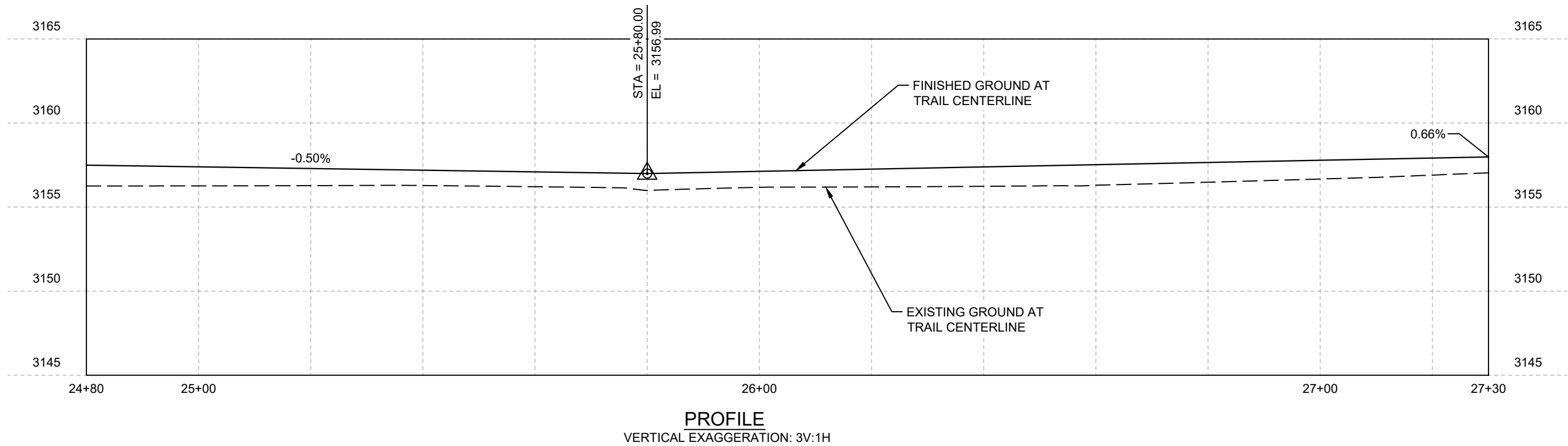
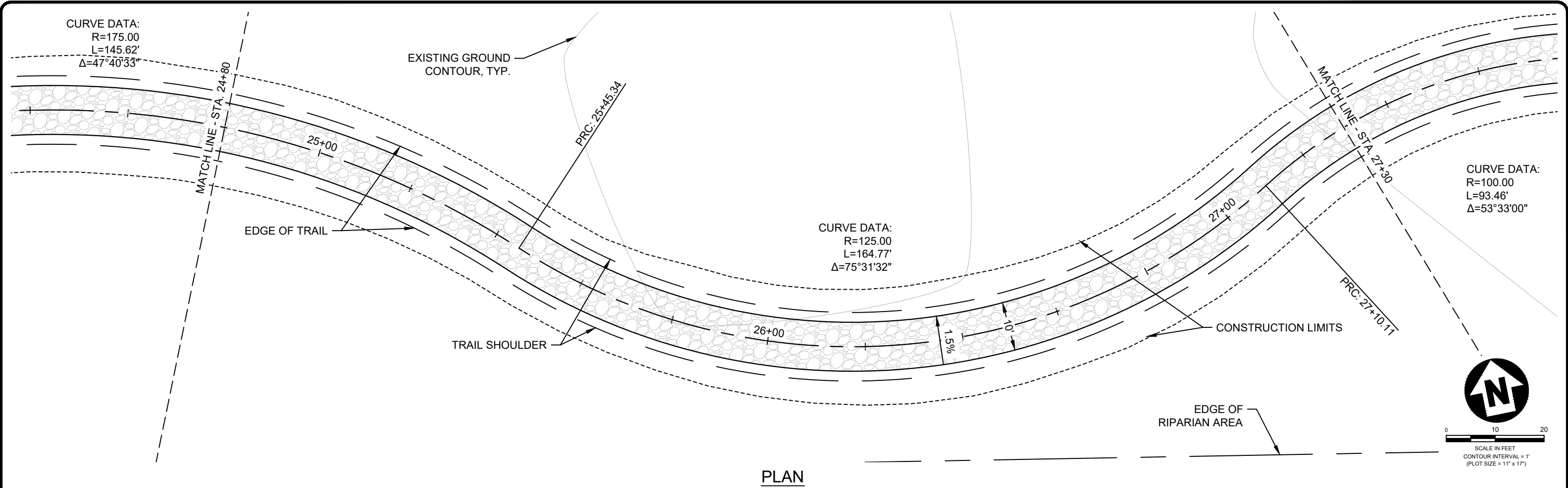


ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 22+30.00 TO 24+80.00

SHEET OF	F.7 F.19
-------------	-------------



REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJ&A, P.C.

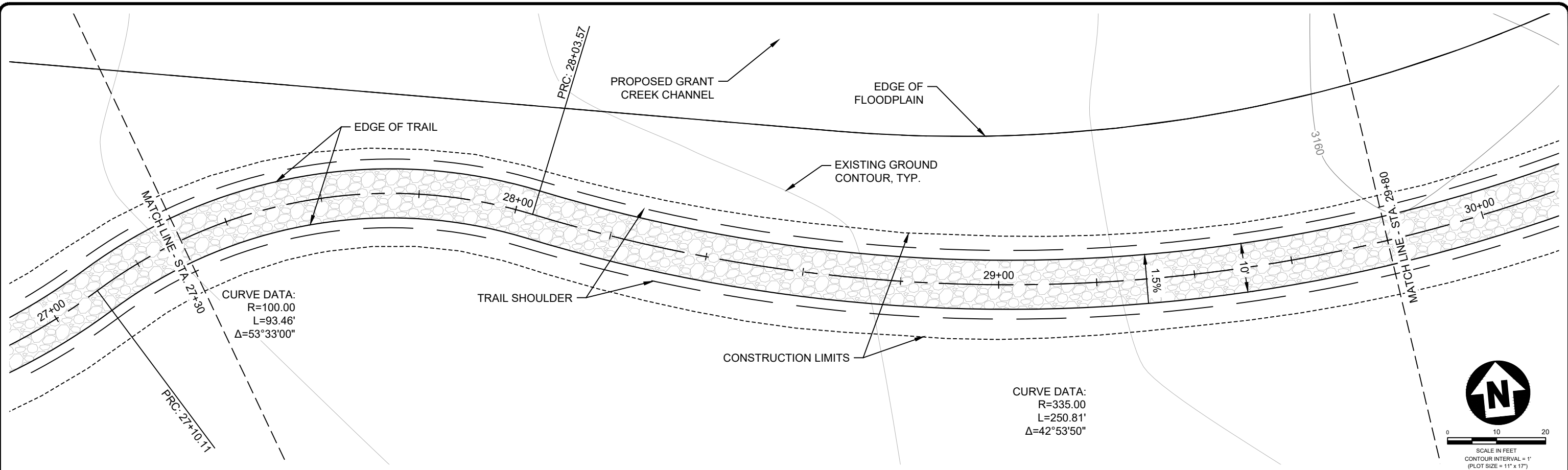


GRANT CREEK
RFC PLANS

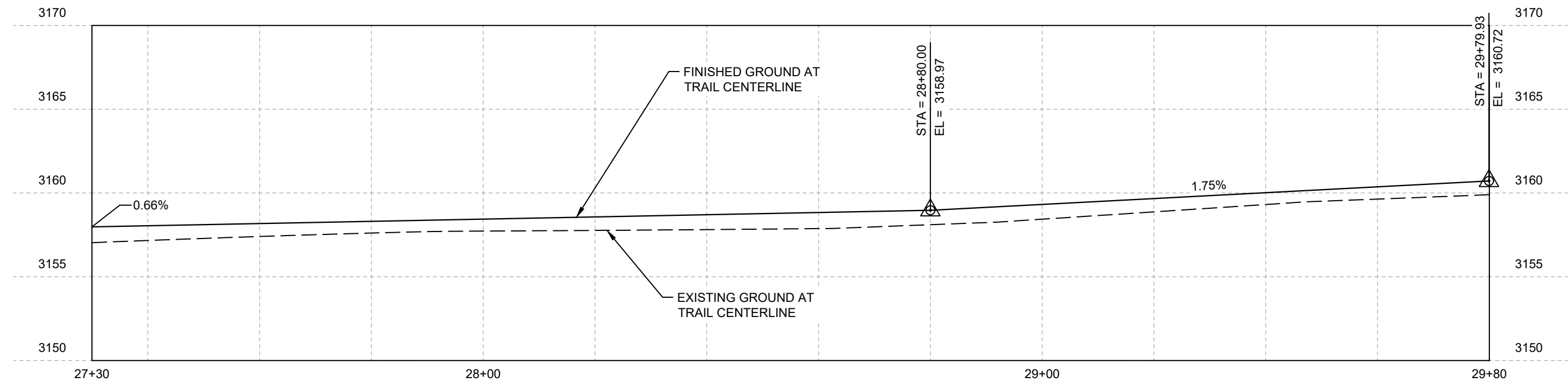
F. TRAIL PLANS
PLAN & PROFILE
STA 24+80.00 TO 27+30.00

SHEET OF	F.8 F.19
-------------	-------------

2/10/25 10:11 BRUNER C:\P\GRANTCREEK\WEST\110352\2025\7065.01 GRANT CREEK TRAIL - PLAN.DWG



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJ&A, P.C.

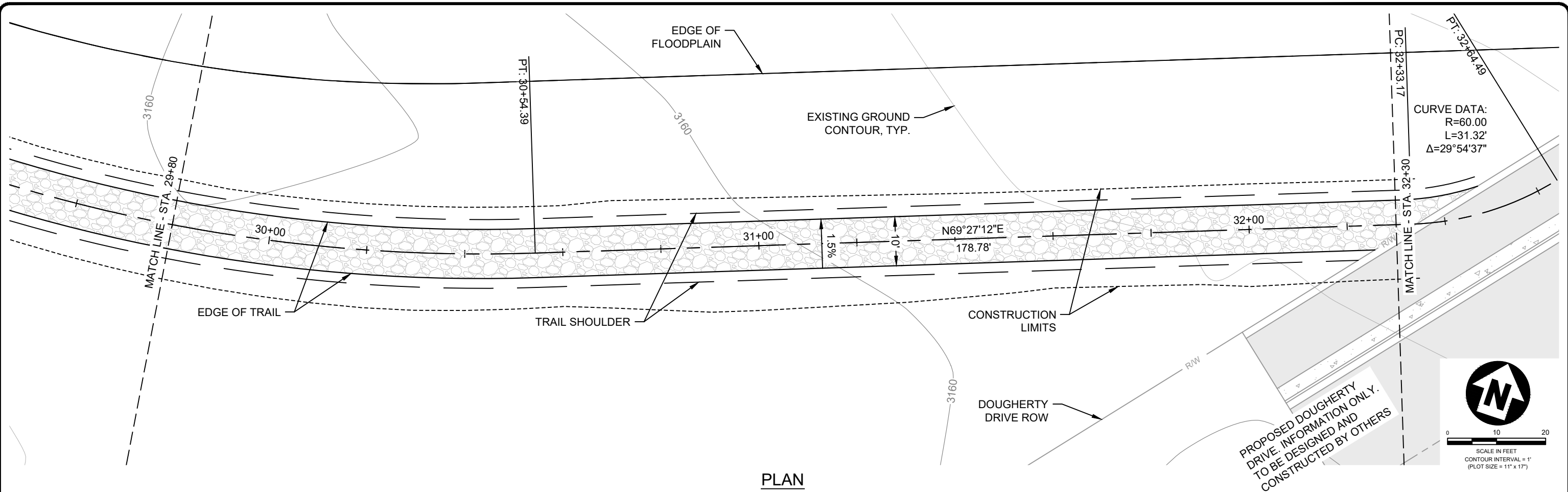


GRANT CREEK
RFC PLANS

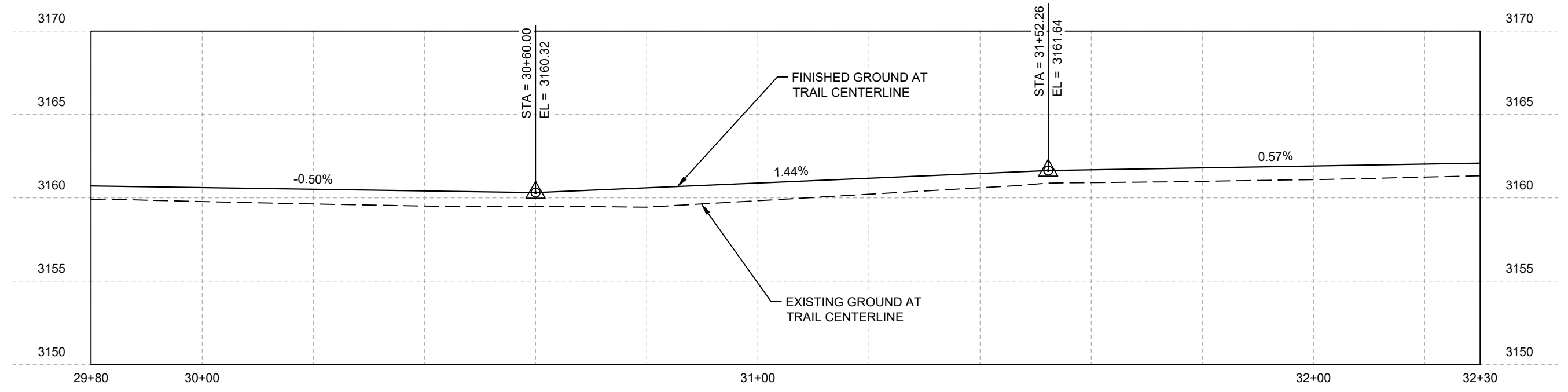
F. TRAIL PLANS
PLAN & PROFILE
STA 27+30.00 TO 29+80.00

SHEET	OF
F.9	F.19

2/2025 10:11 BRUCKER C:\P\GRANTCREEK\WEST\103527062\7065.01 GRANT CREEK TRAIL - PLAN.DWG



PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	DJ&A P.C.

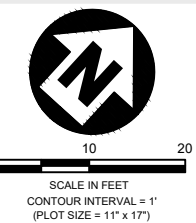
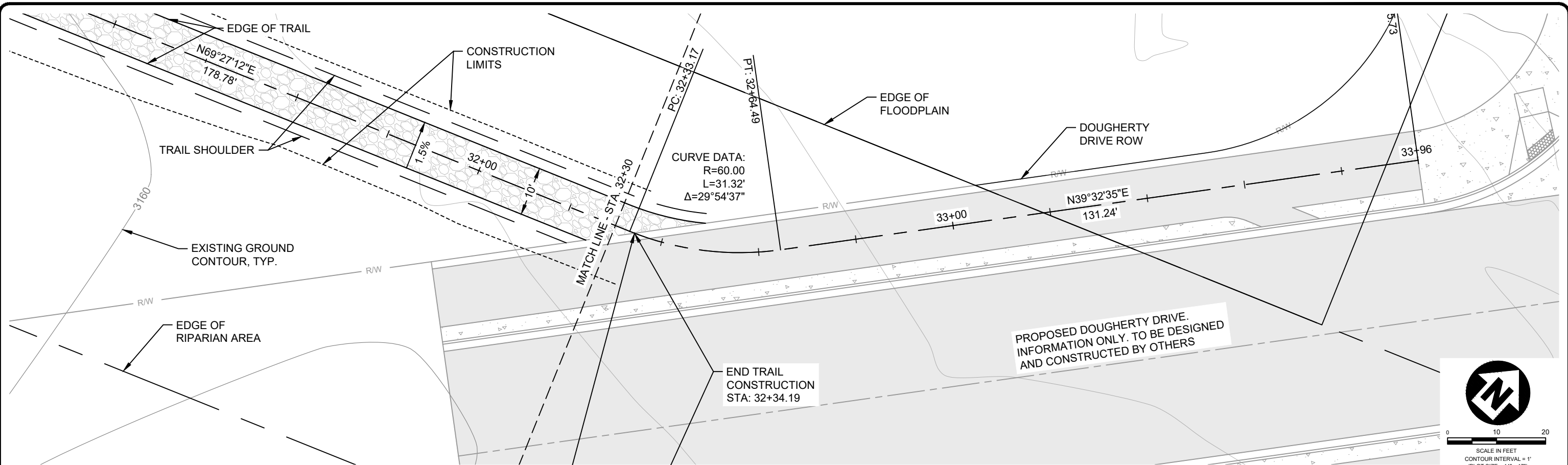


GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 29+80.00 TO 32+30.00

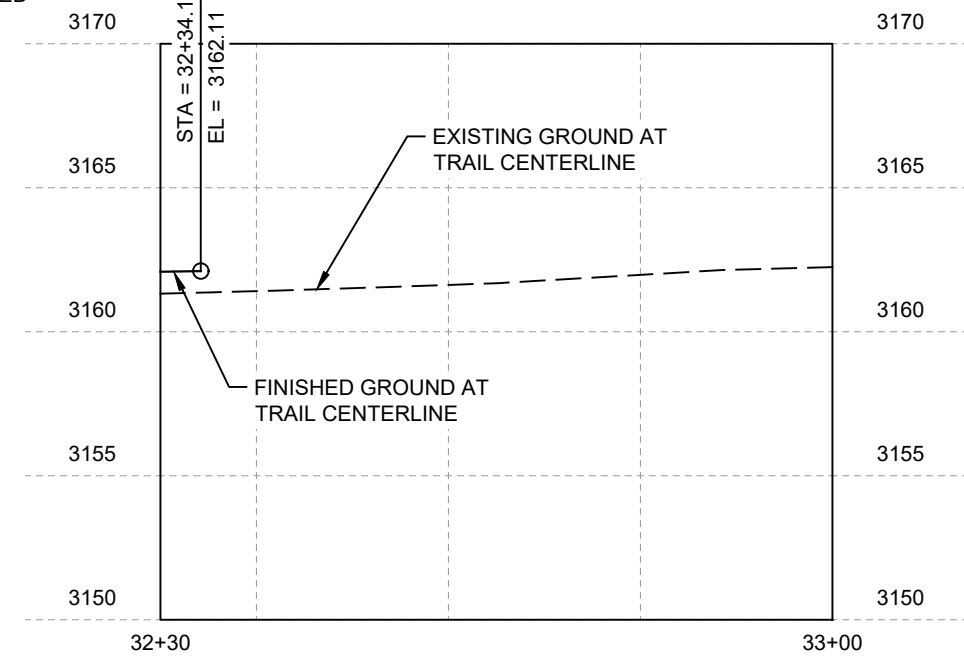
SHEET	OF
F.10	F.19

2/10/25 10:11 BRUCKER C:\P\ARCH\GRANTCREEK\STATIONING\7065.01 GRANT CREEK TRAIL - PLAN.DWG



PLAN

WARP SLOPES AND ADJUST TRAIL GRADE AS NECESSARY TO TIE-IN WITH EXISTING PRIOR TO DOUGHERTY DRIVE CONNECTION BEING CONSTRUCTED



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	DJ&A, P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
PLAN & PROFILE
STA 32+30.00 TO 33+00.00

SHEET	OF
F.11	F.19

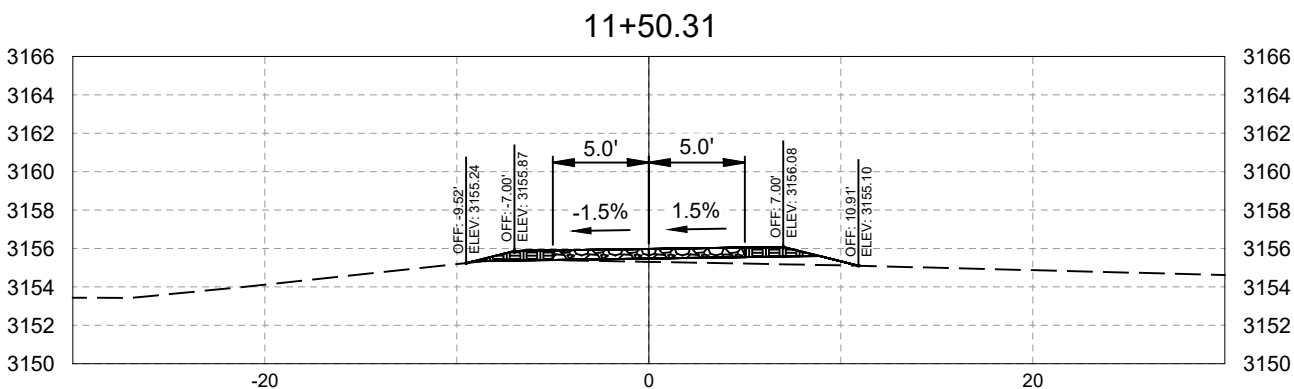
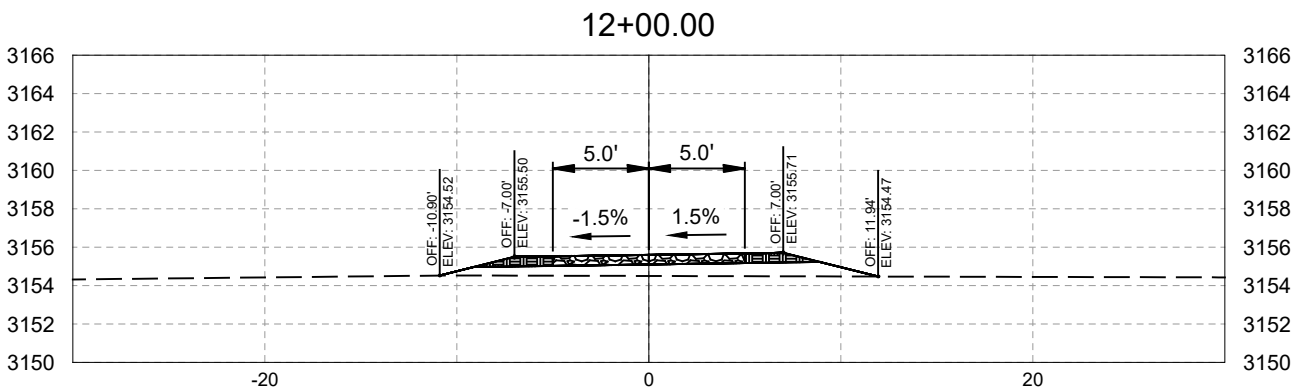
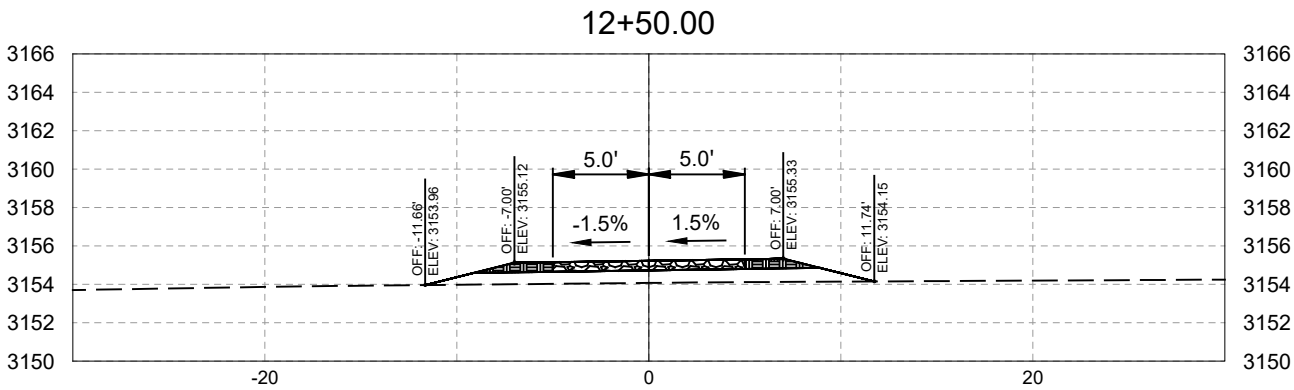
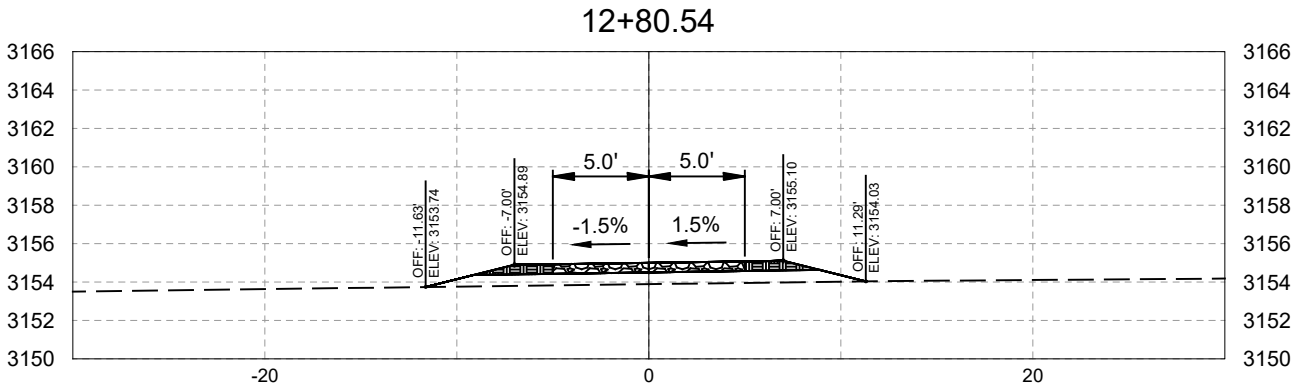
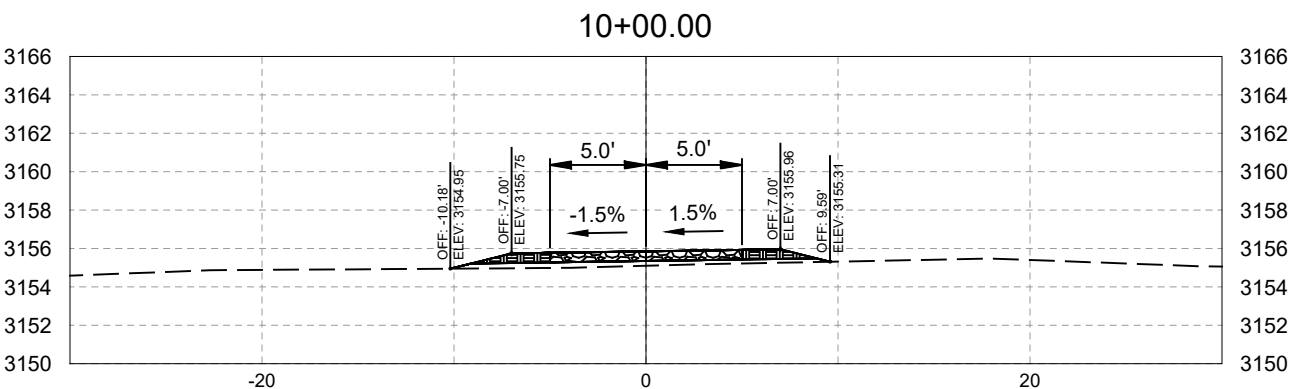
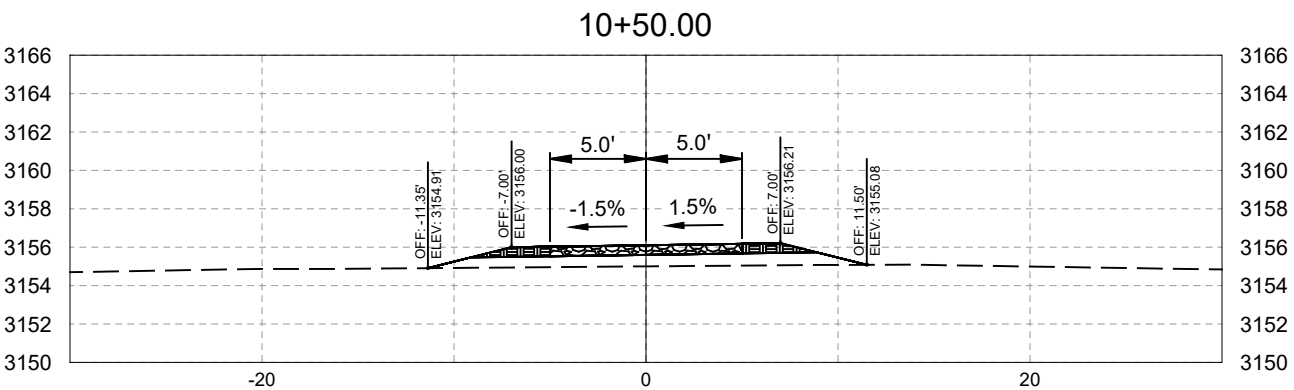
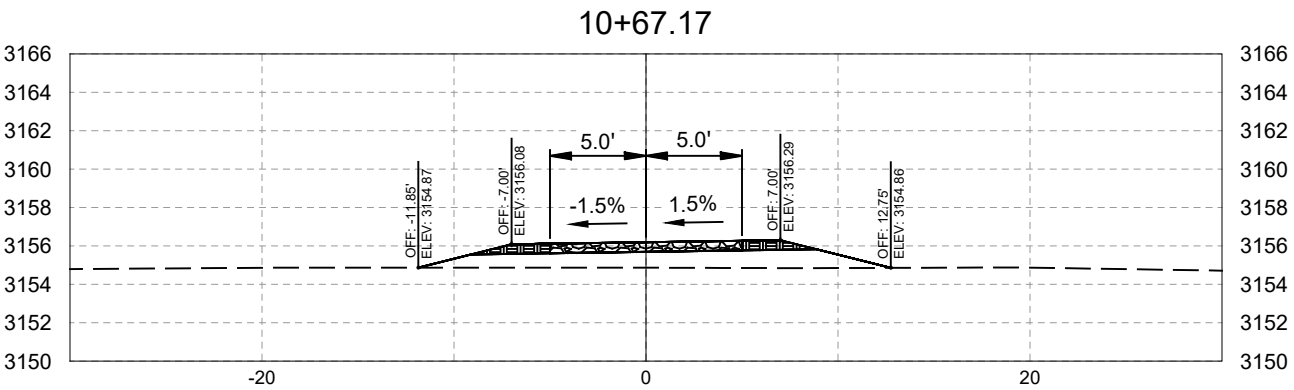
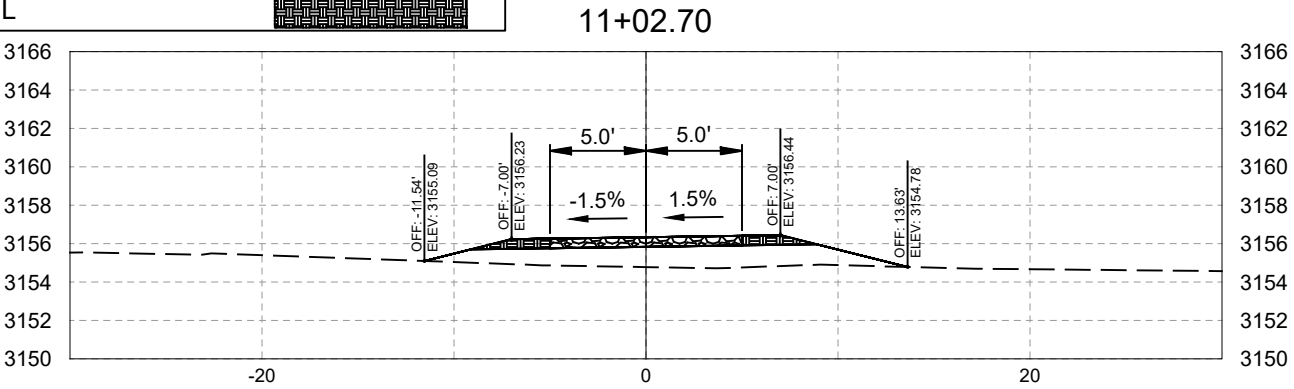
2/20/25 10:11 AM C:\P\WORK\INVEST\11\03\2025\7065.01 GRANT CREEK TRAIL - PLAN.DWG

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.12	F.19

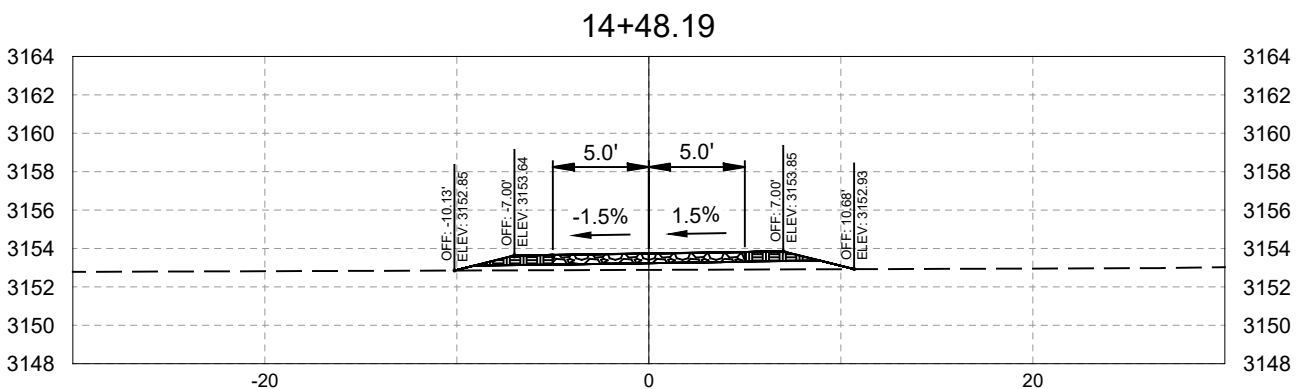
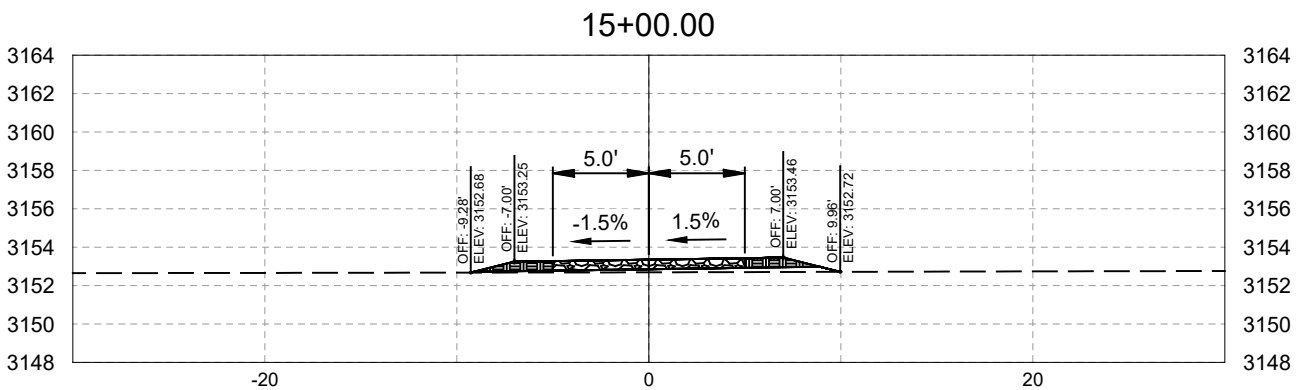
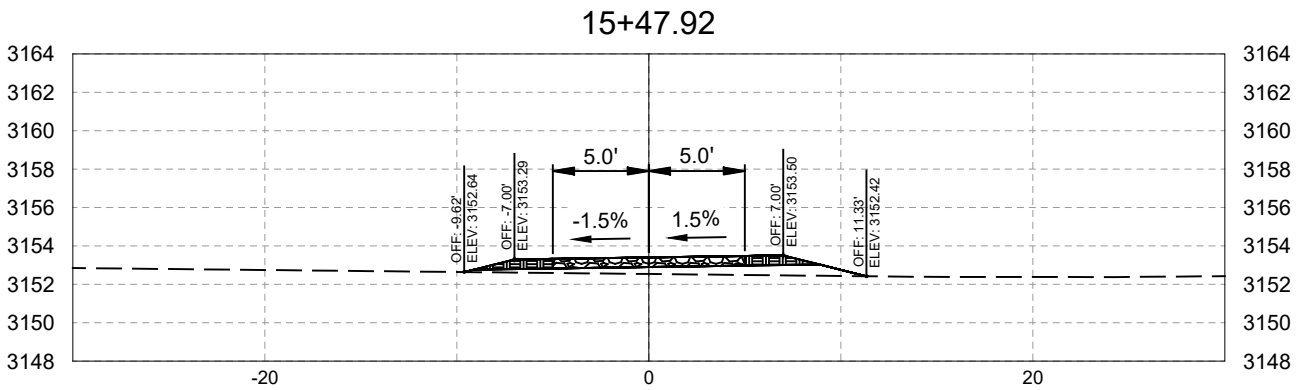
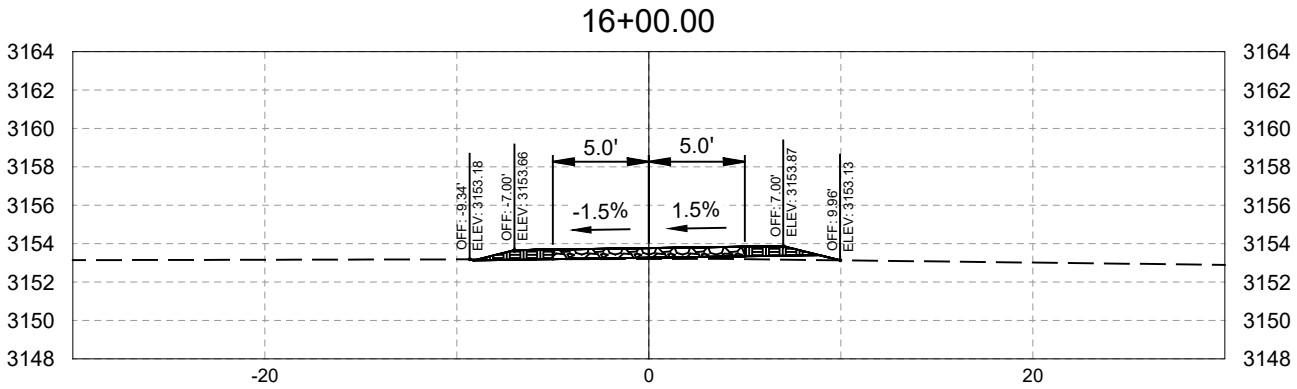
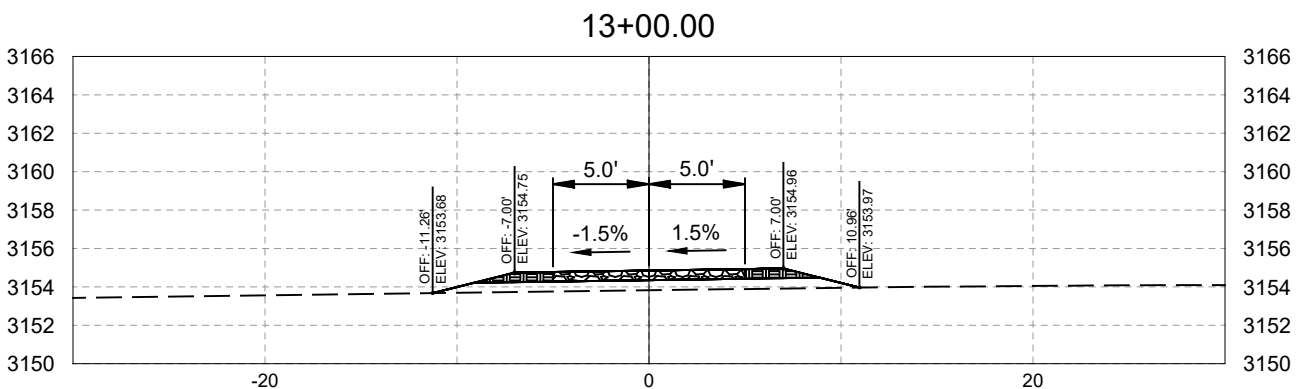
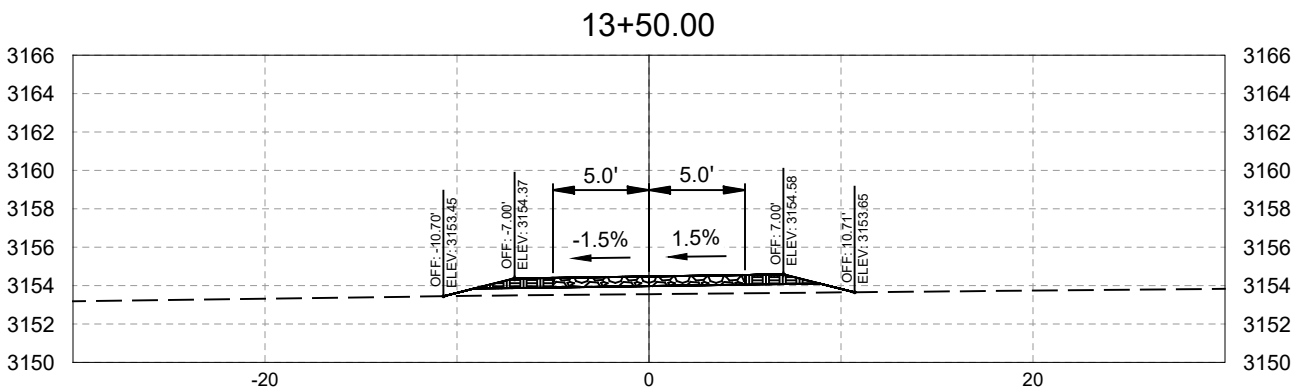
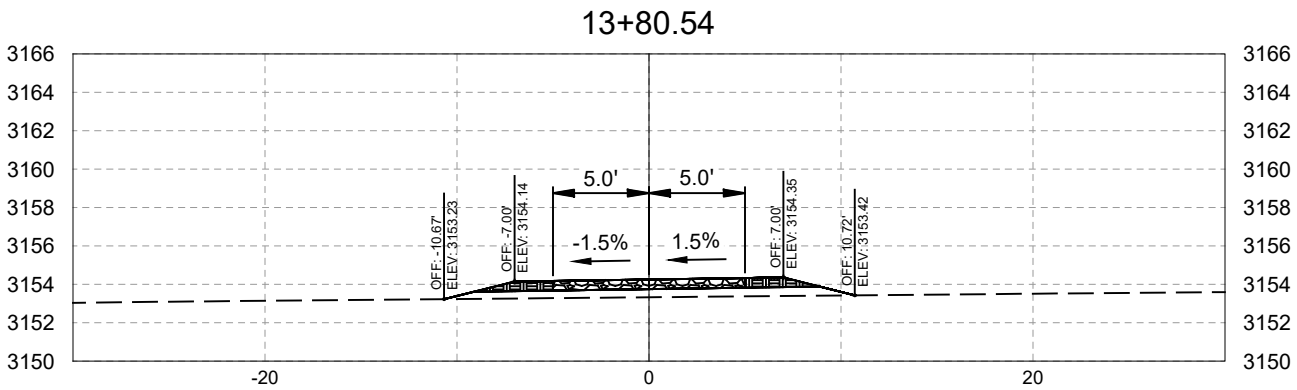
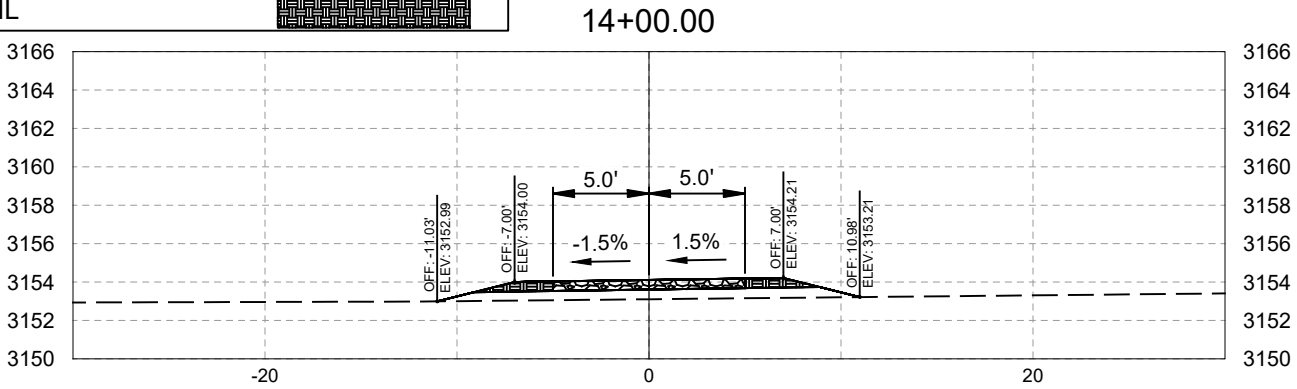
2/19/25 10:18 BRUNER C:\P\WORK\NEW\51103\2/20/25\7065.01 GRANT CREEK TRAIL - CROSS SECTIONS.DWG

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

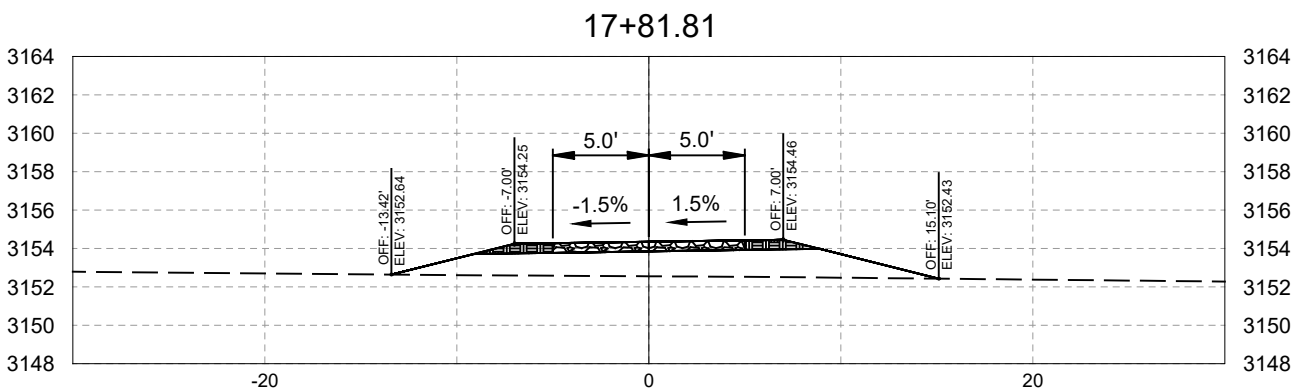
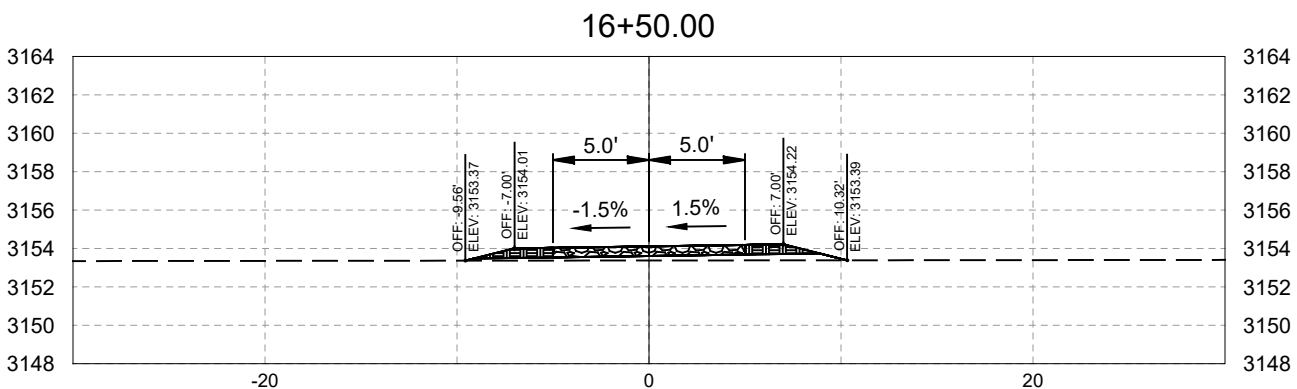
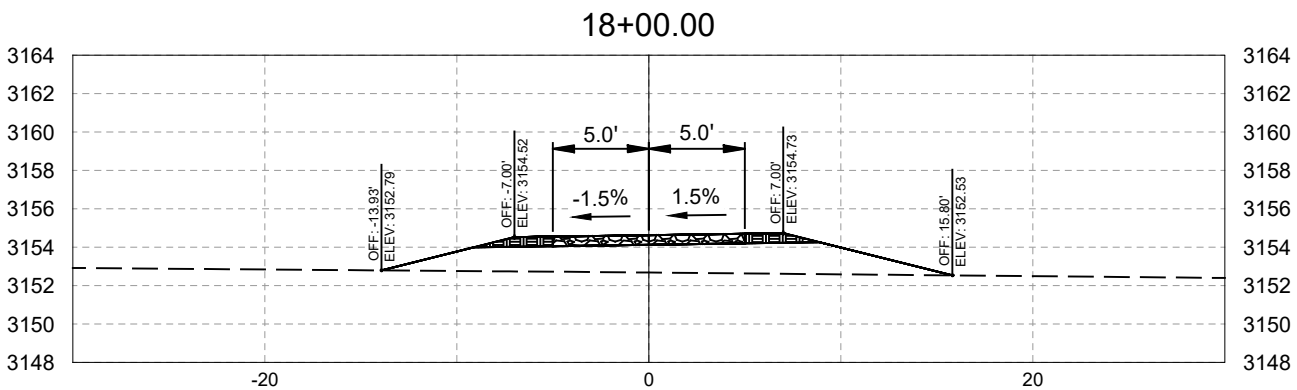
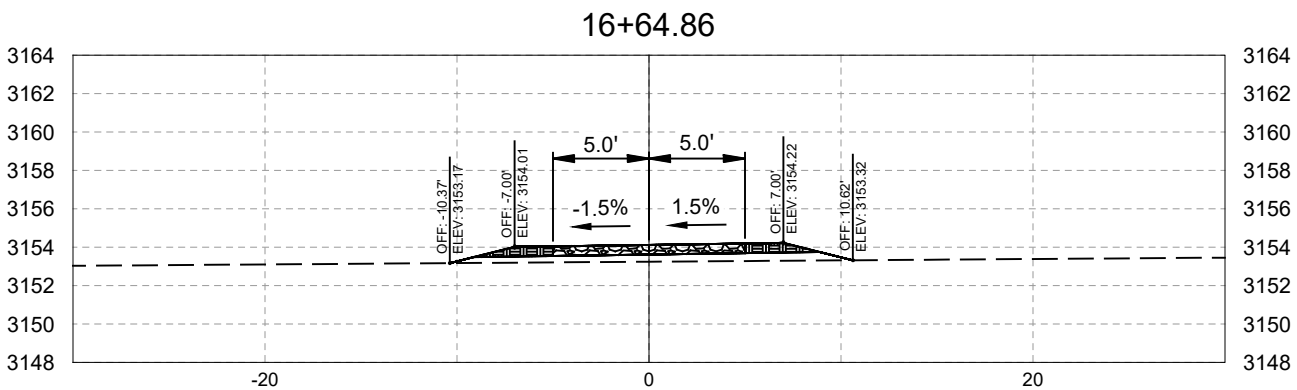
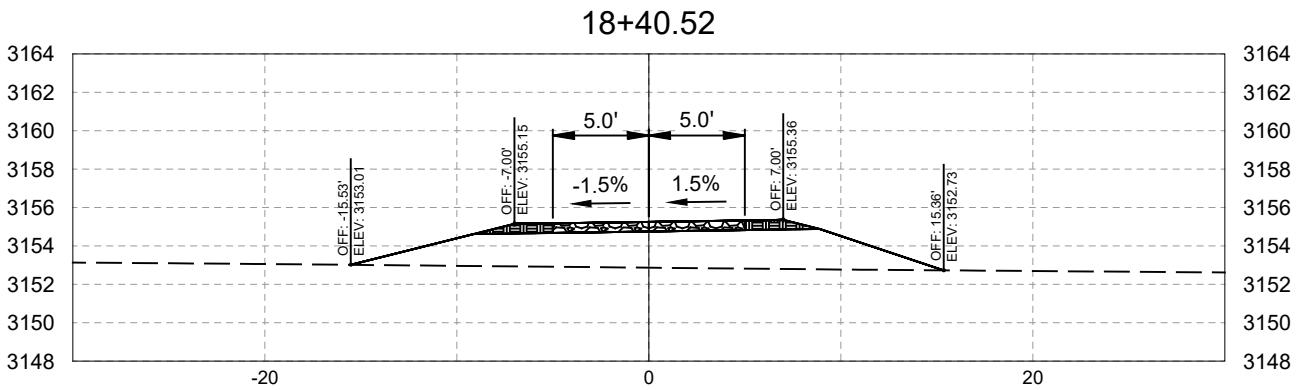
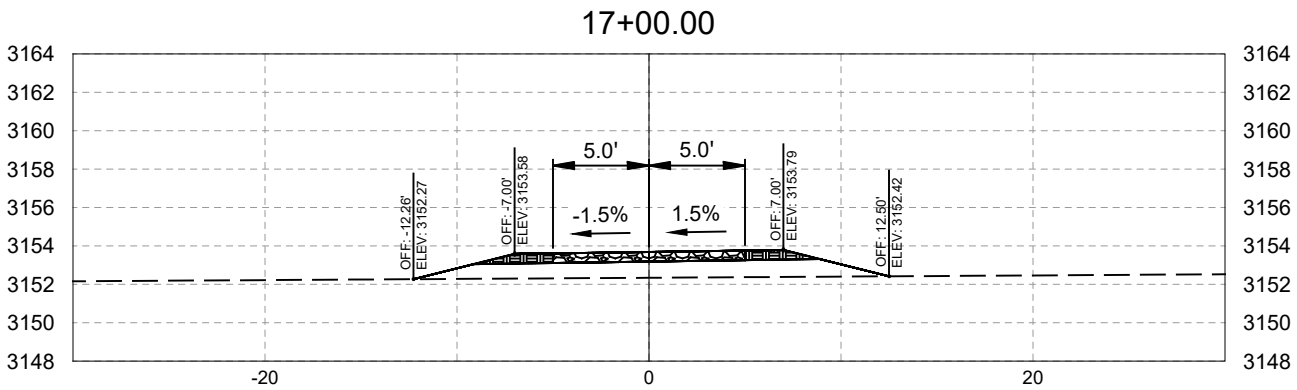
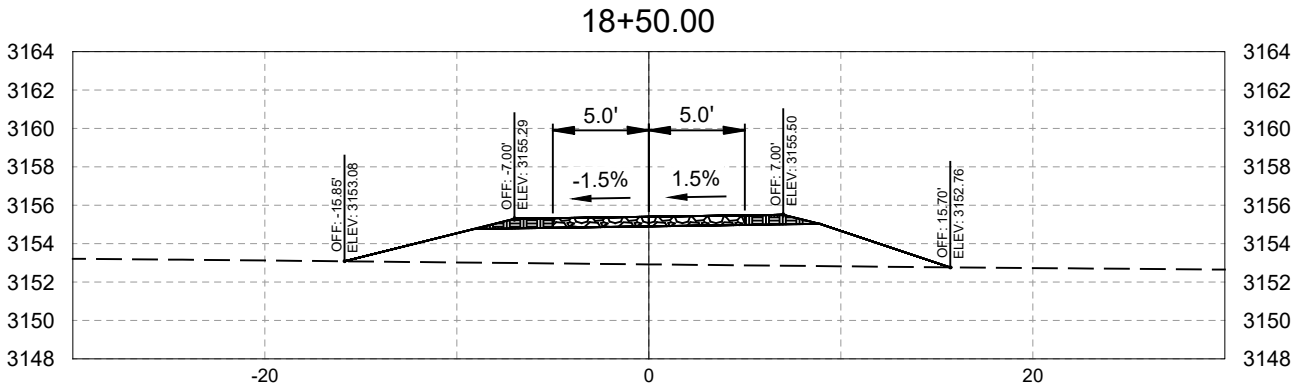
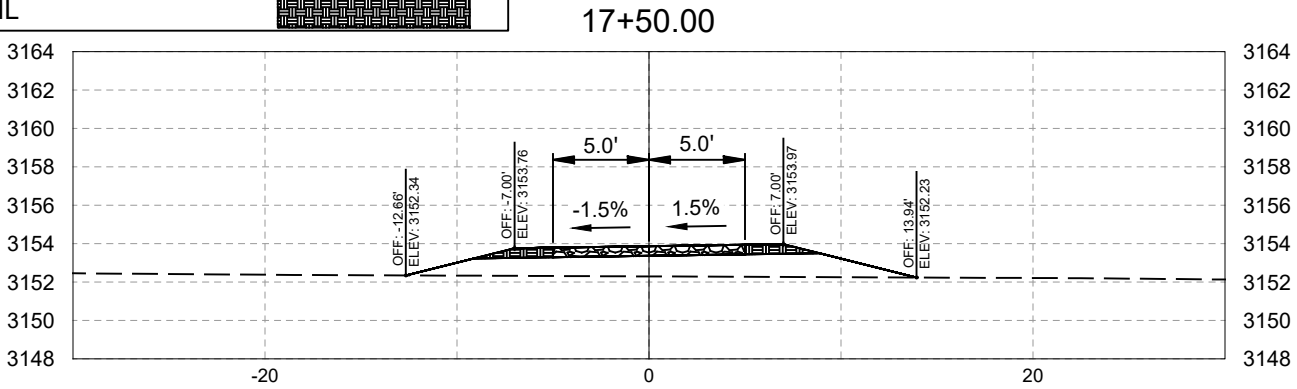
SHEET	OF
F.13	F.19

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	D&A P.C.

DR

DP

ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.14	F.19

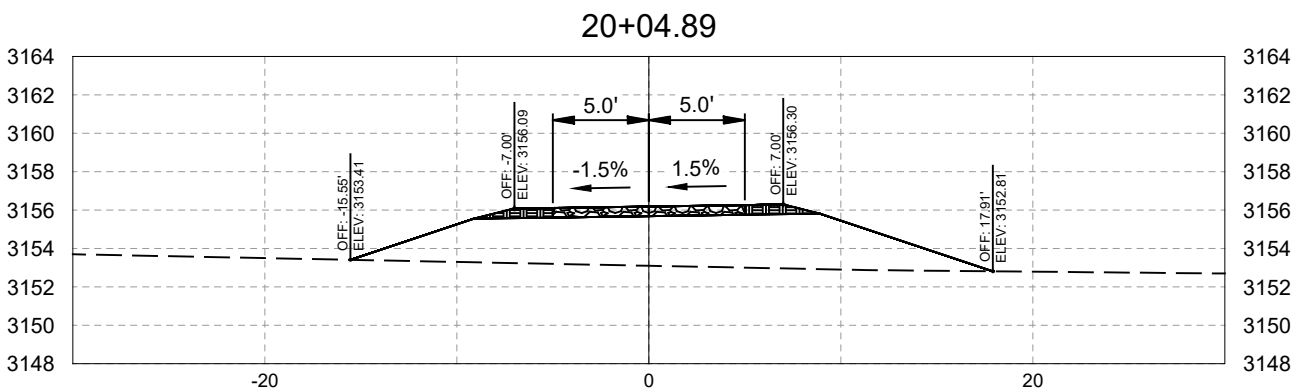
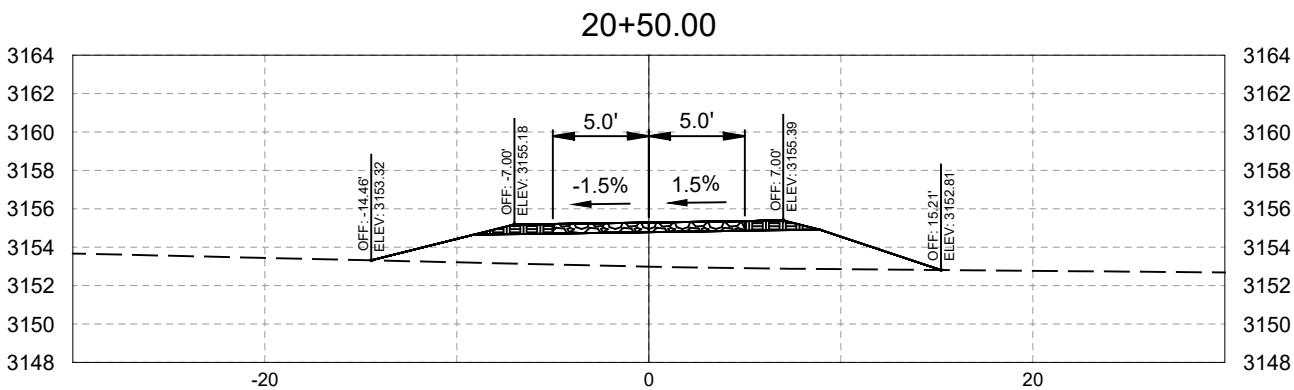
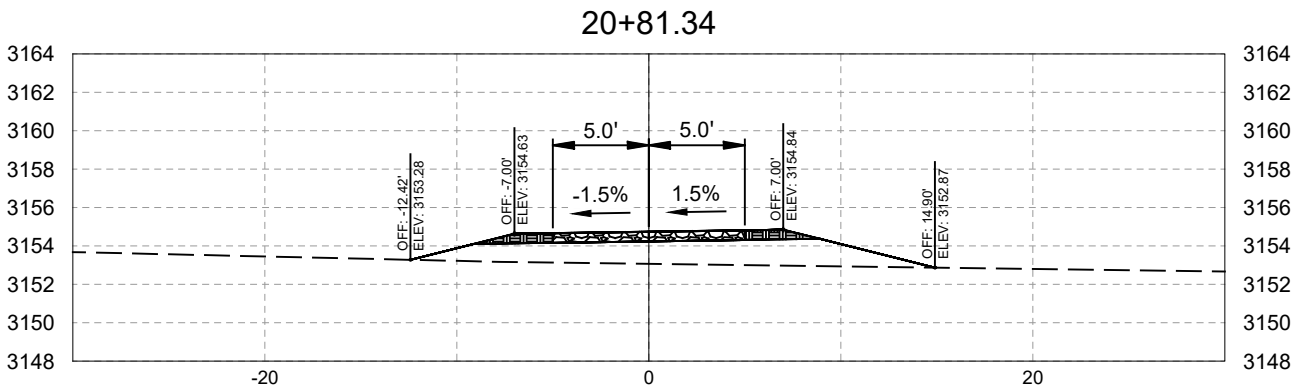
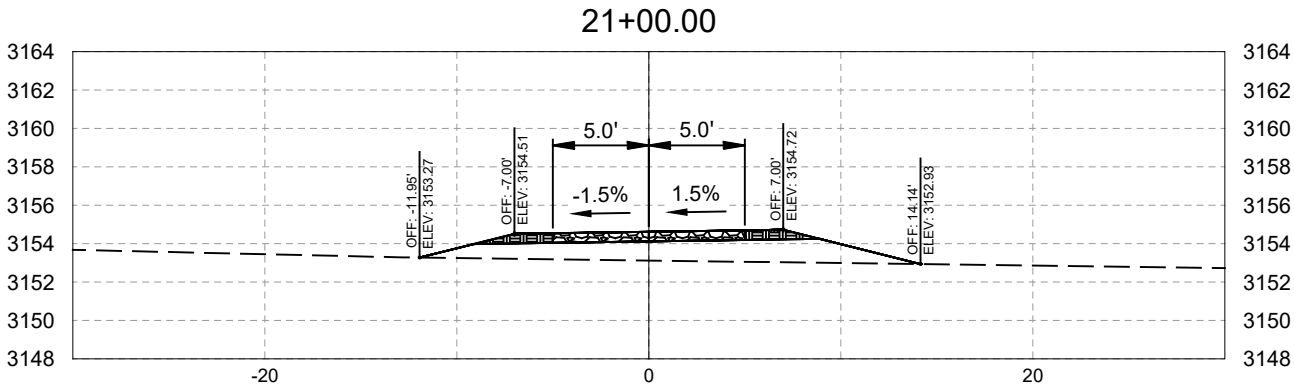
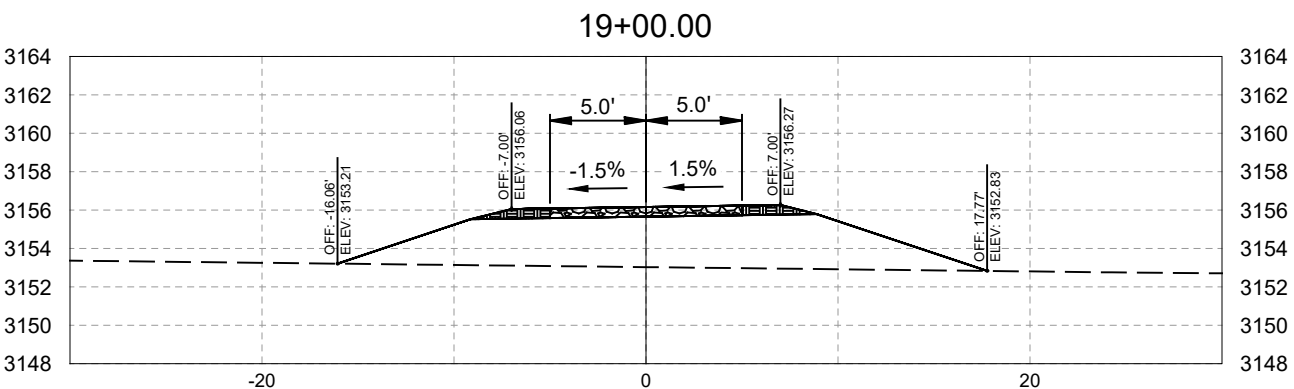
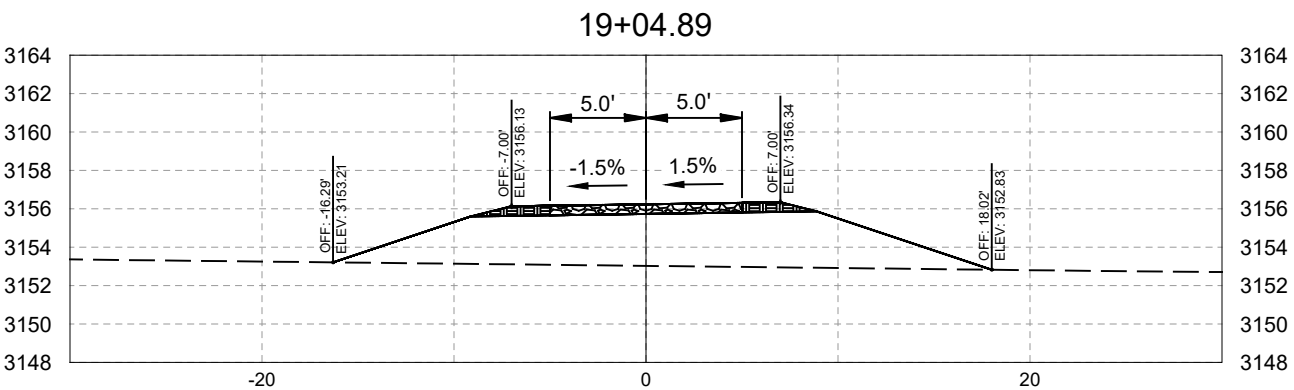
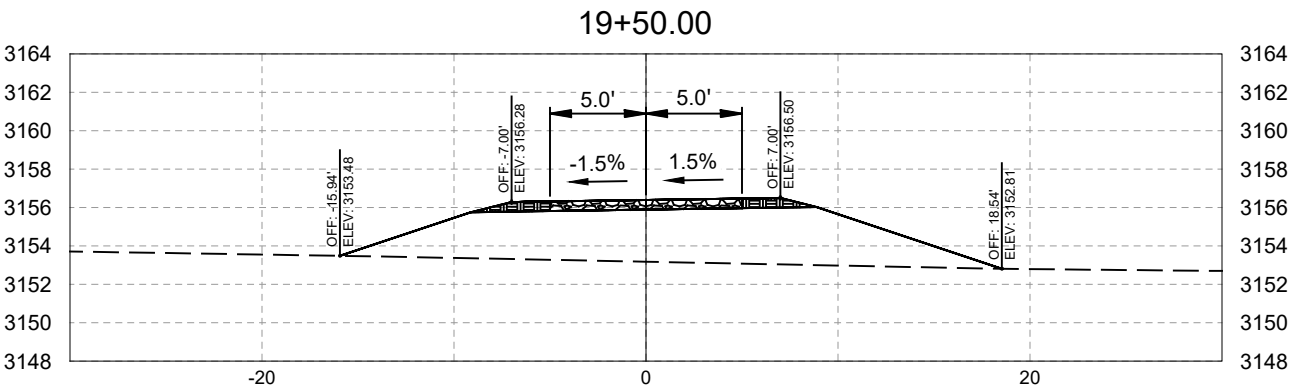
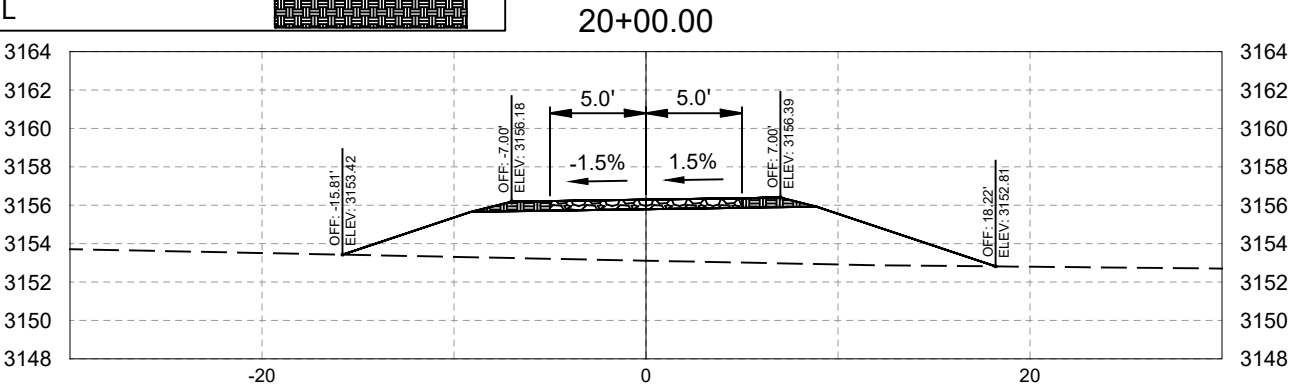
2/19/25 10:18 BRUNER C:\P\WORK\NEWEST\103572087\7065.01 GRANT CREEK TRAIL - CROSS SECTIONS.DWG

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	DJ&A, P.C.

HC

DP

ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.15	F.19

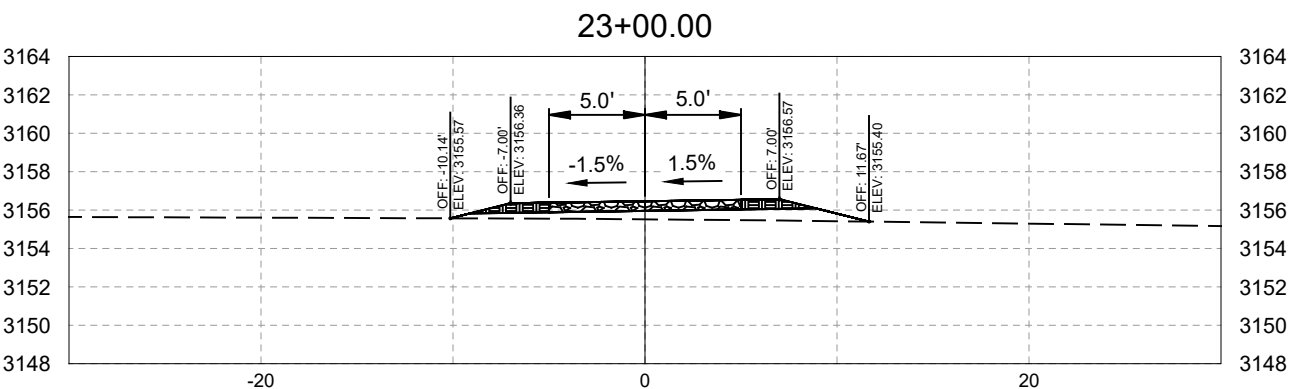
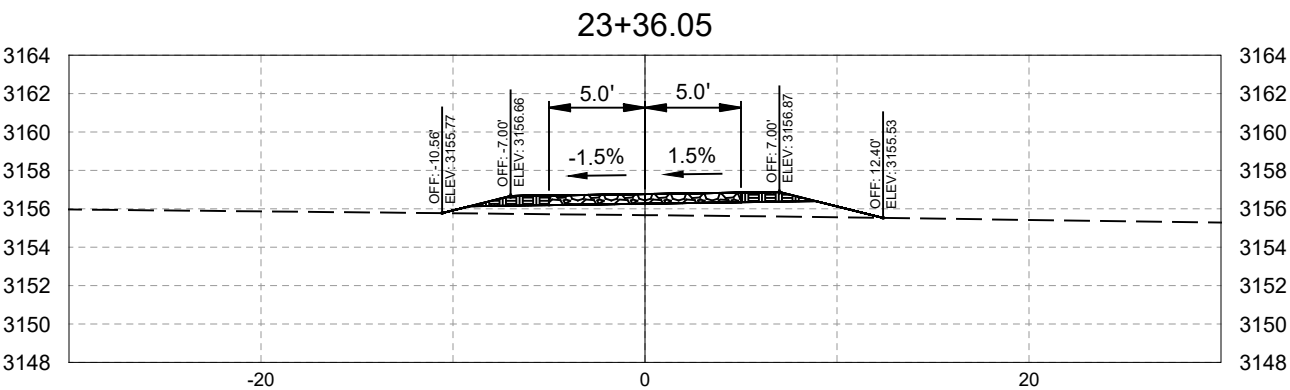
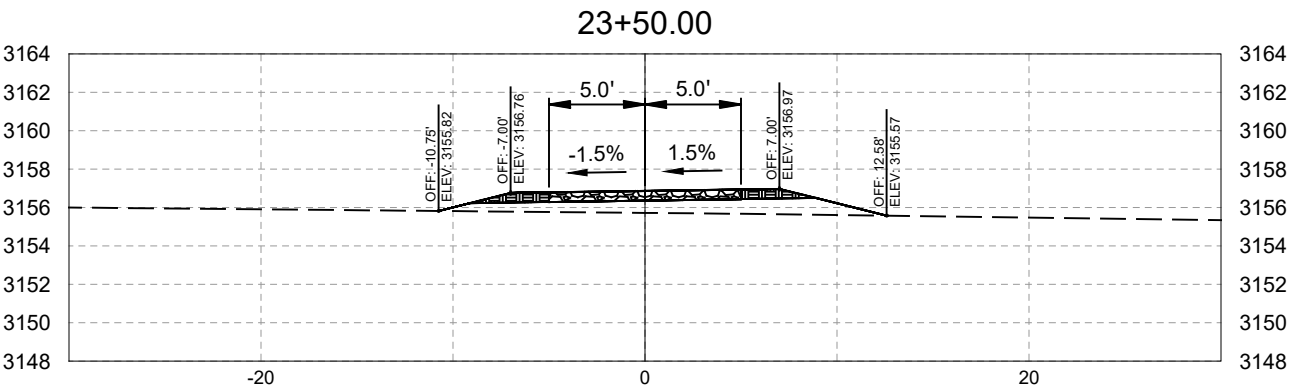
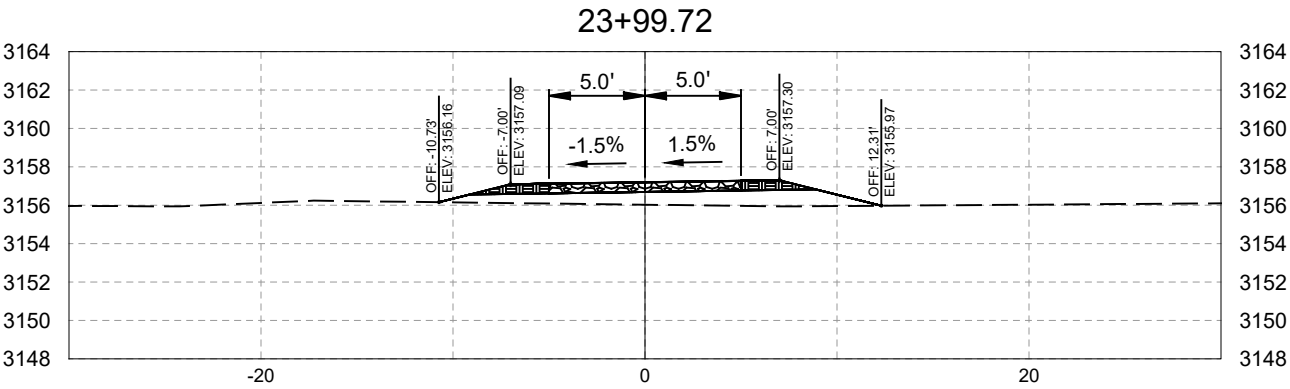
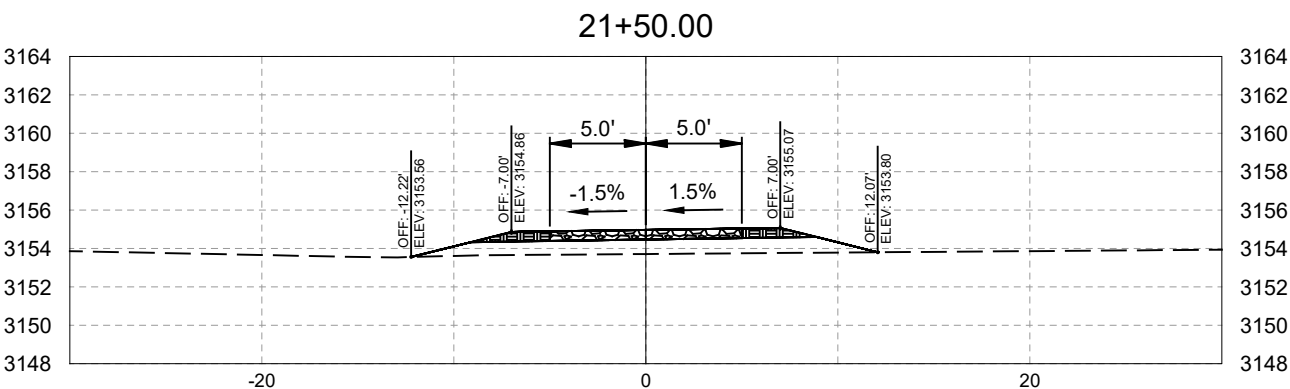
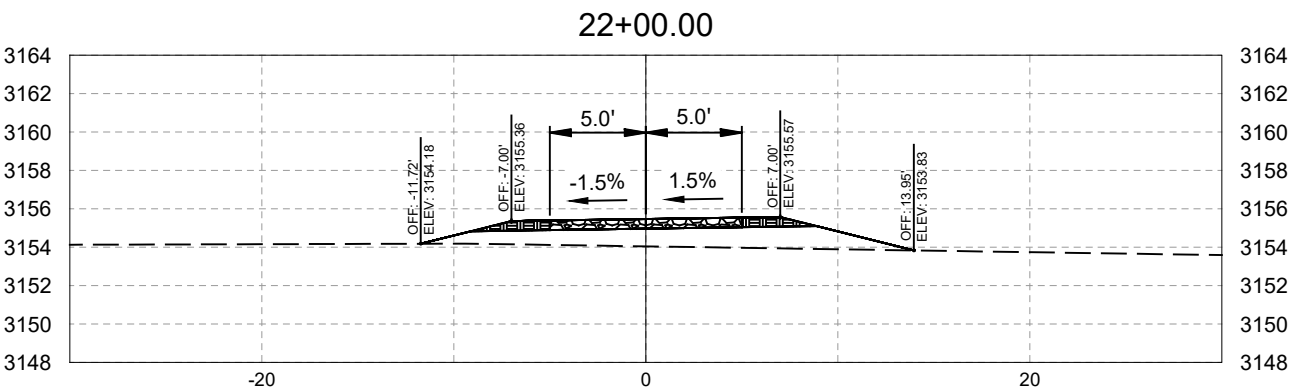
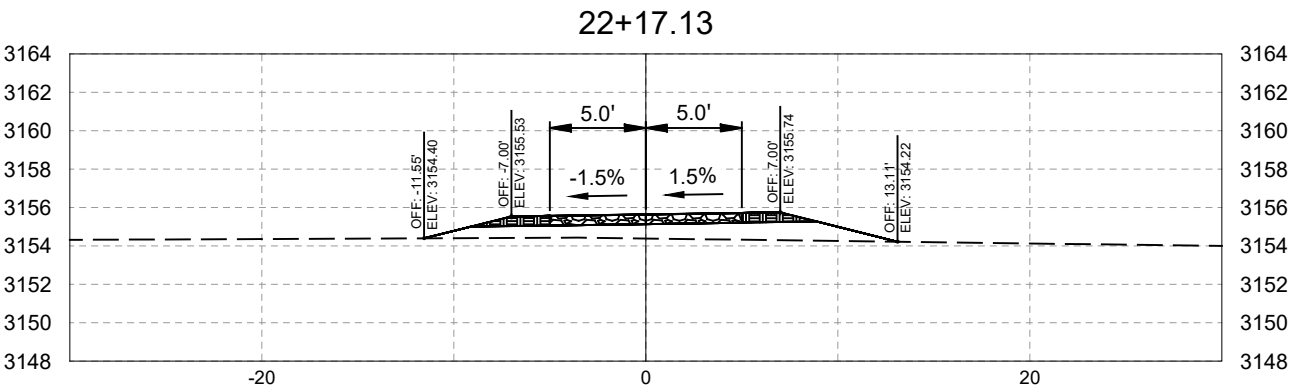
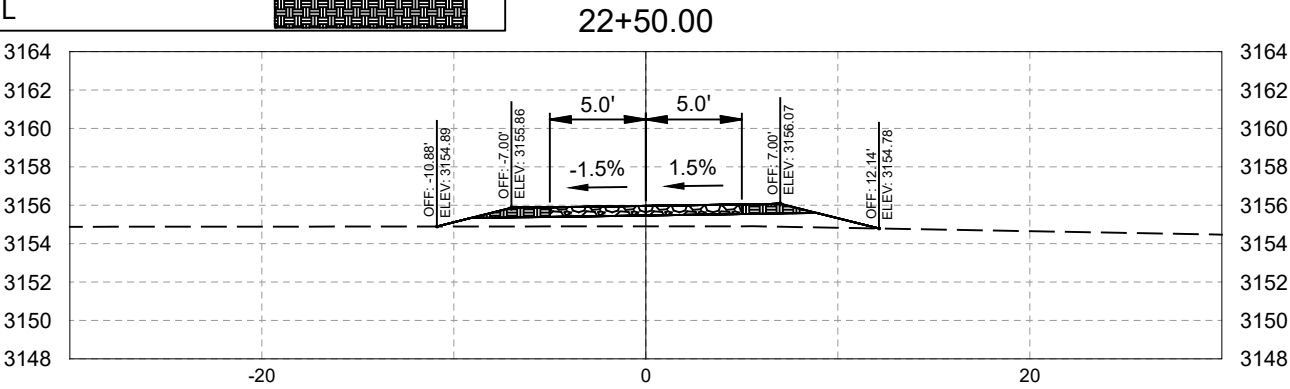
2/19/25, 10:18 BRUNER, C:\PWC\GRANDWEST\103527067\7065.01 GRANT CREEK TRAIL - CROSS SECTIONS.DWG

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

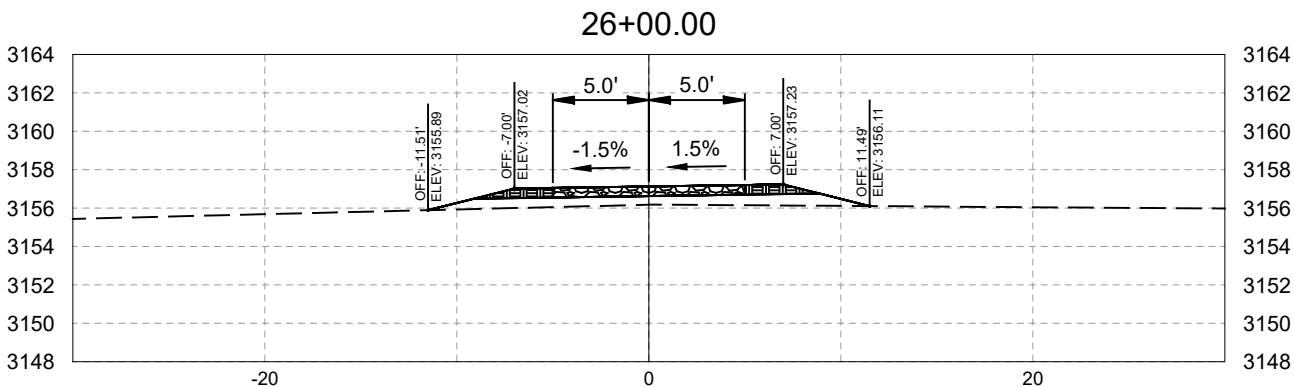
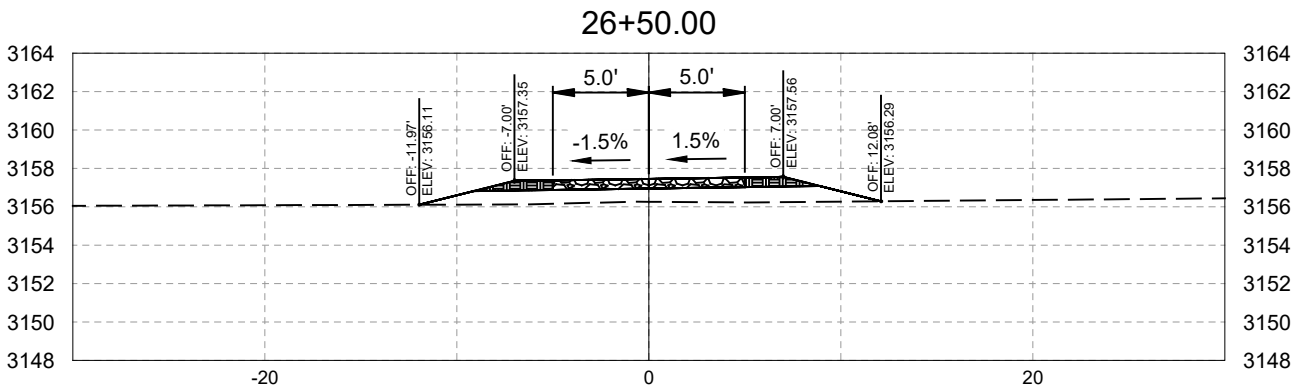
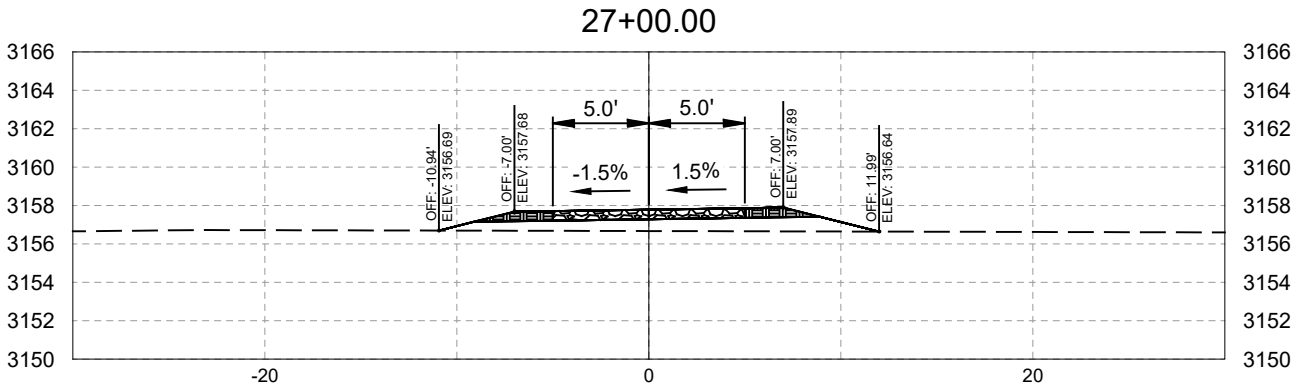
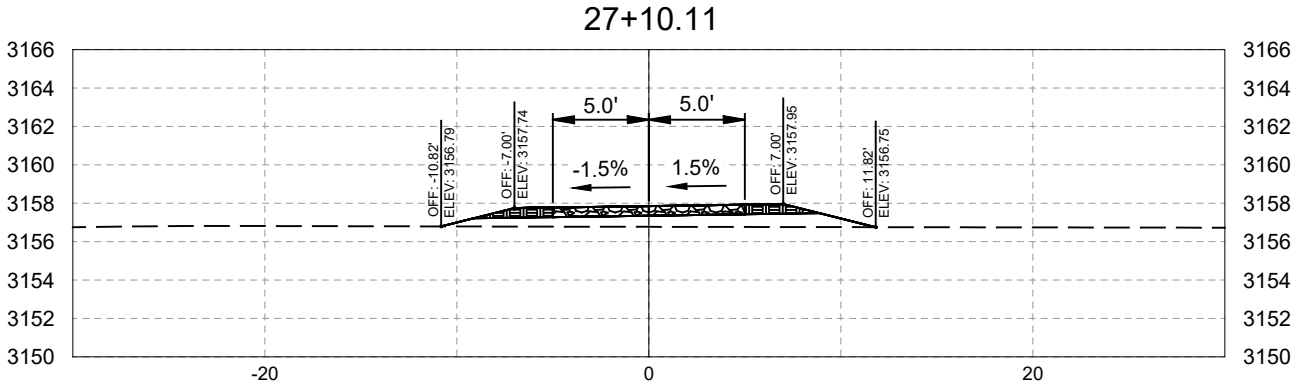
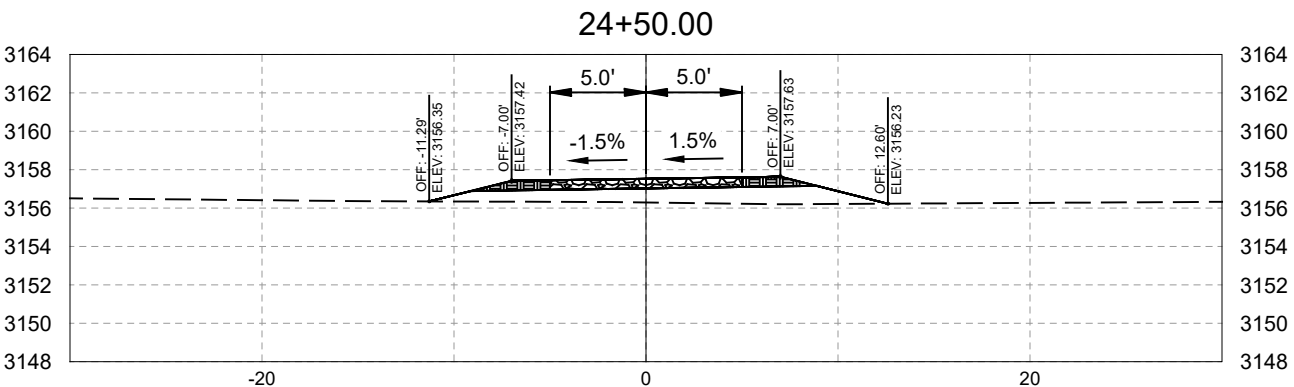
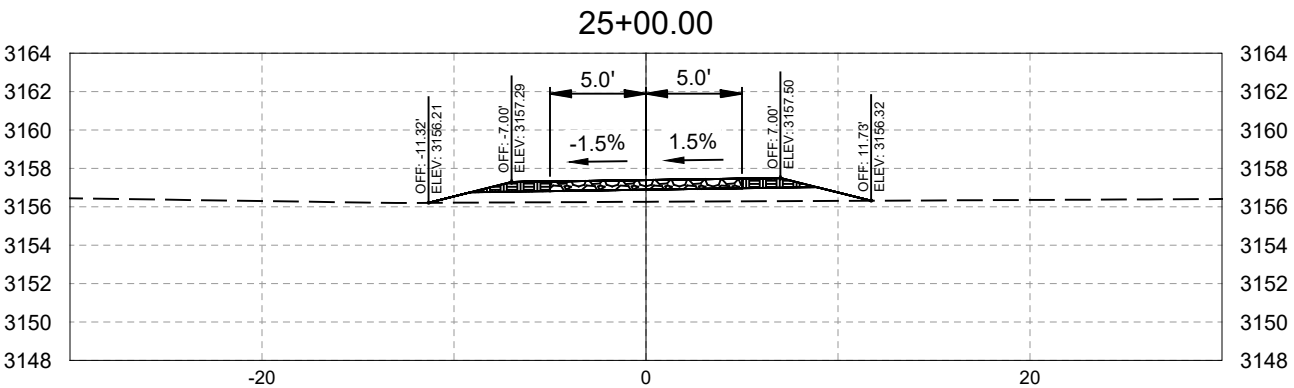
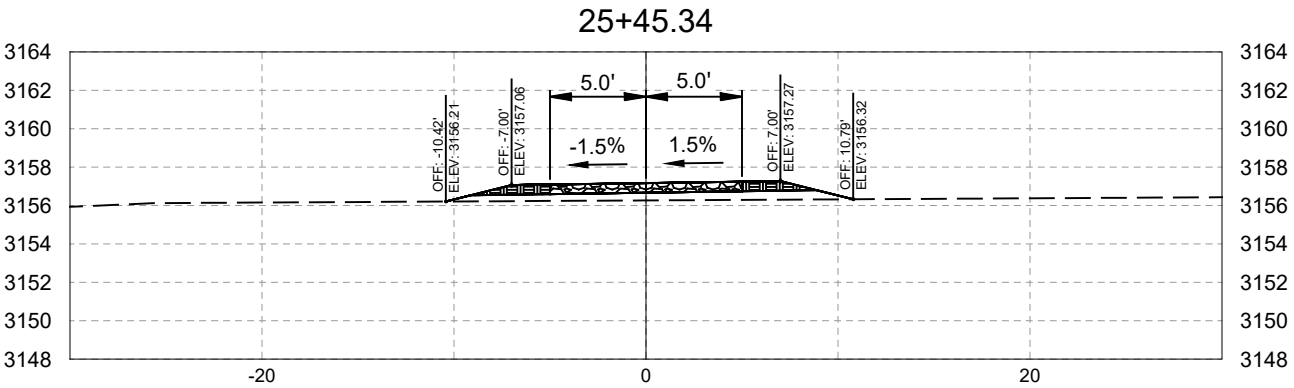
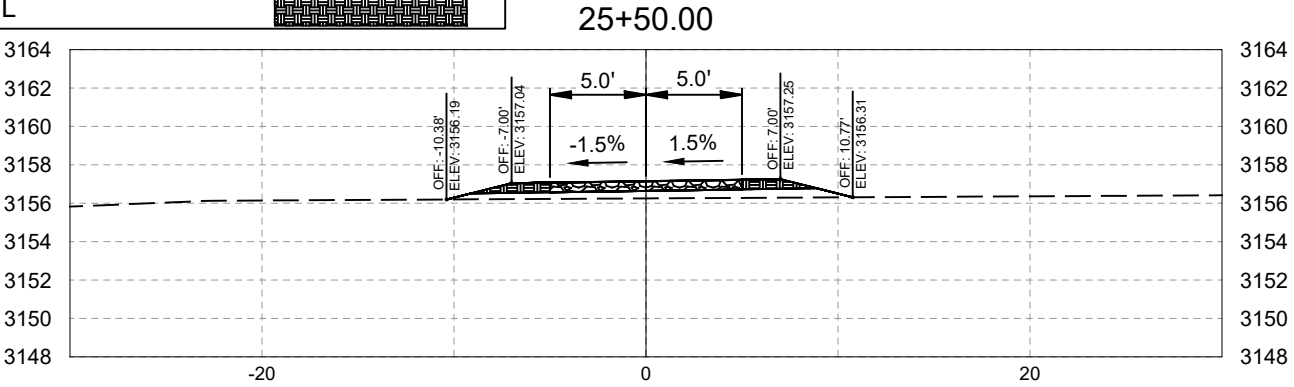
SHEET	OF
F.16	F.19

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/2025
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.17	F.19

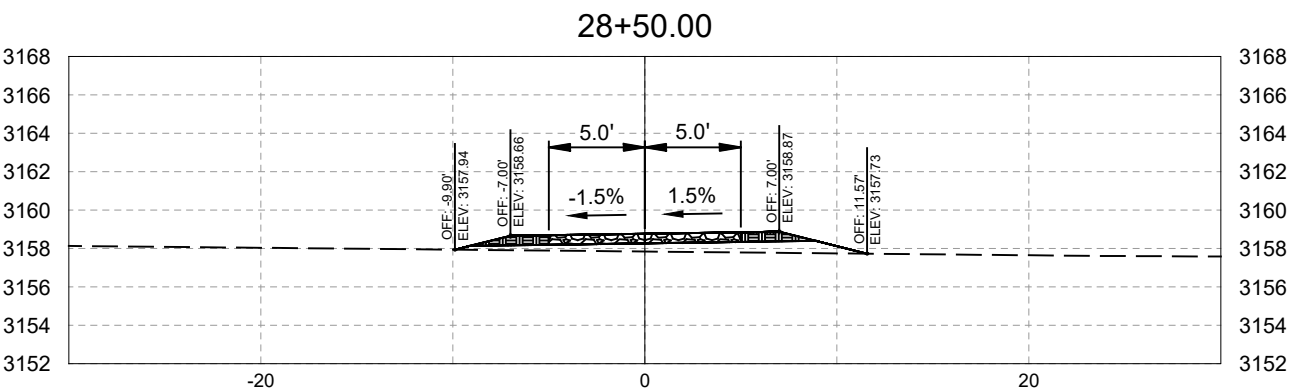
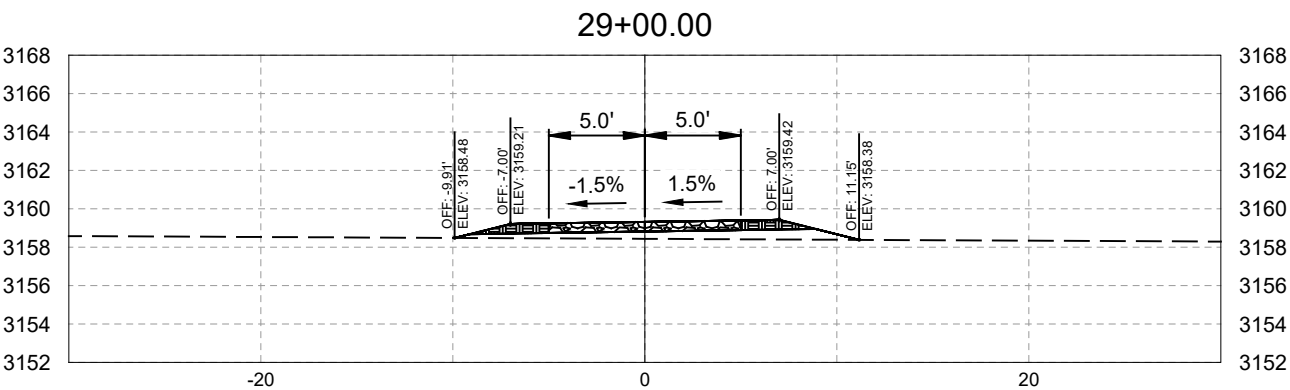
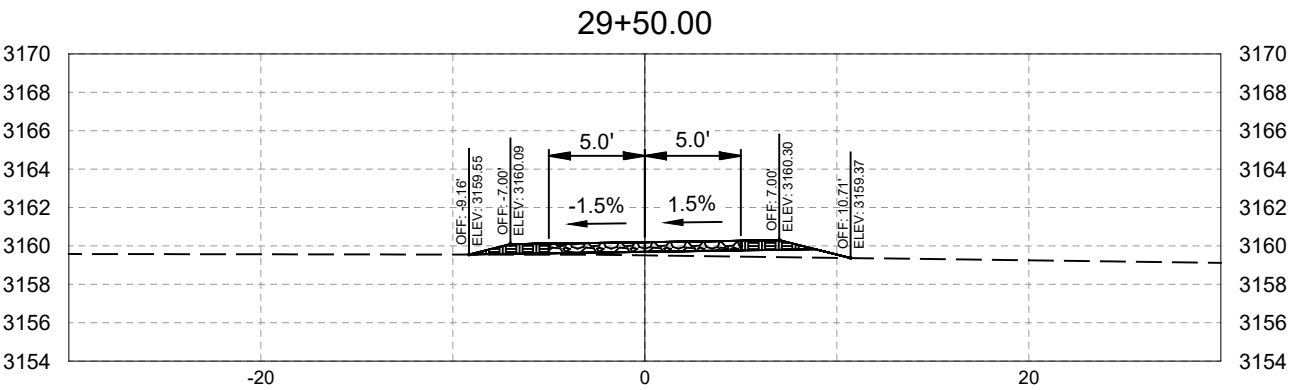
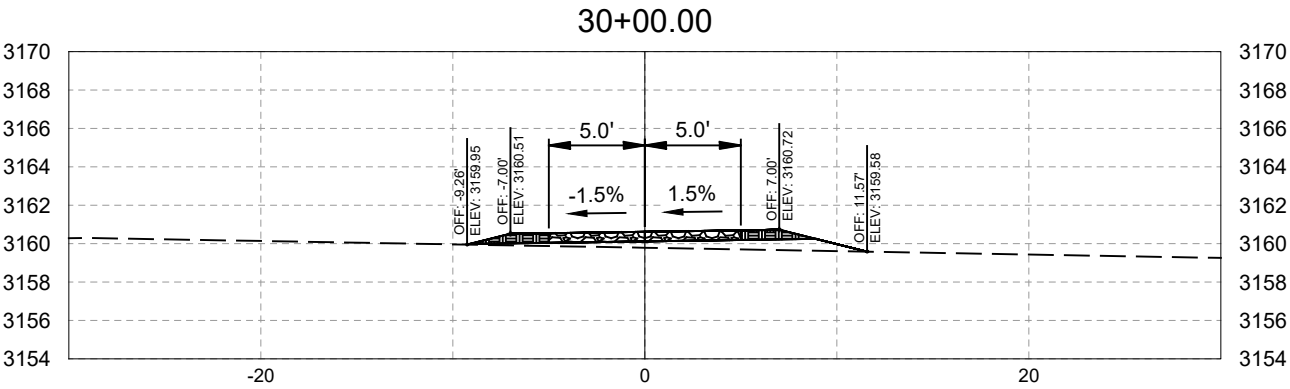
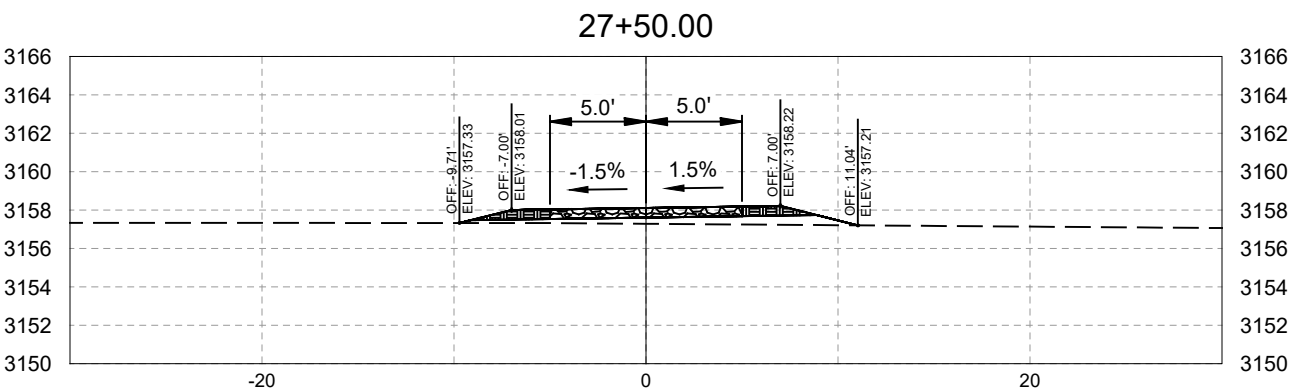
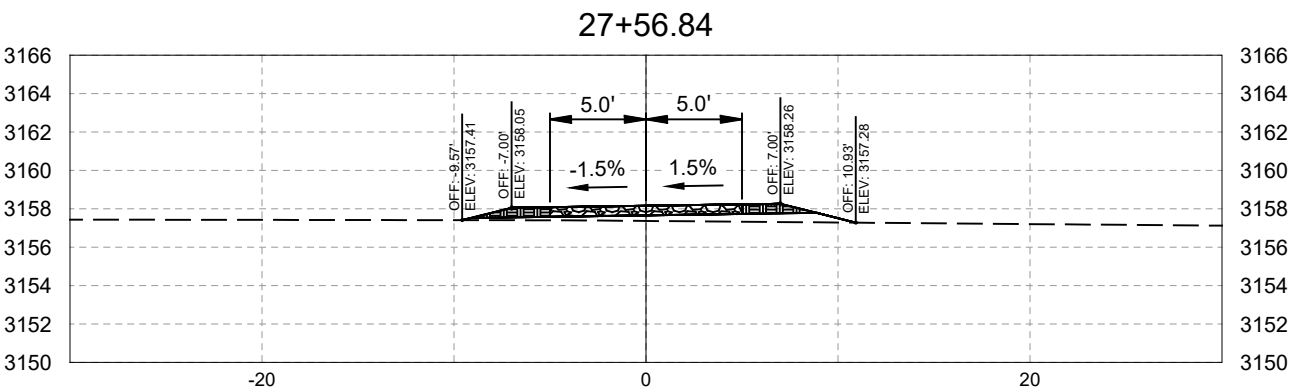
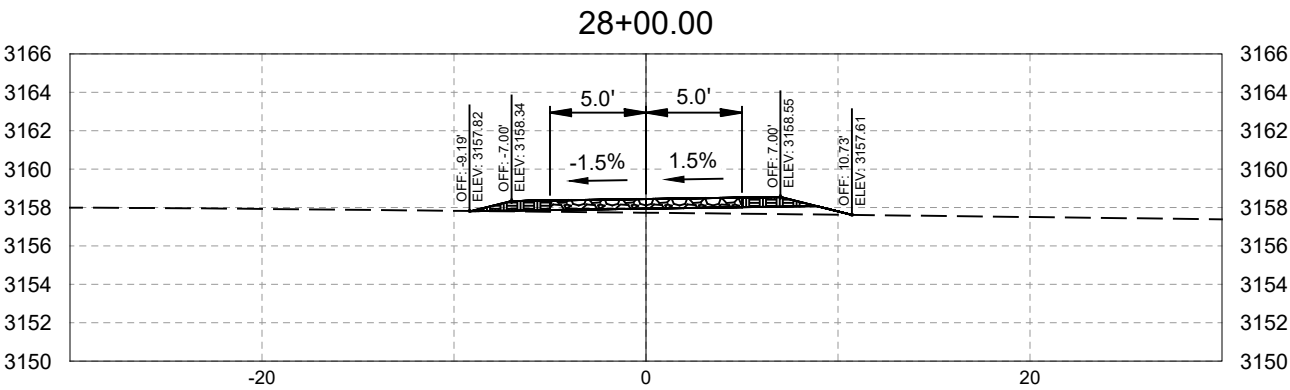
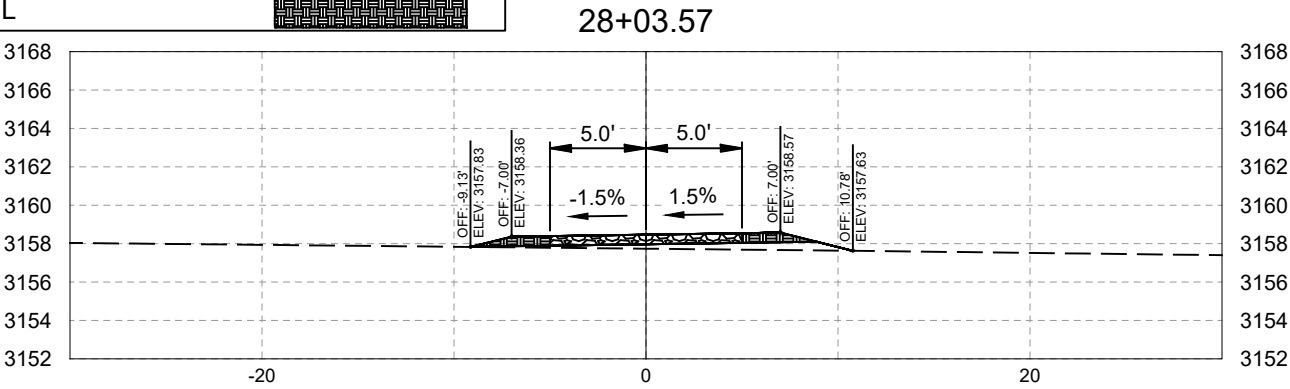
2/19/25 10:18 BRUNER C:\P\WORK\NEW\WEST\103527\2025\7065.01 GRANT CREEK TRAIL - CROSS SECTIONS.DWG

LEGEND:

EXISTING GROUND

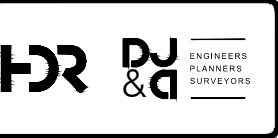
CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.18	F.19

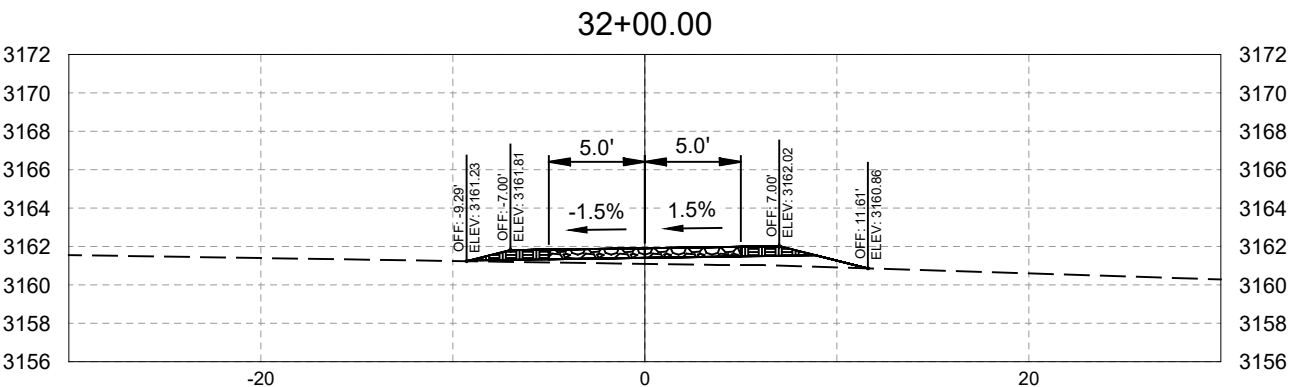
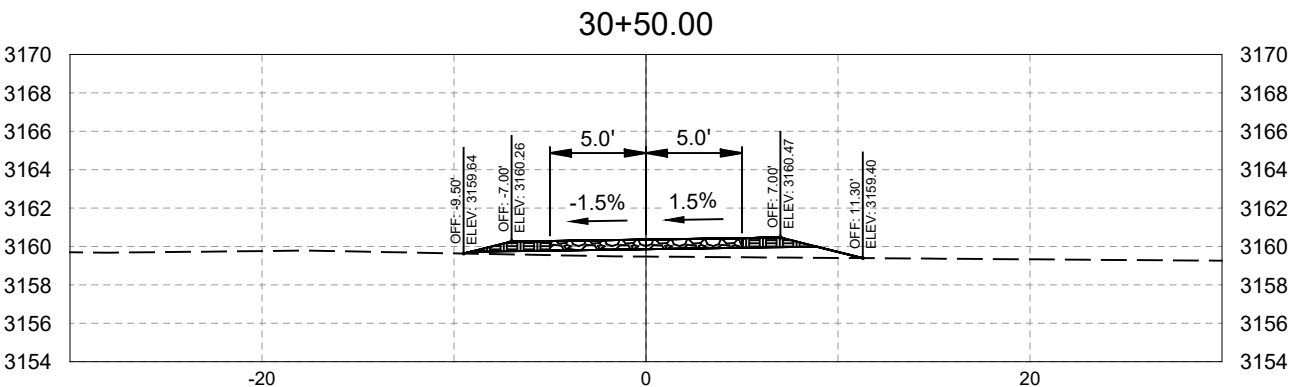
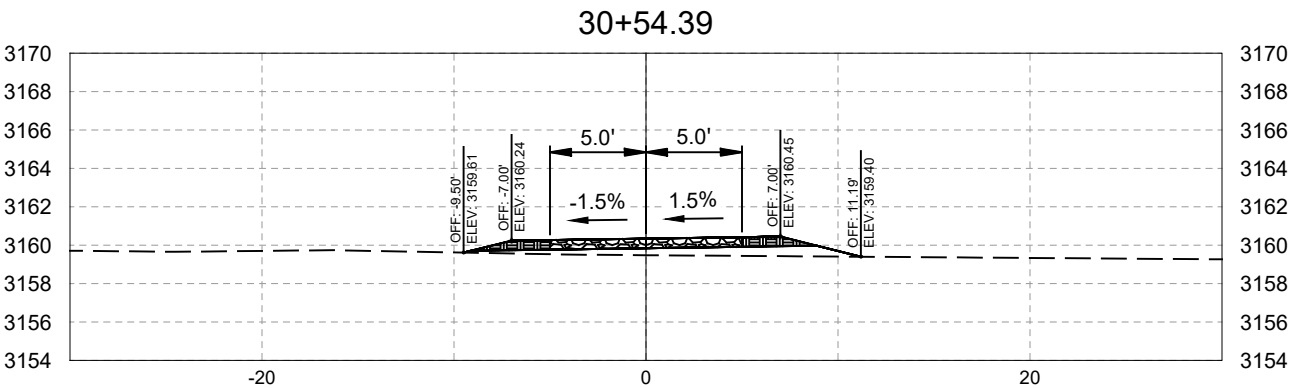
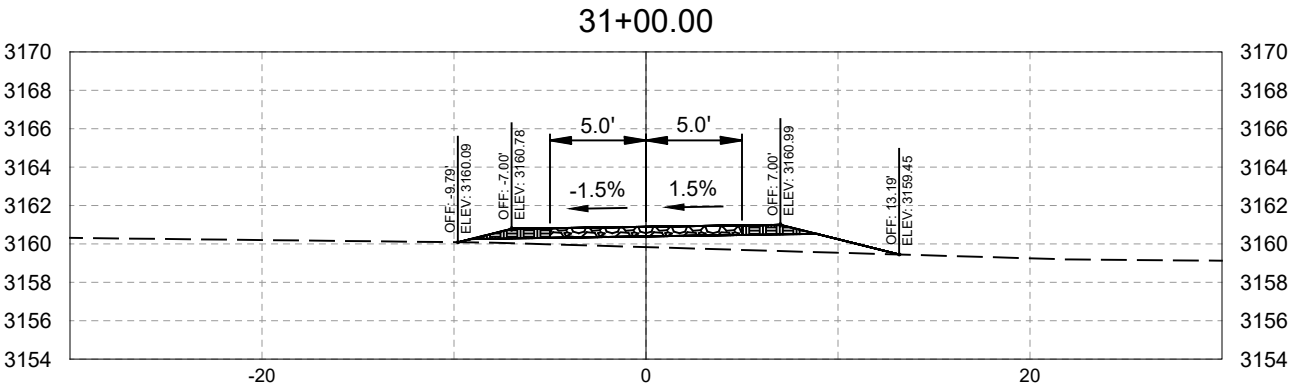
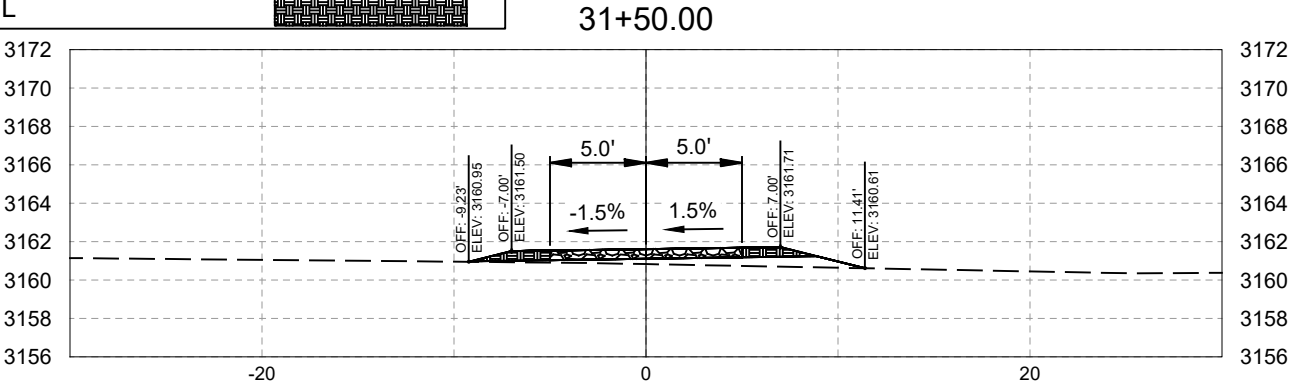
2/19/25, 10:18 AM GRANT CREEK RFC WEST 11.0352720277065.01 GRANT CREEK TRAIL - CROSS SECTIONS.DWG

LEGEND:

EXISTING GROUND

CRUSHED BASE COURSE

TOPSOIL



REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER	BB	PROJ. NO.	7065.01
DRAWN	BB	DATE	2/20/25
CHECKED	DP	SURVEYED	D&A P.C.

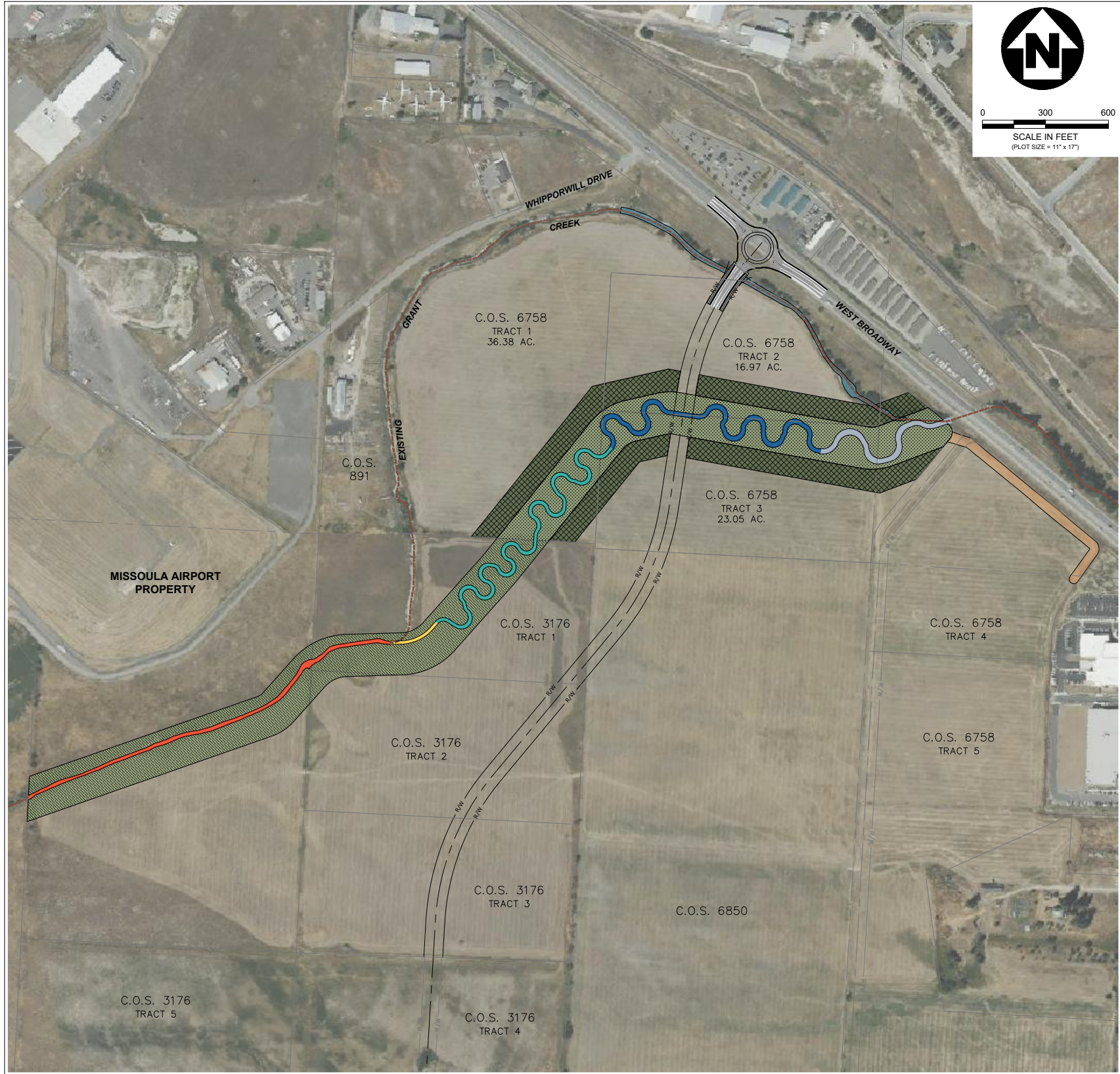


ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

F. TRAIL PLANS
TRAIL CROSS SECTIONS

SHEET	OF
F.19	F.19



PLANTING AREA

- PLANTING AREA 1
- PLANTING AREA 2
- PLANTING AREA 3

LEGEND

- 200' FLOODPLAIN
- 100' RIPARIAN BUFFER
- FLOODPLAIN SWALE
- STORMWATER DRAIN
- REACH 5 STREAM CHANNEL
- REACH 4 STREAM CHANNEL
- REACH 3 STREAM CHANNEL
- REACH 2 STREAM CHANNEL
- REACH 1 STREAM CHANNEL
- EXISTING GRANT CREEK

1 PLANTING PLAN
SCALE: 1" = 300'

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

DESIGNER DM PROJ. NO. 7065.01
 DRAWN JW DATE 08/01/2024
 CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

G. REVEGETATION PLAN
PLANTING PLAN

SHEET
OF
G.1 G.3

PLANTING MIX	PLANTING AREA	LOCATION	SPECIES ¹	PLANTING DENSITY ²	NOTES
A	1,3	FLOODPLAIN	RED OSIER DOGWOOD THIN-LEAF ALDER BOOTH WILLOW BEBB'S WILLOW	175/ACRE	MEDIUM DENSITY CLUSTERS NEAR STREAM.
B	3	FLOODPLAIN	BLACK COTTONWOOD	25/ACRE	DO NOT USE ON AIRPORT PROPERTY. SINGLE PLANTS ALONG PEDESTRIAN TRAIL AND SMALL CLUSTERS IN FLOODPLAIN.
C	2	RIPARIAN BUFFER	SERVICEBERRY BLACK HAWTHORN MOCK ORANGE CHOKECHERRY	100/ACRE	MEDIUM DENSITY CLUSTERS.
D	2	RIPARIAN BUFFER	GOLDEN CURRANT WOOD'S ROSE THIMBLEBERRY	75/ACRE	TIGHT DENSITY CLUSTERS IN RIPARIAN BUFFER.
E	2	RIPARIAN BUFFER	QUAKING ASPEN	25/ACRE	DO NOT USE ON AIRPORT PROPERTY. SMALL CLUSTERS IN RIPARIAN BUFFER.
F	1, 3	FLOODPLAIN	RIPARIAN SEED MIX	NA	△A BROADCAST SEED USING SPECIFIED SEED RATES.
G	2	RIPARIAN BUFFER	FLOODPLAIN SEED MIX	NA	△A DRILL SEED USING SPECIFIED SEED RATES.

¹PLANT LIST FROM DNRC NURSERY (PROPOSE D-40 PLUGS FOR ALL WOODY PLANTINGS). ²RECOMMEND 200 SEEDLINGS/ACRE.

GROUND PREPARATION TO INCLUDE UNDULATIONS IN SURFACE WITH MICRO (3" TO 6"0) DEPRESSIONS AND MOUNDS.

△A 30 LOGS (12" DIAMETER, 20' LONG) TO BE SCATTERED ACROSS THE FLOODPLAIN AS DIRECTED BY OWNER'S REPRESENTATIVE.

USE 4"x18" RIGID SEEDLING PROTECTOR TUBES WITH TWO BAMBOO STAKES PER PLANT.

△A RIPARIAN AND FLOODPLAIN SEED MIX AND RATES ARE INCLUDED IN THE PROJECT MANUAL.

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
A	11/06/2024	ADDENDUM #1

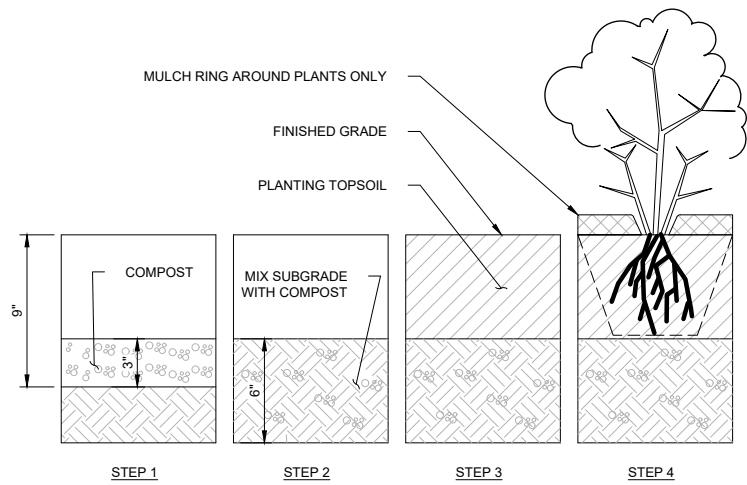
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.

ENGINEERS
PLANNERS
SURVEYORS

GRANT CREEK
RFC PLANS

G. REVEGETATION PLAN
PLANTING SCHEDULE



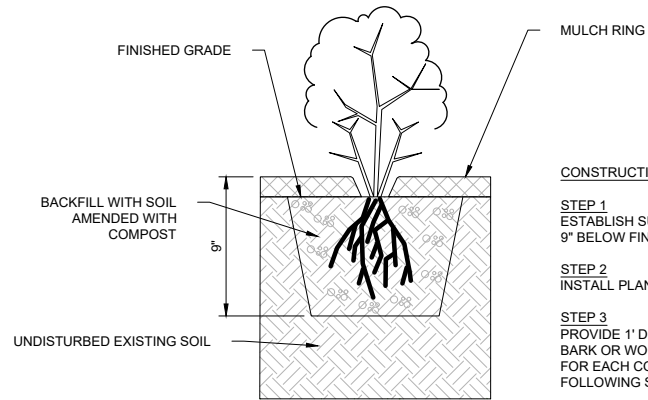
CONSTRUCTION SEQUENCE:

STEP 1
ESTABLISH SUBGRADE 9" BELOW FINISH GRADE
AND COVER WITH 3" MEDIUM COMPOST.

STEP 2
INCORPORATE COMPOST INTO
SUBGRADE TO A DEPTH OF 6".

STEP 3
PLANTING TOPSOIL TO BE A MINIMUM OF 50 PERCENT
TOPSOIL BY VOLUME. REMAINDER MAY BE TOPSOIL
OR AMENDED SOIL. AMENDED SOIL TO FULLY PASS A
1/2" SCREEN. PLANTING TOPSOIL (IMPORTED AND/OR
AMENDED), TO BE THOROUGHLY MIXED PRIOR TO
INSTALLING PLANTS.

STEP 4
INSTALL PLANT. INSTALL MULCH RING
OVER PLANT PIT TO A DEPTH OF 3" FOR
EACH PLANT INSTALLED.



CONSTRUCTION SEQUENCE:

STEP 1
ESTABLISH SUBGRADE
9" BELOW FINISH GRADE

STEP 2
INSTALL PLANT.

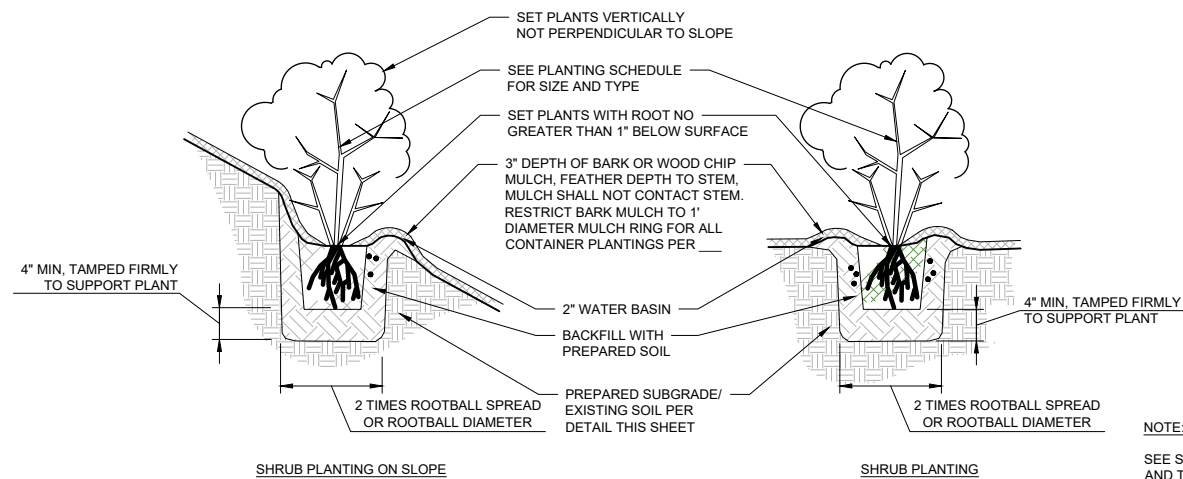
STEP 3
PROVIDE 1' DIAMETER MULCH RINGS OF
BARK OR WOOD CHIP MULCH AT A 3" DEPTH
FOR EACH CONTAINER PLANT INSTALLED
FOLLOWING SEEDING.

1 SOIL PREPARATION TYPE 1

SCALE: NTS

2 SOIL PREPARATION TYPE 2

SCALE: NTS

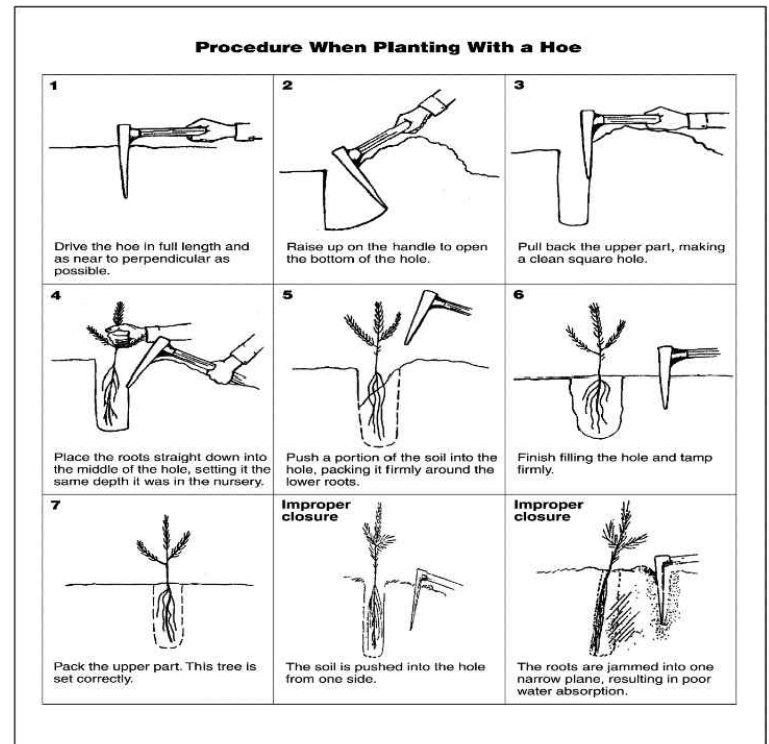


NOTE:

SEE SOIL PREPARATION DETAILS, THIS SHEET, FOR SUBGRADE
AND TOPSOIL PREPARATION REQUIREMENTS

3 SHRUB PLANTING

SCALE: NTS



4 HOE PLANTING PROCEDURE

SCALE: NTS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

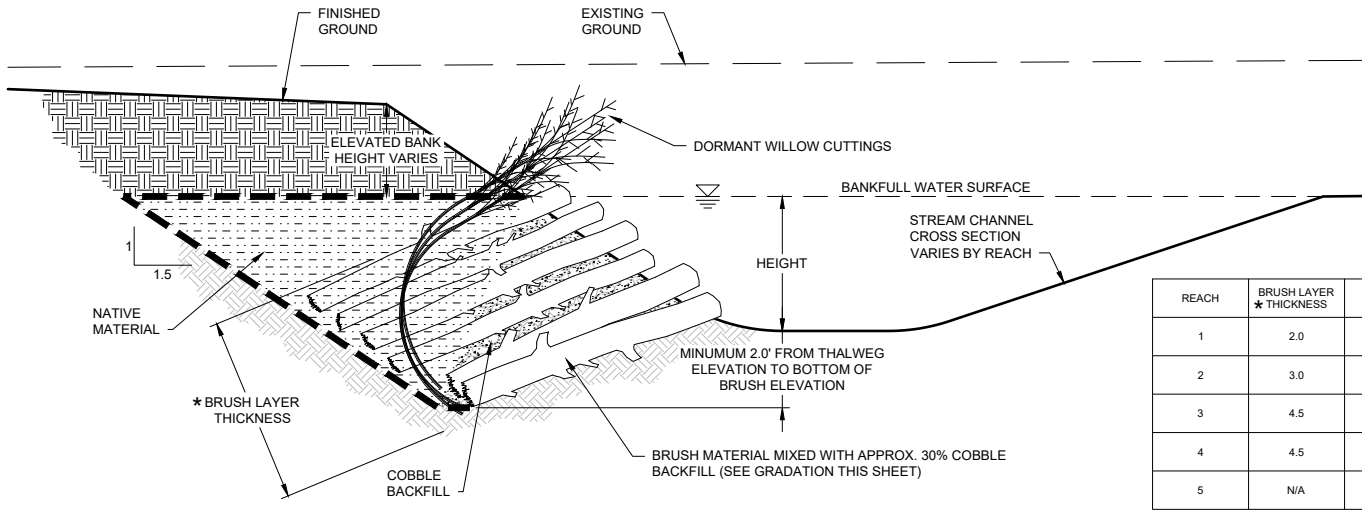
DESIGNER DM PROJ. NO. 7065.01
 DRAWN JW DATE 08/01/2024
 CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

G. REVEGETATION PLAN
PLANTING DETAILS

SHEET
OF
G.3 G.3



1
-
BRUSH MATRIX DETAIL
SCALE: NTS

NOTES:

- BRUSH FOR MATRIX SHALL BE SORTED AND/OR CUT BY CONTRACTOR TO MEET THE FOLLOWING:
 - LENGTH = 6.5' - 8.0'
 - MID STEM DIAMETER = 2" - 6"
 - NO CRACKS OR ROTTING OR OTHER STRUCTURAL DEFECTS ON THE STEM.
- BRUSH MATRIX MATERIAL SHALL BE PLACED AND PRESSED INTO PLACE WITH A BACKHOE BUCKET TO ASSURE A DENSE COMPACT SECTION.
- WILLOW CUTTINGS TO BE HARVESTED FROM DORMANT, LIVE WILLOWS. MINIMUM LENGTH IS 8'. DIAMETER BETWEEN 0.5" AND 1.5" WITH SMOOTH BARK. TRIM ALL SIDE BRANCHES SO THE CUTTING IS A SINGLE STEM. HARVEST NO MORE THAN 1/3 OF ANY INDIVIDUAL PLANT. SELECT BRANCHES THAT WILL NOT IMPAIR THE SOURCE WILLOW'S HEALTH. REMOVE APICAL BUD (BUD AT TIP OF BRANCH) AND SEVERAL INCHES OFF OF THE CUTTING. SUBMERGE WILLOWS IN WATER FOR A MINIMUM OF 24 HOURS PRIOR TO INSTALLATION. WILLOW CUTTINGS TO BE PLACED WITHIN 72 HOURS OF CUTTING. IF LONGER THAN 72 HOURS, STORE WILLOW CUTTINGS UP TO 6 MONTHS IN DARK, COOL (33°-36° F) AND MOIST (60-70% HUMIDITY) LOCATIONS PROTECTED FROM WIND AND SUN. REMOVE MOLDY, DRIED, OR SPROUTED CUTTINGS PRIOR TOP PLANTING.
- DORMANT WILLOW CUTTINGS TO BE PLACED ON TOP OF AND BEHIND BRUSH MATRIX WITH BUTT ENDS PLACED AT BOTTOM OF TRENCH. EXPOSED PORTION OF CUTTINGS SHALL BE 0.5' - 2.0' ABOVE LOCAL FINISHED GROUND ELEVATION WITH 3 CUTTINGS PER LINEAL FOOT.
- COBBLE BACKFILL FOR BRUSH MATRIX SHALL BE PLACED AND MECHANICALLY WORKED INTO ALL VOIDS. CONTRACTOR SHALL ALSO PROVIDE WATER SOURCE TO WASH BACKFILL MATERIAL INTO VOIDS UNTIL NO LOSS OF MATERIAL INTO VOIDS IS VISUALLY OBSERVED.
- BACKFILL FULL DEPTH OVER BRUSH MATRIX LAYER AND WILLOW CUTTINGS WITH SPECIFIED COBBLE BACKFILL (SEE GRADATION THIS SHEET).

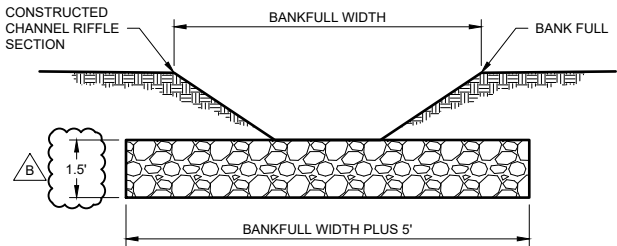
REACH	BRUSH LAYER ★ THICKNESS	HEIGHT
1	2.0	2.4
2	3.0	3.2
3	4.5	4.9
4	4.5	4.9
5	N/A	N/A

COBBLE BACKFILL GRADATION	
SIZE	% SMALLER DIA.
6"	90%
4"	50%
2"	20%
1"	<10%

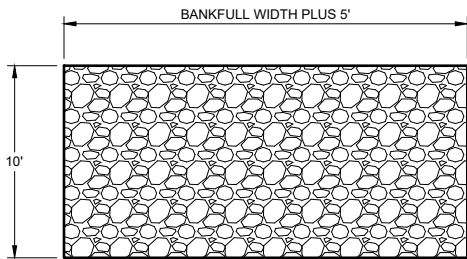
BRUSH MATRIX BANK TREATMENT			
REACH	START STATION	END STATION	OFFSET**
REACH 1	100+00	100+85.08	RIGHT
	101+08.25	102+49.13	LEFT
	103+11.73	104+05.03	RIGHT
	104+62.83	105+50.97	RIGHT
	105+56.95	106+50.75	LEFT
	106+81.32	107+32.45	LEFT
	107+32.45	107+92.38	RIGHT
REACH 2	200+00	200+64.74	RIGHT
	200+81.10	202+39.04	LEFT
	203+11.82	204+63.13	RIGHT
	204+71.36	206+19.89	LEFT
	206+28.07	206+73.07	RIGHT
	208+13.07	208+62.12	RIGHT
	208+70.30	209+95.64	LEFT
	210+22.52	212+03.35	RIGHT
	212+13.01	213+66.87	LEFT
	214+03.30	215+22.27	RIGHT
	215+72.36	216+75.81	LEFT
	217+18.23	217+61.53	LEFT
	217+77.01	218+64.90	RIGHT

BRUSH MATRIX BANK TREATMENT			
REACH	START STATION	END STATION	OFFSET**
REACH 3	300+00	300+55.85	LEFT
	300+79.80	302+34.30	RIGHT
	302+89.89	304+32.06	LEFT
	304+33.39	305+99.75	RIGHT
	306+02.12	307+25.31	LEFT
	307+77.16	309+31.43	RIGHT
	309+33.47	310+90.81	LEFT
	310+93.88	312+00.13	RIGHT
	312+74.26	313+43.90	RIGHT
	313+50.91	315+09.14	LEFT
	315+11.13	316+93.01	RIGHT
REACH 4	400+54.06	402+16.76	RIGHT

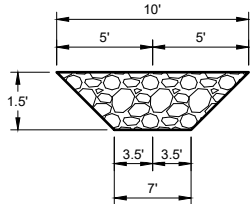
**LEFT AND RIGHT REFERENCES OUTSIDE OF MEANDERING WHILE FACING UPSTREAM.



ELEVATION VIEW

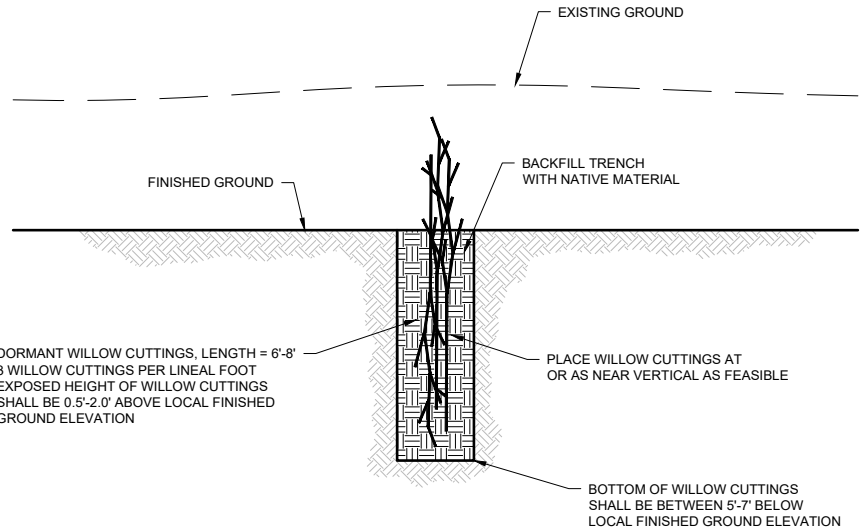


PLAN VIEW



SECTION VIEW

GRADATION COBBLE PATCH ROCK	
SIZE	% PASSING
12"	100%
9"	60-100
6"	35-50
3"	10-35
1.5"	0-25

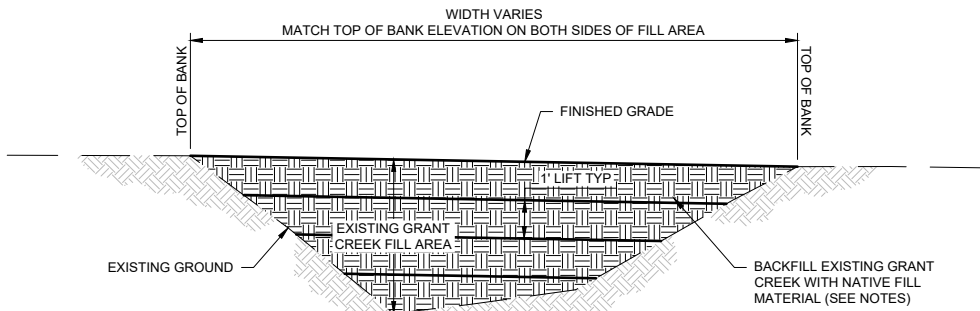


NOTES:

- OWNER'S REPRESENTATIVE MAY DIRECT CONTRACTOR TO PLACE WILLOW TRENCH AT SPECIFIC LOCATIONS AND/OR DEPTHS WITHIN THE RANGES SHOWN ON THE DETAILS OR PLANS.

2
-
WILLOW TRENCH TREATMENT
SCALE: NTS

3
-
COBBLE PATCH DETAIL
SCALE: NTS



NOTES:

- FILL EXISTING GRANT CREEK APPROXIMATELY 450 LINEAL FEET FROM EDGE OF NEW FLOODPLAIN TO AIRPORT PROPERTY LINE.
- EXISTING GRANT CREEK TO BE FILLED USING NATIVE MATERIAL GENERATED FROM NEW FLOODPLAIN AND CHANNEL EXCAVATION.
- ALL FILL MATERIAL IS TO BE COMPACTED USING TRACKED EQUIPMENT WITH NO LESS THAN THREE PASSES OVER AREA TO BE COMPACTED. FILL MATERIAL TO BE PLACED IN 1-FOOT LIFTS.
 - ESTIMATED FILL QUANTITY = 3122 CUBIC YARDS

EXISTING GRANT CREEK FILL-IN

AIRPORT PROPERTY - TYPICAL CROSS-SECTION
SCALE: NTS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
B	02/12/2025	ADDENDUM #3

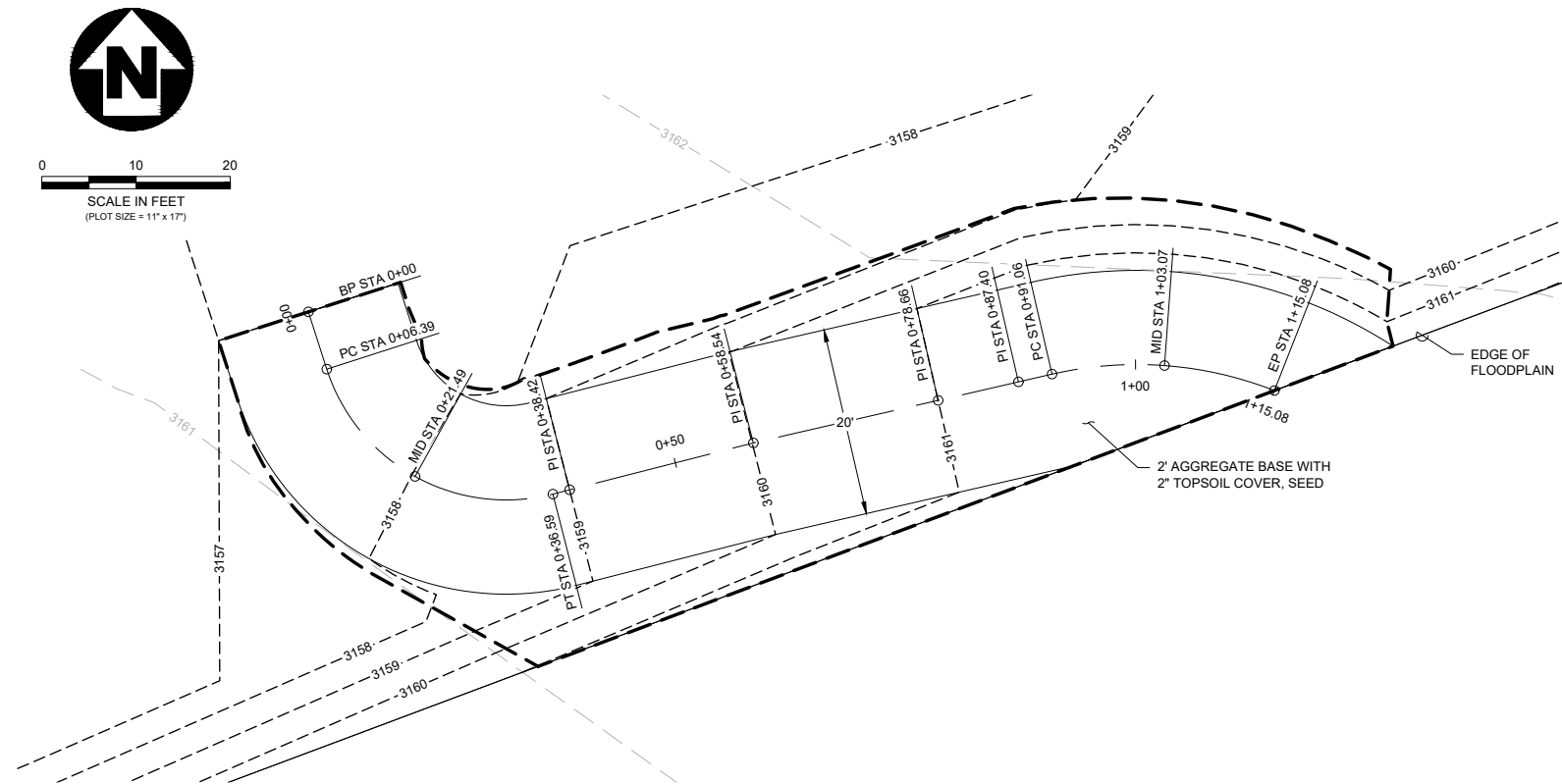
DESIGNER	DM	PROJ. NO.	7065.01
DRAWN	JW	DATE	08/01/2024
CHECKED	DM	SURVEYED	DJ&A, P.C.



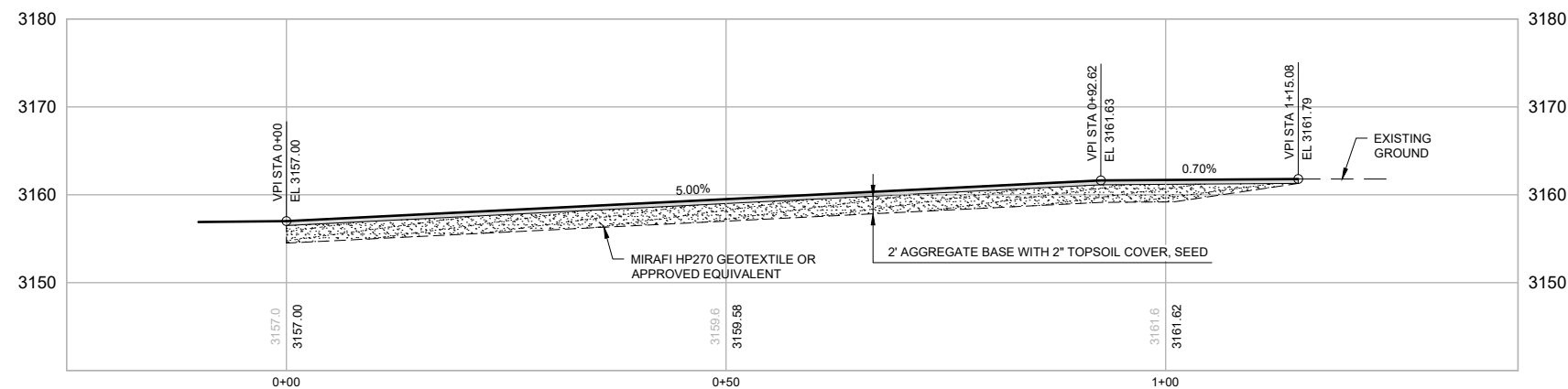
GRANT CREEK
RFC PLANS

H. CONSTRUCTION DETAILS
CONSTRUCTION DETAILS (1 OF 2)

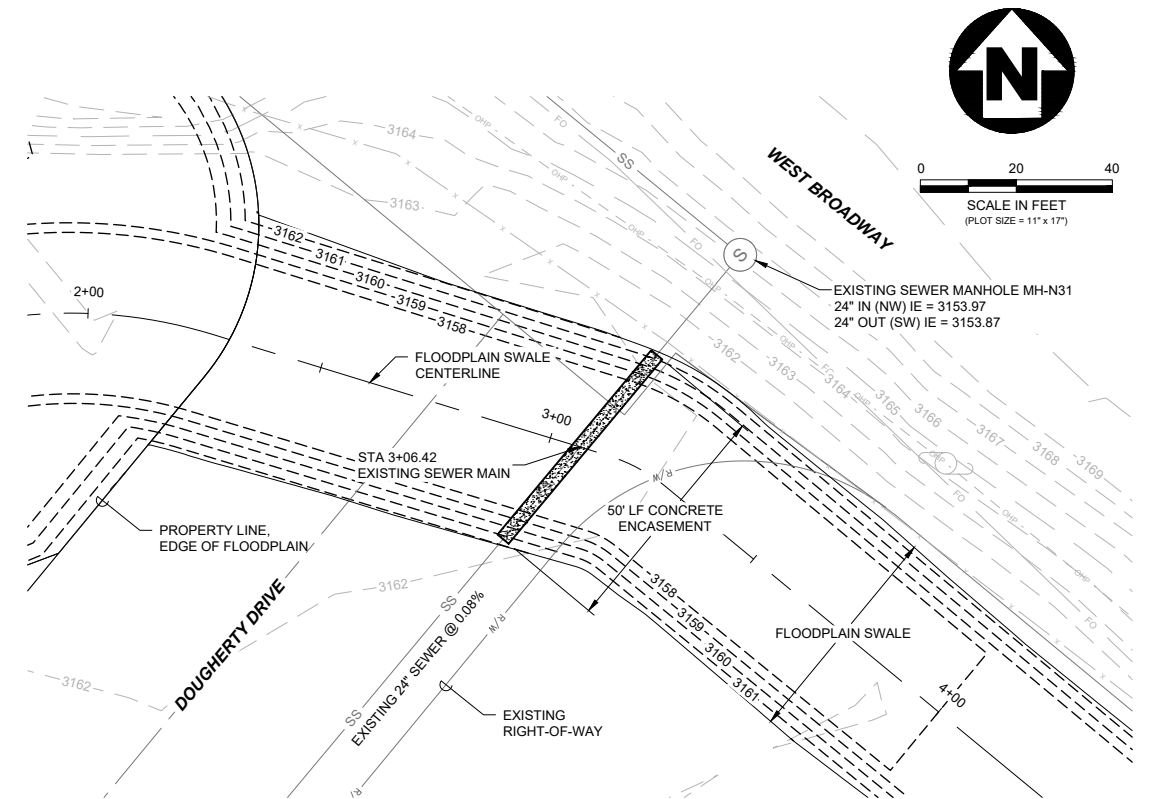
SHEET OF	
H.1	H.2



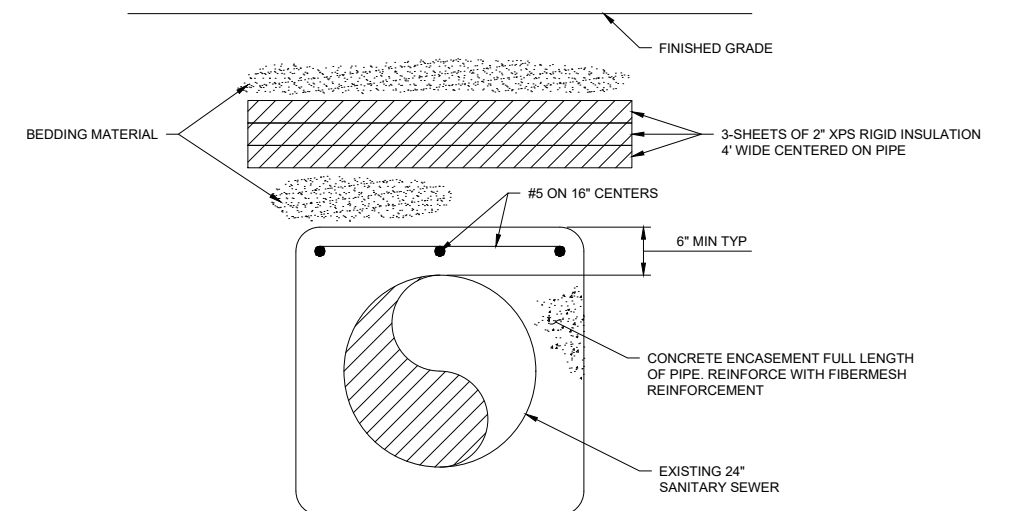
1 ACCESS RAMP PLAN VIEW
SCALE: 1" = 10'



A ACCESS RAMP PROFILE VIEW
SCALE: 1" = 10'



2 24" SANITARY SEWER
ENCASEMENT PLAN VIEW
SCALE: 1" = 20'



B 24" SANITARY SEWER
ENCASEMENT SECTION
SCALE: NTS

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

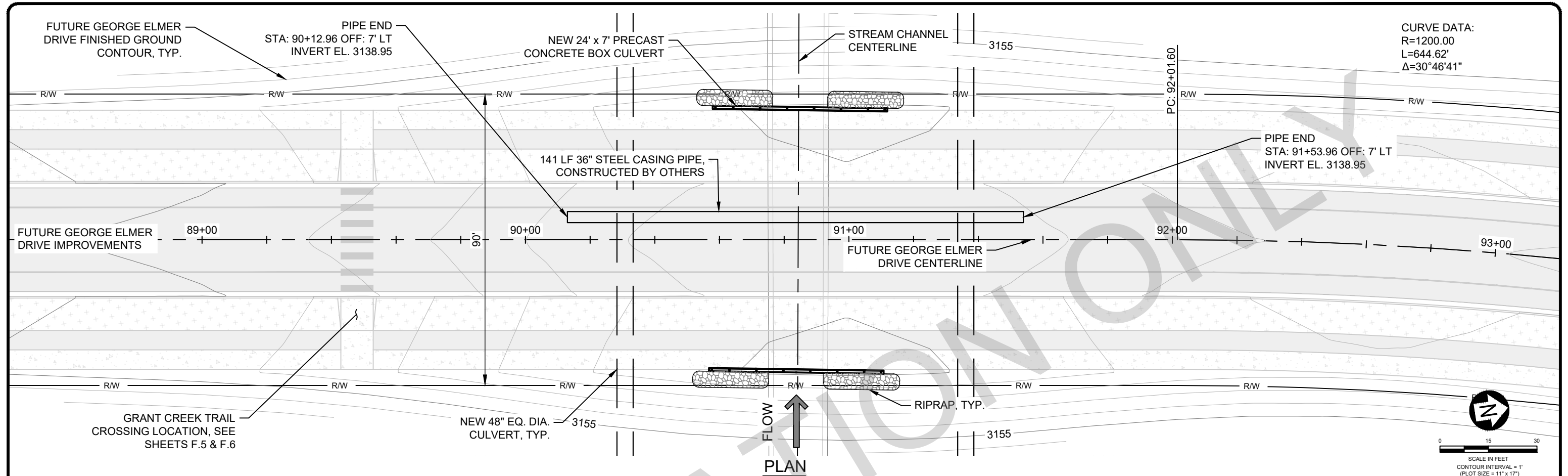
DESIGNER DM PROJ. NO. 7065.01
 DRAWN JW DATE 08/01/2024
 CHECKED DM SURVEYED DJ&A, P.C.



GRANT CREEK
RFC PLANS

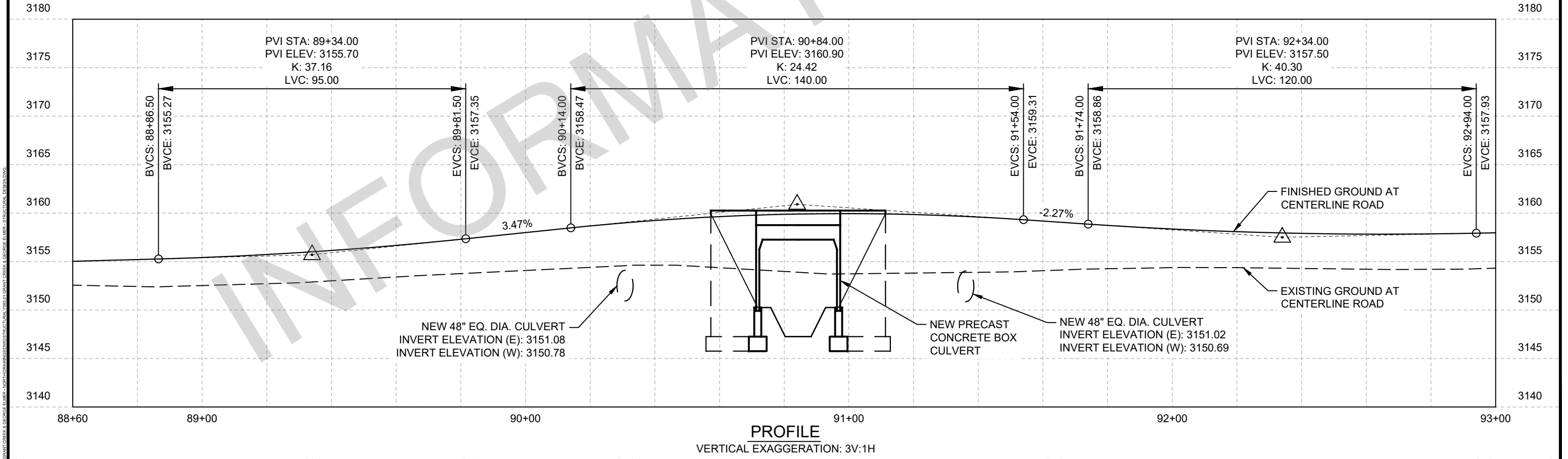
H. CONSTRUCTION DETAILS
CONSTRUCTION DETAILS (2 OF 2)

SHEET
OF
H.2 H.2



CURVE DATA:
R=1200.00
L=644.62'
Δ=30°46'41"

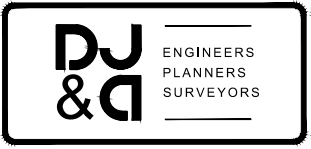
FLOW
↑
PLAN



PROFILE
VERTICAL EXAGGERATION: 3V:1H

REVISION	DATE	DESCRIPTION

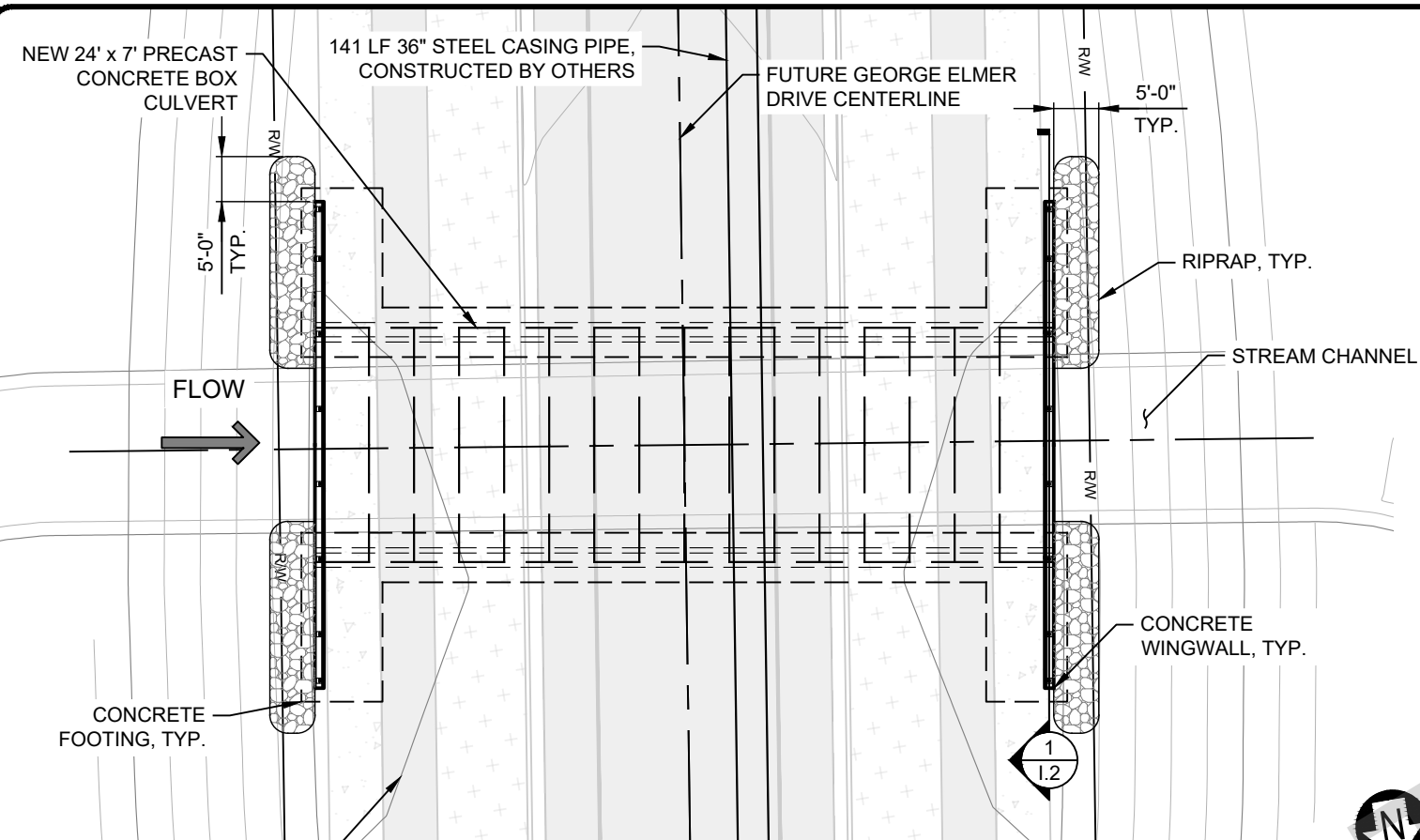
DESIGNER	AG	PROJ. NO.	7065.01
DRAWN	AG	DATE	2/20/25
CHECKED	DP	SURVEYED	DJ&A P.C.



GRANT CREEK
RFC PLANS
INFORMATION ONLY, TO BE CONSTRUCTED BY OTHERS

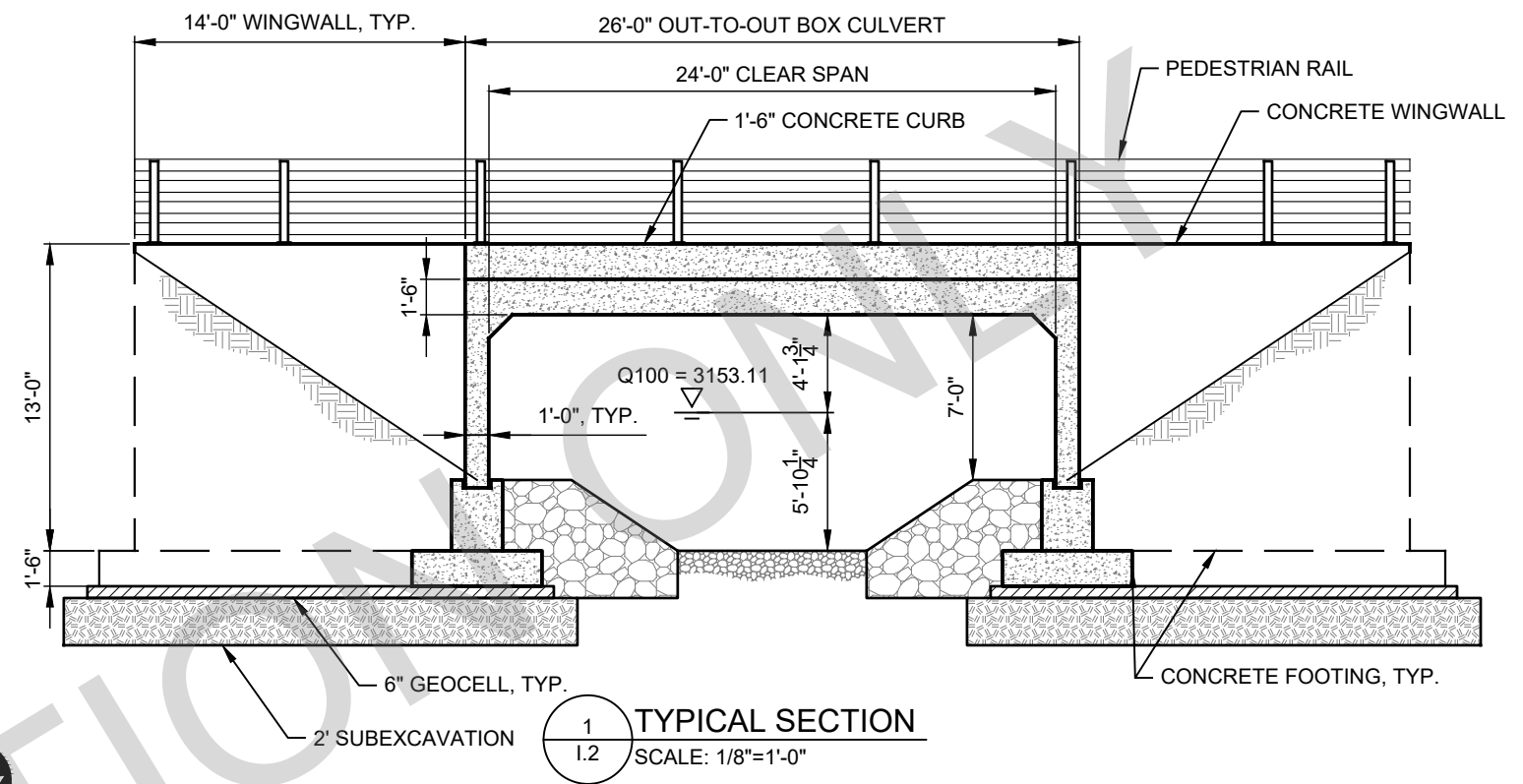
I. GRANT CREEK CROSSING
GEORGE ELMER DRIVE
ROAD PLAN & PROFILE

SHEET OF	1.1	1.2
-------------	-----	-----

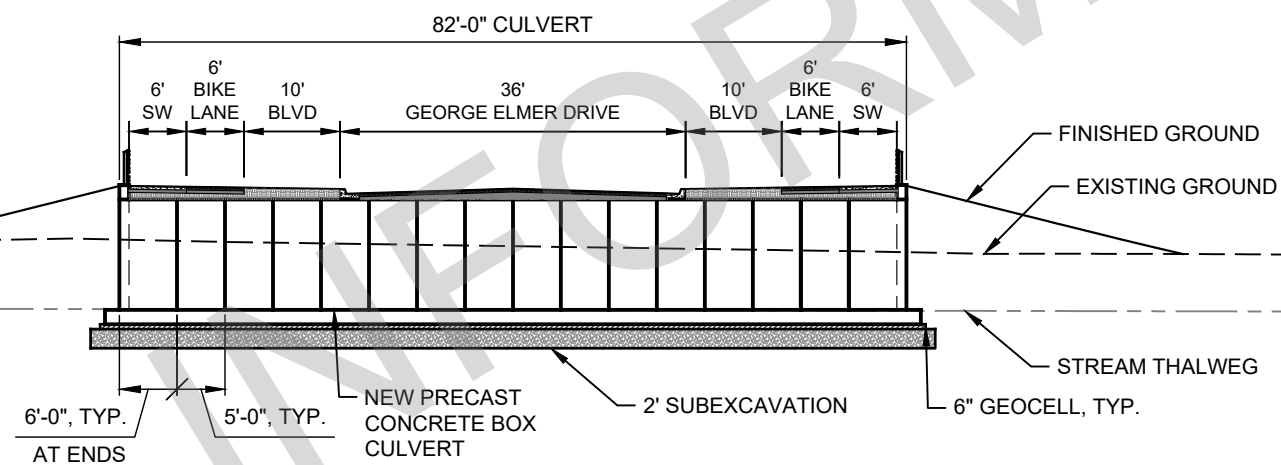
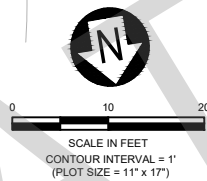


PLAN

FUTURE GEORGE ELMER DRIVE FINISHED GROUND CONTOUR, TYP.



1
1.2
TYPICAL SECTION
SCALE: 1/8"=1'-0"



PROFILE

HYDRAULICS:

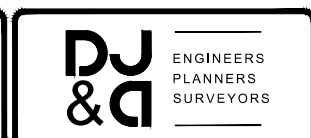
Q2 = 170 CFS & 3.39' DEPTH
Q100 = 629 CFS & 5.85' DEPTH

Q100 ELEV = 3153.11'

0017742 6164 BRADEN 1/2025.01 GRANT CREEK & GEORGE ELMER - NORTH DRAINAGE STRUCTURAL TOWNSHIP GRANT CREEK & GEORGE ELMER - STRUCTURAL DESIGN DWG.

REVISION	DATE	DESCRIPTION
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

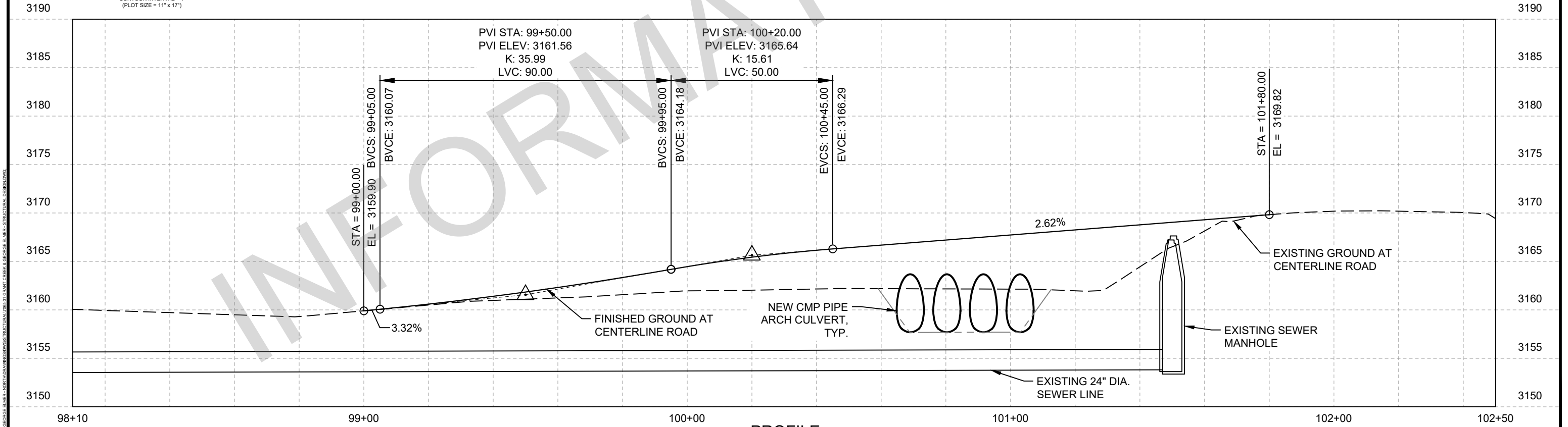
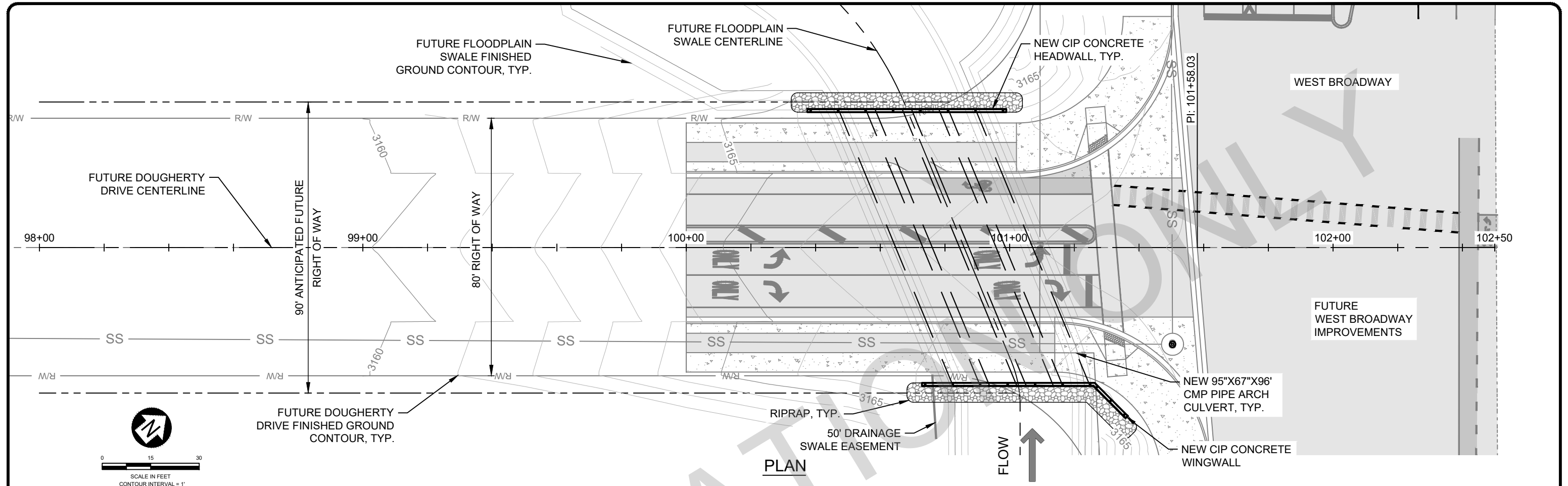
DESIGNER	AG	PROJ. NO.	7065.01
DRAWN	AG	DATE	2/2025
CHECKED	DP	SURVEYED	D&A P.C.



GRANT CREEK
RFC PLANS
INFORMATION ONLY, TO BE CONSTRUCTED BY OTHERS

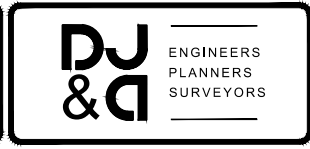
I. GRANT CREEK CROSSING
GEORGE ELMER DRIVE
CULVERT GENERAL LAYOUT

SHEET OF	1.2	1.2
-------------	-----	-----



REVISION	DATE	DESCRIPTION

DESIGNER	JL	PROJ. NO.	7065.01
DRAWN	JL	DATE	2/2025
CHECKED	AG	SURVEYED	DJ&A P.C.



GRANT CREEK
RFC PLANS
INFORMATION ONLY, TO BE CONSTRUCTED BY OTHERS

J. DOUGHERTY DRIVE CROSSING
ROAD PLAN & PROFILE

SHEET OF	J.1	J.2
----------	-----	-----

2/2025: 10-48 BROOKER & FORTS OF GRANT CREEK & GEORGE ELMER, NORTH DRAINAGE STRUCTURAL DESIGN, GRANT CREEK & GEORGE ELMER, STRUCTURAL DESIGN, DAVIS

