

MLDC Engineering Co.

Cedar Prairie Trail Bridge Replacement

Option 1: Western Trail Alignment

Waterloo, IA

Owner Contact Information:

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Tabulation of Length, Elevation, and Design Data

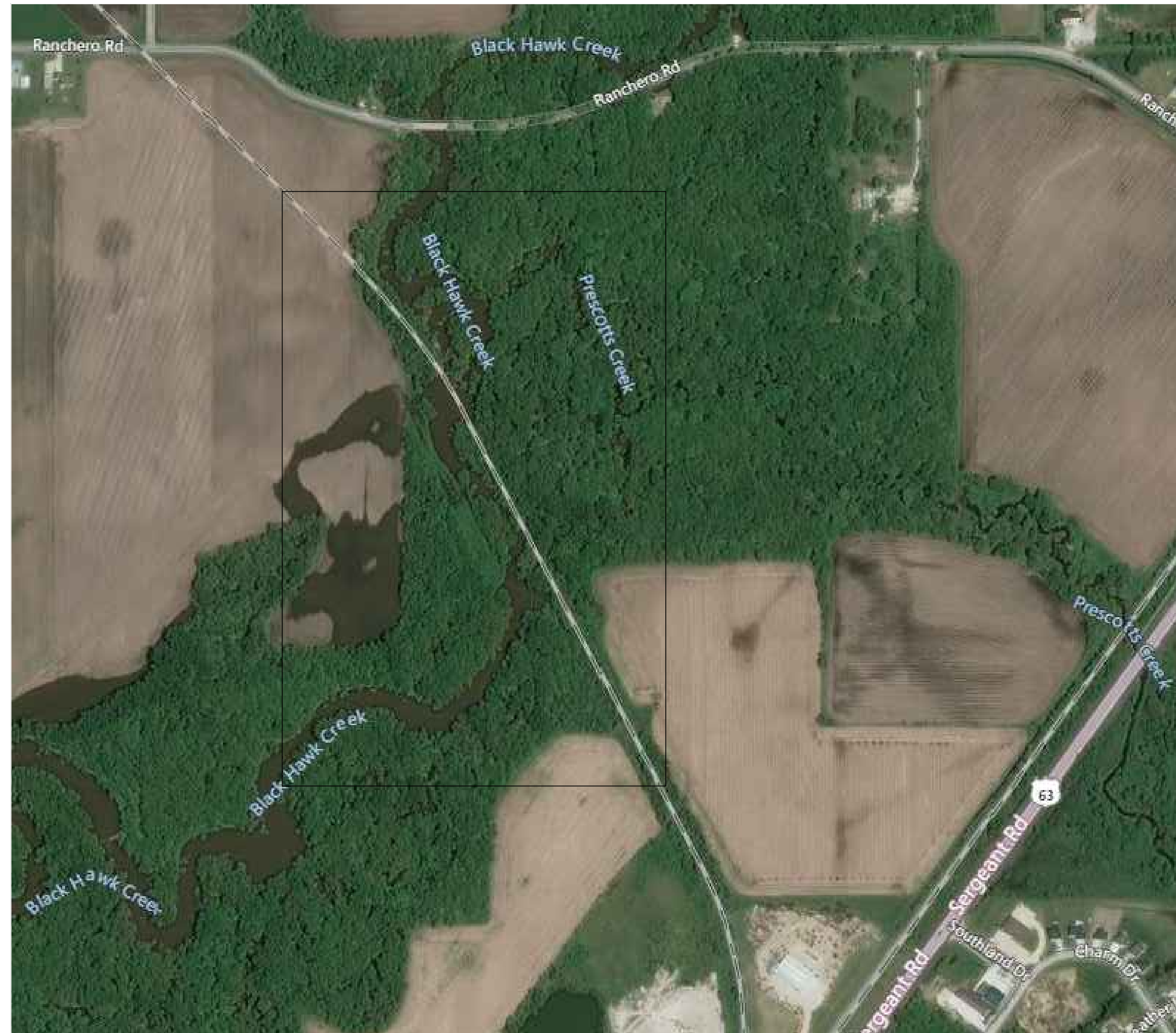
Length: 2393.34 ft = 0.46 miles

Elevation

start: 865.4 ft
 at bridge abutments: 862.0 ft
 end: 868.03 ft

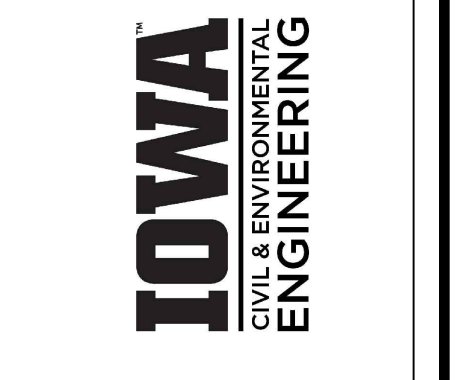
Design Data

minimum radius: 115 ft
 maximum grade: 5.00 %
 minimum sag K-value: 12
 minimum crest K-value: 26
 maximum design speed: 25 mph



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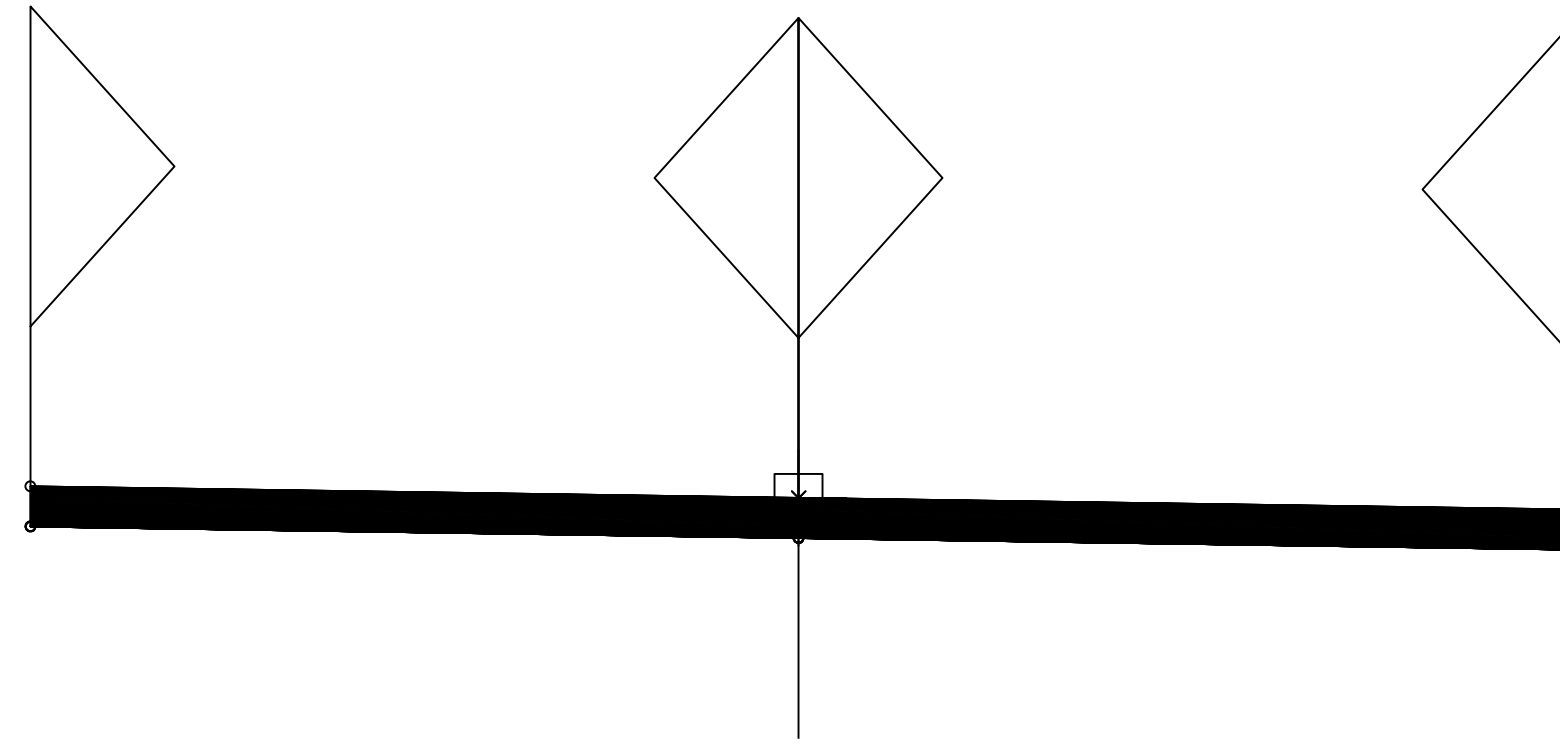
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BRIDGE REPLACEMENT

CEDAR PRAIRIE TRAIL
 WATERLOO, IA

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 TITLE SHEET

SHEET NO.
T-1



Pavement Cross Section

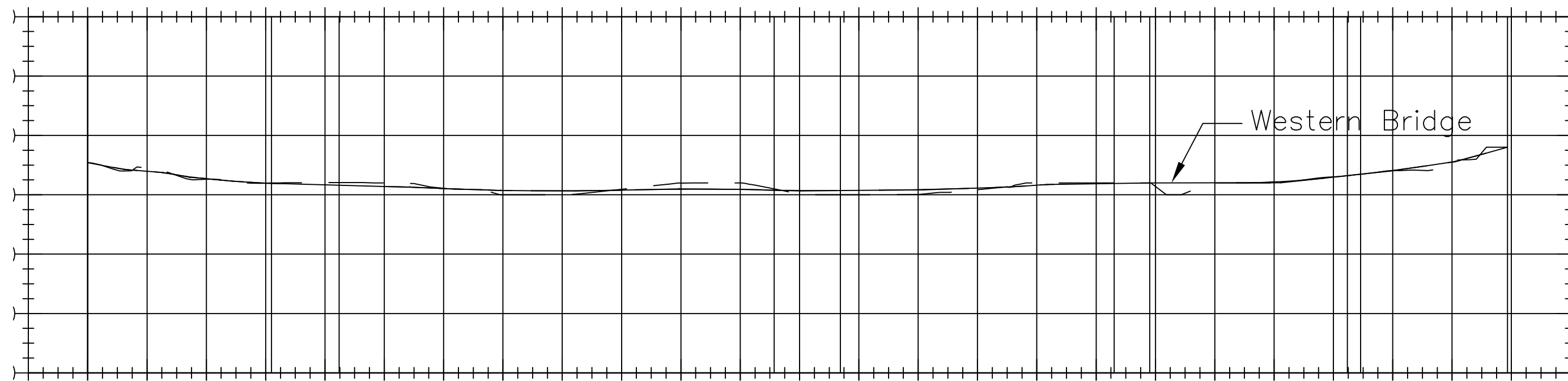
Trail Pavement Design

12 ft wide path – 5” asphalt

2 ft wide shoulders on either side – soil/grass

1.5% slope down toward Black Hawk Creek

*Notes: considering adding 6” subgrade below asphalt



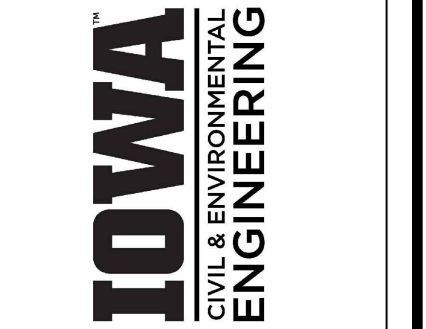
Vertical Alignment



Horizontal Alignment

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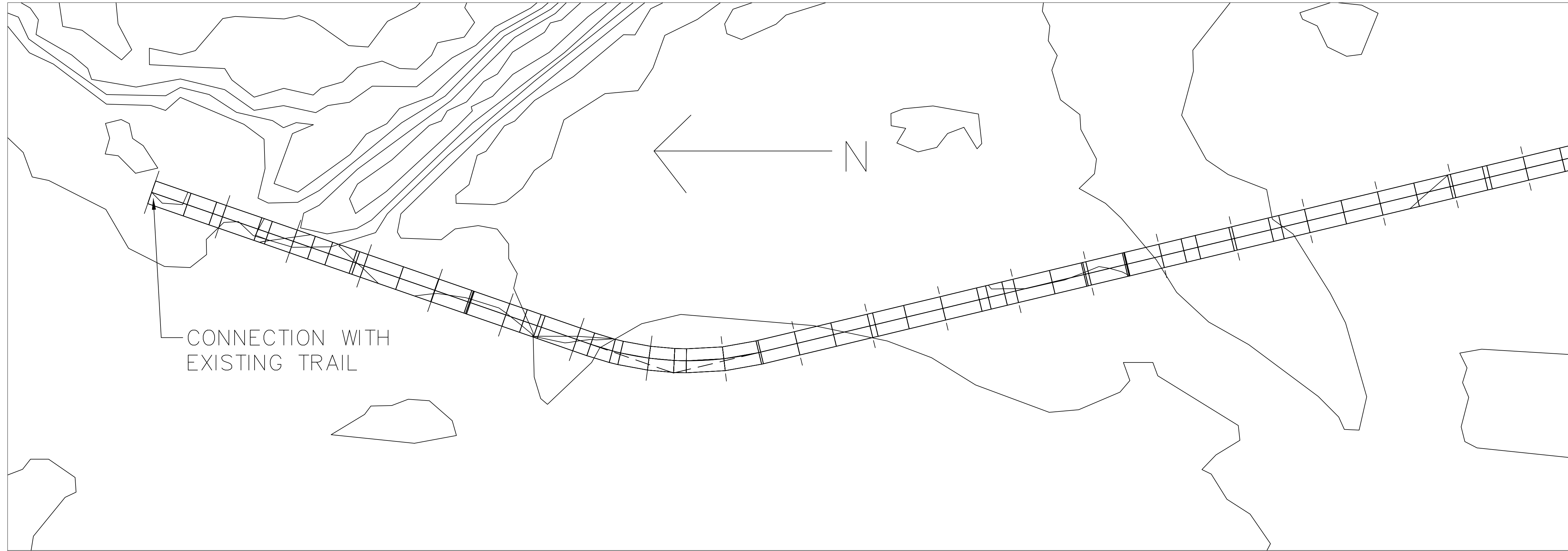


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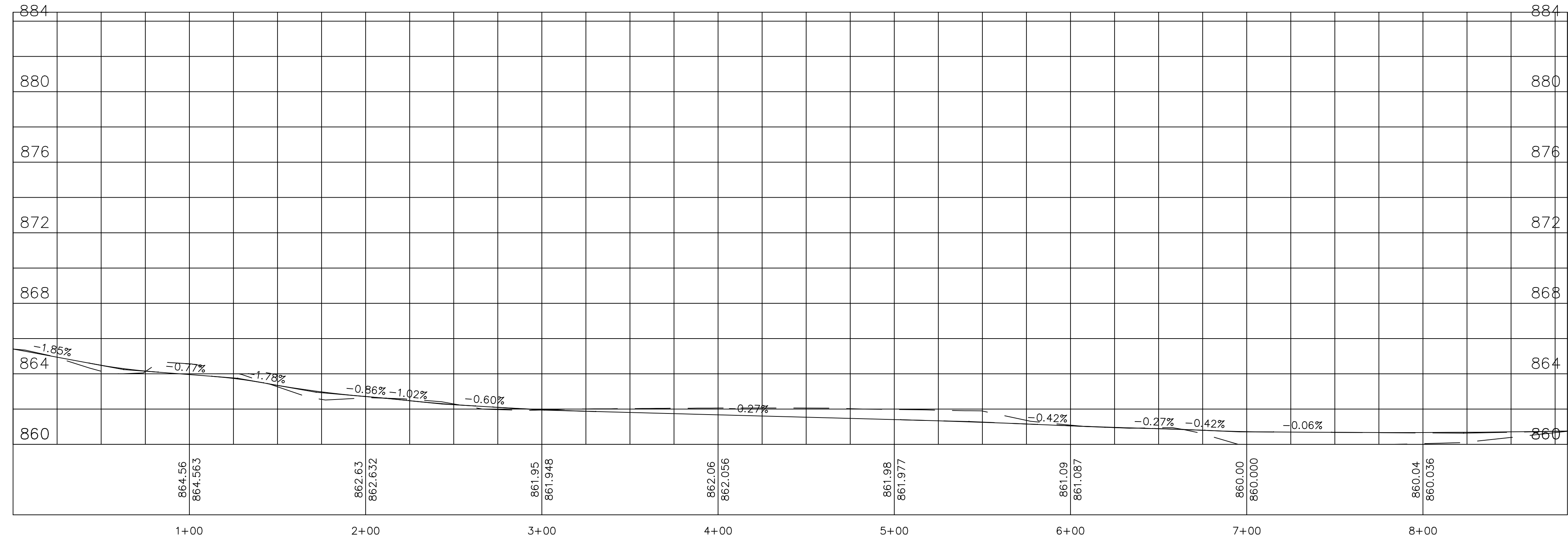
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 DESIGN OVERVIEW

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1



horizontal alignment PROFILE



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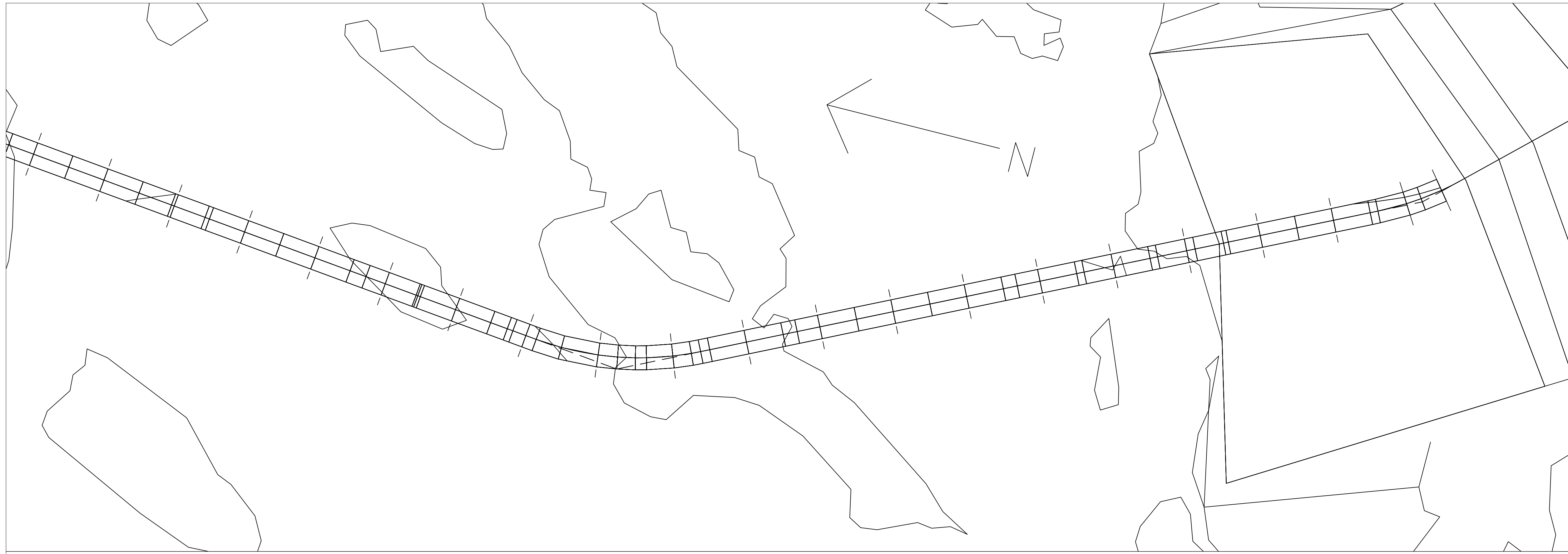
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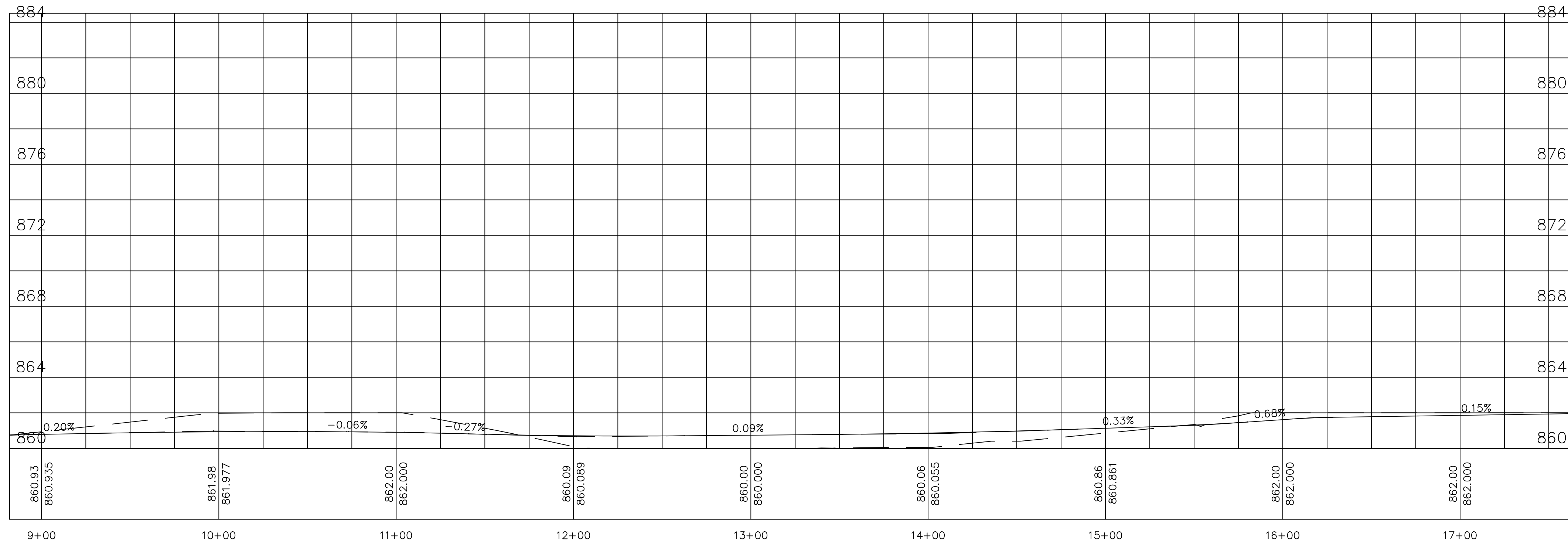
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 PLAN & PROFILE 1

SHEET NO.
2



horizontal alignment PROFILE



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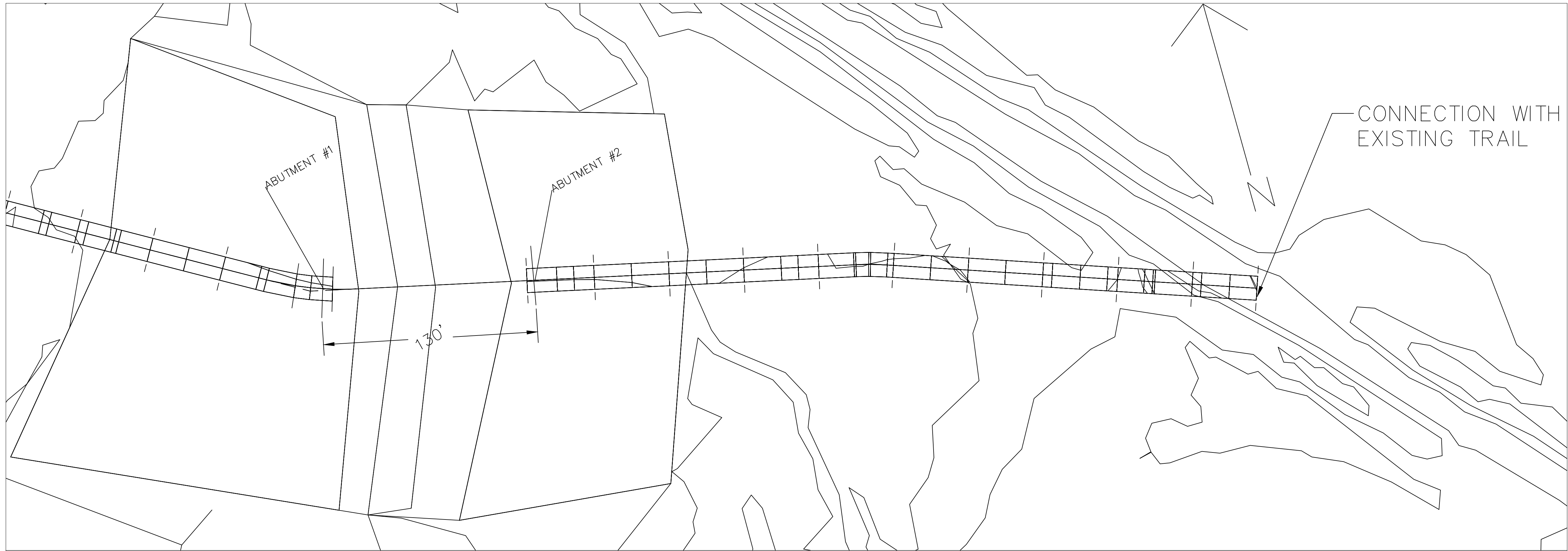
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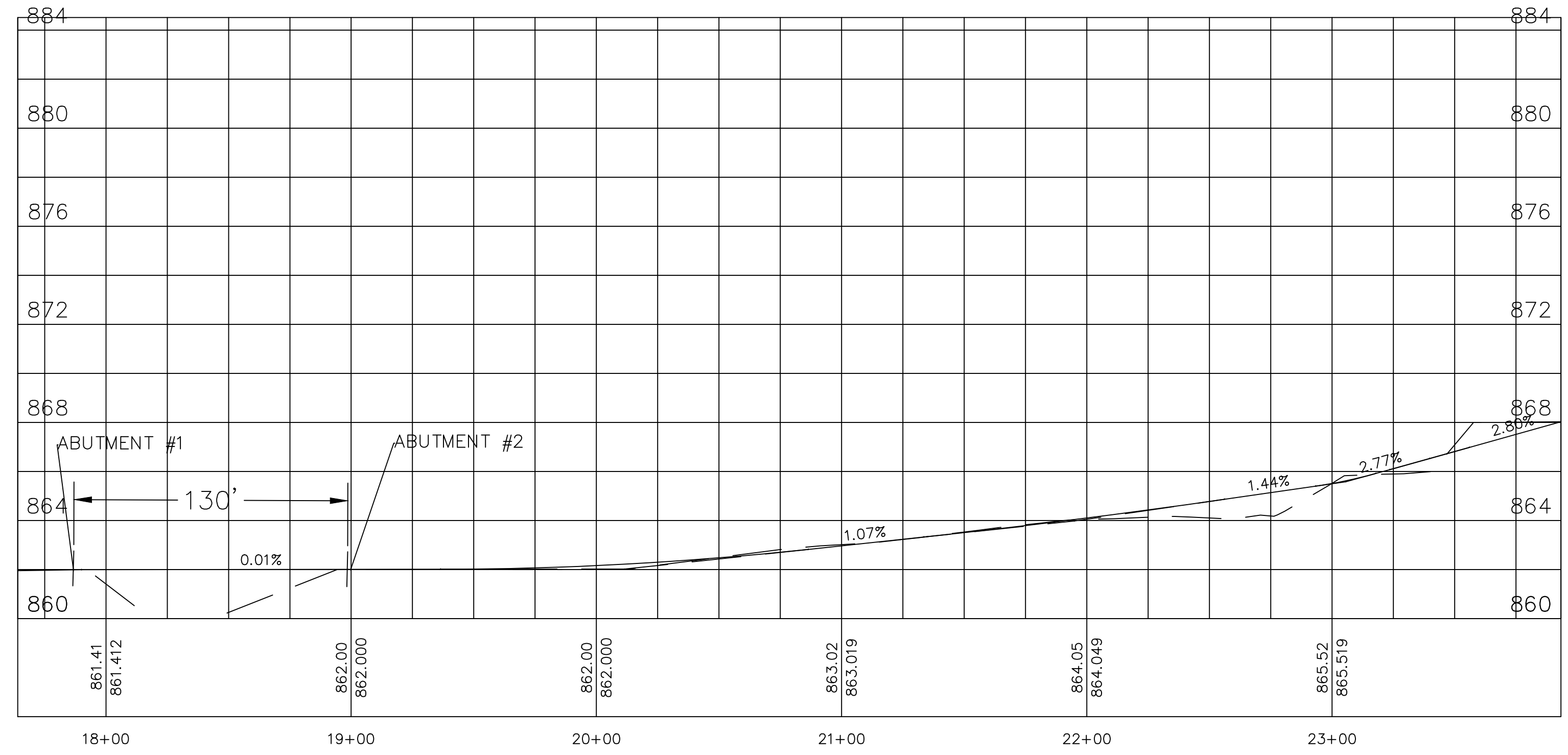
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 PLAN & PROFILE 2

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3



horizontal alignment PROFILE



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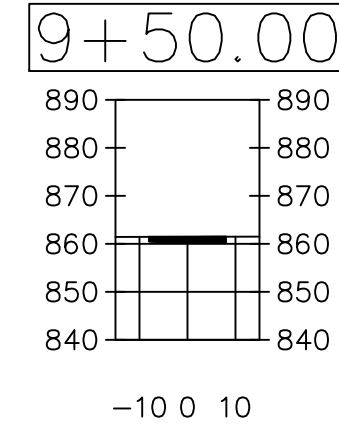
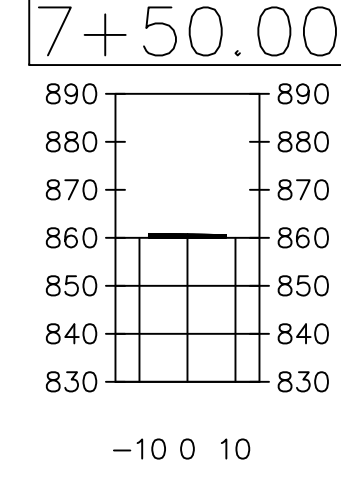
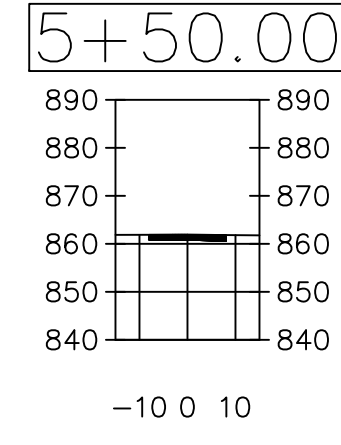
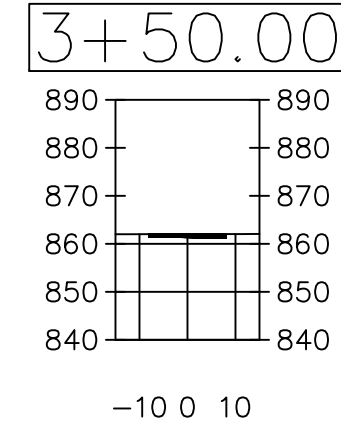
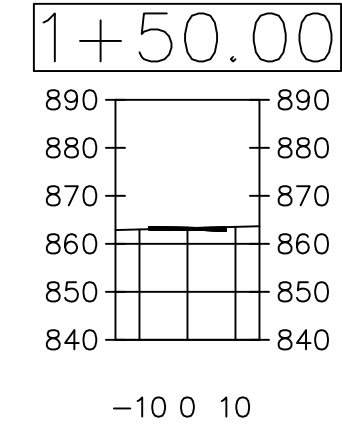
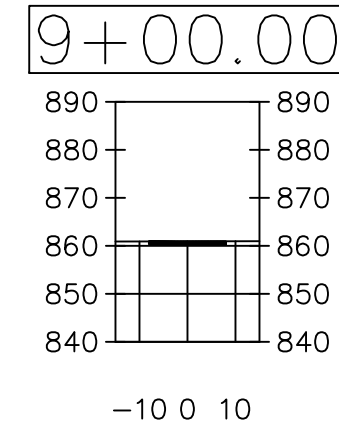
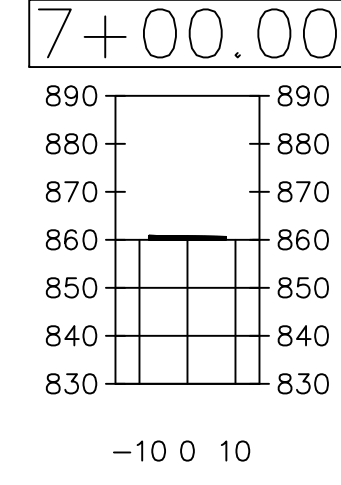
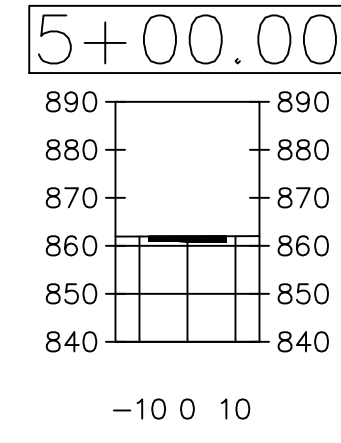
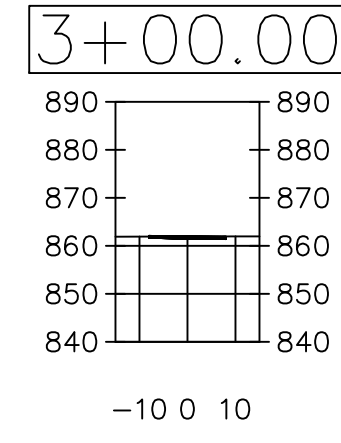
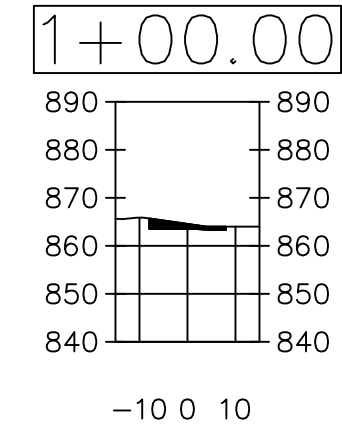
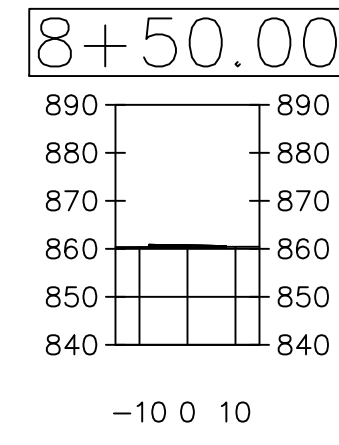
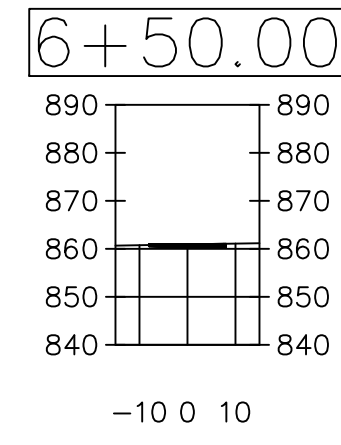
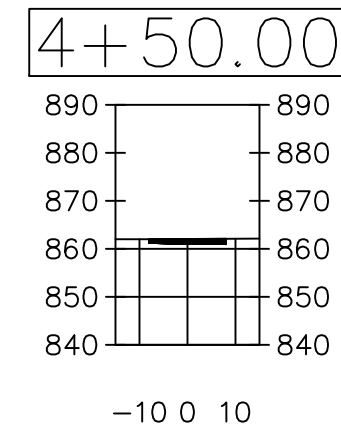
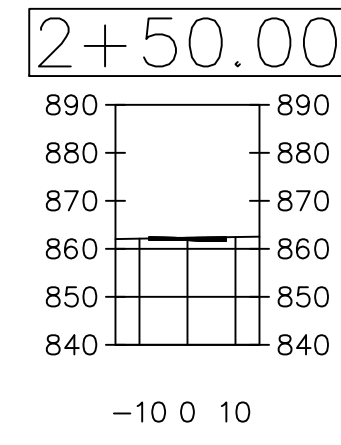
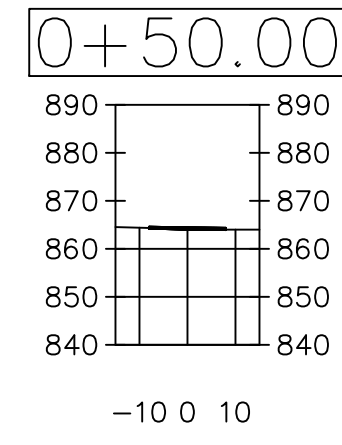
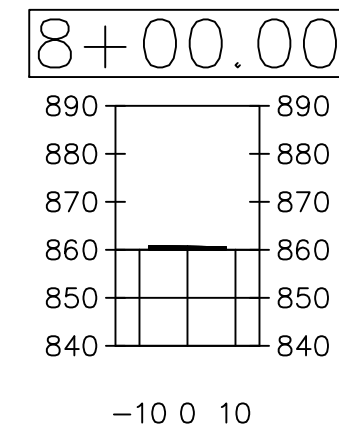
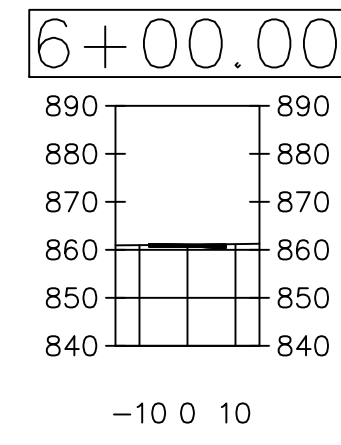
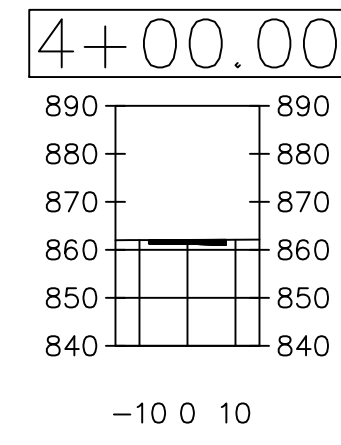
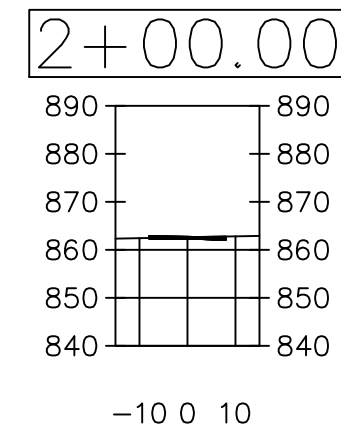
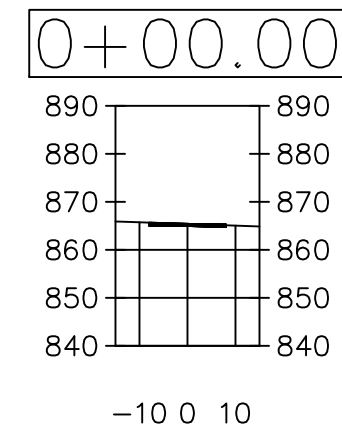
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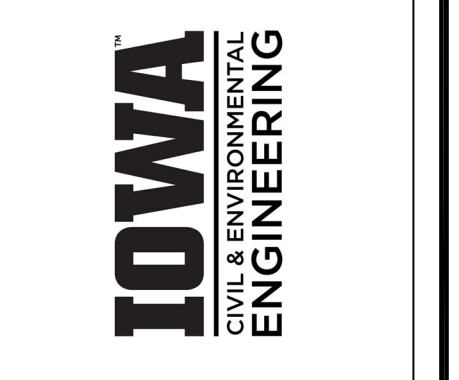
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4



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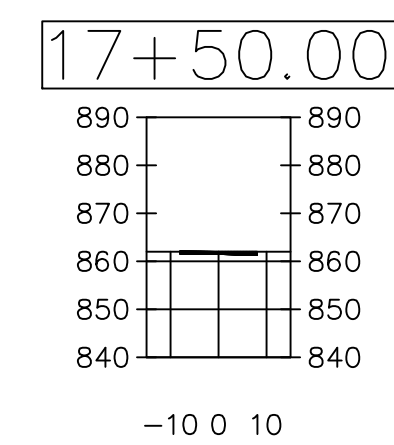
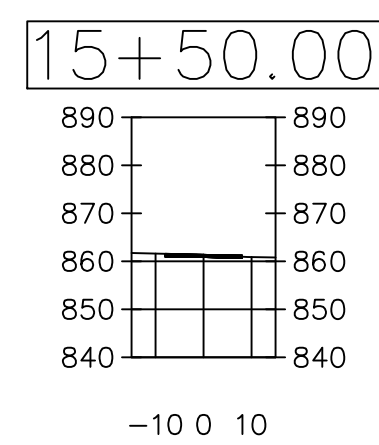
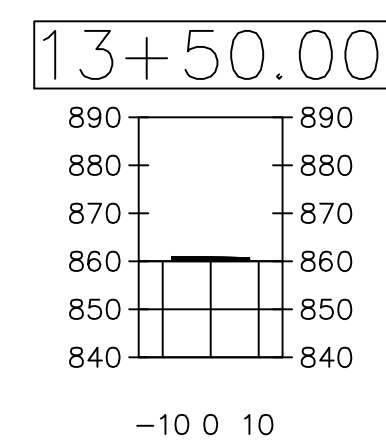
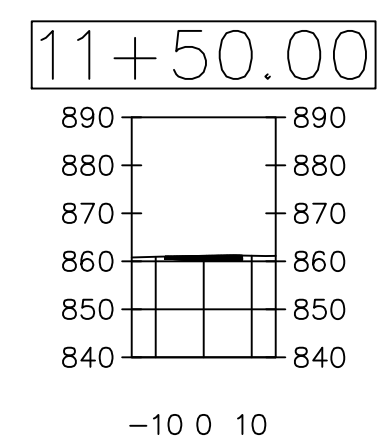
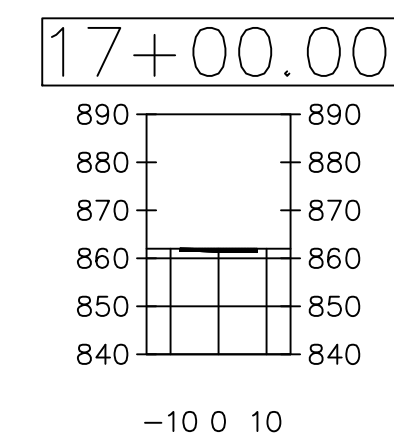
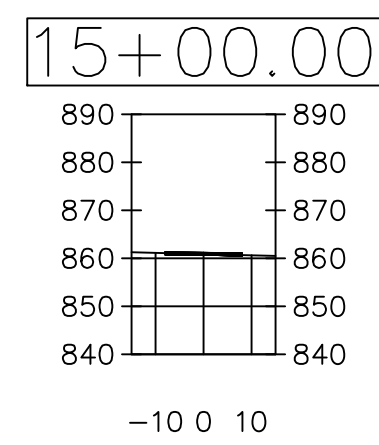
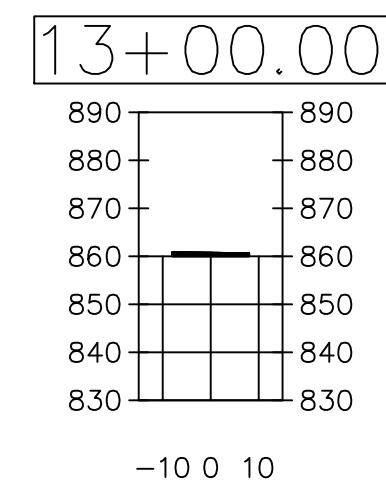
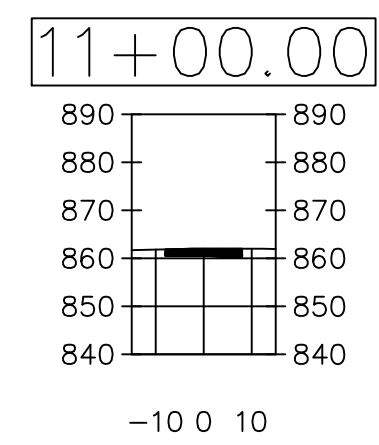
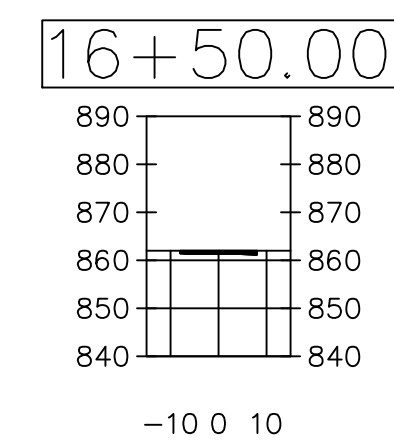
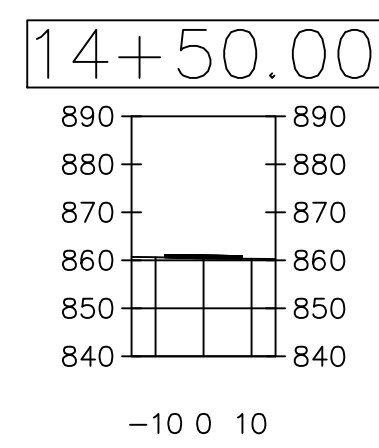
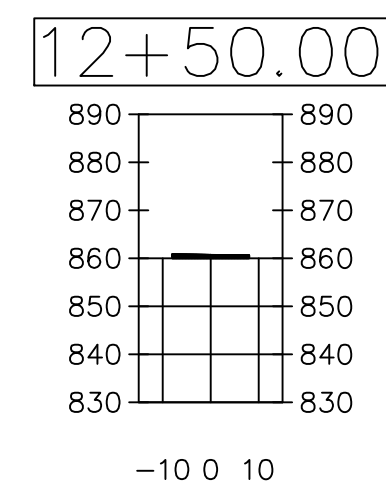
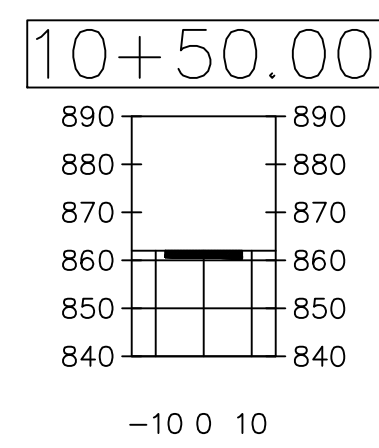
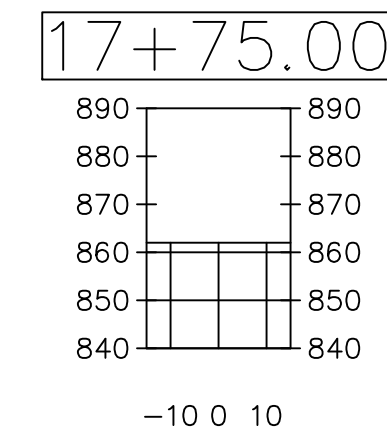
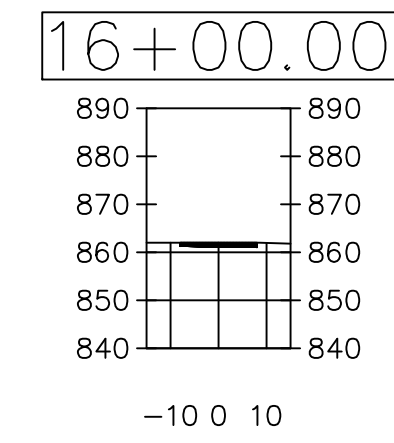
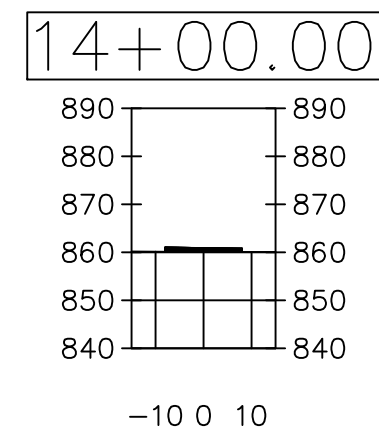
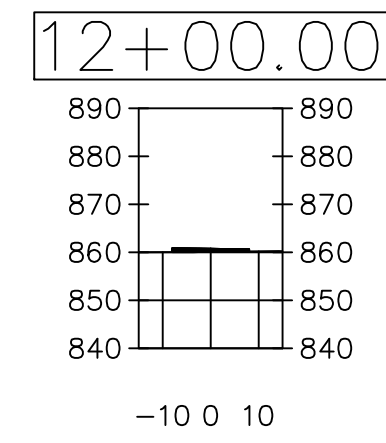
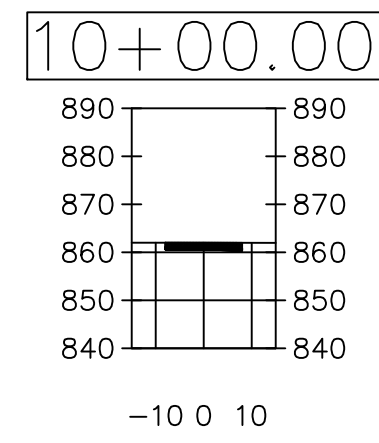


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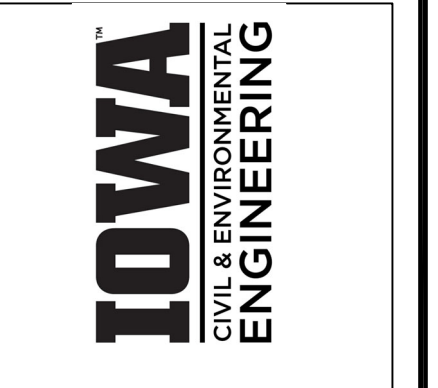
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 CROSS SECTIONS 1

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5



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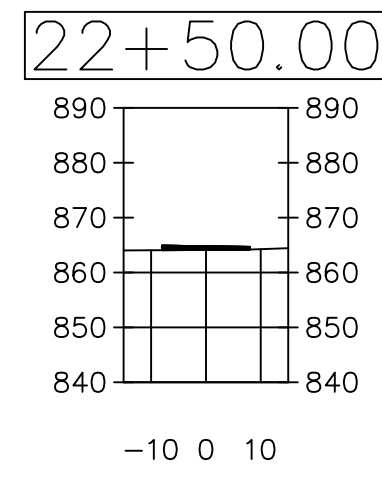
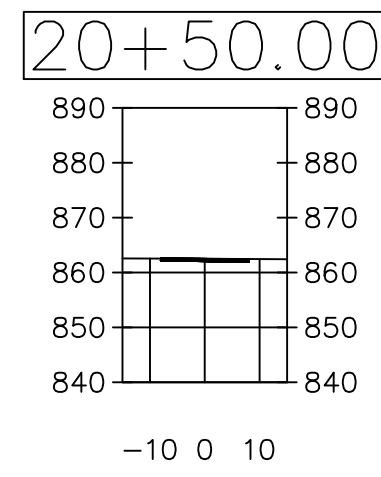
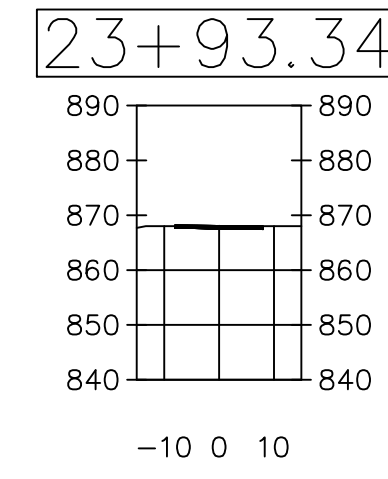
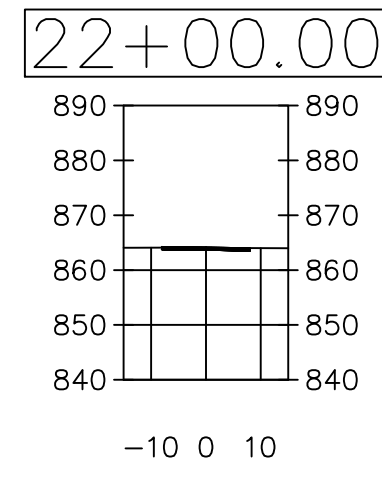
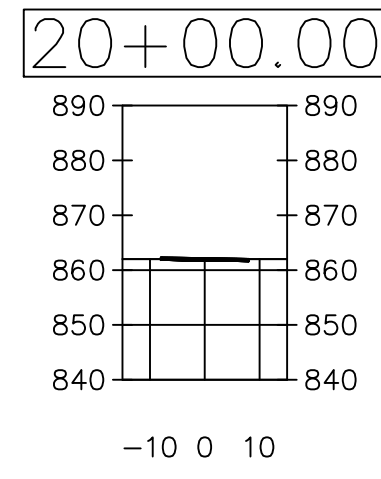
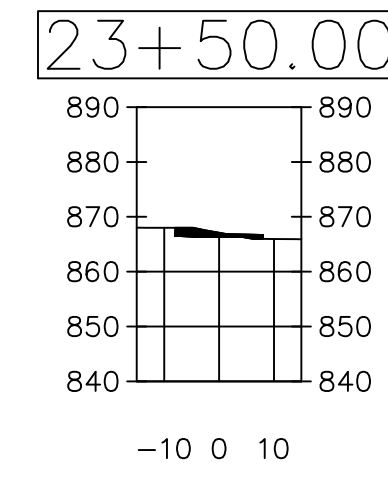
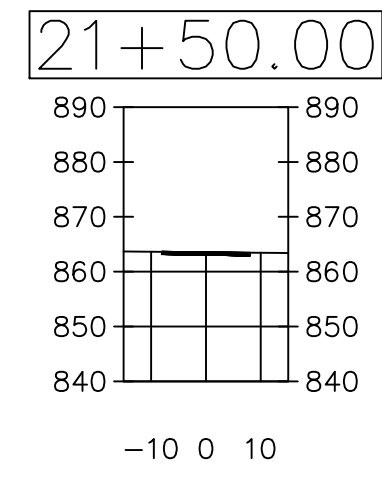
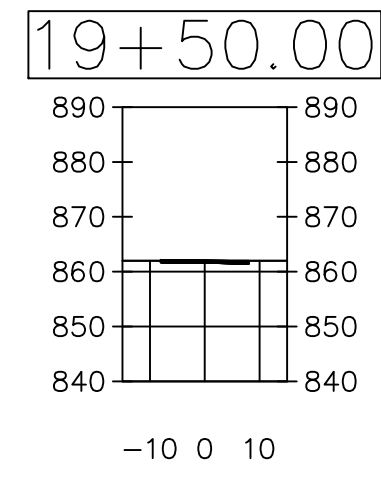
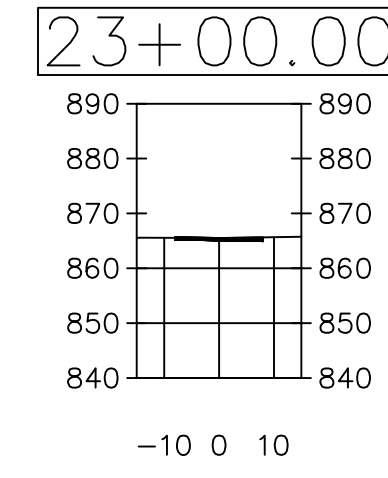
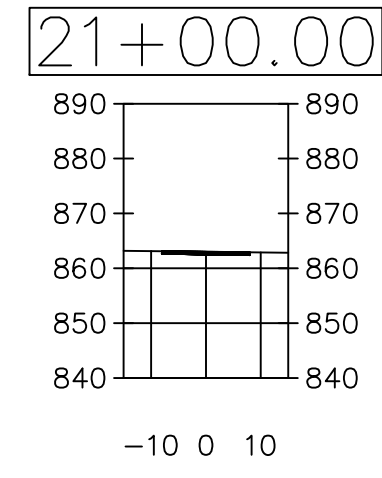
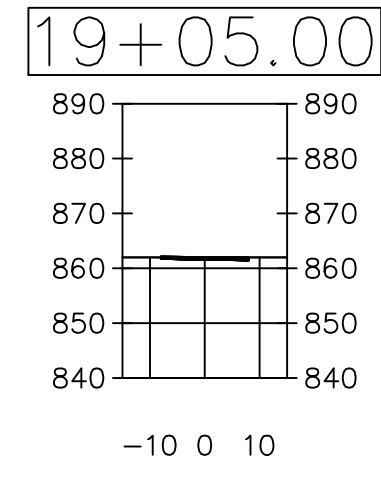


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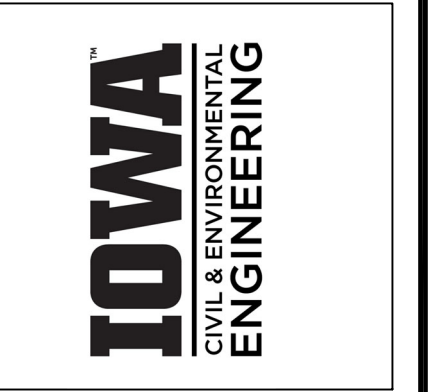
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 CROSS SECTIONS 2

SHEET NO.
6



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 CROSS SECTIONS 3

SHEET NO.
7

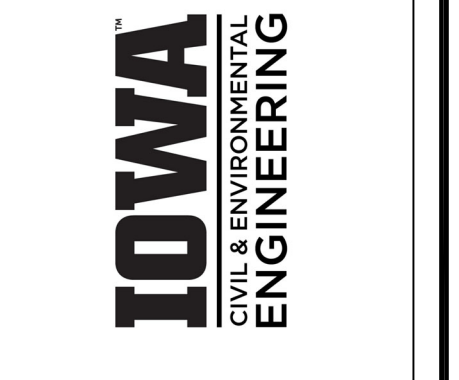
Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	0.65	0.65	0.00	0.00	0.00	0.00
0+50.00	5.30	0.00	5.51	0.60	5.51	0.60
1+00.00	0.00	10.96	4.91	10.15	10.42	10.75
1+50.00	2.04	0.77	1.89	10.87	12.31	21.62
2+00.00	1.76	0.53	3.52	1.21	15.82	22.82
2+50.00	0.73	1.34	2.31	1.73	18.13	24.55
3+00.00	0.64	0.35	1.28	1.56	19.41	26.11
3+50.00	0.00	3.50	0.58	3.59	19.99	29.70
4+00.00	0.00	6.19	0.00	9.03	19.99	38.73
4+50.00	0.00	8.27	0.00	13.42	19.99	52.16
5+00.00	0.00	9.19	0.00	16.16	19.99	68.32
5+50.00	0.00	9.96	0.00	17.73	19.99	86.05
6+00.00	0.50	1.13	0.47	10.27	20.46	96.32
6+50.00	0.64	1.48	1.06	2.41	21.51	98.73
7+00.00	11.45	0.00	11.19	1.37	32.71	100.10
7+50.00	10.84	0.00	20.64	0.00	53.34	100.10
8+00.00	10.14	0.00	19.42	0.00	72.76	100.10
8+50.00	5.02	0.00	14.03	0.00	86.80	100.10
9+00.00	0.00	2.40	4.64	2.22	91.44	102.33
9+50.00	0.00	9.63	0.00	11.14	91.44	113.46

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
10+00.00	0.00	16.75	0.00	24.42	91.44	137.89
10+50.00	0.00	16.95	0.00	31.21	91.44	169.10
11+00.00	0.00	17.16	0.00	31.59	91.44	200.69
11+50.00	0.00	5.30	0.00	20.80	91.44	221.49
12+00.00	9.90	0.00	9.13	4.95	100.57	226.45
12+50.00	11.18	0.00	19.45	0.00	120.03	226.45
13+00.00	11.84	0.00	21.29	0.00	141.32	226.45
13+50.00	12.22	0.00	22.27	0.00	163.59	226.45
14+00.00	12.79	0.00	23.15	0.00	186.74	226.45
14+50.00	8.86	0.00	20.04	0.00	206.79	226.45
15+00.00	4.33	0.00	12.22	0.00	219.00	226.45
15+50.00	0.80	0.62	4.75	0.57	223.75	227.02
16+00.00	0.00	6.11	0.74	6.23	224.49	233.25
16+50.00	0.00	3.50	0.00	8.89	224.49	242.14
17+00.00	0.00	2.28	0.00	5.35	224.49	247.49
17+50.00	0.10	1.16	0.09	3.20	224.58	250.69
17+75.00	0.00	0.00	0.04	0.55	224.62	251.24

Total Volume Table							
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol	
19+05.00	0.55	0.41	0.00	0.00	0.00	0.00	
19+50.00	0.66	0.33	1.02	0.61	1.02	0.61	
20+00.00	2.61	0.00	3.03	0.30	4.05	0.91	
20+50.00	0.21	0.46	2.61	0.43	6.66	1.34	
21+00.00	0.00	0.81	0.19	1.18	6.85	2.52	
21+50.00	0.04	0.44	0.03	1.16	6.88	3.68	
22+00.00	0.89	0.02	0.86	0.42	7.74	4.11	
22+50.00	10.75	0.00	10.78	0.02	18.52	4.12	
23+00.00	0.30	1.02	10.23	0.94	28.75	5.06	
23+50.00	2.90	6.97	2.97	7.40	31.72	12.46	
23+93.34	0.54	0.44	2.76	5.95	34.48	18.41	

PROJECT: CEE: 4850
DATE : 05/06/21
DRAWN BY: MICHELLE NITSCHKE
REVISION:

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BRIDGE REPLACEMENT
CEDAR PRAIRIE TRAIL
WATERLOO, IA

SHEET NAME
WESTERN ALT.
VOLUME TABLE

SHEET NO.
8

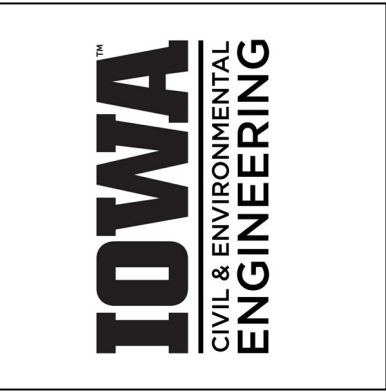
Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	6.67	0.00	0.00
0+50.00	6.67	12.35	12.35
1+00.00	6.67	12.35	24.69
1+50.00	6.67	12.35	37.04
2+00.00	6.67	12.35	49.38
2+50.00	6.67	12.35	61.73
3+00.00	6.67	12.35	74.07
3+50.00	6.67	12.35	86.42
4+00.00	6.67	12.35	98.77
4+50.00	6.67	12.35	111.11
5+00.00	6.67	12.35	123.46
5+50.00	6.67	12.35	135.80
6+00.00	6.67	12.35	148.15
6+50.00	6.67	12.35	160.49
7+00.00	6.67	12.35	172.84
7+50.00	6.67	12.35	185.19
8+00.00	6.67	12.35	197.53
8+50.00	6.67	12.35	209.88
9+00.00	6.67	12.35	222.22
9+50.00	6.67	12.35	234.57

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	6.67	12.35	246.91
10+50.00	6.67	12.35	259.26
11+00.00	6.67	12.35	271.60
11+50.00	6.67	12.35	283.95
12+00.00	6.67	12.35	296.30
12+50.00	6.67	12.35	308.64
13+00.00	6.67	12.35	320.99
13+50.00	6.67	12.35	333.33
14+00.00	6.67	12.35	345.68
14+50.00	6.67	12.35	358.02
15+00.00	6.67	12.35	370.37
15+50.00	6.67	12.35	382.72
16+00.00	6.67	12.35	395.06
16+50.00	6.67	12.35	407.41
17+00.00	6.67	12.35	419.75
17+50.00	6.67	12.35	432.10
17+75.00	0.00	3.09	435.19

Material Table			
Station	Area	Volume	Cumulative Volume
19+05.00	6.67	0.00	0.00
19+50.00	6.67	11.11	11.11
20+00.00	6.67	12.35	23.46
20+50.00	6.67	12.35	35.80
21+00.00	6.67	12.35	48.15
21+50.00	6.67	12.35	60.49
22+00.00	6.67	12.35	72.84
22+50.00	6.67	12.35	85.19
23+00.00	6.67	12.35	97.53
23+50.00	6.67	12.35	109.88
23+93.34	6.67	10.70	120.58

PROJECT: CEE: 4850
DATE : 05/06/21
DRAWN BY: MIHCELLE NITSCHKE
REVISION:

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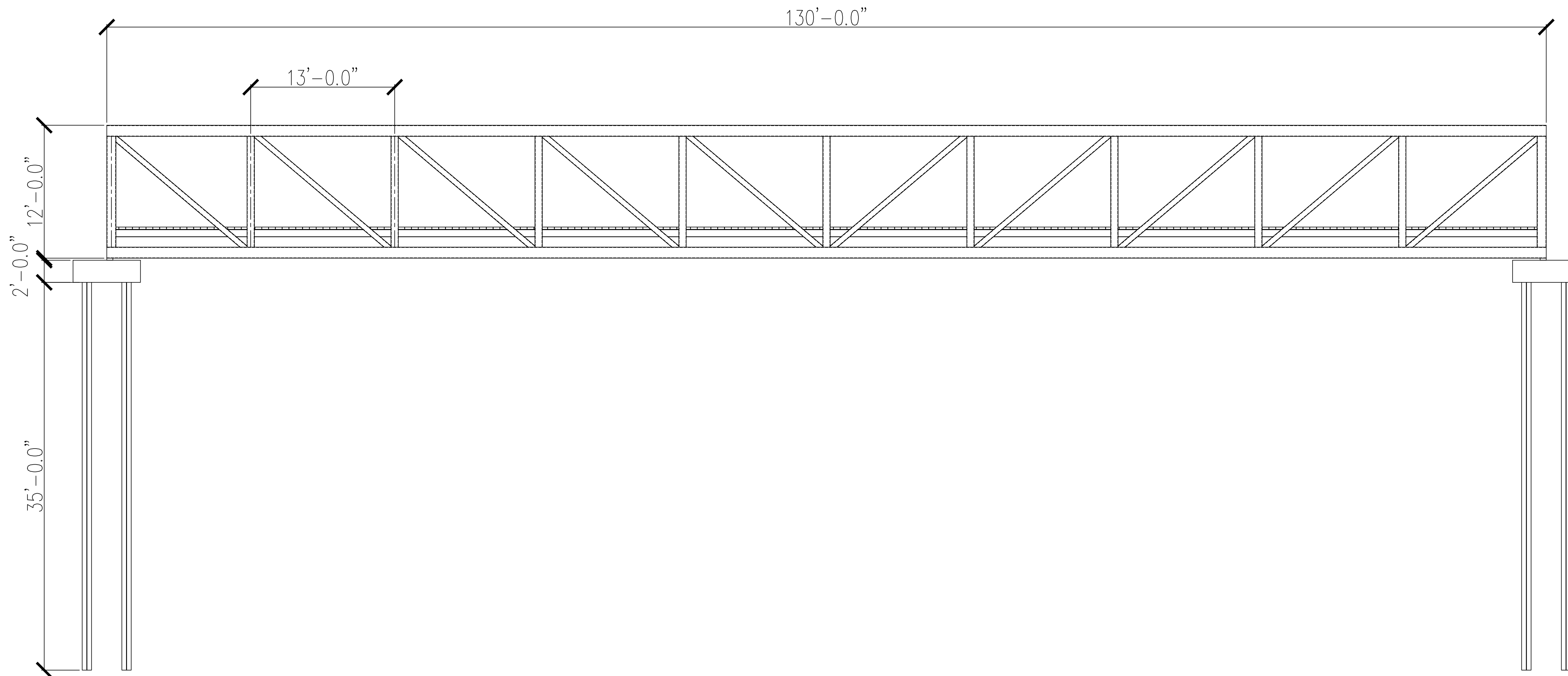


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BRIDGE REPLACEMENT
CEDAR PRAIRIE TRAIL
WATERLOO, IA

SHEET NAME
WESTERN ALT.
MATERIAL TABLE

SHEET NO.
9



SCALE 3/16"=1'

PROJECT:	CEE: 4860
DATE :	05/14/2021
DRAWN BY:	CMF
REVISION:	

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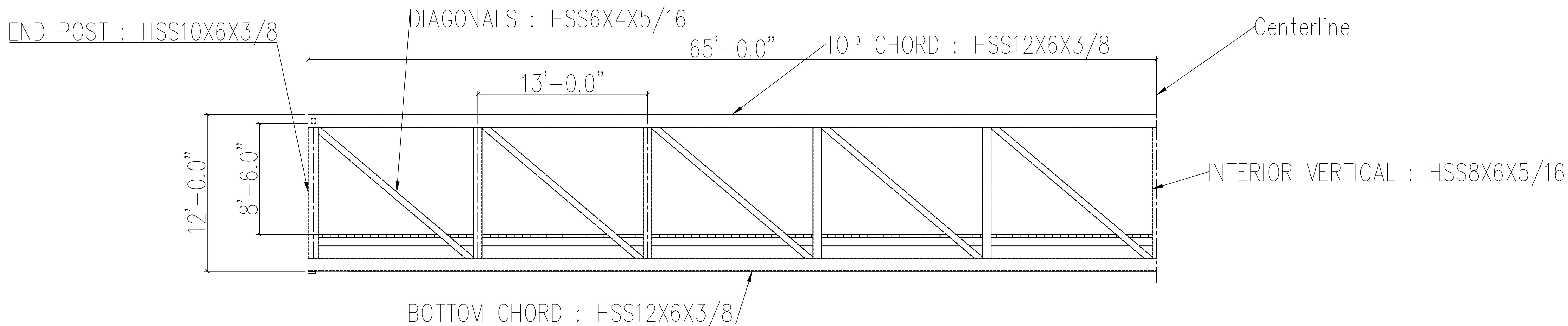
BRIDGE REPLACEMENT
 CEDAR PRAIRIE TRAIL
 WATERLOO, IA

SHEET NAME
 WESTERN ALT.
 BRIDGE

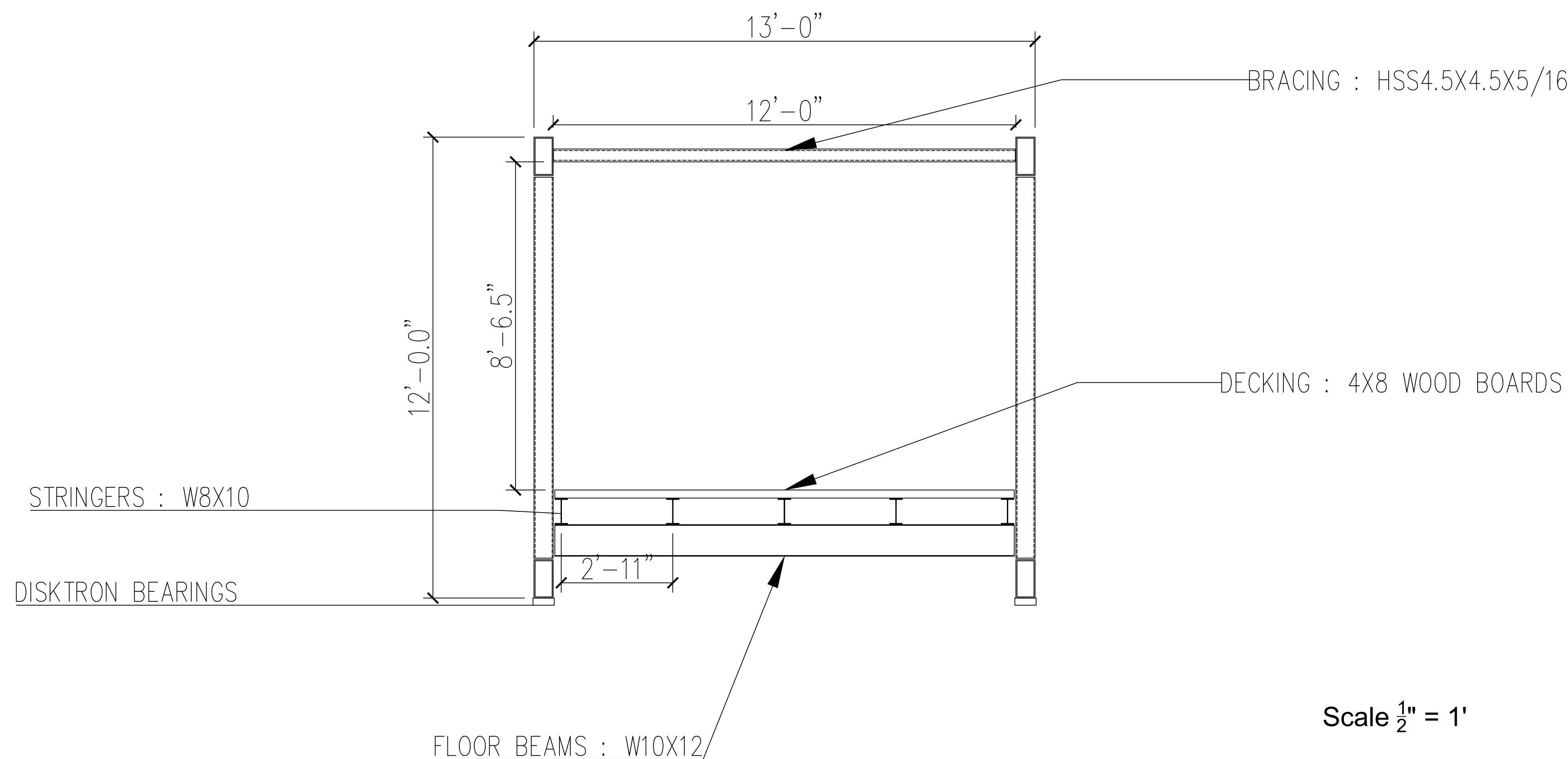
SHEET NO.
10

TRUSS DETAILS

TRUSS IS SYMMETRIC ABOUT CENTERLINE



Scale 1/4" = 1'



Scale 1/2" = 1'

PROJECT:	CEE: 4850
DATE :	05/14/2021
DRAWN BY:	CMF
REVISION:	

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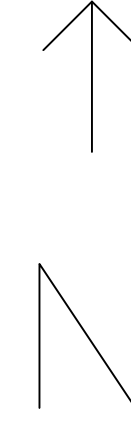
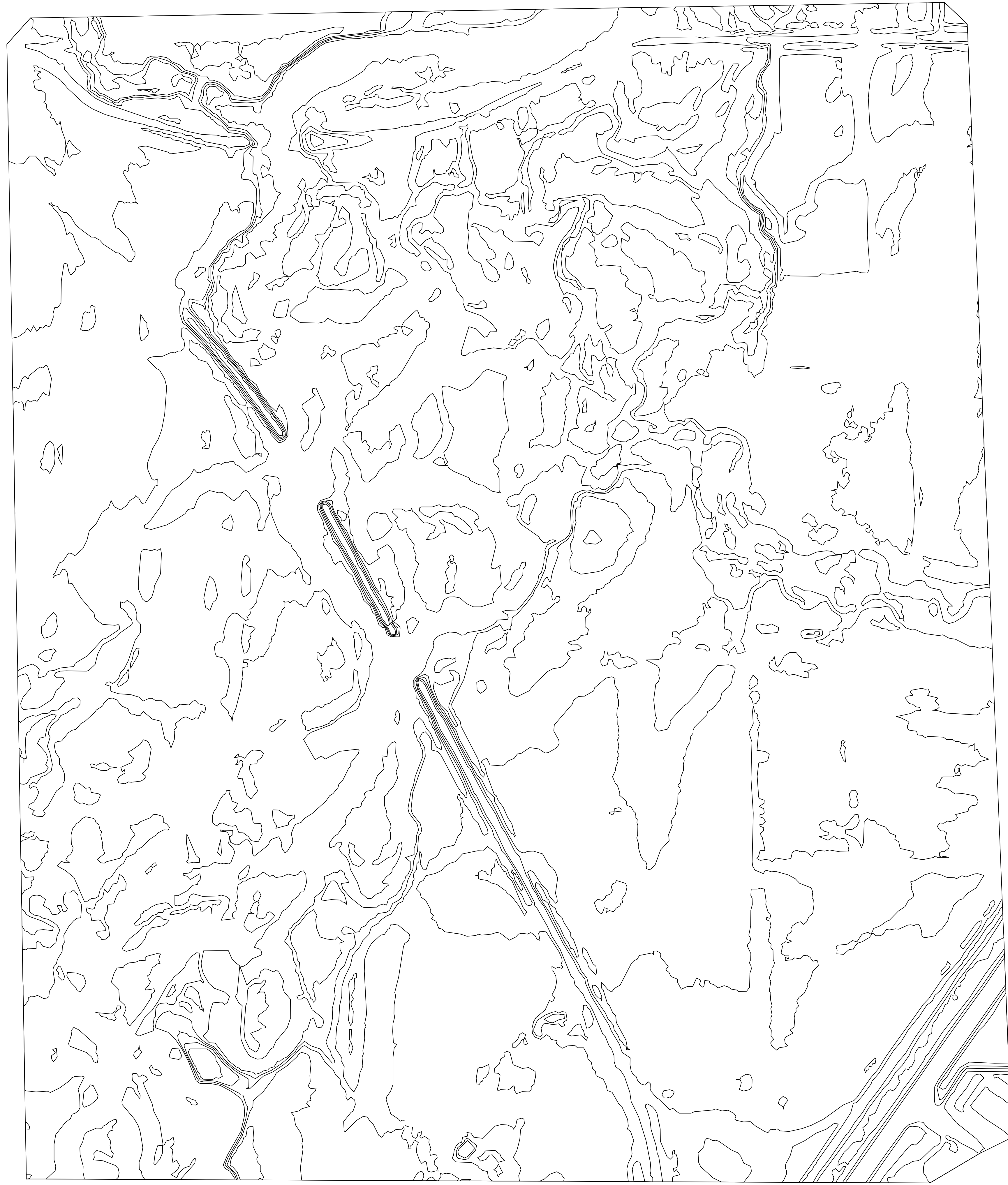


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BRIDGE REPLACEMENT
 CEDAR PRAIRIE TRAIL
 WATERLOO, IA

SHEET NAME
 WESTERN ALT.
 BRIDGE DETAIL

SHEET NO.
11



SHEET NAME
EMBANKM
CURRENT

SHEET NO.
13

BRIDGE REPLACEMENT

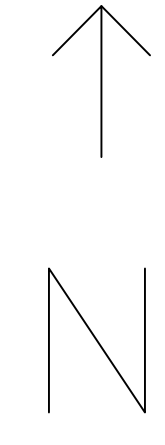
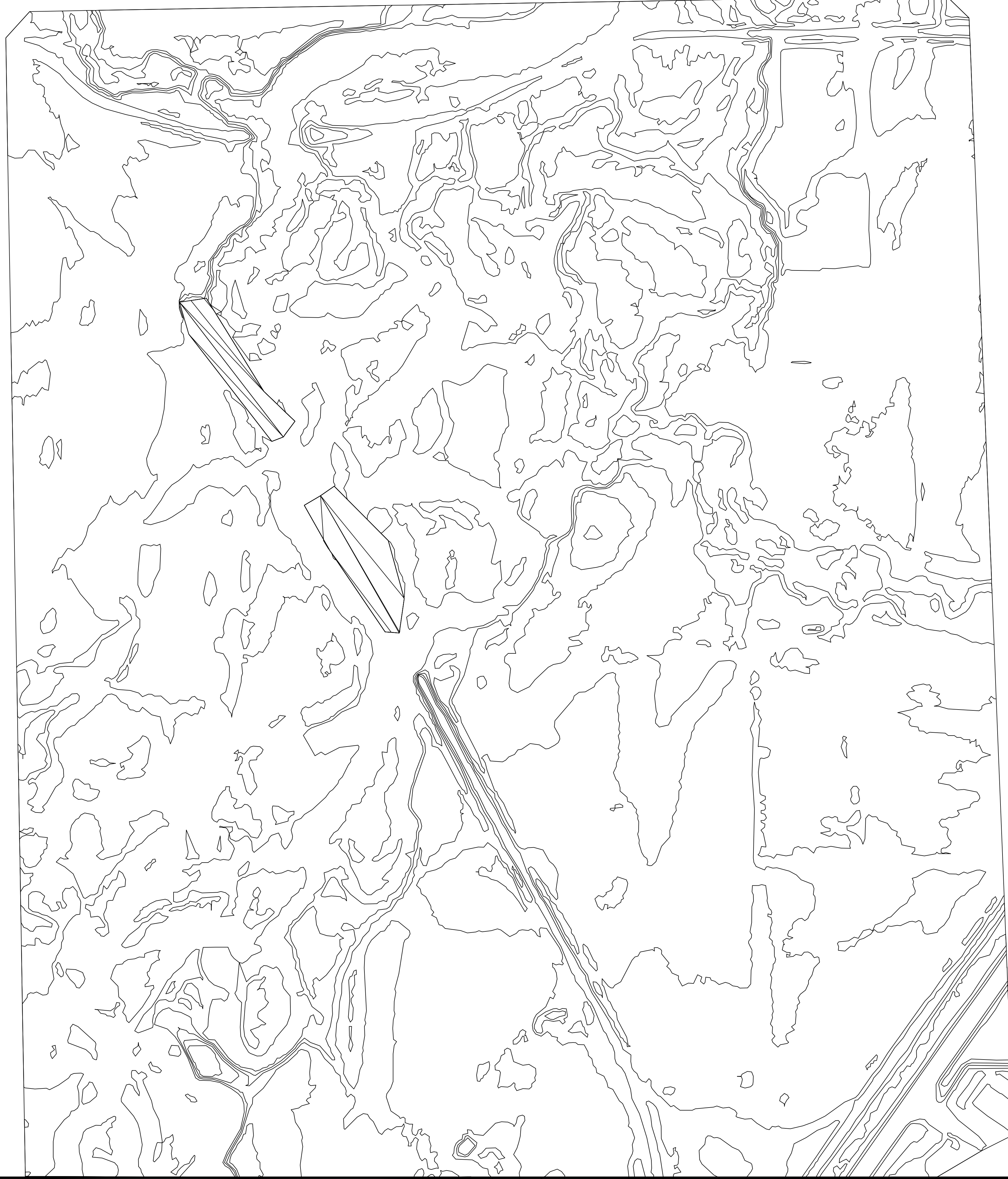
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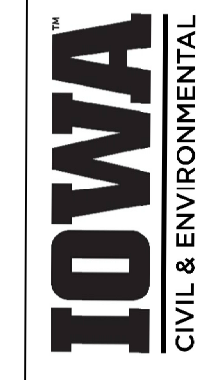


SHEET NAME
EMBANKE
NEW ELEV

SHEET NO.
14

BRIDGE REPLACEMENT

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