

SUP

PROJECT ID:

8866-00-72

COUNTY: POLK

DECEMBER 2020

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 112

28

DESIGN DESIGNATION

A.A.D.T. (2020)	=	3500
A.A.D.T. (2040)	=	4200
D.H.V.	=	N/A
D.D.	=	50/50
T.	=	7.7%
DESIGN SPEED	=	55 MPH
ESALS	=	540,000

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
<u>UTILITIES</u>	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

BEGIN PROJECT
STA 82+00.00
Y 200133.76
X 485893.49

LAYOUT
SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 7.987 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, POLK COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STAR PRAIRIE - OSCEOLA

SCL TO CTH Y

CTH M

POLK COUNTY

STATE PROJECT NUMBER
8866-00-72

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8866-00-72	WISC 2021051	1

END PROJECT
STA 503+70.10

ACCEPTED FOR
POLK COUNTY

7-20-2020
(Date)
(Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

AYRES



DATE: 7/16/20
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	MATTHEW VAN NATTA, PE
Regional Examiner	NORTHWEST REGION
Regional Supervisor	ANDREW STENSLAND, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/22/2020
(Signature)

GENERAL NOTES

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.

THE EXACT LOCATION AND WIDTH OF DRIVEWAY ENTRANCES WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. ALL DRIVEWAYS ARE TO BE REPLACED IN KIND UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS.

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

FOR ALL WORK AT CULVERT PIPES APPLY SEED, TEMPORARY SEED, MULCH, AND FERTILIZER TO DISTURBED AREAS OR AS DIRECTED BY THE ENGINEER.

PRIOR TO ORDERING DRAINAGE PIPES AND ENDWALLS, VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN AND PROVIDE DOCUMENTATION TO THE ENGINEER.

INTERSECTION RADII TO BE PLACED IN KIND. EXISTING RADII SHOWN ON PLAN AND PROFILE FOR INFORMATION ONLY.

ALL RADII ARE MEASURED TO EDGE OF PAVEMENT UNLESS OTHERWISE SHOWN OR NOTED ON THE PLAN.

PRIOR TO THE PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.

EXISTING RIGHT-OF-WAY LOCATION IS APPROXIMATE; BASED ON GIS DATA.

UTILITY CONTACTS

XCEL ENERGY - DISTRIBUTION
801 KELLER AVENUE S
AMERY, WI 54001
ATTN: ASHLEY CHAPMAN
715-268-3218
ashley.d.chapman@xcelenergy.com

POLK-BURNETT ELECTRIC COOPERATIVE - ELECTRIC
1001 STATE ROAD 35
CENTURIA, WI 54824
ATTN: NATHAN VOLGREN
715-646-2191
CELL:715-269-1440
nvolgren@polkburnett.com

CENTURYLINK
2426 75TH AVENUE
OSCEOLA, WI 54020
ATTN: MIKE VANDENBOS
715-294-2463
mike.vandenbos@centurylink.com

FRONTIER COMMUNICATIONS
1851 N 14TH AVENUE
WAUSAU, WI 54401
ATTN: CAL KLADE
715-847-1525
calvin.klade@ftr.com

VIKING GAS TRANSMISSION
2077 70TH AVENUE
OSCEOLA, WI 54020
ATTN: STEVE KEILEN
715-294-2155
CELL: 715-417-0435
steven.keilen@oneok.com

NORTHERN NATURAL GAS
6579 420TH STREET
HARRIS, MN 55032
ATTN: MIKE PERRON
402-530-3158
CELL: 763-307-0233
michael.perron@nngco.com

* DENOTES NOT A DIGGERS HOTLINE MEMBER

DNR CONTACT

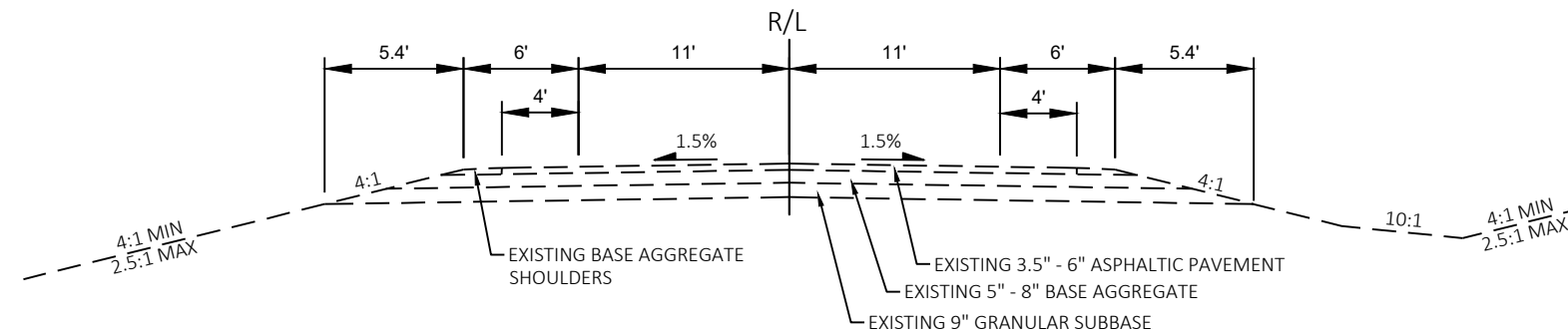
DNR NORTHERN REGION HQ
810 WEST MAPLE STREET
SPOONER, WI 54801
ATTN: AMY CRONK
715-635-4229
amy.cronk@wisconsin.gov

DESIGN CONTACT

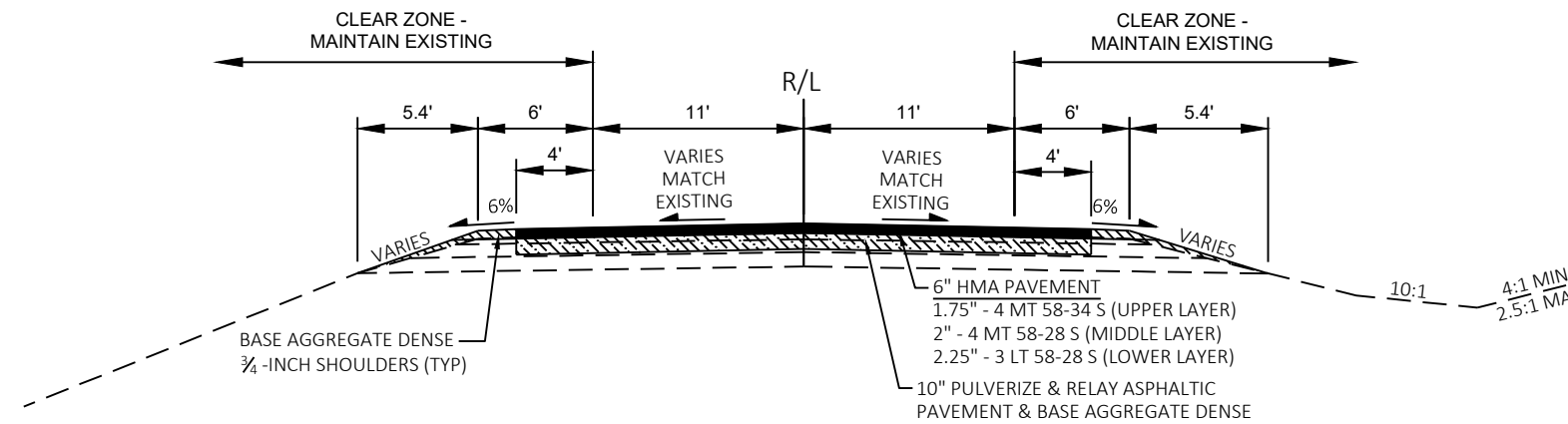
AYRES ASSOCIATES INC
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: MARK PETERSEN, PE
715-834-3161
petersenm@ayresassociates.com



Dial 811 or (800)242-8511
www.DiggersHotline.com

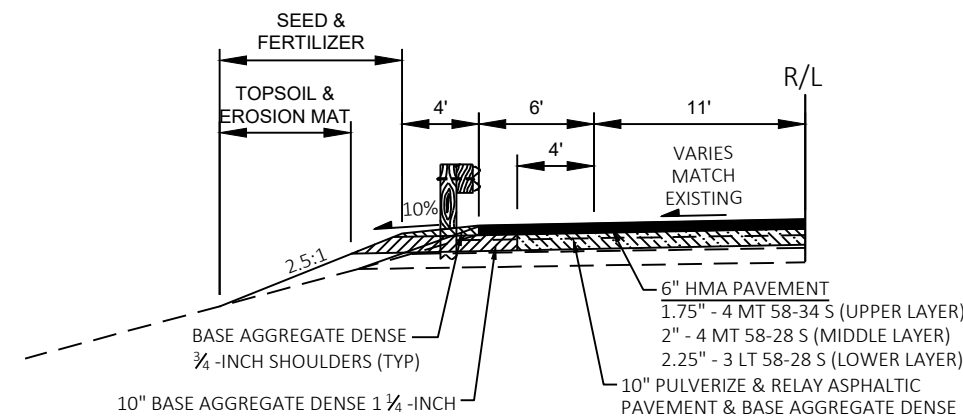


EXISTING TYPICAL SECTION



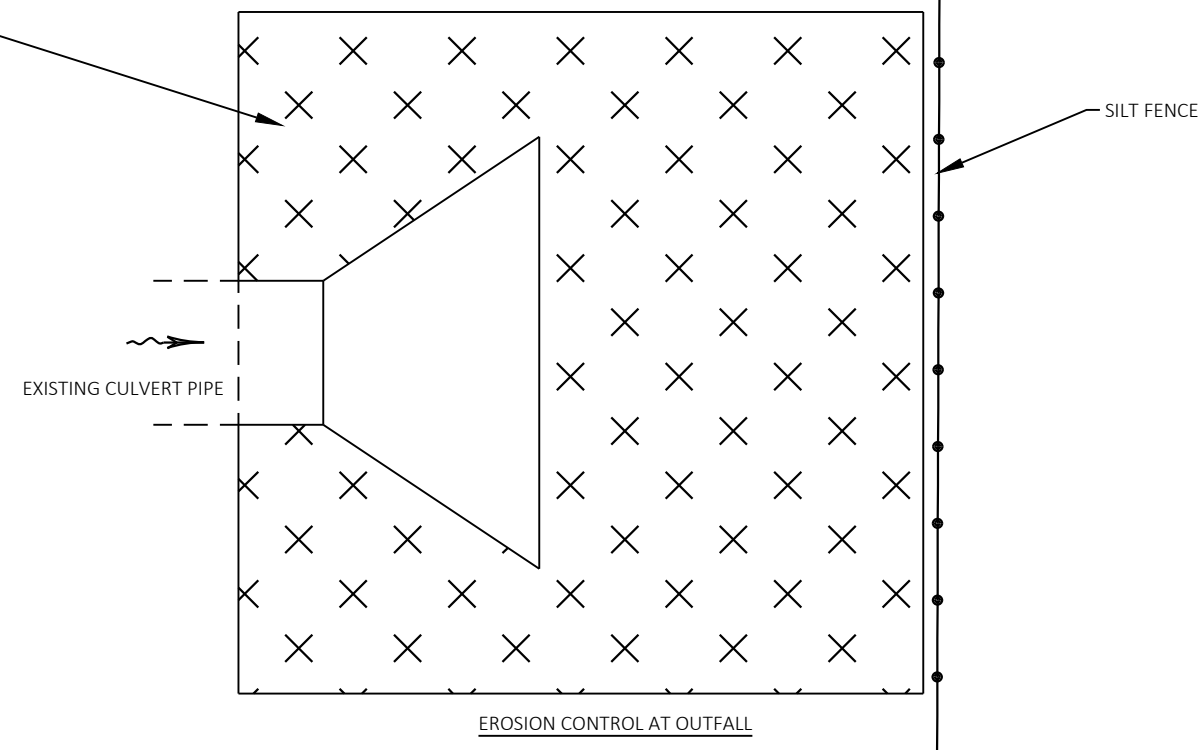
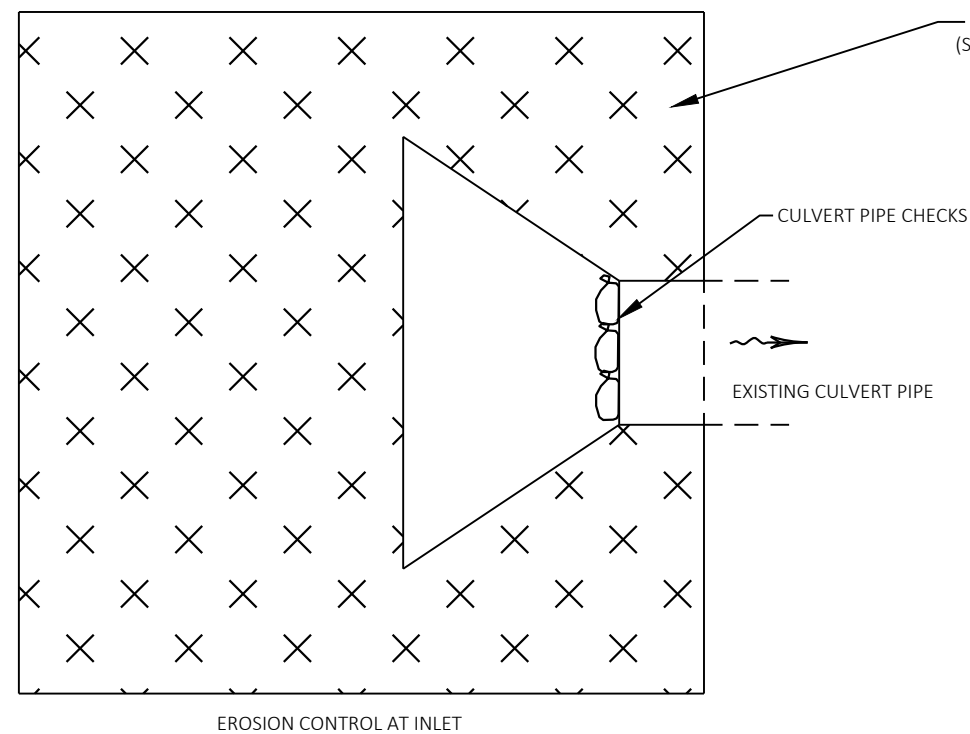
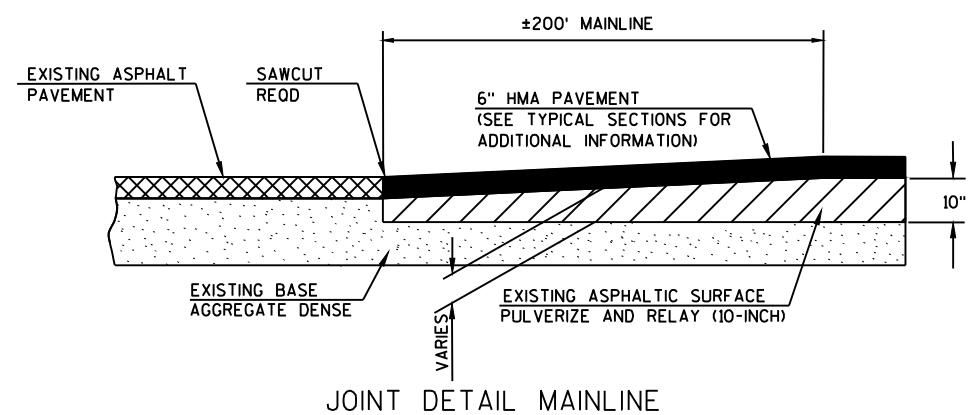
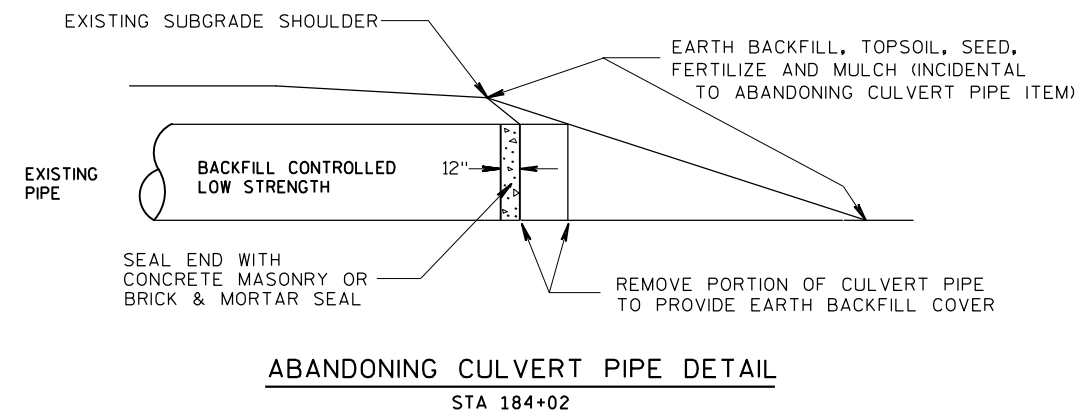
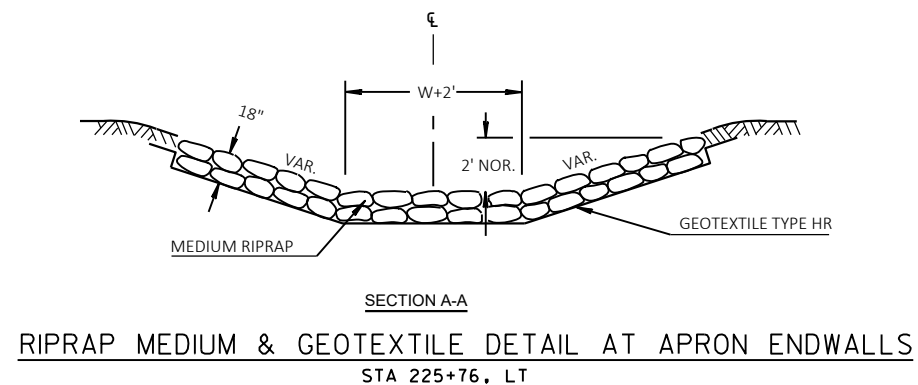
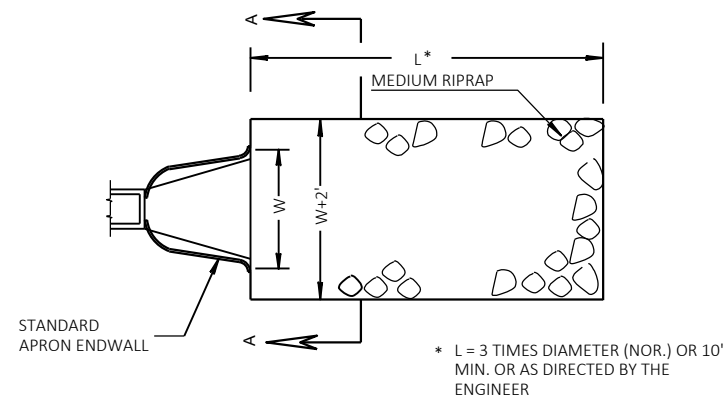
FINISHED TYPICAL SECTION

STA 82+00.00 - STA 503+70.10

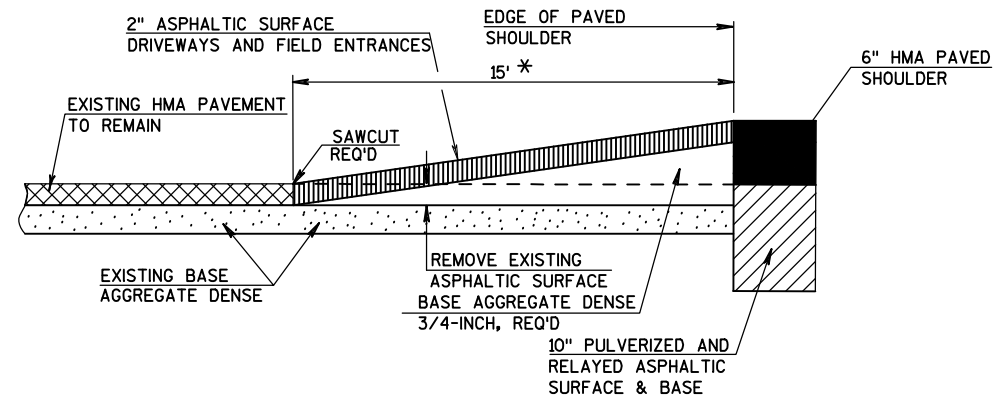


FINISHED BEAMGUARD TYPICAL SECTION

STA 177+39.13 - STA 179+69.05, LT

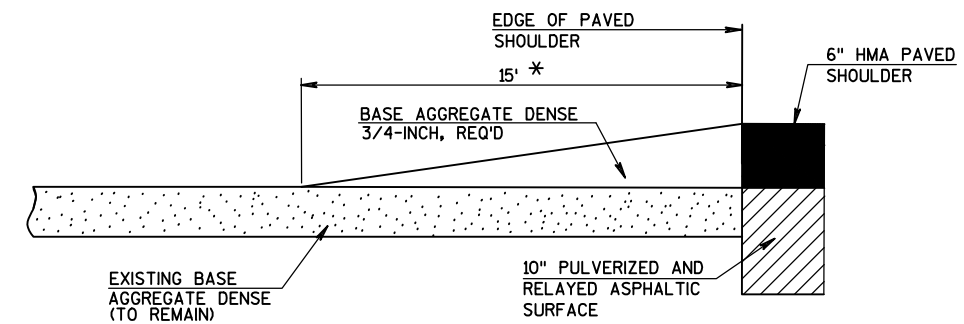


EROSION CONTROL AT NEW APRON ENDWALLS
FOR USE AT NEW ENDWALL LOCATIONS
SEE PLAN FOR NEW APRON ENDWALL LOCATIONS

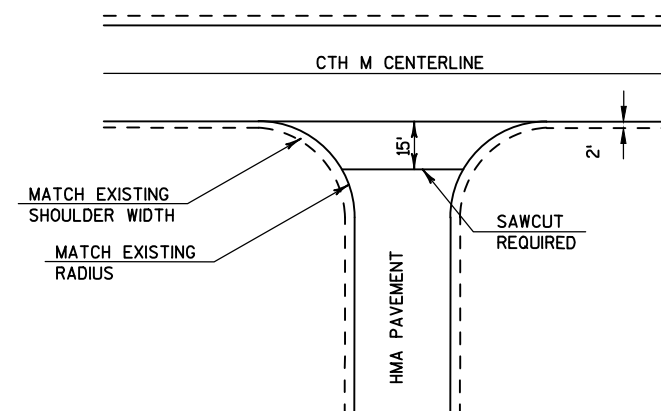


JOINT DETAIL FOR HMA PRIVATE ENTRANCES
(REPLACE IN KIND)

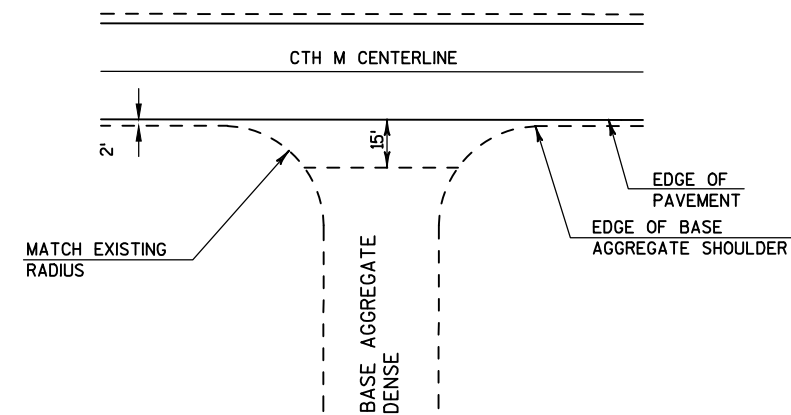
* OR AS DIRECTED BY THE ENGINEER



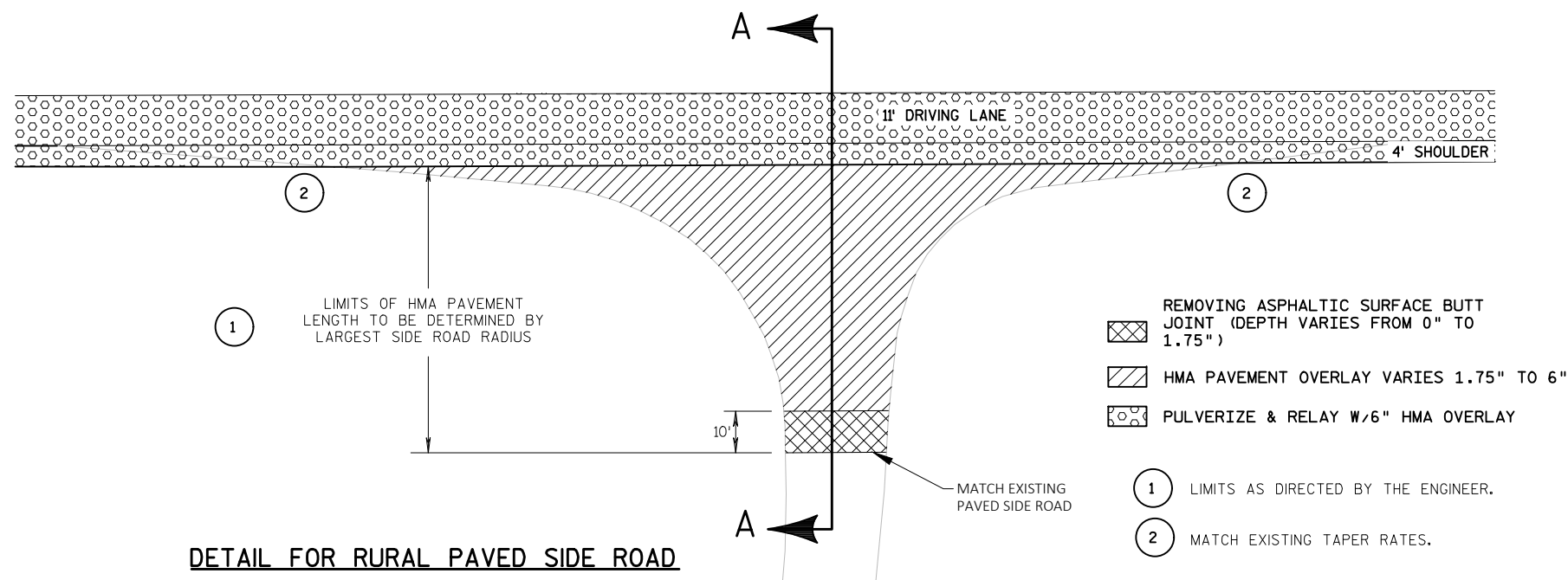
DETAIL FOR BASE AGGREGATE DENSE PRIVATE ENTRANCES



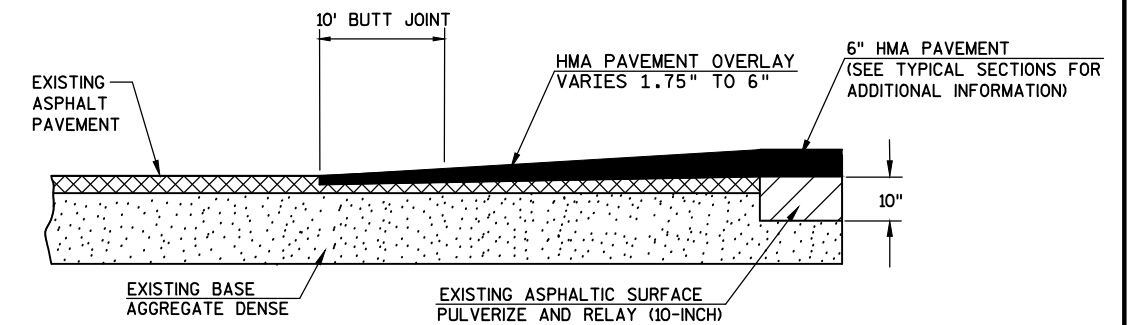
PRIVATE ENTRANCE AND FIELD ENTRANCE HMA DETAIL



**PRIVATE ENTRANCE AND FIELD ENTRANCE
BASE AGGREGATE DENSE DETAIL**



DETAIL FOR RURAL PAVED SIDE ROAD

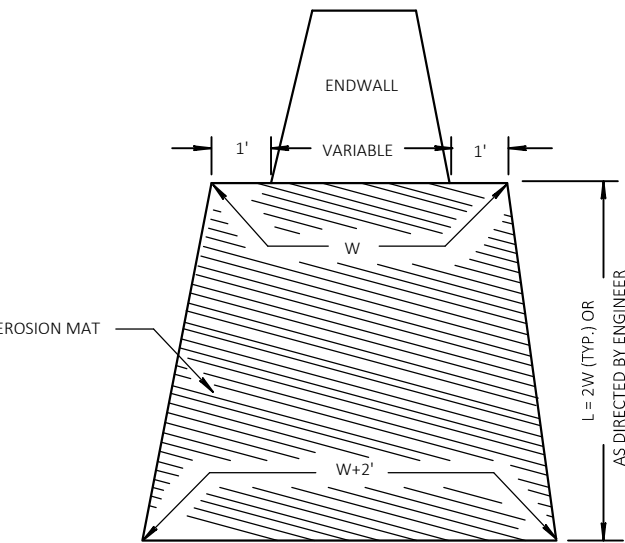
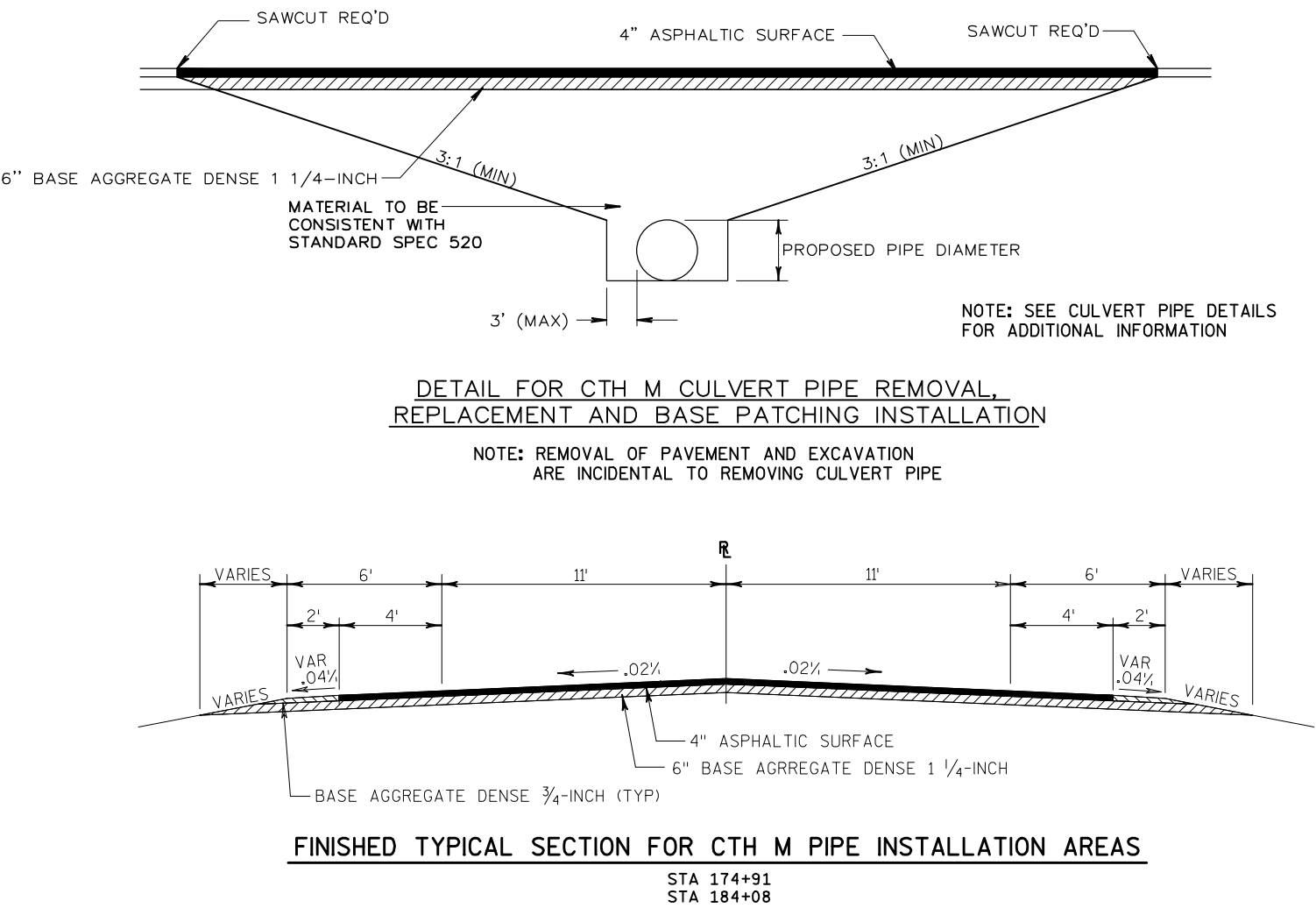


JOINT DETAIL SIDEROAD

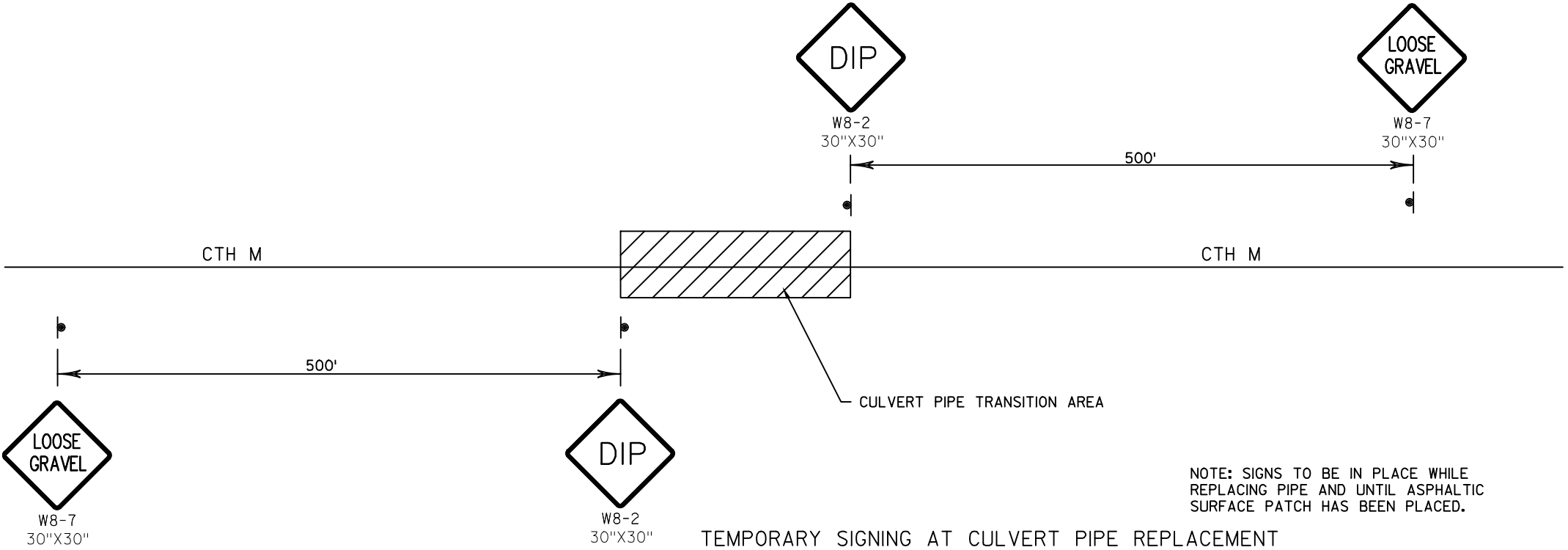
RUNOFF COEFFICIENT TABLE

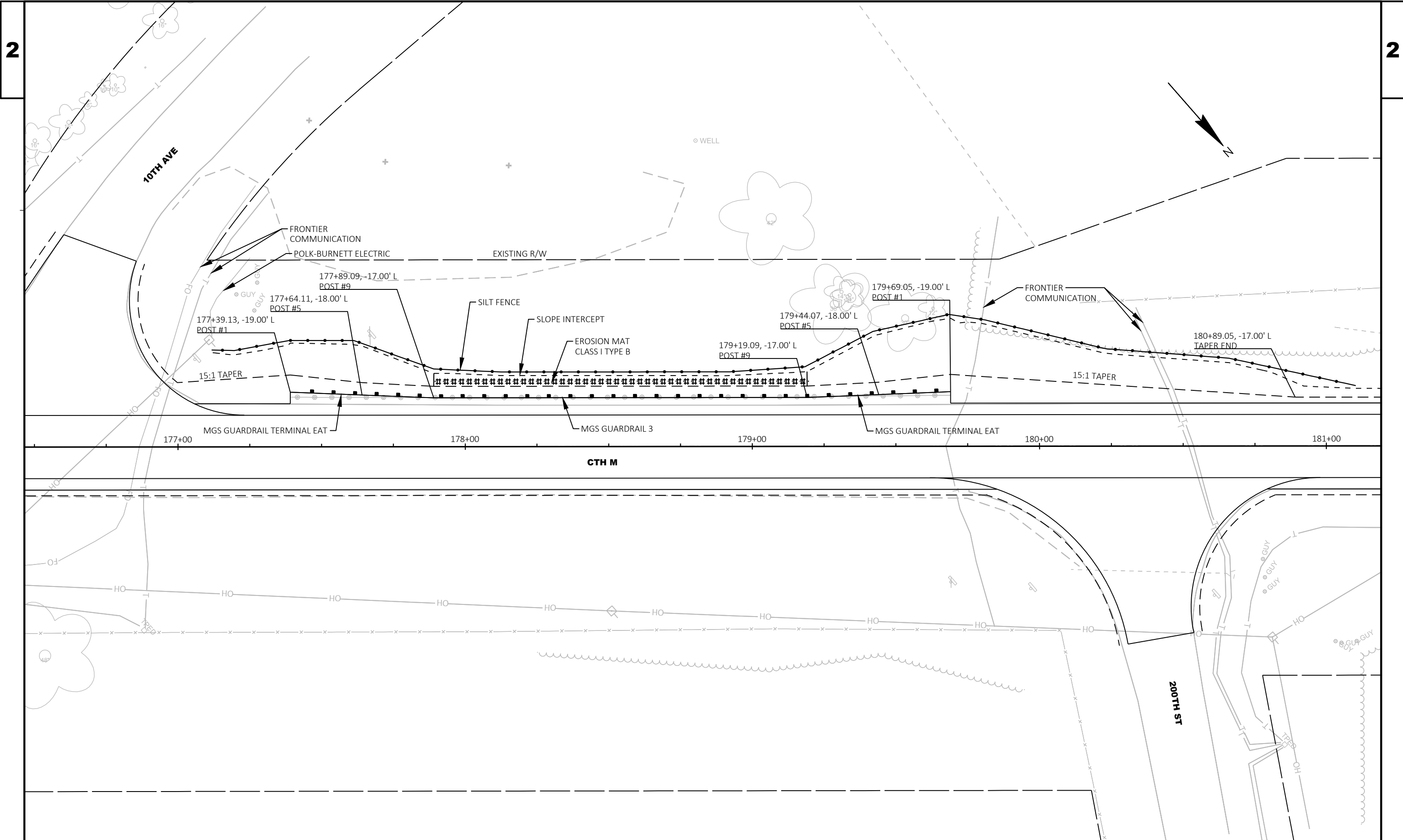
A	HYDROLOGIC SOIL GROUP											
	B C									D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE: TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 135.65 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 46.47 ACRES



EROSION MAT TREATMENT AT CULVERTS



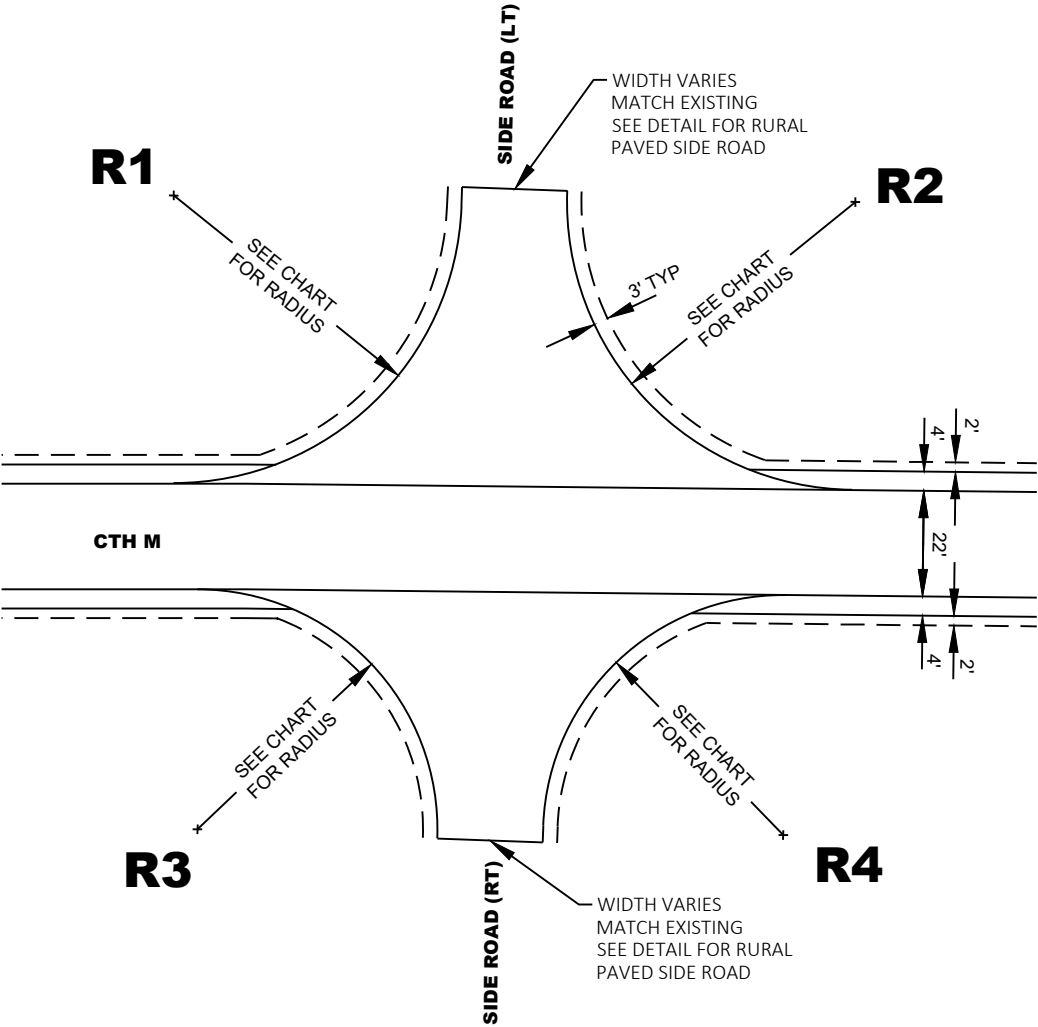


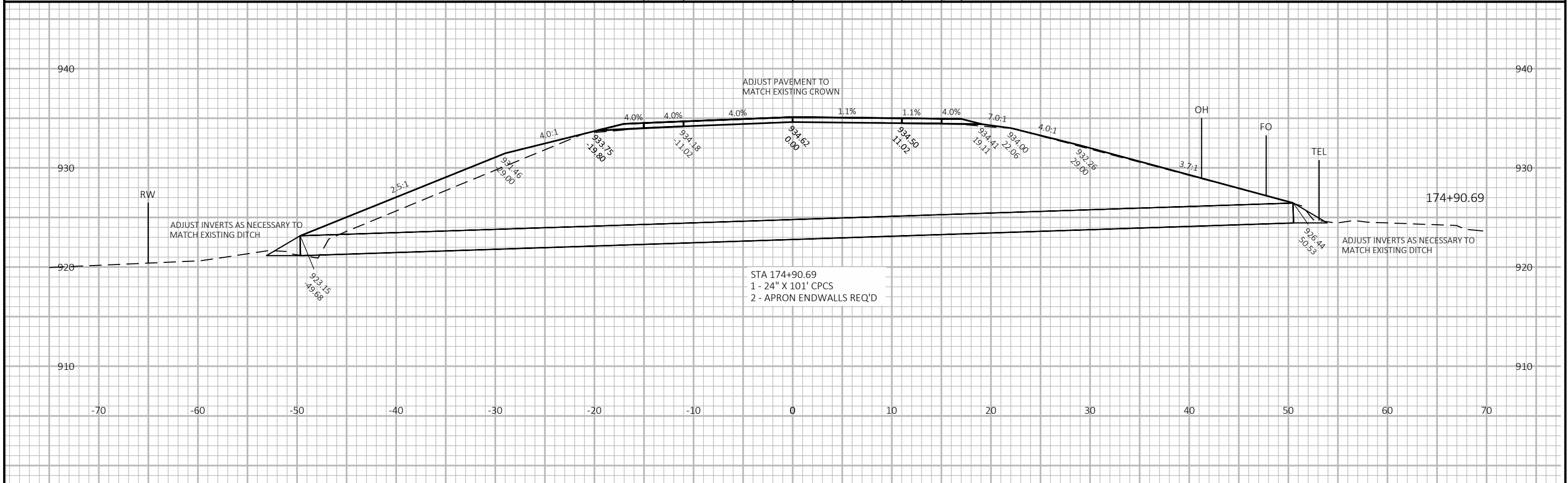
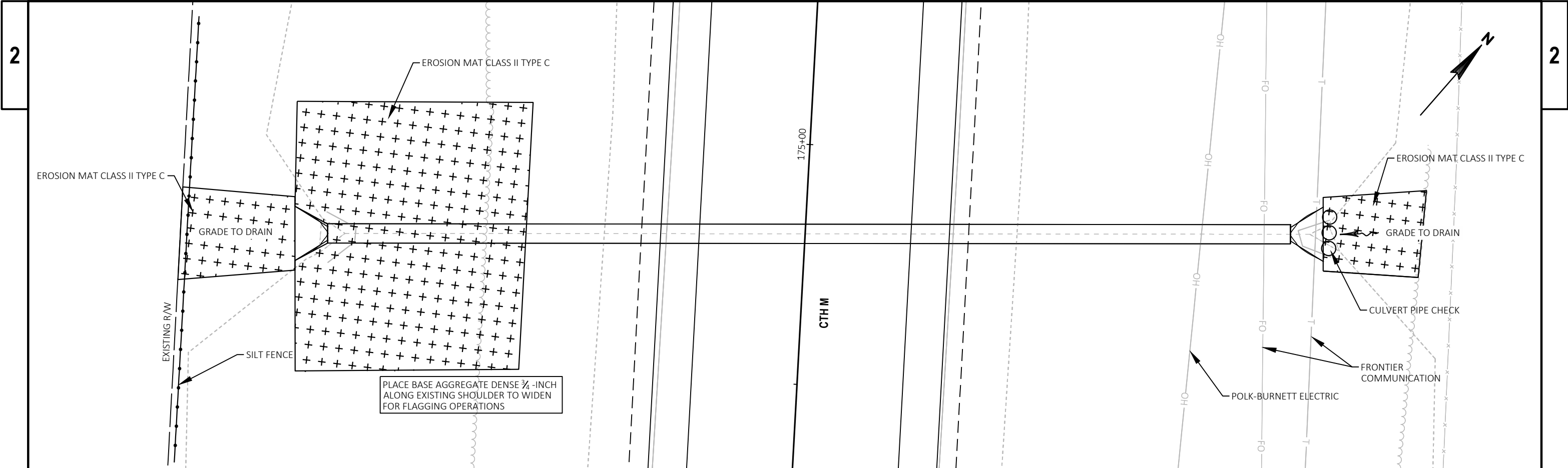
INTERSECTION RADII TO BE PLACED IN KIND. EXISTING RADII SHOWN ON PLAN AND PROFILE FOR INFORMATION ONLY.

	R1 RADIUS						R2 RADIUS				
ROAD NAME	STATION	OFFSET	Y	X	RADIUS		STATION	OFFSET	Y	X	RADIUS
SOUTH COUNTY LINE	82+12.73	-56.0	200146.38	485837.47	45'		83+14.73	-46.0	200244.17	485849.04	35'
* 196TH ST	112+78.81	-66.0	202795.12	484603.02	55'		113+85.33	-46.0	202900.74	484578.69	35'
E CEDAR RD	128+48.54	-66.0	204193.52	483923.38	55'		129+71.02	-51.0	204303.51	483867.46	40'
E CEDAR RD	171+25.70	-51.0	207725.83	481528.89	40'		172+72.94	-101.0	207793.92	481392.97	90'
10TH AVE	175+78.09	-86.0	208005.62	481180.63	75'		177+23.14	-51.0	208127.34	481094.33	40'
20TH AVE	213+86.46	-56.0	210990.93	478926.89	45'		214+98.04	-41.0	211073.94	478855.09	30'
35TH AVE/CTH X	285+92.24	-56.0	217513.65	477742.52	45'		287+19.07	-51.0	217632.52	477787.04	40'
203RD ST	315+94.00	-46.0	219784.86	479462.99	35'		316+81.76	-41.0	219826.81	479540.24	30'
40TH AVE	340+10.89	-46.0	221379.19	481097.45	35'		341+17.23	-56.0	221482.21	481098.52	45'
50TH AVE	392+28.39	-71.0	226588.03	481022.61	60'		393+69.72	-71.0	226730.09	481022.12	60'
60TH AVE	440+62.18	-51.0	231423.75	481046.04	40'		441+73.52	-61.0	231535.29	481038.66	50'

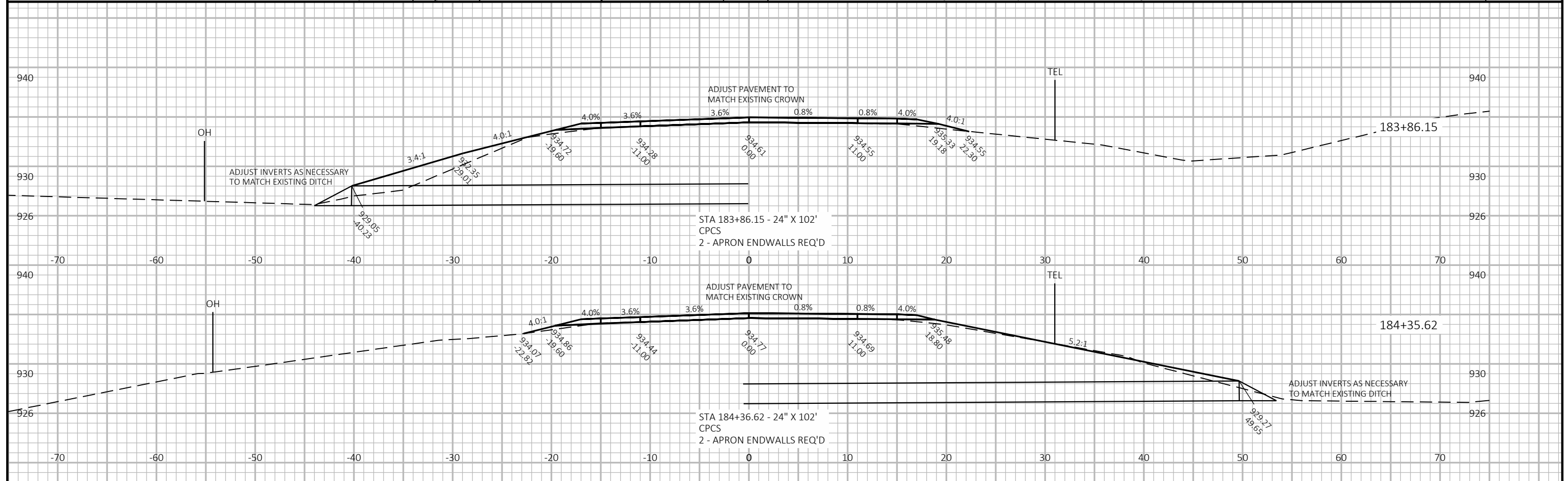
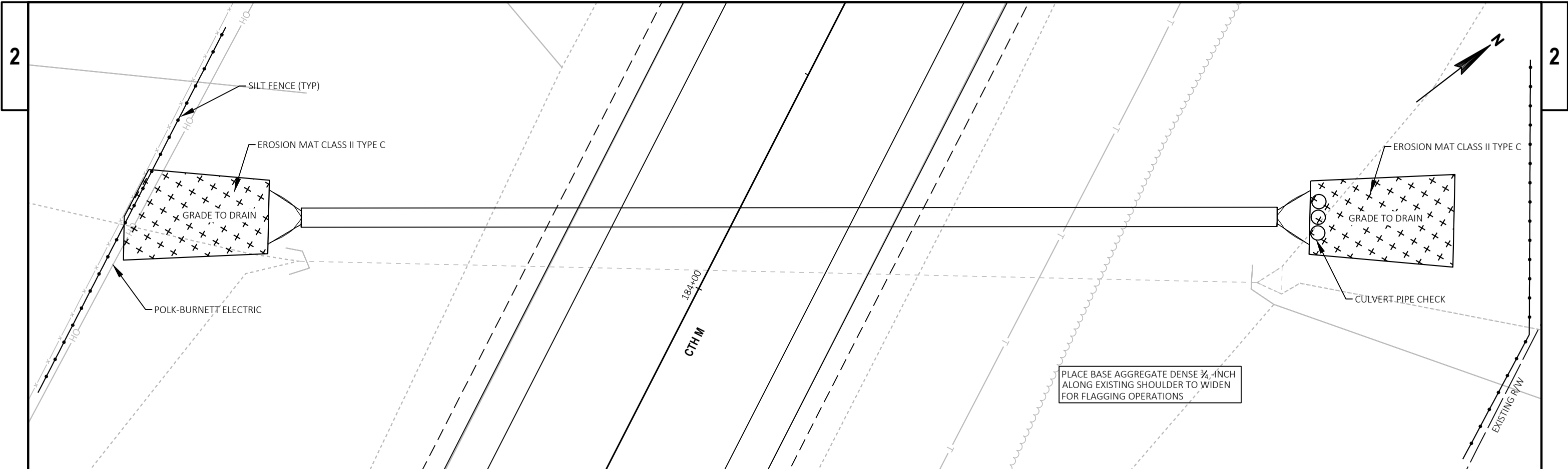
* 196TH ST IS A GRAVEL SIDE ROAD.

	R3 RADIUS						R4 RADIUS				
ROAD NAME	STATION	OFFSET	Y	X	RADIUS		STATION	OFFSET	Y	X	RADIUS
SOUTH COUNTY LINE	82+02.69	66.0	200136.58	485959.49	55'		83+29.69	61.0	200263.57	485954.24	50'
192ND ST	111+66.98	61.0	202743.52	484764.18	50'		112+80.98	51.0	202843.97	484709.36	40'
13TH AVE	158+63.80	66.0	206770.69	482352.45	55'		159+99.80	66.0	206883.61	482276.65	55'
200TH ST	179+61.80	81.0	208383.70	481001.24	70'		180+97.78	56.0	208454.24	480882.33	45'
30TH AVE	273+01.65	81.0	216246.10	477466.38	70'		274+43.77	61.0	216386.80	477492.02	50'
35TH AVE	304+20.82	71.0	219067.80	478527.12	60'		305+36.71	46.0	219150.06	478612.49	35'
200TH ST	336+91.70	41.0	221049.68	481100.70	30'		338+03.26	66.0	221151.16	481161.61	55'
50TH AVE	392+33.37	61.0	226594.69	481154.53	50'		393+56.05	61.0	226716.73	481154.15	50'
60TH AVE/CTH K	440+38.60	71.0	231397.31	481167.45	60'		441+83.57	66.0	231542.35	481165.86	55'
CTH Y	499+22.09	61.0	237077.78	480524.88	50'		500+64.49	81.0	237145.16	480396.05	70'





PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PIPE REPLACEMENT DETAIL - STA 174+90.69	SHEET	E
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PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PIPE REPLACEMENT DETAIL - STA 184+08.35	SHEET	E
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Estimate Of Quantities

8866-00-72

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	550.000	550.000
0010	204.0115	Removing Asphaltic Surface Butt Joints	SY	583.000	583.000
0012	204.0165	Removing Guardrail	LF	230.000	230.000
0014	204.0270	Abandoning Culvert Pipes	EACH	1.000	1.000
0016	204.9060.S	Removing (item description) 01. Culvert Pipe Endwall	EACH	9.000	9.000
0018	205.0100	Excavation Common	CY	10.000	10.000
0020	208.0100	Borrow	CY	218.000	218.000
0022	209.0200.S	Backfill Controlled Low Strength	CY	11.700	11.700
0024	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 8866-00-72	LS	1.000	1.000
0026	213.0100	Finishing Roadway (project) 01. 8866-00-72	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	11,490.000	11,490.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	210.000	210.000
0032	325.0100	Pulverize and Relay	SY	140,624.000	140,624.000
0034	374.1020.S	QMP Pulverize and Relay Compaction	SY	140,624.000	140,624.000
0036	455.0605	Tack Coat	GAL	14,379.000	14,379.000
0038	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	3.000	3.000
0040	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	3.000	3.000
0042	460.2005	Incentive Density PWL HMA Pavement	DOL	34,020.000	34,020.000
0044	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	50,610.000	50,610.000
0046	460.2010	Incentive Air Voids HMA Pavement	DOL	47,470.000	47,470.000
0048	460.5223	HMA Pavement 3 LT 58-28 S	TON	17,929.000	17,929.000
0050	460.6224	HMA Pavement 4 MT 58-28 S	TON	15,880.000	15,880.000
0052	460.6244	HMA Pavement 4 MT 58-34 S	TON	14,255.000	14,255.000
0054	465.0105	Asphaltic Surface	TON	52.000	52.000
0056	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	53.000	53.000
0058	511.1100	Temporary Shoring	SF	870.000	870.000
0060	520.8700	Cleaning Culvert Pipes	EACH	13.000	13.000
0062	521.1015	Apron Endwalls for Culvert Pipe Steel 15-Inch	EACH	2.000	2.000
0064	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	4.000	4.000
0066	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	10.000	10.000
0068	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	203.000	203.000
0070	606.0200	Riprap Medium	CY	8.000	8.000
0072	614.2300	MGS Guardrail 3	LF	125.000	125.000
0074	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0076	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8866-00-72	EACH	1.000	1.000

Estimate Of Quantities

8866-00-72

Line	Item	Item Description	Unit	Total	Qty
0078	619.1000	Mobilization	EACH	1.000	1.000
0080	624.0100	Water	MGAL	1,200.000	1,200.000
0082	625.0100	Topsoil	SY	1,088.000	1,088.000
0084	627.0200	Mulching	SY	333.000	333.000
0086	628.1504	Silt Fence	LF	770.000	770.000
0088	628.1520	Silt Fence Maintenance	LF	770.000	770.000
0090	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0092	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0094	628.2004	Erosion Mat Class I Type B	SY	135.000	135.000
0096	628.2027	Erosion Mat Class II Type C	SY	343.000	343.000
0098	628.7504	Temporary Ditch Checks	LF	70.000	70.000
0100	628.7555	Culvert Pipe Checks	EACH	31.000	31.000
0102	629.0210	Fertilizer Type B	CWT	0.900	0.900
0104	630.0120	Seeding Mixture No. 20	LB	34.000	34.000
0106	630.0140	Seeding Mixture No. 40	LB	12.000	12.000
0108	630.0200	Seeding Temporary	LB	34.000	34.000
0110	630.0500	Seed Water	MGAL	28.000	28.000
0112	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	66.000	66.000
0114	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	23.000	23.000
0116	637.2210	Signs Type II Reflective H	SF	299.660	299.660
0118	637.2230	Signs Type II Reflective F	SF	225.980	225.980
0120	638.2102	Moving Signs Type II	EACH	12.000	12.000
0122	638.2602	Removing Signs Type II	EACH	84.000	84.000
0124	638.3000	Removing Small Sign Supports	EACH	75.000	75.000
0126	642.5001	Field Office Type B	EACH	1.000	1.000
0128	643.0300	Traffic Control Drums	DAY	100.000	100.000
0130	643.0420	Traffic Control Barricades Type III	DAY	25.000	25.000
0132	643.0900	Traffic Control Signs	DAY	4,200.000	4,200.000
0134	643.5000	Traffic Control	EACH	1.000	1.000
0136	645.0120	Geotextile Type HR	SY	20.000	20.000
0138	646.1020	Marking Line Epoxy 4-Inch	LF	84,540.000	84,540.000
0140	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	67,042.000	67,042.000
0142	646.6120	Marking Stop Line Epoxy 18-Inch	LF	68.000	68.000
0144	648.0100	Locating No-Passing Zones	MI	7.990	7.990
0146	649.0105	Temporary Marking Line Paint 4-Inch	LF	108,514.000	108,514.000
0148	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0150	650.8000	Construction Staking Resurfacing Reference	LF	42,170.000	42,170.000
0152	650.9910	Construction Staking Supplemental Control (project) 01. 8866-00-72	LS	1.000	1.000
0154	650.9920	Construction Staking Slope Stakes	LF	389.000	389.000

Estimate Of Quantities

8866-00-72

Line	Item	Item Description	Unit	Total	Qty
0156	690.0150	Sawing Asphalt	LF	391.000	391.000
0158	740.0440	Incentive IRI Ride	DOL	31,960.000	31,960.000
0160	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	500.000	500.000
0162	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	400.000	400.000
0164	SPV.0060	Special 01. Ditch Cleaning	EACH	1.000	1.000

CLEARING & GRUBBING

STATION TO STATION	201.0105	201.0205
	CLEARING STA	GRUBBING STA
174+00 - 176+00	2	2
184+00 - 185+00	1	1
PROJECT TOTALS	3	3

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	SIZE	MATERIAL	203.0100 EACH
174+91	CTH M	18"x100'	CMCP	1
PROJECT TOTAL				1

DIVISION	STATION TO STATION	LOCATION	CY	CY	CY	CY	CY	CY	CY	CY
CULVERT 174+91	174+70 - 175+10	CTH M	---	---	---	24	31	-31	0	31
CULVERT 184+08	184+65 - 185+45	CTH M	---	---	---	36	47	-47	0	47
BEAM GUARD EARTHWORK	177+12 - 181+04	CTH M	0	0	0	108	140	-140	0	140
UNDISTRIBUTED			10	10	0	0	0	0	0	0
PROJECT TOTAL			10	10	0	168	218	-218	0	218

Notes:

- (1) Salvaged/Unsuable Pavement Material is included in Cut.
(2) Available Material = Cut - Salvaged/Unusuable Pavement Material
(3) Expanded Fill Factor = 1.3 Expanded Fill = (Unexpanded Fill * Fill Factor)
(4) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division.
 Minus indicates a shortage of material within the Division.
(5) Waste = Expanded Fill - Available Material - EBS (For information only - not a bid item)

REMOVING ASPHLATIC SURFACE

STATION	LOCATION	204.0110 SY
103+53 LT	DRIVEWAY	91
120+62 LT	DRIVEWAY	40
149+36 LT	DRIVEWAY	37
158+18 LT	DRIVEWAY	42
163+85 LT	DRIVEWAY	73
297+63 LT	DRIVEWAY	42
313+73 LT	DRIVEWAY	55
335+91 LT	DRIVEWAY	42
356+25 LT	DRIVEWAY	41
426+19 LT	DRIVEWAY	48
427+03 RT	DRIVEWAY	39
PROJECT TOTAL		550

REMOVING ASPHALTIC SURFACE BUTT JOINTS

STATION	LOCATION	204.0115 SY
82+67 LT	SOUTH COUNTY LINE	26
82+69 RT	SOUTH COUNTY LINE	25
112+30 RT	192ND	29
129+15 LT	E CEDAR	26
159+31 RT	13TH	31
171+85 LT	E CEDAR	25
176+65 LT	10TH	31
180+40 RT	200TH	30
214+47 LT	20TH	39
273+80 RT	30TH	24
286+58 LT	CTH X	45
304+87 RT	35TH	27
316+42 LT	203RD	27
337+41 RT	200TH	31
340+61 LT	40TH	27
392+96 RT	50TH	27
393+00 LT	50TH	28
441+13 RT	CTH K	34
441+14 LT	CTH K	25
499+90 RT	CTH Y	26
PROJECT TOTAL		583

BASE AGGREGATE DENSE

STATION TO STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
82+00 - 503+70	CTH M	11100	---
82+67 LT	SOUTH COUNTY LINE	13	---
82+69 RT	SOUTH COUNTY LINE	17	---
112+30 RT	192ND	11	---
113+40 LT	196TH	15	---
129+15 LT	E CEDAR	19	---
159+31 RT	13TH	17	---
171+85 LT	E CEDAR	18	---
174+71 - 175+11	CTH M	27	60
176+65 LT	10TH	19	---
177+39 - 179+69 LT	CTH M	---	110
180+40 RT	200TH	20	---
183+93 - 184+23	CTH M	22	40
214+47 LT	20TH	10	---
273+80 RT	W CHURCH	22	---
286+58 LT	CTH X	16	---
304+87 RT	35TH	14	---
316+42 LT	203RD	11	---
337+41 RT	200TH	15	---
340+61 LT	40TH	12	---
392+96 RT	50TH	20	---
393+00 LT	50TH	16	---
441+13 RT	CTH K	15	---
441+14 LT	CTH K	19	---
499+90 RT	CTH Y	22	---
PROJECT TOTALS		11490	210

ABANDONING CULVERT PIPES

STATION	LOCATION	204.0270 EACH
184+03	CTH M	1
PROJECT TOTAL		1

BACKFILL CONTROLLED LOW STRENGTH

STATION	LOCATION	209.0200.S CY
184+03	CTH M	11.7
PROJECT TOTAL		11.7

PREPARE FOUNDATION
FOR ASPHALTIC PAVING

PROJECT	211.0100 LS
8866-00-72	1

FINISHING ROADWAY

PROJECT	213.0100 EACH
8866-00-72	1
PROJECT TOTAL	1

REMOVING CULVERT PIPE ENDWALL

STATION	LOCATION	SIZE	MATERIAL	204.9060.S EACH	COMMENTS
82+66	SOUTH COUNTY LINE	24"	CMCP, EAST	1	SOUTH ENDWALL ONLY
87+88	CTH M, RT	24"	CMCP	1	RT ENDWALL ONLY
109+55	CTH M	24"	CMCP	2	
199+41	CTH M	24"	CMCP	2	
316+39	203RD ST	18"	CMCP	1	NORTH ENDWALL ONLY
337+39	200TH ST	18"	CMCP	1	SOUTH ENDWALL ONLY
340+60	40TH AVE	18"	CMCP	1	NORTH ENDWALL ONLY
PROJECT TOTAL				9	

REMOVING GUARDRAIL

STATION TO STATION	LOCATION	204.0165 LF
177+39 - 179+69	LT	230
PROJECT TOTAL		230

HMA PAVEMENT ITEMS

STATION TO STATION	LOCATION	460.6244	460.6224	460.5223		460.0105.S	460.0110.S
		HMA PAVEMENT			455.0605	HMA PAVEMENT	HMA PAVEMENT
		4 MT 58-34 S	4 MT 58-28 S	3 LT 58-28 S	TACK COAT	PWL TEST STRIP	PWL TEST STRIP
		TON	TON	TON	GAL	VOLUMETRICS	DENSITY
						EACH	EACH
82+00 - 503+70	CTH M	13780	15500	17720	14065	3	3
82+67 LT	SOUTH COUNTY LINE	15	12	7	10	---	---
82+69 RT	SOUTH COUNTY LINE	22	18	10	15	---	---
112+30 RT	192ND	19	15	8	13	---	---
113+40 LT	196TH	16	13	7	11	---	---
129+15 LT	E CEDAR	25	20	11	16	---	---
159+31 RT	13TH	25	21	11	17	---	---
171+85 LT	E CEDAR	26	21	12	18	---	---
176+65 LT	10TH	32	25	14	20	---	---
180+40 RT	200TH	24	20	11	16	---	---
214+47 LT	20TH	16	13	7	11	---	---
273+80 RT	W CHURCH	31	23	13	19	---	---
286+58 LT	CTH X	30	23	13	18	---	---
304+87 RT	35TH	18	15	8	13	---	---
316+42 LT	203RD	12	9	5	8	---	---
337+41 RT	200TH	22	18	10	15	---	---
340+61 LT	40TH	15	12	7	10	---	---
392+96 RT	50TH	20	17	9	14	---	---
393+00 LT	50TH	28	22	12	18	---	---
441+13 RT	CTH K	31	25	13	20	---	---
441+14 LT	CTH K	17	14	8	12	---	---
499+90 RT	CTH Y	31	24	13	20	---	---
PROJECT TOTALS		14255	15880	17929	14379	3	3

ASPHALTIC SURFACE ITEMS

PULVERIZE AND RELAY		
STATION TO STATION	LOCATION	325.0100 SY
82+00 - 503+70	CTH M	140624
PROJECT TOTAL		140624
QMP PULVERIZE AND RELAY COMPACTION		
STATION TO STATION	LOCATION	374.1020.S SY
82+00 - 503+70	CTH M	140624
PROJECT TOTAL		140624

STATION TO STATION	LOCATION	465.0105	465.0120
		ASPHALTIC SURFACE TON	ASPHALTIC DRIVEWAYS AND FIELD ENTRANCES TON
103+53	PE, LT	---	8
120+62	PE, LT	---	4
149+36	PE, LT	---	4
158+18	PE, LT	---	4
163+85	PE, LT	---	8
174+71 - 175+11	PIPE REPLACEMENT	30	---
183+93 - 184+23	PIPE REPLACEMENT	22	---
297+63	PE, LT	---	4
313+73	PE, LT	---	4
335+91	PE, LT	---	4
356+25	PE, LT	---	4
426+19	PE, LT	---	5
427+03	PE, RT	---	4
PROJECT TOTALS		52	53

CLEANING CULVERT PIPES				
STATION	LOCATION	SIZE	MATERIAL	520.8700 EACH
82+68	SOUTH COUNTY LINE	29"x42"	CMCP	1
180+33	CTH M	15"	CMCP	1
199+41	CTH M	24"	CMCP	1
214+50	CTH M	18"	CMCP	1
235+63	CTH M	24"	CMCP	1
299+20	CTH M	24"	CMCP	1
308+87	CTH M	18"	CMCP	1
331+52	CTH M	24"	CMCP	1
340+60	40TH AVE	18"	CMCP	1
456+75	CTH M	24"	CMCP	1
464+68	CTH M	24"	CMCP	1
467+30	CTH M	24"	CMCP	1
497+96	CTH M	24"	CMCP	1
PROJECT TOTAL				13

TEMPORARY SHORING

STATION	LOCATION	511.1100 SF
174+91	PIPE REPLACEMENT	510
184+08	PIPE REPLACEMENT	360
PROJECT TOTAL		870

CULVERT PIPE CORRUGATED STEEL & APRON ENDWALLS

STATION	LOCATION	521.3124 CULVERT PIPE 24-INCH	THICKNESS STEEL INCHES	521.1015 APRON ENDWALL 15-INCH	521.1018 FOR CULVERT 18-INCH	521.1024 PIPE STEEL 24-INCH
		LF		LF	LF	EACH
82+66	SOUTH COUNTY LINE	---	0.064	---	---	1
87+88	CTH M, RT	---	0.064	---	---	1
109+55	CTH M, LT/RT	---	0.064	---	---	2
174+91	CTH M	101	0.064	---	---	2
180+33	200TH ST	---	0.064	2	---	---
184+02	CTH M	102	0.064	---	---	2
199+41	CTH M, LT/RT	---	0.064	---	---	2
316+39	203RD ST, LT/RT	---	0.064	---	2	---
337+39	200TH ST, SOUTH	---	0.064	---	1	---
340+60	40TH AVE, NORTH	---	0.064	---	1	---
PROJECT TOTALS		203		2	4	10

TOPSOIL, MULCHING, FERTILIZER, & SEEDING

STATION TO STATION	LOCATION	625.0100 TOPSOIL	627.0200 MULCHING	629.0210 FERTILIZER TYPE B	630.0120 SEEDING MIXTURE NO. 20	630.0140 NO. 40	630.0200 TEMPORARY	630.0500 SEED WATER
		SY	SY	CWT	LB	LB	LB	MGAL
82+66	SOUTH COUNTY LINE, ENDWALL	17	---	0.02	0.5	---	0.5	0.4
87+88	CTH M, ENDWALL RT	17	---	0.02	0.5	---	0.5	0.4
109+55	CTH M, ENDWALL LT/RT	34	---	0.03	1.0	---	1.0	0.8
174+91	CTH M, ENDWALL LT/RT	204	---	0.13	5.6	---	5.6	4.6
177+10 - 177+60	CTH M BEAM GUARD	53	53	0.04	1.5	1.0	1.5	1.2
177+60 - 179+44	CTH M BEAM GUARD	108	---	0.07	3.0	2.0	3.0	2.5
179+44 - 181+05	CTH M BEAM GUARD	213	213	0.14	5.8	3.9	5.8	4.8
180+33	200TH ST, ENDWALLS	21	---	0.02	0.6	---	0.6	0.5
184+08	CTH M, ENDWALL LT/RT	239	---	0.16	6.5	---	6.5	5.4
199+41	CTH M, ENDWALL LT/RT	34	---	0.03	1.0	---	1.0	0.8
316+39	203RD ST, ENDWALL LT/RT	24	---	0.02	0.7	---	0.7	0.6
337+39	200TH ST, ENDWALL SOUTH	12	---	0.01	0.4	---	0.4	0.3
340+60	40TH AVE, ENDWALL NORTH	12	---	0.01	0.4	---	0.4	0.3
	UNDISTRIBUTED	100	67	0.20	6.5	5.1	6.5	5.4
PROJECT TOTALS		1088	333	0.90	34.0	12.0	34.0	28.0

RIPRAP MEDIUM & GEOTEXTILE TYPE HR

STATION	LOCATION	606.0200 RIPRAP MEDIUM	645.0120 GEOTEXTILE TYPE HR
		CY	SY
225+76	CTH M, LT	6	16
UNDISTRIBUTED	PROJECT	2	4
PROJECT TOTALS		8	20

MGS GUARDRAIL

STATION TO STATION	LOCATION	614.2300 GUARDRAIL 3	614.2610 TERMINAL EAT
		LF	EACH
177+39 - 179+69	CTH M, LT	125	2
PROJECT TOTALS		125	2

MAINTENANCE AND REPAIR OF HAUL ROADS

CATEGORY	PROJECT	618.0100 EACH
0020	8866-00-72	1
PROJECT TOTAL		1

MOBILIZATION

PROJECT	619.1000 EACH
8866-00-72	1
PROJECT TOTAL	1

WATER

LOCATION	624.0100 MGAL
BASE COMPACTION	1100
DUST CONTROL	100
PROJECT TOTAL	1200

SILT FENCE

STATION TO STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
82+66	SOUTH COUNTY LINE	20	20
87+88	CTH M, RT	20	20
109+55	CTH M, LT/RT	20	20
174+91	CTH M, LT/RT	20	20
177+00 - 181+00	CTH M, LT	410	410
180+33	200TH ST	20	20
184+08	CTH M, LT/RT	20	20
199+41	CTH M, LT/RT	20	20
316+39	203RD ST	20	20
337+39	200TH ST	20	20
340+60	40TH AVE	20	20
UNDISTRIBUTED	PROJECT	160	160
PROJECT TOTALS		770	770

MOBILIZATIONS EROSION CONTROL
AND EMERGENCY EROSION CONTROL

PROJECT	628.1905 EACH	628.1910 EMERGENCY EACH
8866-00-72	2	2
PROJECT TOTALS		2

PERMANENT SIGNING										
PLAN & PROFILE SHEET NO	APPROX STATION LOCATION	SIGN CODE	SIGN SIZE WxH (INCHES)	634.0614 634.0616 POSTS WOOD 4X6-INCH		637.2210 637.2230 SIGN TYPE II		638.2602 REMOVING SIGNS	638.3000 REMOVING SMALL SIGN SUPPORTS	COMMENT
				14-FT EACH	16-FT EACH	REFLECTIVE H SF	REFLECTIVE F SF	TYPE II EACH	EACH	
SHEET 1	82+20, LT	I2-2	66x15	---	1	6.88	---	1	1	ST CROIX CO
		M1-5A	24x24	---	---	4.00	---	1	---	"M", SHARES POST
	SOUTH COUNTY LINE	R1-1	30x30	1	---	5.18	---	1	1	
		R1-1	30x30	1	---	5.18	---	1	1	
	83+20, RT	I2-2	48x15	---	1	5.00	---	1	1	POLK CO
		M1-5A	24x24	---	---	4.00	---	1	---	"M", SHARES POST
	85+25, RT	R2-1	24x30	1	---	5.00	---	1	1	"55"
SHEET 2	96+75, LT	S3-1	30x30	1	---	---	6.25	1	1	
SHEET 3	192ND ST	R1-1	30x30	1	---	5.18	---	1	1	
	196TH ST	R1-1	30x30	1	---	5.18	---	---	---	
SHEET 4	E CEDAR RD	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 6	13TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
	165+75, RT	W2-2	30x30	1	---	---	6.25	1	1	
SHEET 7	E CEDAR RD	R1-1	30x30	1	---	5.18	---	1	1	
	10TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
	200TH ST	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 10	20TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 13	268+30, RT	I2-3	84x24	2	---	14.00	---	1	1	HORSE CREEK UNINCORPORATED
	270+95, RT	W3-5	36x36	---	1	5.00	9.00	1	1	"45"
SHEET 14	30TH AVE	R1-1	30x30	1	---	5.18	---	1	1	"45"
	275+75, RT	J1-1	24x39	---	1	6.50	---	1	1	JCT, "X"
	278+05, LT	R2-1	24x30	1	---	5.00	---	1	1	"55"
	278+05, RT	R2-1	24x30	1	---	5.00	---	1	1	"45"
	283+95, LT	M1-5A	24x24	1	---	4.00	---	1	1	"M"
	285+55, RT	J13-1	24x45	---	1	7.50	---	1	1	"X", LT ARROW
	35TH AVE/CTH X	R1-1	30x30	1	---	5.18	---	1	1	
		W1-7	48x24	1	1	8.00	---	1	1	
	286+60, RT	M1-5A	24x24	---	---	4.00	---	1	---	"M", SHARES POST
	287+05, LT	J13-1	24x45	---	1	7.50	---	1	1	"X", RT ARROW
SHEET 15	290+60, RT	W1-2R	36x36	---	1	---	9.00	1	1	
		W13-1	18x18	---	---	---	2.25	---	---	"45", SHARES POST
	293+30, LT	J1-1	24x39	---	1	6.50	---	1	1	JCT, "X"
	296+40, LT	R2-1	24x30	1	---	5.00	---	1	1	"45"
	296+40, RT	R2-1	24x30	1	---	5.00	---	1	1	"55"
SHEET 16	35TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
	305+20, LT	W3-5	36x36	---	1	---	9.00	1	1	"45"
	308+00, LT	I2-3	84x24	2	---	14.00	---	1	1	HORSE CREEK UNINCORPORATED
	309+00, LT	S3-1	30x30	1	---	---	6.25	1	1	
	310+85, LT	W1-2L	36x36	---	1	---	9.00	1	1	
		W13-1	18x18	---	---	---	2.25	---	---	"45", SHARES POST
	203RD ST	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 17	324+30, RT	W1-2L	36x36	---	1	---	9.00	1	1	
	328+55, RT	S3-1	30x30	1	---	---	6.25	1	1	
SHEET 18	200TH ST	R1-1	30x30	1	---	5.18	---	1	1	
	40TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
	345+00, LT	S3-1	30x30	1	---	---	6.25	1	1	
	346+75, LT	W1-2R	36x36	---	1	---	9.00	1	1	
SHEET 21	384+80	W2-1	30x30	1	---	---	6.25	1	1	
	50TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 22	50TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
SHEET 24	433+00, RT	J1-1	24x39	---	1	6.50	---	1	1	JCT, "K"
SHEET 25	438+85, LT	M1-5A	24x24	1	---	4.00	---	1	1	"M"
	440+50, RT	J13-1	24x45	---	1	7.50	---	1	1	"K", RT ARROW
	60TH AVE	R1-1	30x30	1	---	5.18	---	1	1	
	60TH AVE/CTH K	R1-1	30x30	1	---	5.18	---	1	1	
	60TH AVE/CTH K	J13-1	24x45	---	1	7.50	---	1	1	"M", DOUBLE ARROW
- CONTINUED -										

3

3

TEMPORARY DITCH CHECKS

		628.7504
STATION	LOCATION	LF
UNDISTRIBUTED	PROJECT	70
PROJECT TOTAL		70

CULVERT PIPE CHECKS

		628.7555
STATION	LOCATION	EACH
82+66	SOUTH COUNTY LINE	3
87+88		3
109+55		3
174+91		3
180+33		2
184+08	CTH M	3
199+41	CTH M	3
316+39	203RD ST	2
337+39	200TH ST	2
340+60	40TH AVE	2
UNDISTRIBUTED		5
PROJECT TOTAL		31

EROSION MAT

		628.2004	628.2027
		CLASS I	CLASS II
STATION TO STATION	LOCATION	TYPE B	TYPE C
		SY	SY
82+66	SOUTH COUNTY LINE, ENDWALL	---	14
87+88		---	14
109+55		---	29
174+91		---	99
177+60 - 179+45		108	---
180+33	200TH ST, ENDWALLS	---	17
184+08	CTH M, ENDWALL LT/RT	---	29
199+41	CTH M, ENDWALL LT/RT	---	29
316+39	203RD ST, ENDWALL LT/RT	---	21
337+39	200TH ST, ENDWALL SOUTH	---	10
340+60	40TH AVE, ENDWALL NORTH	---	10
UNDISTRIBUTED		27	70
PROJECT TOTALS		135	343

PERMANENT SIGNING - CONTINUED -

PLAN & PROFILE SHEET NO	APPROX STATION LOCATION	SIGN CODE	SIGN SIZE WXH (INCHES)	634.0614	634.0616	637.2210	637.2230	638.2602	638.3000	COMMENT
				POSTS 14-FT EACH	WOOD 4X6-INCH 16-FT EACH	SIGNS REFLECTIVE H SF	TYPE II REFLECTIVE F SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
SHEET 27	441+70, LT	J13-1	24x45	---	1	7.50	---	1	1	"K", LT ARROW
	443+60, RT	M1-5A	24x24	1	---	4.00	---	1	1	"M"
	448+60, LT	J1-1	24x39	---	1	6.50	---	1	1	JCT, "K"
	482+25, RT	W1-2L	36x36	---	1	---	9.00	1	1	
SHEET 28		W13-1	18x18	---	---	---	2.25	---	---	"50", SHARES POST
	487+50, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	488+75, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	490+00, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	491+25, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	492+50, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	493+85, RT	J1-1	24x39	---	1	6.50	---	1	1	JCT, "Y"
	493+90, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	495+25, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
SHEET 29	496+50, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	497+75, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	499+25, RT	W1-8	18x24	1	---	---	3.00	1	1	
		W1-8	18x24	---	---	---	3.00	1	---	SHARES POST
	499+50, RT	J13-1	24x45	---	1	7.50	---	1	1	"Y", RT ARROW
	500+00, LT	W1-7	48x24	1	1	---	8.00	1	1	
		M1-5A	24x24	---	---	4.00	---	1	---	SHARES POST
	CTH Y	R1-1	30x30	1	---	5.18	---	1	1	
PROJECT	500+50, LT	J13-1	24x45	---	1	7.50	---	1	1	"Y", LT ARROW
	503+25, RT	W2-2	30x30	1	---	---	6.25	1	1	
	LOCATIONS	W14-3	48x36	1	---	---	5.56	---	---	
	DETERMINED	W14-3	48x36	1	---	---	5.56	---	---	
	BY "LOCATING	W14-3	48x36	1	---	---	5.56	---	---	
	NO PASSING ZONE"	W14-3	48x36	1	---	---	5.56	---	---	
		W14-3	48x36	1	---	---	5.56	---	---	
		W14-3	48x36	1	---	---	5.56	---	---	
		W14-3	48x36	1	---	---	5.56	---	---	
		W14-3	48x36	1	---	---	5.56	---	---	
TOTALS				60	23	299.66	225.98	84	70	
PROJECT TOTALS				66 *	23	299.66	225.98	84	75 *	

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN THE PLAN

MOVING SIGNS TYPE II

SIGN NO	APPROX STATION LOCATION	634.0614	638.2102	638.3000	COMMENT
		POSTS WOOD 4X6-INCH 14-FT EACH	MOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
1-1	SOUTH COUNTY LINE	1	1	---	NO ATV
1-2	83+20, RT	1	1	1	ALL POLK COUNTY HIGHWAYS ARE
1-3	85+25, RT	1	1	1	ATV ROUTES UNLESS POSTED
					ATV SPEED LIMIT 35
4-1	E CEDAR RD	---	1	---	ATV'S MUST STAY ON PAVEMENT
					TOWN ROAD SIGNS
7-1	E CEDAR RD	---	1	---	TOWN ROAD SIGNS
10-1	216+00, RT	---	1	---	ADOPT-A-HIGHWAY
14-1	280+05, RT	1	1	1	ADOPT-A-HIGHWAY
14-2	283+95, LT	1	1	1	ADOPT-A-HIGHWAY
16-1	203RD ST	---	1	---	TOWN ROAD SIGNS
18-1	200TH ST	---	1	---	TOWN ROAD SIGNS
18-2	343+15, LT	1	1	1	ADOPT-A-HIGHWAY
25-1	60TH AVE	---	1	---	TOWN ROAD SIGNS
TOTALS		6	12	5	
PROJECT TOTALS		66 *	12	75 *	

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN THE PLAN

TRAFFIC CONTROL ITEMS

PROJECT	DAYS	643.0300		643.0420		643.0900		643.5000
		DRUMS EACH	DAY	BARRICADES TYPE III EACH	DAY	SIGNS EACH	DAY	TRAFFIC CONTROL EACH
8866-00-72	105	---	---	---	---	10	1050	1
21 SIDE ROADS	105	---	---	---	---	21	2205	---
PIPE REPLACEMENTS	14	---	---	---	---	8	112	---
UNDISTRIBUTED		---	100	---	25	---	833	---
PROJECT TOTALS			100		25		4200	1

MARKING LINE SAME DAY EPOXY 4-INCH

STATION TO STATION	LOCATION	646.4520
		YELLOW LF
82+00 - 503+70	CENTERLINE	66842
CTH X	CENTERLINE	50
CTH K	CENTERLINE	50
CTH Y	CENTERLINE	100
PROJECT TOTAL		67042

CONSTRUCTION STAKING
PIPE CULVERTS

STATION	LOCATION	650.6000
		EACH
174+91	CTH M	1
184+08	CTH M	1
PROJECT TOTAL		2

CONSTRUCTION STAKING
RESURFACING REFERENCE

	650.8000
STATION TO STATION	LF
82+00 - 503+70	42170
PROJECT TOTAL	42170

FIELD OFFICE TYPE B

PROJECT	642.5001	
	EACH	
8866-00-72	1	
PROJECT TOTAL	1	
<u>TEMPORARY MARKING LINE PAINT 4-INCH</u>		
	649.0105	
	YELLOW	
STATION TO STATION	LF	
82+00 - 503+70	1ST LIFT, CENTERLINE	54257
82+00 - 503+70	2ND LIFT, CENTERLINE	54257
PROJECT TOTAL		108514

LOCATING NO-PASSING ZONE

	648.0100
STATION TO STATION	MI
82+00 - 503+70	7.99
PROJECT TOTAL	7.99

MARKING LINE EPOXY 4-INCH

STATION TO STATION	DESCRIPTION	646.1020
		WHITE LF
82+00 - 503+70	EDGE LINE	84340
CTH X	EDGE LINE	50
CTH K	EDGE LINE	50
CTH Y	EDGE LINE	100
PROJECT TOTAL		84540

MARKING STOP LINE EPOXY 18-INCH

	646.6120
LOCATION	LF
CTH X	24
CTH K	22
CTH Y	22
PROJECT TOTAL	68

CONSTRUCTION STAKING
SUPPLEMENTAL CONTROL

PROJECT	650.9910
	LS
8866-00-72	1

CONSTRUCTION STAKING SLOPE STAKES

	650.9920
STATION TO STATION	LF
177+00 - 180+89	389
PROJECT TOTAL	389

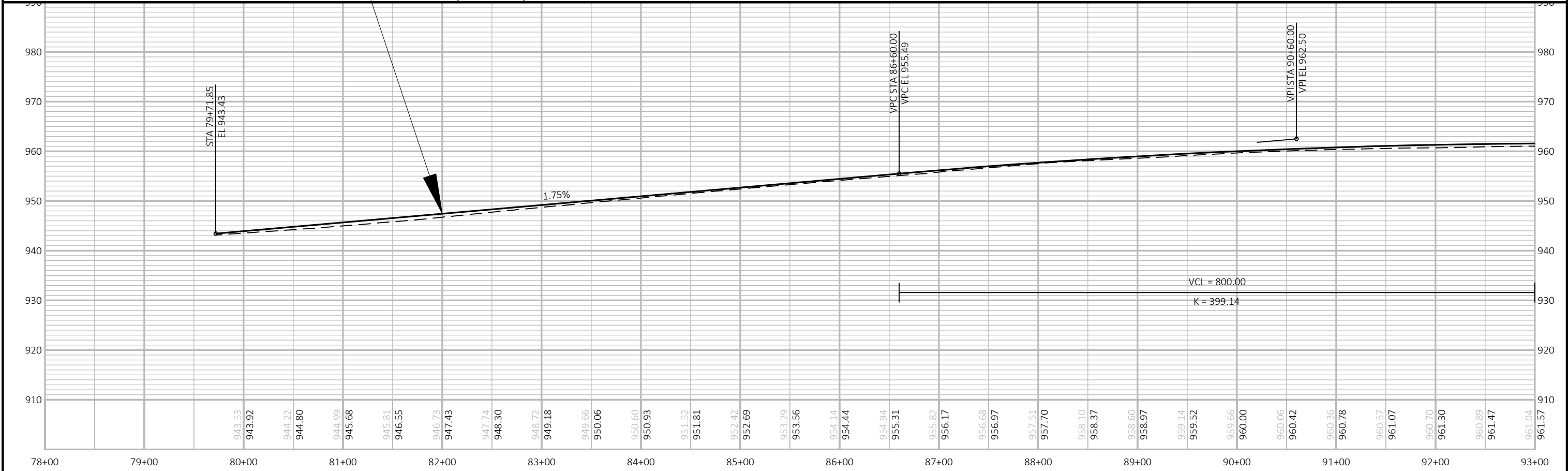
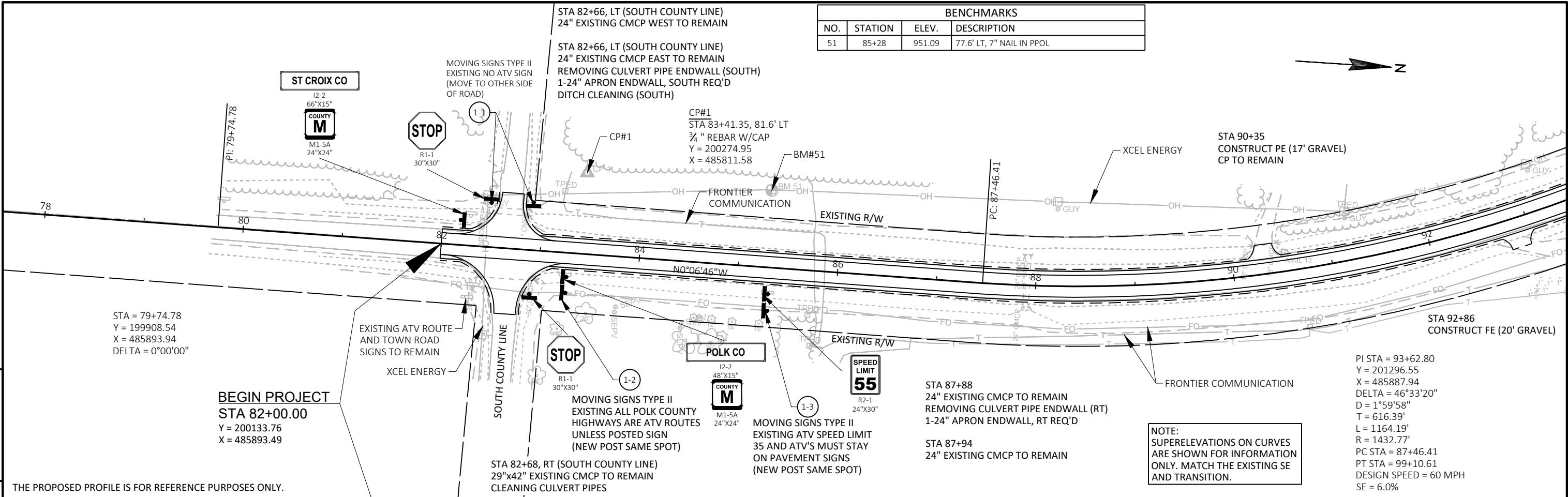
SAWING ASPHALT

STATION	LOCATION	690.0150
		LF
82+00	CTH M	30
103+53	PE, LT	30
120+62	PE, LT	15
149+36	PE, LT	14
158+18	PE, LT	16
163+85	PE, LT	34
174+91	PIPE REPLACEMENT	60
184+08	PIPE REPLACEMENT	68
297+63	PE, LT	16
313+73	PE, LT	18
335+91	PE, LT	12
356+25	PE, LT	15
426+19	PE, LT	20
427+03	PE, RT	13
503+70	CTH M	30
PROJECT TOTAL		391

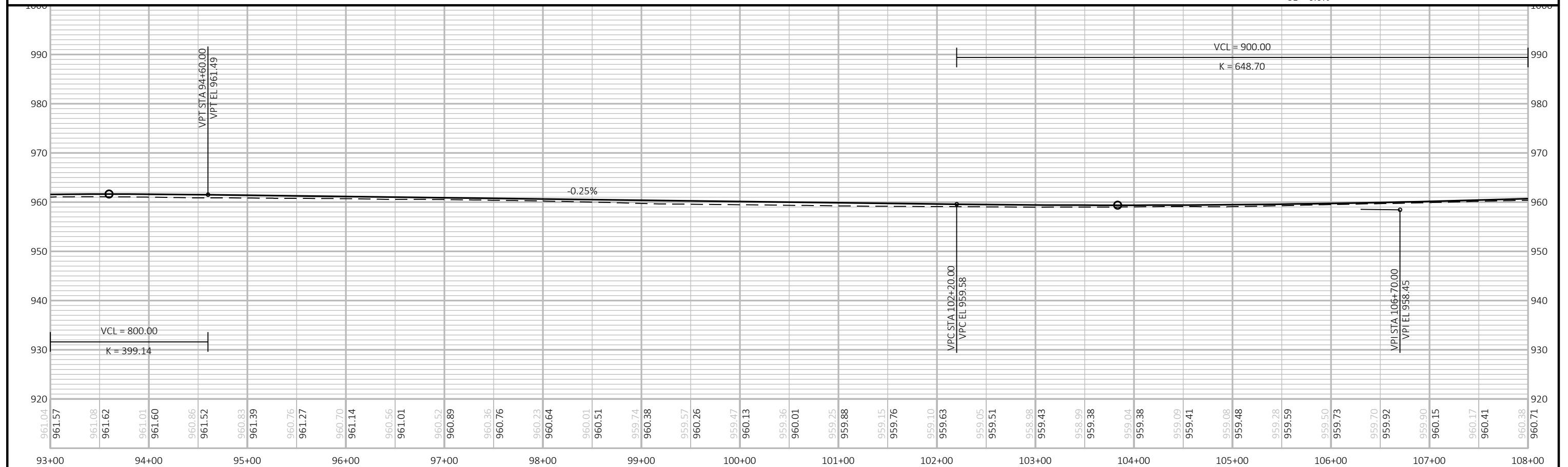
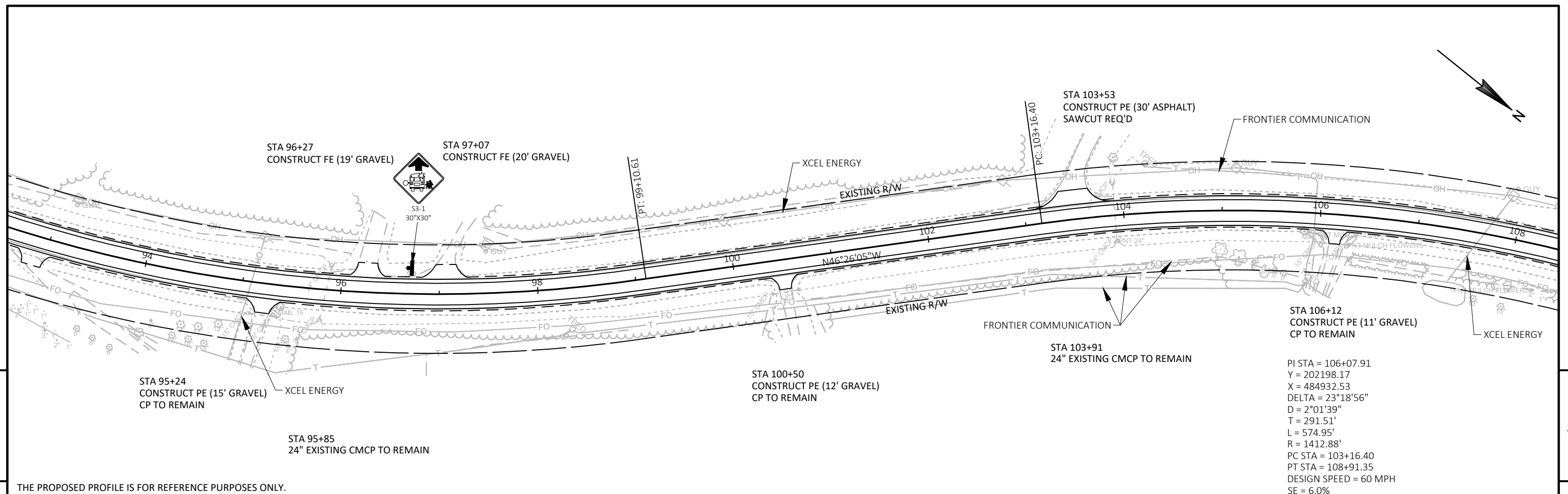
DITCH CLEANING

STATION	LOCATION	SPV.0060.01
		EACH
82+66, LT	SOUTH PIPE END	1
PROJECT TOTAL		1

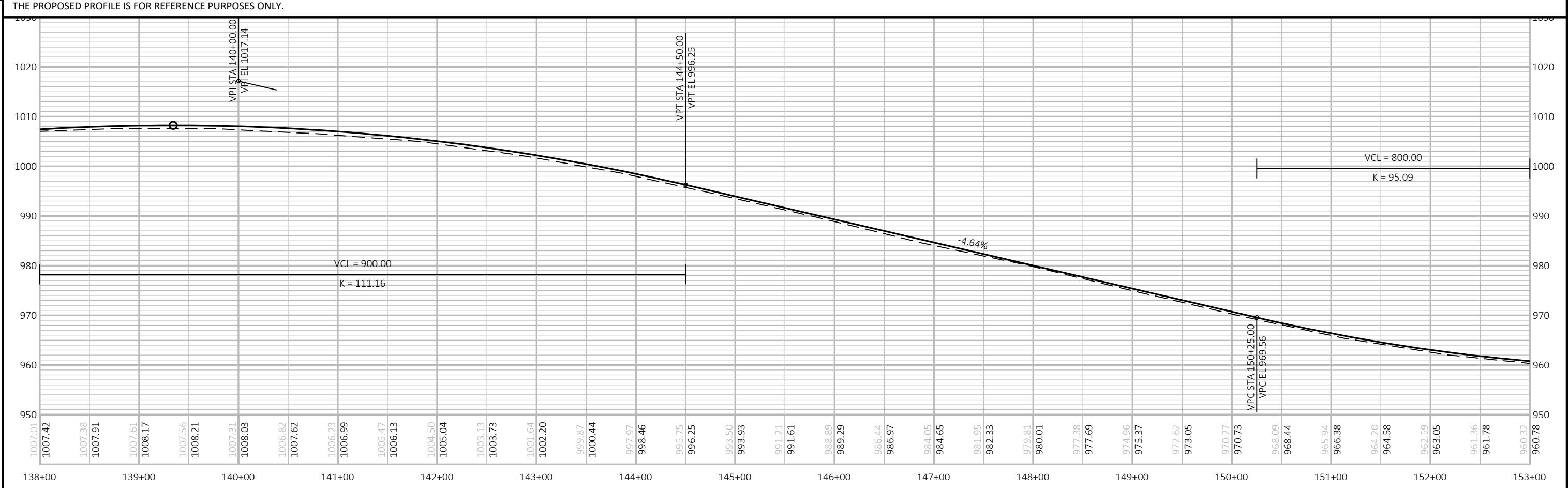
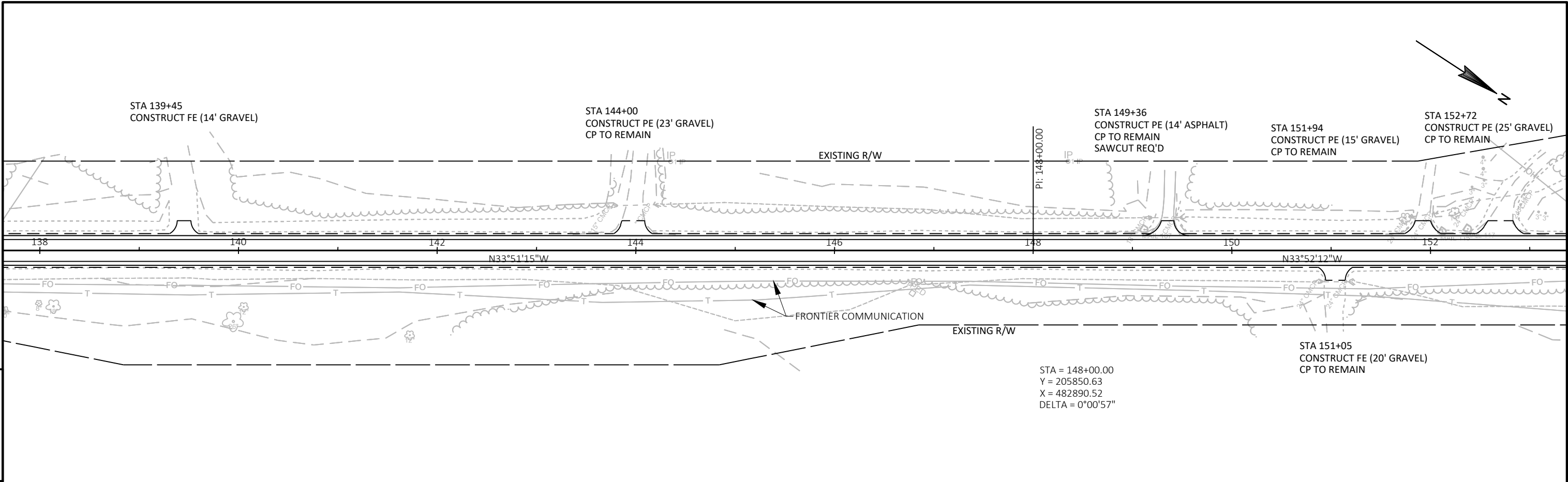
Location	Station	Mixture Use	Underlying Surface	Bid Item	Tons	Thickness	Quality Management Program to be used for:	
							Mixture Acceptance	Density Acceptance
11 foot Driving Lane	82+00 - 503+75	Surface Layer	4 MT 58-28 S	4 MT 58-34 S	10,105	1.75"	PWL Incentative Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
11 foot Driving Lane	82+00 - 503+75	Binder Upper Layer	3 LT 58-28 S	4 MT 58-28 S	11,550	2"	PWL Incentative Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
11 foot Driving Lane	82+00 - 503+75	Binder Lower Layer	Pulverized Asphaltic Pavement and Base Course	3 LT 58-28 S	12,990	2.25"	PWL Incentative Air Voids HMA Pavement 460.2010	Incentive Density PWL HMA Pavement 460.2005
4 foot shoulder	82+00 - 503+75	Surface Layer	4 MT 58-28 S	4 MT 58-34 S	3,675	1.75"	PWL Incentative Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for incentive
4 foot shoulder	82+00 - 503+75	Binder Upper Layer	3 LT 58-28 S	4 MT 58-28 S	3,950	2"	PWL Incentative Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for incentive
4 foot shoulder	82+00 - 503+75	Binder Lower Layer	Pulverized Asphaltic Pavement and Base Course	3 LT 58-28 S	4,730	2.25"	PWL Incentative Air Voids HMA Pavement 460.2010	Acceptance testing by the department; Not eligible for incentive
Various		Culvert Patches	Base Aggregate	Asphaltic Surface	52	4"	QMP as per SS 465	Acceptance by ordinary compaction



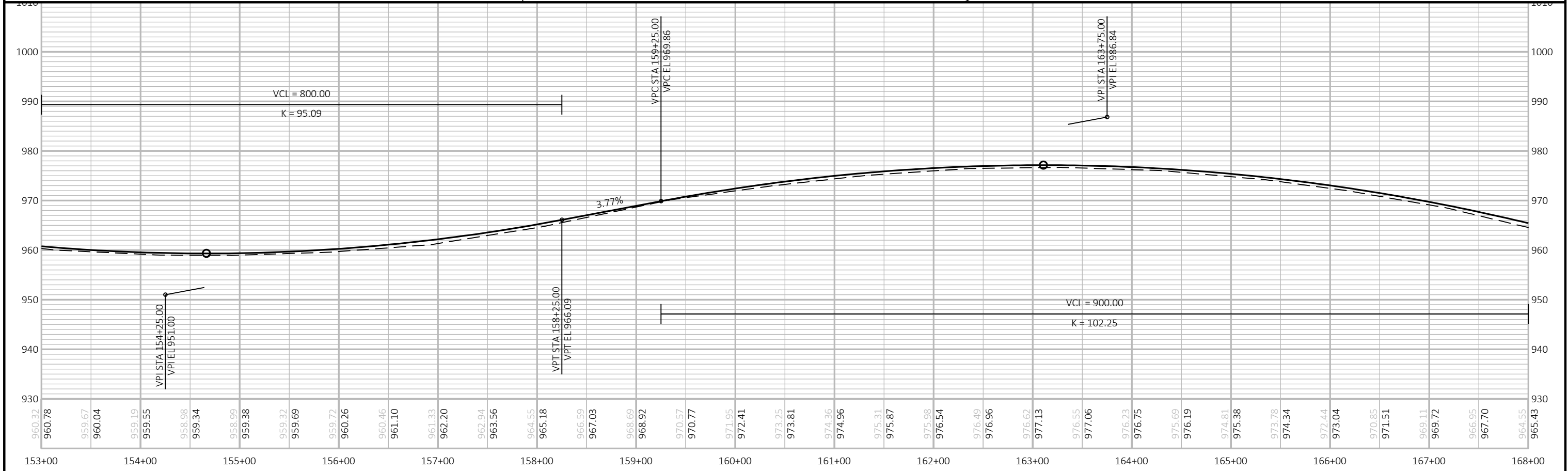
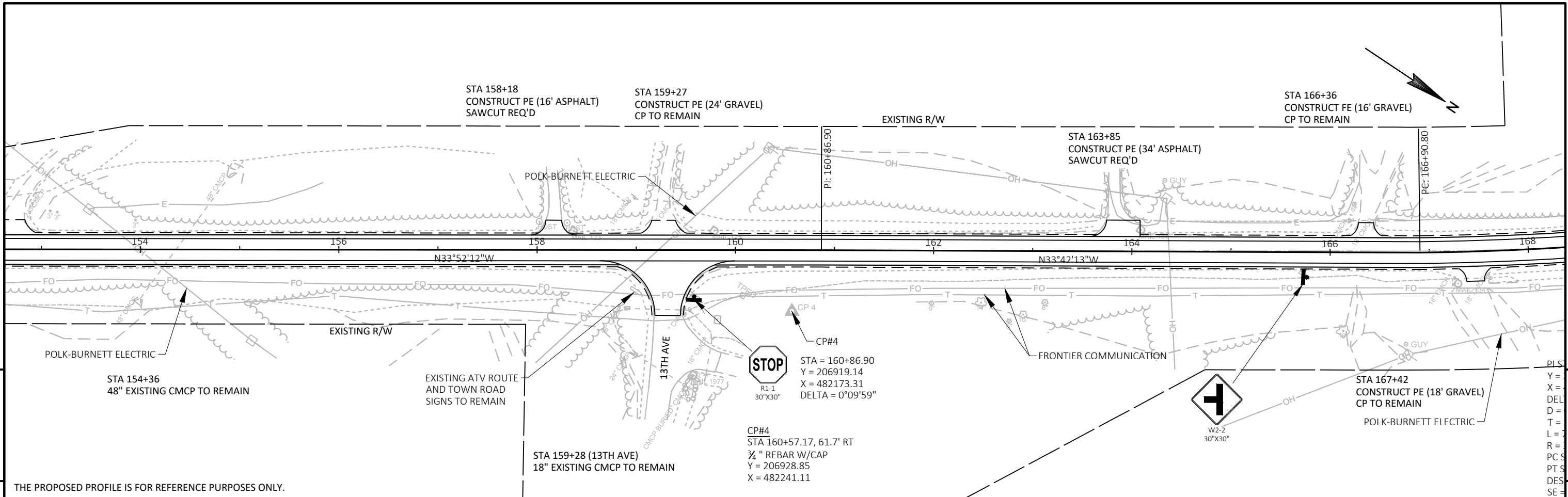
PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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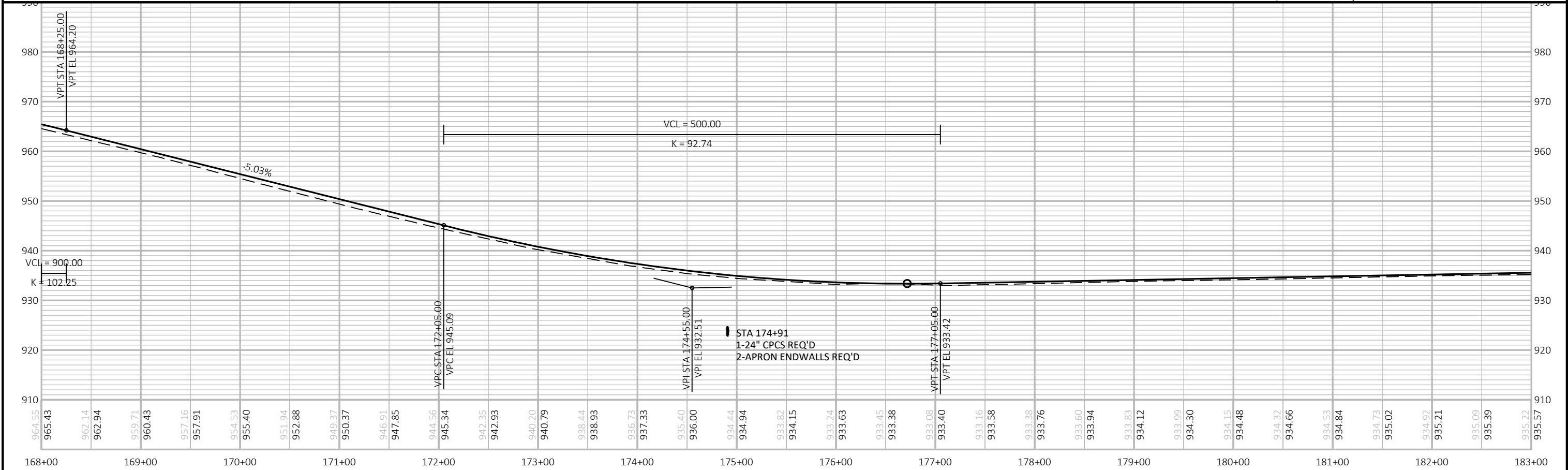
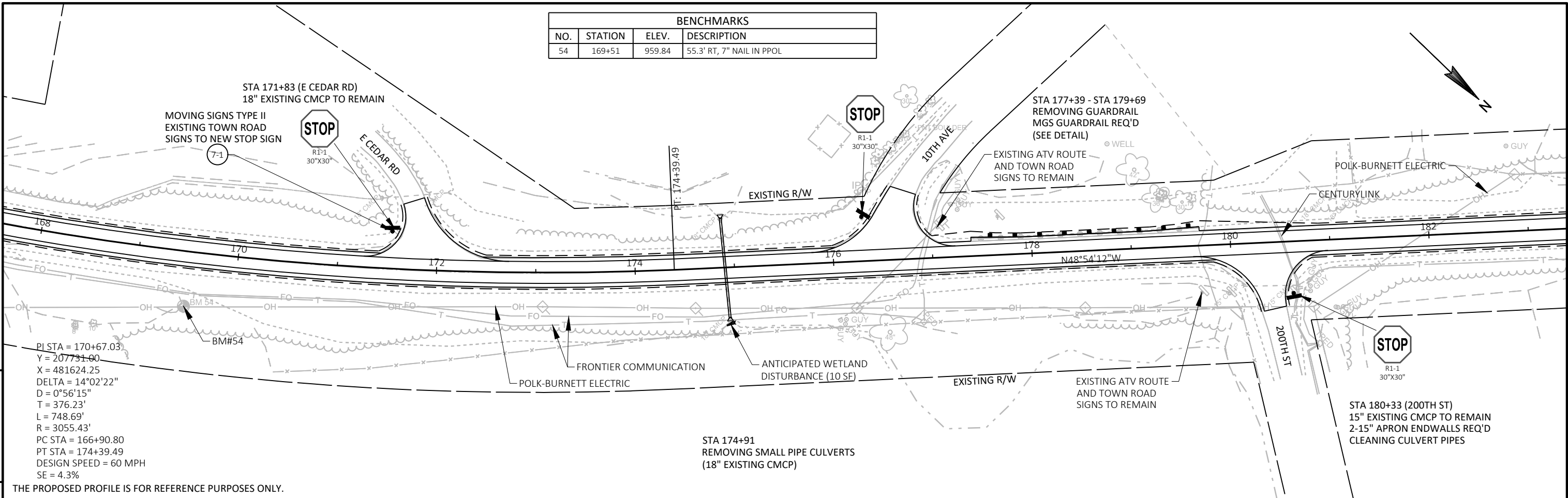


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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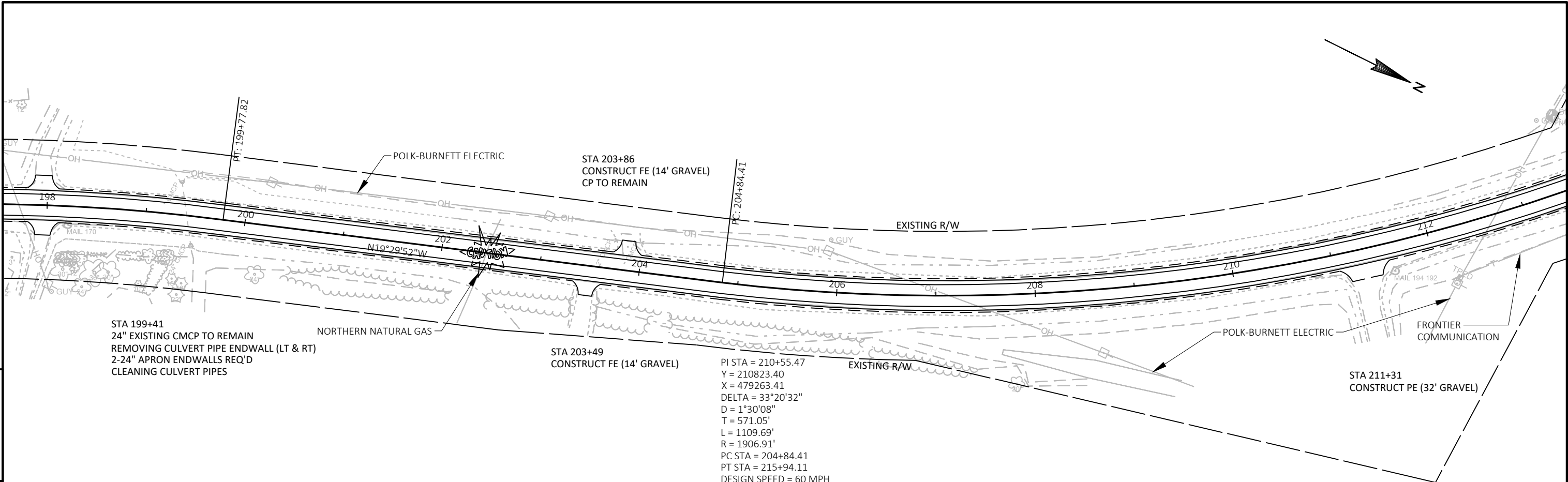


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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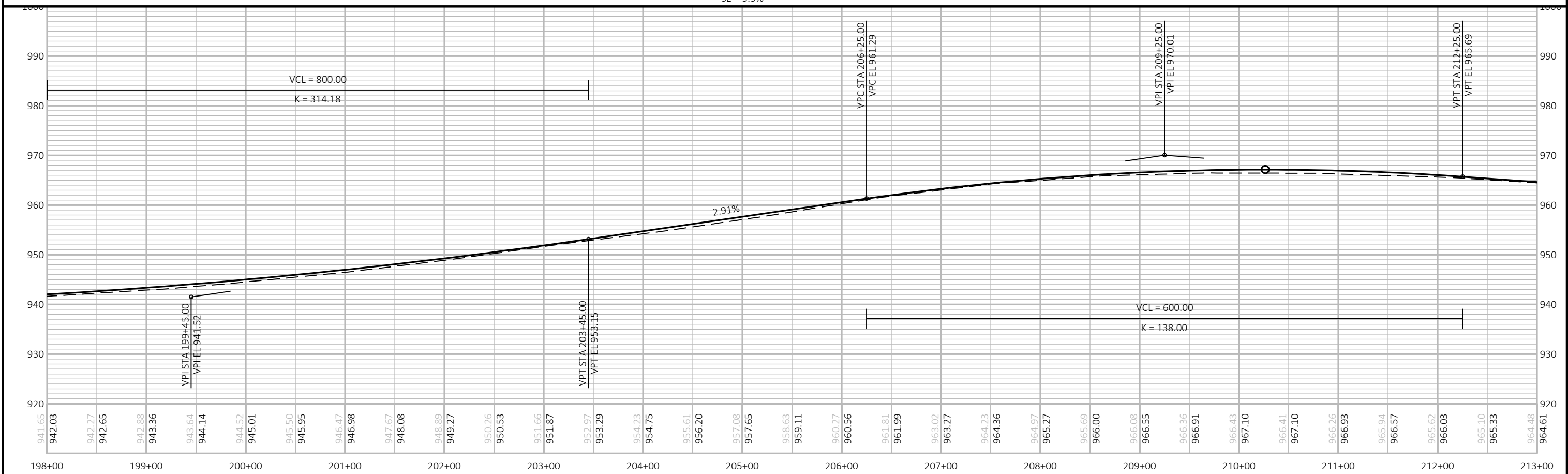
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
54	169+51	959.84	55.3' RT, 7" NAIL IN PPOL



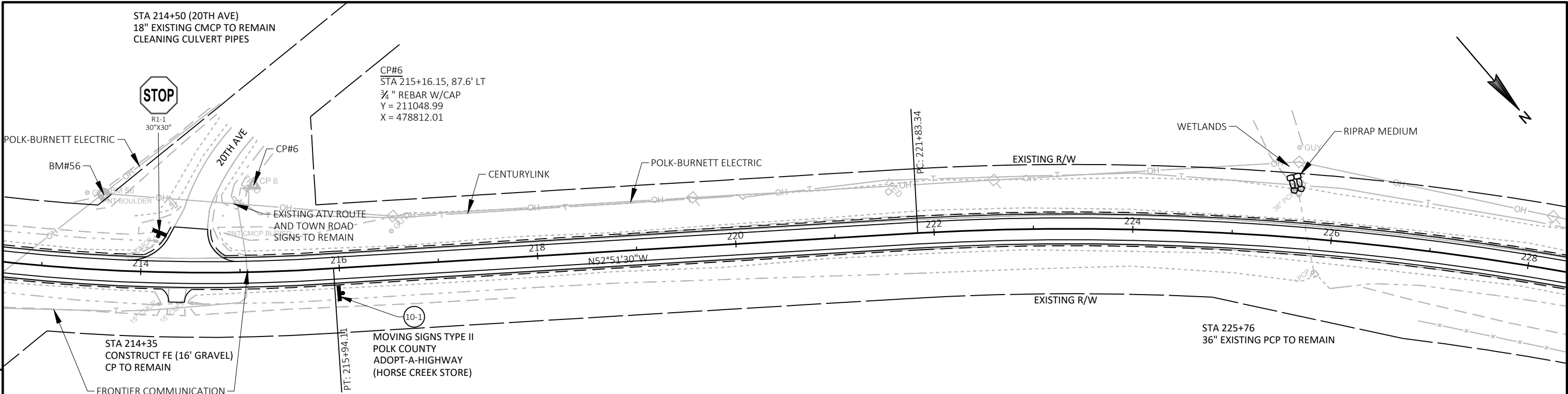
PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.

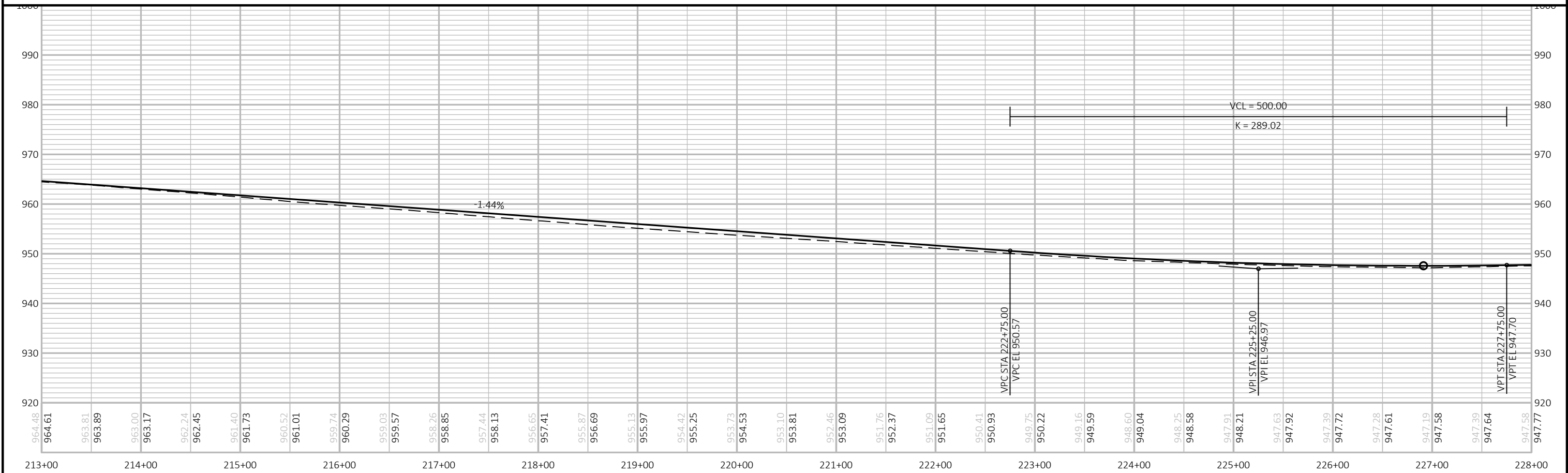


PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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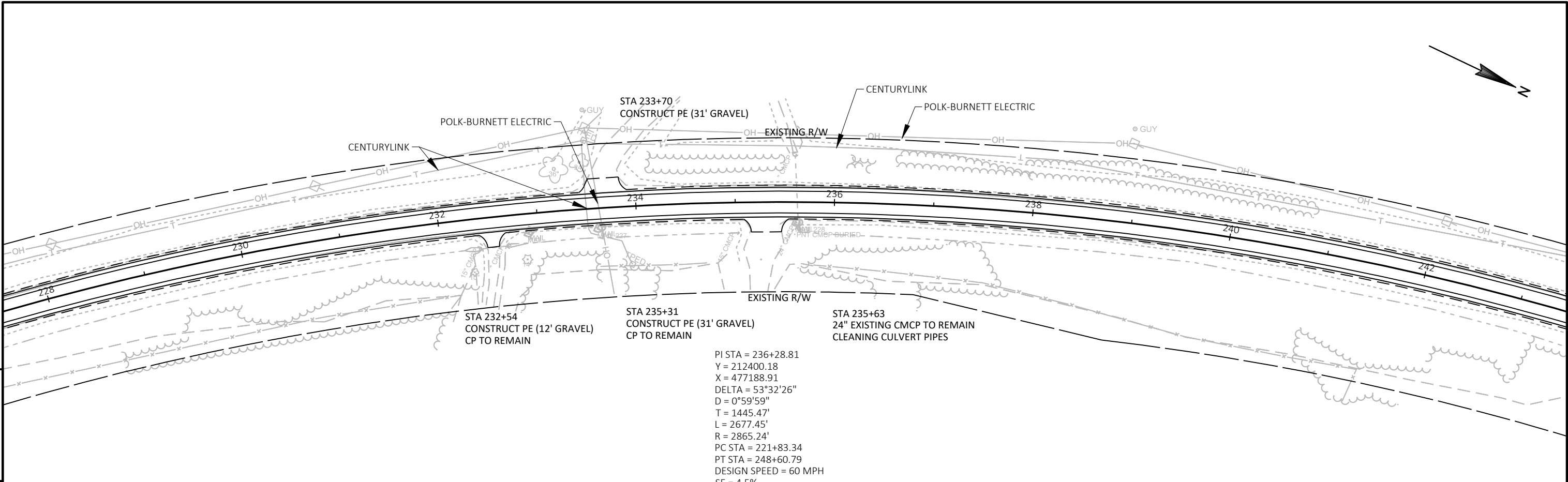


BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
56	213+58	961.23	75.8' LT, 7" NAIL IN PPOL

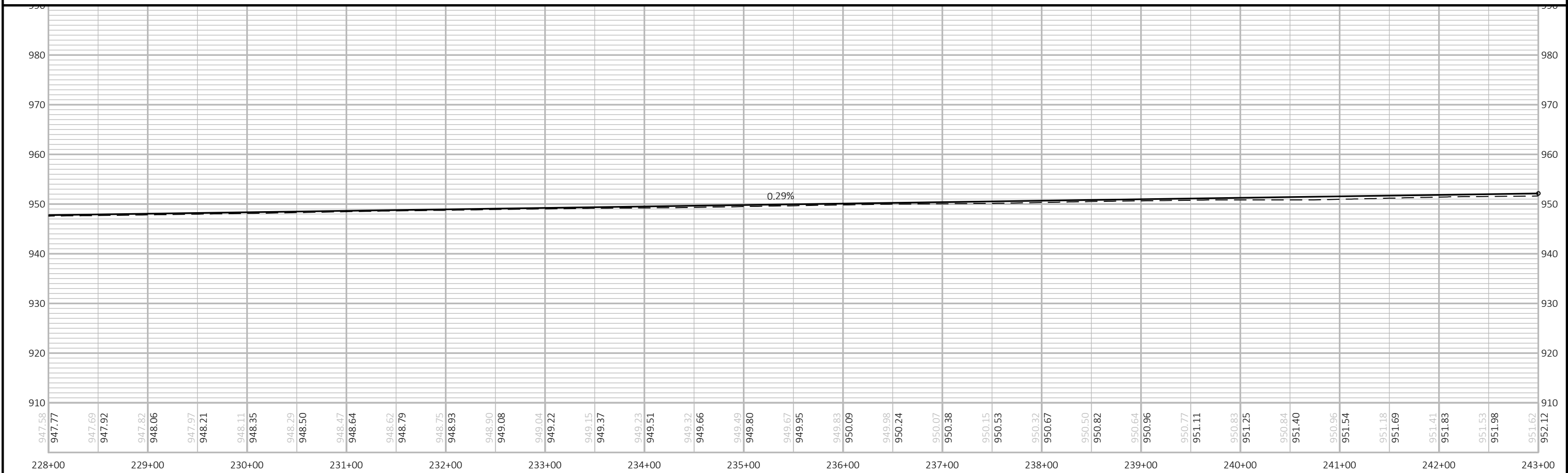
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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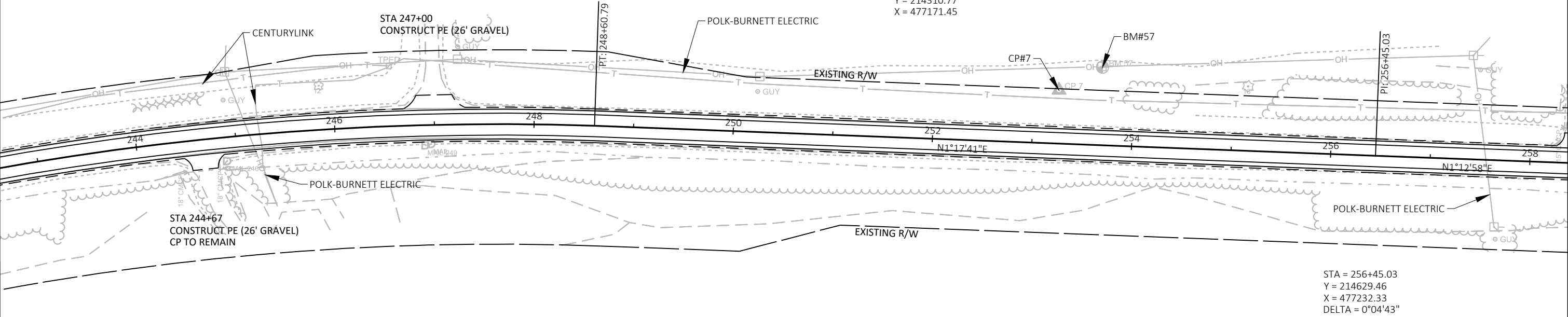
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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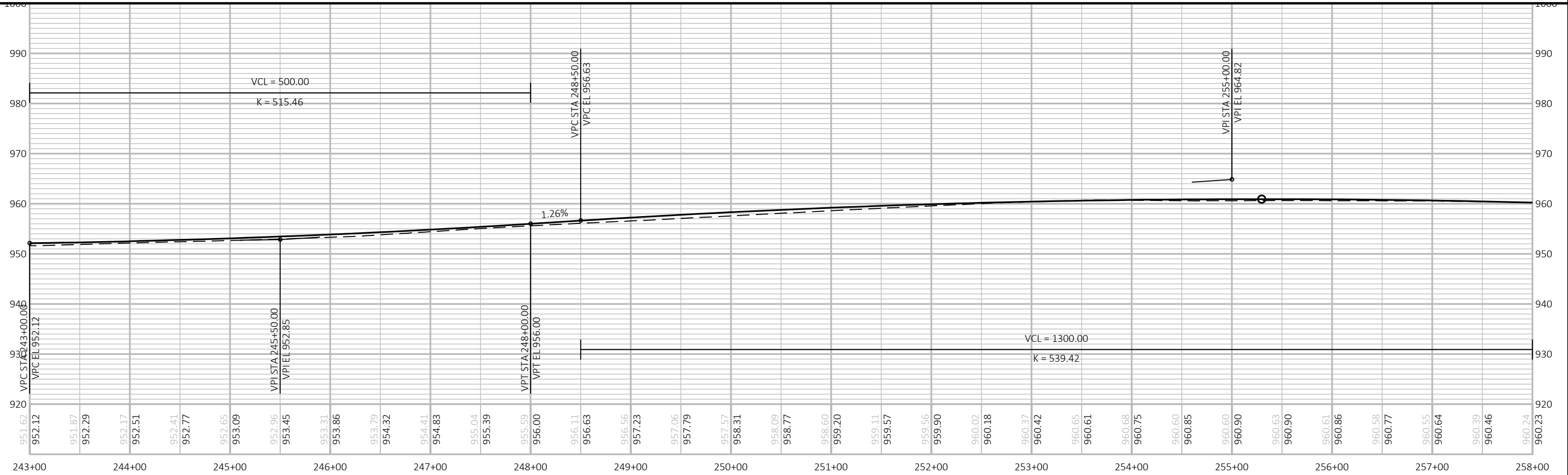
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
57	253+68	952.75	78.2' LT, 7" NAIL IN PPOL

CP#7
STA 253+25.05, 53.7' LT
¾" REBAR W/CAP
Y = 214310.77
X = 477171.45

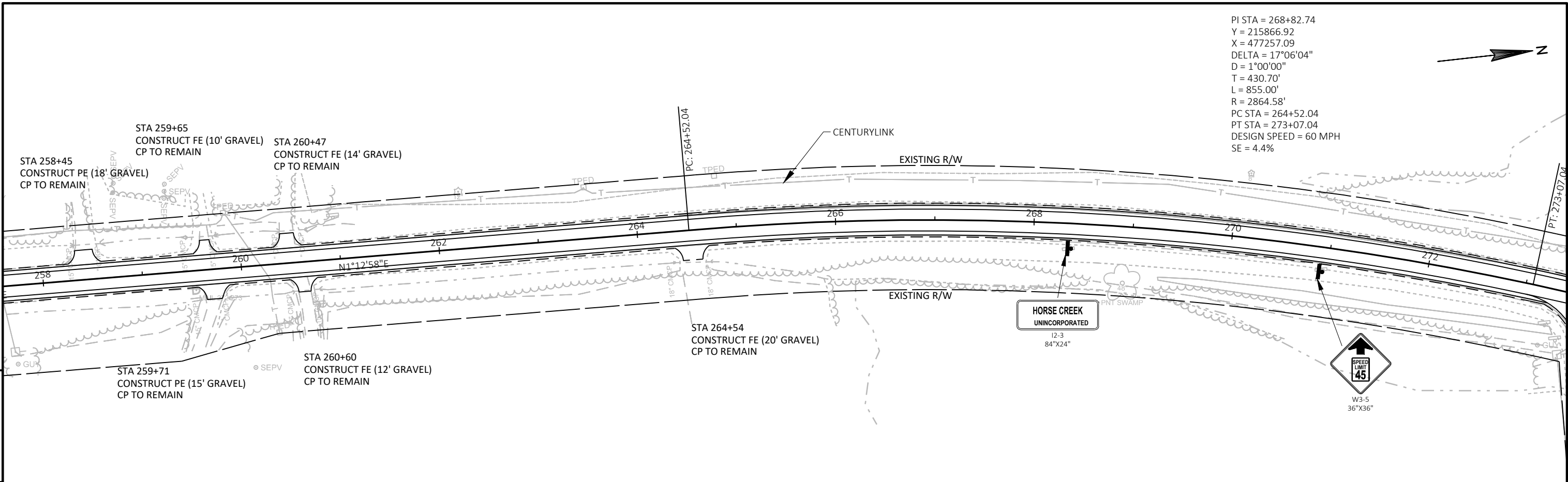


STA = 256+45.03
Y = 214629.46
X = 477232.33
DELTA = 0°04'43"

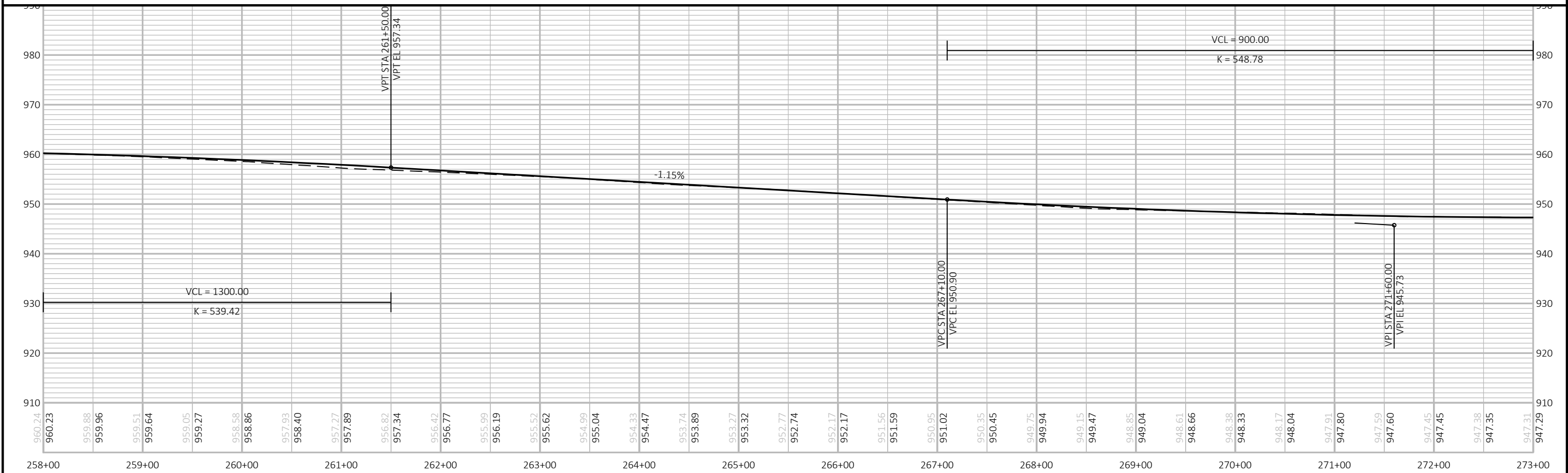
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



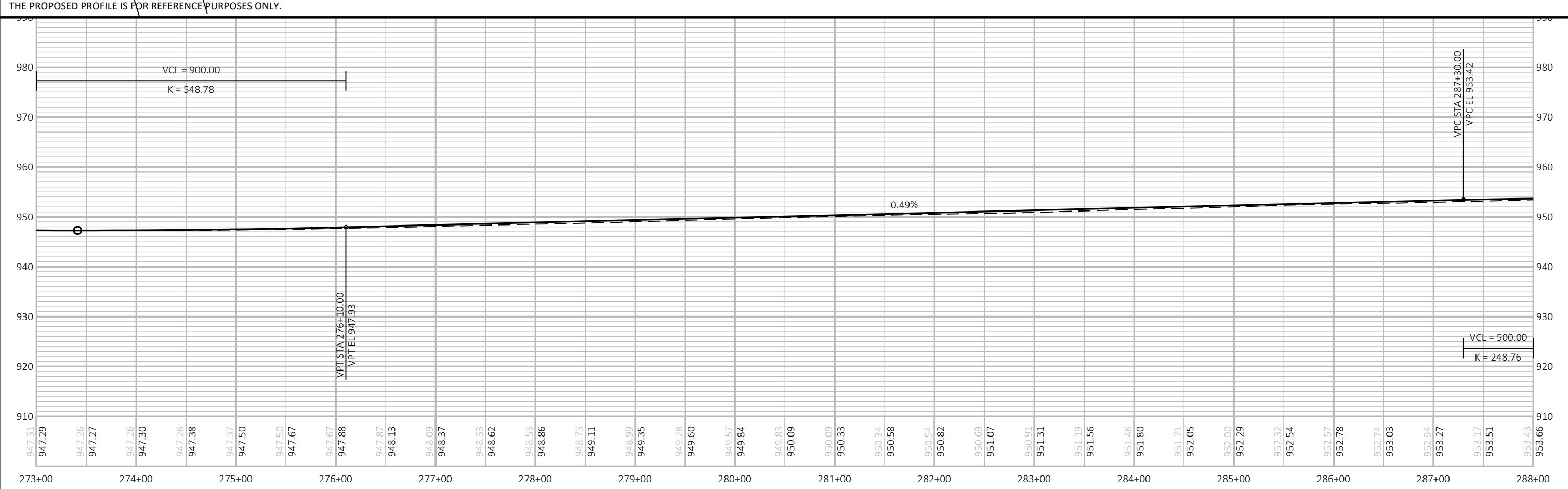
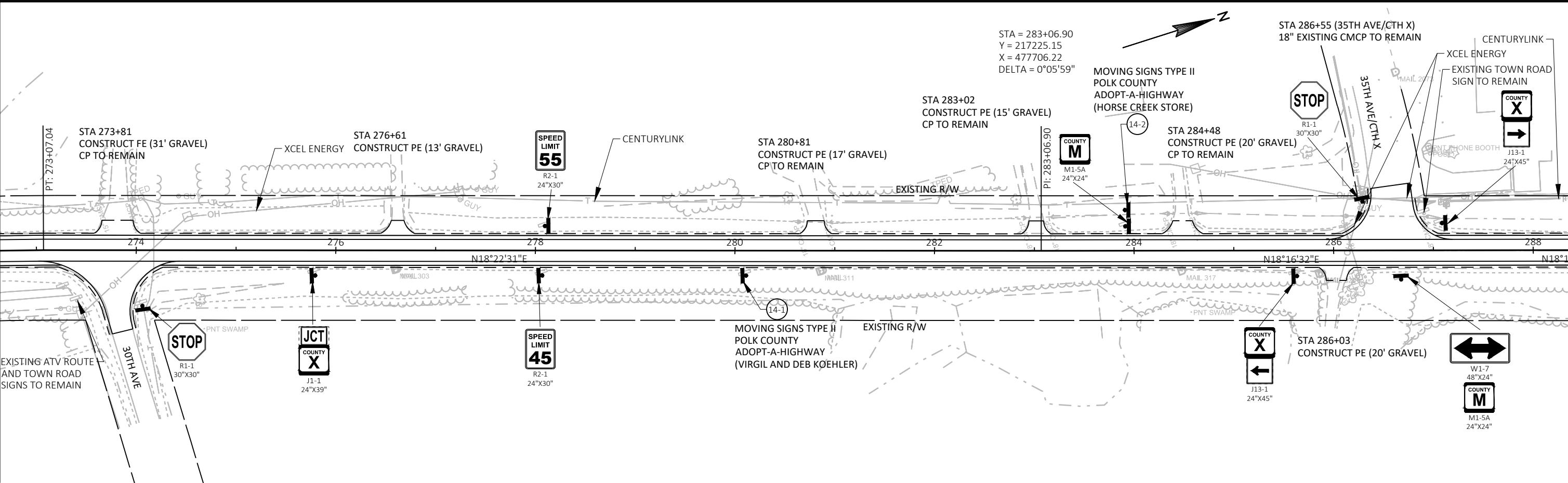
PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET 5
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THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.

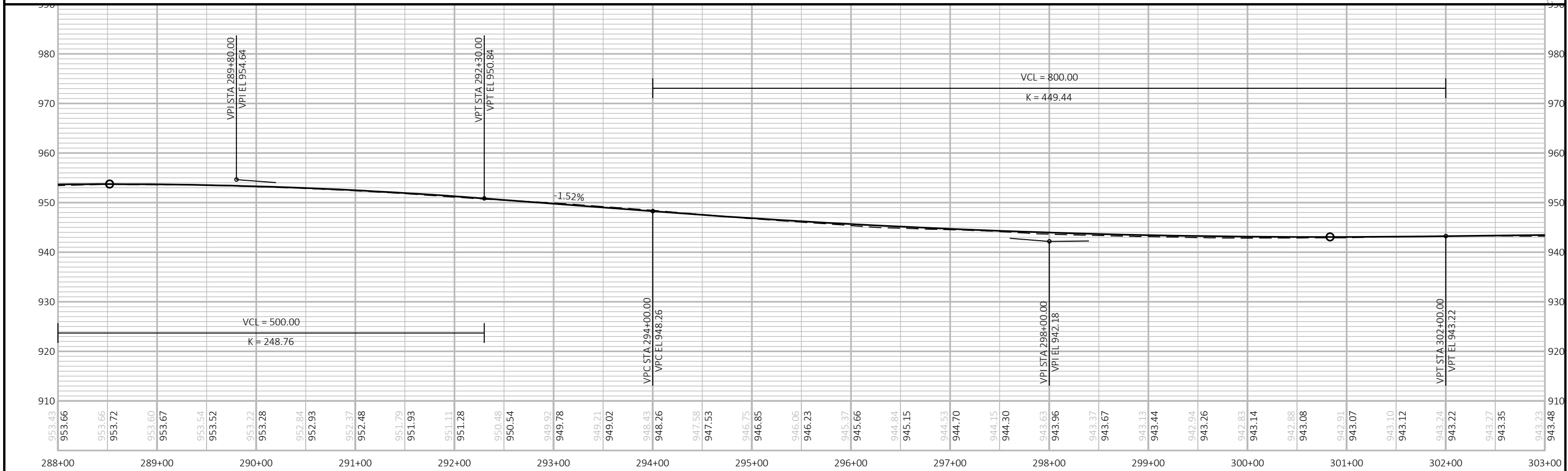
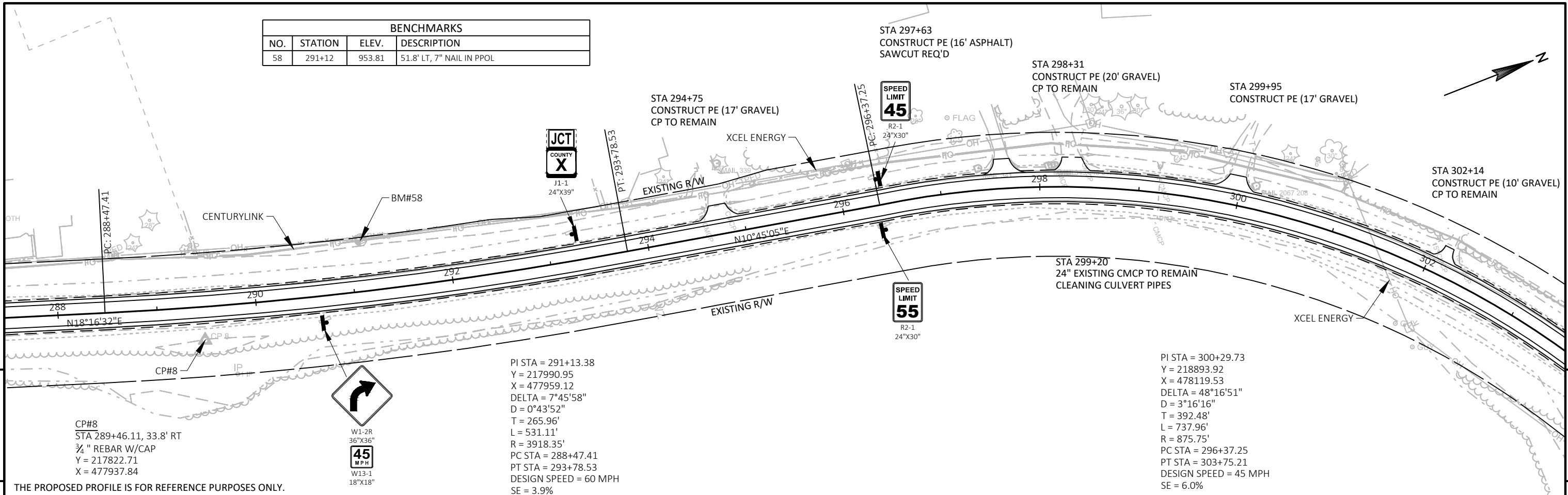


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	5
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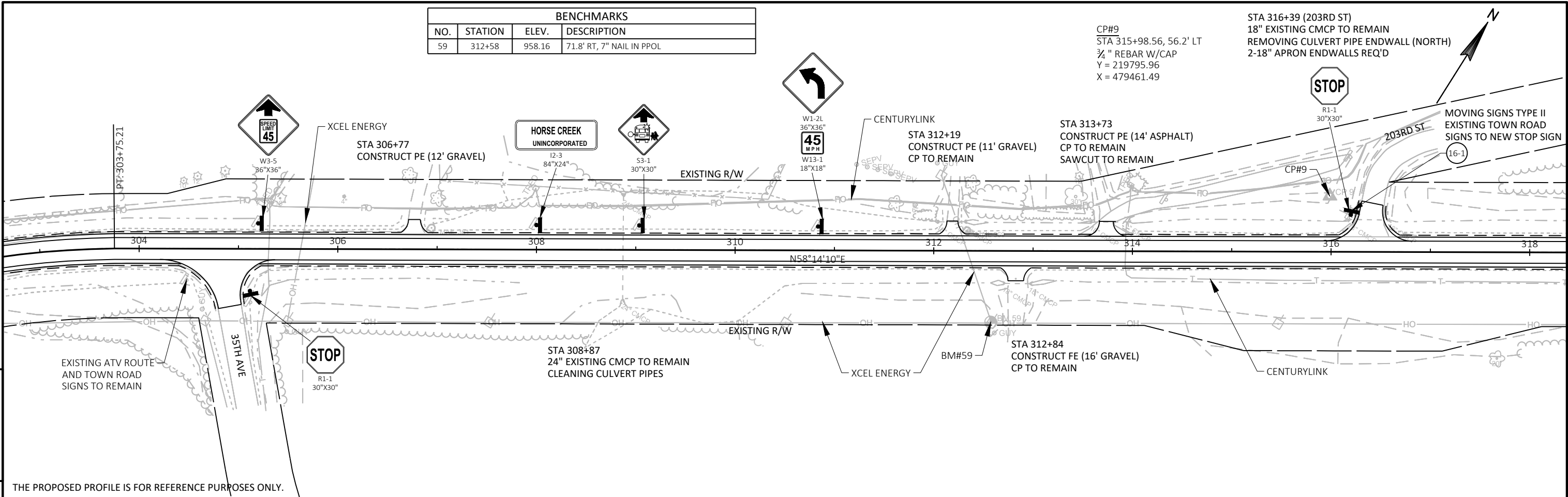
PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
58	291+12	953.81	51.8' LT, 7" NAIL IN PPOL

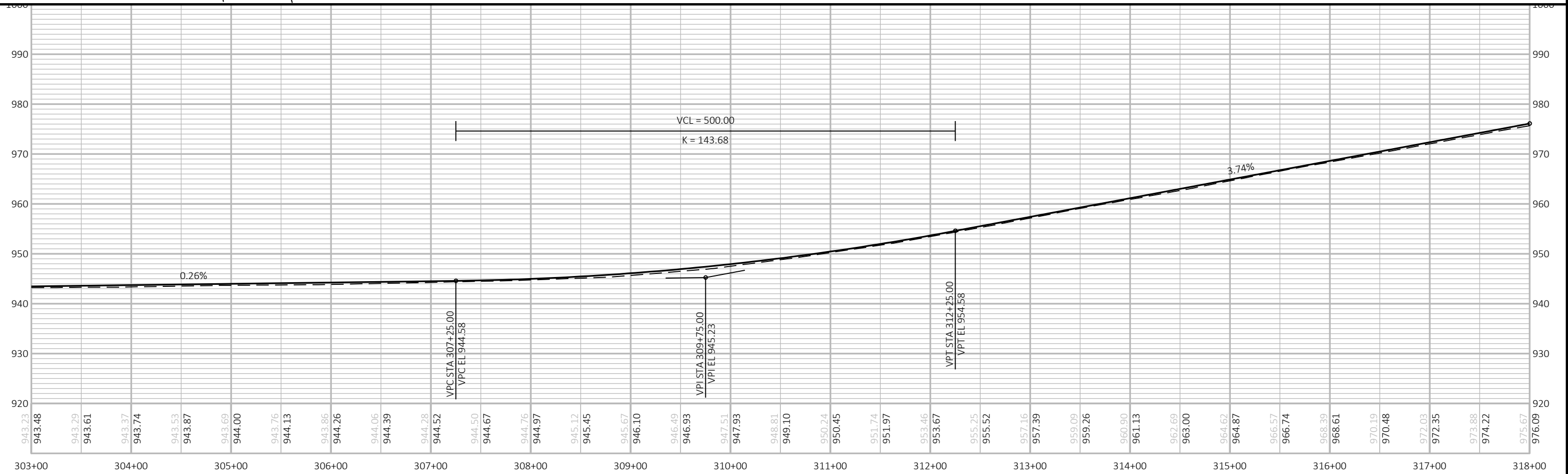


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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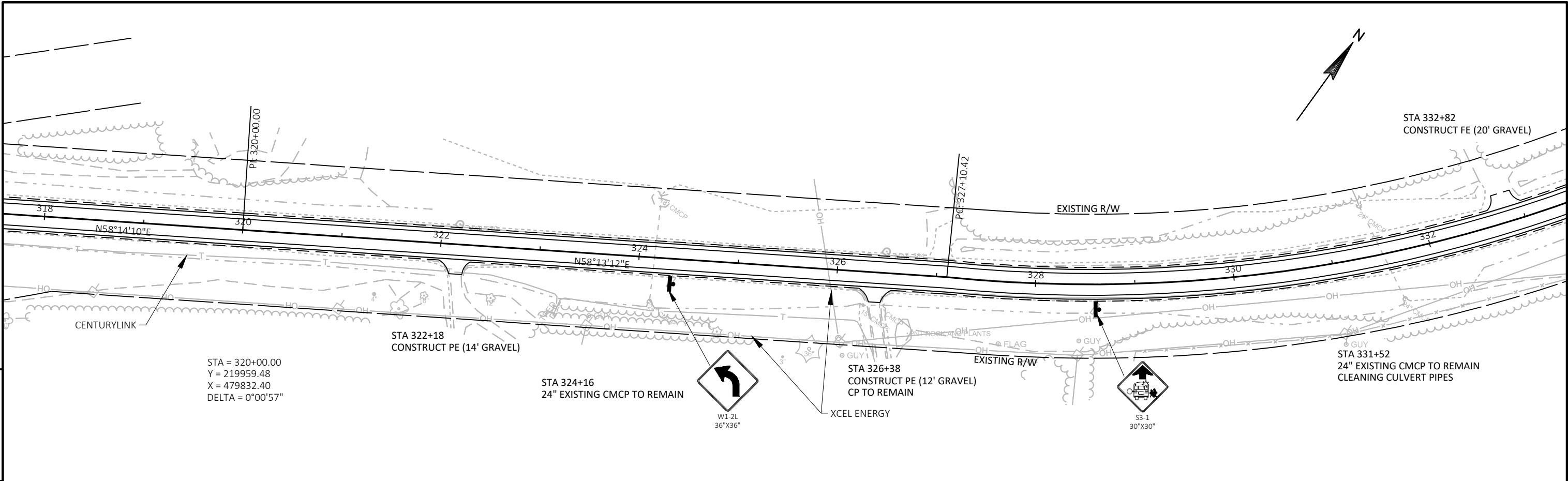
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
59	312+58	958.16	71.8" RT, 7" NAIL IN PPOL



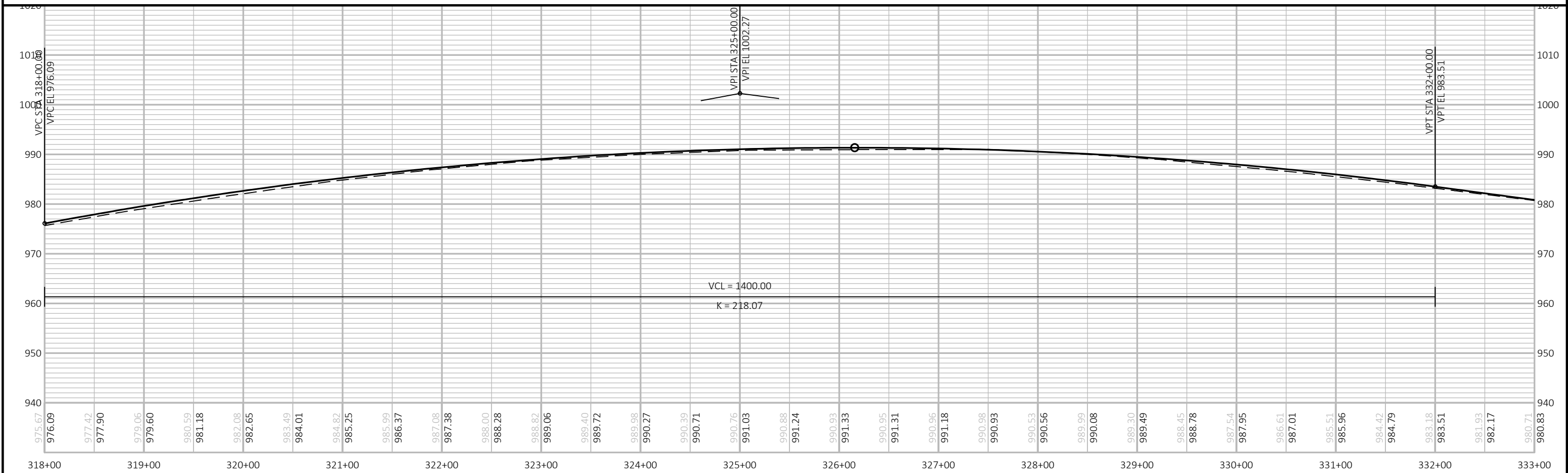
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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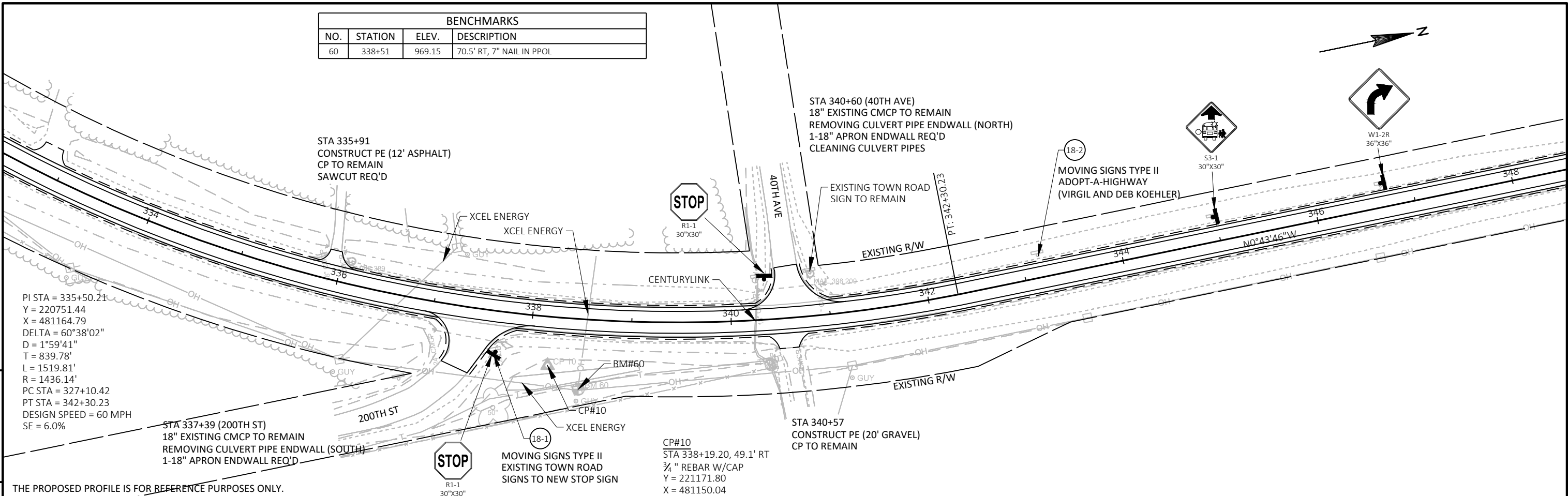


THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.

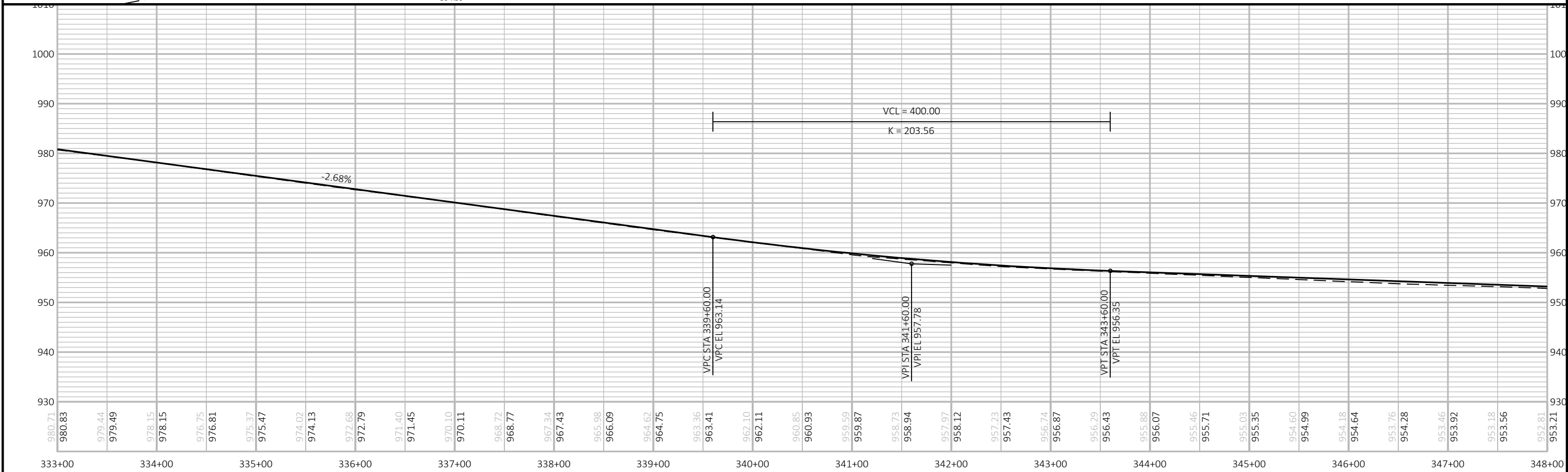


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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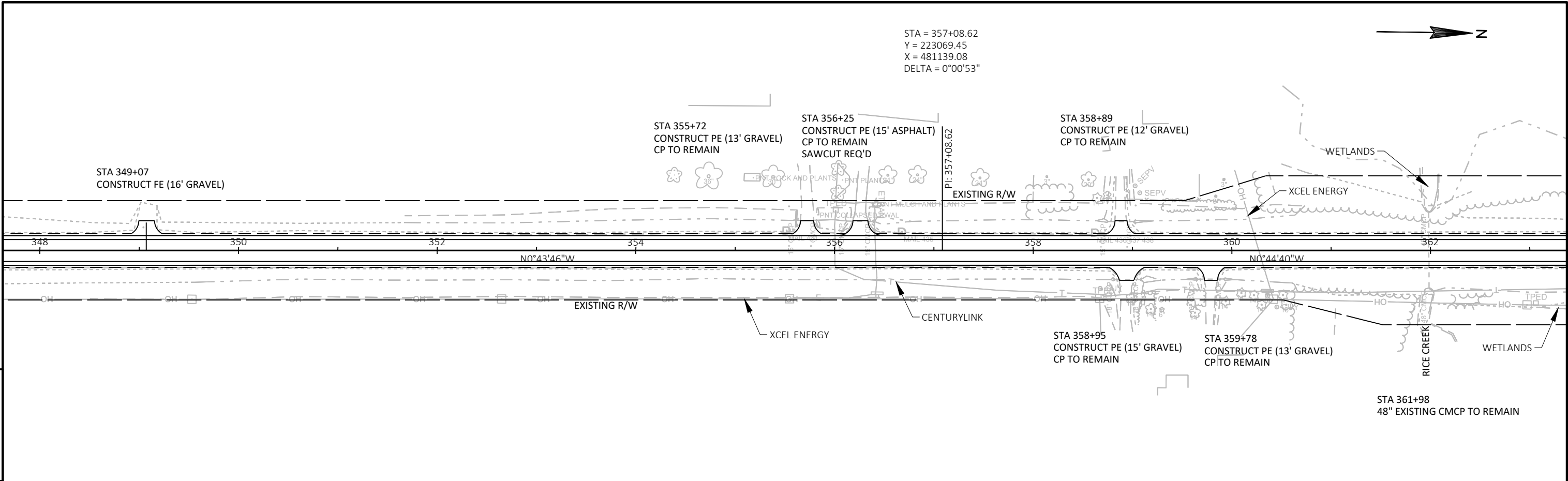
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
60	338+51	969.15	70.5' RT, 7" NAIL IN PPOL



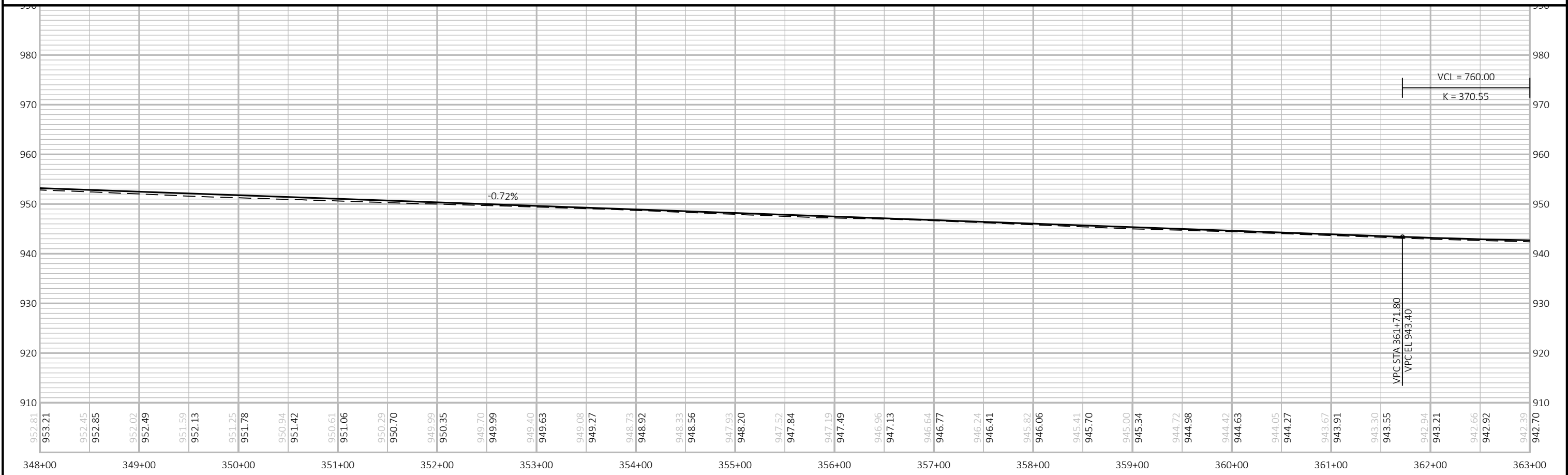
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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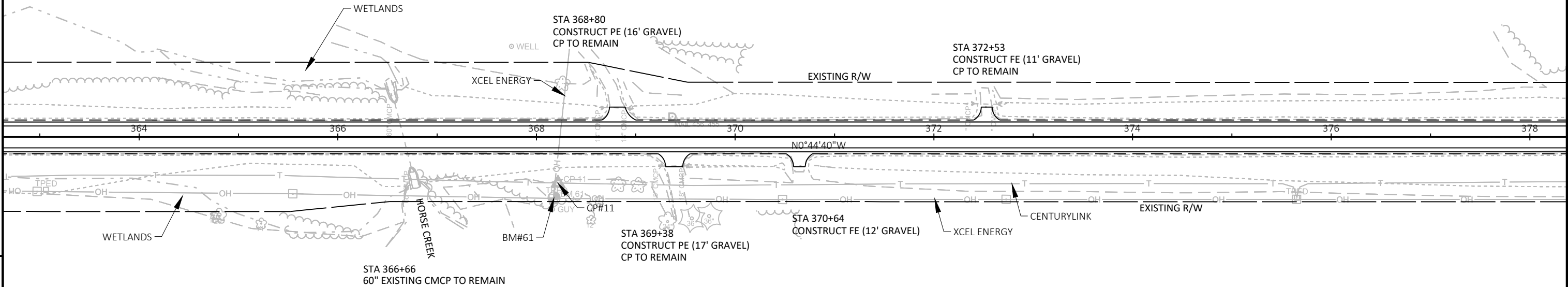


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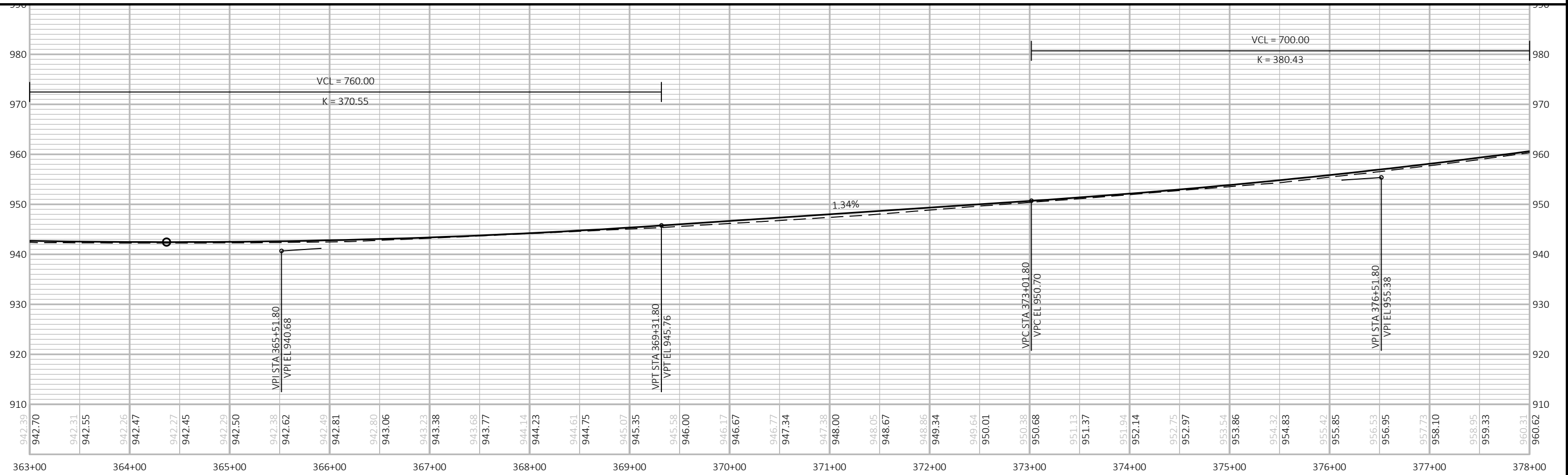
PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
61	368+18	944.68	61.3' RT, 7" NAIL IN PPOL

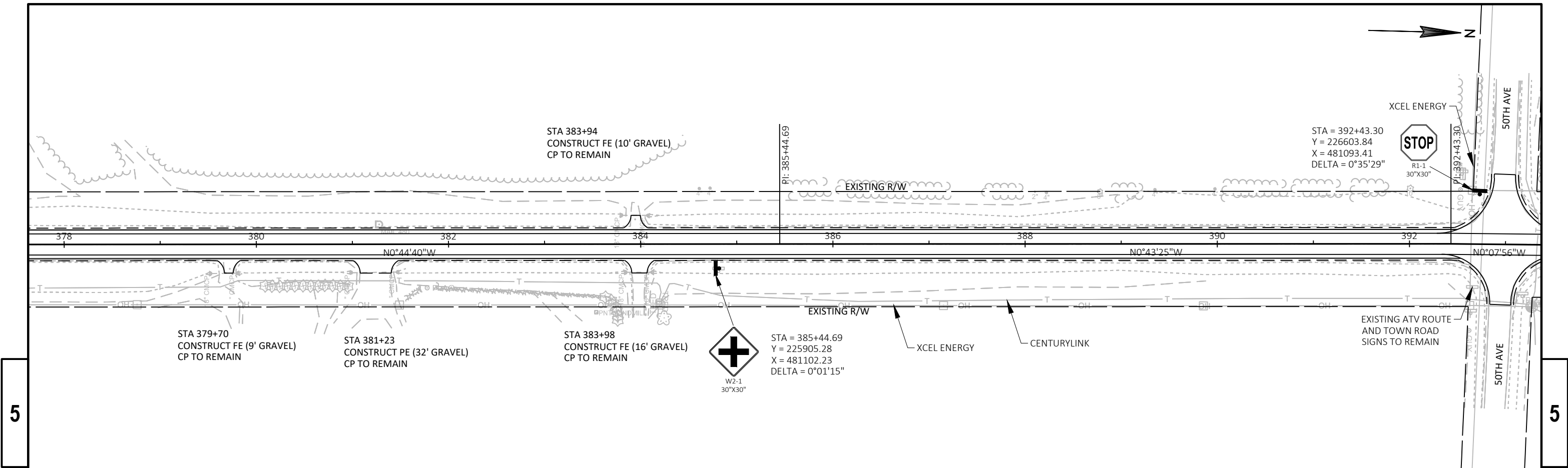


CP#11
STA 368+21.57, 46.5' RT
¾" REBAR W/CAP
Y = 224182.92
X = 481171.08

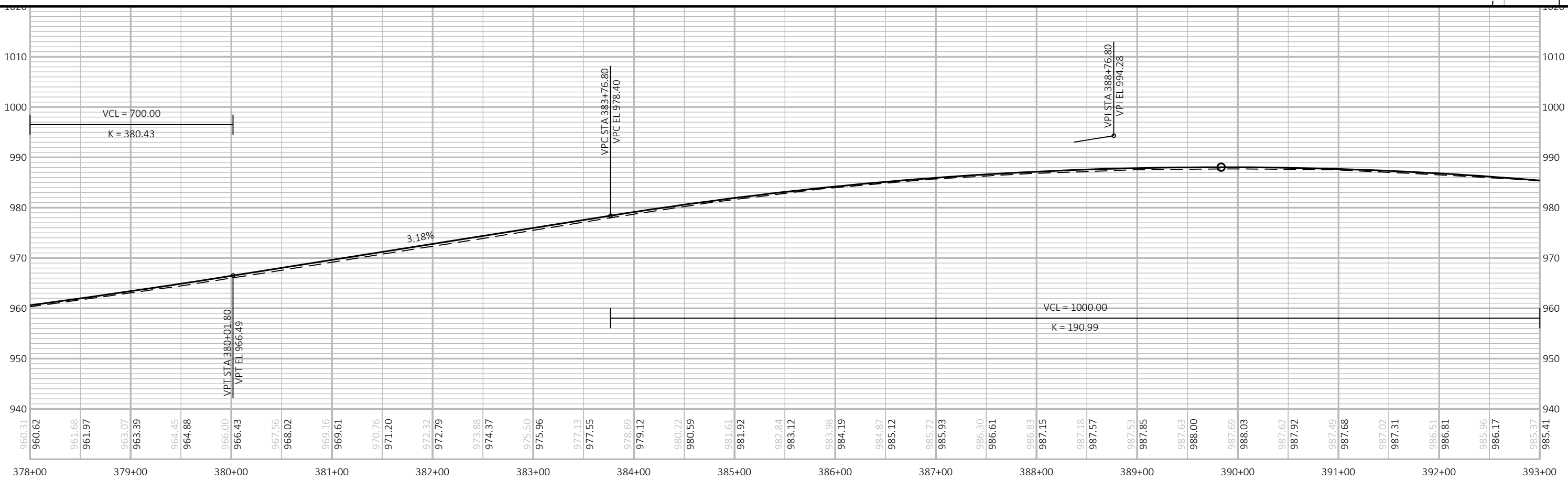
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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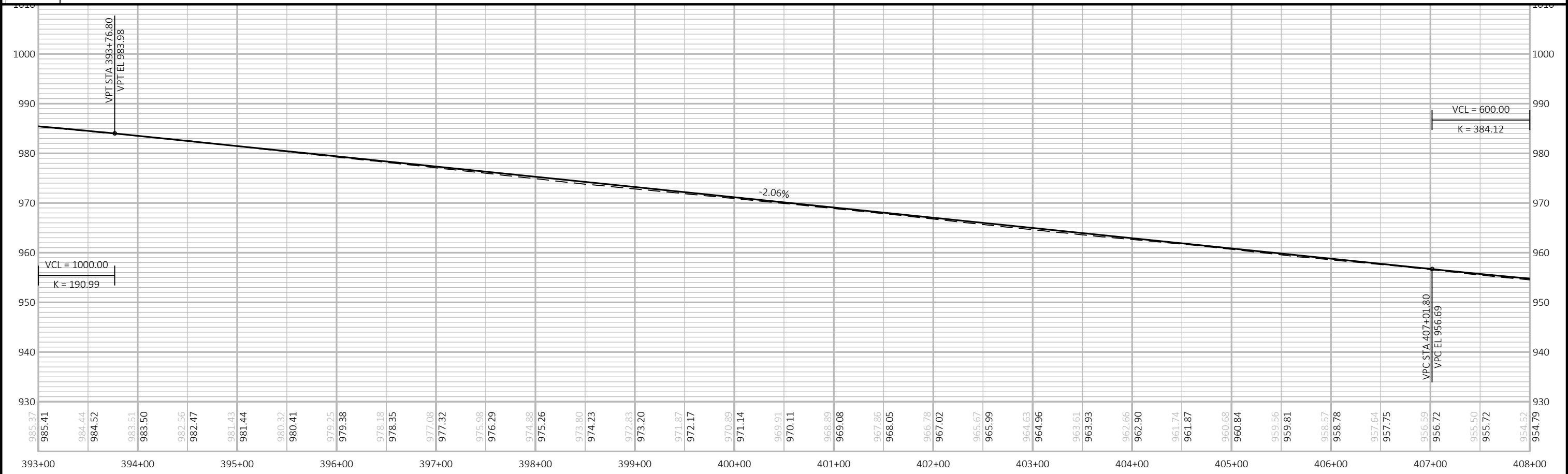
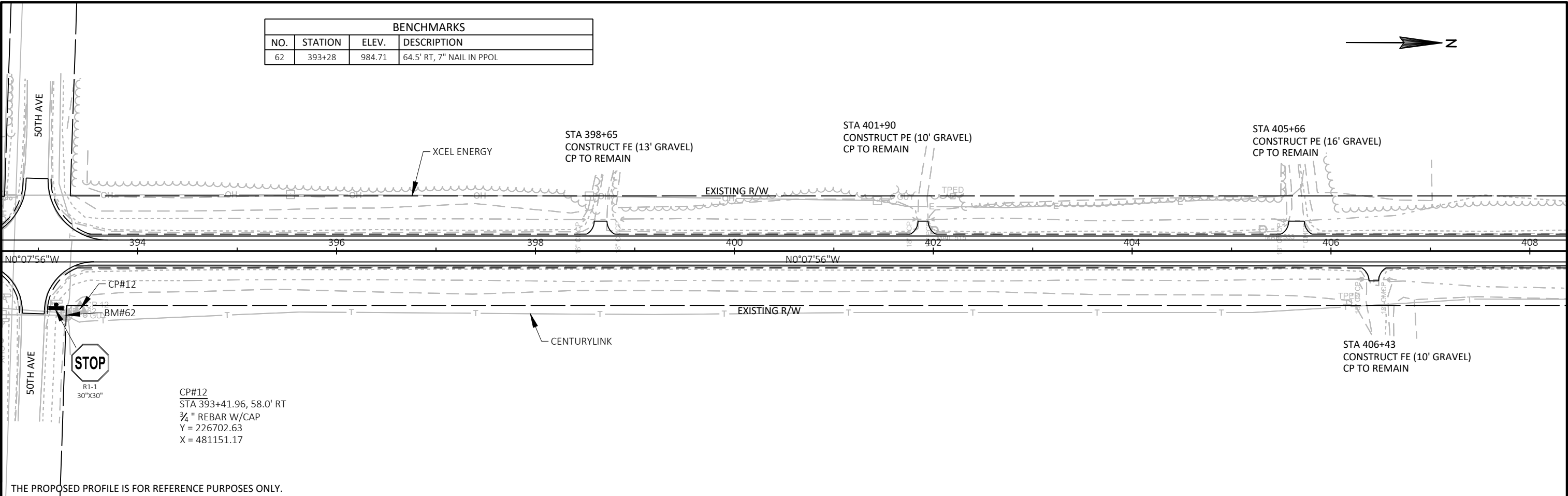


THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



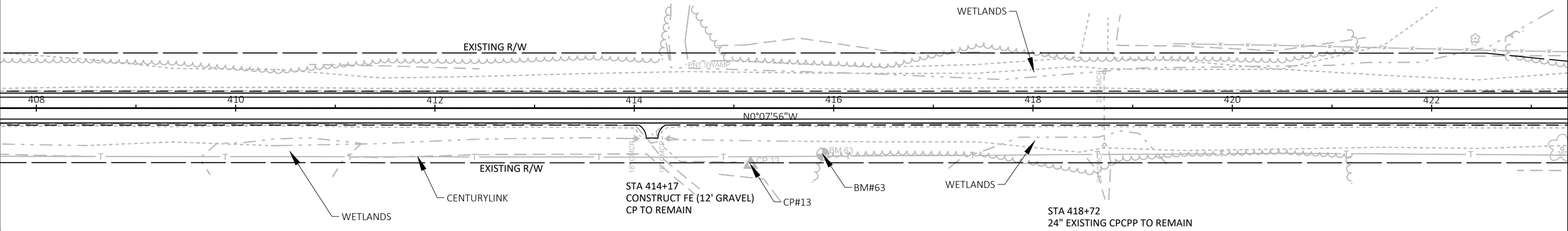
PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
62	393+28	984.71	64.5' RT, 7" NAIL IN PPOL



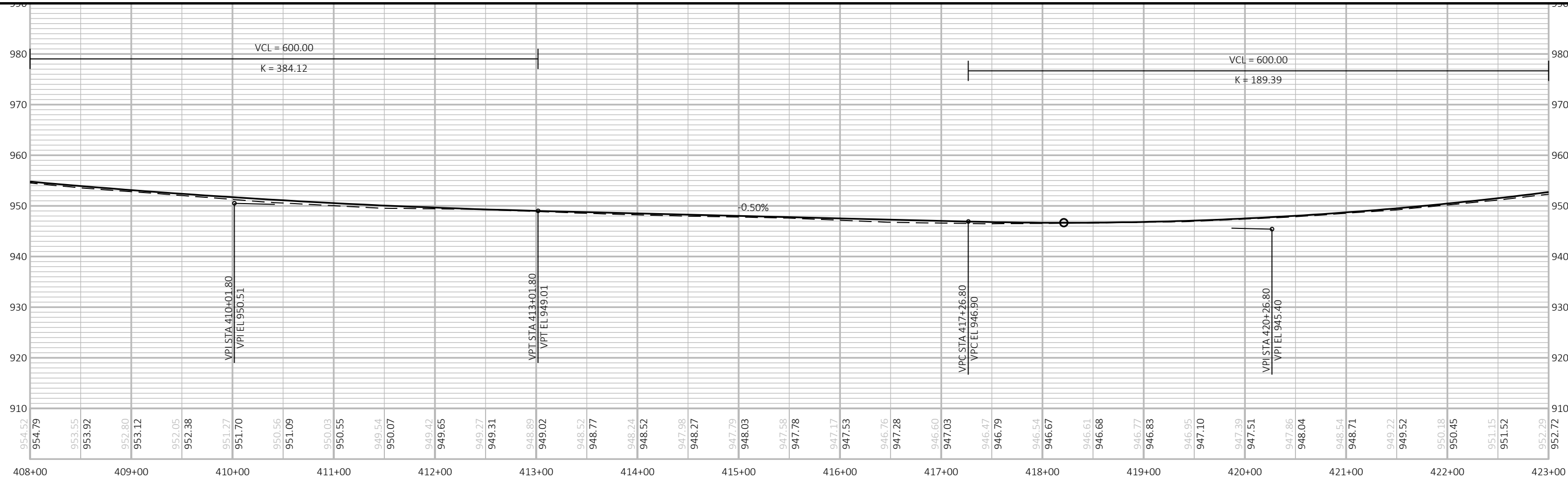
PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
63	415+89	945.04	46.3' RT, 7" NAIL IN 36" ASPEN

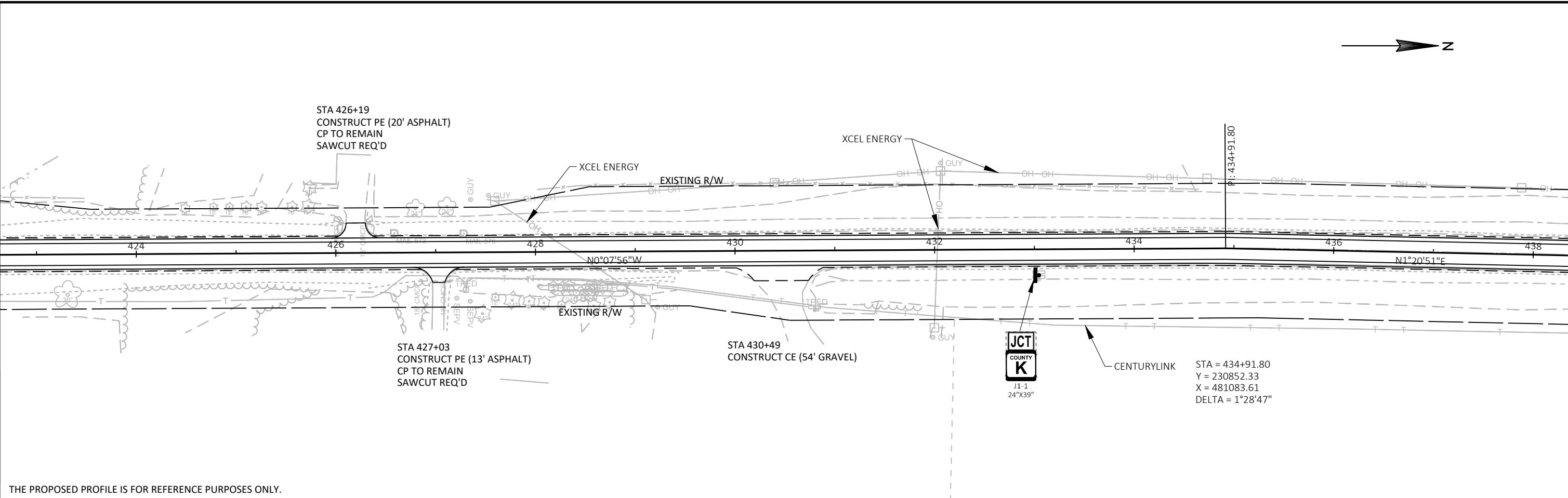


CP#13
STA 415+16.65, 56.5' RT
3/4\"/>

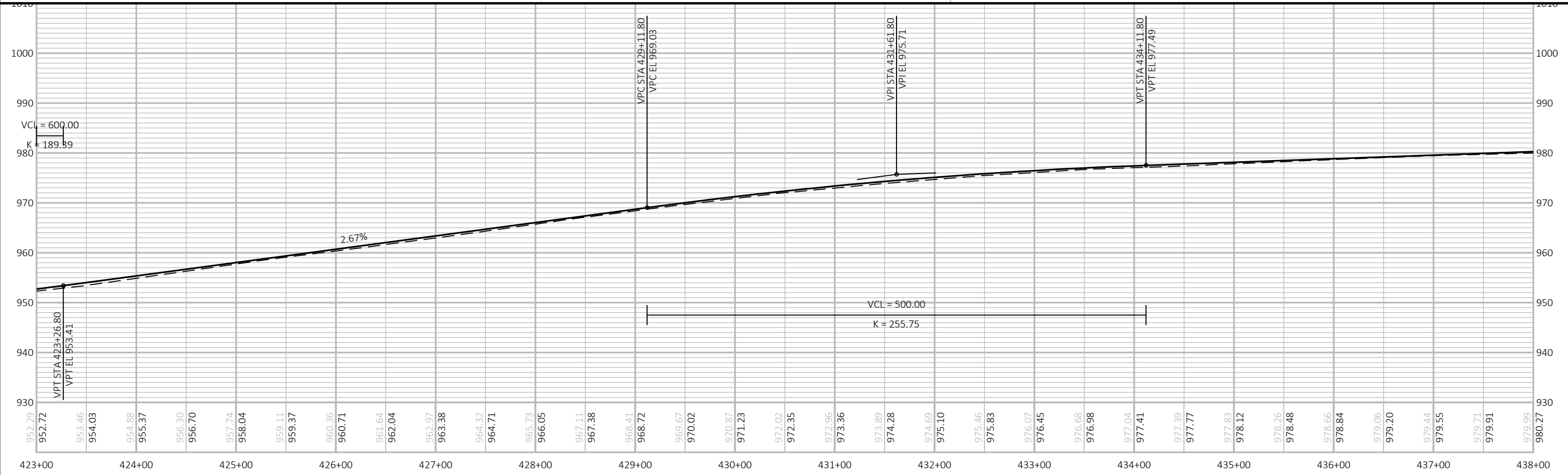
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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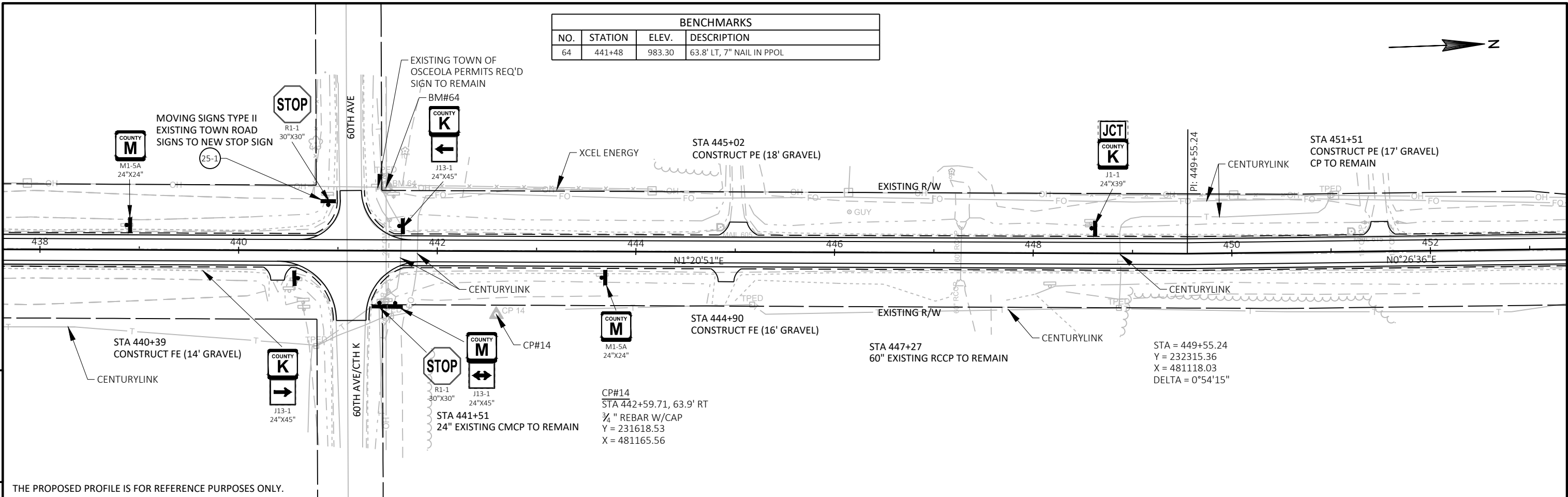


THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.

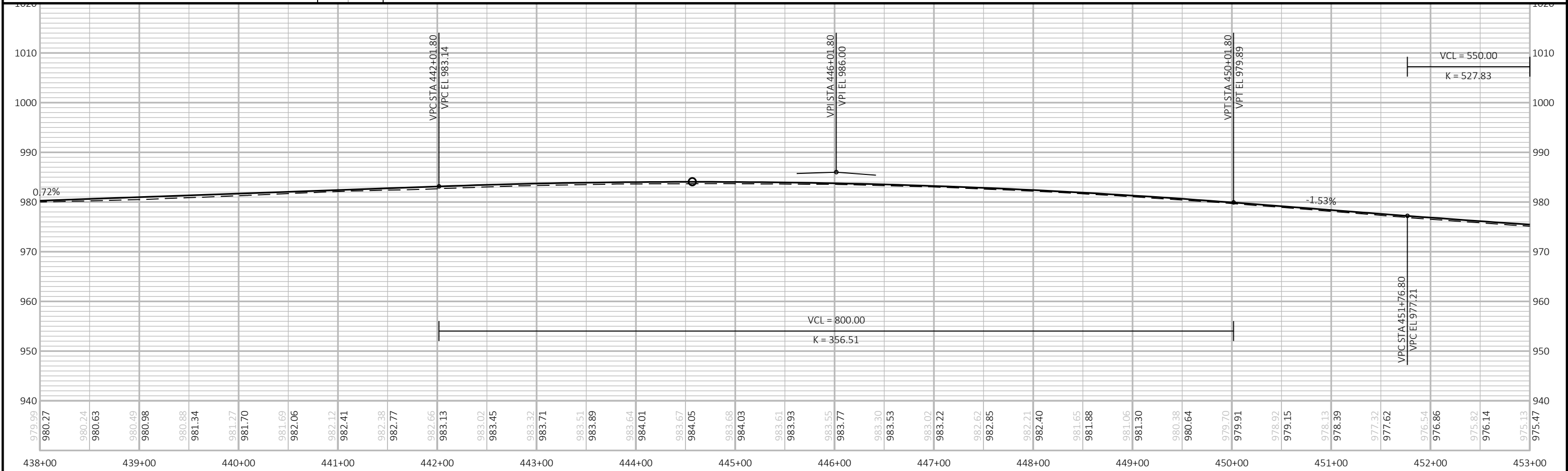


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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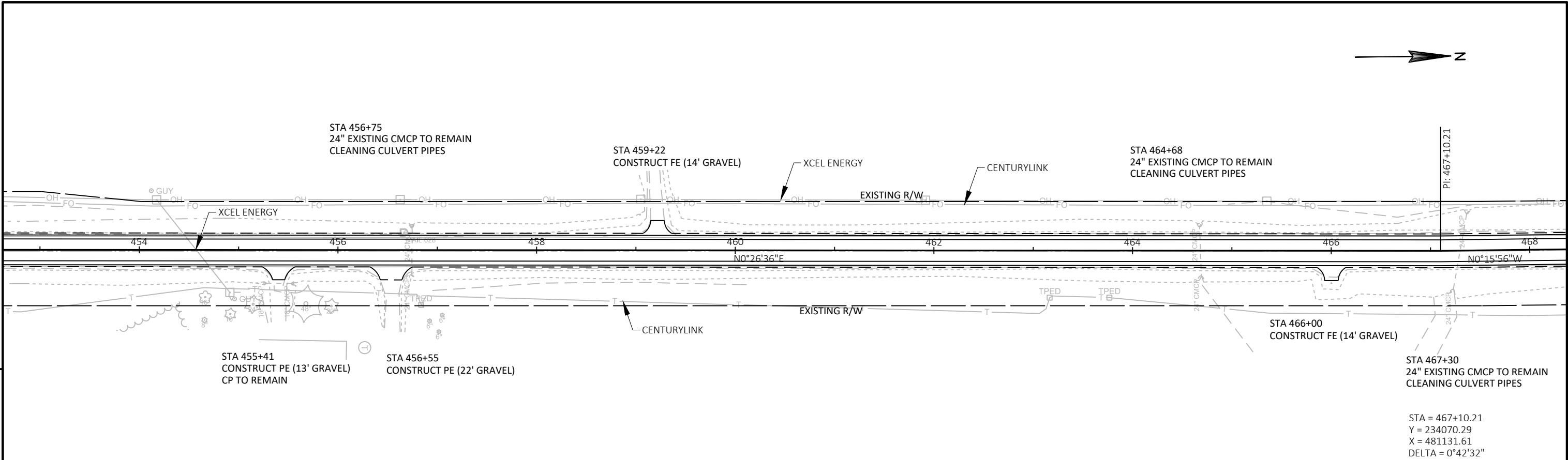
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
64	441+48	983.30	63.8' LT, 7" NAIL IN PPOL



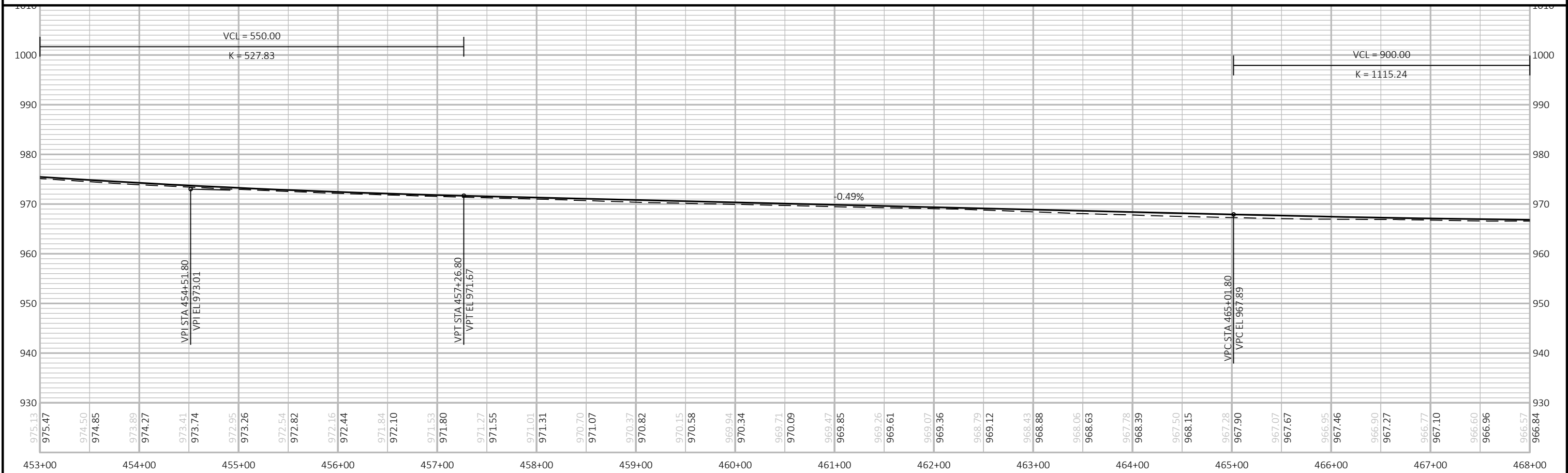
THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET	E
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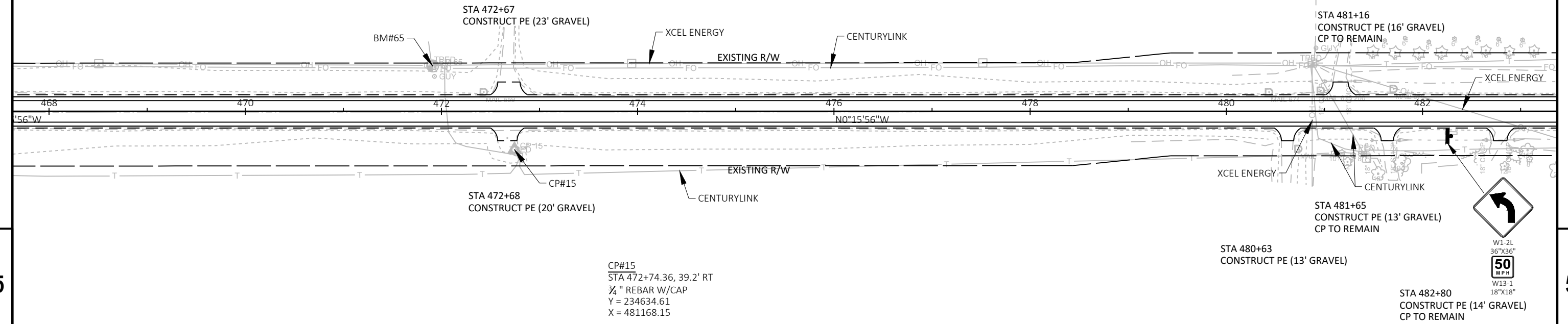


THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.

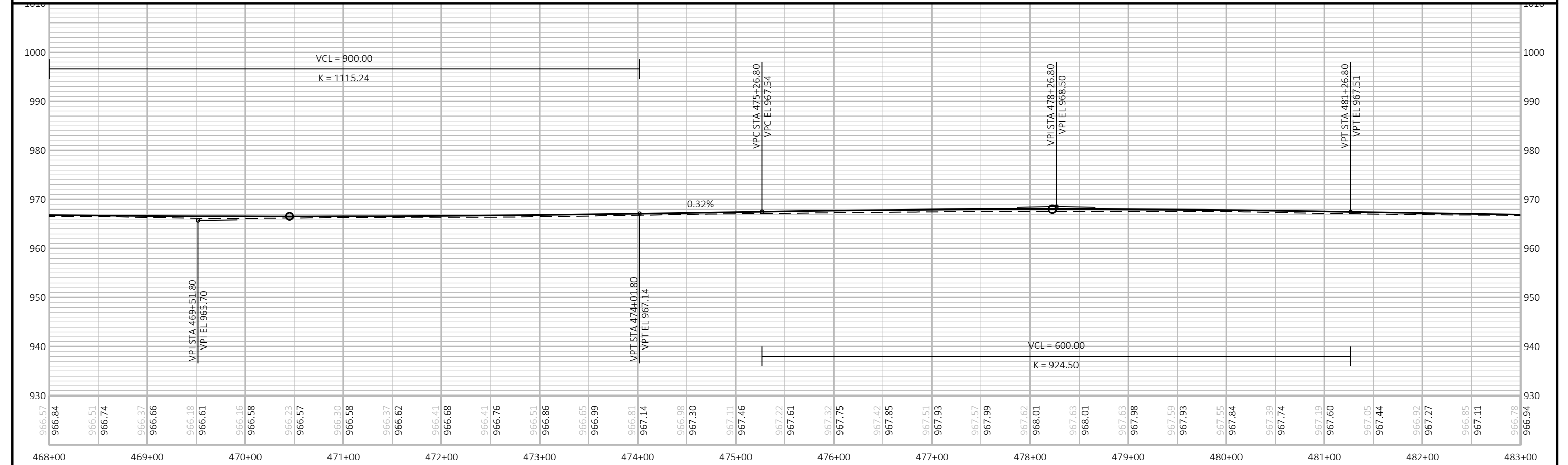


PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	E
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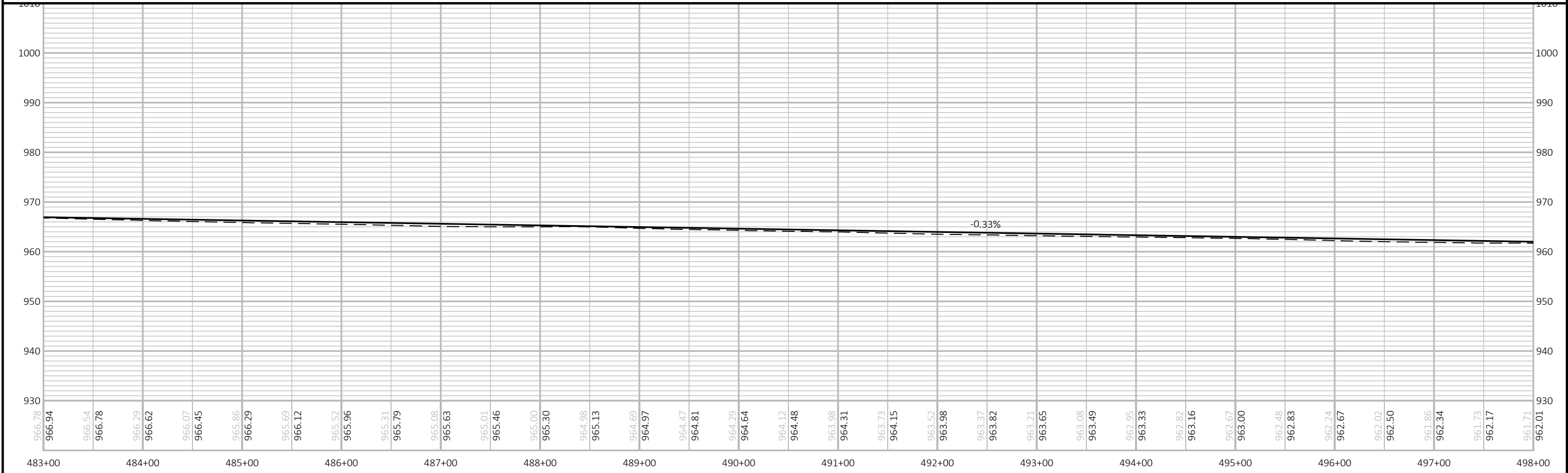
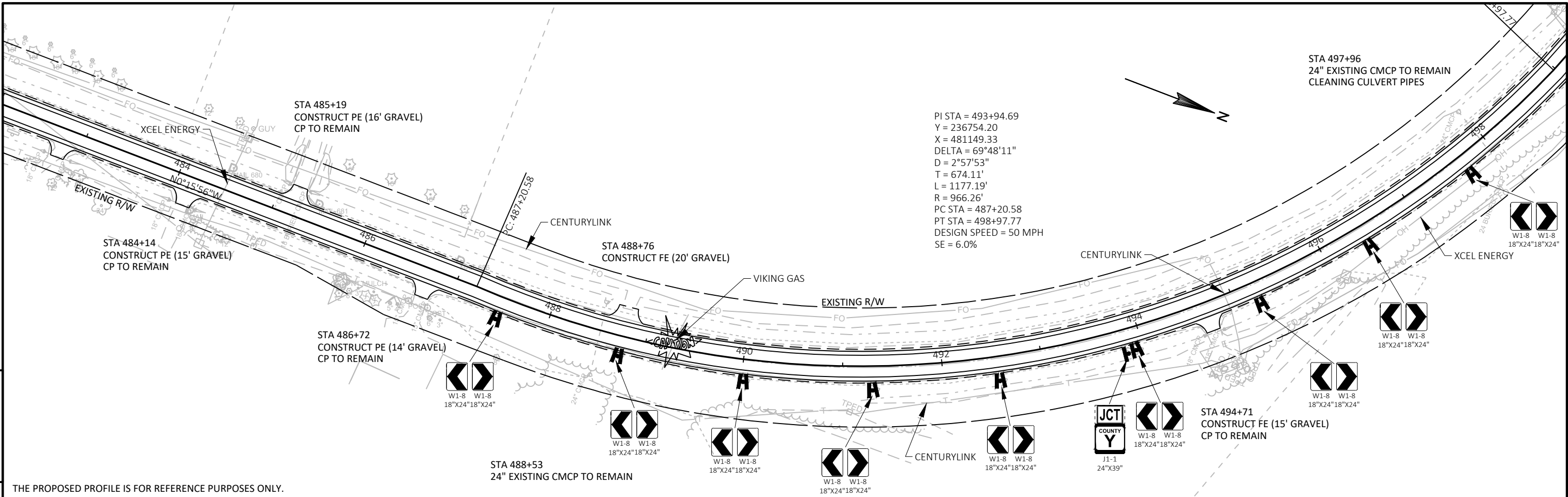
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
65	471+91	963.37	46.4' LT, 7" NAIL IN PPOL



THE PROPOSED PROFILE IS FOR REFERENCE PURPOSES ONLY.



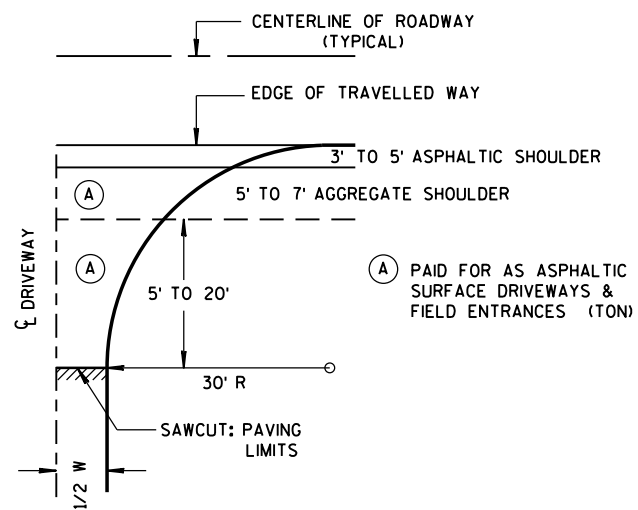
PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	PLAN AND PROFILE: CTH M	SHEET 5
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PROJECT NO:	8866-00-72	HWY:	CTH M	COUNTY:	POLK	PLAN AND PROFILE:	CTH M	SHEET	5
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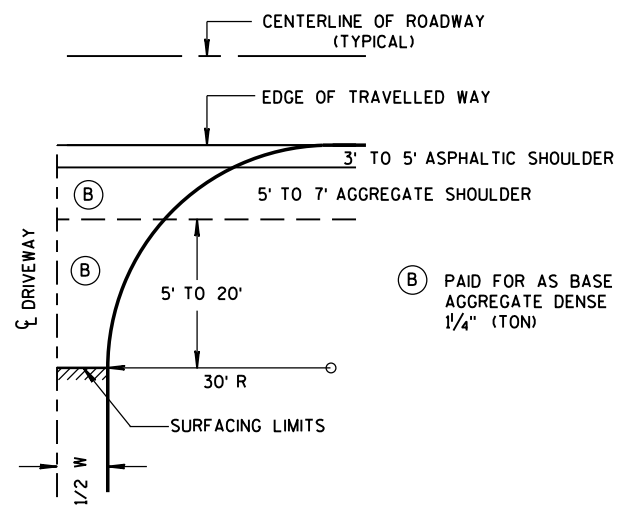
Standard Detail Drawing List

08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
13C19-02	HMA LONGITUDINAL JOINTS
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING

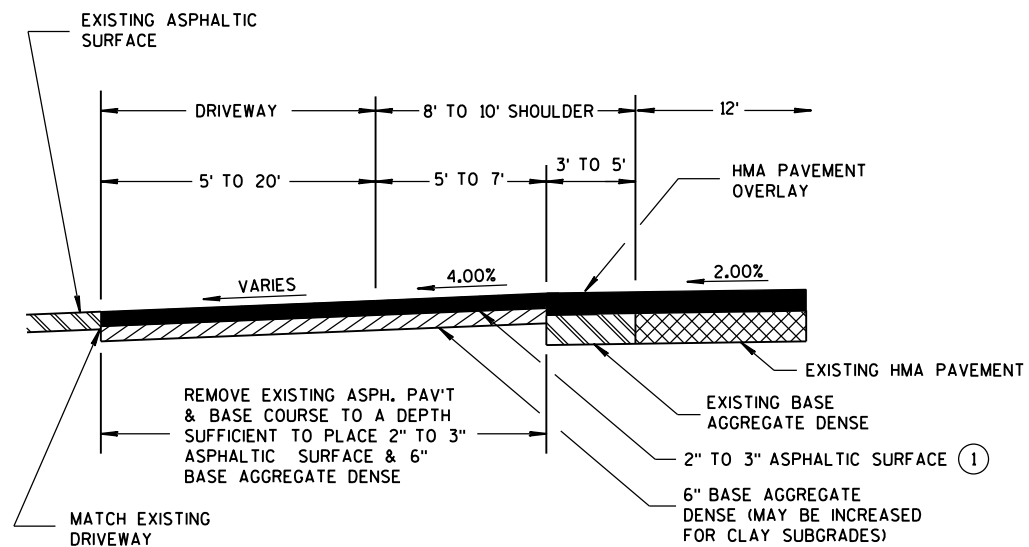


PLAN VIEW
HALF SECTION

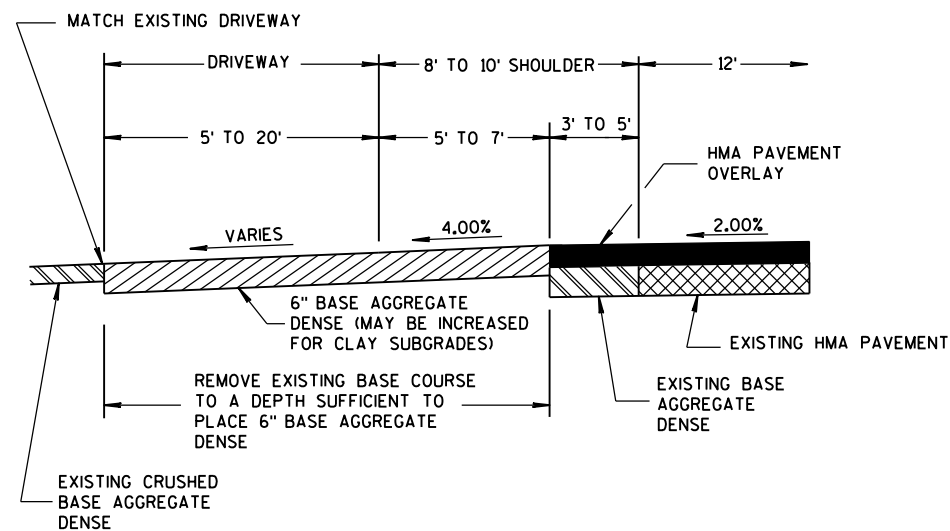
W MIN. = 16'
W MAX. = 24'



PLAN VIEW
HALF SECTION



PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS



PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

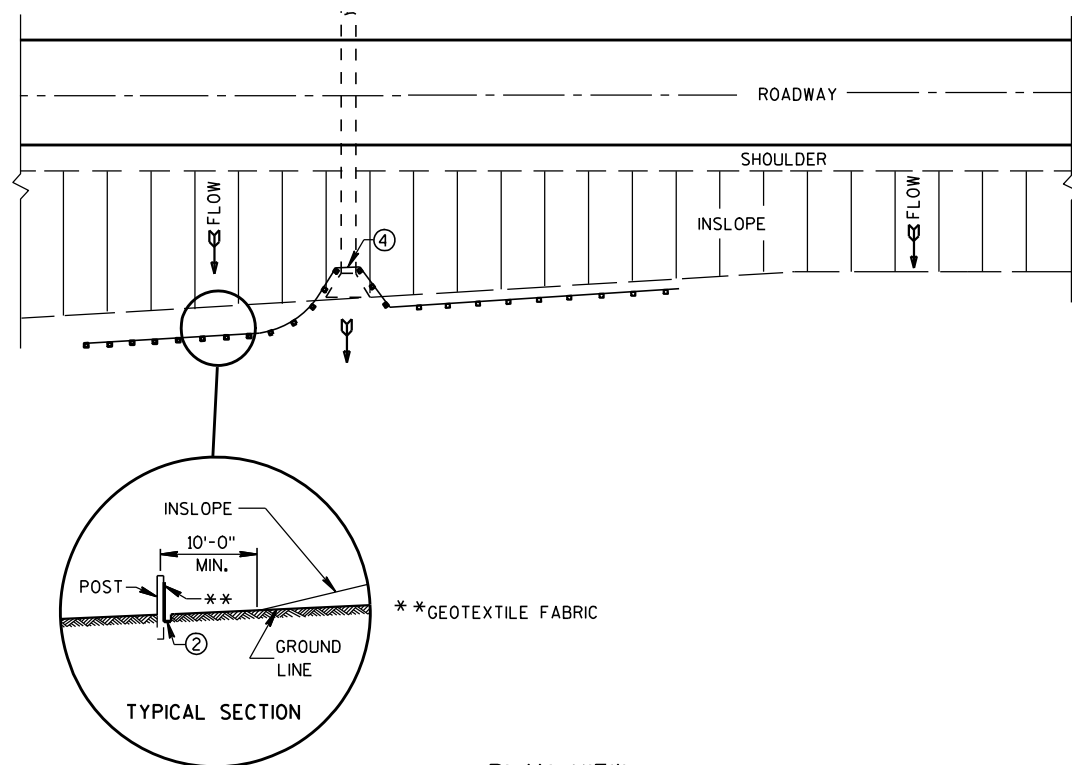
GENERAL NOTES

- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

DRIVEWAYS WITHOUT
CURB & GUTTER
RESURFACING PROJECTS RURAL

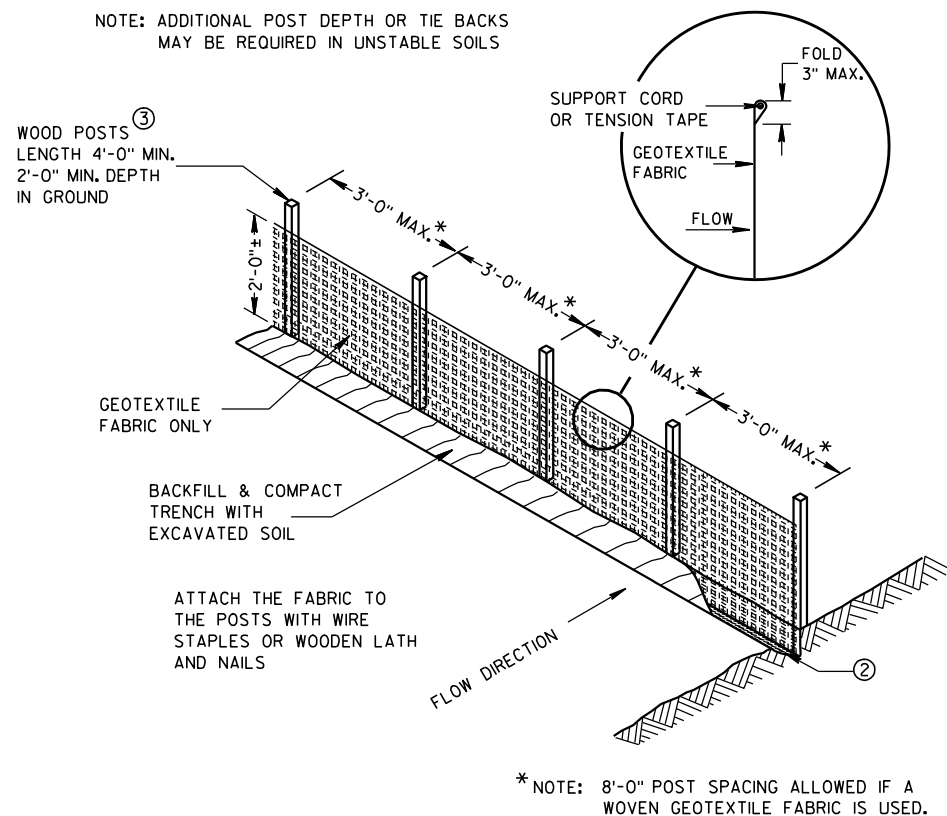
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

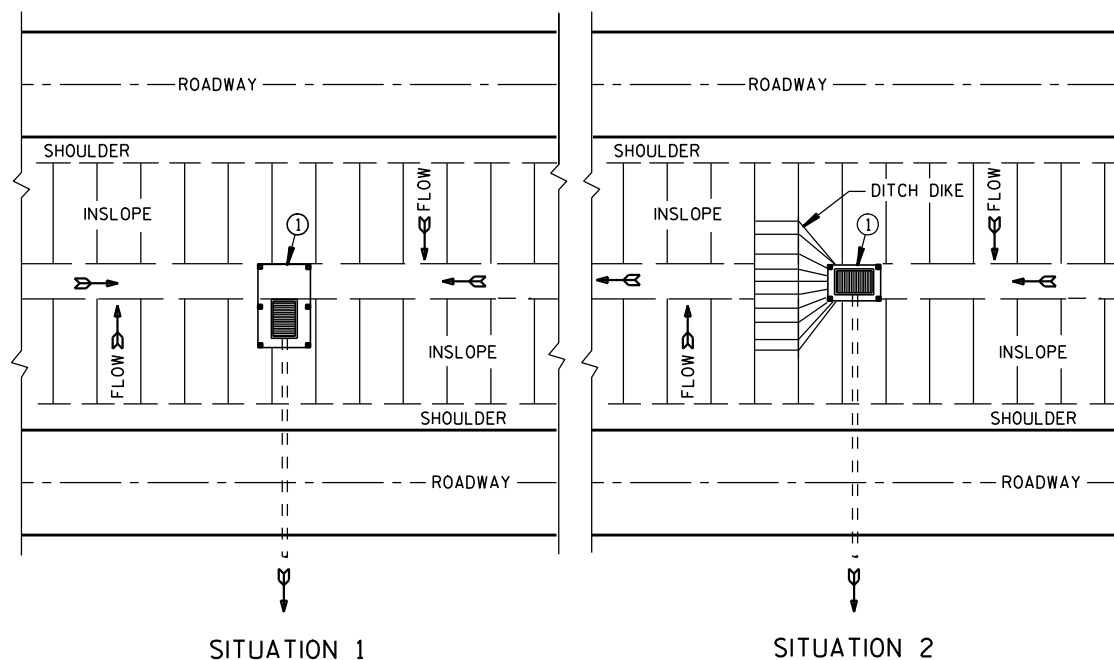


TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

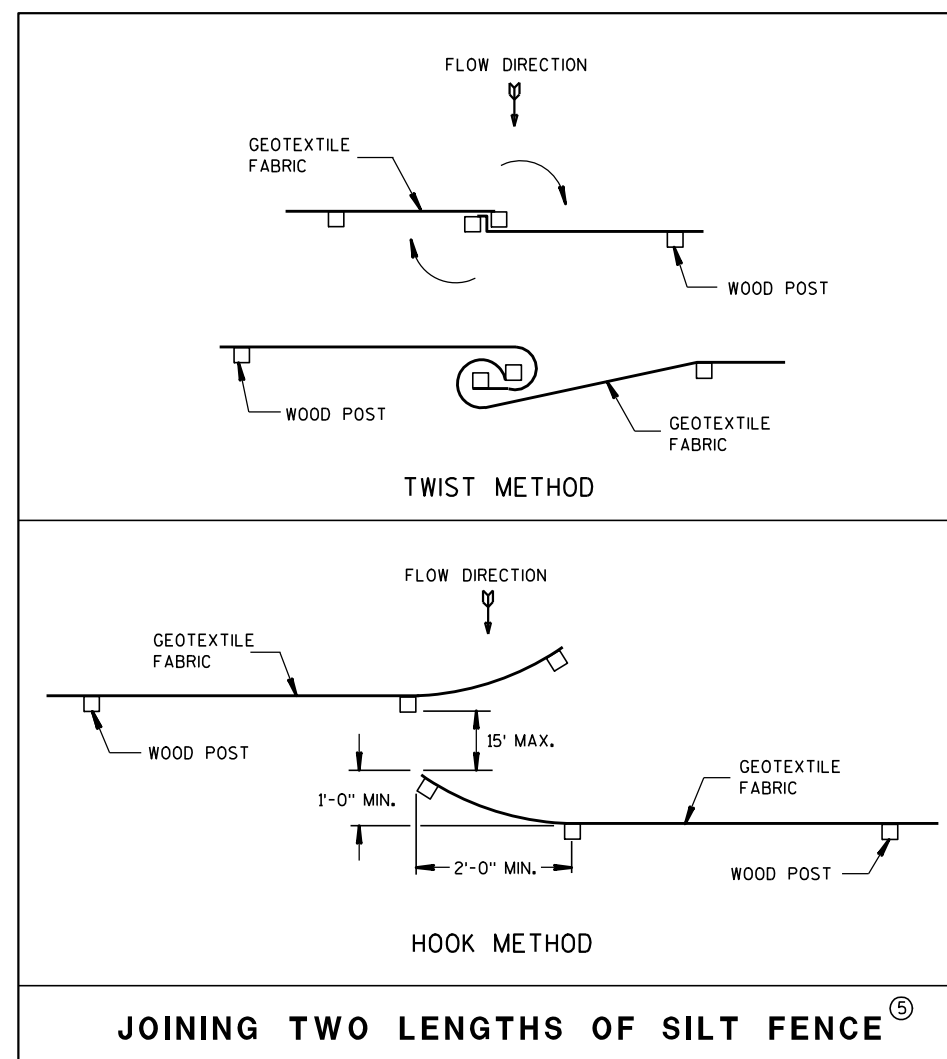


SILT FENCE



PLAN VIEW

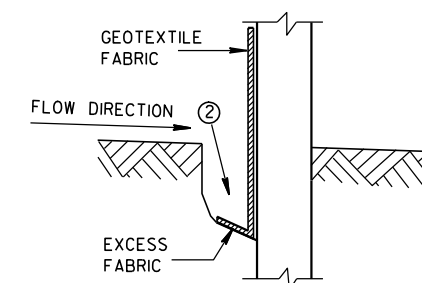
SILT FENCE AT MEDIAN SURFACE DRAINS



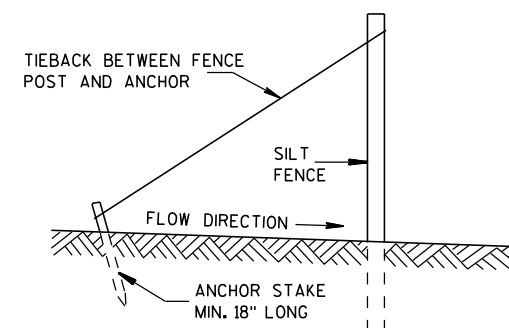
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK (WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

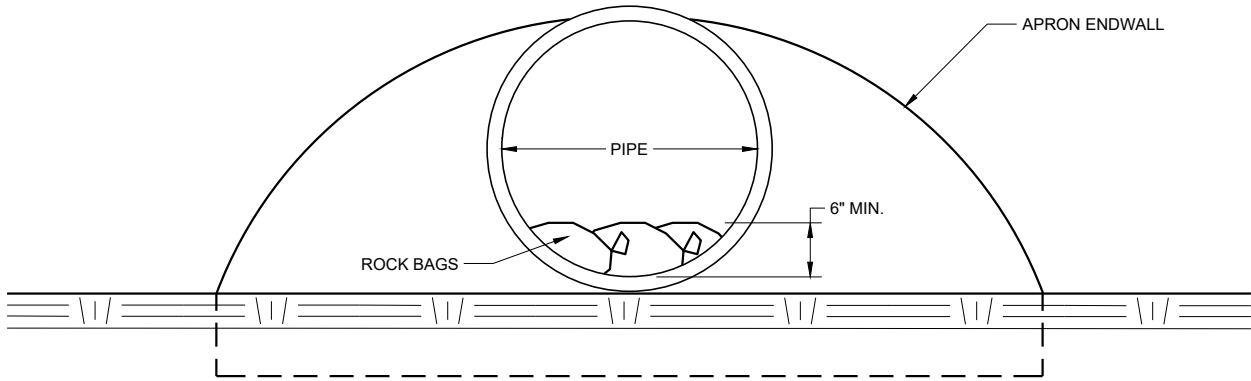
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

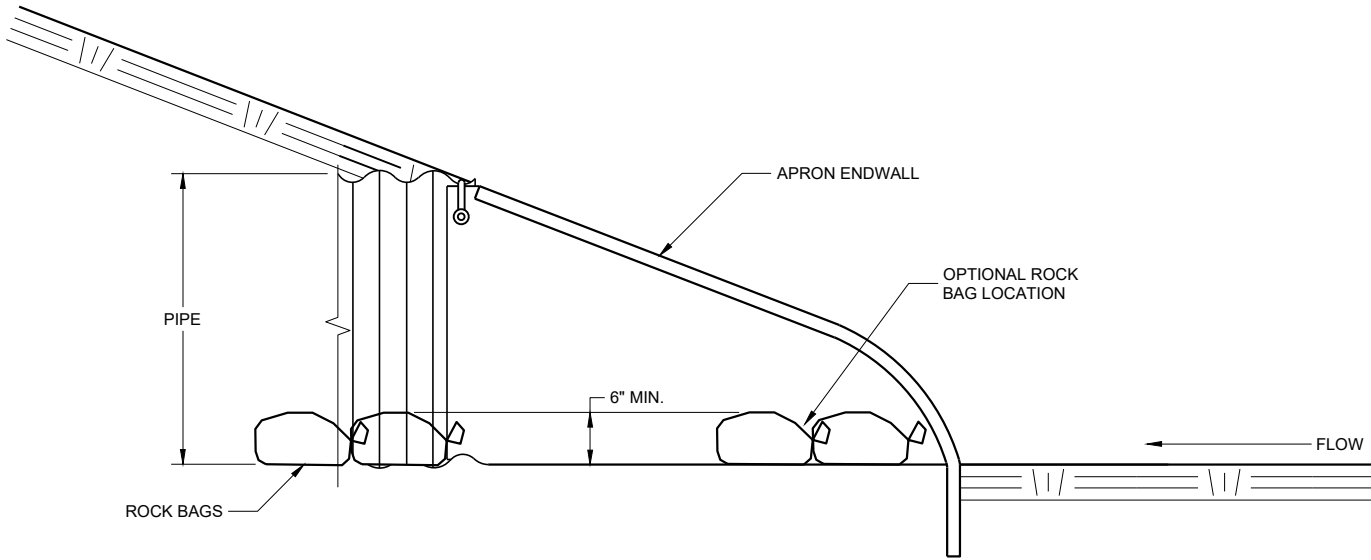
4-29-05
DATE

FHWA

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



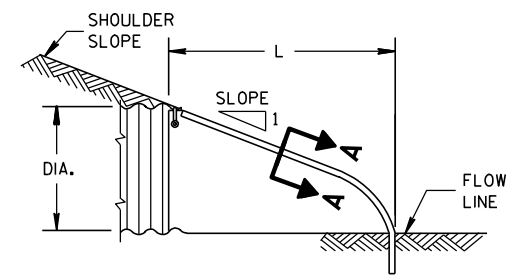
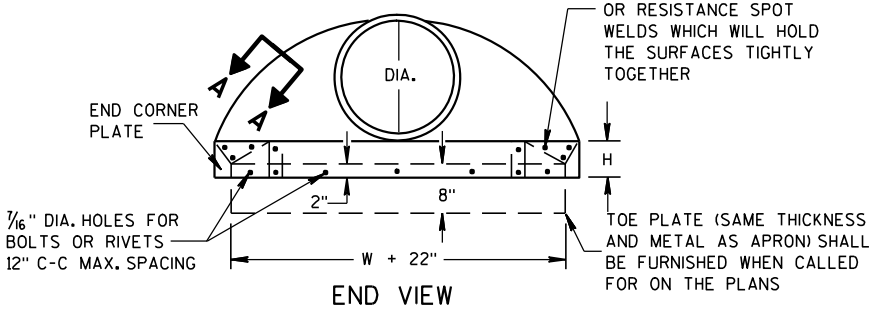
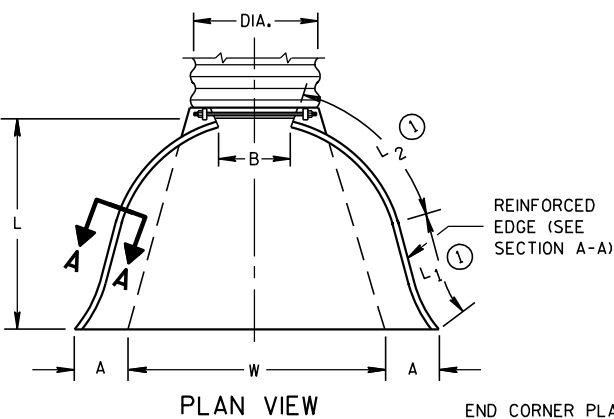
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
FHWA	

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.	

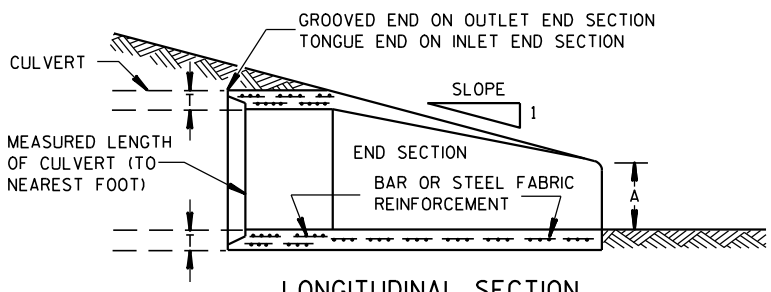
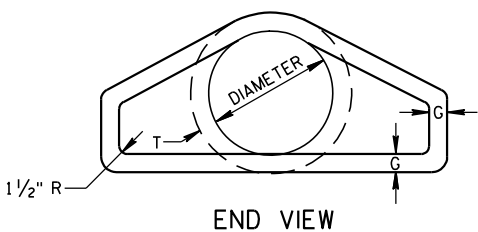
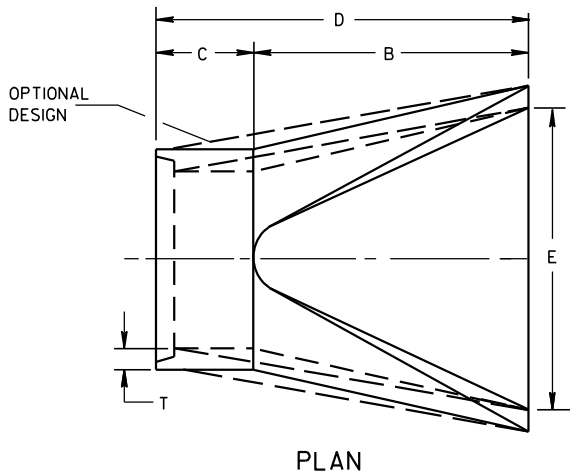
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

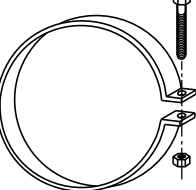
REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ² / ₂	9	27	46	73	36	2 ² / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	^{**} 33 ¹ / ₄ - ^{**} 35	^{**} 98 ¹ / ₄ - ^{**} 100	90	5 ¹ / ₂	2 ² / ₅ to 1
60	6	^{**} 30- ^{**} 35	60	39	99	96	5	2 to 1
66	6 ¹ / ₂	^{**} 24- ^{**} 30	^{**} 72- ^{**} 78	^{**} 21- ^{**} 27	99	102	5 ¹ / ₂	2 to 1
72	7	^{**} 24- ^{**} 36	78	21	99	108	6	2 to 1
78	7 ¹ / ₂	^{**} 24- ^{**} 36	78	21	99	114	6 ¹ / ₂	2 to 1
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1

* MINIMUM
** MAXIMUM

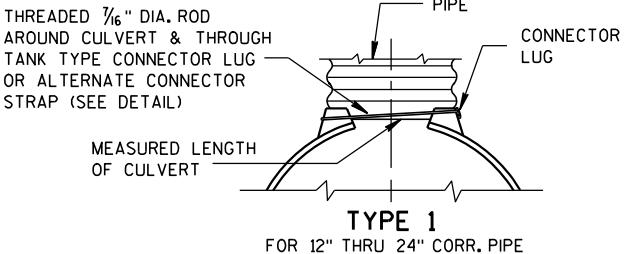


CONCRETE ENDWALLS

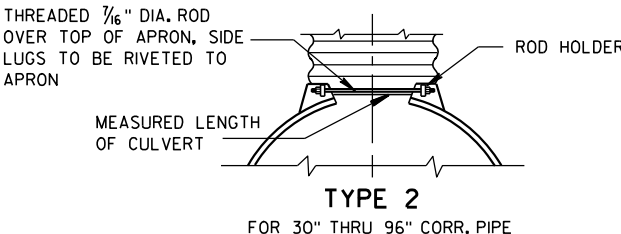
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



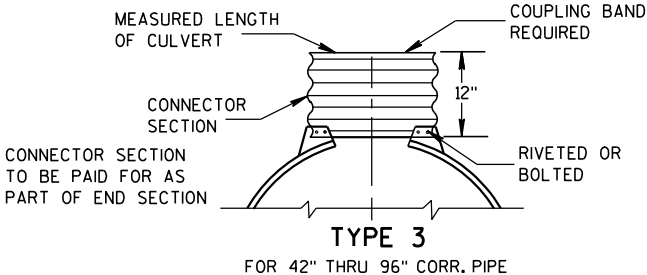
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



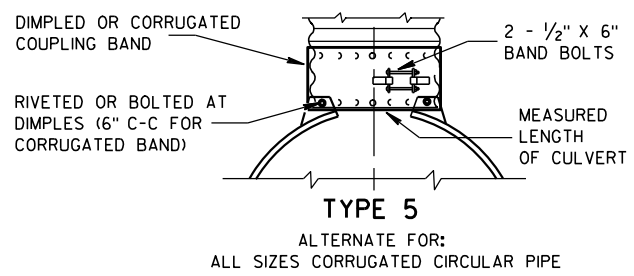
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

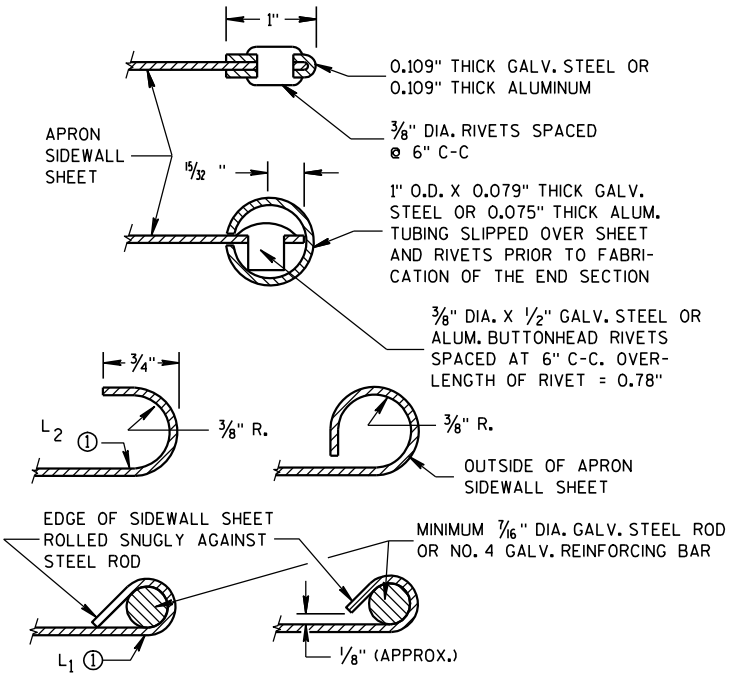
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

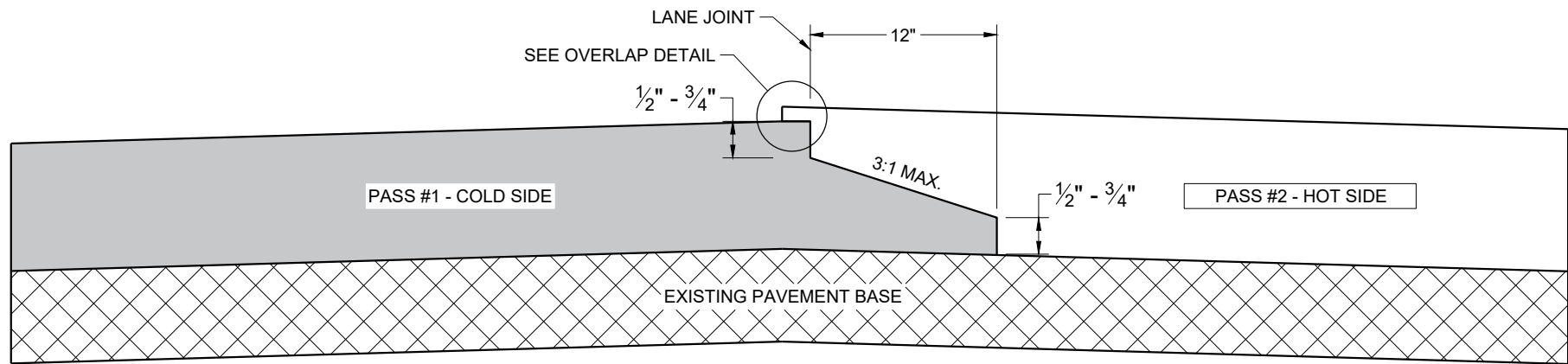
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

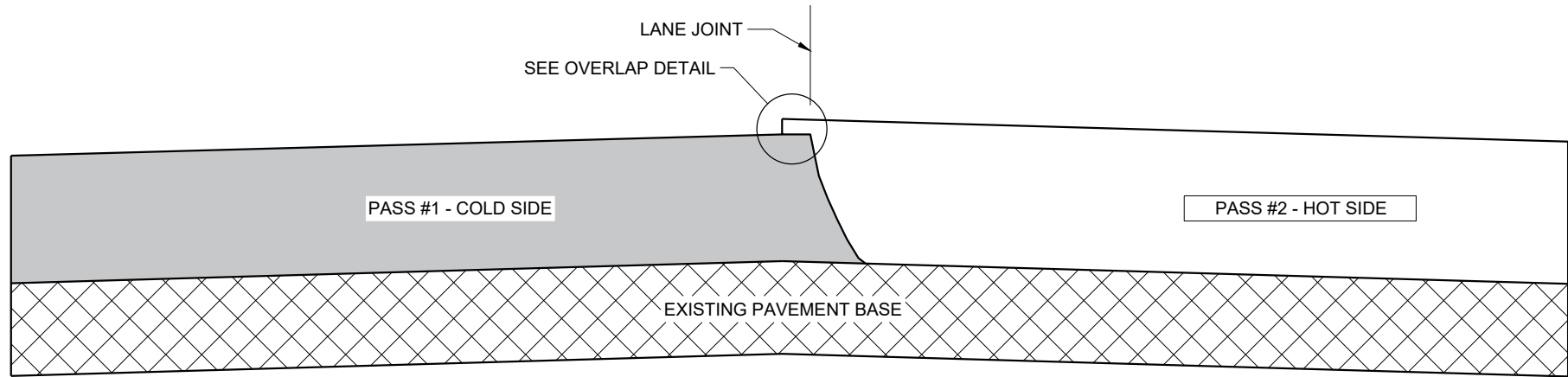
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

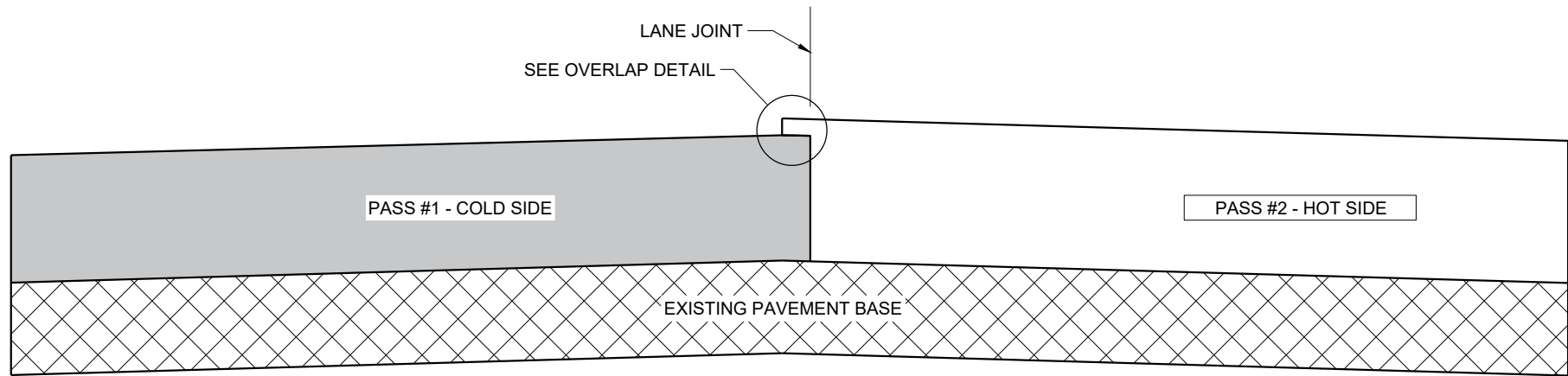
APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



**TYPICAL PAVEMENT CROSS SECTION
OF NOTCHED WEDGE LONGITUDINAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL LONGITUDINAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
OF MILLED LONGITUDINAL JOINT**

GENERAL NOTES

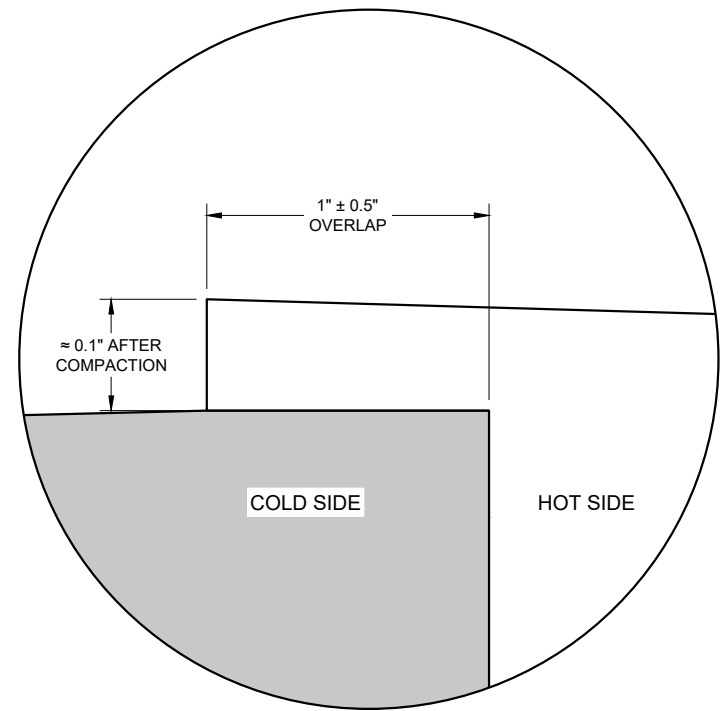
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION.

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



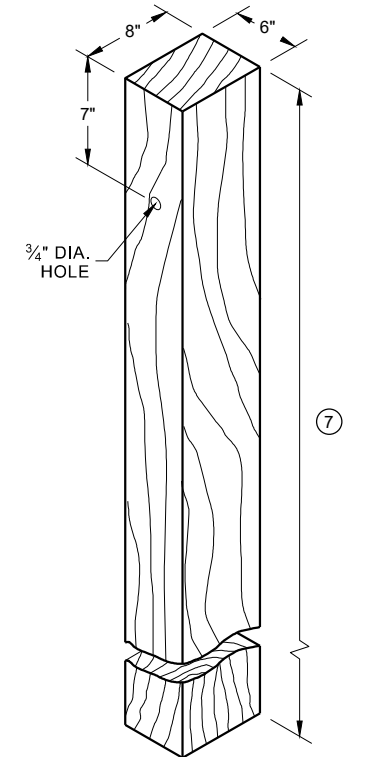
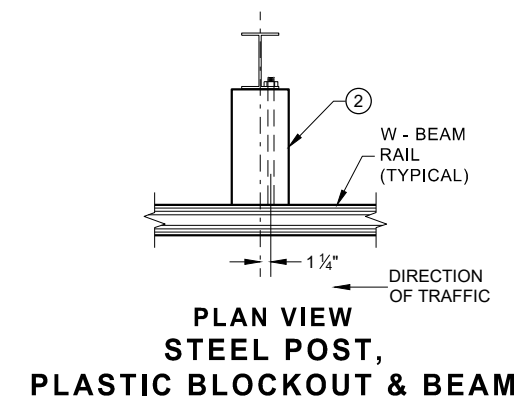
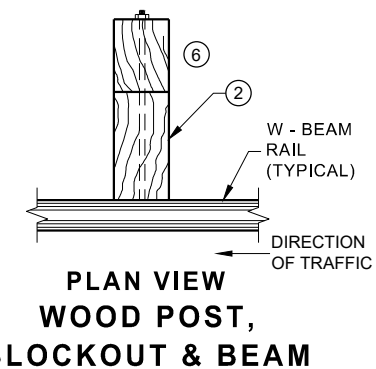
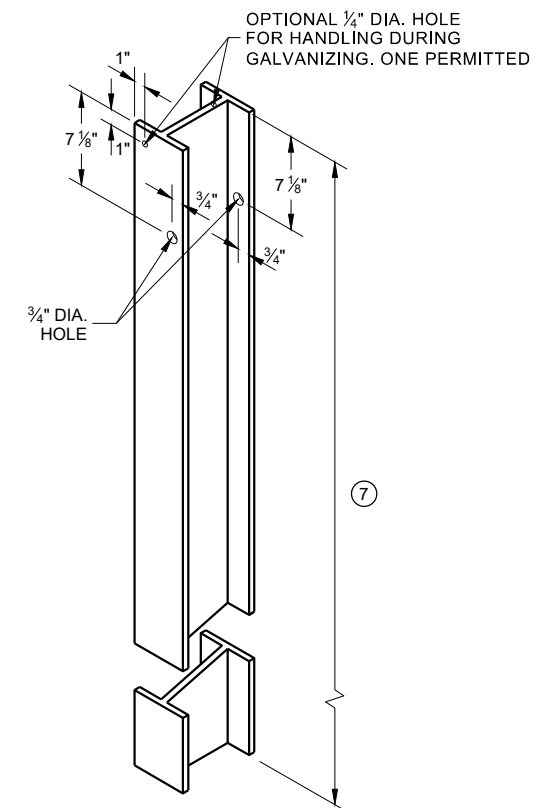
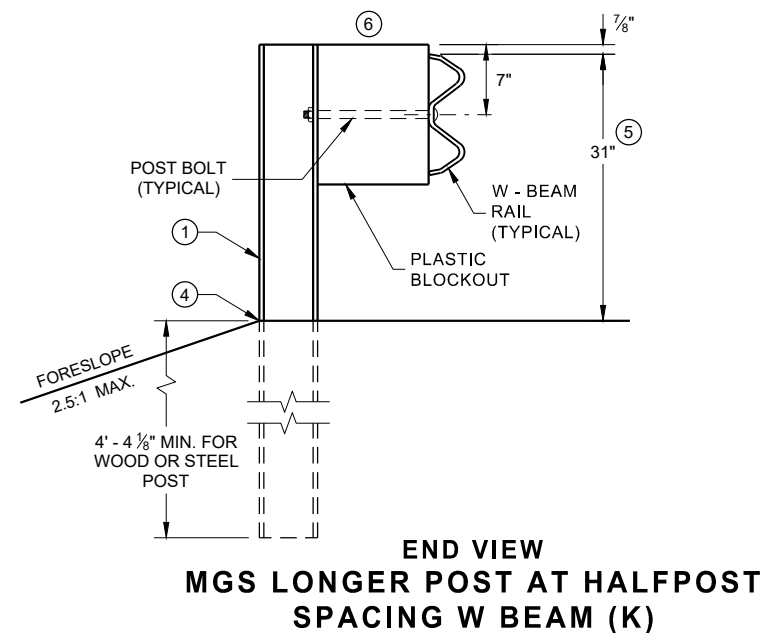
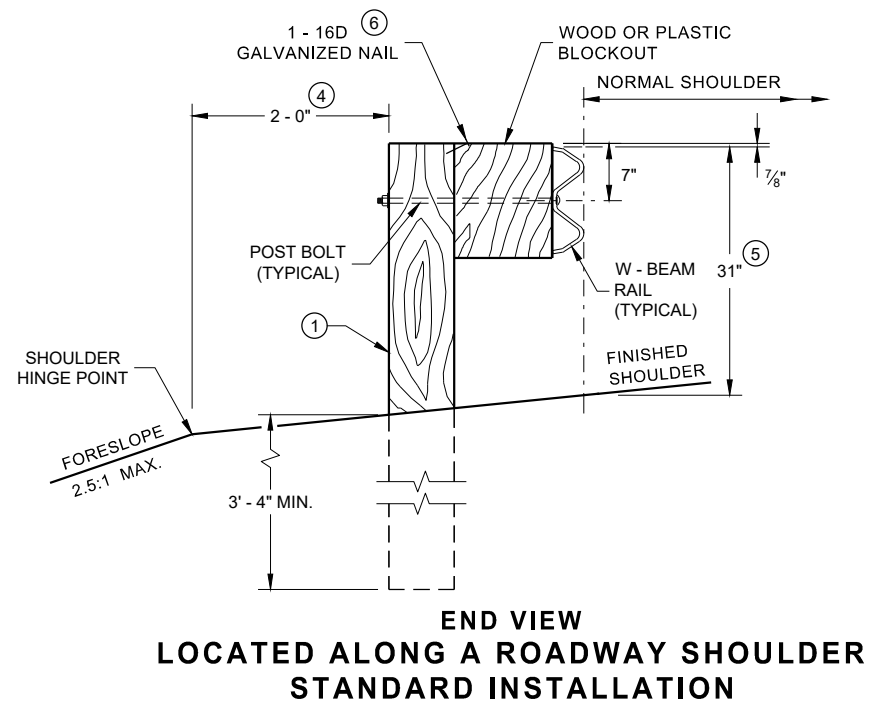
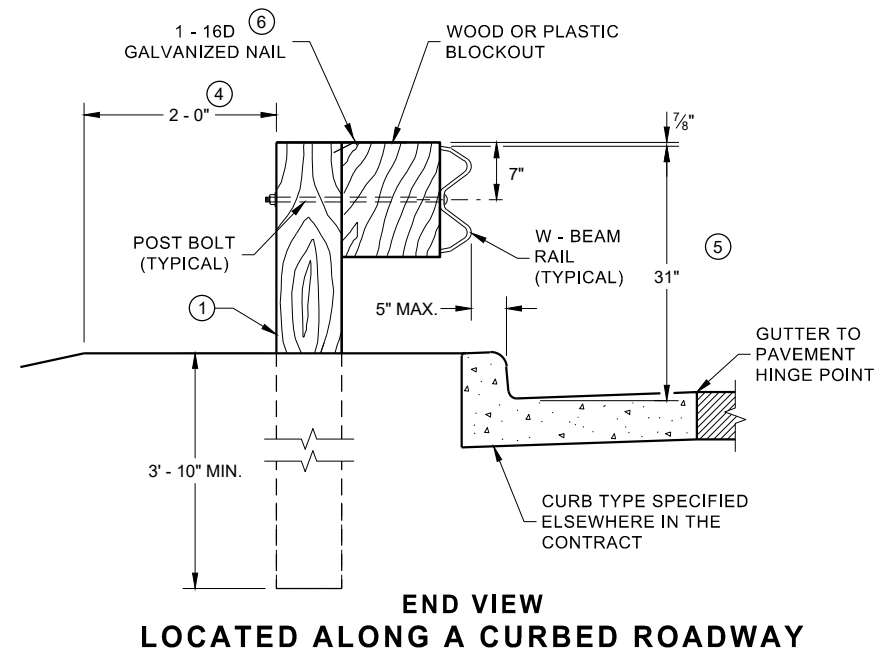
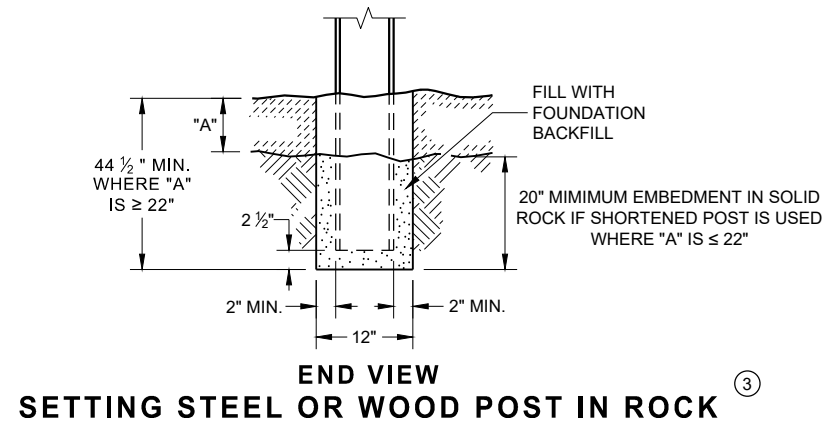
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

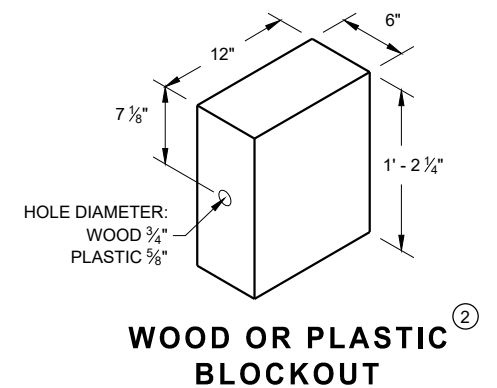
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



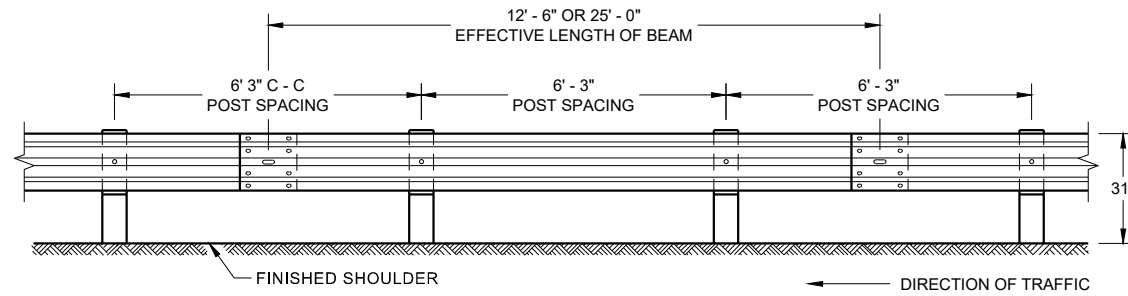
WOOD POST (6" X 8") NOMINAL ^①



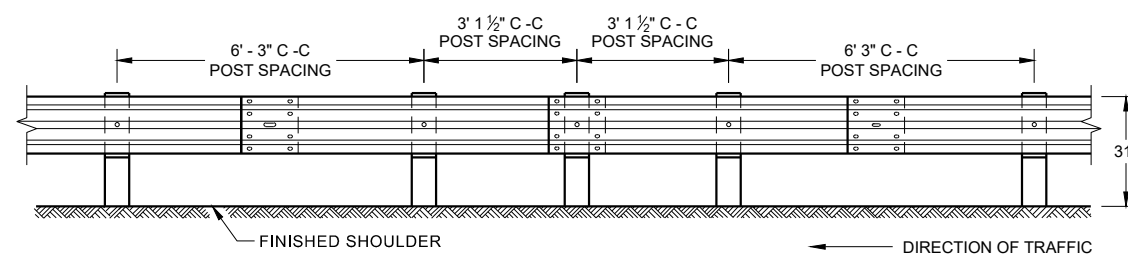
**WOOD OR PLASTIC
BLOCKOUT**

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

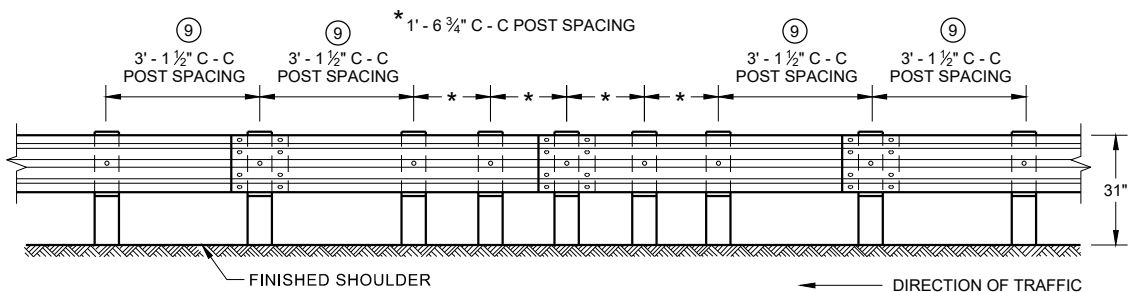
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



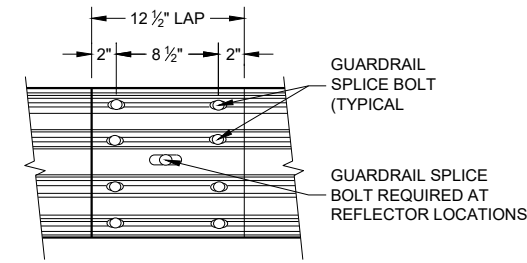
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



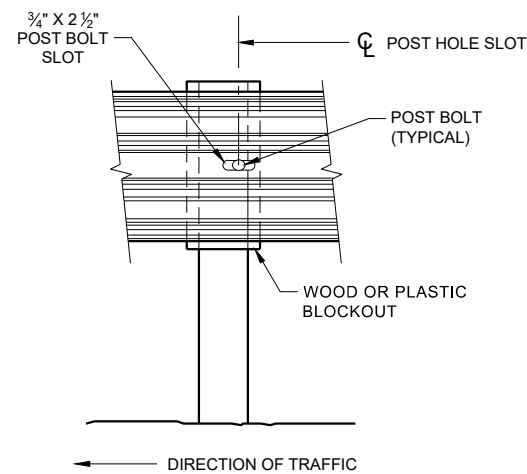
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



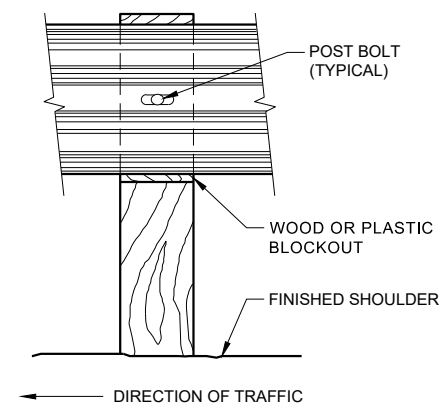
**FRONT VIEW
QUARTER POST SPACING (QS)**



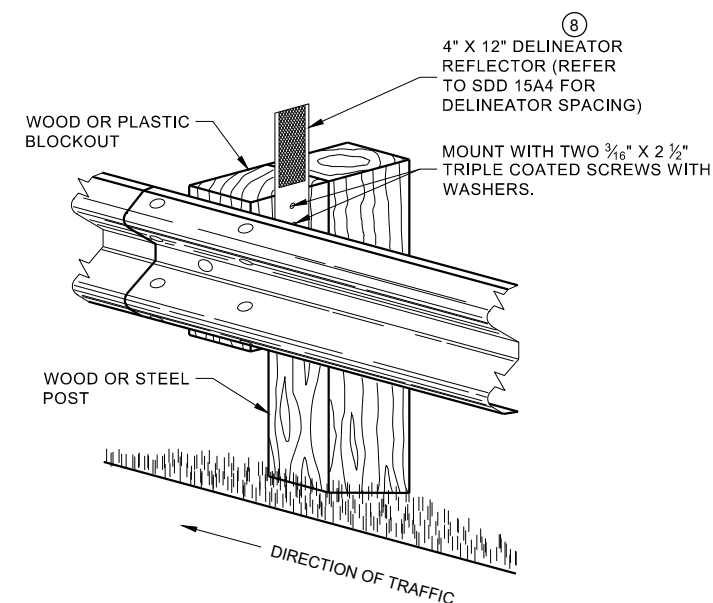
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



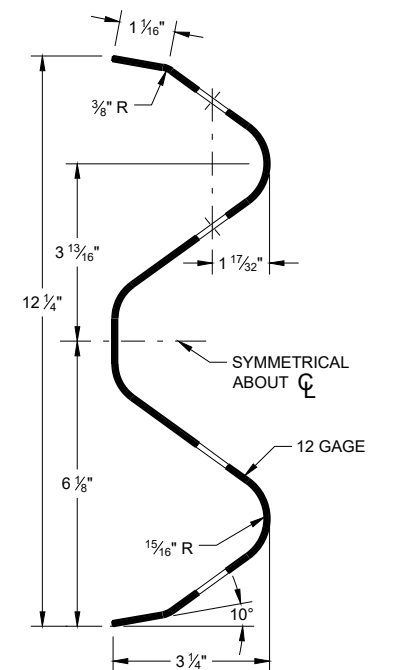
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

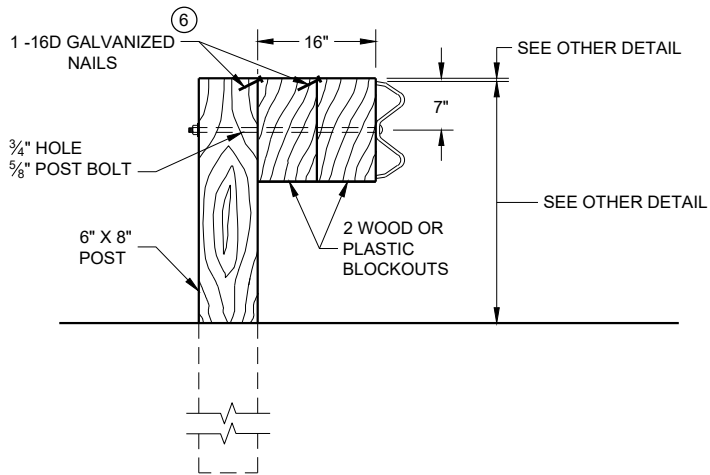
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

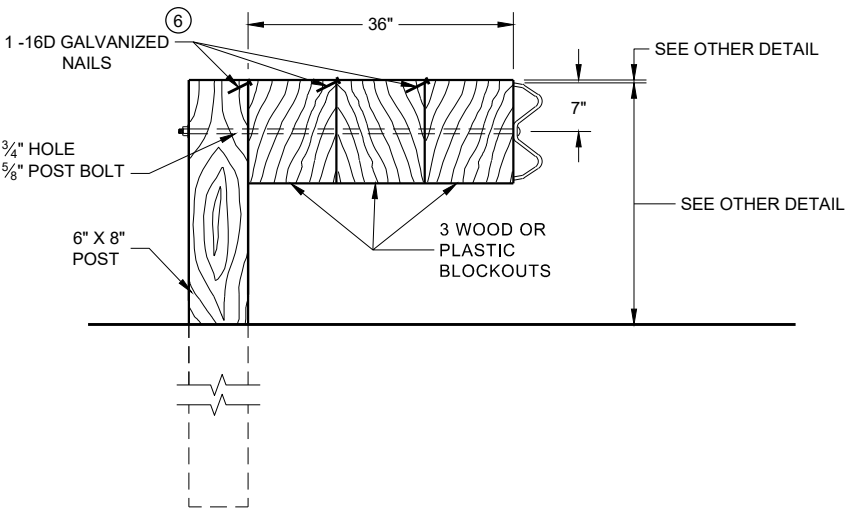
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

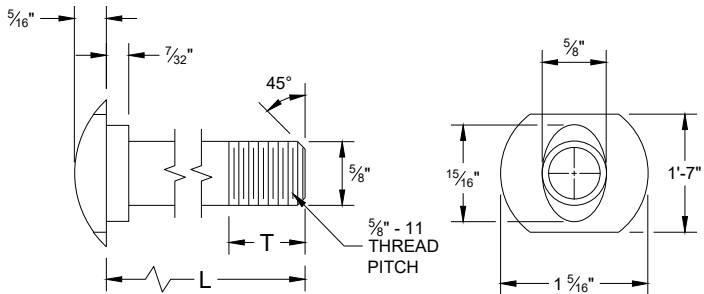
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

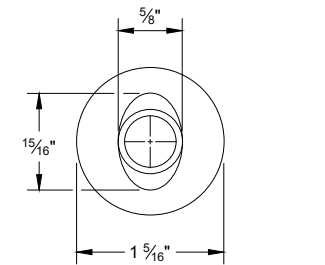
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
 - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

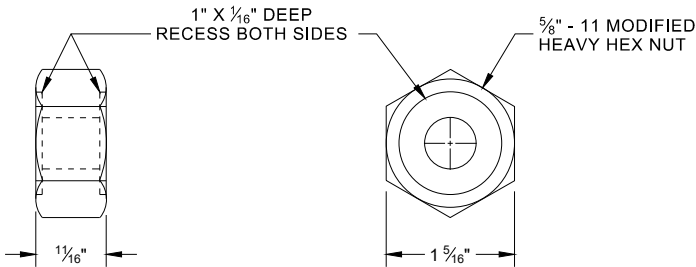


POST BOLT TABLE

L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"

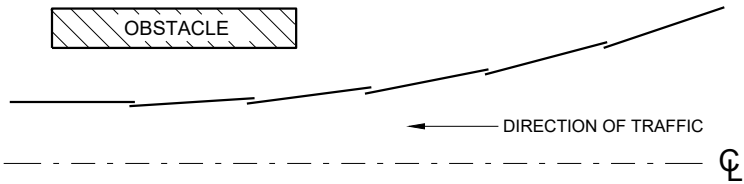


ALTERNATE BOLT HEAD

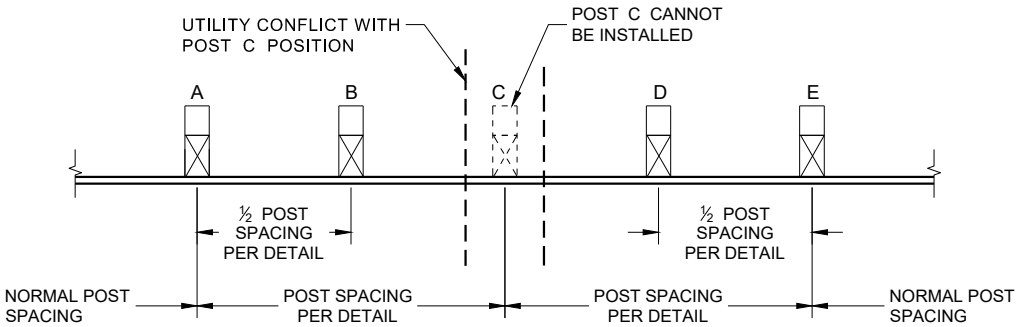


POST BOLT, SPLICE BOLT AND RECESS NUT

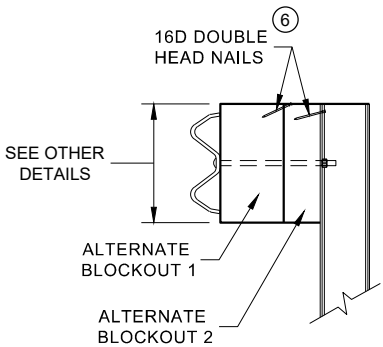
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



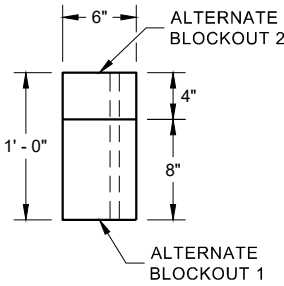
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

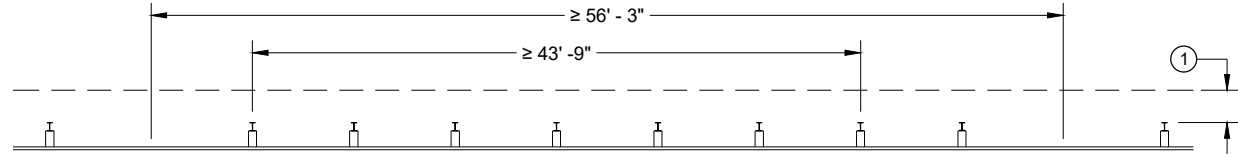


PLAN VIEW

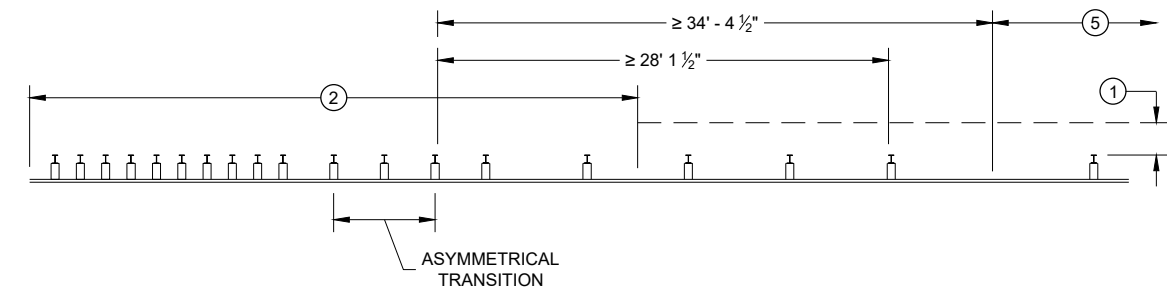
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

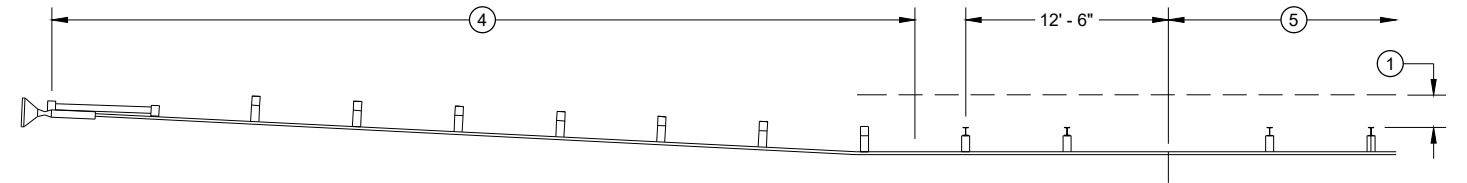
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



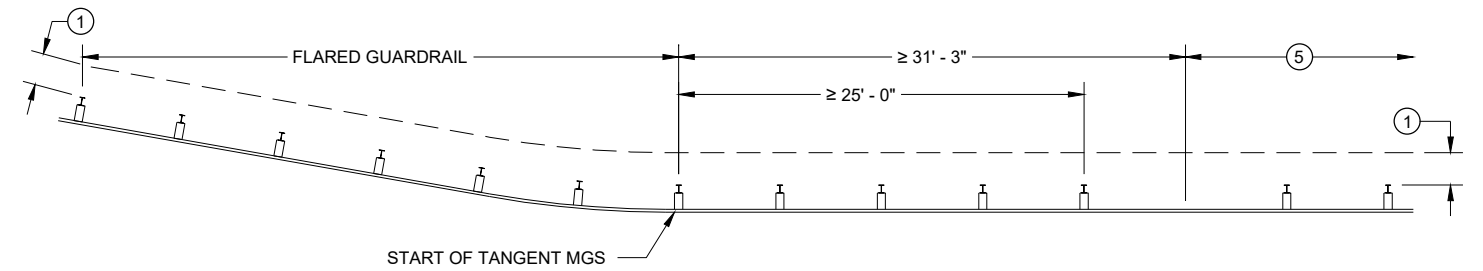
MISSING POST IN NORMAL BEAM GUARD RUN



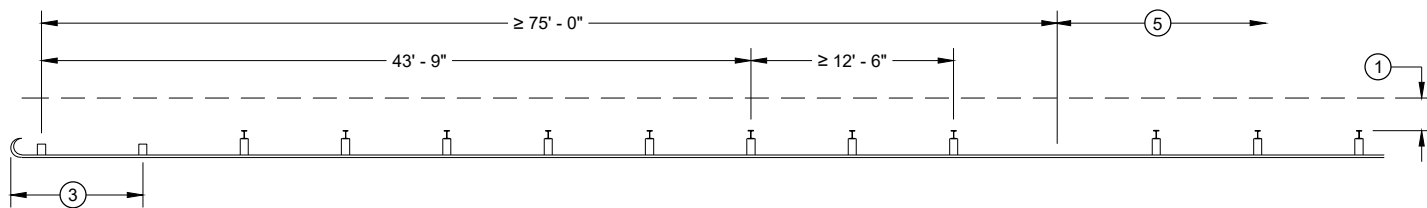
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



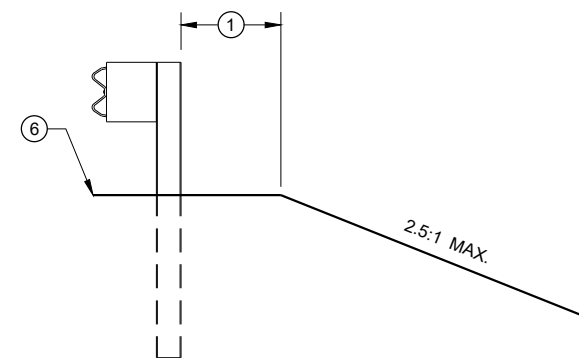
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- (1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- (2) SEE SDD 14B45 FOR MORE DETAILS.
- (3) SEE SDD 14B47 FOR MORE DETAILS.
- (4) SEE SDD 14B44 FOR MORE DETAILS.
- (5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- (6) SEE PLAN FOR SHOULDER DESIGN.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

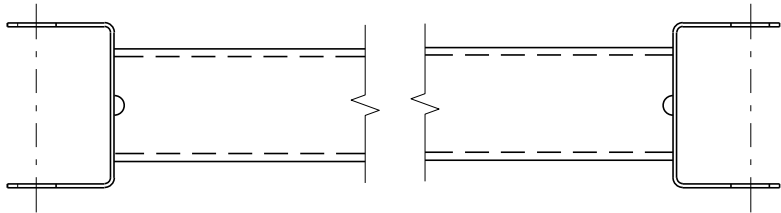
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

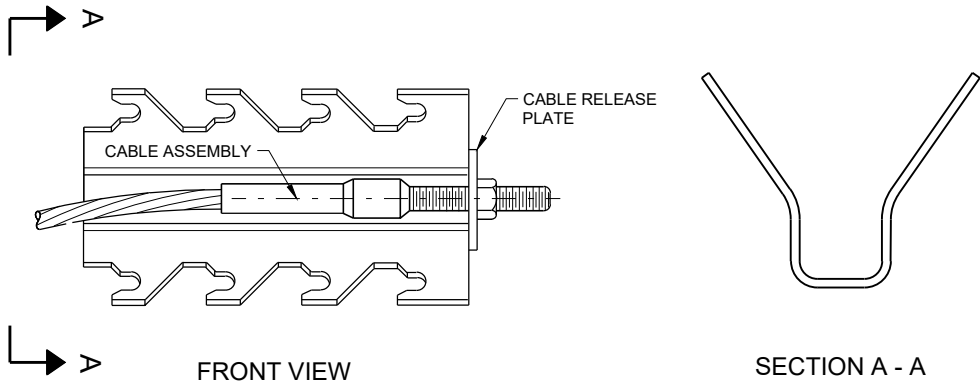


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

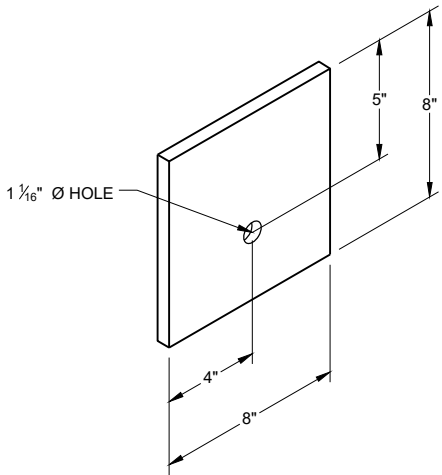


GENERIC GROUND STRUT^⑨ [Ⓔ]

BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



GENERIC ANCHOR CABLE BOX^⑨ [Ⓔ]



BEARING PLATE^⑥ [Ⓔ]

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

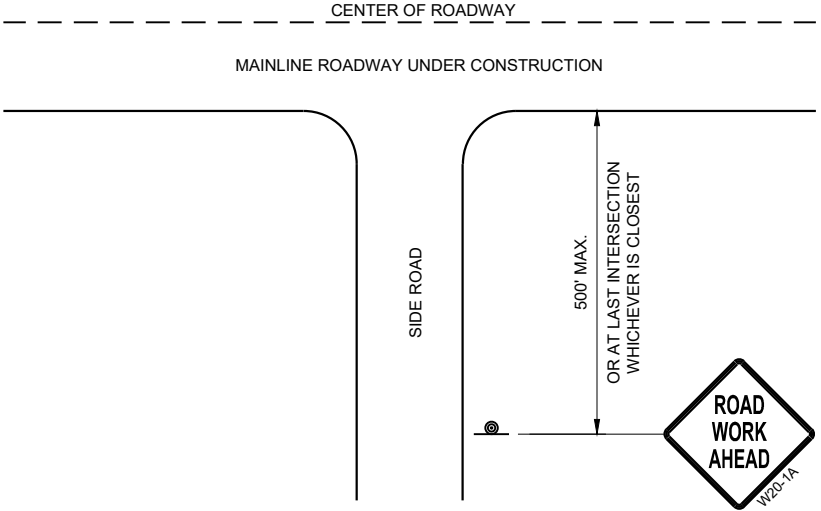
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

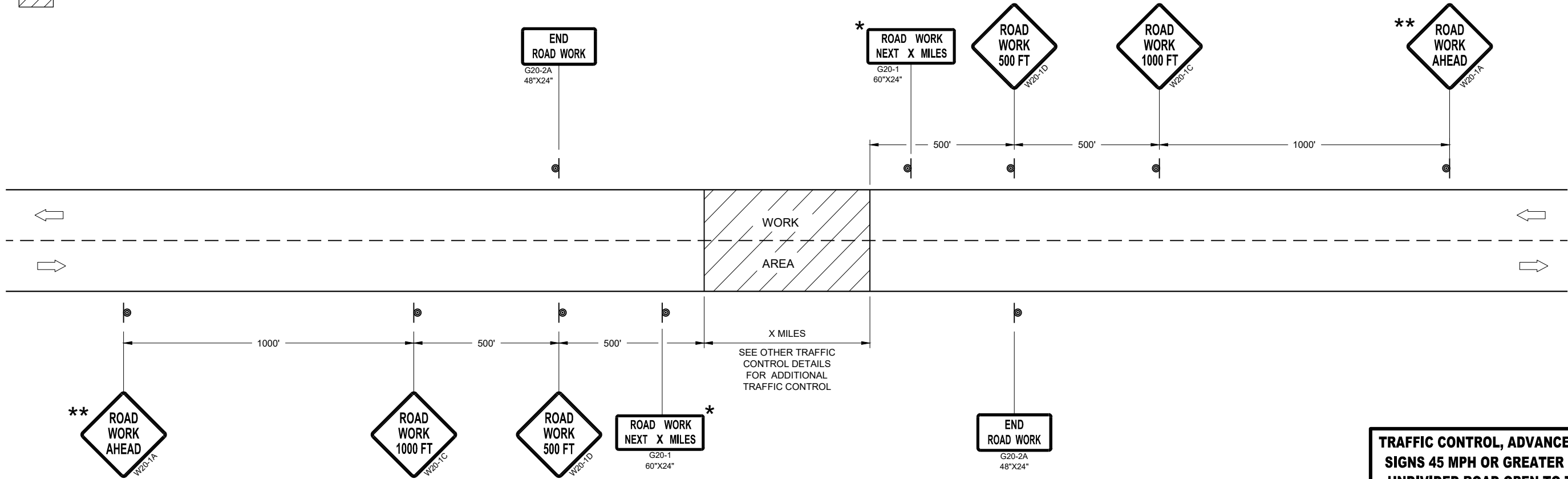
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

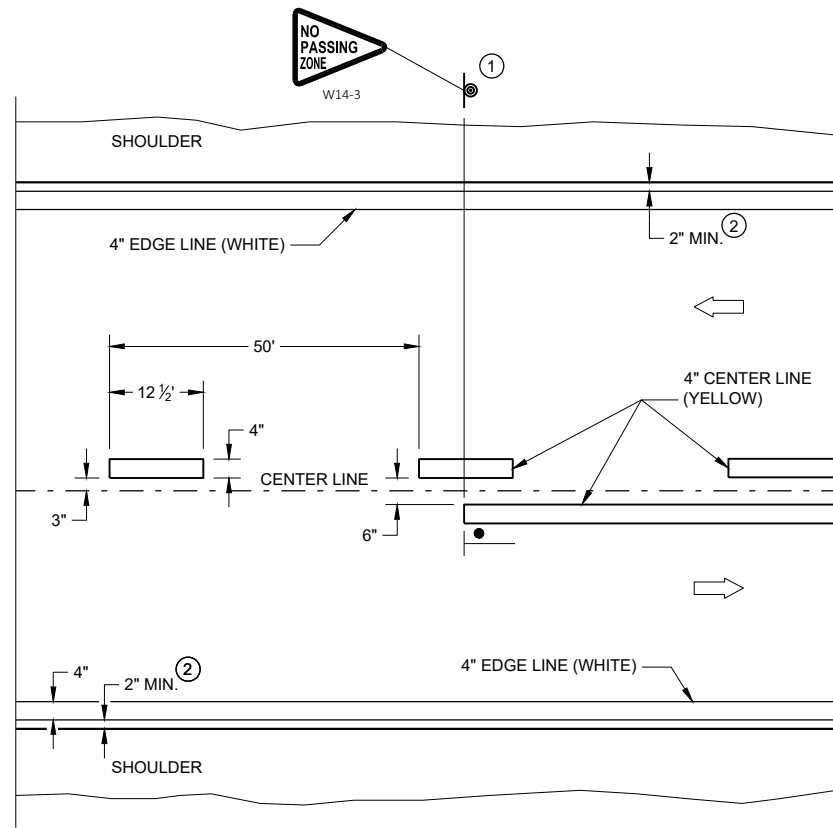


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

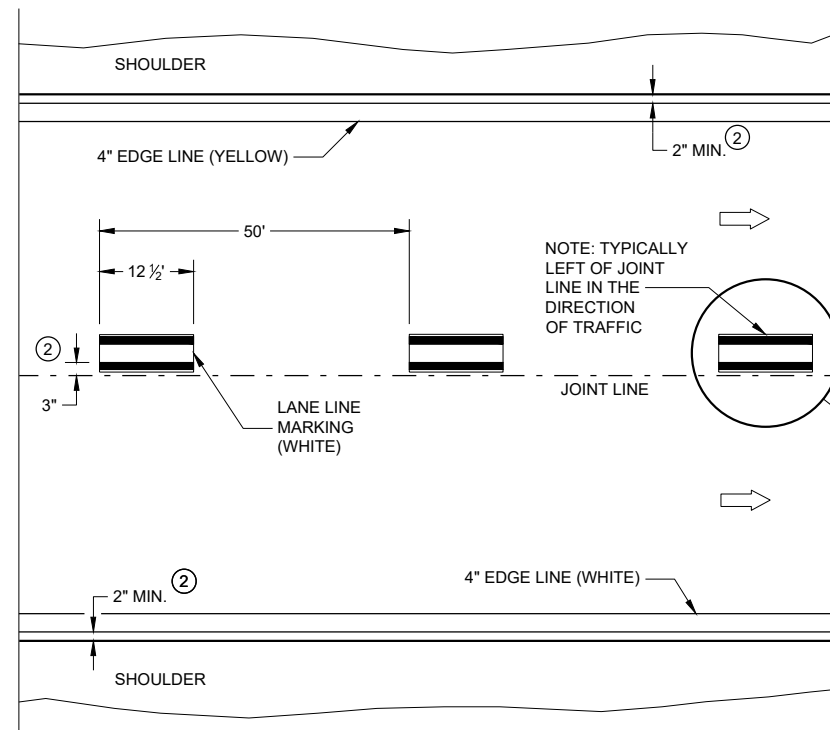
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

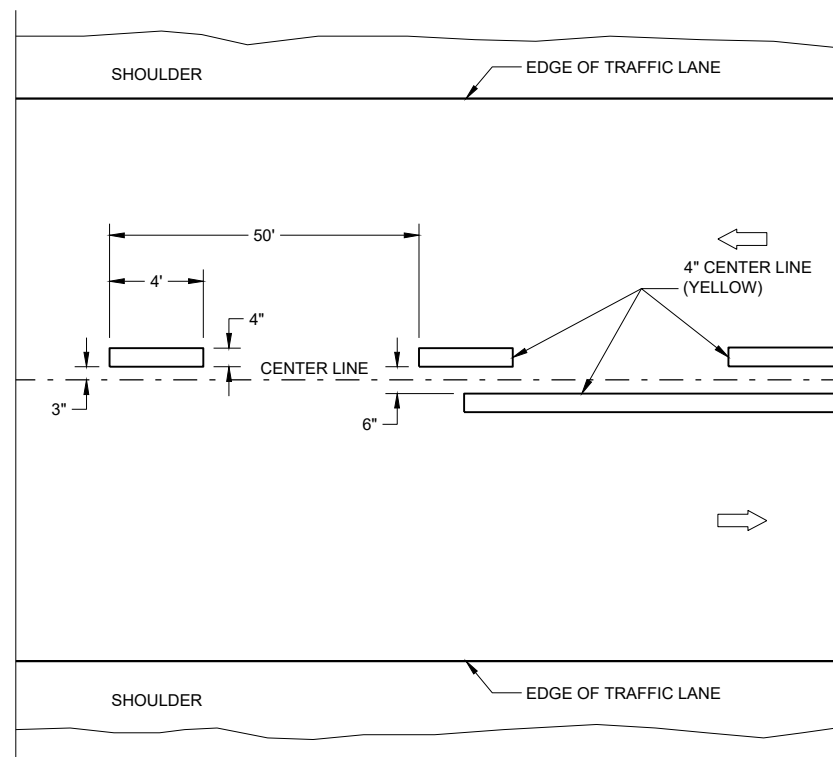


TWO WAY TRAFFIC

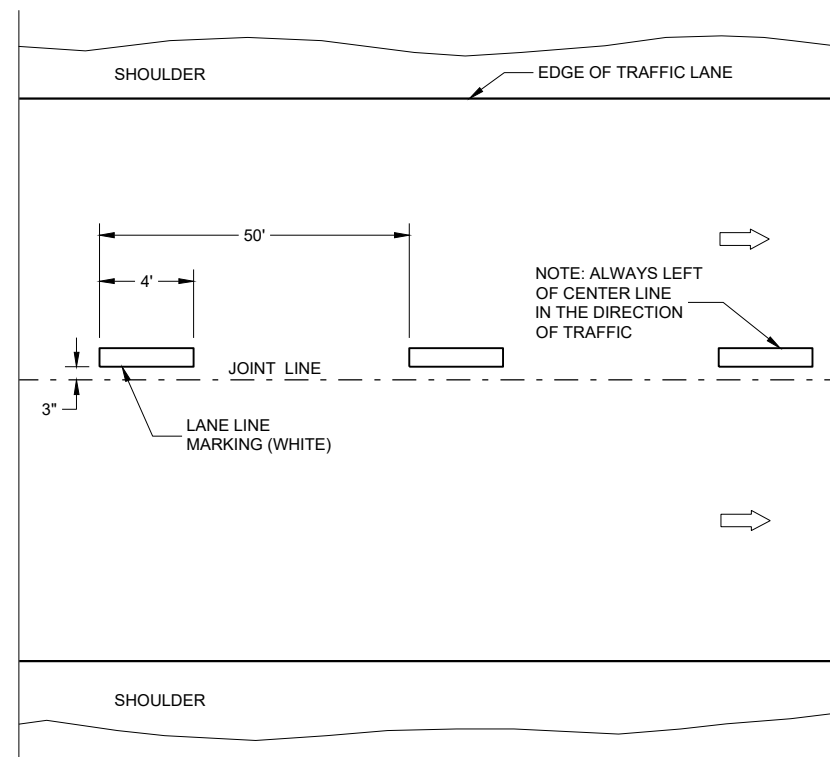


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

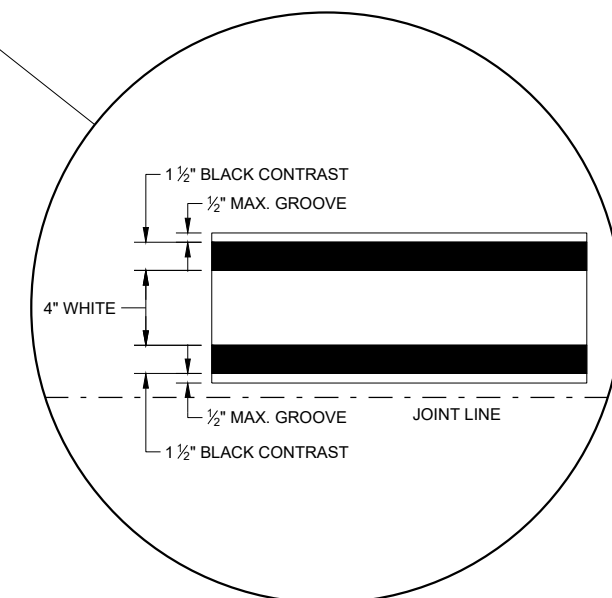
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM
TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

-  "T" MARKING
 SIGN ON PERMANENT SUPPORT
 DIRECTION OF TRAFFIC



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

/S/ Matthew Rauch
STATEWIDE SIGNING AND MARKING
ENGINEER

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

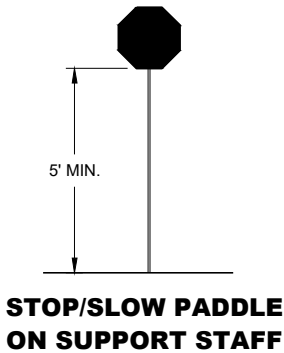
③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

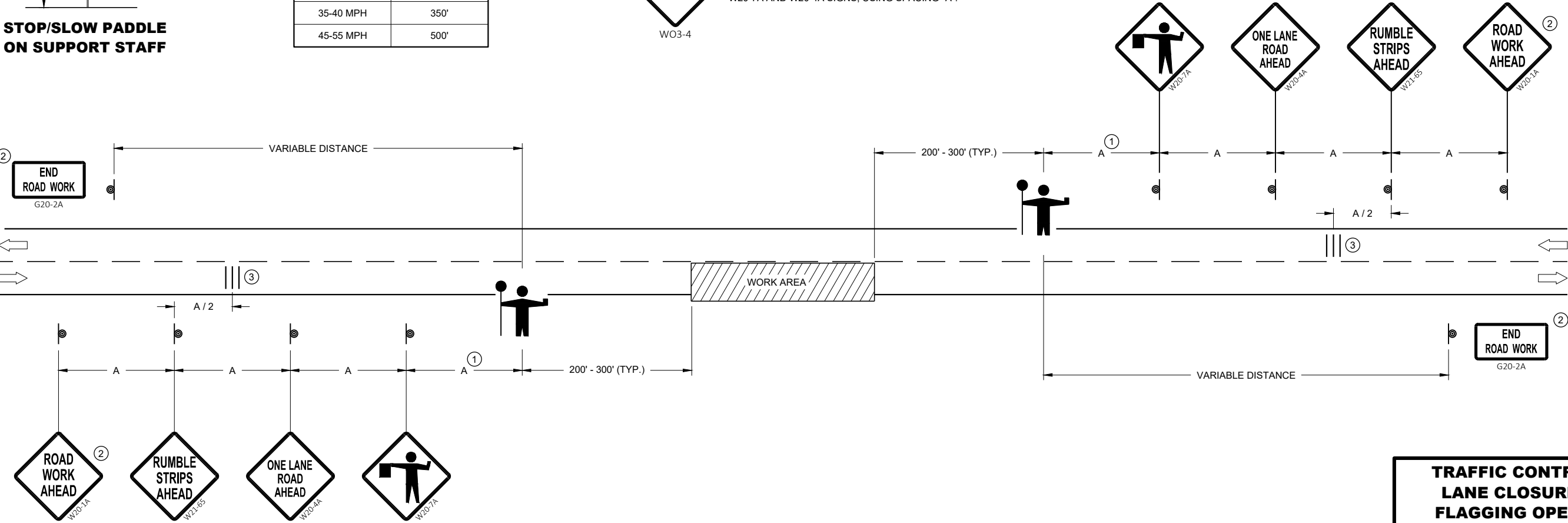


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

**TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- V1 LEAD VEHICLE
- V2 MARKING VEHICLE
- V3 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  SIGN ON TEMPORARY SUPPORT
-  DIRECTION OF TRAFFIC
-  FLASHING ARROW PANEL (CAUTION)

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

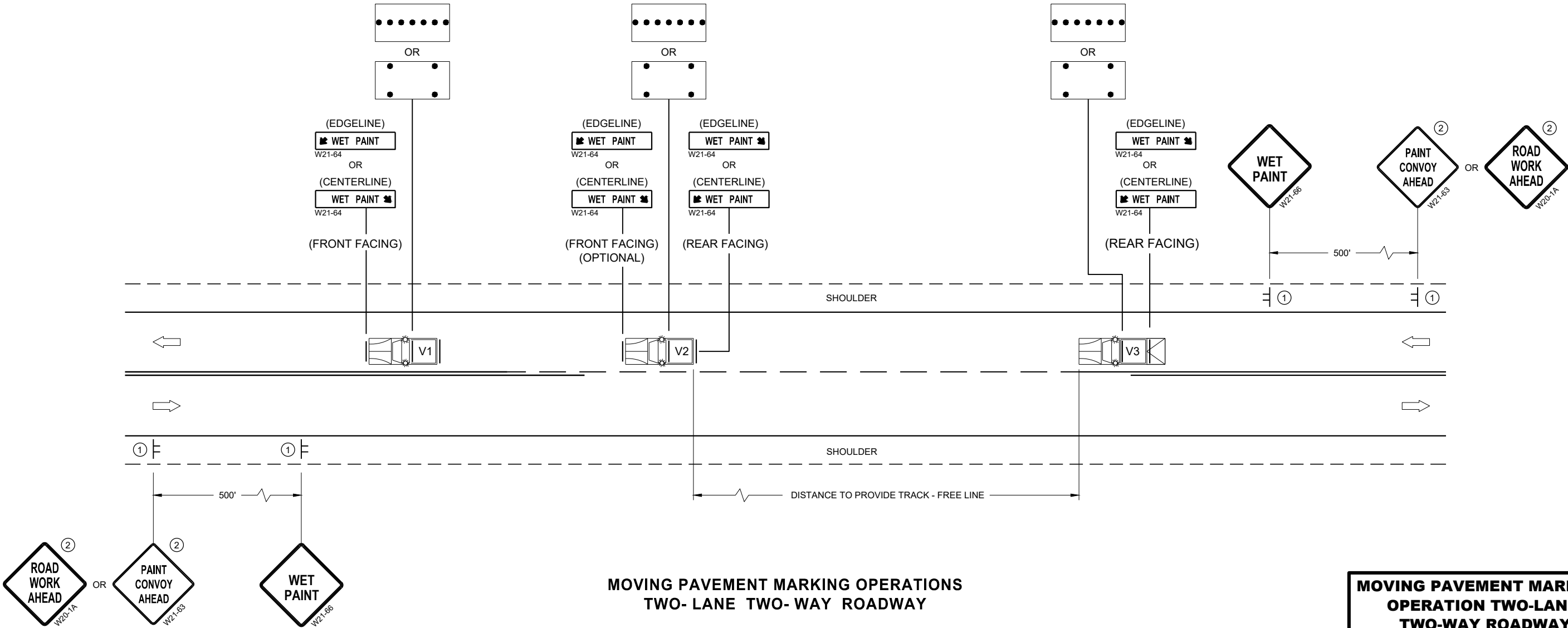
THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 18" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



MOVING PAVEMENT MARKING
OPERATION TWO-LANE
TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

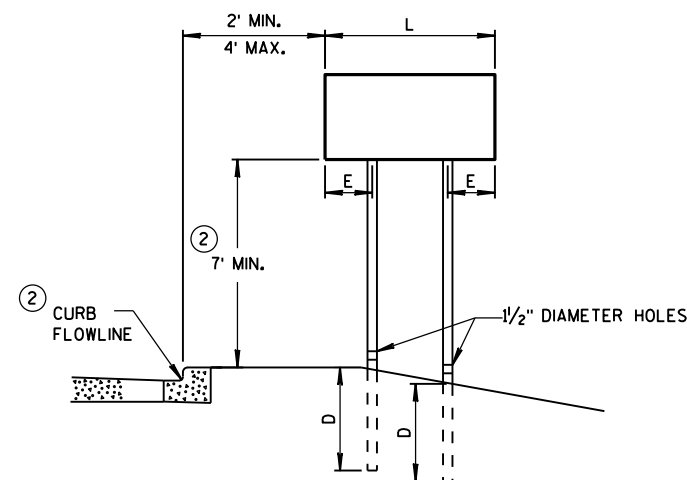
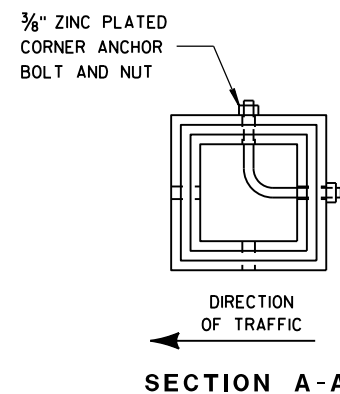
APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS LARGER THAN 27 SQ.FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

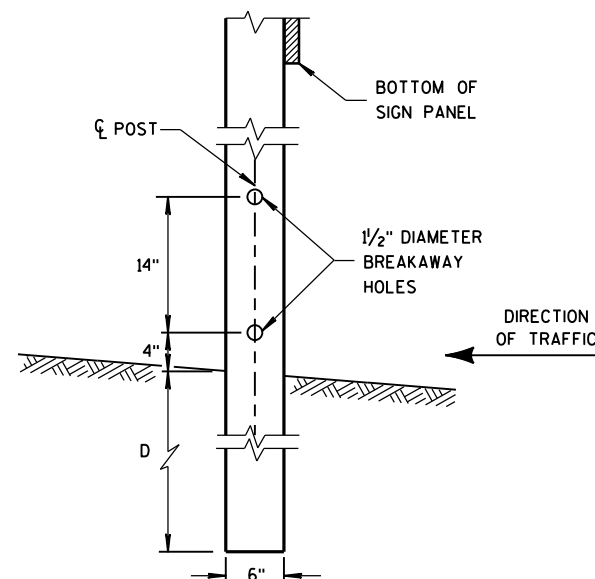


URBAN AREA

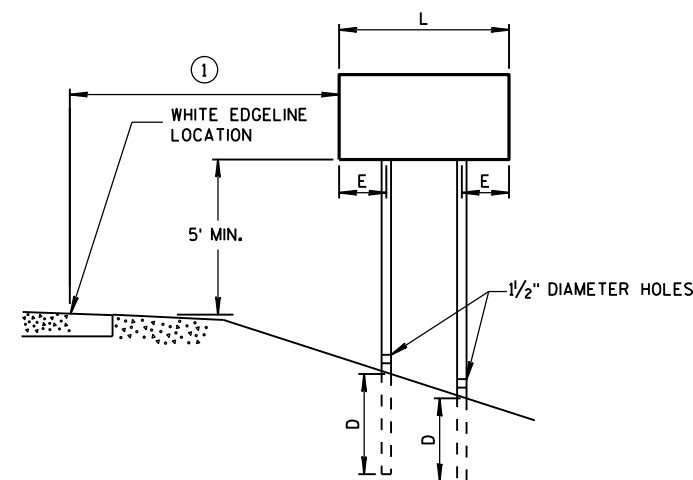
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

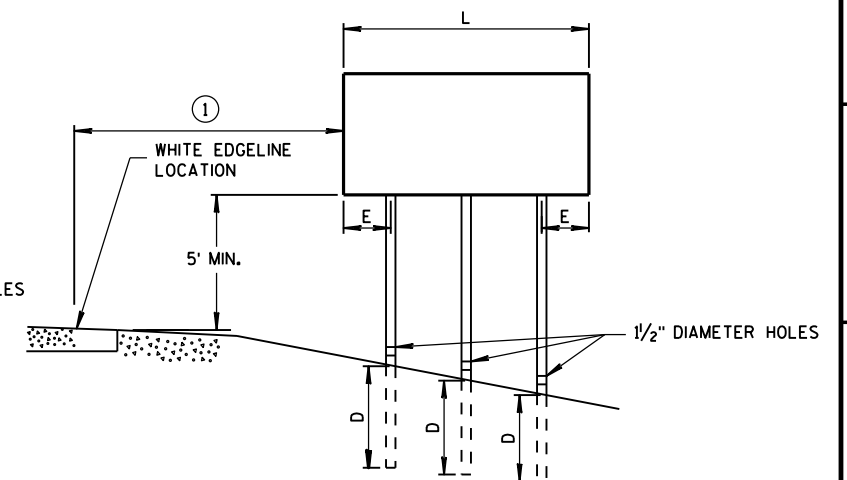
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA



GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

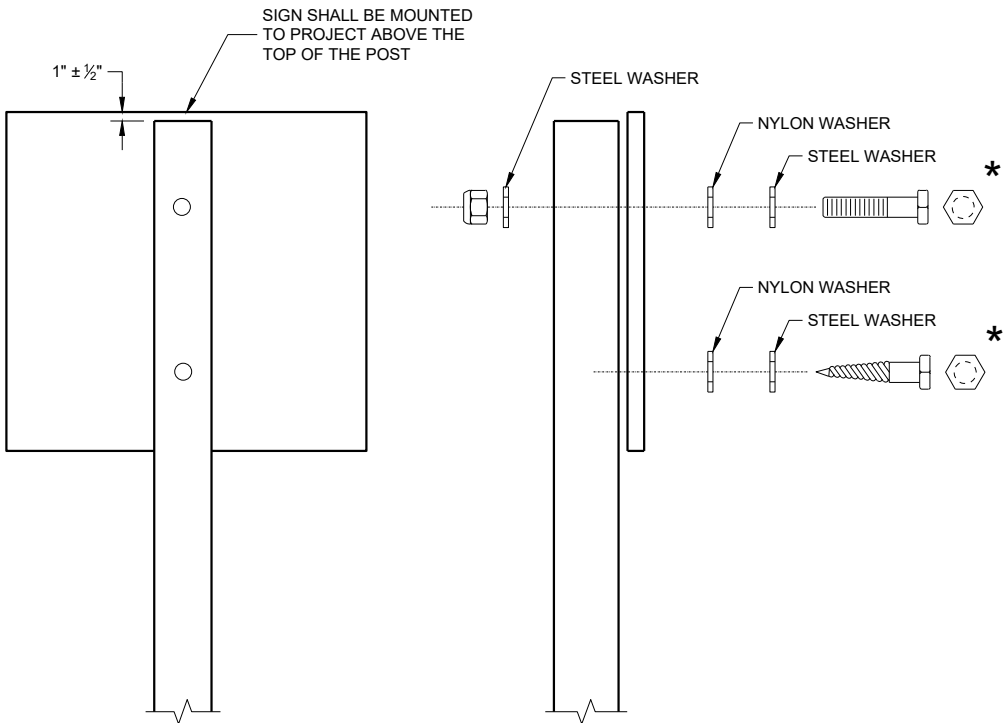
4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS
SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM
DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM
DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH
SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED
COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")
LAG SCREWS - 3/8" x 3"
MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

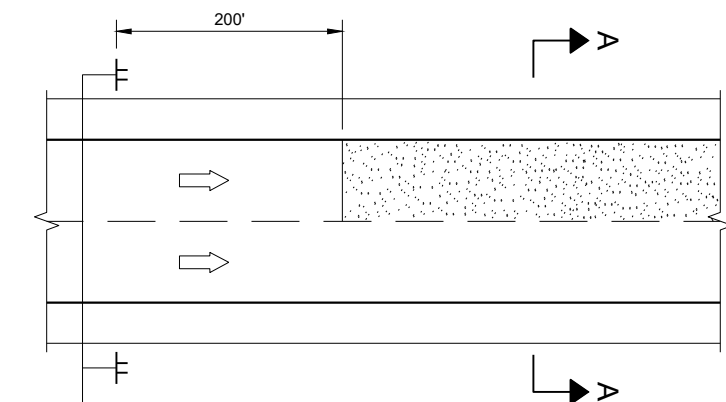
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION
PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM
SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH
THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER
THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS
TO POSTS

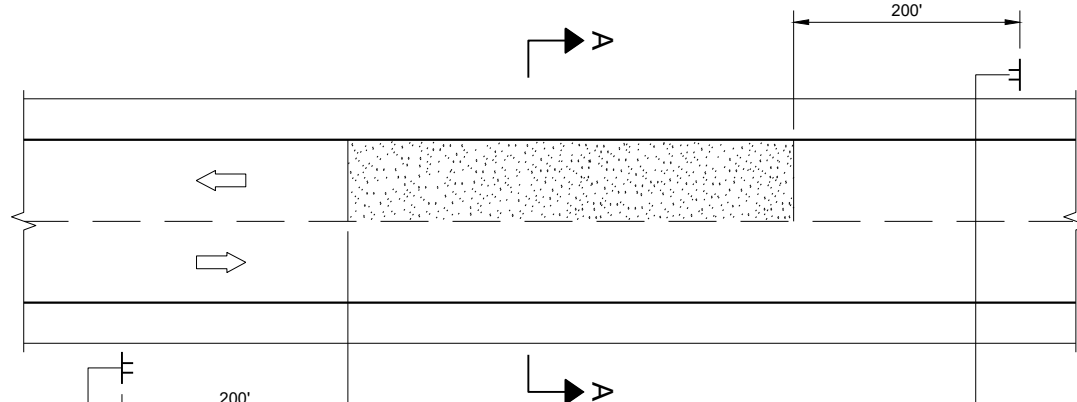
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

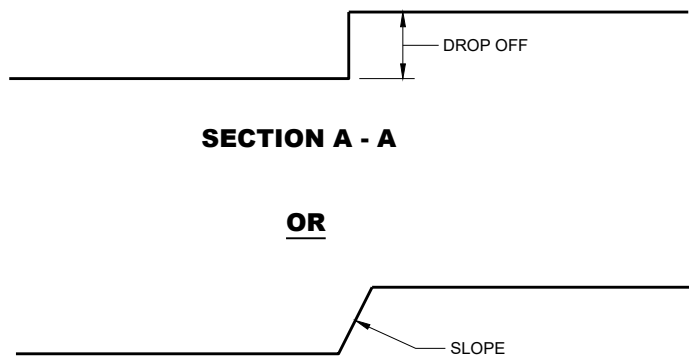
FHWA



MULTI-LANE



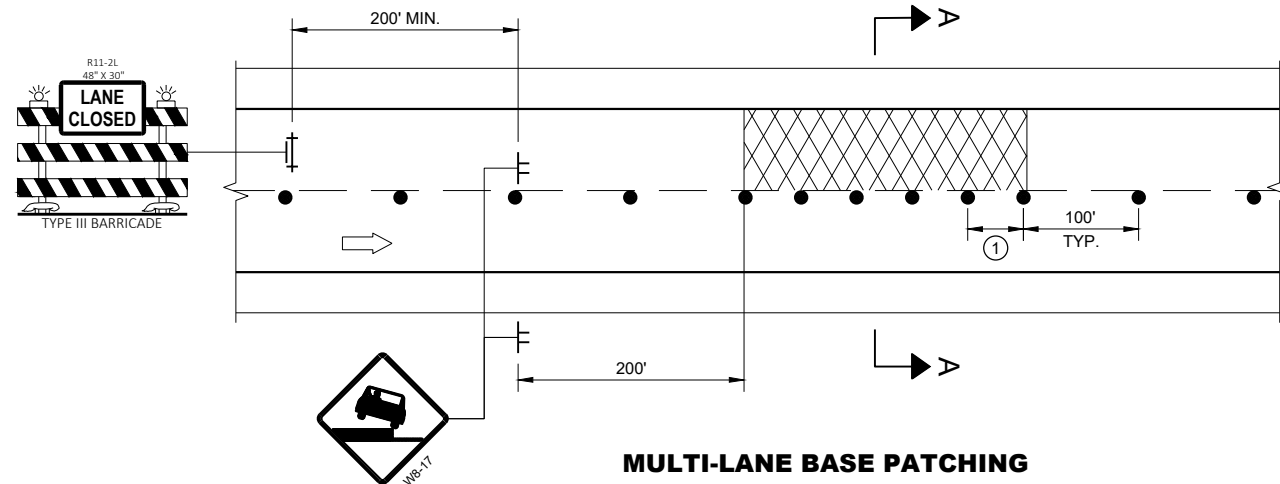
TWO-WAY TWO LANE



SECTION A - A

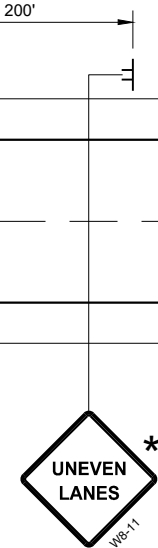
OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



UNEVEN LANES

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

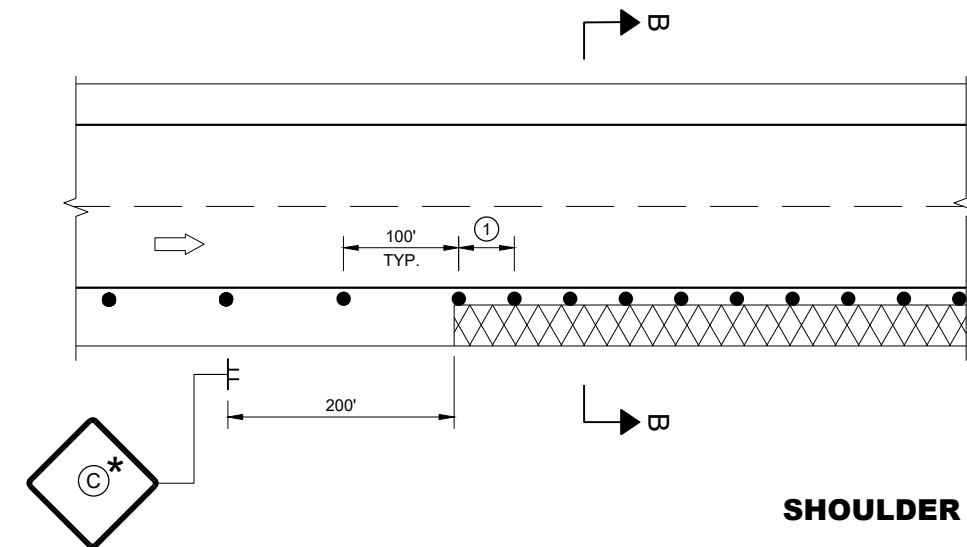
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

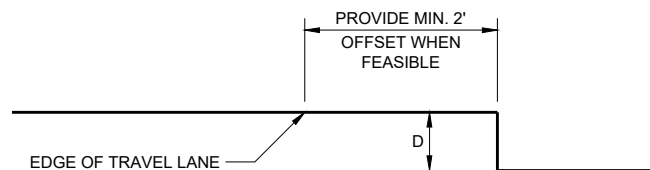
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE



SHOULDER DROP-OFFS



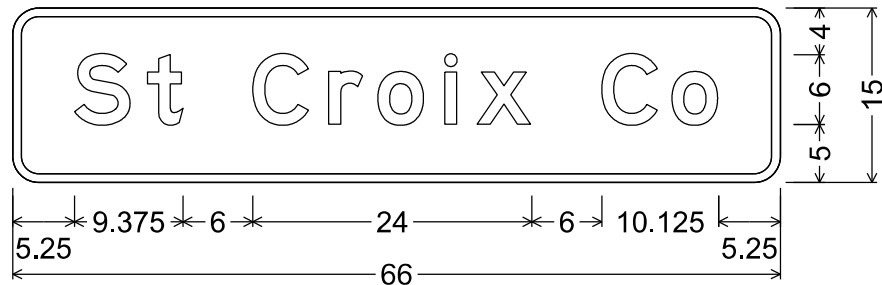
SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

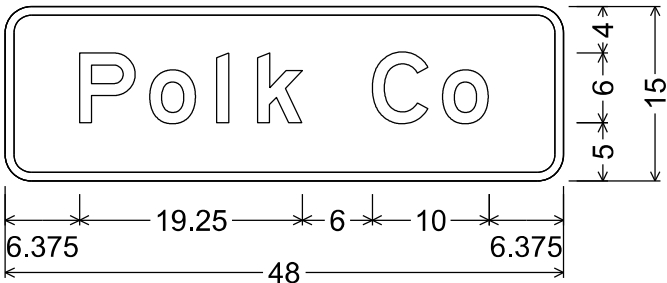
TRAFFIC CONTROL, DROP-OFF SIGNING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

NOTES

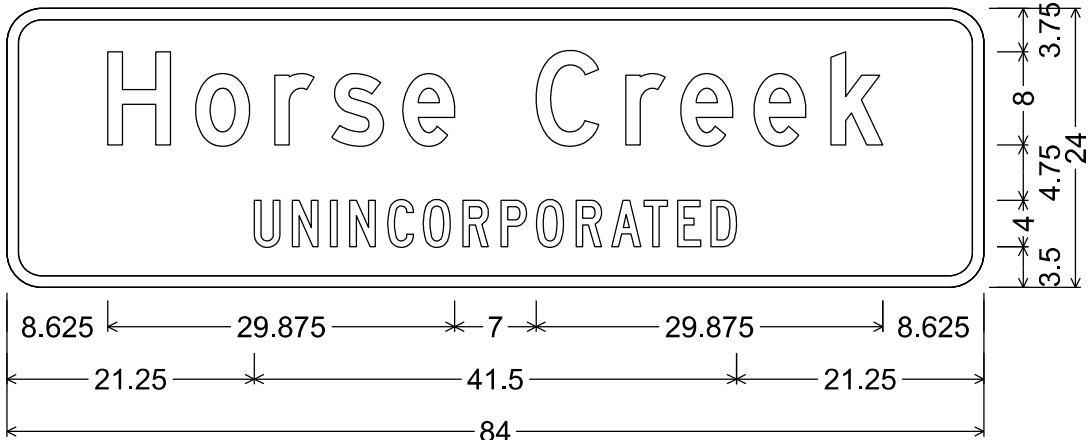
- 1. All Signs Type II - Type H Reflective
- 2. Color:
Background - Green
Message - White
- 3. Message Series - E except as noted.



I2-2; 2.250" Radius, 0.750" Border

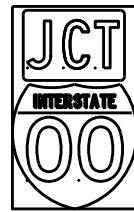


I2-2; 2.250" Radius, 0.750" Border

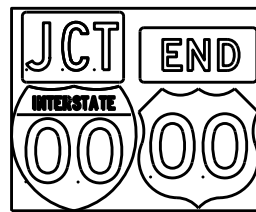


I2-3; 3.000" Radius, 1.000" Border
"Horse", D; "Creek", D; "UNINCORPORATED", C

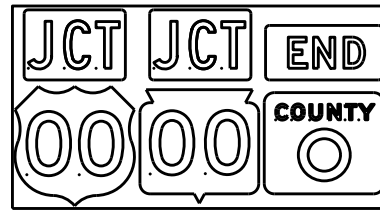
TYPICAL ASSEMBLIES



J1-1



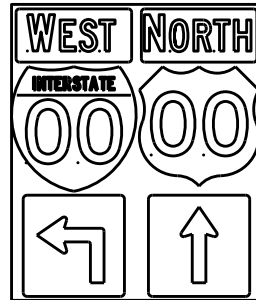
J1-2



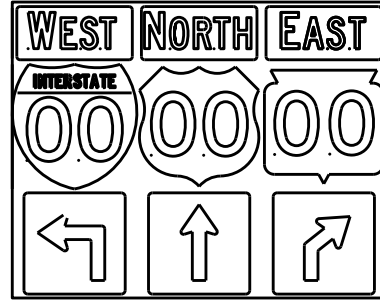
J1-3



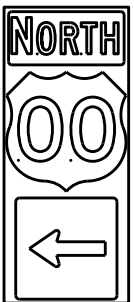
J2-1



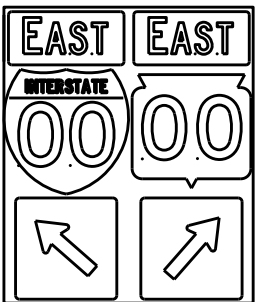
J2-2



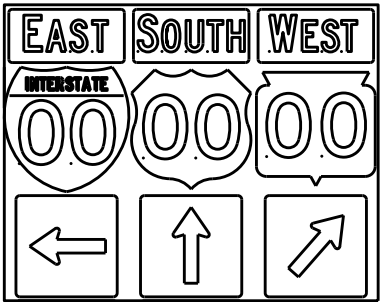
J2-3



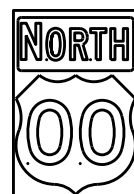
J3-1



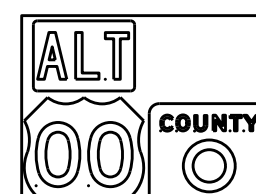
J3-2



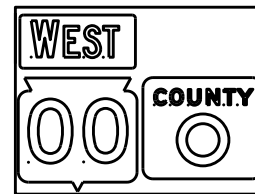
J3-3



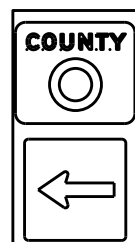
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1

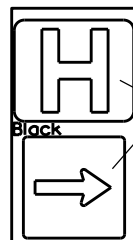


J22-1



JV

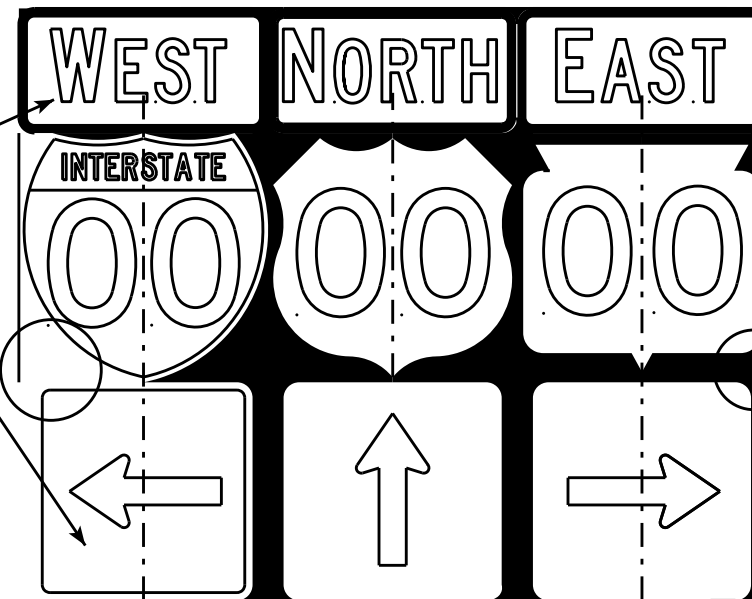
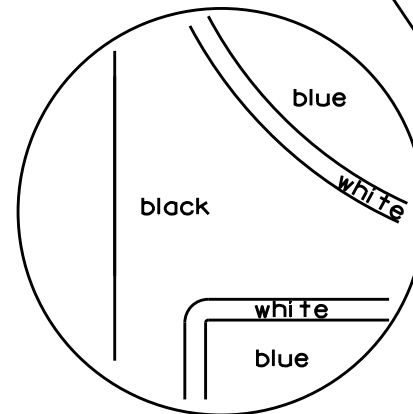
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

[blue background
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/06/14 PLATE NO. A2-1S.8

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Black Non-reflective
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

PROJECT NO:

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN

PLOT DATE : 06-FEB-2014 14:10

PLOT BY : mscs.ja

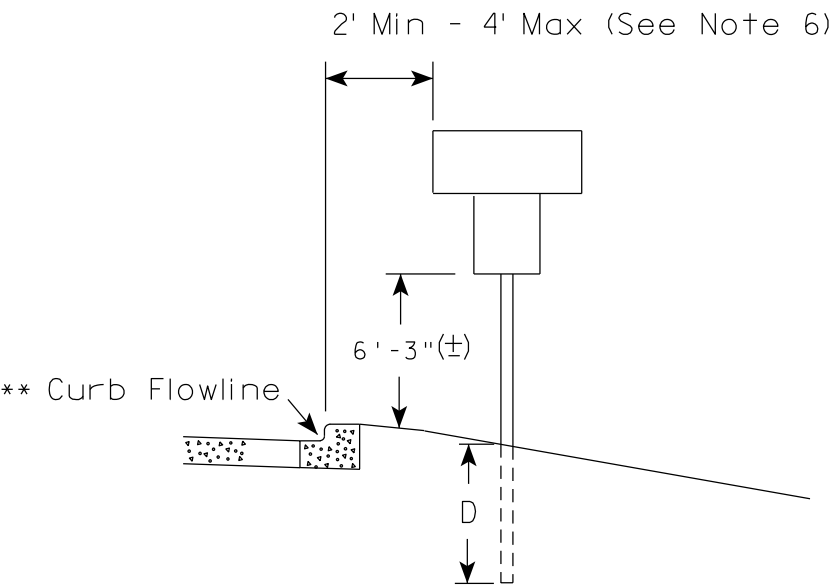
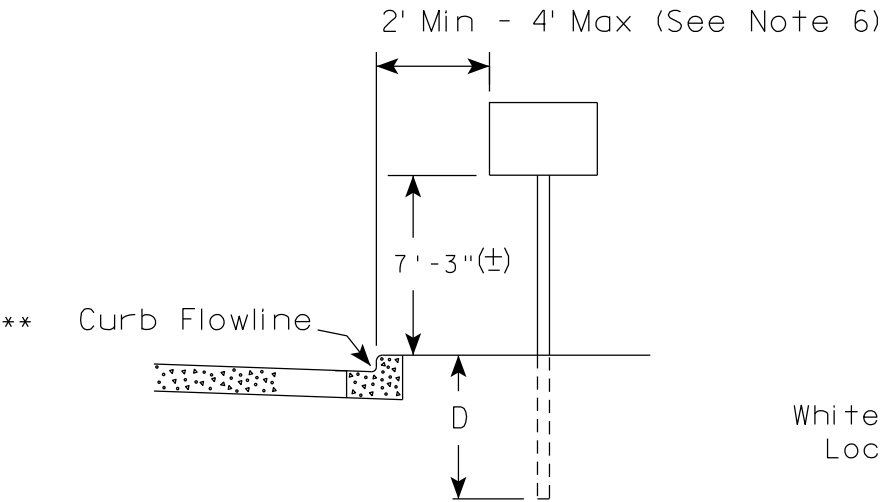
PLOT NAME :

SHEET NO:

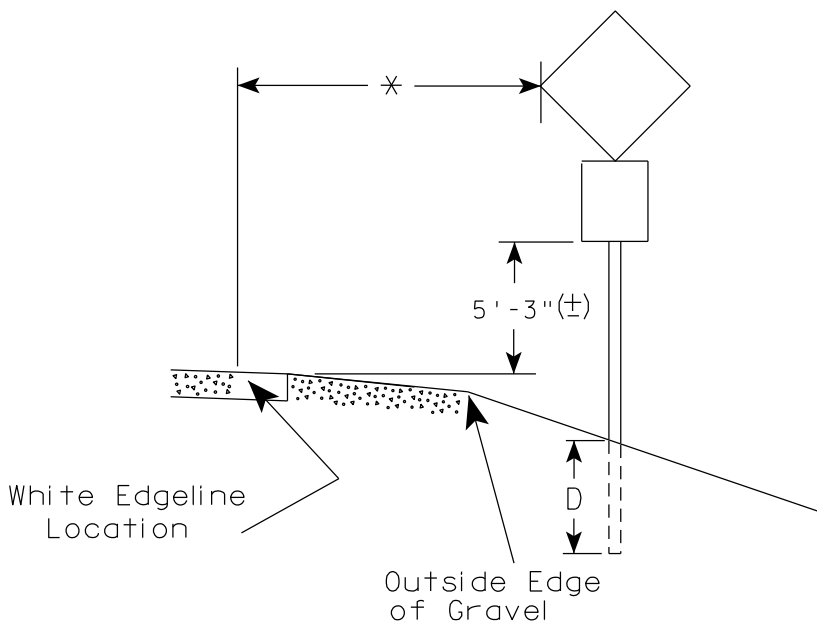
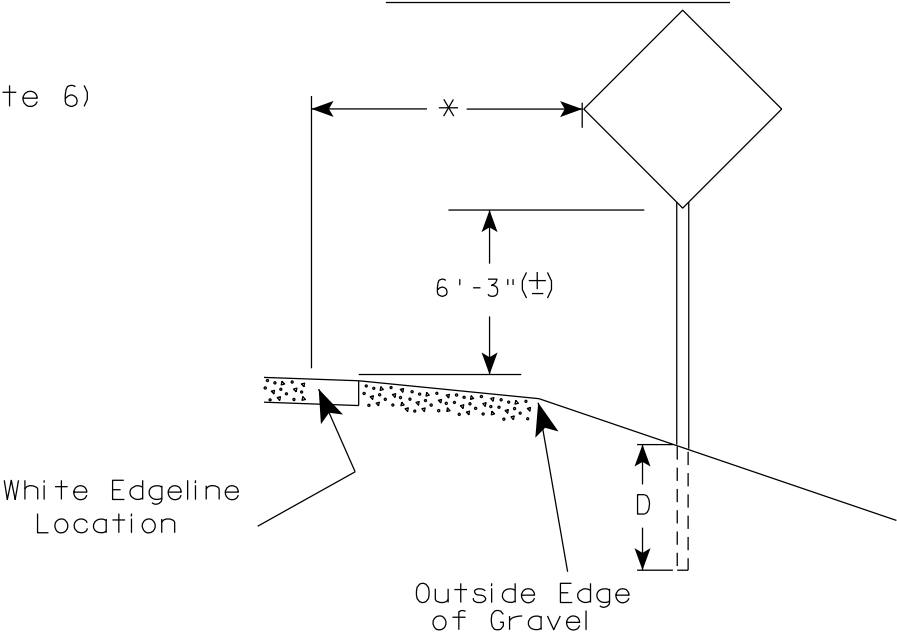
E

WISDOT/CADDs SHEET 42

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

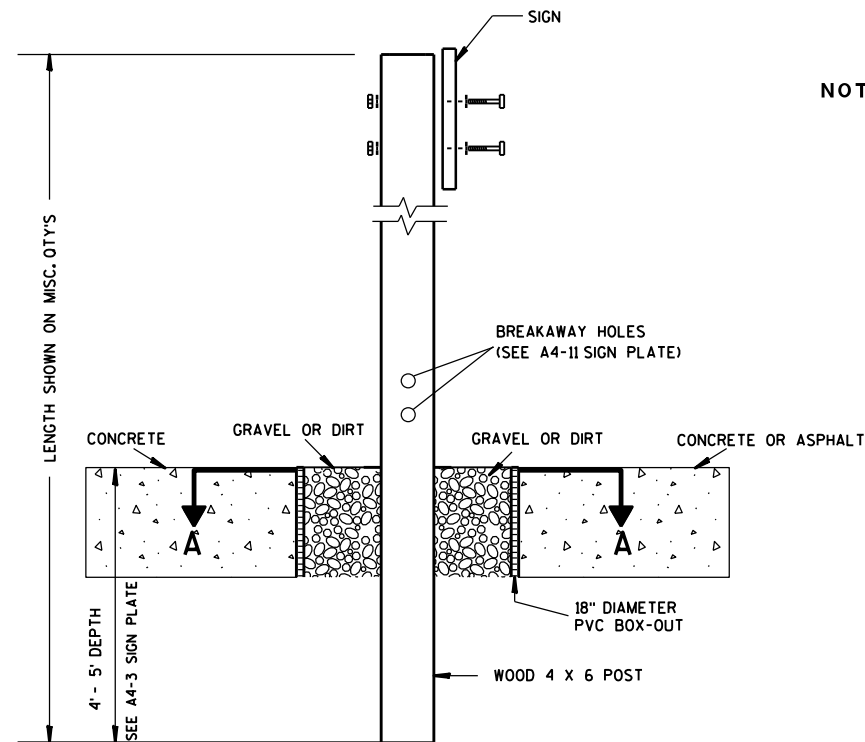
POST EMBEDMENT DEPTH	
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

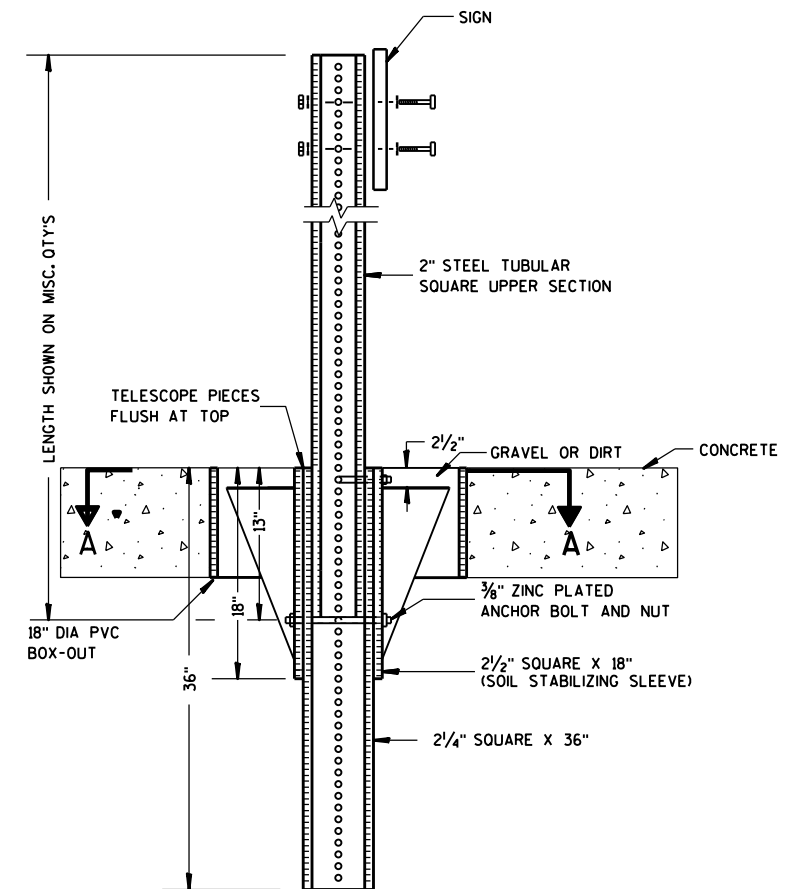
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

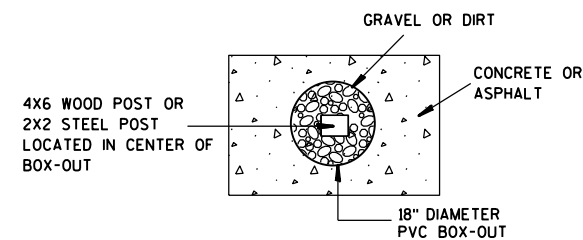
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

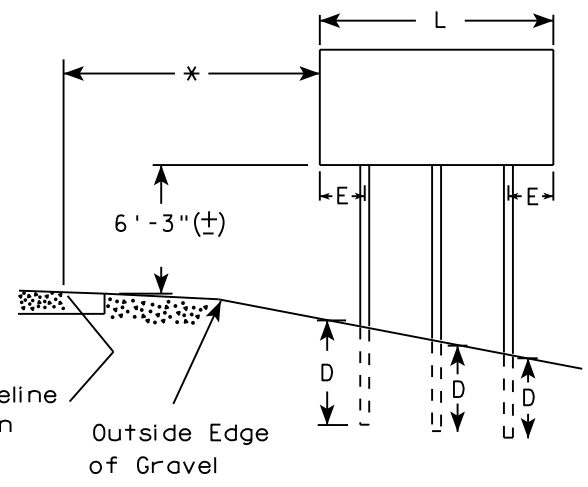
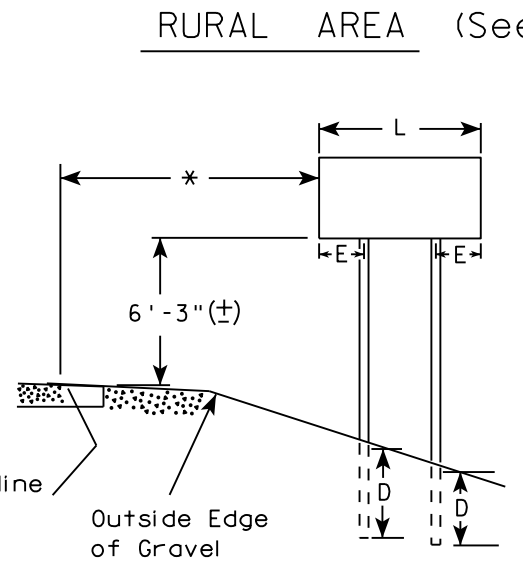
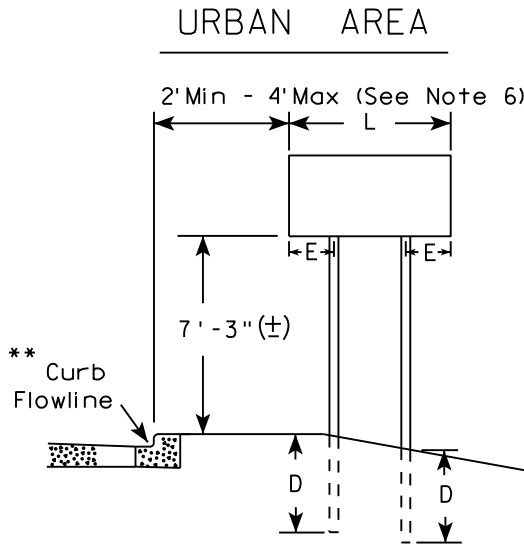
PROJECT NO:

HWY:

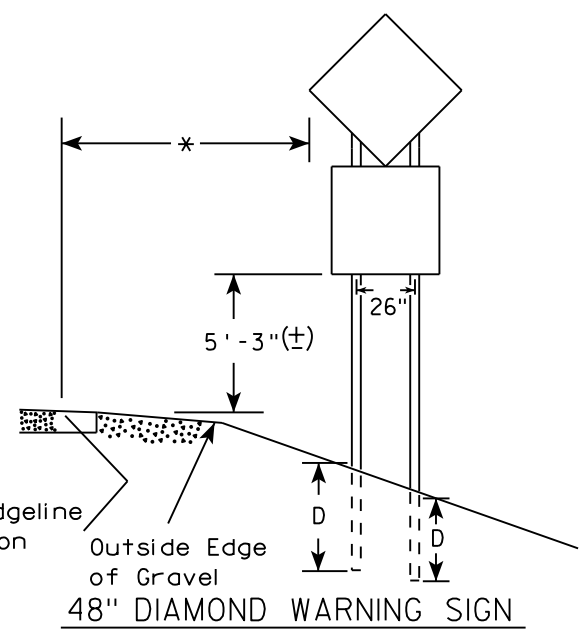
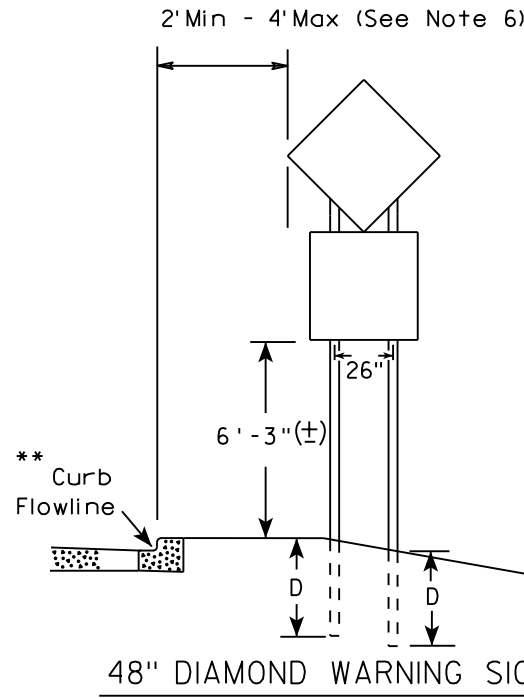
COUNTY:

SHEET NO:

E



- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).



- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- ** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- *** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

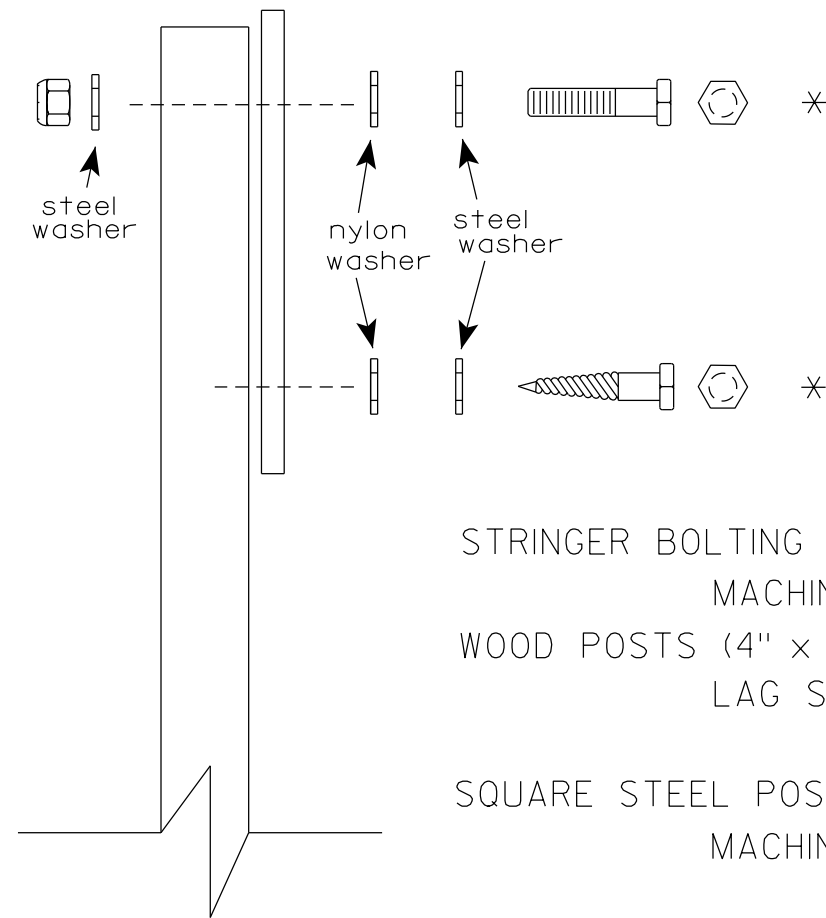
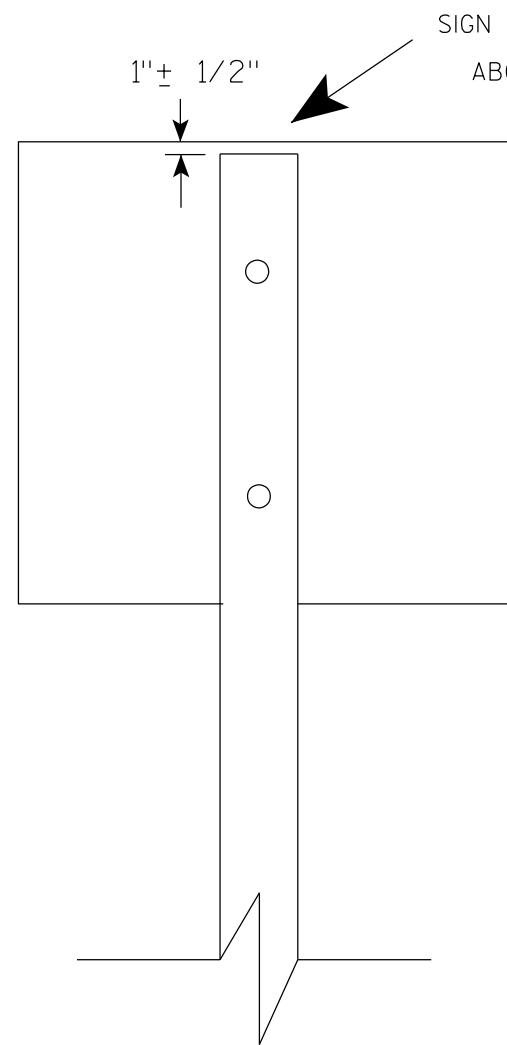
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

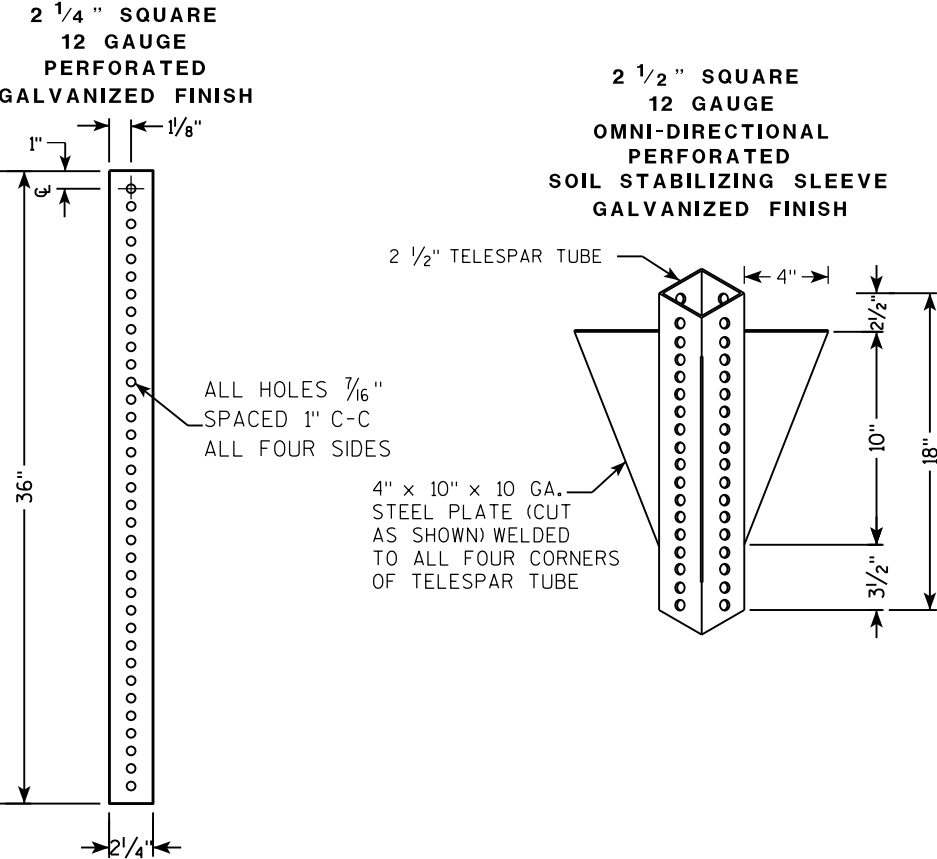
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

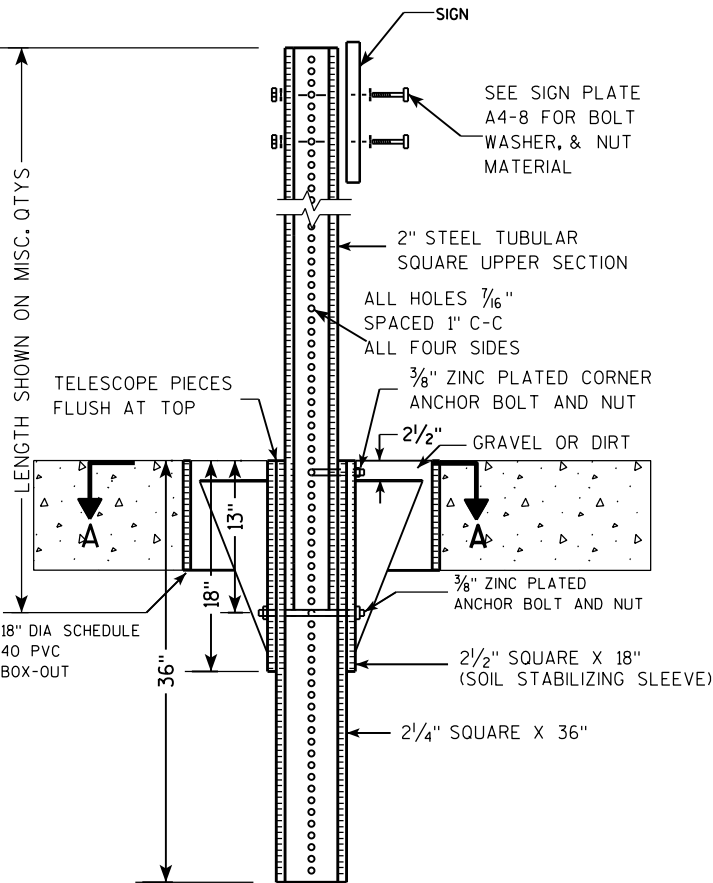
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

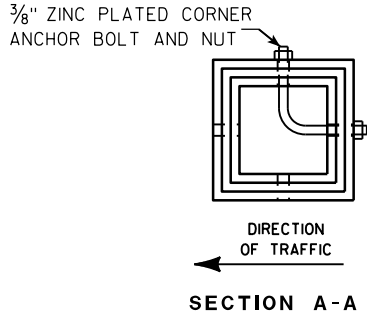
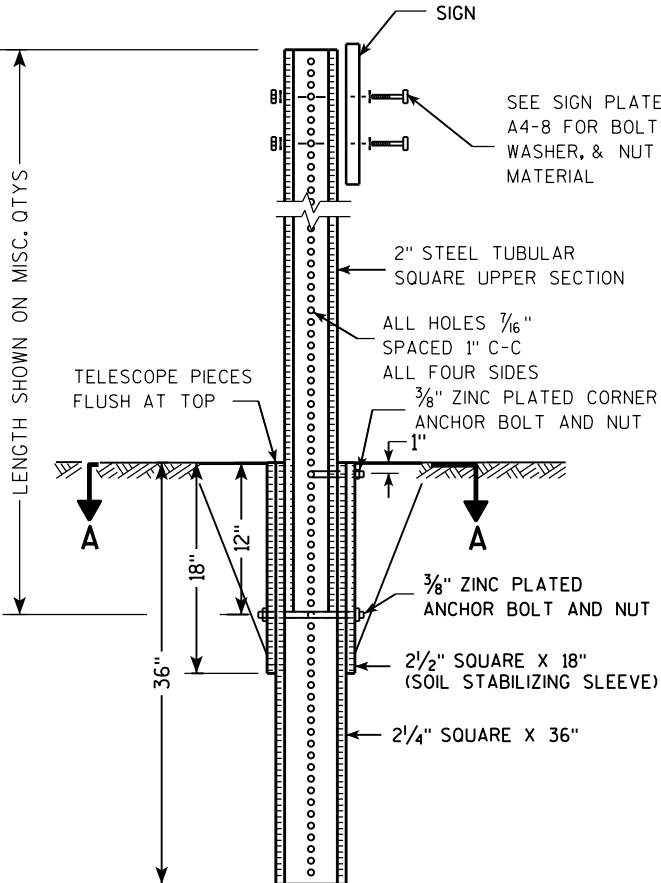
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

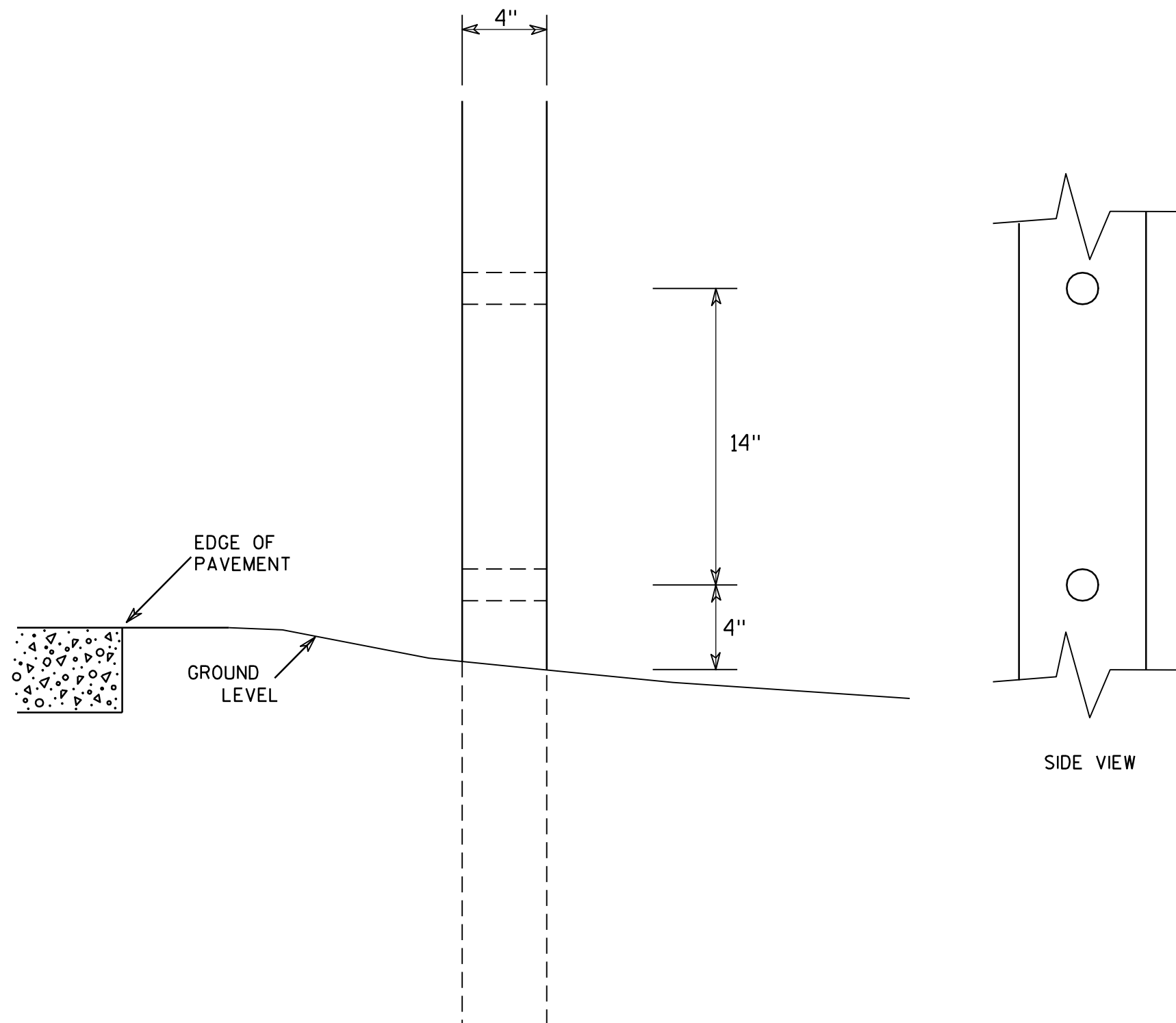
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

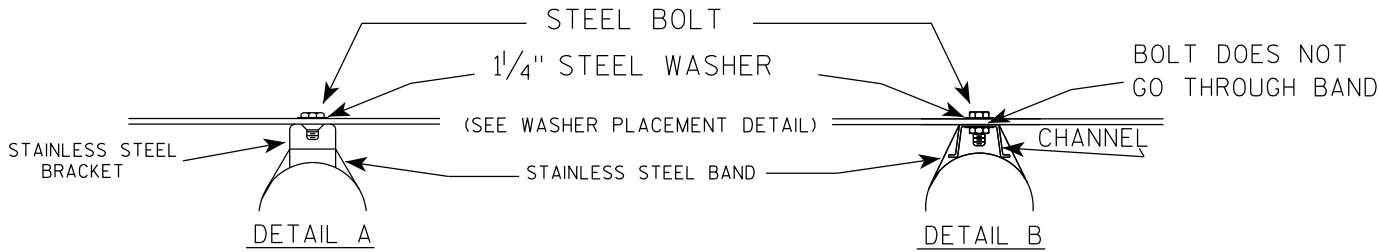
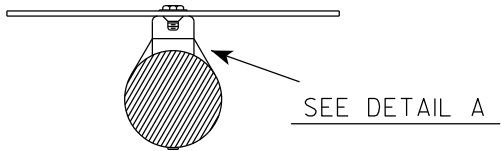
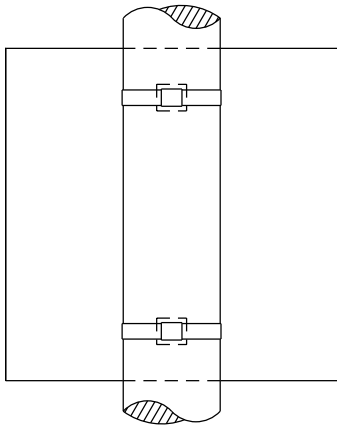
COUNTY:

SHEET NO:

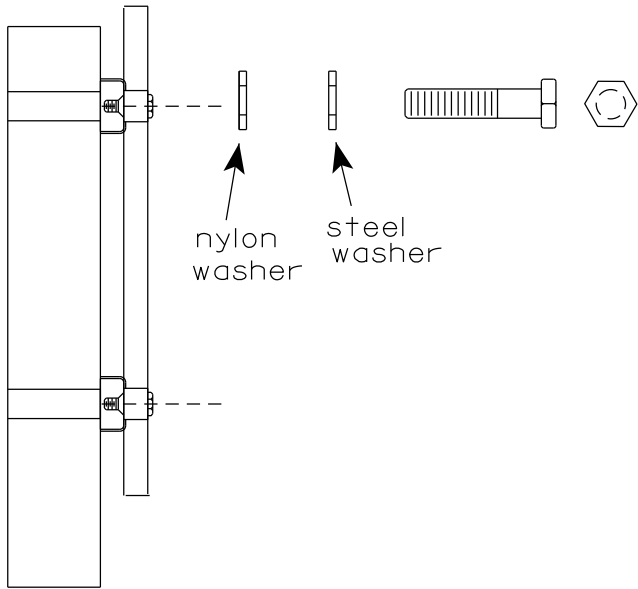
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

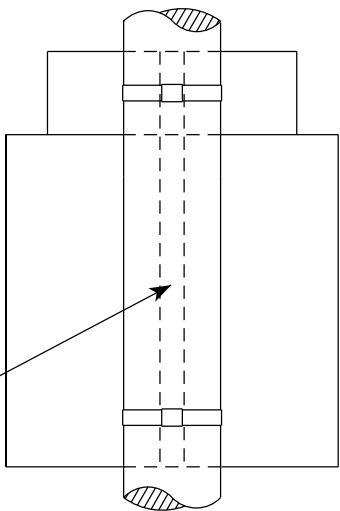


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

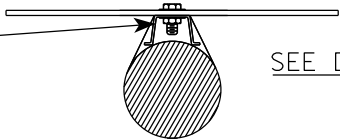
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

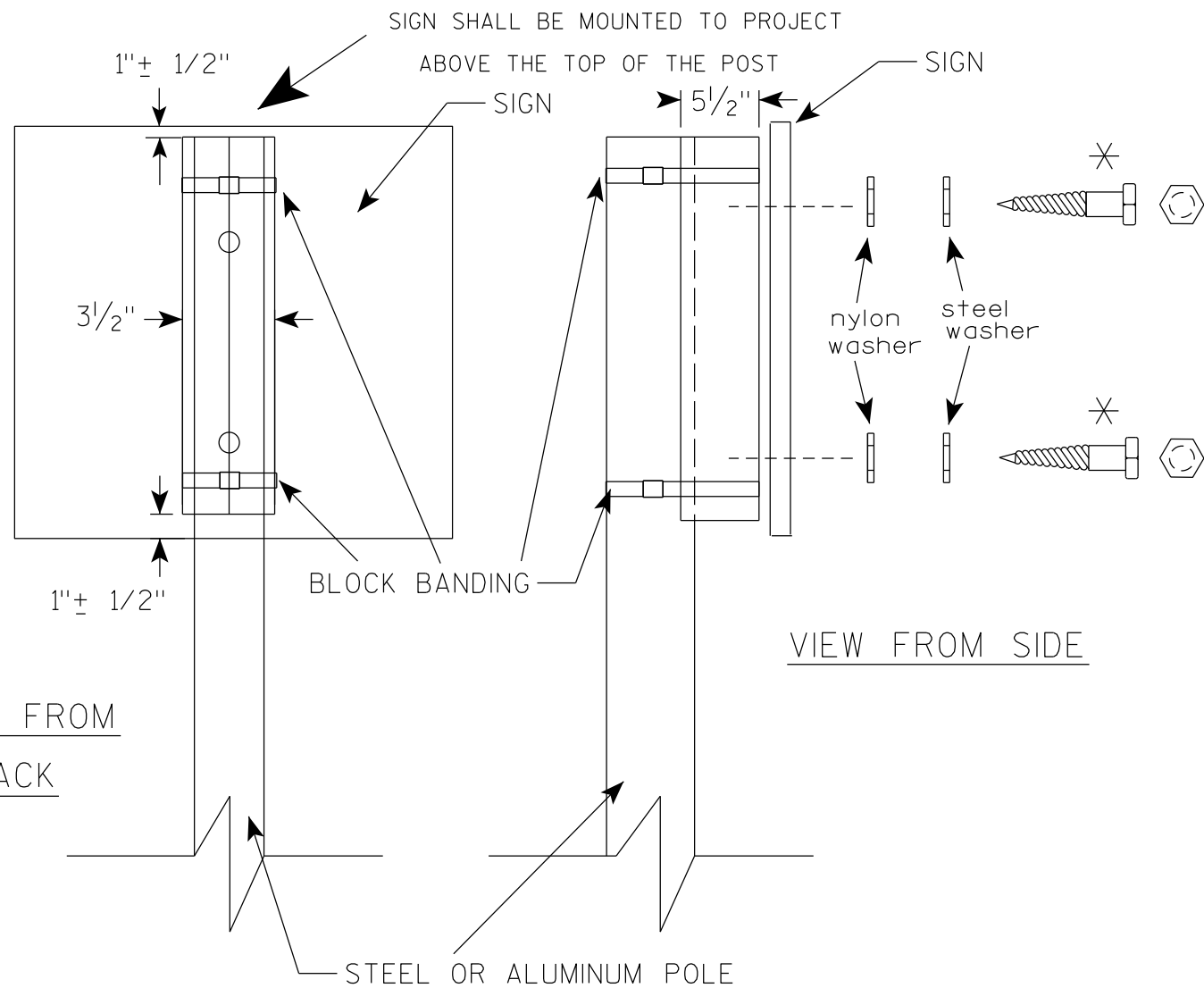


STANDARD SIGN
SIGN BANDING DETAILS

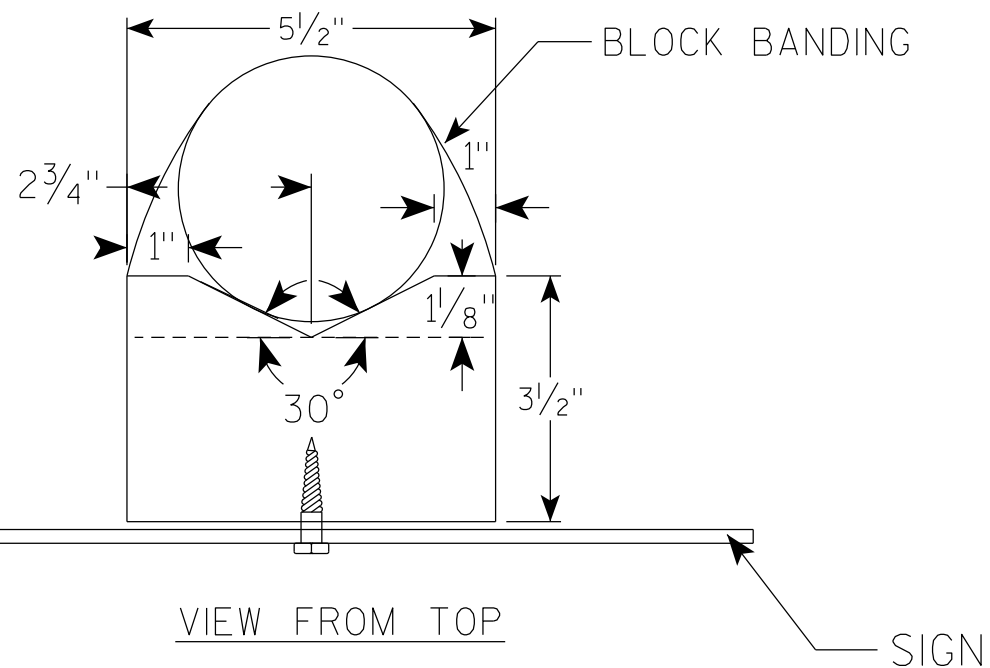
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM
BACK



VIEW FROM SIDE



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

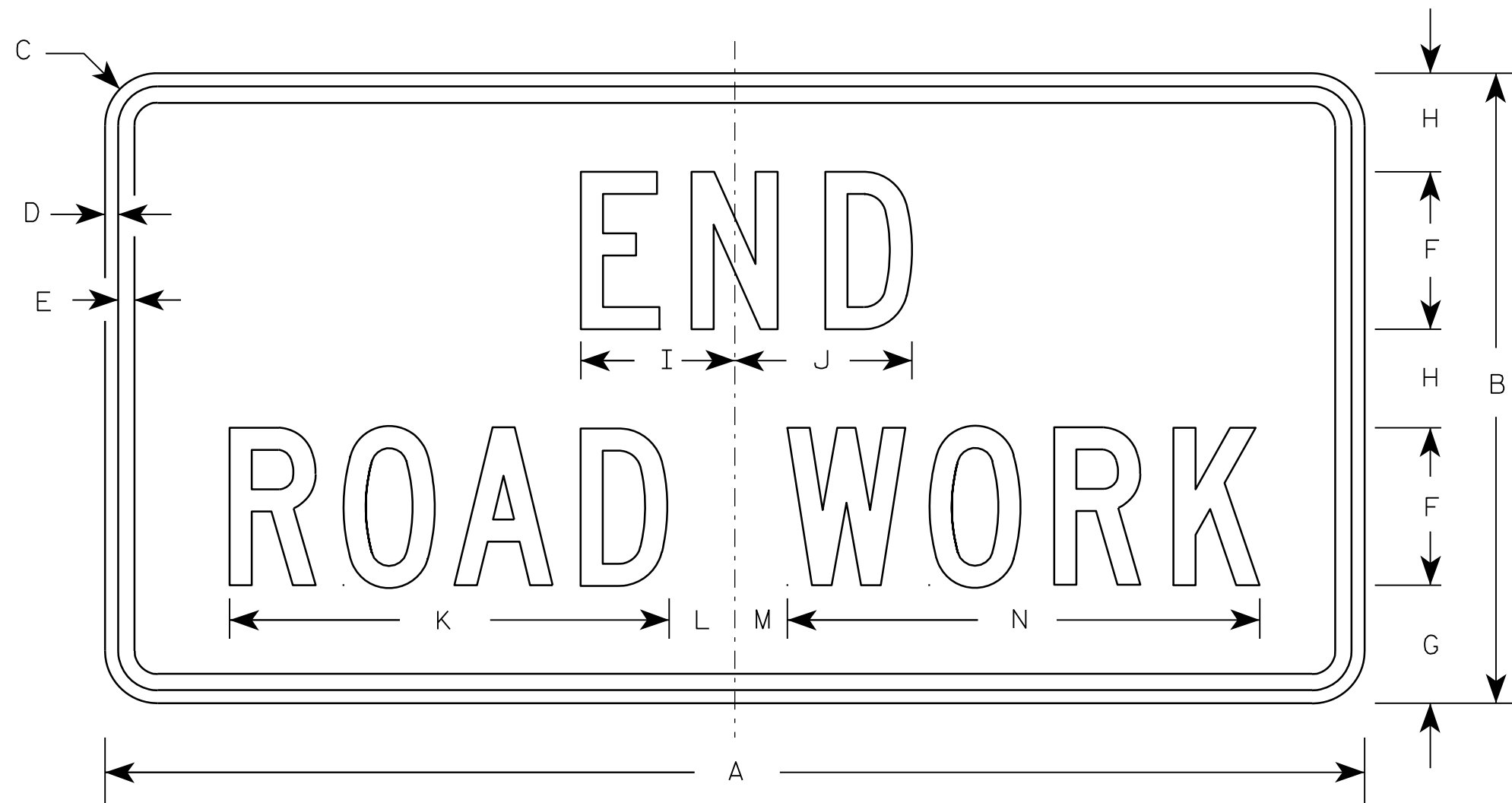
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO:

E

7



G20-2A

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

PROJECT NO:

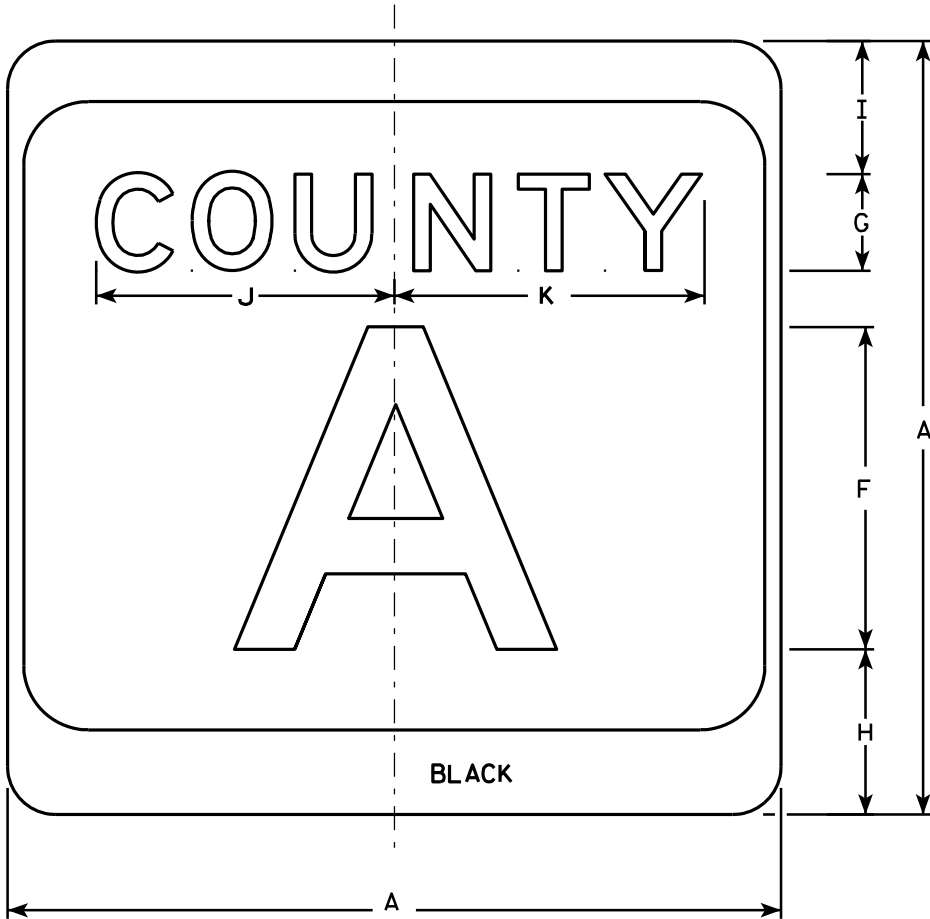
HWY:

COUNTY:

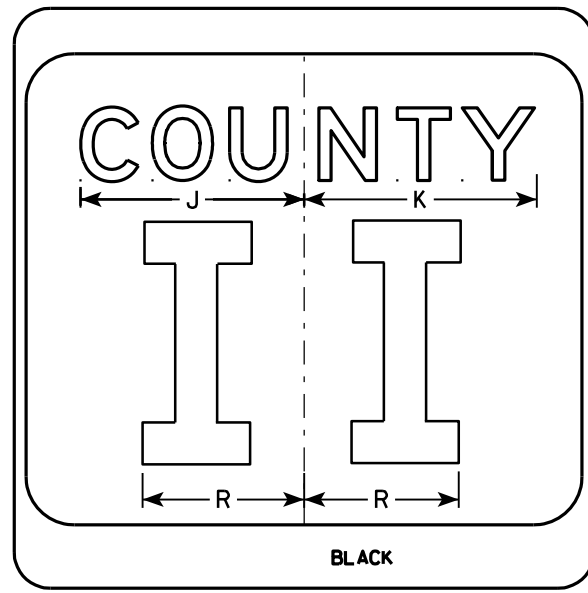
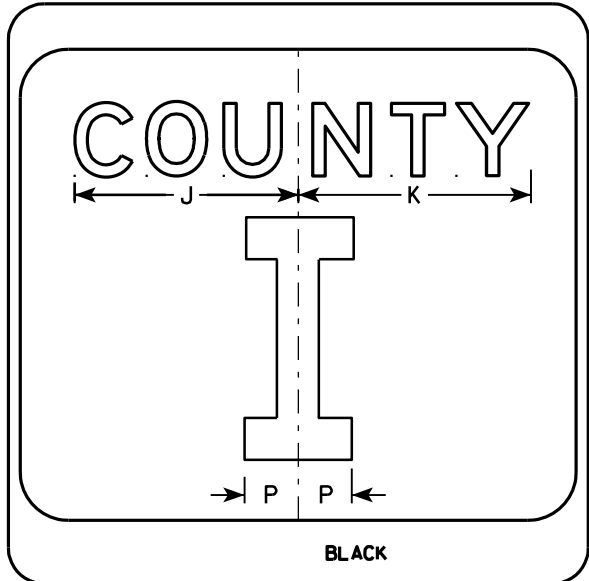
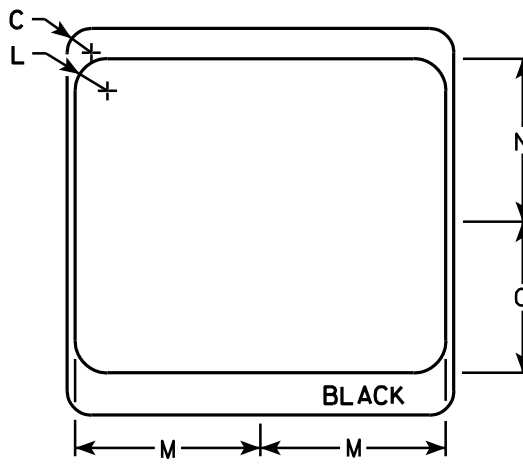
SHEET NO:

E

7



M1-5A



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER

M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

PROJECT NO:

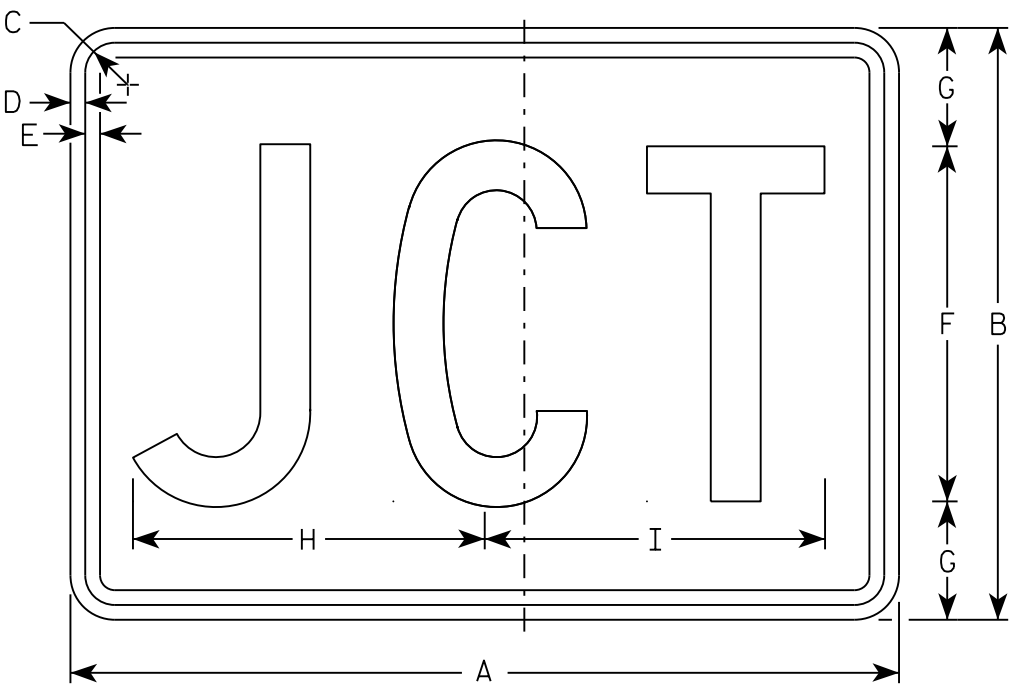
HWY:

COUNTY:

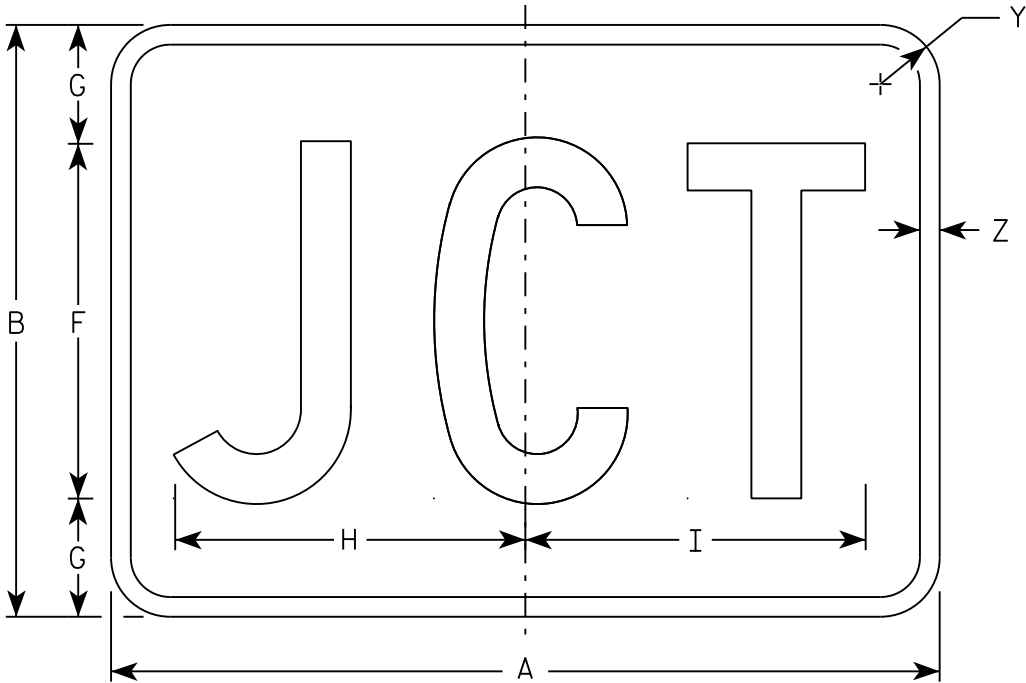
SHEET NO:

E

7



M2-1
MM2-1
MP2-1



MB2-1
MK2-1
MN2-1
MR2-1

NOTES

- 1. Sign is Type II - Type H
- 2. Color:
 - Background - See note 5
 - Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. M2-1 Background - White
 Message - Black
 MB2-1 Background - Blue
 Message - White
 MK2-1 Background - Green
 Message - White
 MM2-1 Background - White
 Message - Green
 MN2-1 Background - Brown
 Message - White
 MP2-1 Background - White
 Message - Blue
 MR2-1 Background - Brown
 Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

STANDARD SIGN

M2 - 1

WISCONSIN DEPT OF TRANSPORTATION

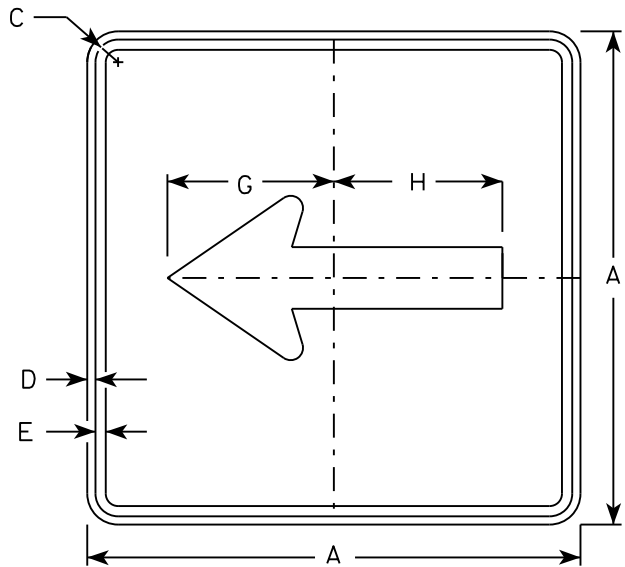
APPROVED

Matthew R. Rauch

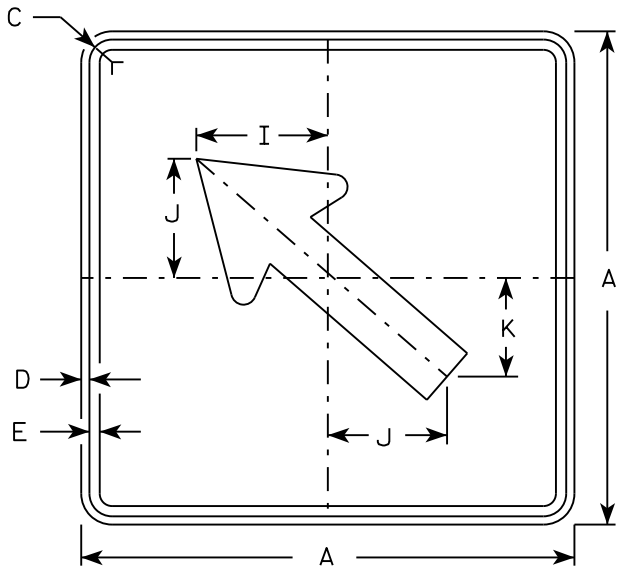
For State Traffic Engineer

DATE 10/15/15

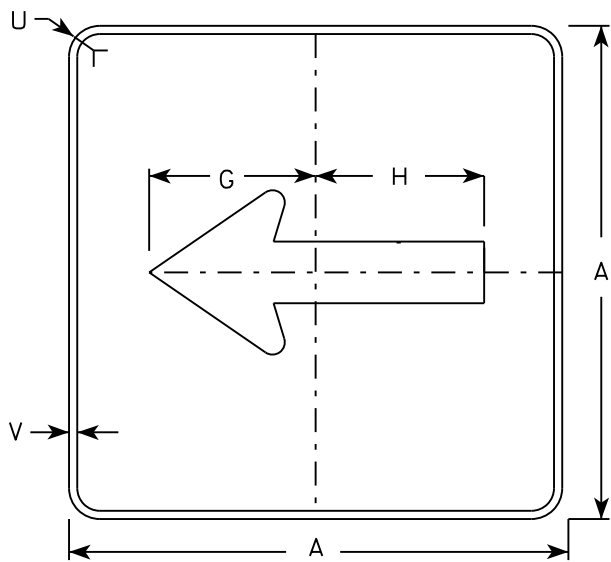
PLATE NO. M2-1.12



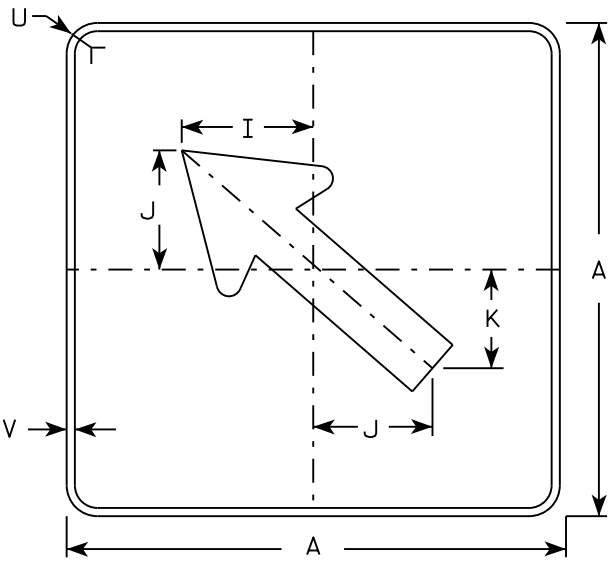
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



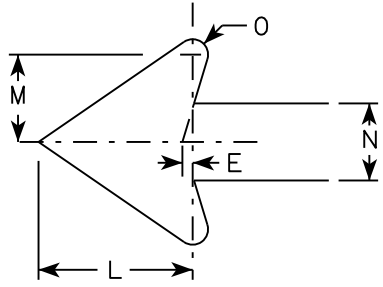
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



MB6 - 1
MK6 - 1
MN6 - 1
MR6 - 1



MB6 - 2
MK6 - 2
MN6 - 2
MR6 - 2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

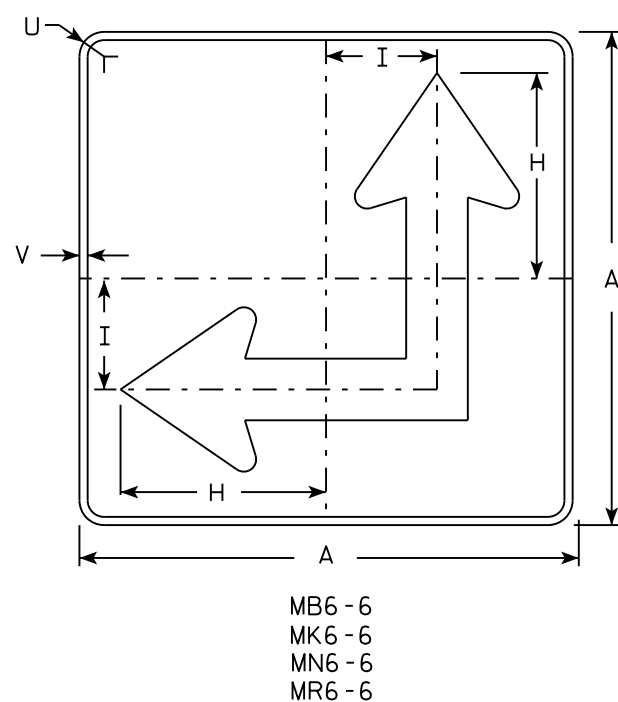
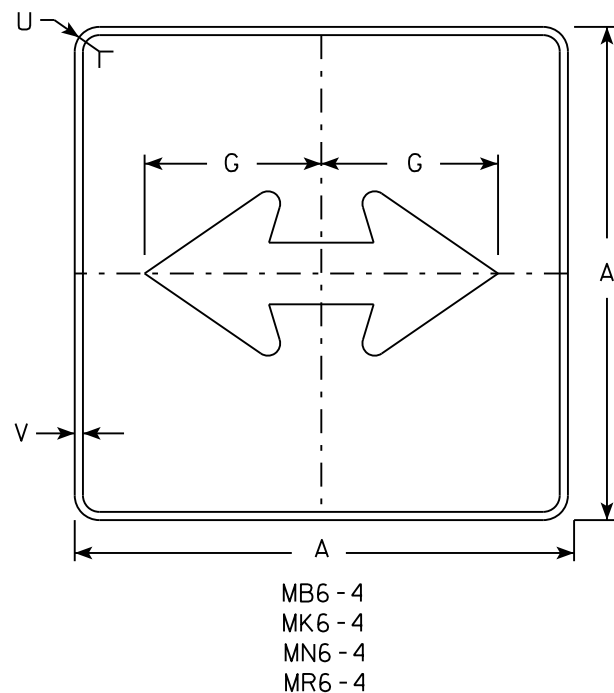
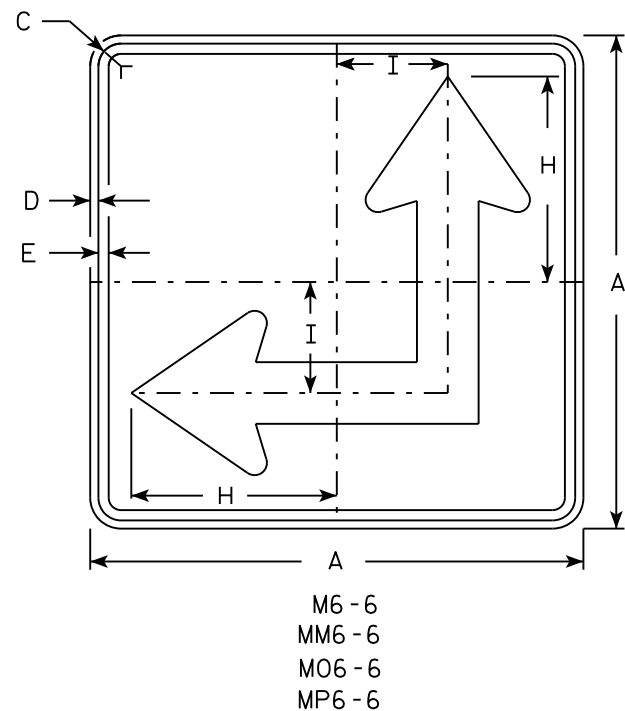
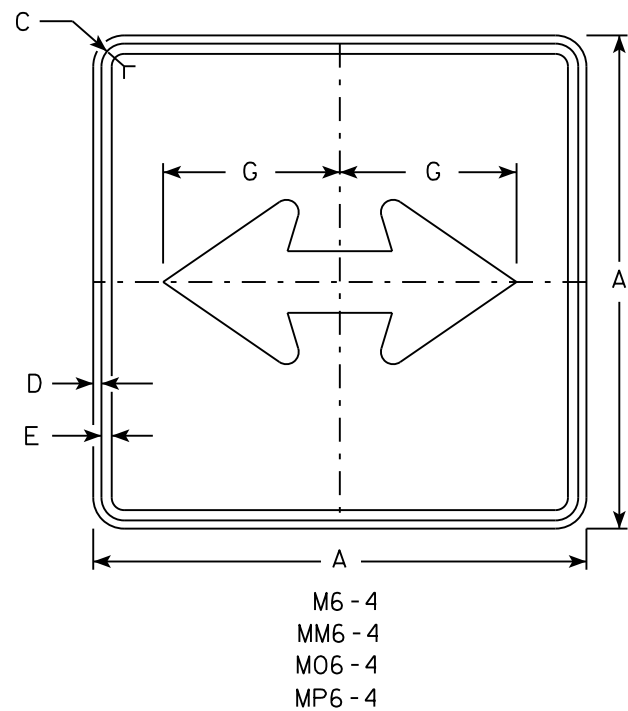
E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

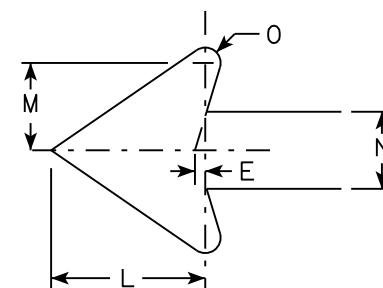
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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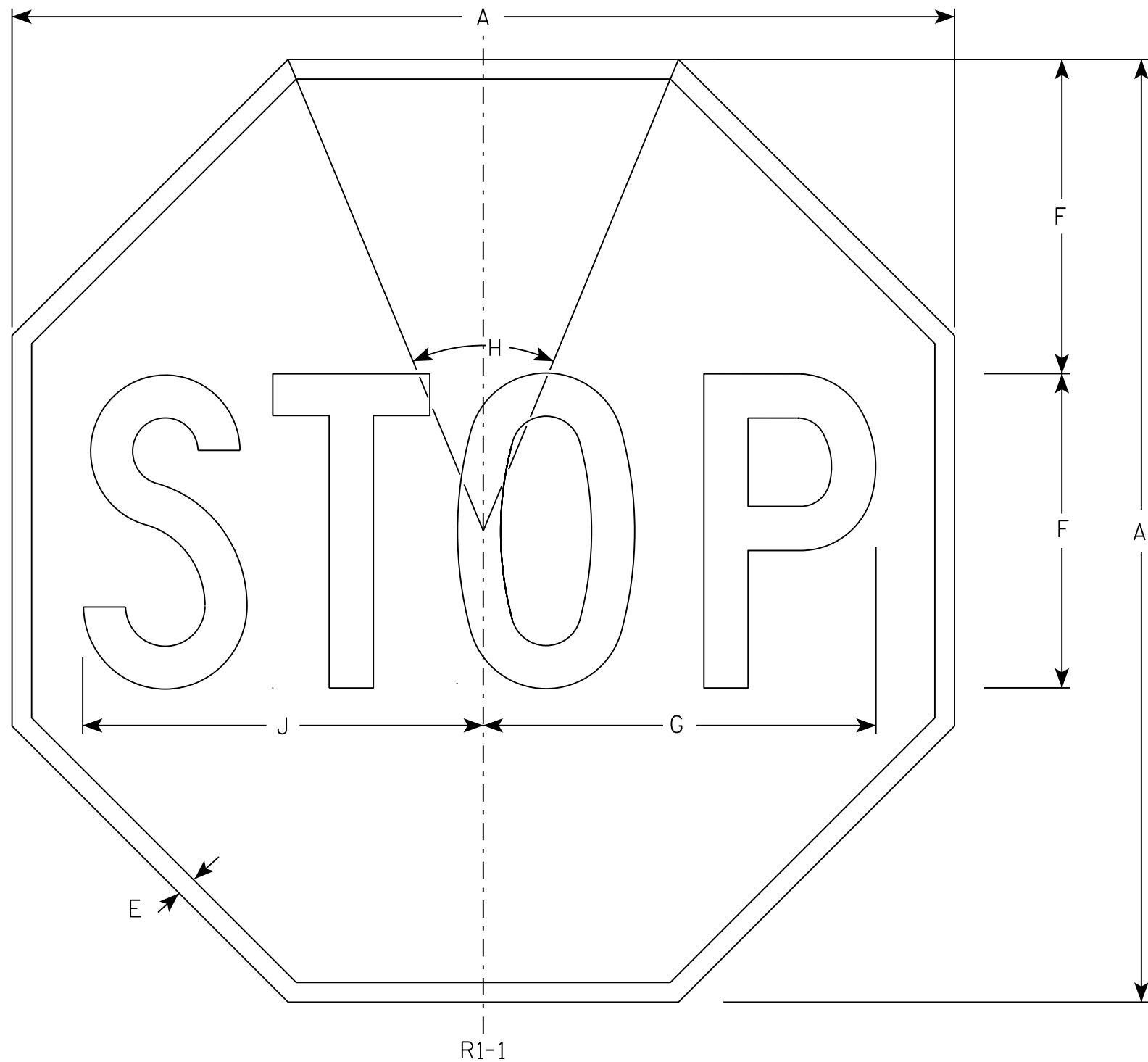
STANDARD SIGN
M6 - 4 & M6 - 6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-4.10

7



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

7

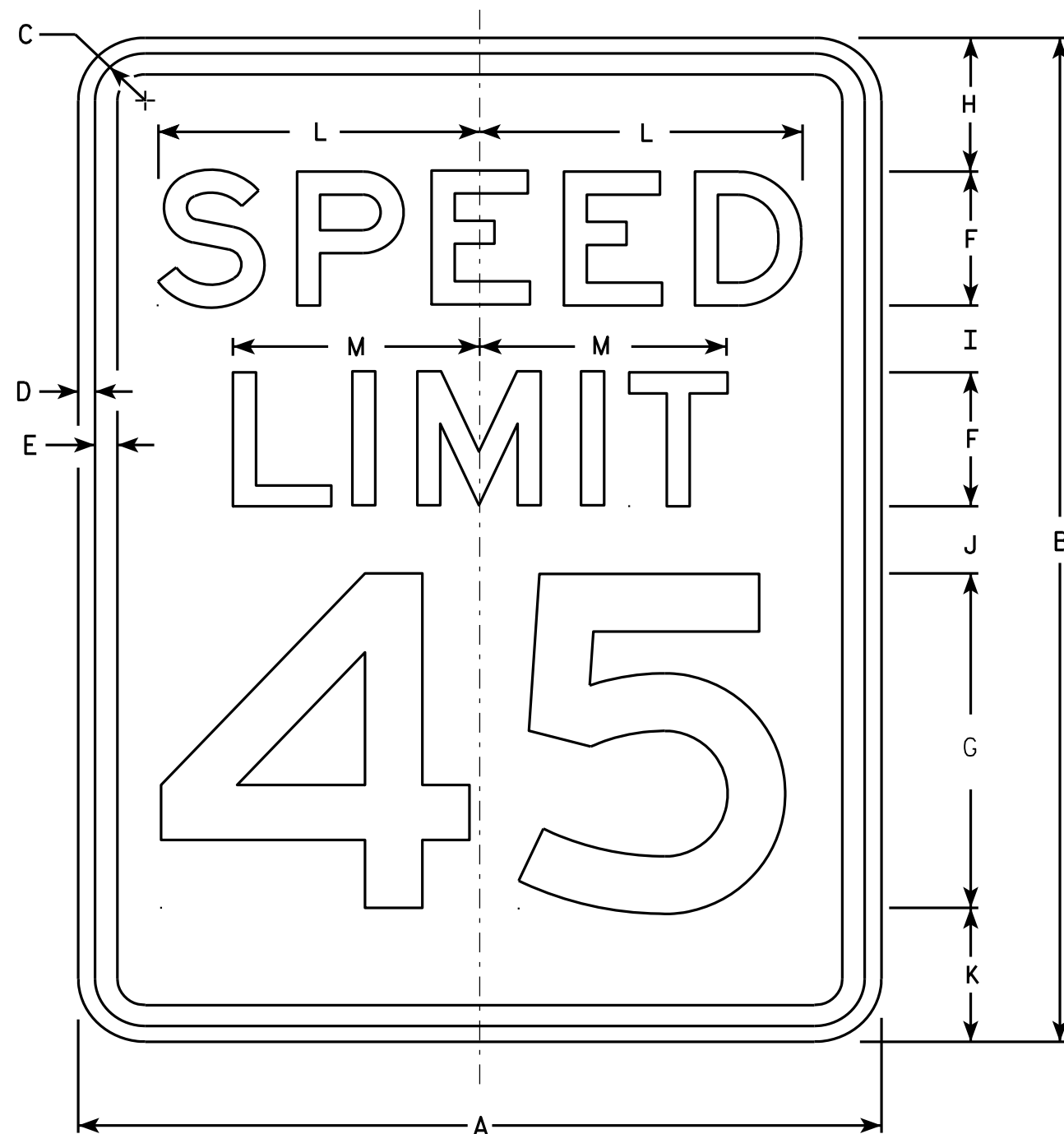
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

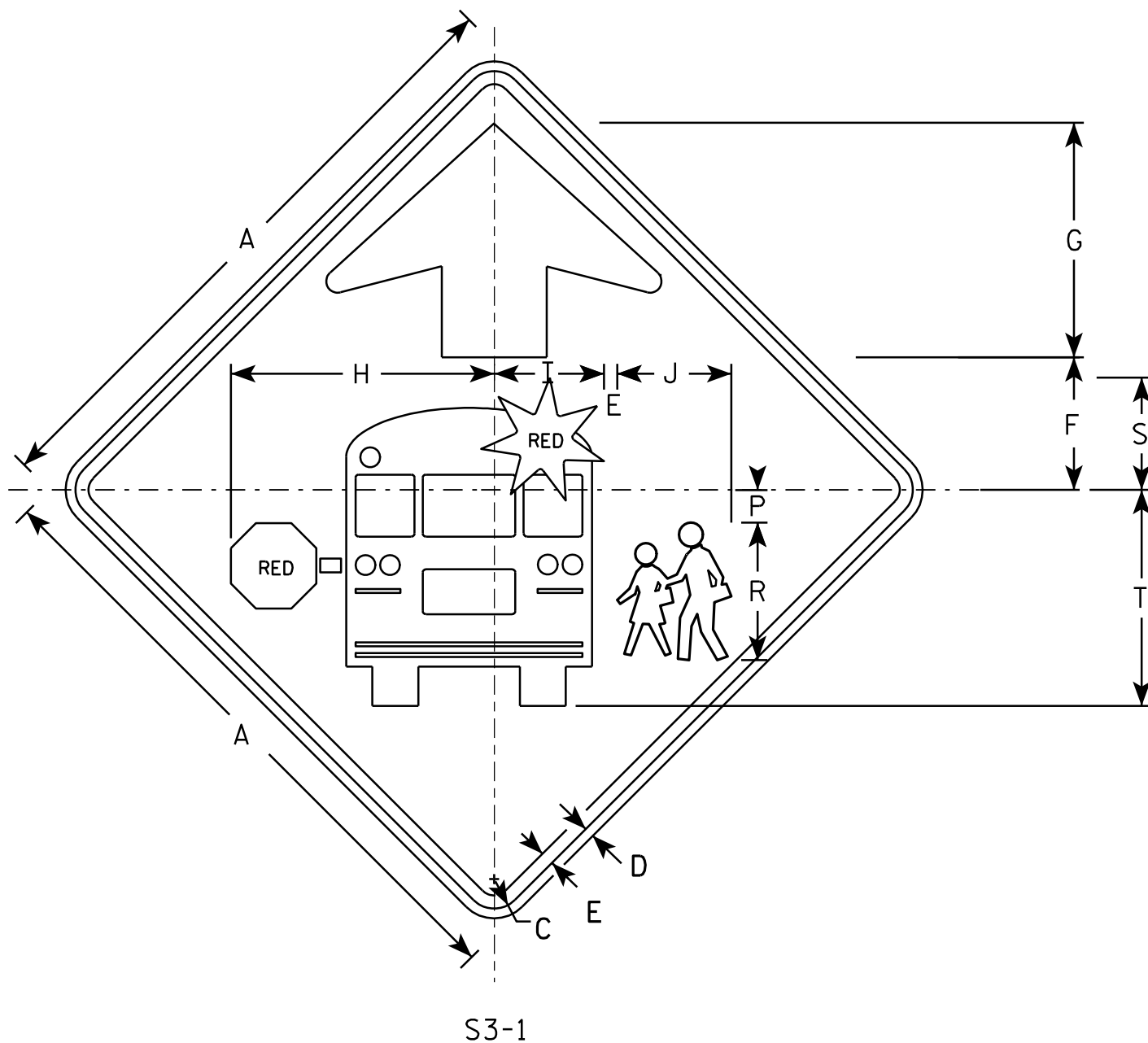
R2-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

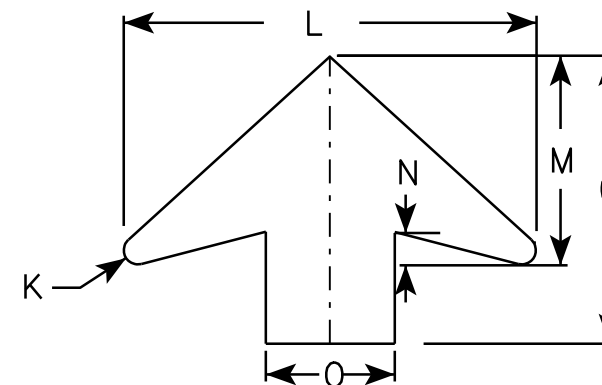
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

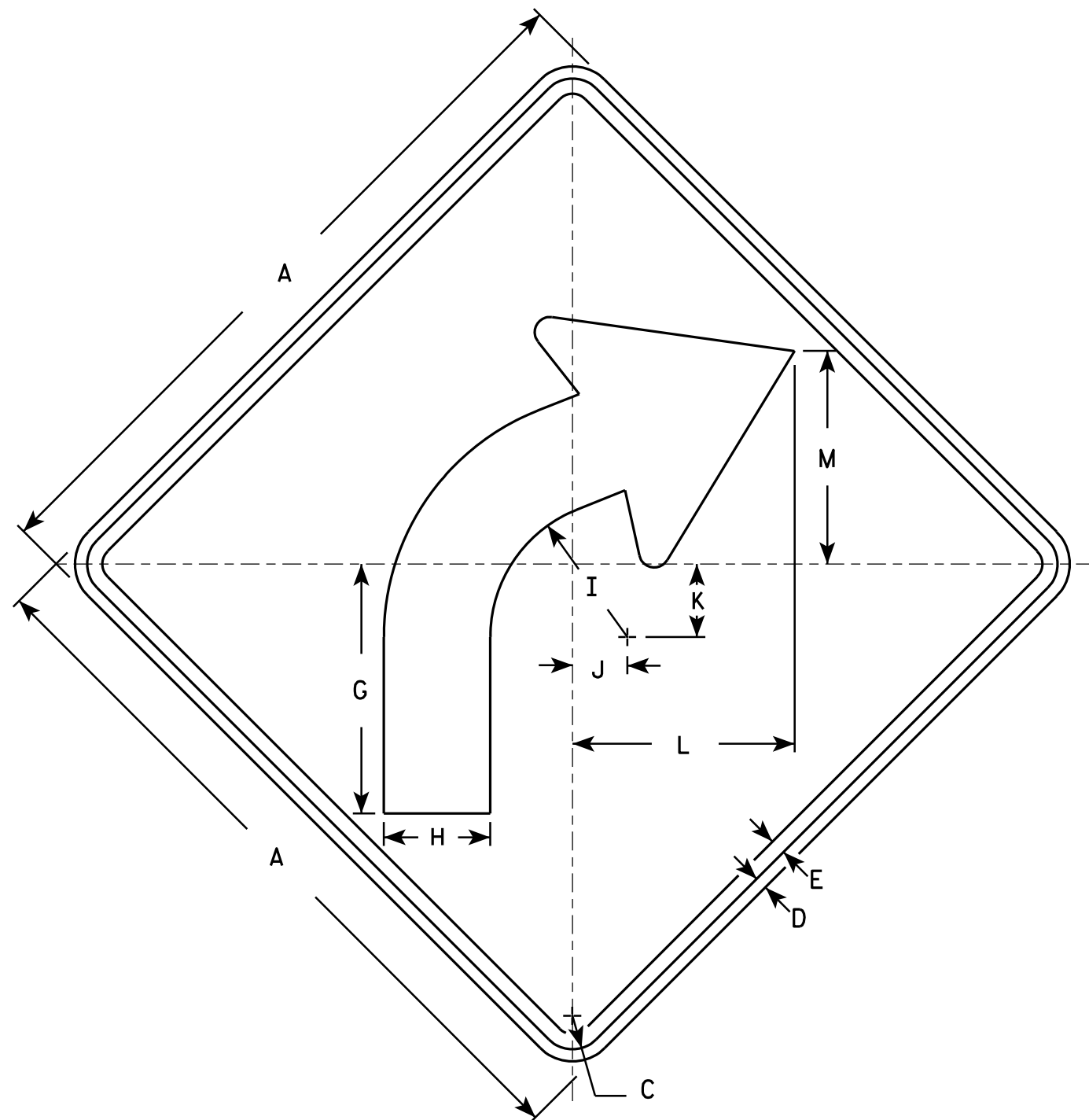
1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 - Background - YELLOW-GREEN
 - Message - BLACK except as noted
 - Circles except PEDS- RED BACKGROUND
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

[illegible]

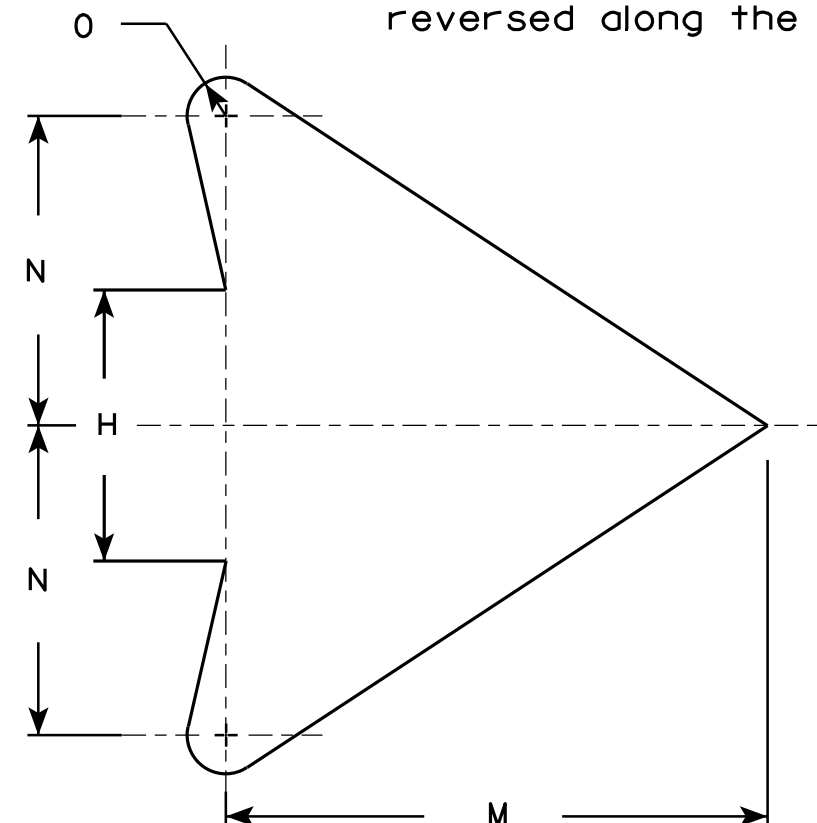
STANDARD SIGN	
S3-1	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<u>Matthew R. Rauch</u> for State Traffic Engineer
DATE <u>6/8/10</u>	PLATE NO. <u>S3-1.6</u>

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



W1-2R



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 3/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		2 1/4	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

STANDARD SIGN W1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-2.10

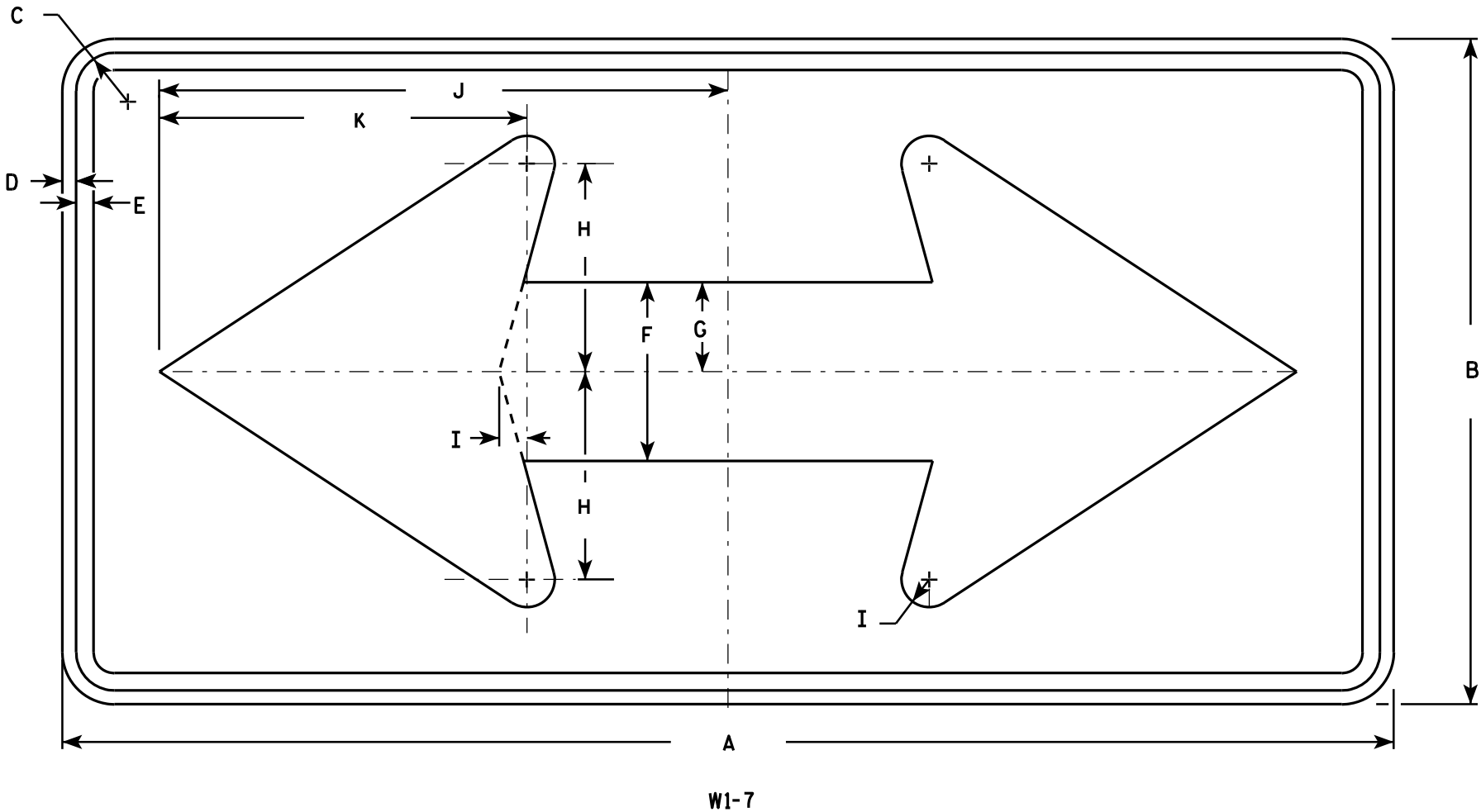
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	2 1/4	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

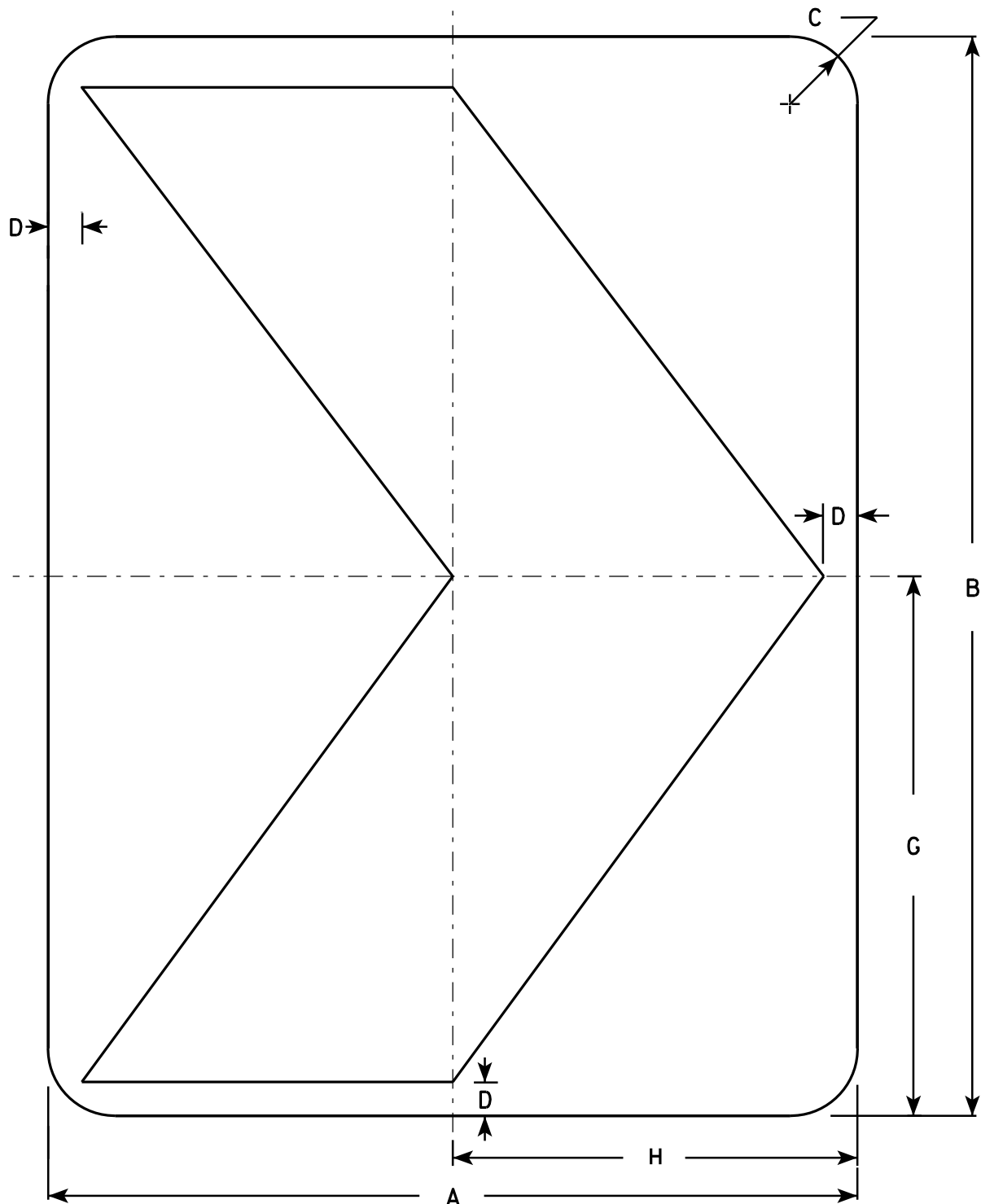
STANDARD SIGN

W1 - 7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-7.7



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

W1-8

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/2	1/2			9	6																			1.5
2S	18	24	1 1/2	3/4			12	9																			3.0
2M	18	24	1 1/2	3/4			12	9																			3.0
3	24	30	1 1/2	1			15	12																			5.0
4	30	36	1 7/8	1 1/4			18	15																			7.5
5	36	48	2 1/4	1 1/2			24	18																			12.0

STANDARD SIGN

W1-8

WISCONSIN DEPT OF TRANSPORTATION

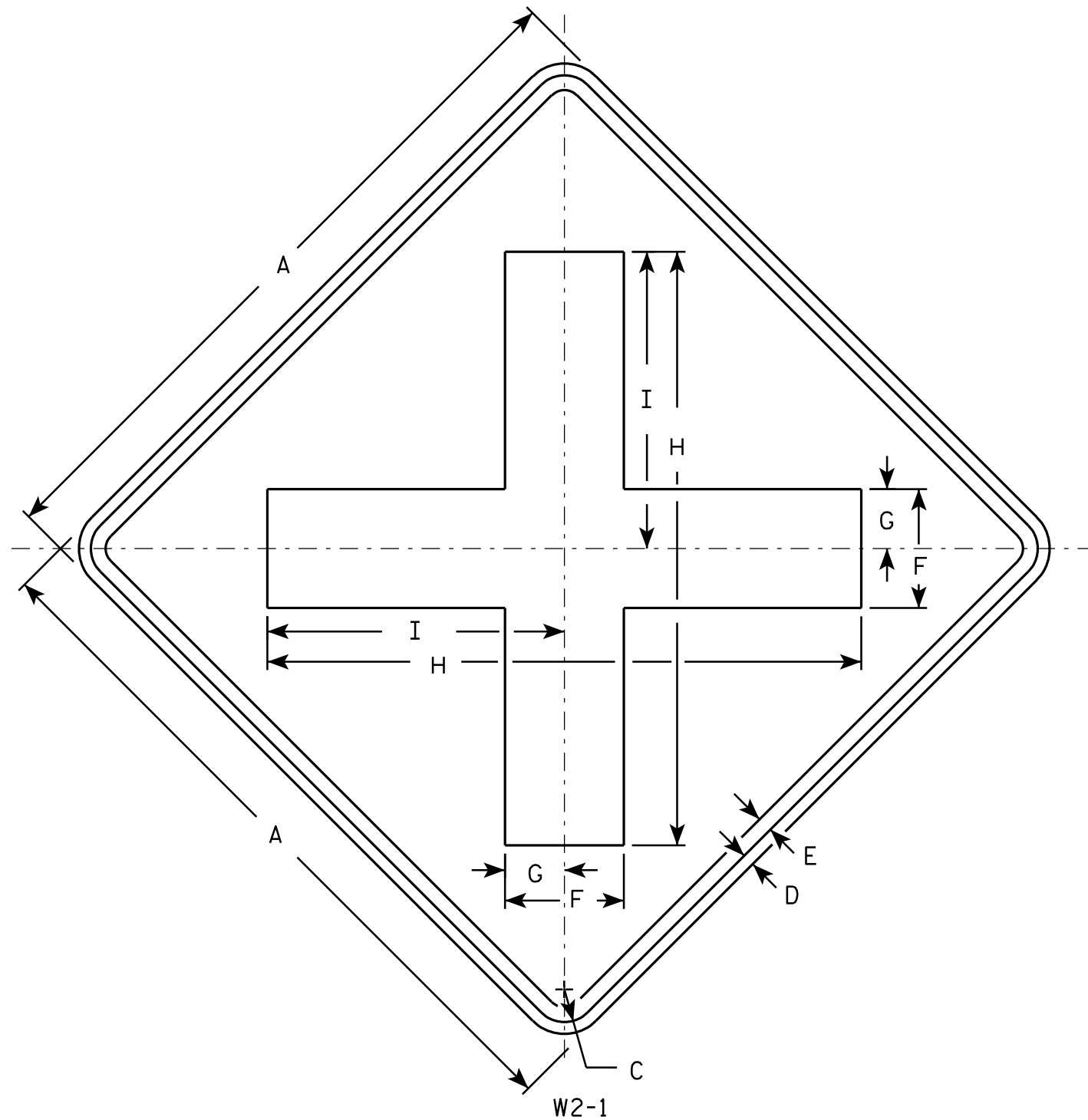
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-8.6

PROJECT NO:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	4	2	20	10																		4.0
2S	30		1 3/8	1/2	5/8	5	2 1/2	25	12 1/2																		6.25
2M	30		1 3/8	1/2	5/8	5	2 1/2	25	12 1/2																		6.25
3	36		1 5/8	5/8	3/4	6	3	30	15																		9.0
4	48		2 1/4	3/4	1	8	4	40	20																		16.0
5																											

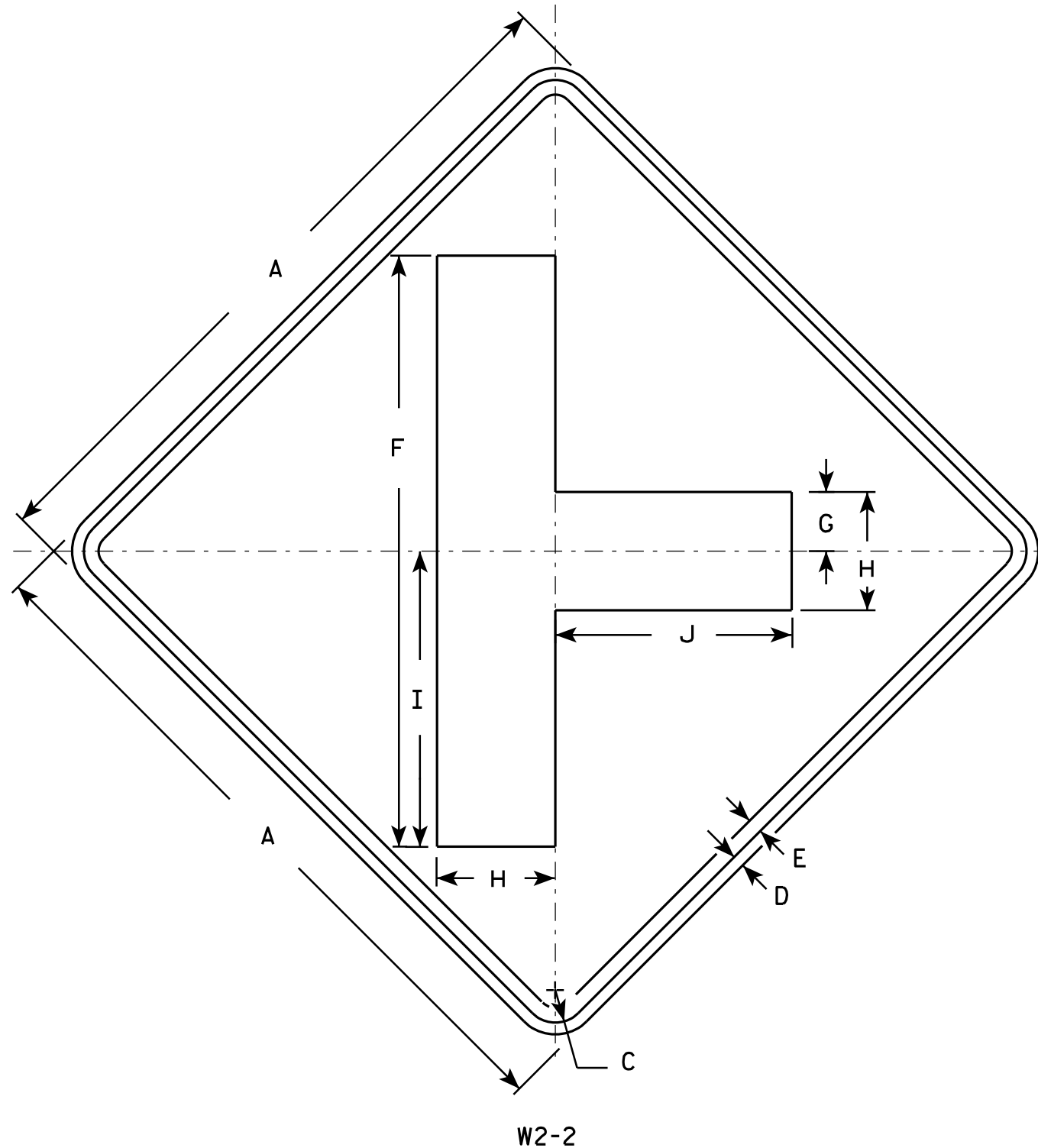
STANDARD SIGN W2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W2-1.9

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	20	2	4	10	8																	4.0
2S	30		1 3/8	1/2	5/8	25	2 1/2	5	12 1/2	10																	6.25
2M	30		1 3/8	1/2	5/8	25	2 1/2	5	12 1/2	10																	6.25
3	36		1 5/8	5/8	3/4	30	3	6	15	12																	9.0
4	48		2 1/4	3/4	1	40	4	8	20	16																	16.0
5																											

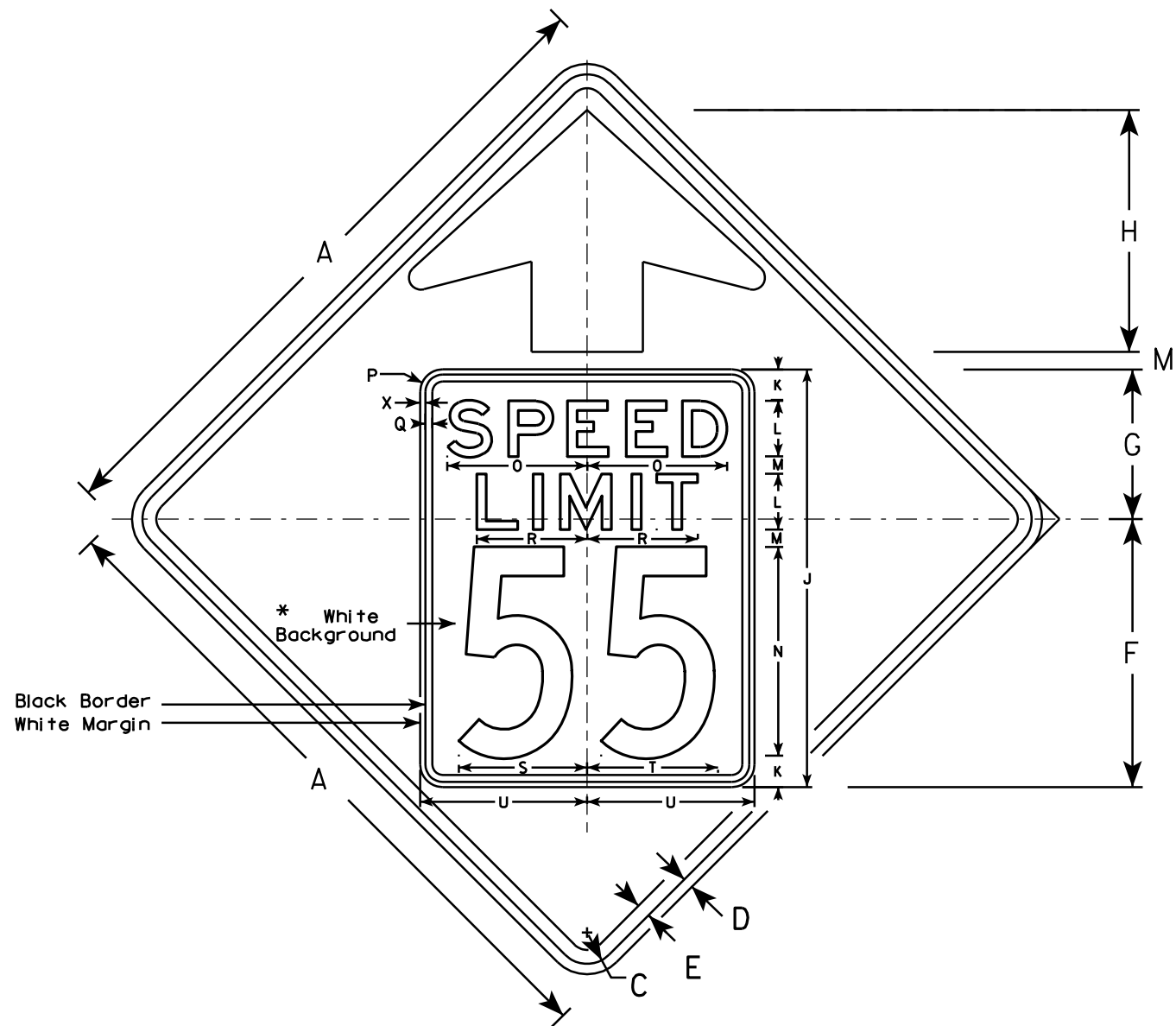
STANDARD SIGN W2-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W2-2.6

PROJECT NO: HWY: COUNTY: SHEET NO: E

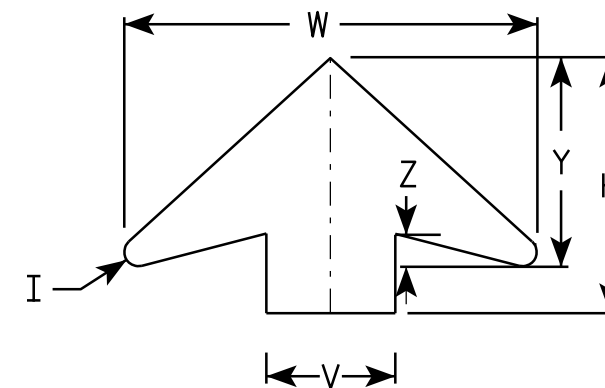


W3-5

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color: *
Background - YELLOW*
Message - BLACK
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
2M	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
3	36		1 5⁄8	5⁄8	3⁄4	14 1⁄2	9 1⁄2	11 1⁄2	5⁄8	24	2	3	1	12	7 1⁄8	1 1⁄2	3⁄8	5 3⁄4	7 1⁄4	7 1⁄8	9	6	19 1⁄4	3⁄8	9 3⁄4	1 5⁄8	9.0
4	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0
5	48		2 1⁄4	3⁄4	1	19 1⁄4	10 3⁄4	17 3⁄8	7⁄8	30	2 1⁄4	4	1 1⁄4	15	10	1 5⁄8	1⁄2	8	9 1⁄4	9 3⁄8	12	8	25 5⁄8	3⁄8	13	2	16.0

STANDARD SIGN

W3-5

WISCONSIN DEPT OF TRANSPORTATION

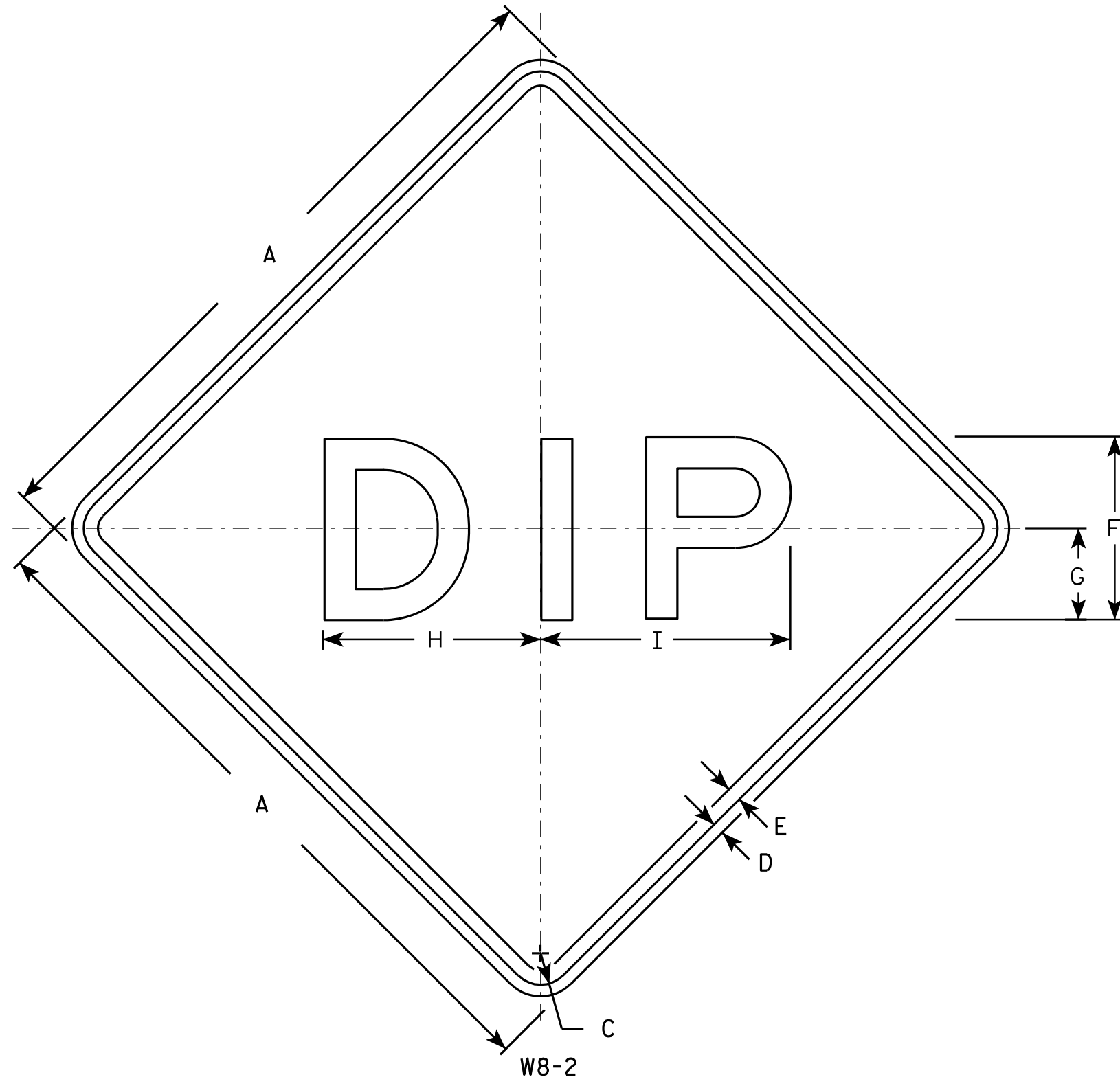
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W3-5.5

PROJECT NO:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area Sq. Ft.
1	24		1 1/8	3/8	1/2	6	3	7 1/8	8 1/8																		4.0
2S	30		1 3/8	1/2	5/8	8	4	9 1/2	10 7/8																		6.25
2M	36		1 5/8	5/8	3/4	10	5	11 7/8	13 1/2																		9.0
3	36		1 5/8	5/8	3/4	10	5	11 7/8	13 1/2																		9.0
4	36		1 5/8	5/8	3/4	10	5	11 7/8	13 1/2																		9.0
5	48		2 1/4	3/4	1	12	6	14 1/4	16 1/4																		16.0

STANDARD SIGN
W8-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 03/14/13 PLATE NO. W8-2.8

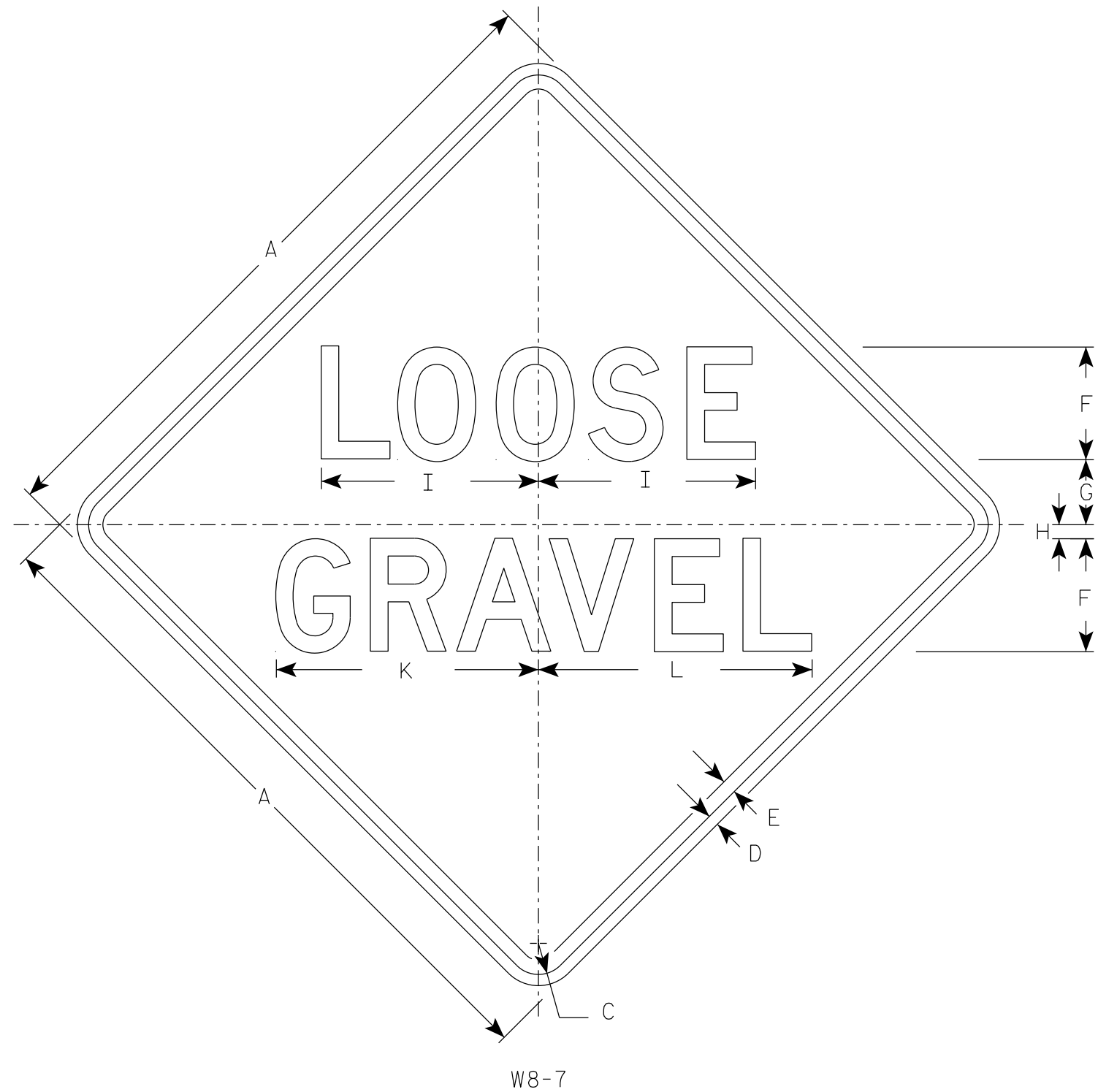
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - D

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Areq sq. ft.
1	24		1 1/8	3/8	1/2	4	2 3/4	1/2	7 3/4		9 1/4	9 3/4															4.0
2S	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
2M	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
3	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
4	36		1 5/8	5/8	3/4	6	4 1/8	3/4	11 5/8		14	14 1/2															9.0
5	48		2 1/4	3/4	1	8	5 1/2	1	15 1/2		18 5/8	19 3/8															16.0

STANDARD SIGN

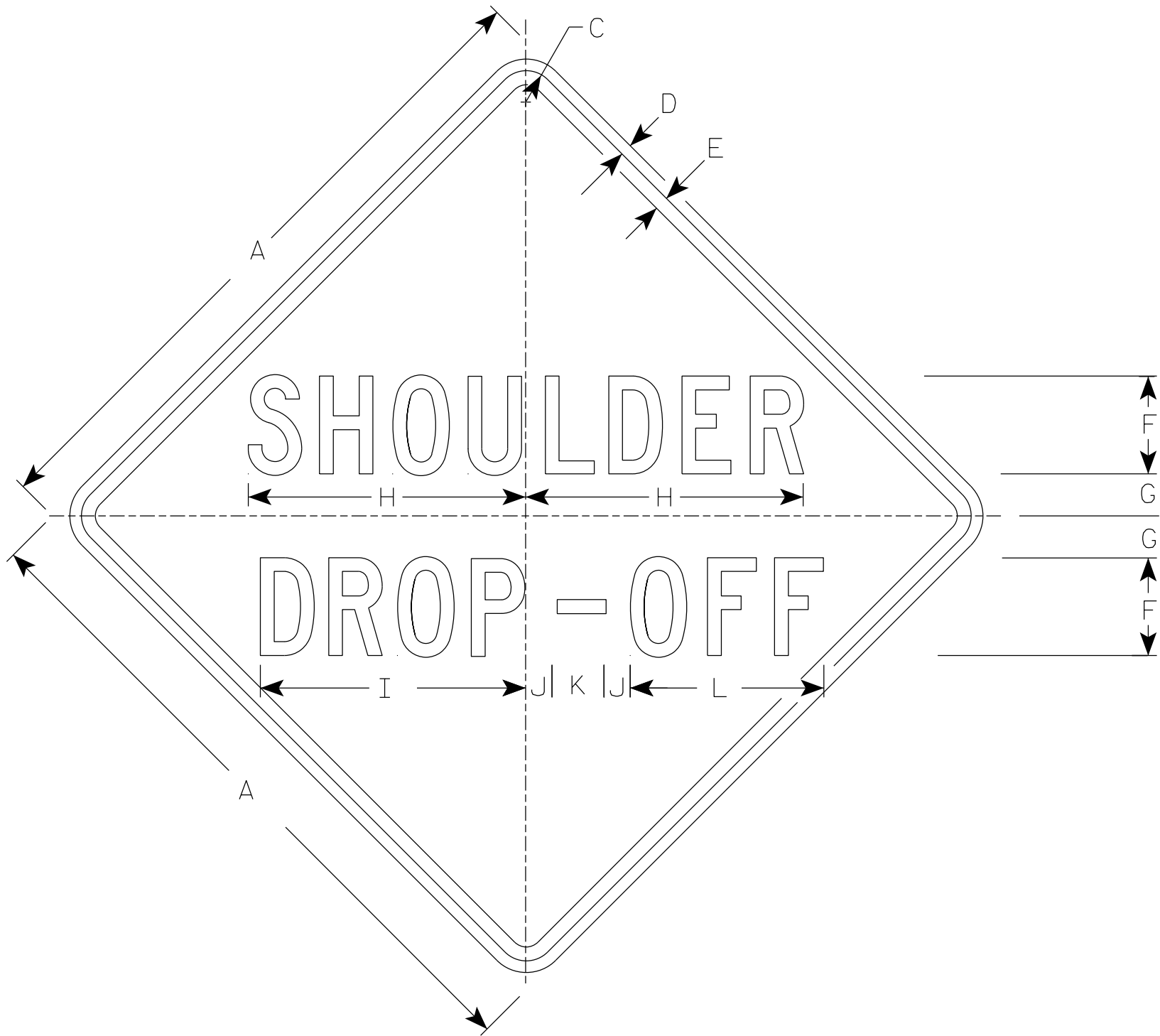
W8-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/16/2020 PLATE NO. W8-7.8

7



W8-9A

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2	14 7/8	14	7/8	2 1/2	9 3/4															9.0
2S	48		2 1/4	3/4	1	7	3	19 7/8	19	1 7/8	3 3/4	13 7/8															16.0
2M	48		2 1/4	3/4	1	7	3	19 7/8	19	1 7/8	3 3/4	13 7/8															16.0
3	48		2 1/4	3/4	1	7	3	19 7/8	19	1 7/8	3 3/4	13 7/8															16.0
4	48		2 1/4	3/4	1	7	3	19 7/8	19	1 7/8	3 3/4	13 7/8															16.0
5	48		2 1/4	3/4	1	7	3	19 7/8	19	1 7/8	3 3/4	13 7/8															16.0

STANDARD SIGN

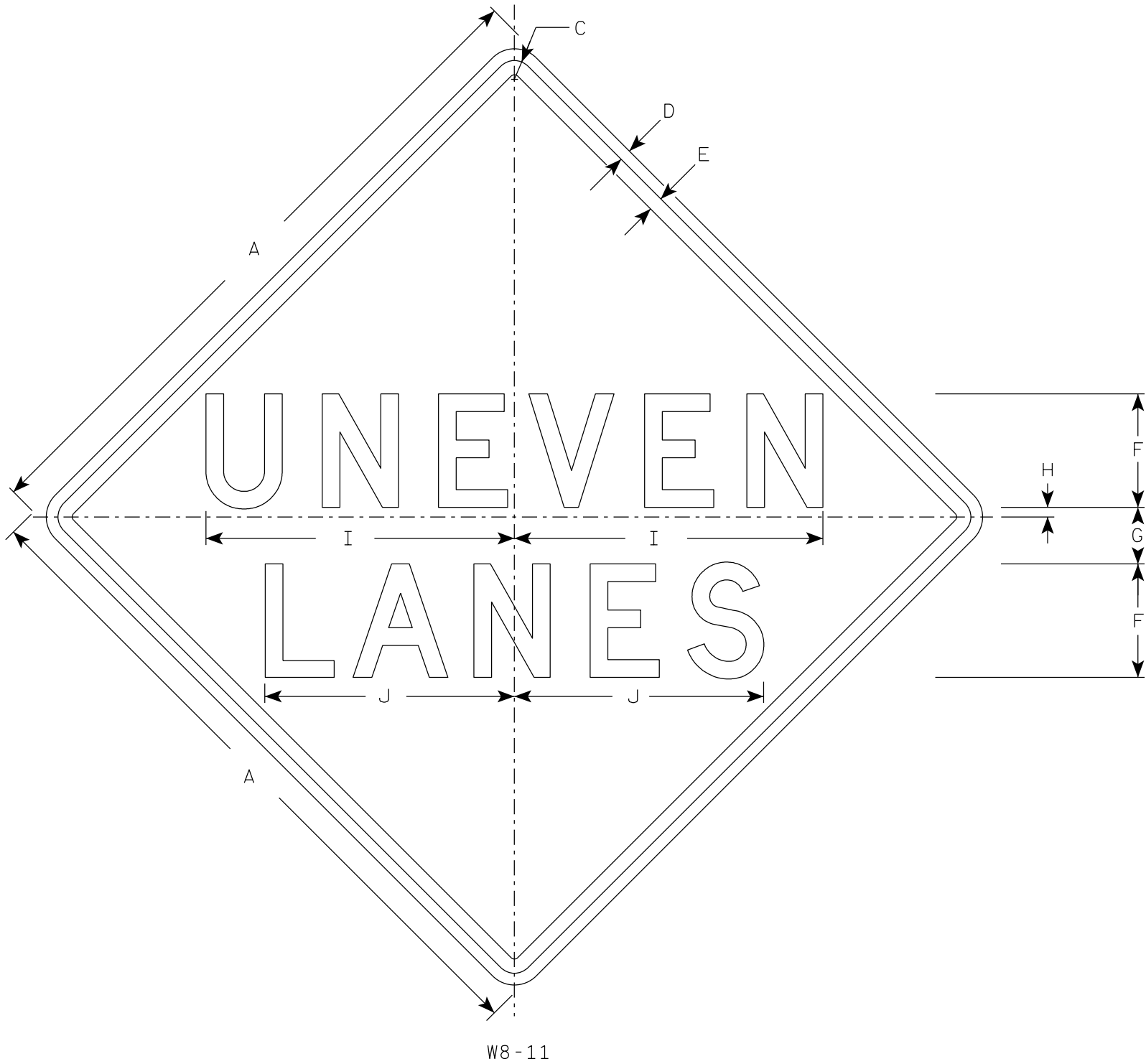
W8-9A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/16/2020 PLATE NO. W8-9A.4

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	3	1/2	16 3/8	13 1/4																	9.0
2S	48		2 1/4	3/4	1	8	4	1	21 3/4	17 5/8																	16.0
2M	48		2 1/4	3/4	1	8	4	1	21 3/4	17 5/8																	16.0
3	48		2 1/4	3/4	1	8	4	1	21 3/4	17 5/8																	16.0
4	48		2 1/4	3/4	1	8	4	1	21 3/4	17 5/8																	16.0
5	48		2 1/4	3/4	1	8	4	1	21 3/4	17 5/8																	16.0

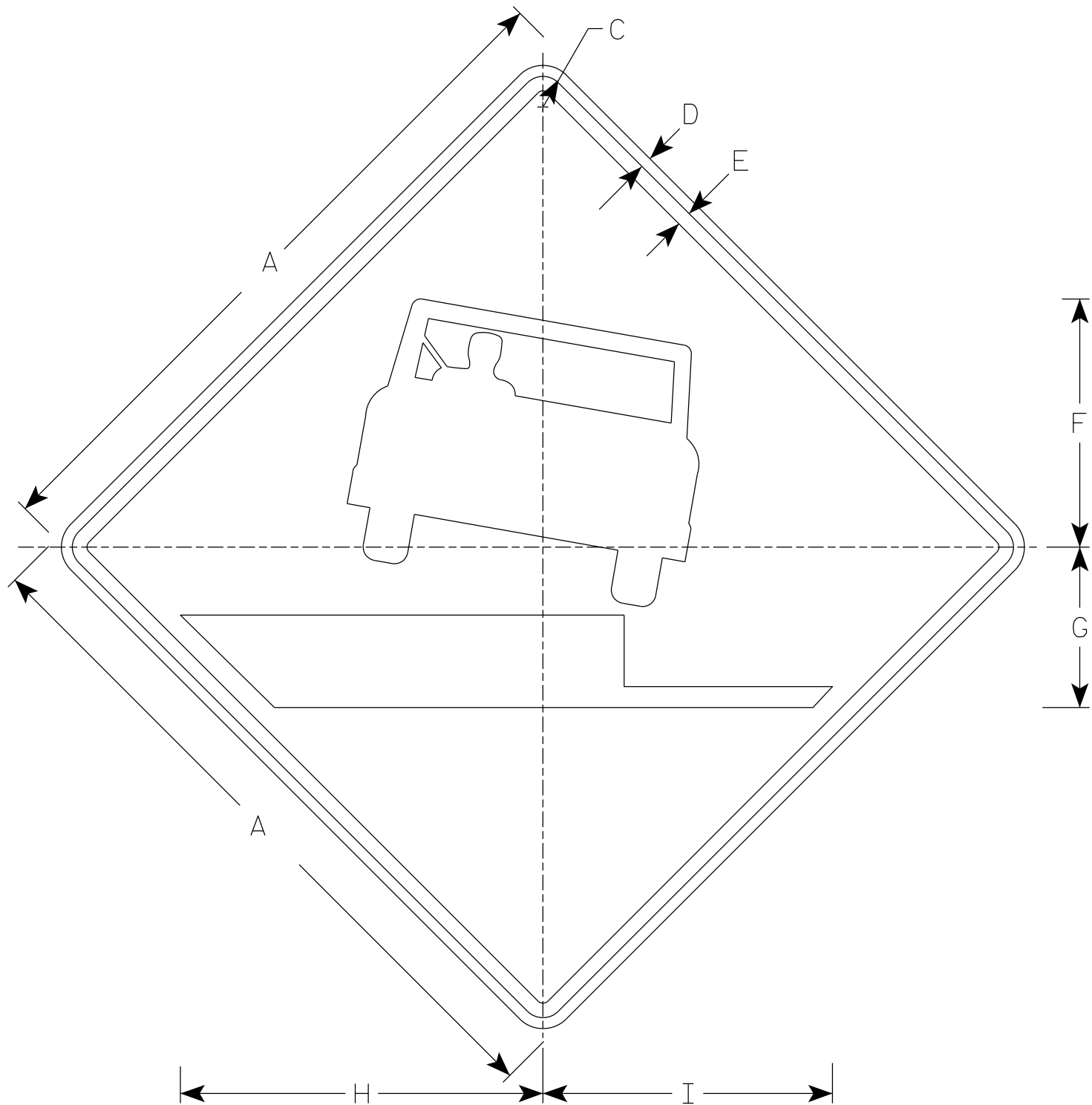
STANDARD SIGN

W8-11

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/20/2020 PLATE NO. W8-11.5



W8-17

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5⁄8	5⁄8	3⁄4	12 3⁄4	8 1⁄4	18 5⁄8	14 7⁄8																		9.0
2S	48		2 1⁄4	3⁄4	1	17	11	24 7⁄8	19 7⁄8																		16.0
2M	48		2 1⁄4	3⁄4	1	17	11	24 7⁄8	19 7⁄8																		16.0
3	48		2 1⁄4	3⁄4	1	17	11	24 7⁄8	19 7⁄8																		16.0
4	48		2 1⁄4	3⁄4	1	17	11	24 7⁄8	19 7⁄8																		16.0
5	48		2 1⁄4	3⁄4	1	17	11	24 7⁄8	19 7⁄8																		16.0

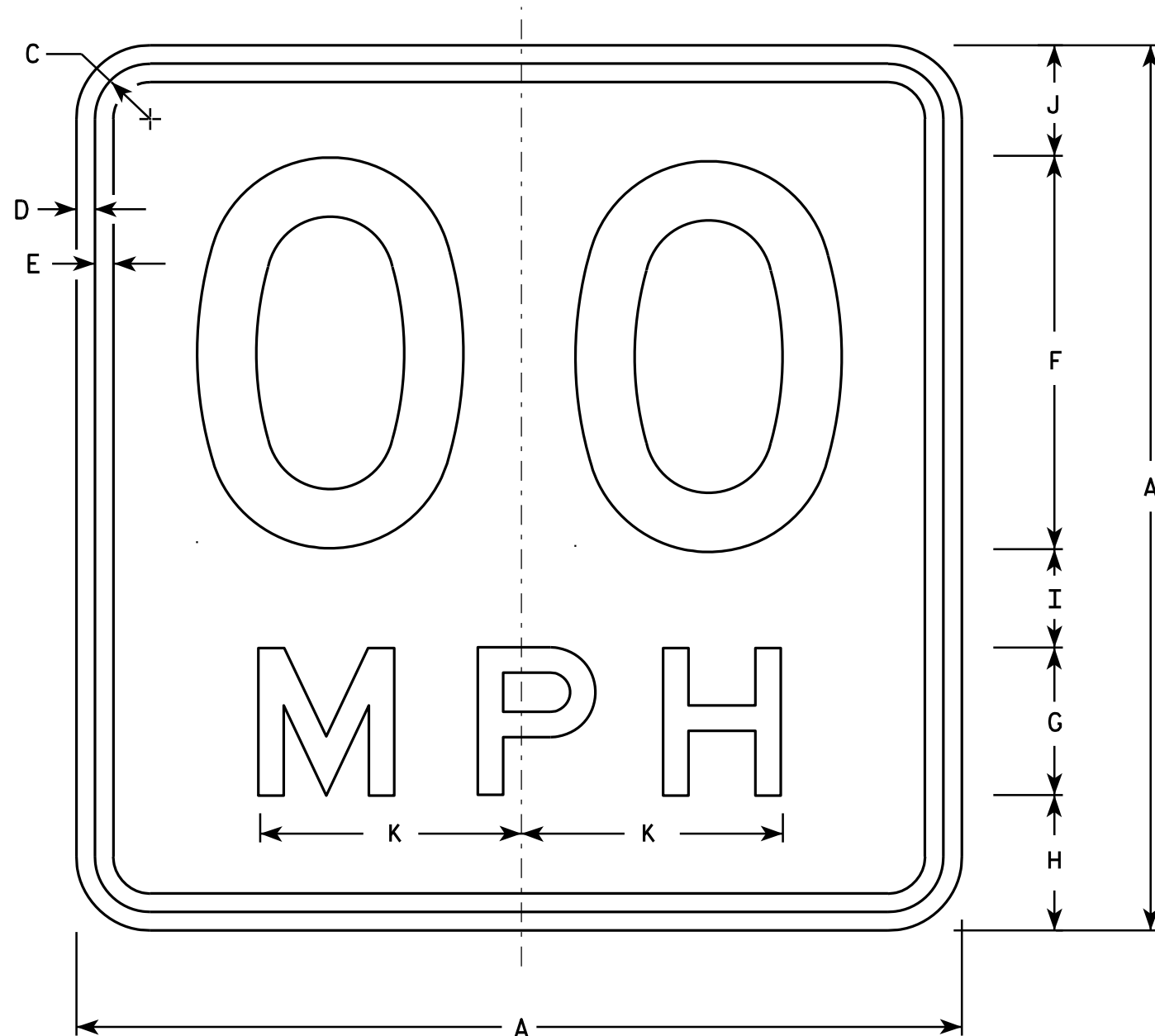
STANDARD SIGN

W8-17

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/16/2020 PLATE NO. W8-17.2



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
Line 2 is Series E

W13-1

- * For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area Sq. Ft.
1	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2S	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
* 2M	18		1 1/8	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8																2.25
3	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8																4.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

STANDARD SIGN

W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/31/12 PLATE NO. W13-1.16

PROJECT NO:

HWY:

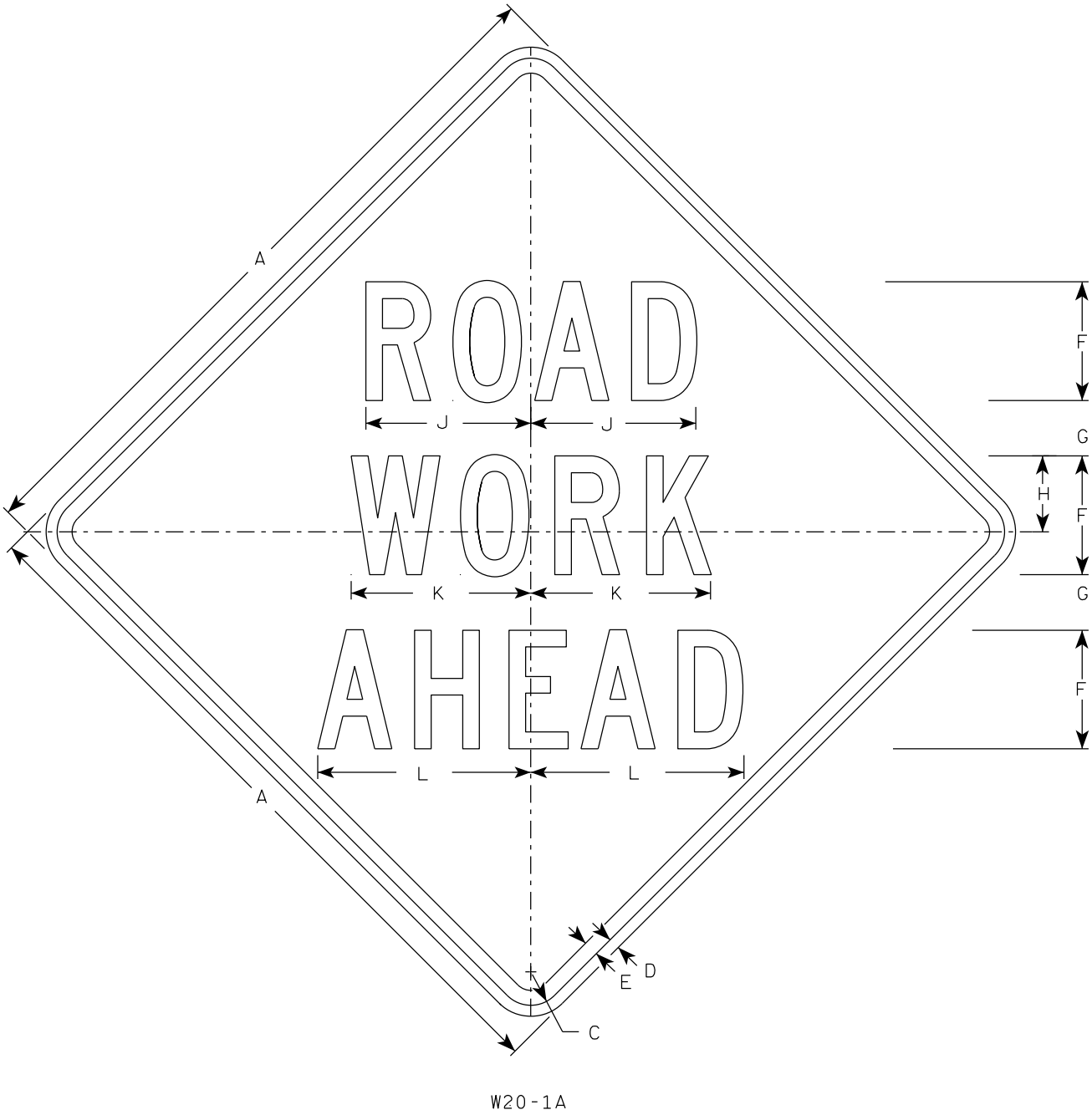
COUNTY:

SHEET NO:

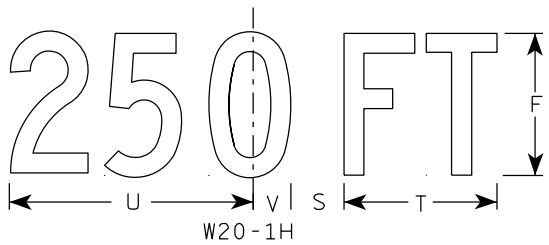
E

NOTES

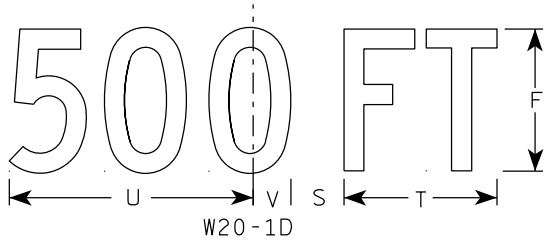
1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



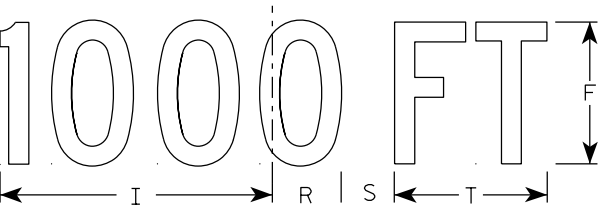
W20-1A



W20-1H



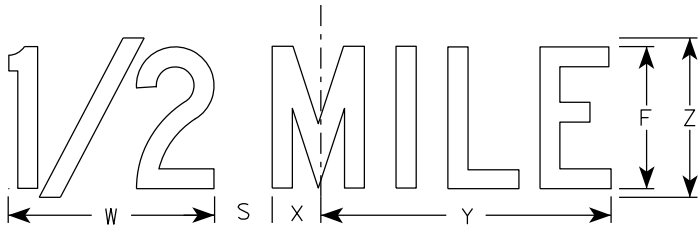
W20-1D



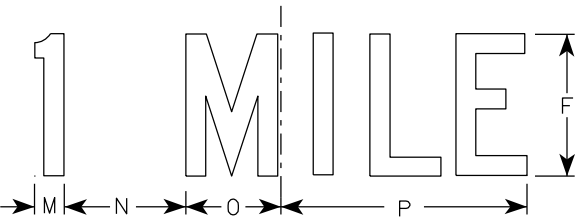
W20-1C



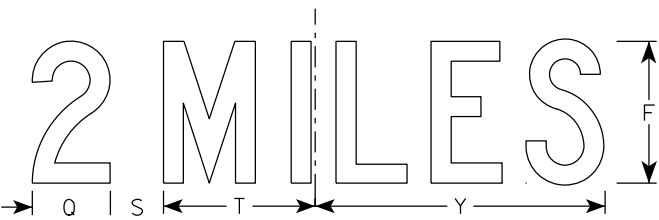
W20-1B



W20-1G



W20-1F



W20-1E

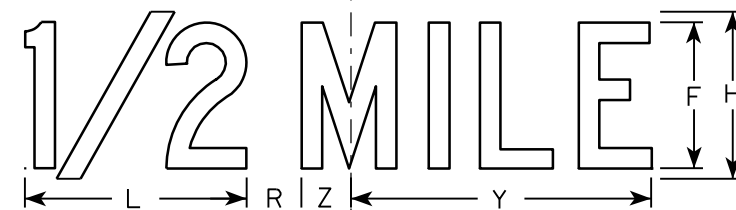
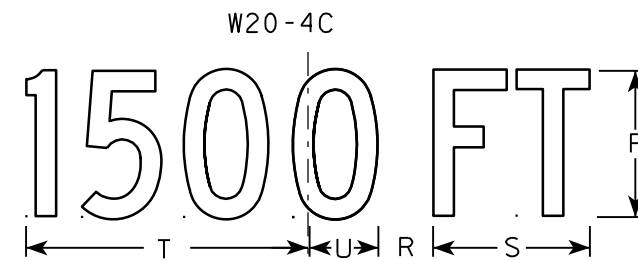
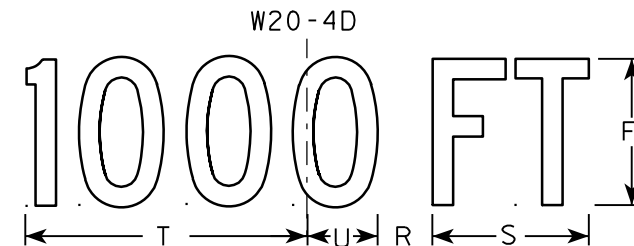
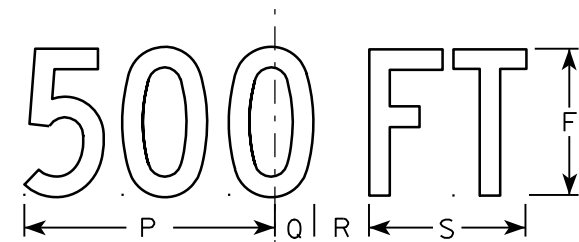
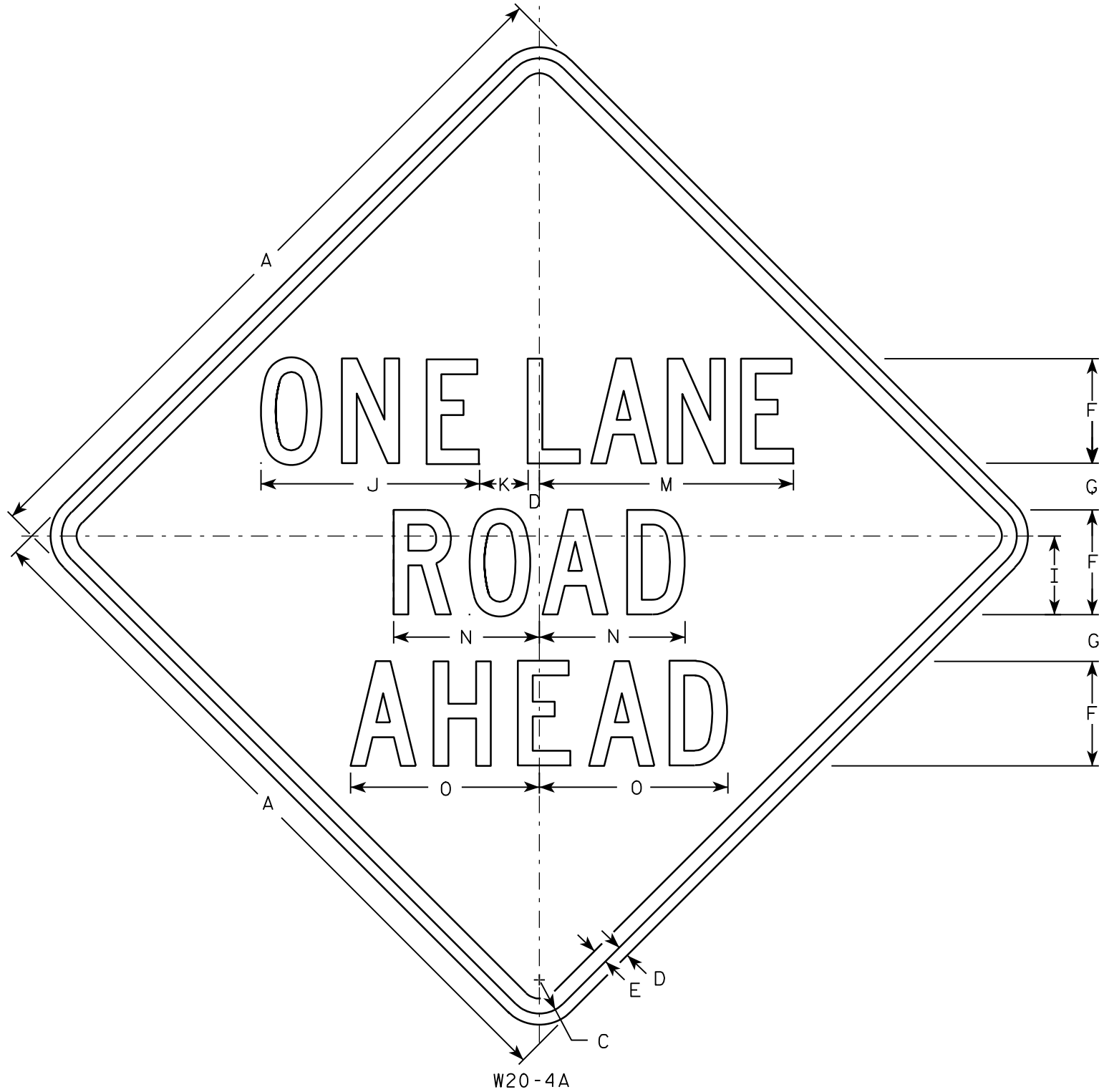
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A _{req} sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11

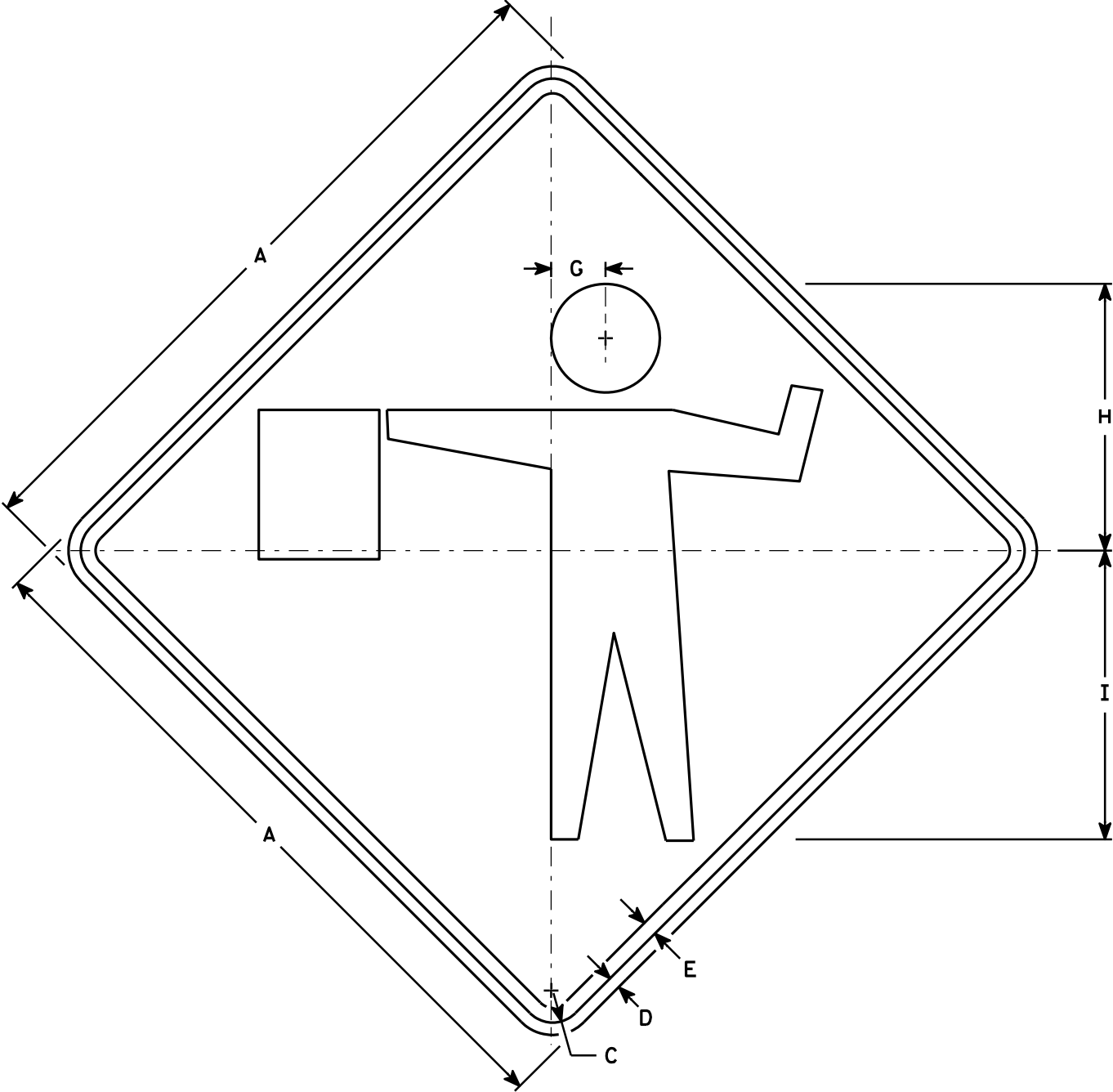


NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 3/8	6	3 3/4	10 3/8	2 3/8	8	13 1/2	7	8 7/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN	
W20-4A, B, C, D, F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/18/11	PLATE NO. W20-4.9



W20-7A

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

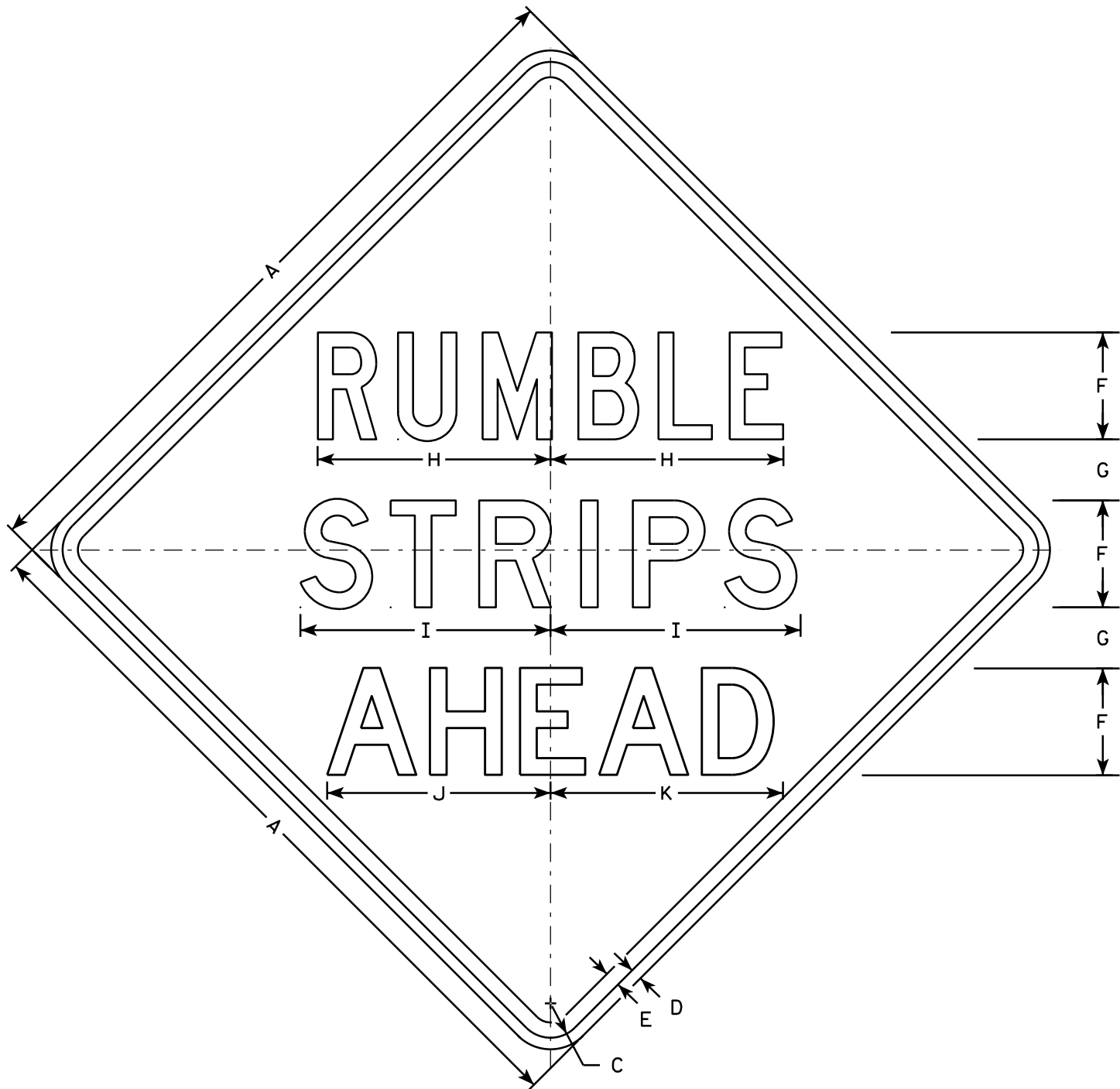
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4		2 3/4	13 1/2	14 5/8																		9.00
2S	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
2M	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
3	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
4	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00
5	48		2 1/4	3/4	1		3 3/4	18	19 1/2																		16.00

STANDARD SIGN
W20-7A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-7A.5



W21-65

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series C
Lines 2 and 3 are Series D

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 1/4	10 7/8	11 5/8	11	11 5/8																9.0
2S	48		2 1/4	3/4	1	7	4	15 1/4	16 3/8	14 5/8	15 1/4																16.0
2M	48		2 1/4	3/4	1	7	4	15 1/4	16 3/8	14 5/8	15 1/4																16.0
3	48		2 1/4	3/4	1	7	4	15 1/4	16 3/8	14 5/8	15 1/4																16.0
4	48		2 1/4	3/4	1	7	4	15 1/4	16 3/8	14 5/8	15 1/4																16.0
5	48		2 1/4	3/4	1	7	4	15 1/4	16 3/8	14 5/8	15 1/4																16.0

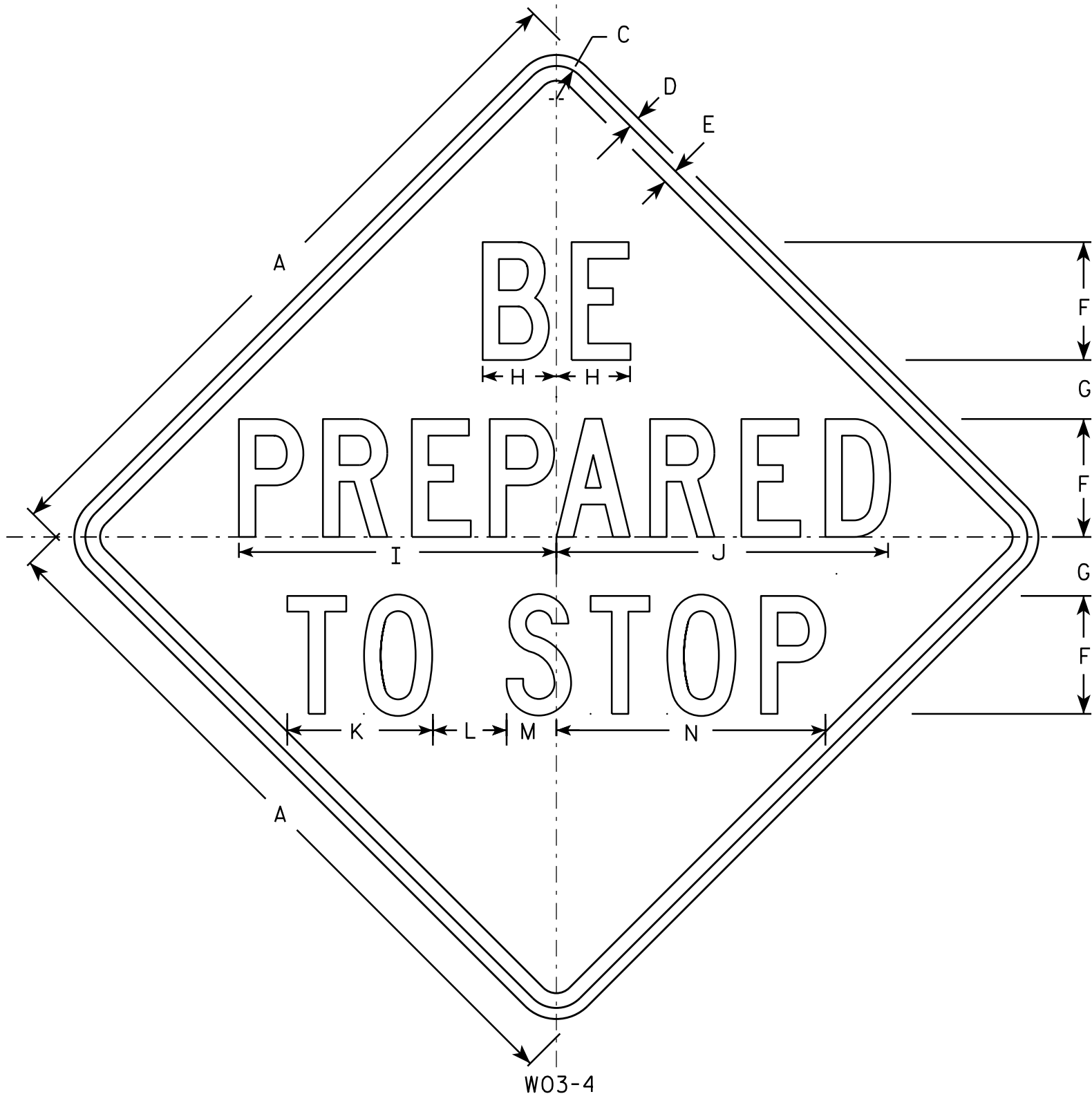
STANDARD SIGN

W21-65

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/28/14 PLATE NO. W21-65.1



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	6	2 1/2	3 3/4	15 7/8	16 7/8	7 3/8	4	2 3/8	13 3/4													9.0
2S	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
2M	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
3	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
4	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0
5	48		2 1/4	3/4	1	8	4	5	21 1/2	22 1/2	9 7/8	5	3 3/8	18 1/4													16.0

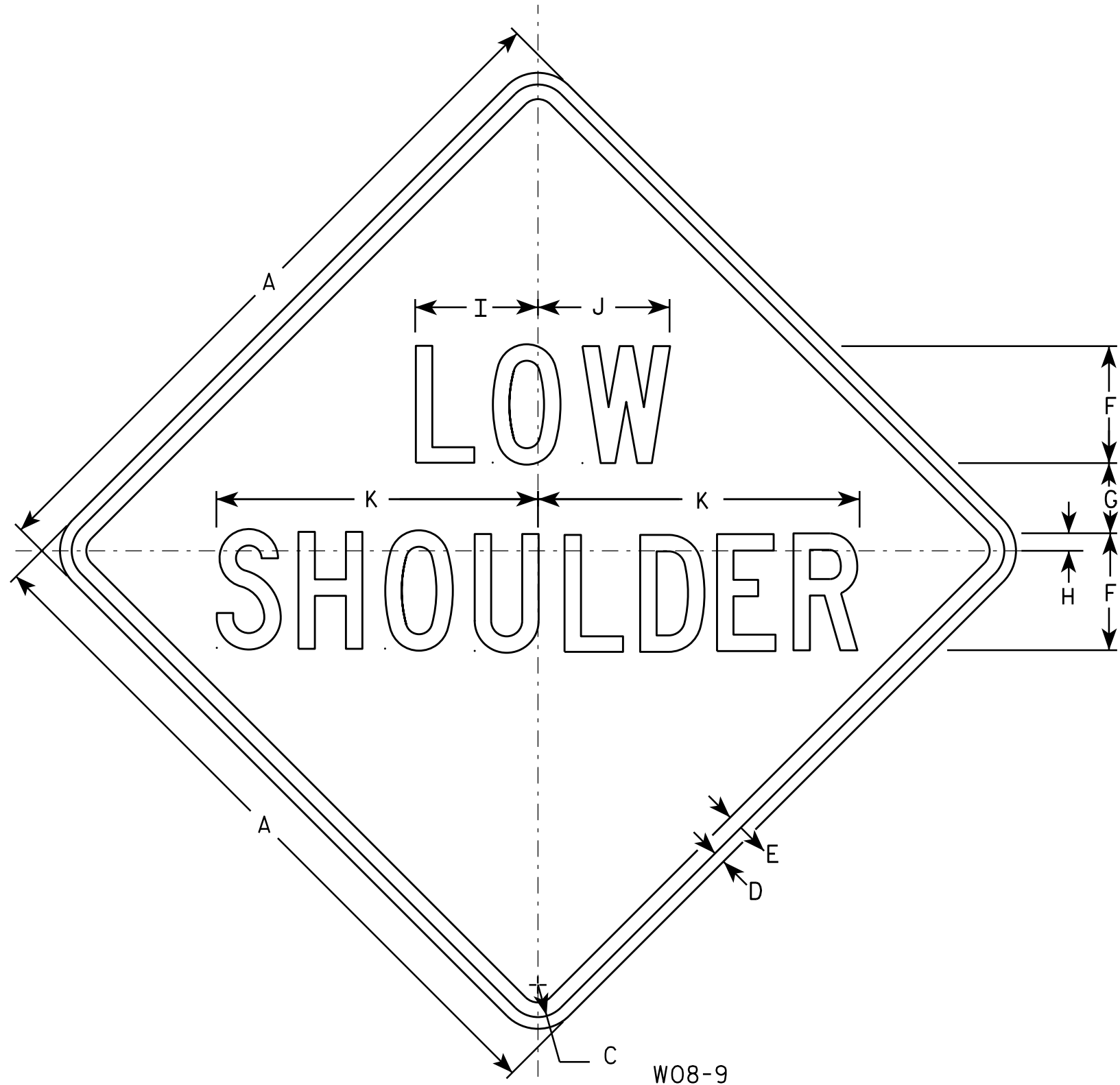
STANDARD SIGN W03-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/02/13 PLATE NO. W03-4.1

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	3 1/2	1	6 1/4	6 3/4	16 1/2																9.0
2S	48		2 1/4	3/4	1	8	5	1 1/4	8 1/4	9	21 7/8																16.0
2M	48		2 1/4	3/4	1	8	5	1 1/4	8 1/4	9	21 7/8																16.0
3	48		2 1/4	3/4	1	8	5	1 1/4	8 1/4	9	21 7/8																16.0
4	48		2 1/4	3/4	1	8	5	1 1/4	8 1/4	9	21 7/8																16.0
5	48		2 1/4	3/4	1	8	5	1 1/4	8 1/4	9	21 7/8																16.0

STANDARD SIGN W08-9

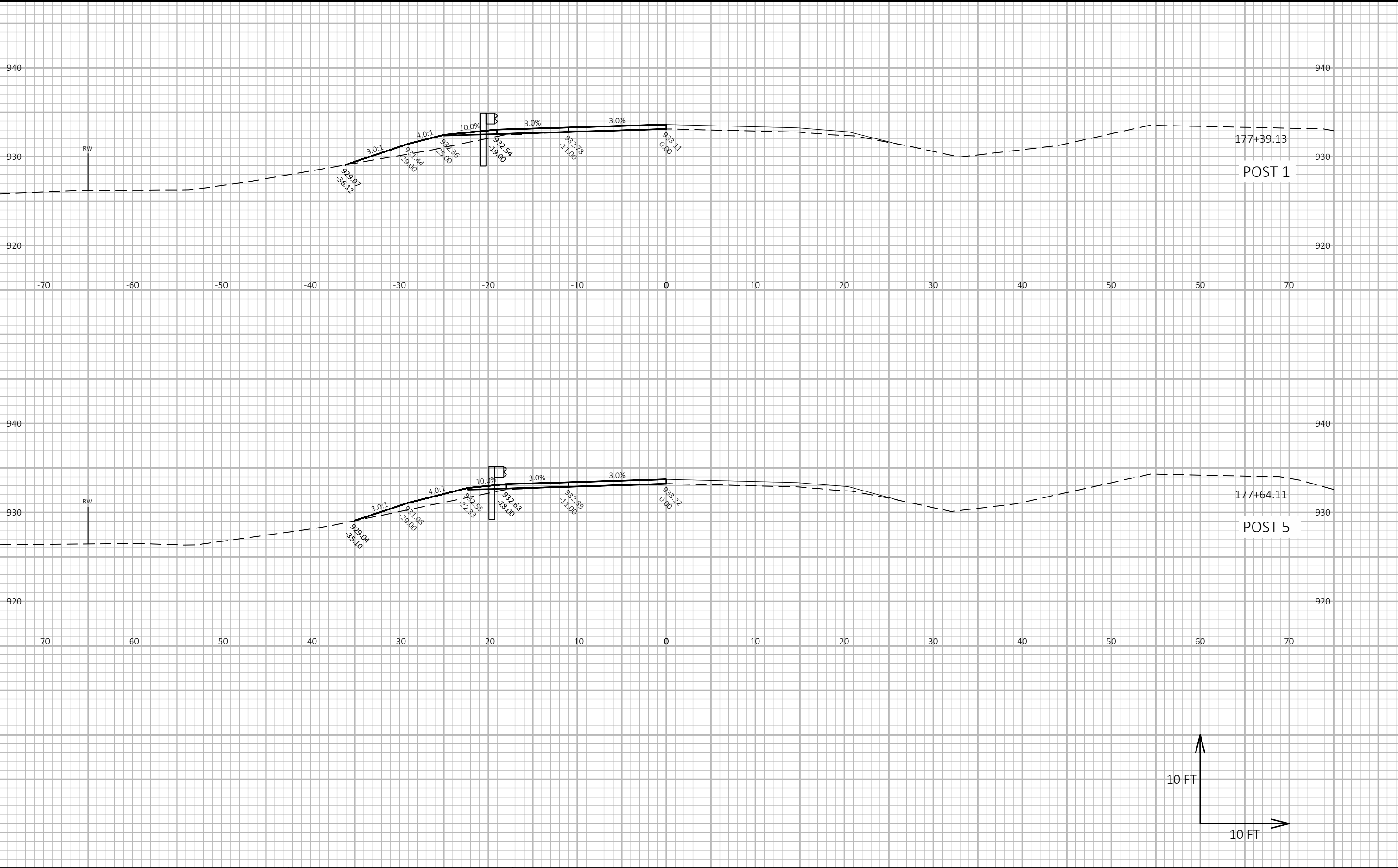
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

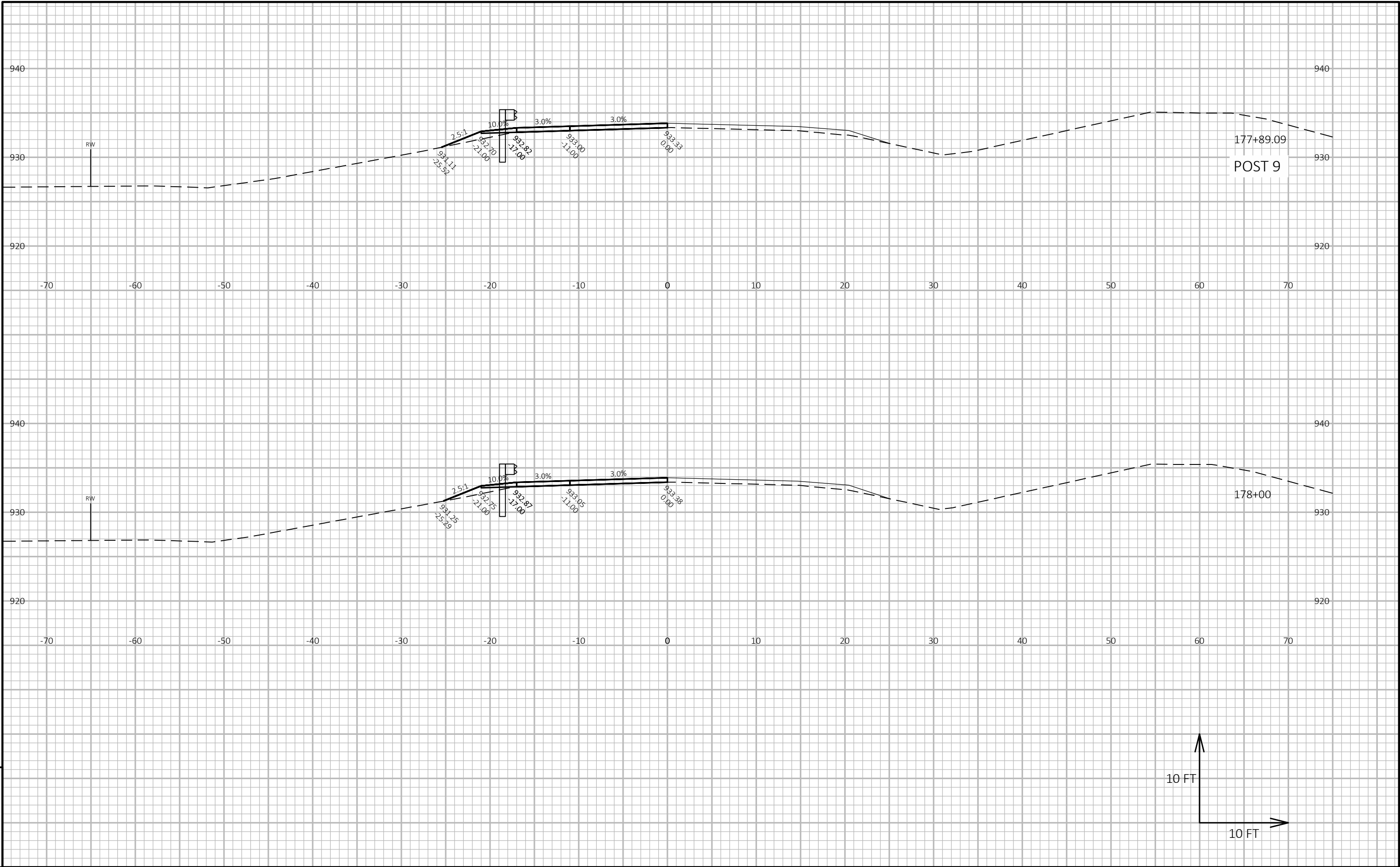
DATE 11/20/13 PLATE NO. W08-9.1

CTH M - Beam Guard Grading

STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		
	Cut	Fill	Cut	Fill	Cut 1.00	Expanded Fill 1.30	Mass Ordinate
177+12.16	0.00	10.10	0	0	0	0	0
177+25	0.00	10.39	0	5	0	6	-6
177+50	0.00	13.21	0	11	0	21	-21
177+75	0.00	6.19	0	9	0	32	-32
178+00	0.00	3.19	0	4	0	38	-38
178+25	0.00	2.68	0	3	0	41	-41
178+50	0.00	2.62	0	2	0	45	-45
178+75	0.00	2.56	0	2	0	48	-48
179+00	0.00	2.61	0	2	0	51	-51
179+25	0.00	5.54	0	4	0	56	-56
179+50	0.00	17.80	0	11	0	70	-70
179+75	0.00	20.74	0	18	0	93	-93
180+00	0.00	14.82	0	16	0	114	-114
180+25	0.00	7.02	0	10	0	128	-128
180+50	0.00	4.36	0	5	0	134	-134
180+75	0.00	2.13	0	3	0	138	-138
181+00	0.00	1.06	0	1	0	140	-140
181+04	0.00	0.98	0	0	0	140	-140



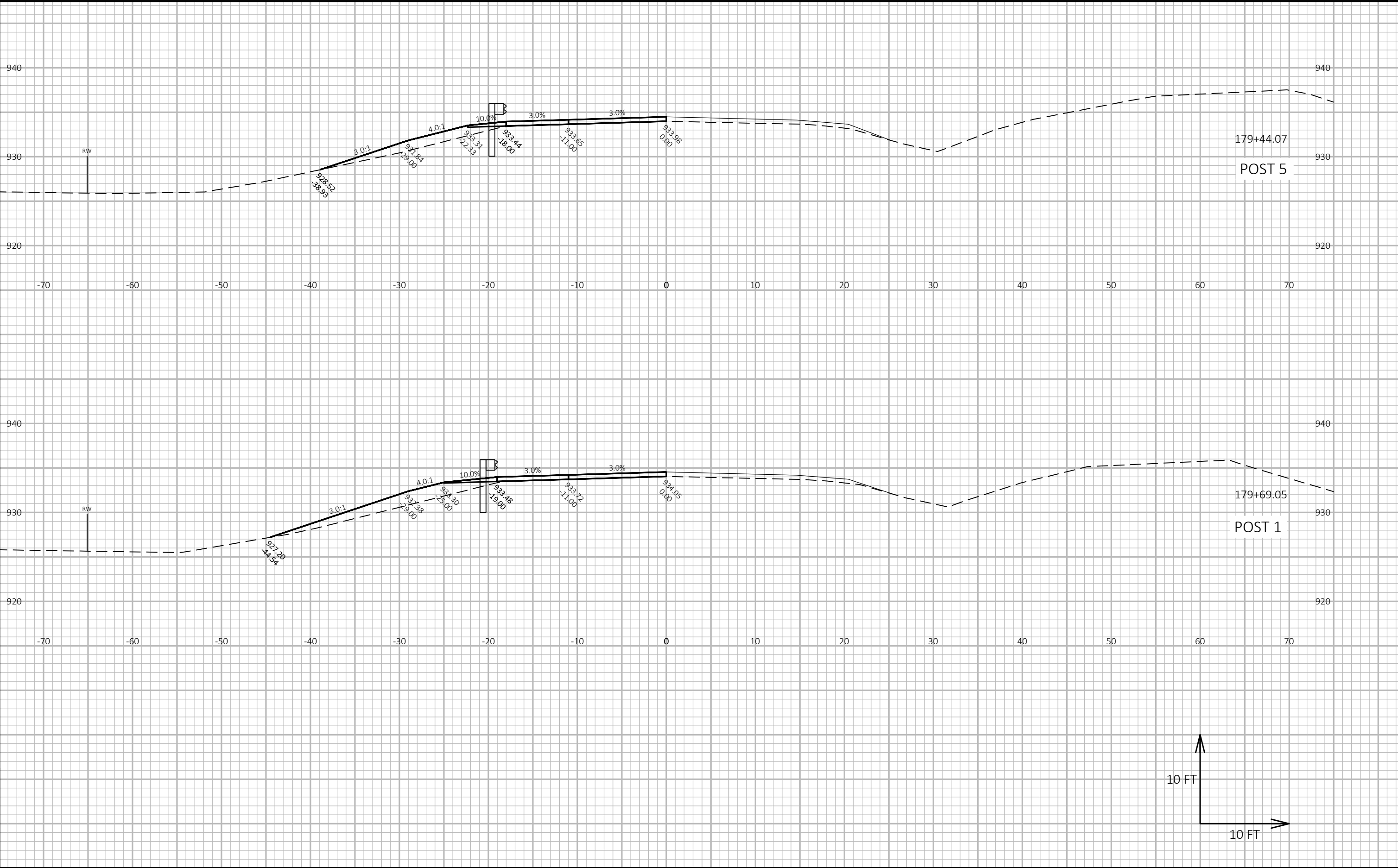
PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	CROSS SECTIONS: CTH M - BEAM GUARD	SHEET E
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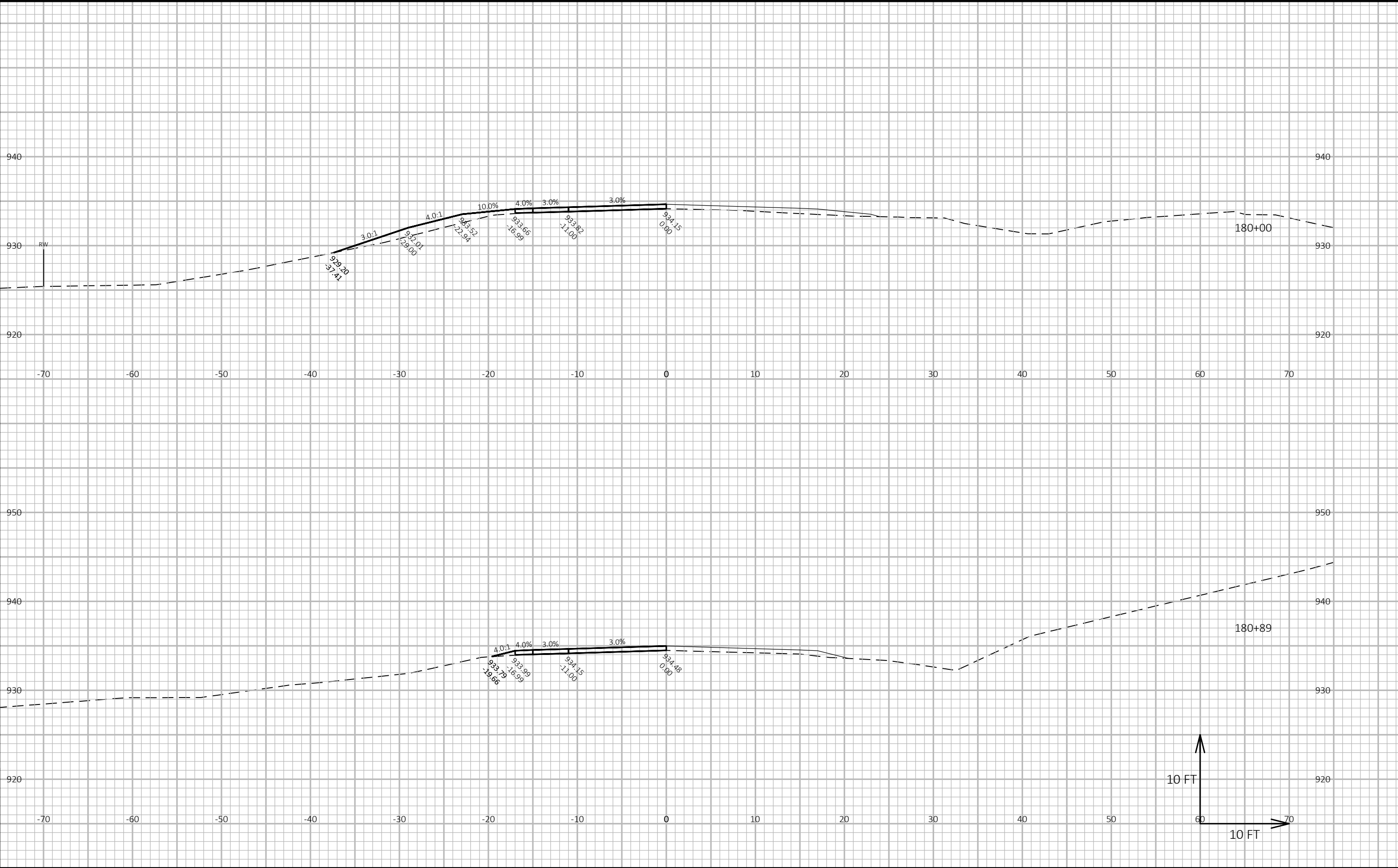
9

9

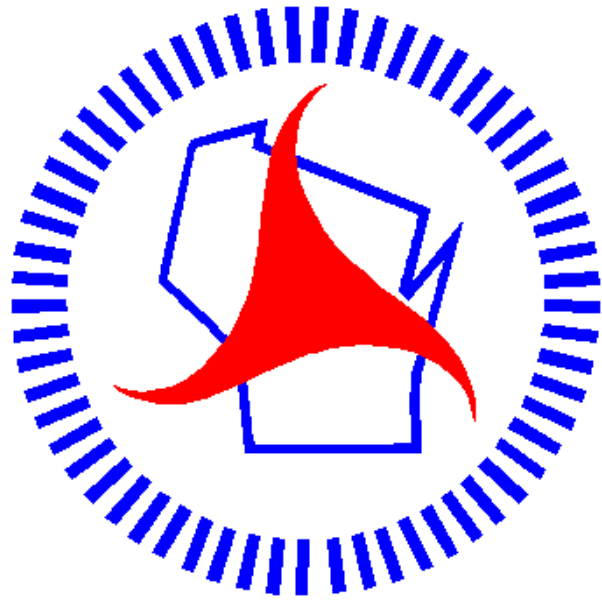
PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	CROSS SECTIONS: CTH M - BEAM GUARD	SHEET E
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PROJECT NO: 8866-00-72	HWY: CTH M	COUNTY: POLK	CROSS SECTIONS: CTH M - BEAM GUARD	SHEET E
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Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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