

MINN PROJECT NO.

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR STREET, STORM SEWER, GRADING, SURFACING, UTILITY, SIGNING AND APPURTENANT WORK
LOCATED ON CSAH 78 (HANSON BLVD) FROM 335 FT N. OF CR 18 (CROSTOWN BLVD) TO 234 FT S. OF 155th LANE

CSAH 78 (HANSON BLVD)

GROSS LENGTH	2592.30 ft	0.491 miles
BRIDGES-LENGTH	0.00 ft	0.000 miles
EXCEPTIONS-LENGTH	0.00 ft	0.000 miles
NET LENGTH	2592.30 ft	0.491 miles

GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE SHEETING.

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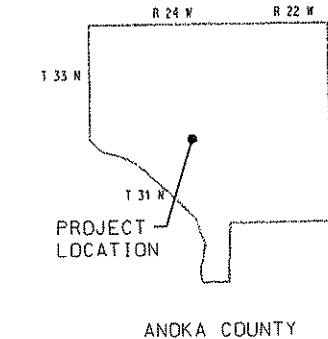
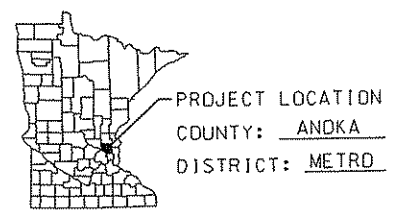
THIS PLAN CONTAINS 90 SHEETS.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITHIN THE CONSTRUCTION OF THIS PROJECT.

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INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

SIGNATURE: *Anthony J. Wintek* TYPED OR PRINTED NAME: ANTHONY J. WINTECK, P.E.
DESIGN ENGINEER. I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: 8/30/05 LICENSE NUMBER 23128



DESIGN DESIGNATION
CSAH 78 (HANSON BLVD)

R VALUE	=	60
ADT (Current Year) 2005	=	10,400
ADT (Future Year) 2025	=	20,150
dhv (DESIGN HOUR VOLUME)	=	2000
D (DIRECTIONAL DISTR.)	=	50%
T (HEAVY COMMERCIAL)	=	N/A
HADT (Future Year) 2025	=	N/A
ESALS	=	1,893,000
DESIGN SPEED	=	55 MPH
BASED ON STOPPING SIGHT DISTANCE		
HEIGHT OF EYE	=	3.5
HEIGHT OF OBJECT	=	2.0
DESIGN SPEED NOT ACHIEVED AT:	=	N/A
FUNCTIONAL CLASSIFICATION	=	ARTERIAL
NO. OF TRAFFIC LANES	=	2
NO. OF PARKING LANES	=	0
SHOULDER WIDTH	=	12
TON DESIGN	=	10

PLAN REVISIONS

DATE	SHEET NO.	APPROVED BY

S.A.P 02-678-18, S.A.P 198-020-26
CITY PROJECTS 05-34, 05-35, & 05-42
SHEET NO. 1 OF 90 SHEETS

PLAN SYMBOLS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- SLOPE EASEMENT
- PRESENT RIGHT-OF-WAY
- CONTROL OF ACCESS LINE
- PROPERTY LINES (EXCEPT LAND LINES)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY
- RIVER OR CREEK
- DRY RUN
- DRAINAGE DITCH
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- SPRINGS
- MARSH
- TIMBER
- DRCHARD
- BRUSH
- NURSERY
- CATCH BASIN
- FIRE HYDRANT
- CATTLE GUARD
- OVERPASS (HIGHWAY OVER)
- UNDERPASS (HIGHWAY UNDER)
- BRIDGE
- BUILDING (ONE STORY FRAME)
- F - FRAME C - CONCRETE
- S - STONE T - TILE
- B - BRICK ST - STUCCO
- IRON ROD OR PIPE
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLE
- ON TELEPHONE POLES
- ANCHOR
- STREET LIGHT
- PEDESTAL (TELEPHONE CABLE TERMINAL)
- GAS MAIN
- WATER MAIN
- CONDUIT
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- AERIAL TELEPHONE CABLE
- FIBER OPTICS
- SEWER (SANITARY OR STORM)
- SEWER MANHOLE

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- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLE
- ON TELEPHONE POLES
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SCALES

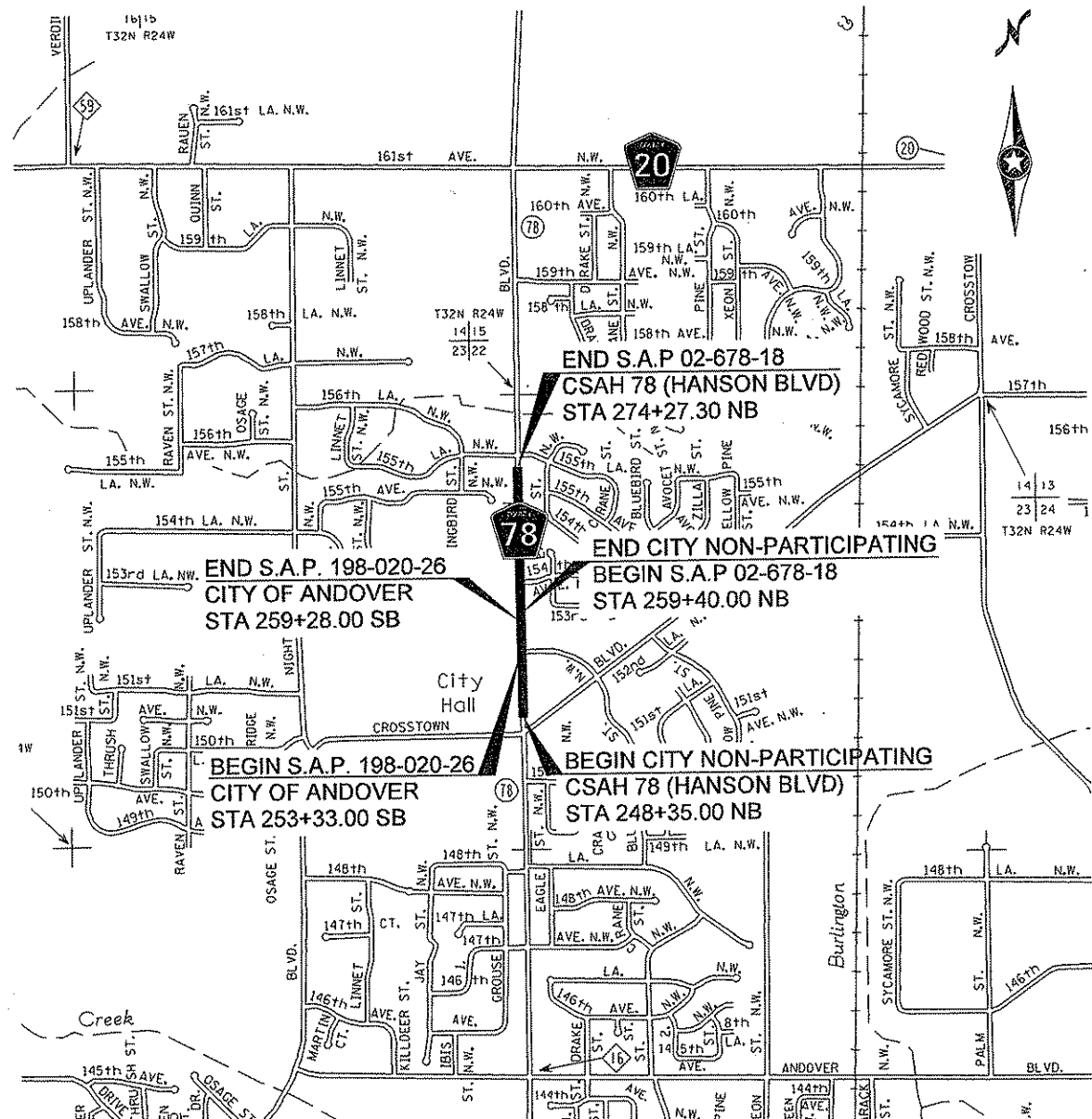
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PLAN: 0 50 100

PROFILE HORIZ.: 0 50 100

PROFILE VERT.: 0 5 10

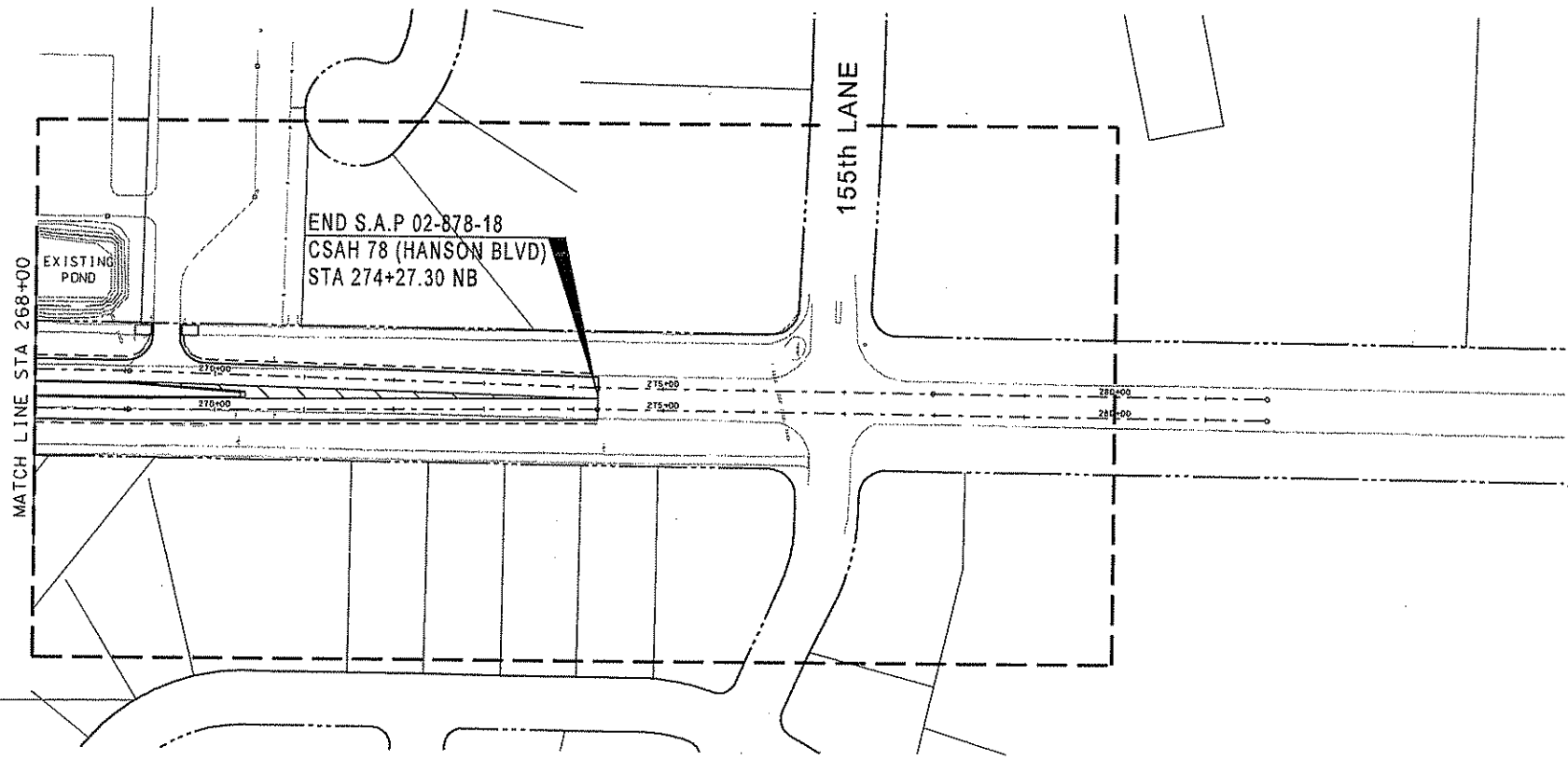
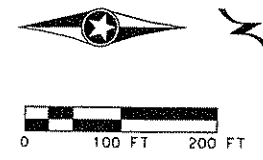
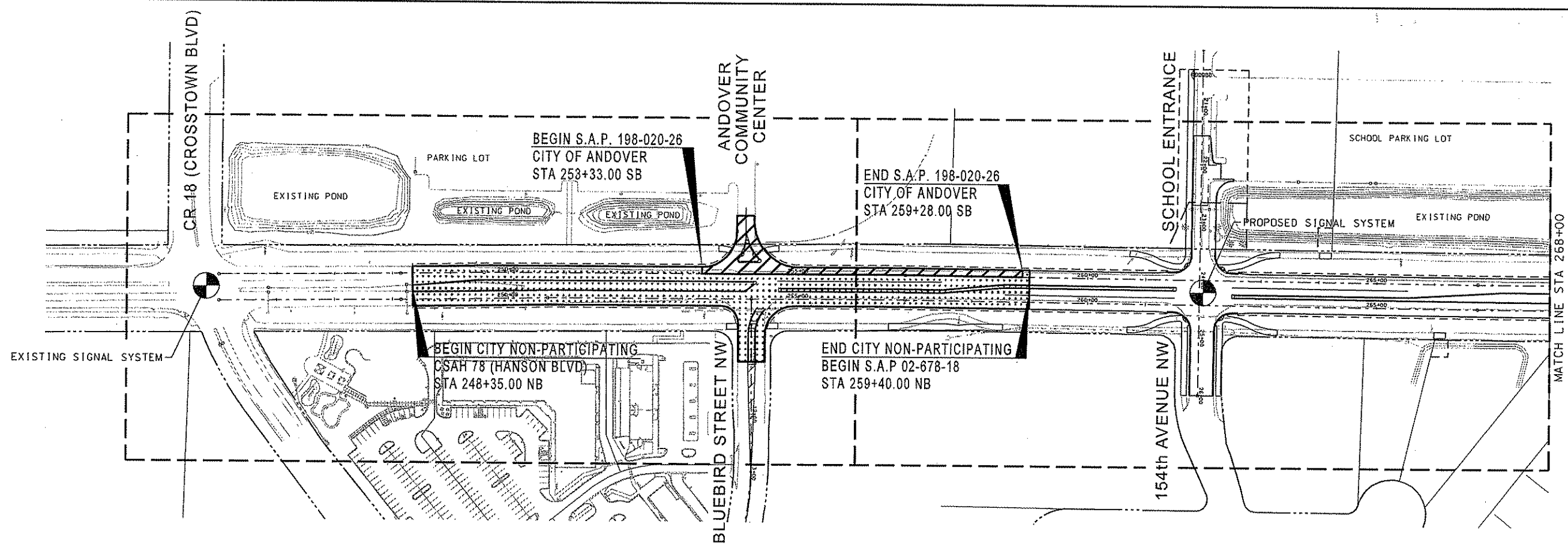
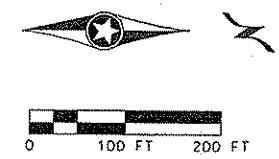
CROSS SECTION: 0 10 20



THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS TO DETERMINE THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERE TO.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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 WSB Filename: s:\01666-00\Local\plan\1666gl-1.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Pion By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Winecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINECKI, P.E.
 DATE: 8/30/05 LIC. NO.: 23128

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 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

ANOKA COUNTY
CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
GENERAL LAYOUT
 S.A.P 02-678-18, ETC.

SHEET
2
 OF
90
 SHEETS

ESTIMATED QUANTITIES

TABLE	SHEET	ITEM NUMBER	DESCRIPTION	NOTES	UNITS	TOTAL	City of Andover	City of Andover	Anoka County	Anoka County	Anoka County	City of Andover
							Non-Participating CSAH 78 Roadway	Non-Participating CSAH 78 Storm Sewer	Non-Participating CSAH 78 Roadway	S.A.P. 02-678-18 CSAH 78 Roadway	S.A.P. 02-678-18 CSAH 78 Storm Sewer	S.A.P. 198-020-26 CSAH 78 Turn Lane
						ESTIMATED	ESTIMATED	ESTIMATED	ESTIMATED	ESTIMATED	ESTIMATED	ESTIMATED
		2021.501	MOBILIZATION		LUMP SUM	1.00	0.22	0.01	0.11	0.56	0.05	0.05
		2031.501	FIELD OFFICE TYPE D-MODIFIED		EACH	1.00	0.22	0.01	0.11	0.56	0.05	0.05
		2101.502	CLEARING		TREE	4				4		
		2101.507	GRUBBING		TREE	4				4		
H	20	2102.502	PAVEMENT MARKING REMOVAL	12	LIN FT	4420				4420		
		2104.501	REMOVE PIPE CULVERTS	10	LIN FT	332	190			142		
		2104.501	REMOVE SEWER PIPE (STORM)		LIN FT	70				70		
A	6	2104.501	REMOVE CURB AND CUTTER		LIN FT	1091	516		259	316		
		2104.501	REMOVE CHAIN LINK FENCE		LIN FT	85				85		
A	6	2104.503	REMOVE CONCRETE WALK		SO FT	2240	2240					
A	6	2104.505	REMOVE BITUMINOUS PAVEMENT		SO YD	17105	5583		300	10628		594
		2104.509	REMOVE CONCRETE APRON		EACH	2				2		
		2104.509	REMOVE MANHOLE OR CATCH BASIN		EACH	2				2		
B	6	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN FT	24	6		18			
B	6	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)		LIN FT	4076	1614		264	2082		116
M,P	54	2104.523	SALVAGE SIGN TYPE C		EACH	49	17		5	27		
D	54	2104.523	SALVAGE SIGN TYPE D		EACH	2	1			1		
L,N	54	2104.523	SALVAGE SIGN TYPE SPECIAL		EACH	11	9			2		
		2104.523	SALVAGE TEMPORARY BARRICADES	24	EACH	5				5		
		2104.523	SALVAGE PLASTIC DRUM CHANNELIZER	24	EACH	27				27		
F	10	2105.501	COMMON EXCAVATION (P)		CU YD	17172	5751		194	10521		706
		2123.610	STREET SWEEPER (WITH PICKUP BRODM)	3.7	HOOR	16				16		
		2130.501	WATER	3.7	M GALLONS	100				100		
		2131.502	CALCIUM CHLORIDE SOLUTION	3.7	GALLON	1000				1000		
C	7	2211.503	AGGREGATE BASE (CV) CLASS 5 (P)		CU YD	4955	1605		89	2923		338
C	7	2221.609	AGGREGATE SHOULDERING CLASS 7B		TON	2467	796			1360		311
A	6	2232.501	MILL BITUMINOUS SURFACE (1.5")		SO YD	1314	908		406			
C	7	2350.501	TYPE MV 4 WEARING COURSE MIXTURE (C)		TON	3249	1083		87	1854		225
C	7	2350.502	TYPE LV 3 NON WEARING COURSE MIXTURE (B)		TON	3302	1064		52	1946		240
		2350.604	BITUMINOUS PAVING FOR TRENCH RESTORATION	20	SO YD	814	214			493		107
C	7	2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1911	645		23	1108		135
J	40	2501.515	12" RC PIPE APRON		EACH	3				2		1
J	40	2501.515	15" RC PIPE APRON		EACH	7		1		6		
J	40	2501.515	21" RC PIPE APRON		EACH	1		1		1		
J	40	2501.569	12" RC SAFETY APRON		EACH	1				1		
J	40	2501.569	15" RC SAFETY APRON		EACH	5		2		1		2
J	40	2501.602	TRASH GUARD FOR 12" PIPE APRON		EACH	3				2		1
J	40	2501.602	TRASH GUARD FOR 15" PIPE APRON		EACH	7		1		6		
J	40	2501.602	TRASH GUARD FOR 21" PIPE APRON		EACH	1				1		
J	40	2503.541	12" RC PIPE SEWER DESIGN 3006 CL V		LIN FT	316				229.5		86.5
J	40	2503.541	15" RC PIPE SEWER DESIGN 3006 CL V		LIN FT	837.1		255		438.1		144
J	40	2503.541	18" RC PIPE SEWER DESIGN 3006		LIN FT	108				108		
J	40	2503.541	21" RC PIPE SEWER DESIGN 3006		LIN FT	75				75		
		2503.602	12" PIPE PLUG	1	EACH	3				2		1
		2503.602	15" PIPE PLUG	1	EACH	5		3		2		
		2504.603	6" PVC PIPE CASING	21	LIN FT	70			70			
J	40	2506.501	CONST DRAINAGE STRUCTURE DESIGN SD		LIN FT	31.37		7.65		16.33		7.39
J	40	2506.501	CONST DRAINAGE STRUCTURE DES 48-4020		LIN FT	28.50				28.5		
J	40	2506.501	CONST DRAINAGE STRUCTURE DES 54-4020		LIN FT	4.61				4.61		
K	40	2506.516	CASTING ASSEMBLY		EACH	18.00		2		14		2
J	40	2511.501	RANDOM RIPRAP CLASS II		CU YD	25.7		6.5		12.8		6.4
J	40	2511.501	RANDDM RIPRAP CLASS IV		CU YD	11.6				11.6		
J	40	2511.515	GEOTEXTILE FILTER TYPE IV		SO YD	95.6		19.8		56.6		19.2
D	8	2521.501	4" CONCRETE WALK	19	SO FT	20034	11530			7846		658
		2521.511	2.5" BITUMINOUS WALK	6	SO FT	15160	2640		3078	8917		525

NOTES

- TO BE WATER TIGHT, SEE DETAIL ON SHEET 14.
- TO BE USED AS DIRECTED BY THE ENGINEER.
- TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- SILT FENCE SHALL BE INSTALLED AS SOON AS POSSIBLE AND MAINTAINED IN GOOD CONDITION AT ALL TIMES AND REMOVED WHEN THE PROJECT IS COMPLETED. PAYMENT SHALL INCLUDE ALL COSTS AND FURNISHINGS, INSTALLING, MAINTAINING AND REMOVAL.
- F&I SIGN POSTS SHALL BE INCIDENTAL TO INSTALLING SIGN AND / OR F&I SIGN PANEL.
- INCLUDES 4" CLS AND ANY NECESSARY GRADING AND EXCAVATION ARE INCIDENTAL.
- NOT SUBJECT TO THE PROVISIONS OF MN/DOT SPEC. 1903.
- TO BE USED FOR ROADWAY CULVERT MARKERS.
- 7 TRUNCATED DOMES TO BE INSTALLED IN BITUMINOUS PATH. 6 TRUNCATED DOMES TO BE INSTALLED IN PEDESTRIAN RAMPS. RAMP AREA TO BE PAID FOR AS CONCRETE WALK.
- INCLUDES APRON.
- FERTILIZER SHALL BE SLOW RELEASE TYPE.
- REMOVAL OF SPECIAL BIKE LANE MARKINGS TO BE INCIDENTAL.
- SIGN SHEETING SHALL BE VIP.
- ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
- 2381 FEET WHITE, 2920 FEET YELLOW.
- TO BE USED TO ISOLATE THE IN PLACE TRAIL FROM THE CONSTRUCTION AREA.
- FOR USE ON THE MEDIANS, NECESSARY GRANULAR MATERIAL IS INCIDENTAL.
- INCLUDES QUANTITY TO BE UTILIZED IF FINAL WEAR COURSE IS NOT PLACED BEFORE WINTER SUSPENSION.
- INCLUDES 134 SO FT FOR PEDESTRIAN RAMPS.
- INCLUDES 6" BITUMINOUS MIXTURE OVER A COMPACTED BASE OF 4" CL 5 FOR RESTORING STORM SEWER CROSSINGS DURING STAGE 1 CONSTRUCTION. INCLUDES ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR.
- TO BE INSTALLED UNDER THE SCHOOL ENTRANCE FOR FUTURE INSTALLATION OF THE IRRIGATION SYSTEM. INSTALLATION OF THE IRRIGATION SYSTEM BY OTHERS.
- TO BE UTILIZED ON THE 1:3 BACKSLOPES AND AROUND CULVERT ENDS.
- INCLUDES 400 WHITE AND 400 YELLOW.
- TO REMAIN INPLACE UNTIL THE COMPLETION OF STAGE 1.
- COST TO BE COVERED AS SPECIFIED IN THE JOINT POWERS AGREEMENT BETWEEN THE CITY AND THE COUNTY.

BASIS FOR QUANTITIES

UNIT WEIGHT OF BITUMINOUS MIX.....	110 LBS/SY/IN
AGGREGATE BASE AND SHOULDERING CLASS 5.....	105 LBS/SY/IN
TACK COAT	
- MILLED SURFACE.....	0.07 GAL/SY
- BETWEEN NEW LAYERS.....	0.05 GAL/SY
TURF ESTABLISHMENT	
- SEED MIXTURE 250.....	70 LBS/ACRE
- MULCH MATERIAL - TYPE 1.....	2 TON/ACRE
- COMMERCIAL FERTILIZER - 22-5-10.....	350 LBS/ACRE

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NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

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CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT

ESTIMATED QUANTITIES
 S.A.P 02-678-18, ETC.

ESTIMATED QUANTITIES

TABLE	SHEET	ITEM NUMBER	DESCRIPTION	NOTES	UNITS	TOTAL ESTIMATED	City of Andover	City of Andover	Anoka County	Anoka County	Anoka County	City of Andover
							Non-Participating CSAH 78 Roadway	Non-Participating CSAH 78 Storm Sewer	Non-Participating CSAH 78 Roadway	S.A.P. 02-678-18 CSAH 78 Roadway	S.A.P. 02-678-18 CSAH 78 Storm Sewer	S.A.P. 198-020-26 CSAH 78 Turn Lane
D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B418		LN FT	4155	2145			2010		
D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B424		LN FT	410				280		130
D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B612		LN FT	342			135	192		15
D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B618		LN FT	290	290					
D	8	2531.501	CONCRETE CURB & GUTTER DESIGN SPECIAL		LN FT	220			74	146		
D	8	2531.602	CONCRETE MEDIAN NOSE DESIGN 7109		EACH	1				1		
D	8	2531.602	CONC ENTRANCE NOSE DES 7113		EACH	8	4			2		2
D	8	2531.618	TRUNCATED DOMES	9	SO FT	176	40			80		56
I	20	2533.504	CONCRETE MEDIAN BARRIER DESIGN 8337		LN FT	2600				2600		
I	20	2554.602	IMPACT ATTENUATOR BARRELS		EACH	64				64		
		2554.509	GUIDE POST TYPE B	8	EACH	17	2	2			11	2
		2557.501	WIRE FENCE DESIGN 60-9322		LN FT	85				85		
H	20	2563.601	TRAFFIC CONTROL	14	LUMP SUM	1.00	0.22	0.01	0.11	0.56	0.05	0.05
		2563.602	RAISED PAVEMENT MARKER TEMPORARY	23	EACH	800				800		
		2563.610	POLICE OFFICER	2.7	HOUR	40				40		
Q	54	2564.531	SIGN PANELS TYPE C	5.13	SO FT	306	110.75		24	136		35.25
P	54	2564.537	INSTALL SIGN TYPE C	5	EACH	23	4		5	14		
D	54	2564.537	INSTALL SIGN TYPE D	5	EACH	2	1			1		
N	54	2564.537	INSTALL SIGN TYPE SPECIAL	5	EACH	2	2					
R	54	2564.602	PAVEMENT MESSAGE (THRU ARROW) POLY PREFORM		EACH	1				1		
R	54	2564.602	PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM		EACH	8	2			6		
R	54	2564.602	PAVEMENT MESSAGE (RIGHT ARROW) POLY PREFORM		EACH	9	1			6		
R	54	2564.602	PAVT MESSAGE (RIGHT-THRU ARROW) POLY PREFORM		EACH	2				2		2
H	20	2564.602	PAVEMENT MESSAGE (THRU ARROW) PAINT	7.18	EACH	1				1		
H	20	2564.602	PAVEMENT MESSAGE (LEFT ARROW) PAINT	7.18	EACH	8				8		
H	20	2564.602	PAVEMENT MESSAGE (RIGHT ARROW) PAINT	7.18	EACH	9				9		
R	54	2564.603	4" SOLID LINE WHITE-EPOXY		LN FT	7623	1810		37	4816		960
R	54	2564.603	4" DOUBLE SOLID LINE YELLOW-EPOXY		LN FT	2076	736		335	925		80
R	54	2564.603	4" SOLID LINE YELLOW-EPOXY		LN FT	3813	1480			2255		78
R	54	2564.603	24" SOLID LINE YELLOW-EPOXY		LN FT	150		25		100		25
H	20	2564.603	24" SOLID LINE YELLOW-PAINT	7.18	LN FT	150				150		
H	20	2564.603	4" SOLID LINE WHITE-PAINT	7.18	LN FT	19133				19133		
H	20	2564.603	4" SOLID LINE YELLOW-PAINT	7.18	LN FT	12609				12609		
H	20	2564.603	4" DOUBLE SOLID LINE YELLOW-PAINT	7.18	LN FT	7186				7186		
H	20	2564.603	24" SOLID LINE WHITE-PAINT	7.18	LN FT	156				156		
R	54	2564.603	24" SOLID LINE WHITE-POLY PREFORMED		LN FT	156	12			120		24
R	54	2564.618	ZEBRA CROSSWALK-WHITE POLY PREFORMED		SO FT	870	138		90	522		120
H	20	2564.618	ZEBRA CROSSWALK-WHITE PAINT	7.18	SO FT	870				870		
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM	25	SIG SYS	1			0.5	0.5		
		2565.601	TRAFFIC CONTROL INTERCONNECTION	25	LUMP SUM	1			0.25	0.75		
		2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM		LUMP SUM	1	1					
		2572.501	TEMPORARY FENCE	2, 7.16	LN FT	5012	1441			2976		595
E	9	2573.502	SILT FENCE, TYPE MACHINE SLICED	2, 4	LN FT	1600	90		40	1400		70
		2573.530	INLET PROTECTION TYPE A	2.7	EACH	2					2	
		2573.530	INLET PROTECTION TYPE C	2.7	EACH	16		2			12	2
		2573.603	BIDROLL	2.7	LN FT	300						300
E	9	2575.501	SEEDING		ACRE	4.18	1.35			2.35		0.48
E	9	2575.505	SODDING TYPE SALT RESISTANT		SO YD	2643	173		669	1636		165
E	9	2575.511	MULCH MATERIAL TYPE 1		TON	5.95	1.93			3.37		0.65
E	9	2575.519	DISK ANCHORING		ACRE	2.98	0.97			1.69		0.32
E	9	2575.523	EROSION CONTROL BLANKET CATEGORY 2	2.22	SO YD	5832	1853			3209		770
E	9	2575.532	COMMERCIAL FERT ANALYSIS 22-5-10	11	POUND	1463	471			823		169
E	9	2575.606	SEED MIXTURE 250		LBS	292.8	94.5			164.6		33.7
		2580.603	INTERIM PAVEMENT MARKINGS	2.7	LN FT	1200	500			700		
H	20	2581.501	REMOVABLE PREFORMED PLASTIC MARKING	15	LN FT	5301				5301		

NOTES

- TO BE WATER TIGHT, SEE DETAIL ON SHEET 14.
- TO BE USED AS DIRECTED BY THE ENGINEER.
- TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- SILT FENCE SHALL BE INSTALLED AS SOON AS POSSIBLE AND MAINTAINED IN GOOD CONDITION AT ALL TIMES AND REMOVED WHEN THE PROJECT IS COMPLETED. PAYMENT SHALL INCLUDE ALL COSTS AND FURNISHINGS, INSTALLING, MAINTAINING AND REMOVAL.
- F&I SIGN POSTS SHALL BE INCIDENTAL TO INSTALLING SIGN AND / OR F&I SIGN PANEL.
- INCLUDES 4" CL5 AND ANY NECESSARY GRADING AND EXCAVATION ARE INCIDENTAL.
- NOT SUBJECT TO THE PROVISIONS OF MN/DOT SPEC. 1903.
- TO BE USED FOR ROADWAY CULVERT MARKERS.
- 7 TRUNCATED DOMES TO BE INSTALLED IN BITUMINOUS PATH. 6 TRUNCATED DOMES TO BE INSTALLED IN PEDESTRIAN RAMPS. RAMP AREA TO BE PAID FOR AS CONCRETE WALK.
- INCLUDES APRON.
- FERTILIZER SHALL BE SLOW RELEASE TYPE.
- REMOVAL OF SPECIAL BIKE LANE MARKINGS TO BE INCIDENTAL.
- SIGN SHEETING SHALL BE VIP.
- ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
- 2381 FEET WHITE, 2920 FEET YELLOW.
- TO BE USED TO ISOLATE THE IN PLACE TRAIL FROM THE CONSTRUCTION AREA.
- FOR USE ON THE MEDIANS, NECESSARY GRANULAR MATERIAL IS INCIDENTAL.
- INCLUDES QUANTITY TO BE UTILIZED IF FINAL WEAR COURSE IS NOT PLACED BEFORE WINTER SUSPENSION.
- INCLUDES 134 SO FT FOR PEDESTRIAN RAMPS.
- INCLUDES 6" BITUMINOUS MIXTURE OVER A COMPACTED BASE OF 4" CL 5 FOR RESTORING STORM SEWER CROSSINGS DURING STAGE 1 CONSTRUCTION. INCLUDES ALL NECESSARY MATERIALS, EQUIPMENT AND LABOR.
- TO BE INSTALLED UNDER THE SCHOOL ENTRANCE FOR FUTURE INSTALLATION OF THE IRRIGATION SYSTEM. INSTALLATION OF THE IRRIGATION SYSTEM BY OTHERS.
- TO BE UTILIZED ON THE 1:3 BACKSLOPES AND AROUND CULVERT ENDS.
- INCLUDES 400 WHITE AND 400 YELLOW.
- TO REMAIN INPLACE UNTIL THE COMPLETION OF STAGE 1.
- COST TO BE COVERED AS SPECIFIED IN THE JOINT POWERS AGREEMENT BETWEEN THE CITY AND THE COUNTY.

BASIS FOR QUANTITIES

- UNIT WEIGHT OF BITUMINOUS MIX.....110 LBS/SY/IN
- AGGREGATE BASE AND SHOULDERING CLASS 5.....105 LBS/SY/IN
- TACK COAT
- MILLED SURFACE.....0.07 GAL/SY
- BETWEEN NEW LAYERS.....0.05 GAL/SY
- TURF ESTABLISHMENT
- SEED MIXTURE 250.....70 LBS/ACRE
- MULCH MATERIAL - TYPE 1.....2 TON/ACRE
- COMMERCIAL FERTILIZER - 22-5-10.....350 LBS/ACRE

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Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A ONLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Witek*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITEK, P.E.
 DATE: 8/30/05 LIC. NO: 23128

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ESTIMATED QUANTITIES
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CONSTRUCTION AND SOIL NOTES

- TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE.
- SELECT GRADING MATERIAL SHALL MEET THE REQUIREMENTS OF MN/DOT SPECIFICATION 3149.2(B1).
- GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B1.
- STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. AN ESTIMATED AVERAGE DEPTH OF INPLACE SLOPE DRESSING IS 6 INCHES THICK.
- SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING PRIOR CONSTRUCTION FOR ESTABLISHING TURF. INPLACE SLOPE DRESSING GENERALLY CONSISTS OF SILTY SAND (SM) WHICH WAS DARK BROWN TO BLACK, MOIST, AND CONTAINED TRACE AMOUNTS OF ROOTS. SOIL BORINGS ENCOUNTERED APPROXIMATELY 8" TO 18" OF TOPSOIL AT THE SURFACE.
- COMPACTION OF THE SUBGRADE AND AGGREGATE BASE LAYERS SHALL BE BY THE "SPECIFIED DENSITY METHOD", UNLESS RECYCLED MATERIAL IS USED FOR THE AGGREGATE BASE WHICH SHALL BE BY THE PENETRATION INDEX METHOD.
- BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE OF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC. 2104.3C3. BORINGS OF TRAVEL LANES INDICATE AVERAGE PAVEMENT DEPTH RANGING FROM 5" TO 9".
- THE BOTTOM OF ALL EXCAVATION SHALL BE COMPACTED WITH A MINIMUM OF FOUR PASSES WITH AN APPROVED ROLLER.
- AS A PRECAUTIONARY MEASURE FROM A SAFETY STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING A 1(V):2(H) OR FLATTER SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION.
- WHERE CONNECTING TO IN-PLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING, THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
- USE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.05 GAL/SQ YD BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GAL/SQ YD ON CONCRETE OR MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
- TEMPORARY EROSION CONTROL - TEMPORARY EROSION CONTROL DEVICES AND THEIR SUGGESTED LOCATIONS HAVE BEEN SHOWN IN THE PLANS ALONG WITH PAY ITEMS FOR THEIR USE. THIS DOES NOT HOWEVER RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO CONDUCT HIS CONSTRUCTION IN A MANNER THAT WILL CONTROL EROSION. RESPONSIBILITY FOR CONTROLLING EROSION IS AND MAINTENANCE OF EROSION CONTROL AS SET IN MN/DOT SPECIFICATIONS 1717, 1803, 2101, 2105, 2573, 2575, AND IS AMMENDED BY THE SPECIAL PROVISIONS. ALL SILT FENCE SHALL BE IN PLACE PRIOR TO GRADING OPERATIONS IN ADJACENT AREAS.
- THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE OWNERS THE REMOVAL AND REINSTALLATION OF ALL MISCELLANEOUS STRUCTURES WITHIN THE PROJECT LIMITS, SUCH AS BUS BENCHES, PRIVATE SIGNS, GARBAGE PICKUPS, MAIL BOXES, ETC... THIS WORK SHALL BE INCIDENTAL TO THE PROJECT.
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL DATED.
- CONTRACTOR SHALL NOTIFY ANOKA COUNTY SURVEYOR PRIOR TO DISTURBANCE OF ANY MONUMENTATION.
- UNSUITABLE GRADING MATERIAL SHALL BE PLACED OUTSIDE OF 1 TO 1 1/2 SLOPE EXTENDING DOWN AND OUTWARD FROM THE BERM P.I. UNLESS OTHERWISE SHOWN IN THE CROSS SECTION.
- SOD ALL MAINTAINED LAWNS DISTURBED BY CONSTRUCTION.
- TRAFFIC SIGNS SCHEDULED TO BE SALVAGED AND NOT REINSTALLED SHALL BE STOCKPILED ON THE JOB SITE AT A LOCATION DETERMINED BY THE ENGINEER. BOTH COUNTY AND CITY PERSONNEL SHALL REMOVE THE SIGNS FROM THE JOB SITE.
- 1.0' SUBGRADE TREATMENT FOR UNIFORM COMPACTION AND SHALL BE PAID FOR AS COMMON EXCAVATION.

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY TO THIS PROJECT.

MN/DOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R. C. PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133 C	RIPRAP AT RCP OUTLETS
3145 F	CONCRETE PIPE TIES
3022 C	PRECAST CONCRETE SAFETY APRON
3139 A	RIP-RAP AT PRECAST CONCRETE END SECTION
4006 L	MANHOLE OR CATCH BASIN (DESIGN G, H)
4010 H	CONCRETE SHORT CONE & ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN COVER
4024 A	48" DIA PRECAST SHALLOW DEPTH CATCH BASIN (DESIGN SD)
4026 A	CONCRETE ENCASED CONCRETE ADJUSTMENT RINGS
4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN (NO. 700-7)
4110 F	COVER CASTING FOR MANHOLE
4126 F	CATCH BASIN & FRAME CASTING
4149 C	GRATE CASTING FOR CATCH BASINS
4161 F	CURB BOX CASTING FOR CATCH BASIN
4180 J	MANHOLE OR CATCH BASIN STEP
7020 J	CONCRETE CURB
7035 M	CONCRETE WALK AND CURB RETURNS AT STREET ENTRANCE
7036 F1	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
7100 H	CONCRETE CURB AND GUTTERS
7109 C	MEDIAN NOSE AND ISLAND
7111 J	INSTALLATION OF CATCH BASIN CASTINGS
7113 A	CONCRETE APPROACH NOSE DETAIL
8000 I	STANDARD BARRICADES
8110 D	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8114 A	P.V.C. HANDHOLE/PULLBOX (NO VEHICLE LOAD)
8123 E	POLE AND MAST ARM (LUMINAIRE AND TRAFFIC LIGHTS ASSEMBLY
8124 E	MAST ARM SIGNAL HEAD MOUNTS (ONE-WAY MOUNTS)
9000 D	APPROACHES AND ENTRANCES
9102 D	TURF ESTABLISHMENT AREAS
9322 J	CHAIN LINK FENCE

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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
CONSTRUCTION NOTES & STANDARD PLATES
 S.A.P. 02-678-18, ETC.

SHEET
 5
 OF
 90
 SHEETS

MISCELLANEOUS REMOVALS A				
LOCATION	CONCRETE WALK	BITUMINOUS PAVEMENT	MILL BITUMINOUS PAVEMENT	CURB & GUTTER
	SO FT	SO YD	SO YD	LIN FT
CSAH 78				
CITY OF ANDOVER				
NB				
248+34 to 250+10	2126	79	418	176
250+10 to 254+19	114	1159		25
254+19 to 256+00		483		25
256+00 to 259+40		1143		
STAGE 1 STORM SEWER CROSSINGS		107		
SUBTOTAL NB	2240	2971	418	226
SB				
248+34 to 250+10		49	490	180
250+10 to 253+33		861		20
253+33 to 259+28		1195		
259+28 to 259+40		32		
STAGE 1 STORM SEWER CROSSINGS		107		
SUBTOTAL SB		2244	490	200
BLUEBIRD STREET NW				
10+00 to 11+00		369		90
SUBTOTAL BLUEBIRD ST		369		90
TOTAL CITY OF ANDOVER	2240	5583	908	516
TURN LANE S.A.P. 198-020-26				
SB				
253+33 to 259+28		487		
STAGE 1 STORM SEWER CROSSINGS		107		
TOTAL TURN LANE S.A.P. 198-020-26		594		
ANKA COUNTY S.A.P. 02-678-18				
NB				
259+40 to 261+93		672		
261+93 to 268+00		1619		
268+00 to 274+28		1675		
STAGE 1 STORM SEWER CROSSINGS		213		
SUBTOTAL NB		4179		
SB				
259+40 to 261+93		672		
261+93 to 268+00		1619		
268+00 to 274+28		1987		
STAGE 1 STORM SEWER CROSSINGS		213		
SUBTOTAL SB		4491		
SCHOOL ENTRANCE / 54TH AVE NW				
22+70 to 23+92		789		150
24+40 to 25+63		1102		166
STAGE 1 STORM SEWER CROSSINGS		67		
SUBTOTAL SCHOOL ENT / 154TH AVE NW		1958		316
TOTAL ANOKA COUNTY S.A.P. 02-678-18		10628		316
ANKA COUNTY - NON-PARTICIPATING				
SCHOOL ENTRANCE / 54TH AVE NW				
21+50 to 22+70		52	406	185
25+63 to 26+00		248		74
TOTAL ANOKA COUNTY - NON-PARTICIPATING		300	406	259
PROJECT TOTAL	2240	17105	1314	1091

SAWCUTTING B				
STATION	LOCATION	CONCRETE PAVEMENT	BIT PAVEMENT	
		(FULL DEPTH)	(FULL DEPTH)	
		LIN FT	LIN FT	
CSAH 78				
CITY OF ANDOVER				
NB				
248+34 TO 250+10	LT & RT			352
250+10	CL			60
253+76	TRAIL - RT			10
254+66	TRAIL - RT			10
256+55	TRAIL - RT			10
258+55	TRAIL - RT			10
250+10 TO 259+40	CL STAGING			930
STAGE 1 STORM SEWER CROSSINGS	CL			192
SUBTOTAL				
				1574
BLUEBIRD STREET NW				
11+00	CL			40
11+00	LT & RT	6		
SUBTOTAL BLUEBIRD ST				
		6		40
TOTAL CITY OF ANDOVER				
		6		1614
TURN LANE S.A.P. 198-020-26				
253+62	TRAIL - LT			10
254+67	TRAIL - LT			10
STAGE 1 STORM SEWER CROSSINGS	CL			96
TOTAL TURN LANE S.A.P. 198-020-26				116
ANKA COUNTY S.A.P. 02-678-18				
260+69	TRAIL - RT			10
260+72	TRAIL - LT			10
263+30	TRAIL - RT			10
263+32	TRAIL - LT			10
264+00 TO 264+20	TRAIL - LT			20
266+00 TO 266+20	TRAIL - LT			20
269+08	TRAIL - LT			10
269+45	LT			32
269+82	TRAIL - LT			10
274+28	CL			48
259+40 TO 274+28	CL STAGING			1488
STAGE 1 STORM SEWER CROSSINGS	CL			414
TOTAL ANOKA COUNTY S.A.P. 02-678-18				2082
ANKA COUNTY - NON-PARTICIPATING				
SCHOOL ENTRANCE / 154TH AVE NW				
21+50 TO 22+12	LT			75
21+50	LT	3		
22+12	LT	6		4
22+24 TO 22+70	LT			95
22+70	CL	3		30
26+00	CL	6		40
26+00	TRAIL LT/RT			20
TOTAL ANOKA COUNTY - NON-PARTICIPATING		18		264
PROJECT TOTAL		24		4076

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CERTIFIED BY: *Anthony J. Witek*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITEK, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128


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QUANTITY TABULATIONS
 S.A.P 02-678-18, ETC.

AGGREGATE AND BITUMINOUS SUMMARY C

Location	CSAH 78						
	2350 MV4 WEAR (PG 58-34) OVERLAY TON	2350 MV4 WEAR (PG 58-34) TON	2350 MV4 WEAR (PG 58-34) TON	2350 LV3 NW (PG 58-28) TON	AGGREGATE CLASS 5 CU YD	AGGREGATE SHOULDERING CLASS 7B CU YD	TACK COAT LAYERS GAL
CSAH 78							
CITY OF ANDOVER							
NB							
STAGE 1 CONSTRUCTION							
248+34 to 250+10	33	27	27	58	25	85	33
250+10 to 254+19		97	98	206	321	175	19
254+19 to 256+00		43	43	90	138	53	115
256+00 to 259+40		95	97	202	309	166	50
SUBTOTAL NB	33	262	265	556	792	478	332
SB							
STAGE 1 CONSTRUCTION							
248+34 to 250+10	37	9	9	21	33	85	11
250+10 to 253+33		76	78	163	252	158	24
253+33 to 259+28		115	115	236	377	7	91
259+28 to 259+40		3	3	6	10	7	135
SUBTOTAL SB	37	203	205	426	673	250	266
BLUEBIRD STREET NW							
10+00 to 11+00		39	39	82	140	68	47
SUBTOTAL BLUEBIRD ST		39	39	82	140	68	47
TOTAL CITY OF ANDOVER	70	504	509	1064	1605	796	645
TURN LANE S.P. 198-020-26							
SB							
253+33 to 259+28		111	114	240	338	311	135
TOTAL TURN LANE S.P. 198-020-26		111	114	240	338	311	135
ANKA COUNTY S.P. 02-678-18							
NB							
259+40 to 261+93		87	88	182	274	101	105
261+93 to 268+00		144	146	306	470	268	170
268+00 to 274+28		147	151	316	455	306	176
SUBTOTAL NB		378	385	804	1199	675	451
SB							
259+40 to 261+93		63	64	133	203	101	75
261+93 to 268+00		194	197	410	621	268	230
268+00 to 274+28		192	195	407	585	316	230
SUBTOTAL SB		449	456	950	1409	685	535
SCHOOL ENTRANCE/154TH AVE NW							
22+70 to 23+92		49	49	101	165		60
24+40 to 25+63		44	44	91	150		62
SUBTOTAL SCHOOL ENT / 154TH AVE NW		93	93	192	315		122
TOTAL ANOKA COUNTY S.P. 02-678-18		920	934	1946	2923	1360	1108
ANKA COUNTY - NON-PARTICIPATING							
SCHOOL ENTRANCE/154TH AVE NW							
21+50 to 22+70	35	12	12	24	43		15
25+63 to 26+00		14	14	28	46		8
TOTAL ANOKA COUNTY - NON-PARTICIPATING	35	26	26	52	89		23
PROJECT TOTAL	105	1561	1583	3302	4955	2467	1911

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 S.A.P 02-678-18, ETC.

CONCRETE TABULATION D

STATION TO STATION	CONCRETE CURB & GUTTER B418	CONCRETE CURB & GUTTER B424	CONCRETE CURB & GUTTER B612	CONCRETE CURB & GUTTER B618	CONCRETE CURB & GUTTER SPECIAL	TRUNCATED DOME	MEDIAN NOSE DESIGN 7109	MEDIAN NOSE DESIGN 7113	4" CONCRETE WALK (MEDIAN)	4" CONCRETE WALK (PED RAMP)
	LN FT		LN FT	LN FT	LN FT	SO FT	EACH	EACH	SO FT	SO FT
CITY OF ANDOVER										
248+34 TO 256+00	1465							2	9220	
256+00 TO 259+40	680							0	1360	
BLUEBIRD ST. NW.				290		40		2	950	
SUBTOTAL CITY OF ANDOVER	2145	0	0	290	0	40	0	4	11530	0
TURN LANE S.A.P. 198-020-26										
502+50 TO 508+00		130	15			56		2	620	38
TURN LANE SUBTOTAL S.A.P. 198-020-26	0	130	15	0	0	56	0	2	620	38
ANOKA COUNTY S.A.P. 02-678-18										
259+40 TO 261+93	430					16		1	850	48
261+93 TO 268+00	1110					16		1	4100	48
268+00 TO 274+28	470					40	1		2800	
SCHDOL ENT / 154TH AVE NW		280	192		146	8				
ANOKA COUNTY SUBTOTAL S.A.P. 02-678-18	2010	280	192	0	146	80	1	2	7750	96
ANOKA COUNTY - NON-PARTICIPATING										
SCHOOL ENT / 154TH AVE NW			135		74					
ANOKA COUNTY SUBTOTAL - NOT-PARTICIPATING	0	0	135	0	74	0	0	0	0	0
TOTAL CSAH 78 (HANSON BLVD)	4155	410	342	290	220	176	1	8	19900	134

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CERTIFIED BY: *Anthony J. Winiecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT

QUANTITY TABULATIONS
 S.A.P 02-678-18, ETC.

SHEET **8**
 OF **90**
 SHEETS

TURF ESTABLISHMENT E								
STATION TO STATION	SOD SALT RESISTANT SQ YD	SEEDING ACRE	SEED MIX 250 LBS	DISK ANCHORING ACRE	MULCH TYPE 1 TON	FERTILIZER 22-5-10 LBS	EROSION CONTROL BLANKET CAT 2 SQ YD	SILT FENCE MACHINE SLICED LIN FT
CSAH 78								
CITY OF ANDOVER								
NB								
248+35 to 250+10		0.12	8.4	0.08	0.16	42	187	
250+10 to 254+19	83	0.39	27.1	0.29	0.57	136	487	30
254+19 to 256+00	91	0.14	10.1	0.10	0.20	51	217	30
256+00 to 259+40		0.28	19.7	0.21	0.41	98	363	
SUBTOTAL NB	173	0.93	65.4	0.67	1.35	327	1254	60
SB								
248+35 to 250+10		0.17	11.8	0.13	0.26	59	187	30
250+10 to 253+33		0.24	16.6	0.15	0.31	83	400	
259+28 to 259+40		0.01	0.7	0.01	0.01	2	13	
SUBTOTAL SB		0.42	29.1	0.29	0.58	144	599	30
TOTAL CITY OF ANDOVER	173	1.35	94.5	0.97	1.93	471	1853	90
TURN LANE S.P. 198-020-26								
SB								
253+33 to 259+28	165	0.48	33.7	0.32	0.65	169	770	70
TOTAL TURN LANE S.P. 198-020-26	165	0.48	33.7	0.32	0.65	169	770	70
ANDKA COUNTY S.P. 02-678-18								
NB								
259+40 to 261+93	295	0.14	9.8	0.11	0.21	49	160	
261+93 to 268+00	258	0.45	31.3	0.31	0.62	156	661	130
268+00 to 274+28		0.56	39.0	0.42	0.84	195	670	
SUBTOTAL NB	553	1.14	80.1	0.84	1.67	400	1491	130
SB								
259+40 to 261+93	318	0.16	11.3	0.11	0.21	57	269	30
261+93 to 268+00	765	0.46	32.1	0.32	0.65	161	657	240
268+00 to 274+28		0.59	41.0	0.42	0.84	205	793	
SUBTOTAL SB	1083	1.21	84.5	0.85	1.70	422	1719	270
AS DIRECTED BY THE ENGINEER								1000
TOTAL ANDKA COUNTY S.P. 02-678-18	1636	2.35	164.6	1.69	3.37	823	3209	1400
ANDKA COUNTY - NON-PARTICIPATING								
SCHOOL ENTRANCE / 154TH AVE NW	669							40
TOTAL ANDKA COUNTY - NON-PARTICIPATING	669							40
PROJECT TOTAL	2643	4.18	292.8	2.98	5.95	1462	5832	1600


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CERTIFIED BY: *[Signature]*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINECKI, P.E.
 DATE: 8/30/05 LIC. NO. 2312B


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SHEET
9
 OF
90
 SHEETS

EARTHWORK SUMMARY F

EXCAVATION

CITY OF ANDOVER

		REGULAR	2381	CU YD (EV)
COMMON	5751 CU YD (EV)	SUBGRADE	2735	CU YD (EV)
		TOPSOIL	635	CU YD (EV)

ANOKA COUNTY S.A.P. 02-678-18

		REGULAR	5460	CU YD (EV)
COMMON	10715 CU YD (EV)	SUBGRADE	4044	CU YD (EV)
(194 CU YD Non-Participating)		TOPSOIL	1211	CU YD (EV)

TURN LANE S.A.P. 198-020-26

		REGULAR	250	CU YD (EV)
COMMON	706 CU YD (EV)	SUBGRADE	207	CU YD (EV)
		TOPSOIL	249	CU YD (EV)

EMBANKMENT

CITY OF ANDOVER

		REGULAR	648	CU YD (CV)
		SUBGRADE	2884	CU YD (CV)
		TOPSOIL	380	CU YD (CV)

ANOKA COUNTY S.A.P. 02-678-18

		REGULAR	1282	CU YD (CV)
		SUBGRADE	4415	CU YD (CV)
		TOPSOIL	758	CU YD (CV)

TURN LANE S.A.P. 198-020-26

		REGULAR	52	CU YD (CV)
		SUBGRADE	308	CU YD (CV)
		TOPSOIL	150	CU YD (CV)

1. ASSUMES 4" OF SALVAGEABLE TOPSOIL THROUGHOUT THE PROJECT.
2. 140% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV) FOR COMMON MATERIAL
3. 125% SHRINKAGE FACTOR FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV) FOR TOPSOIL.
4. OVEREXCAVATION FOR TOPSOIL INCLUDED IN THE EARTHWORK BALANCE BUT IS NOT SHOWN ON THE CROSS SECTIONS.
5. 6" OF PAVEMENT REMOVAL IS NOT INCLUDED IN THE EARTHWORK CALCULATIONS, TO BE PAID FOR AS BITUMINOUS REMOVAL BY THE SQ YD.

EARTHWORK ACCOUNTING

REGULAR & SUBGRADE BALANCE CITY OF ANDOVER
 (2381+ 2735) CU YD (EV) /1.4 - (648+ 2884) = 122 CU YD (CV) EXCESS

REGULAR & SUBGRADE BALANCE S.A.P. 02-678-18
 (5460+ 4044) CU YD (EV) /1.4 - (1282 + 4415) = 1092 CU YD (CV) EXCESS

REGULAR & SUBGRADE BALANCE S.A.P. 198-020-26
 (250+ 207) CU YD (EV) /1.4 - (52+ 308) = (34) CU YD (CV) BORROW

TOPSOIL BALANCE CITY OF ANDOVER
 635 CU YD (EV) /1.2 - 380 = 128 CU YD (CV) EXCESS

TOPSOIL BALANCE S.A.P. 02-678-18
 1211 CU YD (EV) /1.2 - 758 = 211 CU YD (CV) EXCESS

TOPSOIL BALANCE S.A.P. 198-020-26
 249 CU YD (EV) /1.2 - 150 = 49 CU YD (CV) EXCESS

REGULAR & SUBGRADE BALANCE OVERALL
 15077 CU YD (EV) /1.4 - 9589 = 1180 CU YD (CV) EXCESS

TOPSOIL BALANCE OVERALL
 2095 CU YD (EV) /1.2 - 1288 = 388 CU YD (CV) EXCESS

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 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINTECKI, P.E.
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EARTHWORK SUMMARY
 S.A.P 02-678-18, ETC.

POWER (XCEL ENERGY)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
SB	245+78.8	40.9 LT	POWER	LEAVE AS IS
SB	255+91.6	36.9 LT	POWER	LEAVE AS IS
SB	265+41.3	36.4 LT	POWER	LEAVE AS IS

GAS (MINNEGASCO/CENTERPOINT ENERGY)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
NB	245+42.6 TO 261+00.0	38.2 RT - 34.0 RT	GAS	ADJUST
NB	252+43.2	38.9 RT - 213.8 RT	GAS	LEAVE AS IS
NB	253+76.2	36.3 RT - 190.84 LT	GAS	LEAVE AS IS

NOTES:

1. THE FOLLOWING ARE KNOWN UTILITIES FOUND AT APPROXIMATE LOCATIONS AS SHOWN.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "GOPHER STATE ONE CALL" PRIOR TO PERFORMING ANY EXCAVATION WORK AS REQUIRED BY MINNESOTA STATUTE CHAPTER 216D.

POWER (GREAT RIVER ENERGY)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
NB	248+86.2	29.3 RT	POWER	LEAVE AS IS
NB	253+38.3	28.9 RT	POWER	LEAVE AS IS
NB	257+78.4	35.4 RT	POWER	LEAVE AS IS
NB	261+63.2	32.1 RT	POWER	LEAVE AS IS
NB	265+95.9	32.9 RT	POWER	LEAVE AS IS
NB	270+26.8	35.9 RT	POWER	LEAVE AS IS
NB	274+35.3	43.2 RT	POWER	LEAVE AS IS

GAS (NORTHERN NATURAL GAS)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
NB	268+79.6 TO 271+18.2	141.4 RT - 165.5 LT	GAS	LEAVE AS IS
NB	268+99.2 TO 271+34.8	140.5 RT - 162.3 LT	GAS	LEAVE AS IS

3. IT IS THE RESPONSIBILITY OF THE UTILITY COMPANIES TO VERIFY THE UTILITY LOCATIONS LISTED AND TO VERIFY ALL NECESSARY RELOCATIONS/ADJUSTMENTS. THE UTILITY COMPANIES SHALL WORK WITH THE CONTRACTOR TO FIELD VERIFY ANY UTILITY CONFLICTS AND TAKE APPROPRIATE ACTIONS.

POWER (CONNEXUS ENERGY)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
SB	242+07.2 TO 249+80.3	16.7 LT - 14.4 LT	POWER	LEAVE AS IS
NB	255+36.9 TO 259+46.5	16.4 RT - 14.3 RT	POWER	LEAVE AS IS
SB	255+64.7 TO 261+31.5	28.5 LT - 28.7 LT	POWER	LEAVE AS IS

TELEPHONE (QWEST)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
SB	245+46.9 TO 262+16.9	27.1 LT - 35.3 LT	TELEPHONE	LEAVE AS IS
SB	262+16.9	35.3 LT - 168.7 LT	TELEPHONE	LEAVE AS IS
SB	246+25.3	26.2 LT - 193.41 RT	TELEPHONE	LEAVE AS IS

CABLE (MEREDITH)				
ALIGNMENT	STATION	OFFSET	ITEM	REMARKS
SB	249+34.6 TO 249+48.4	27.8 LT - 17.1 LT	CABLE	LEAVE AS IS
SB	249+48.4 TO 261+54.7	17.1 LT - 20.7 LT	CABLE	LEAVE AS IS
SB	261+60.5	35.5 LT - 228.3 RT	CABLE	LEAVE AS IS

UTILITIES	
CITY OF ANDOVER 1685 CROSSTOWN BLVD NW ANDOVER, MN 55304	BRIAN KRAABEL 763-755-5100
CONNEXUS ENERGY 14601 RAMSEY BLVD RAMSEY, MN 55303	TOM GUTTORMSON 763-323-2692
XCEL ENERGY GENERAL OFFICE - 7th Floor 414 NICOLLET MALL MINNEAPOLIS, MN 55401	ED TRAPP 612-330-6956
MINNEGASCO / CENTERPOINT ENERGY 700 WEST LINDEN AVE. PO BOX 1165	STEVE GUHANICK 612-321-5421
COMCAST	DOUG ZAHN 651-755-2602
NORTHERN NATURAL GAS 6579 420TH STREET NORTH BRANCH, MN 55056	DIANE STAHNKE 612-270-8506
GREAT RIVER ENERGY 17845 E. HWY 10 ELK RIVER, MN	JERRY ELLSWORTH 763-241-2230 jellisworth@renergy.com
MEREDITH	651-222-3333
QWEST 1711 HIGHWAY 36 MAPLEWOOD, MN 55109	JUDY SYVERSON 763-712-5021

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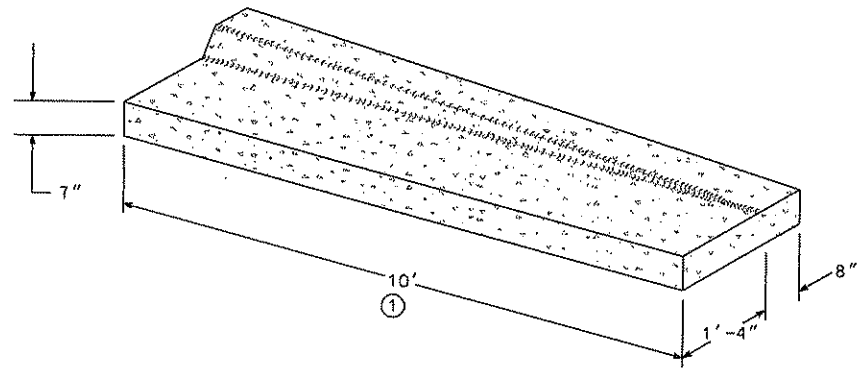
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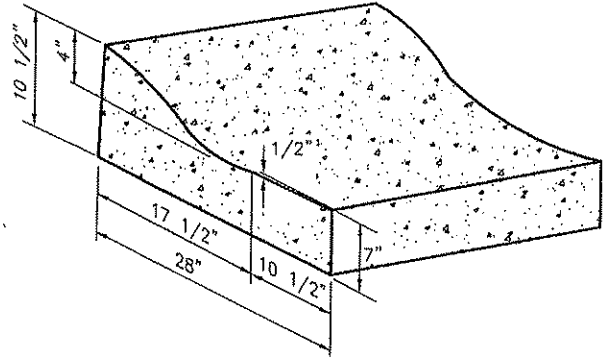
FOR OTHER DIMENSIONS SEE STANDARD PLATE NO. 7100

TO BE INSTALLED ON SIDE STREETS WHERE NO CURB & GUTTER EXISTS PAYMENT SHALL BE MADE AS CURB & GUTTER BY THE FOOT.

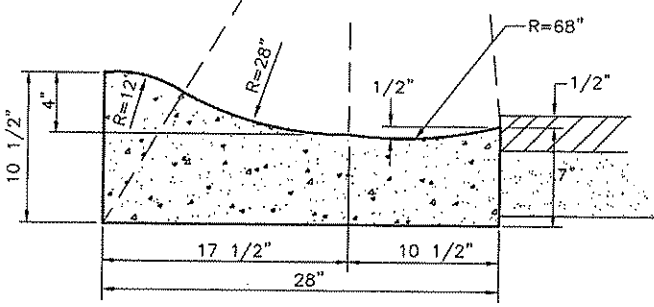
① TRANSITION DISTANCE SHALL BE REDUCED TO 3 FEET IN PARKING LOTS.

TRANSITION VERTICAL TAPER

NO SCALE



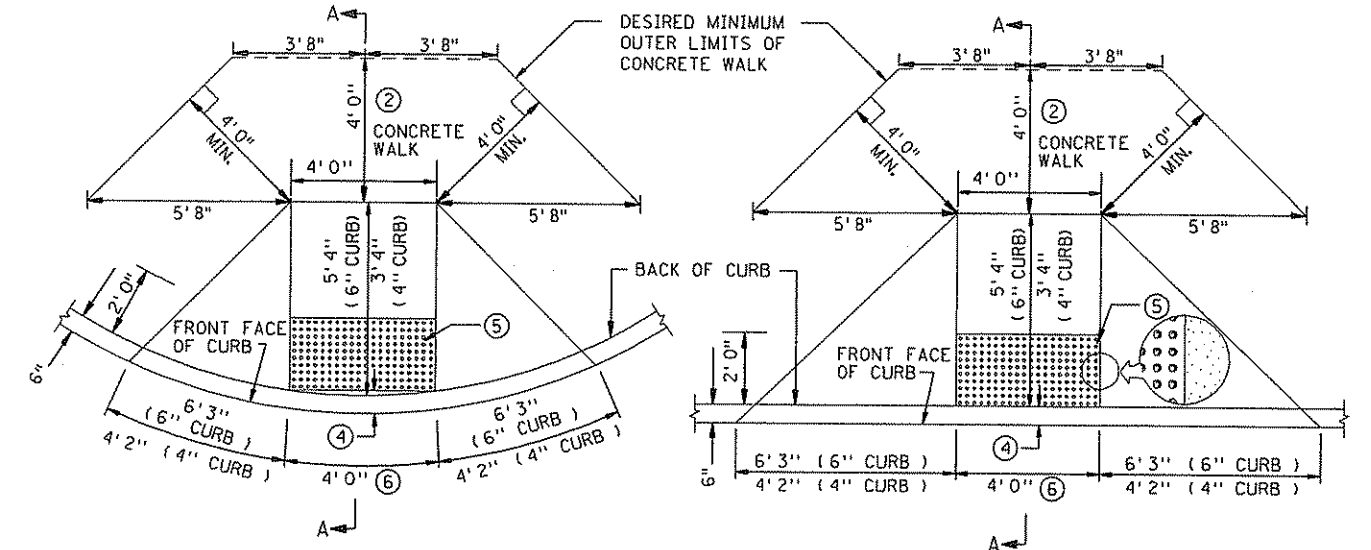
PERSPECTIVE



SECTION

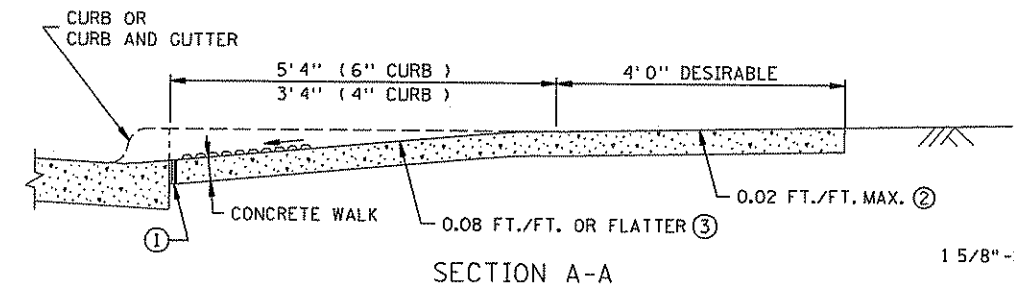
SURMOUNTABLE CONCRETE CURB & GUTTER (DESIGN SPECIAL)

NO SCALE

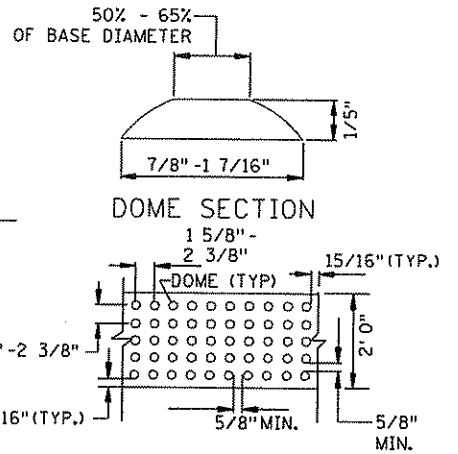


PLAN VIEW OF DIAGONAL RAMP

PLAN VIEW OF PERPENDICULAR RAMP

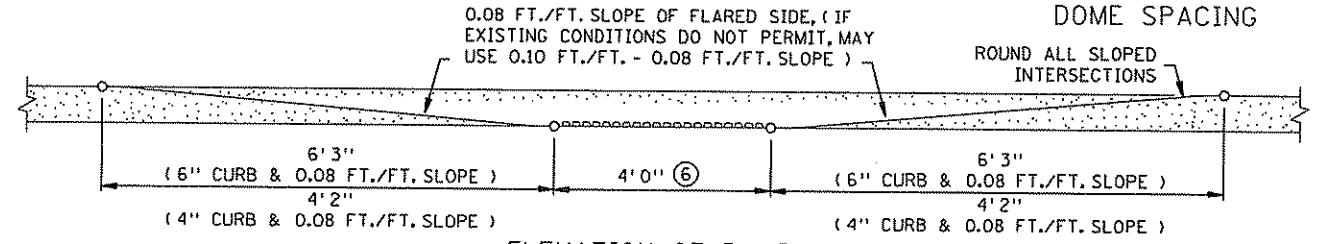


SECTION A-A



DOME SECTION

DOME SPACING



ELEVATION OF RAMP

NOTES:

TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA), ALL STATE AND LOCAL AGENCIES ARE REQUIRED TO COMPLY WITH THIS STANDARD PLATE. THE CURB AND CURB TRANSITION ON THE RAMP WILL BE PAID FOR AS LINEAR FEET OF CONCRETE CURB OR CONCRETE CURB AND GUTTER. THE RAMP AREA WILL BE PAID FOR AS CONCRETE WALK. EXCLUDING THE TRUNCATED DOME AREA WHICH WILL BE PAID FOR AS TRUNCATED DOMES BY THE SQUARE FOOT. BIKE TRAILS SHALL HAVE TRUNCATED DOMES ACROSS THE ENTIRE WIDTH OF TRAIL WHEN THE TRAIL CROSSES A ROAD. DOMES ARE NOT TO BE USED ON SIDEWALKS OR TRAILS WHEN CROSSING ALLEYS OR DRIVEWAYS.

- ① 1/2 INCH PREFORMED JOINT FILLER MATERIAL, AASHTO M 213.
- ② WHEN POSSIBLE, PROVIDE A CLEAR PATH OF TRAVEL 4'0" WIDE BEHIND THE PEDESTRIAN RAMP. A RELATIVELY FLAT 4' X 4' LANDING WILL ALLOW WHEELCHAIRS TO NAVIGATE AROUND THE PEDESTRIAN RAMP, NO SIGNALS, SIGNS, CABINETS, OR OTHER OBSTRUCTIONS ARE ALLOWED IN THE RAMP OR PATH OF TRAVEL.
- ③ WHEN A MEDIAN IS NOT WIDE ENOUGH FOR TWO PEDESTRIAN RAMP AND A 48" LANDING BETWEEN THEM, THE PEDESTRIAN CROSSING SHALL BE CUT THROUGH THE MEDIAN AT STREET LEVEL.
- ④ PLACE THE DETECTABLE WARNINGS (TRUNCATED DOMES) AT THE BACK OF CURB. WHEN THE DETECTABLE WARNING SYSTEM IS A PRECAST MATERIAL, THE CURB SHALL BE HAND FORMED TO FILL THE GAP.
- ⑤ ADA REQUIRED TRUNCATED DOME AREA SHALL BE 2'0" MIN. IN DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH (3'0" OR 4'0" TYP.) OF THE CURB RAMP. THIS 2'0" BY 3'0" OR 4'0" WIDTH (TYP.) TRUNCATED DOME AREA SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE. THE ENTIRE TRUNCATED DOME AREA SHALL BE A LIGHT (GRAY OR BUFF TYPICALLY) COLOR WHEN THE ADJACENT SIDEWALK IS A DARK COLOR. THE ENTIRE TRUNCATED DOME AREA SHALL BE A DARK COLOR (RED, OR DARK GRAY TYPICALLY) WHEN THE ADJACENT SIDEWALK IS A LIGHT GRAY CEMENT COLOR.
- ⑥ 4'0" FOR NEW CONSTRUCTION. 3'0" ALLOWED TO STAY IN PLACE FOR RETROFIT PROJECTS. IN SITUATIONS WHERE THE CURB CUT WIDTH EXCEEDS 4'0", THE DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH.
- ⑦ CONCRETE STAMPING WILL NOT BE ALLOWED.

CONCRETE PEDESTRIAN CURB RAMP

NO SCALE

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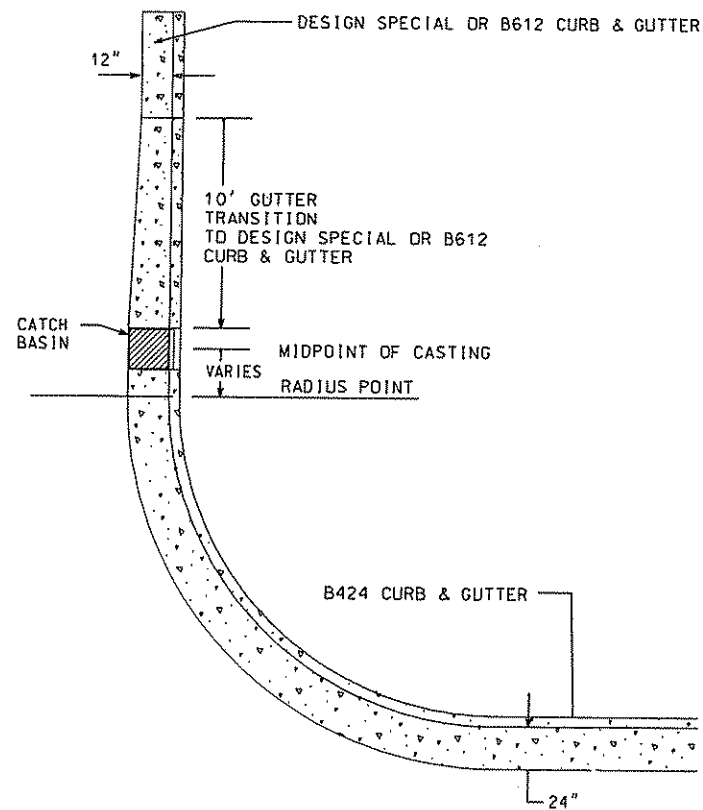
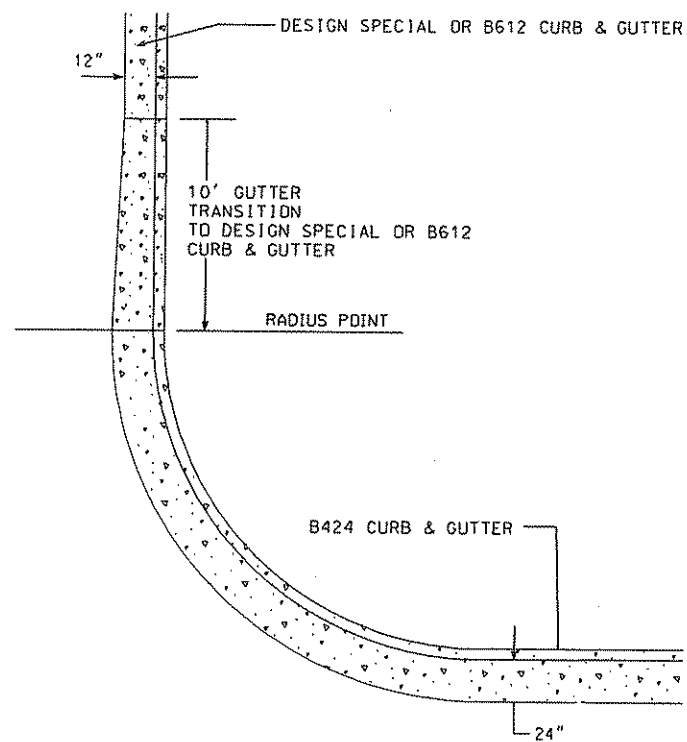
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 MISCELLANEOUS DETAILS
 S.A.P 02-678-18, ETC.

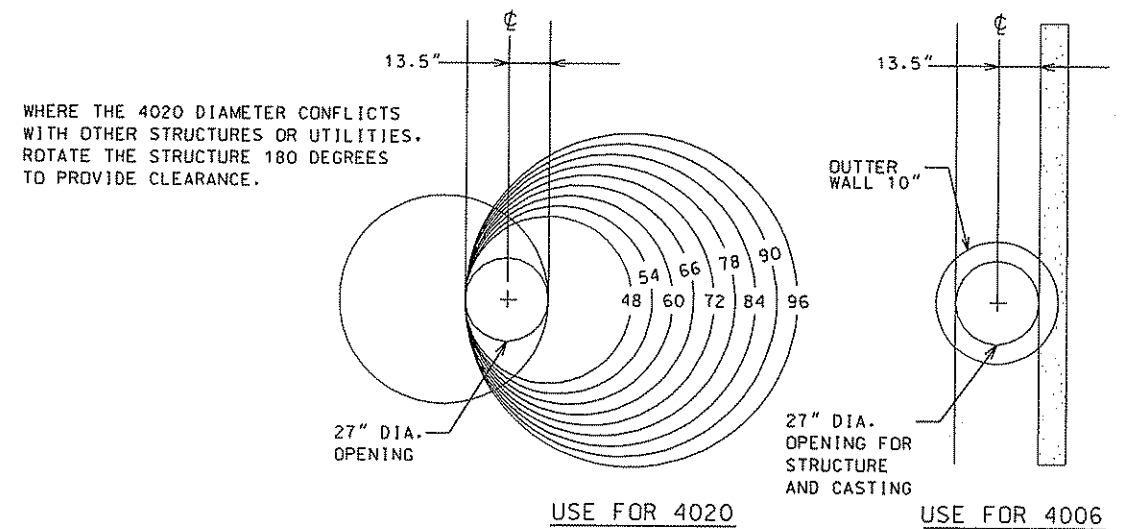
SHEET
 12
 OF
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 SHEETS



CURB & GUTTER TRANSITION DETAIL
NO SCALE

TABLE A

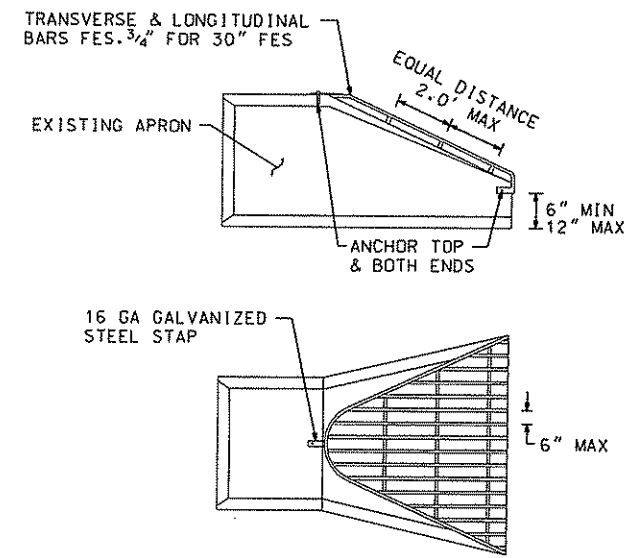
4020 DIAMETER	OFFSET FEET
48"	0.35
54"	0.60
60"	0.76
66"	1.01
72"	1.17
78"	1.42
84"	1.58
90"	1.83
95"	2.08
102"	2.32
108"	2.49
120"	2.90



WHERE THE 4020 DIAMETER CONFLICTS WITH OTHER STRUCTURES OR UTILITIES, ROTATE THE STRUCTURE 180 DEGREES TO PROVIDE CLEARANCE.

- THE FOLLOWING PLACEMENT LOCATIONS SHALL BE USED WITH CONCRETE CURB AND GUTTER.
- ① THE CENTER OF GRATE STATION AND OFFSET LOCATION IS GIVEN IN THE STORM SEWER TABULATION
 - ② THE CENTER OF OPENING IS 1.13' TOWARD THE ROADWAY ϕ FROM THE FACE OF CURB.

STRUCTURE LOCATION
NO SCALE



NOTE:
1. ENTIRE TRASH GUARD ASSEMBLY TO BE HOT-DIP GALVANIZED AFTER FABRICATION PER MNDOT

TRASH GUARD FOR RC APRON
NO SCALE

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CERTIFIED BY: *Anthony J. Winiecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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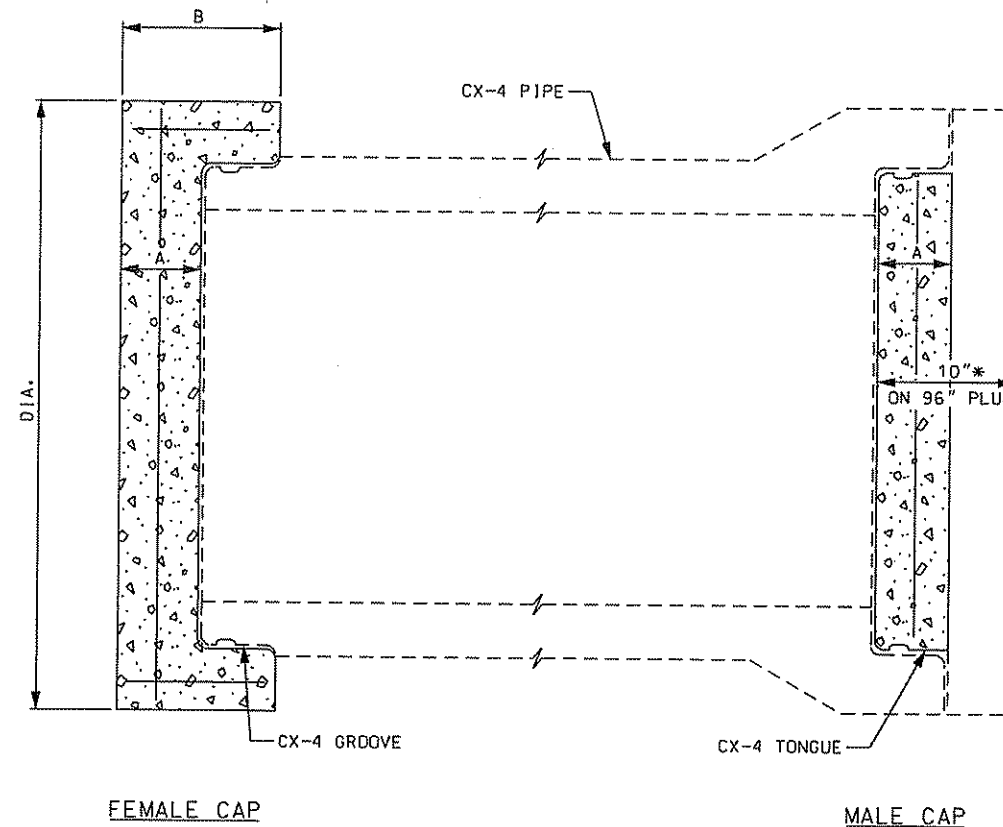
MISCELLANEOUS DETAILS
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SHEET
13
OF
90
SHEETS

PIPE SIZE	A	B	DIA.	WEIGHT	
				FEMALE	MALE
12"	3 1/2"	7 1/8"	20"	139#	56#
15"	3 1/2"	7 1/8"	23 1/8"	194#	83#
18"	3 1/2"	7 1/8"	27 3/4"	269#	105#
21"	3 3/4"	7 5/8"	31 5/8"	352#	168#
24"	3 3/4"	7 5/8"	35 1/2"	440#	215#
27"	3 7/8"	7 7/8"	39"	538#	279#
30"	3 7/8"	7 7/8"	42 1/2"	629#	341#
33"	4"	8 1/8"	46 1/4"	761#	424#
36"	4"	8 1/8"	50 1/4"	896#	503#
42"	4 1/2"	9 1/8"	58 1/2"	1422#	707#
48"	4 5/8"	9 3/8"	66 1/4"	1781#	1024#
54"	4 7/8"	9 7/8"	72 1/4"	2195#	1319#
60"	4 7/8"	9 7/8"	78 1/4"	2540#	1583#
66"	4 7/8"	9 7/8"	84 1/2"	2909#	1870#
72"	5 1/8"	10 3/8"	87 1/2"	3228#	2188#
78"	5 1/8"	10 3/8"	94 1/2"	3711#	2607#
84"	5 1/8"	10 3/8"	100"	4135#	2933#
96"	*	10"	114"	4842#	8118#

NOTE:
REINFORCE CAPS & PLUGS W/#4 BARS @ 4" CTRS. BOTH WAYS
HOOP EQUAL TO CLASS 3 BELL REINFORCING

* DN 96" PLUGS DIM. "A" IS 47/8" ON FEMALE CAP AND 5 1/8" ON MALE PLUG. OVERALL DIM. OF BOTH IS 10".



FEMALE CAP

MALE CAP

NOTE:
CONCRETE PLUG SHALL BE USED AT BURIED STUB LOCATIONS WHERE NOTED IN THE DRAINAGE PLAN. ALTERNATIVE TEMPORARY PLUG MAY BE USED TO THE SATISFACTION OF THE ENGINEER.

USE OF A GASKET IS REQUIRED TO PROVIDE A WATER TIGHT SEAL.

CONCRETE PLUG

NO SCALE

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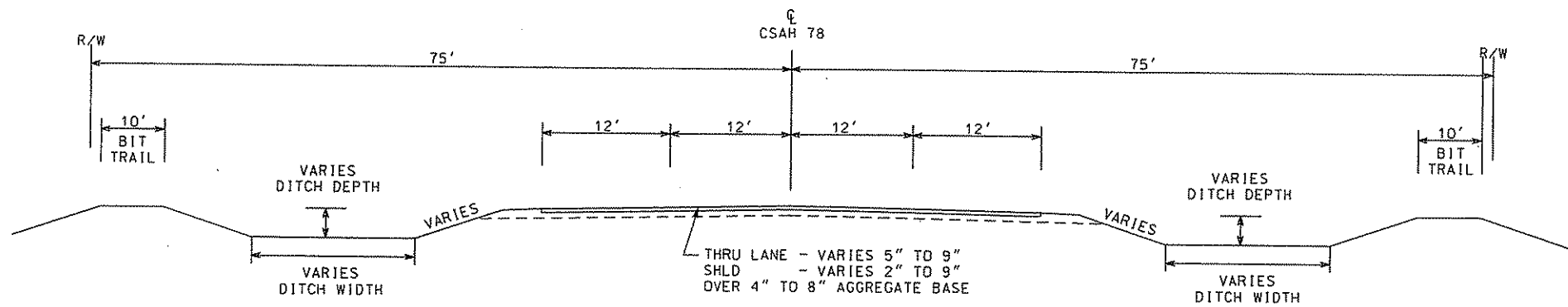
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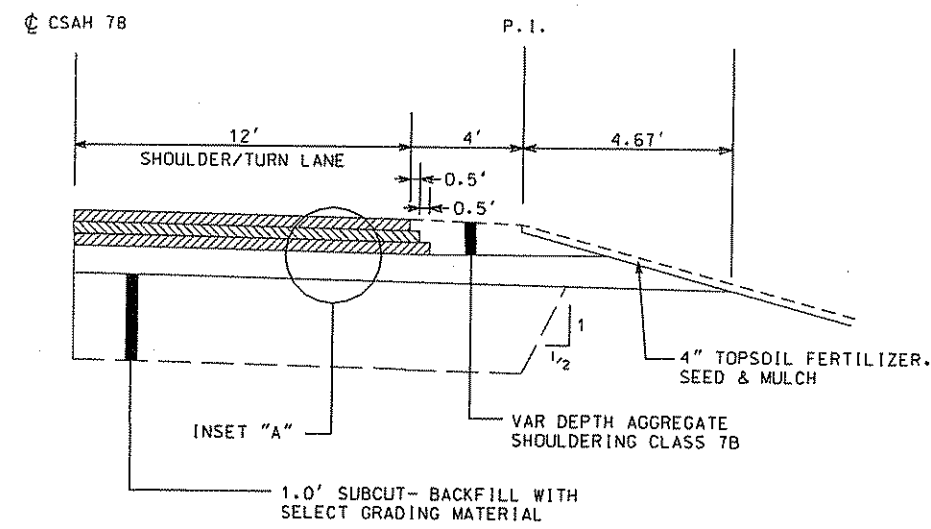
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ANOKA COUNTY HIGHWAY DEPARTMENT
MISCELLANEOUS DETAILS
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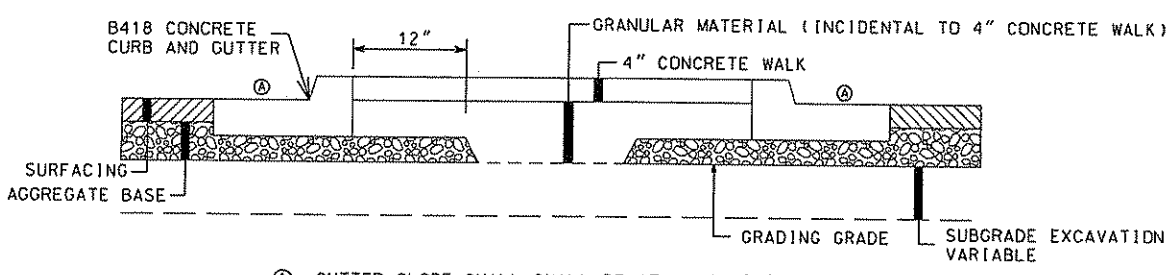
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 OF
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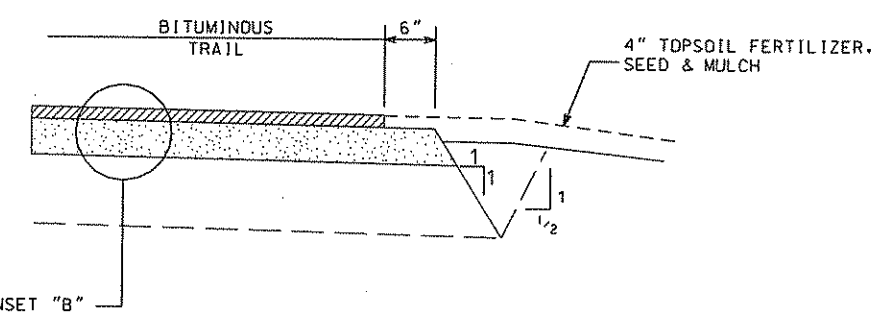
INPLACE SECTION CSAH 78



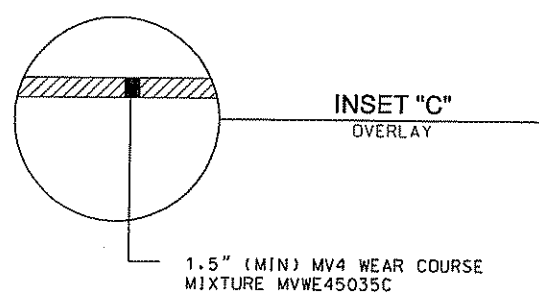
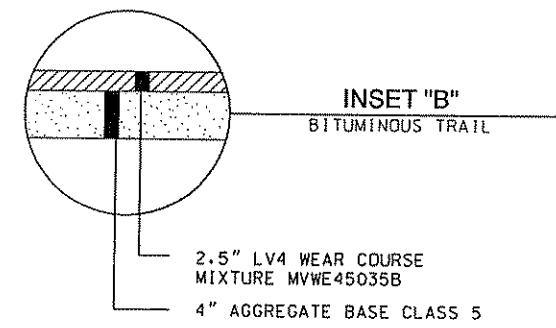
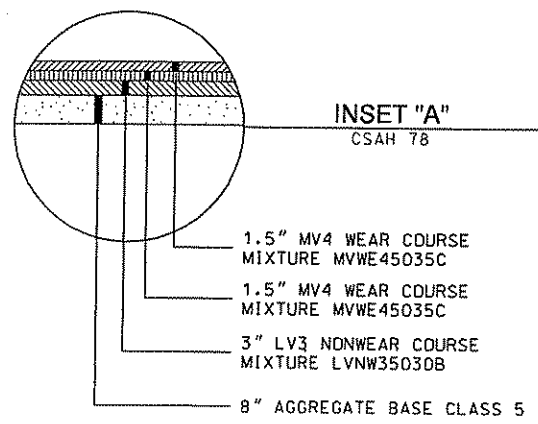
DETAIL "A"
SHOULDER/TURN LANE



DETAIL "B"
CURB AND GUTTER MEDIAN



DETAIL "C"
BITUMINOUS TRAIL



NOTES:

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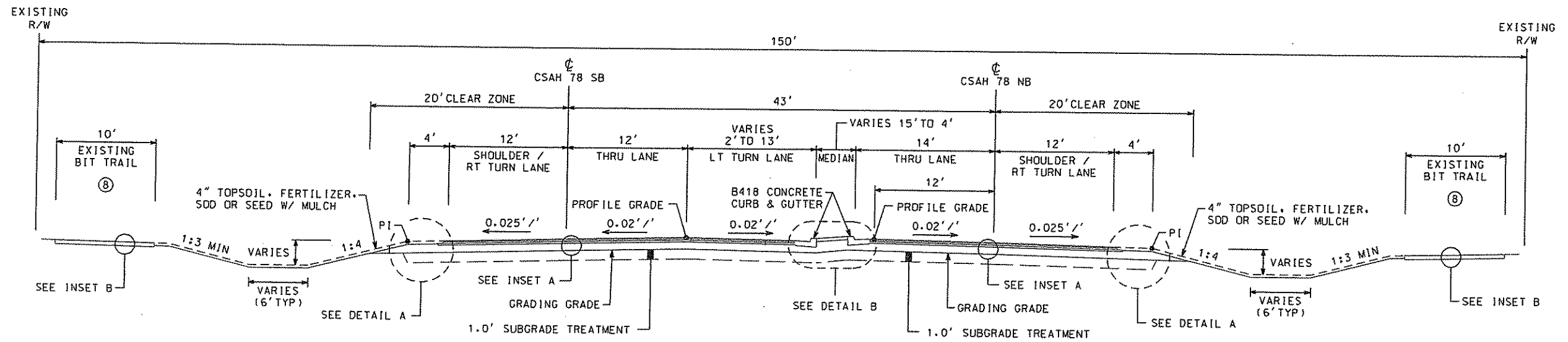
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TYPICAL SECTIONS
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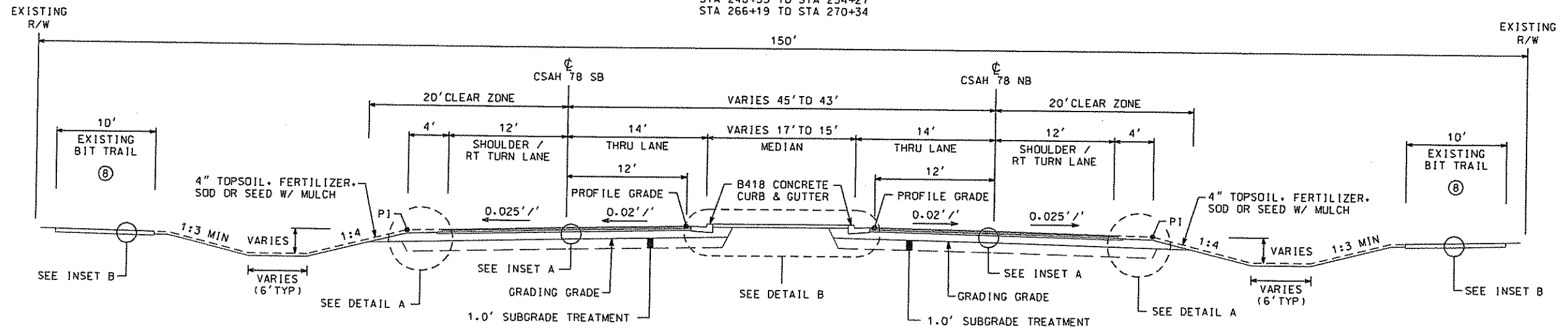
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STA 254+27 TO STA 257+48
STA 262+00 TO STA 266+19



CSAH 78 (HANSON BLVD)

STA 248+35 TO STA 254+27
STA 266+19 TO STA 270+34



NOTE: STA 248+35 TO STA 250+10 IS TO BE MILLED & OVERLAYED

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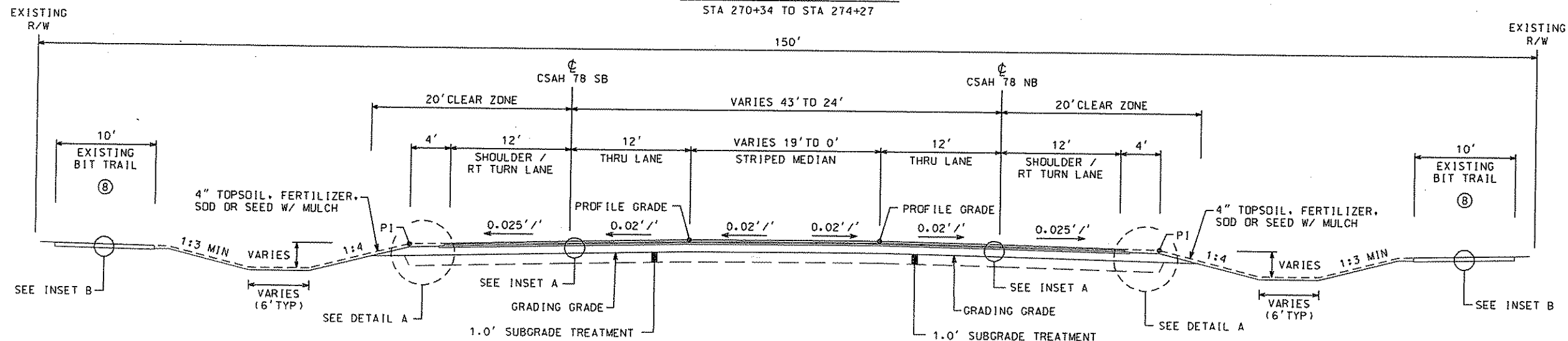
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TYPICAL SECTIONS
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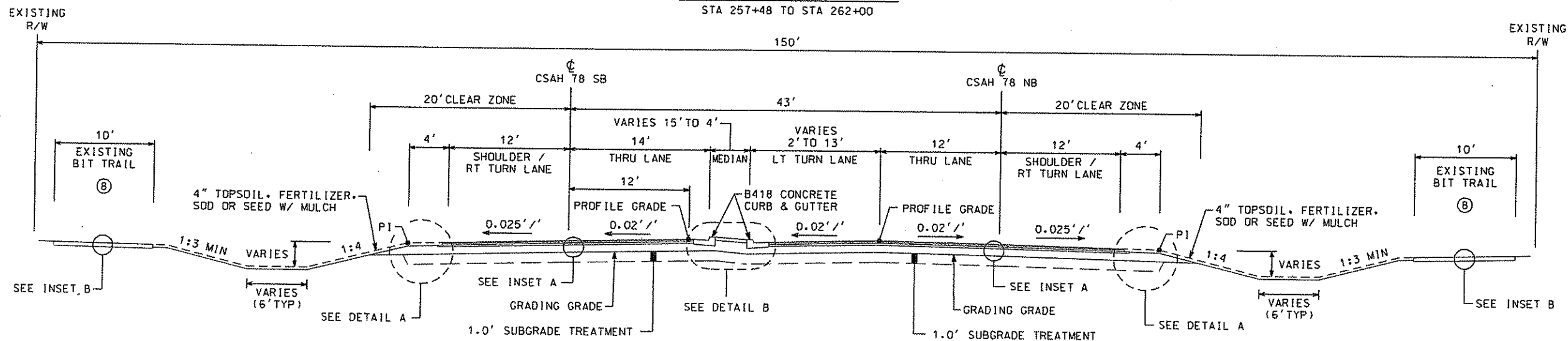
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STA 270+34 TO STA 274+27



CSAH 78 (HANSON BLVD)

STA 257+48 TO STA 262+00



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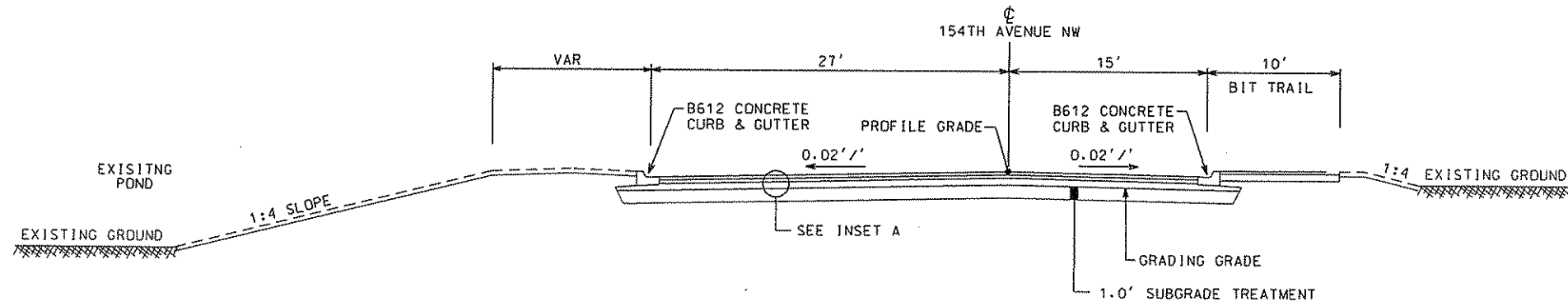
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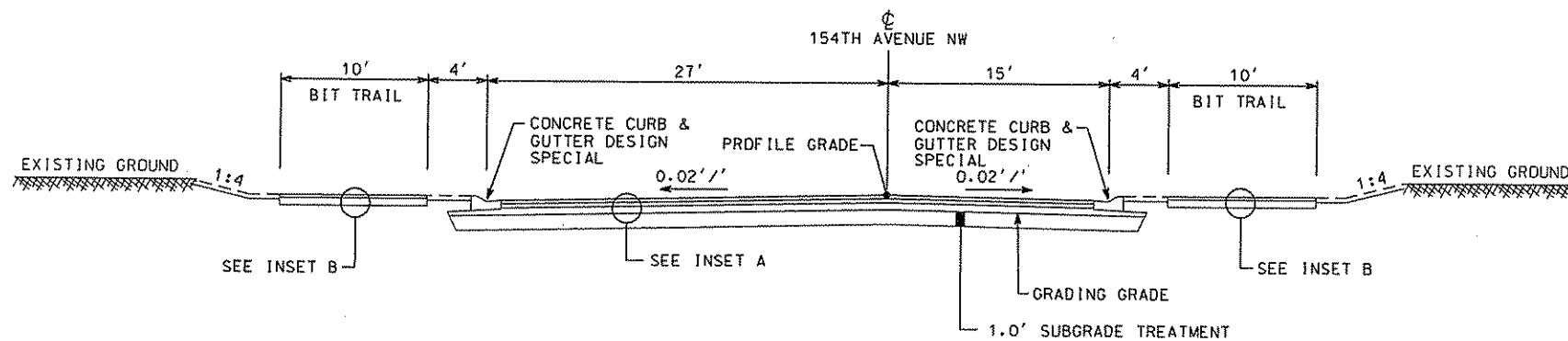
TYPICAL SECTIONS
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SCHOOL ENTRANCE



154TH AVENUE NW

STA 24+57 TO STA 26+00



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TYPICAL SECTIONS
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SHEET
 18
 OF
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 SHEETS

NOTES & GUIDELINES

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MNMUTCD.
5. AN ANNUAL FALL REVIEW OF ALL TRAFFIC CONTROLS WILL BE MADE TO PREPARE FOR WINTER MAINTENANCE OF THE PROJECT. THIS MAY INCLUDE ADJUSTMENTS OR EXCHANGE OF ONE TRAFFIC CONTROL DEVICE FOR ANOTHER. READJUSTMENTS MAY AGAIN BE REQUIRED IN THE SPRING.
6. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.

SIGNING:

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTANT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE MNMUTCD. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE SIGNS SHALL BE MADE OF DIAMOND GRADE ORANGE REFLECTIVE SHEETING OR AN APPROVED SUBSTITUTE.
5. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SPECIFIED IN THESE PLANS.
6. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS INSTALLED.

PAVEMENT MARKING:

1. OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. PAINT, POLYMER LANE TAPE AND/OR TRPM'S ARE ACCEPTABLE TEMPORARY STRIPING ALTERNATIVES ACCORDING TO ACTUAL CONDITIONS ENCOUNTERED AS DIRECTED BY THE ENGINEER. GENERALLY, ONLY PAINT WILL BE USED BEFORE MAY 1ST OR WHEN THE OTHER MANUFACTURERS' SPECIFICATIONS CAN NOT BE MET.
3. TRPM'S (TEMPORARY RAISED PAVEMENT MARKERS) SHOULD BE USED TO SUPPLEMENT THE LONG TERM (MORE THAN 3 DAYS) EDGELINES ON ALL TRANSITION AREAS WHEN THE CONDITIONS ARE WITHIN THE MANUFACTURERS' SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND INSTALLATION OF TEMPORARY AND FINAL STRIPING. MN/DOT TRAFFIC PERSONNEL WILL ASSIST IN THE SPOTTING OF TRANSITION AREAS, GORES AND TAPERS.

BARRIER & DELINEATION:

1. TOP MOUNTED BARRIER DELINEATORS WILL HAVE A MINIMUM OF 24 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES ON TOP OF THE BARRIER WHEN THE BARRIER IS WITHIN 10' OF TRAFFIC UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER. IF THE TRAFFIC ENGINEER REQUIRES SIDE MOUNTED BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE AT ONE HALF THE SPACING AND ONE HALF THE BID PRICE.

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	TRAFFIC CONTROL SIGN
	TYPE III BARRICADE =
	DRUM-LIKE CHANNELIZER =
	TYPE I BARRICADE W/ STEADYBURN =
	AREA CLOSED TO TRAFFIC / WORK AREA
	CONCRETE BARRIER WITH DELINEATORS AT 30' SPACES
	SOLID LINE PAVEMENT MARKING WITH TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S) AT 10' SPACES
	TYPE A OR B FLASHING WARNING LIGHT (SPECIFY HIGH INTENSITY)
	RED FLASHING LIGHT
	TYPE C STEADY BURN WARNING LIGHT
	CHANNELIZER SYMBOL
	FLASHING ARROW BOARD TYPE C =
	PORTABLE CHANGEABLE MESSAGE SIGN =

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TRAFFIC CONTROL TABULATION G																	
SIGN OR DEVICE	SIGN NO.	COLDR	SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	SIGN OR DEVICE	SIGN NO.	COLOR	SIZE	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
				EACH	EACH	EACH	EACH	EACH					EACH	EACH	EACH	EACH	
	G20-2A	BLACK ON ORANGE	48"x24"	2	2	2	2	2		W1-4L	BLACK ON ORANGE	30"x30"	--	2	2	2	--
	G20-X1	BLACK ON ORANGE	72"x60"	2	--	--	--	--		W1-4R	BLACK ON ORANGE	30"x30"	--	2	2	2	--
	R1-1	WHITE ON RED	36"x36"	--	2	4	5	2		W1-6	BLACK ON ORANGE	48"x24"	--	3	5	3	--
	R4-7	BLACK ON WHITE	30"x36"	--	2	2	2	--		W6-3	BLACK ON ORANGE	36"x36"	--	1	1	--	--
	R5-1	WHITE ON RED	36"x36"	--	--	--	5	--		W8-9	BLACK ON ORANGE	36"x36"	--	--	--	--	--
	R6-1R	WHITE ON BLACK	36"x12"	--	--	--	5	2		W13-1	BLACK ON ORANGE	30"x30"	--	4	4	4	--
	R11-2	BLACK ON WHITE	48"x30"	--	1	4	--	--									
	W20-1	BLACK ON ORANGE	48"x48"	8	7	8	8	8		IMPACT ATTENUATOR			--	4	--	--	--
	W20-3	BLACK ON ORANGE	48"x48"	--	1	--	--	--		PLASTIC DRUM	BLACK ON ORANGE	36"	16	42	91	90	--
	W21-X1	BLACK ON ORANGE	48"x48"	2	--	--	--	--		TYPE III BARRICADE	ORANGE ON WHITE	8'	2	7	18	22	--

TRAFFIC CONTROL SHEET INDEX	
SHEET NO.	DESCRIPTION
19	GENERAL NOTES
20	TABULATIONS
21	DETAILS
22	BYPASS DETAIL
23	STAGE 1
24	STAGE 2
25	STAGE 3
26	STAGE 4
27	STAGE 5

CONCRETE MEDIAN BARRIER I		
LOCATION	CONCRETE MEDIAN BARRIER DES 833T LIN FT	IMPACT ATTENUATOR BARRELS EACH
STA 250+05 TO STA 261+20	1260	32
STA 262+60 TO STA 276+00	1340	32
TOTAL	2600	64

NOTES:
 - QUANTITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE USED FOR PAY QUANTITIES.
 - ALL TRAFFIC CONTROL ITEMS SHALL BE INCLUDED IN THE LUMP SUM BID FOR TRAFFIC CONTROL.

TEMPORARY PAVEMENT MARKINGS H															
STATION TO STATION	4" SOLID WHITE PAINT	4" SOLID YELLOW PAINT	4" SOLID DOUBLE YELLOW PAINT	24" SOLID WHITE PAINT	24" SOLID YELLOW PAINT	PAVEMENT MESSAGE ARROW (LEFT) PAINT	PAVEMENT MESSAGE ARROW (RIGHT) PAINT	PAVEMENT MESSAGE ARROW (THRU) PAINT	PAVT MESSAGE ARROW (RIGHT-THRU) PAINT	CROSSWALK WHITE PAINT	4" SOLID WHITE TAPE	4" SOLID YELLOW TAPE	PAVEMENT MARKING REMOVAL	TRPM'S	
	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	SO FT	LIN FT	LIN FT	LIN FT	WHITE EACH	YELLOW EACH
STAGE 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STAGE 2	5520	-	2780	-	-	-	-	-	-	-	1215	1460	3700	130	130
STAGE 3	5170	460	2330	-	-	-	-	-	-	-	1130	1460	-	130	130
STAGE 4	820	4050	-	-	-	-	-	-	-	-	-	-	-	140	140
STAGE 5*	7623	3813	2076	156	150	8	9	1	2	870	-	-	-	-	-
TOTAL	19133	12609	7186	156	150	8	9	1	2	870	2381	2920	3700	400	400

*QUANTITY TO BE UTILIZED IF FINAL WEAR COURSE IS NOT PLACED BEFORE WINTER SUSPENSION

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD AND PART VI OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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 CERTIFIED BY: *Anthony J. Witek*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITEK, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

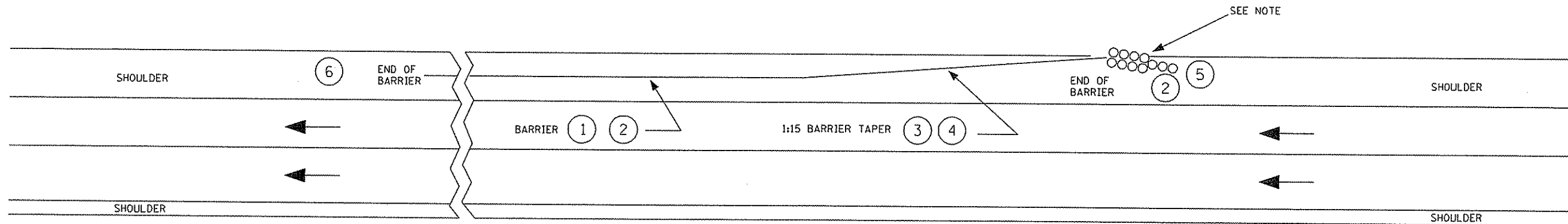
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SHEET 20 OF 90 SHEETS

PORTABLE CONCRETE BARRIER PLACEMENT



① IT IS DESIRABLE TO MAINTAIN FULL SHOULDER WIDTH WHENEVER POSSIBLE. IF NOT POSSIBLE, MINIMUM DESIRABLE LATERAL OFFSETS ARE BASED ON THE FOLLOWING POSTED SPEEDS:

70 MPH - 12.0 FEET
 60 MPH - 8.0 FEET
 50 MPH - 6.5 FEET
 40 MPH - 5.0 FEET

FOR RESTRICTED CONDITIONS, LESSER OFFSETS MAY BE USED. THE OFFSETS SHOULD BE A MINIMUM OF 2 FEET UNLESS THE CONDITIONS ARE EXTREME. LATERAL OFFSETS ARE MEASURED TO THE BOTTOM OF THE BARRIER. BARRIER OFFSET FROM EDGE OF THRU LANE SHOULD NOT EXCEED 15 FEET.

② DESIRABLE TREATMENTS FOR EXPOSED BARRIER ENDS ARE; A CONNECTION TO EXISTING BARRIER; IMPACT ATTENUATOR; TAPER AWAY TO THE EDGE OF THE CLEAR ZONE; AND EXTENDING THROUGH A PLATE BEAM GUARDRAIL BY REMOVING A PANEL.

FOR POSTED SPEEDS 30 MPH OR LESS, THE TAPERING AWAY FROM THE TRAFFIC IS DESIRABLE AND USE OF IMPACT ATTENUATOR ARE OPTIONAL

③ A 1:10 TAPER MAY BE USED WHEN POSTED SPEED LIMIT IS 35 MPH OR LESS.

④ IF THE BARRIER IS TO BE EXTENDED BEYOND THE SHOULDER, ADDITIONAL FILL WILL BE NEEDED IN ORDER TO PROVIDE A FLAT (1:10) APPROACH AREA TO THE BARRIER. FILL WILL BE INCIDENTAL TO BARRIER AND/OR IMPACT ATTENUATOR. (SEE SHOULDER FILL DETAIL BELOW)

⑤ THE IMPACT ATTENUATOR SHOULD BE OFFSET A MINIMUM OF 2 FT. FROM THE EDGE OF THE THRU LANE (SEE SAND BARREL OFFSET DETAIL). THE IMPACT ATTENUATOR SHOULD BE ORIENTED TO ACCOMMODATE THE PROBABLE IMPACT ANGLE OF AN ENCROACHING VEHICLE. FOR MOST ROADSIDE CONDITIONS, AN ANGLE APPROXIMATELY 10 DEGREES, AS MEASURED BETWEEN THE HIGHWAY AND THE IMPACT ATTENUATOR LONGITUDINAL CENTERLINE, IS CONSIDERED APPROPRIATE (SEE SHOULDER FILL DETAIL). FOR SAND BARREL ARRANGEMENT SEE DETAIL BELOW.

⑥ FOR TWO-LANE TWO-WAY TRAFFIC BOTH ENDS OF THE BARRIER SHOULD BE TREATED IN THE SAME MANNER AS DESCRIBED IN ②

NOTE:

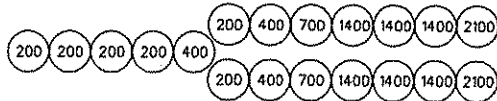
AT THE DIRECTION OF THE ENGINEER, OTHER APPROVED IMPACT ATTENUATORS CAN BE SUBSTITUTED IN LIEU OF THE SAND BARRELS ESPECIALLY WHERE REDIRECTION IS DESIRED OR AT WIDTH RESTRICTED AREAS.

SAND FILLED BARREL ARRANGEMENT

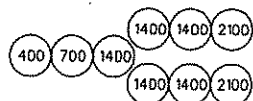
POSTED SPEED: 70-75 MPH



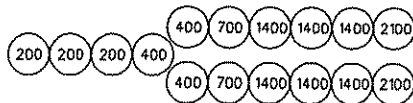
POSTED SPEED: 65 MPH



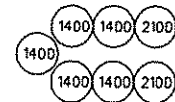
POSTED SPEED: 35-40 MPH



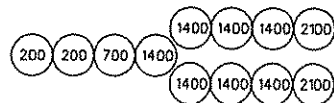
POSTED SPEED: 55-60 MPH



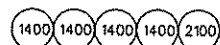
POSTED SPEED : 30 MPH (OPTIONAL)



POSTED SPEED: 45-50 MPH



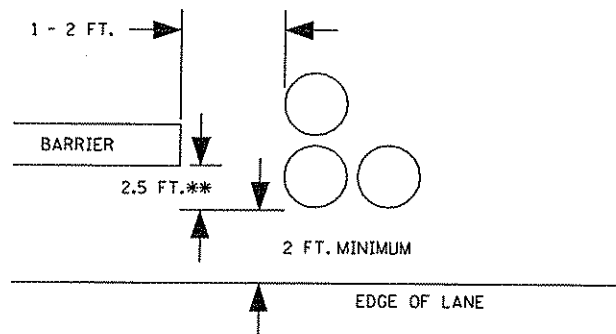
POSTED SPEED: 30 MPH RESTRICTED SPACE ONLY (OPTIONAL)



NOTE:

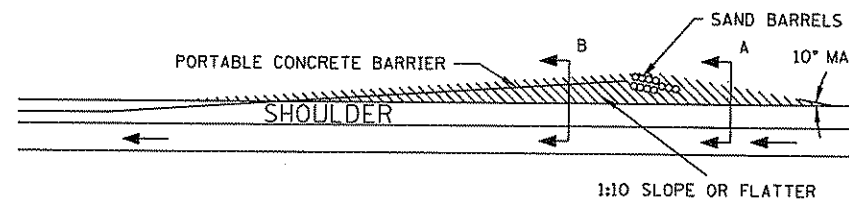
- NUMBERS INDICATE STANDARD MODULE WEIGHTS IN POUNDS.
- THESE ARRANGEMENTS MEET THE ENERGITE SYSTEM SPECIFICATIONS.
- SEE THE MANUFACTURER'S SPECIFICATIONS FOR THE FITCH SYSTEM.

SAND FILLED BARREL OFFSET

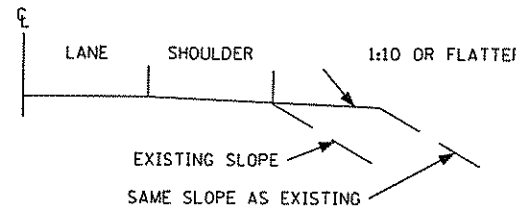


** DISTANCE MAY BE REDUCED TO MINIMUM OF 15 IN. (1.25 FT.). THIS IS ACCEPTABLE ONLY WHERE A GREATER OFFSET WOULD CAUSE UNACCEPTABLE INTERFERENCE WITH TRAFFIC.

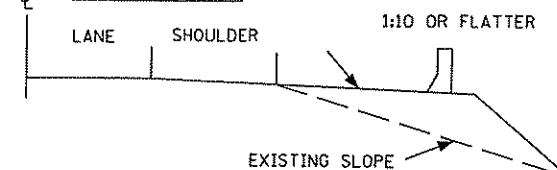
SHOULDER FILL



SECTION A



SECTION B



REVISED: 11-SEP-2002

METRO DIVISION - TRAFFIC
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 FILENAME: K:\01666-00\cad\plan\1666fc03.dgn

CERTIFIED BY

Andy Perinich
 LICENSED PROFESSIONAL ENGINEER

LIC. NO. 23128 7/29 20 05

TRAFFIC CONTROL SHEET NO.

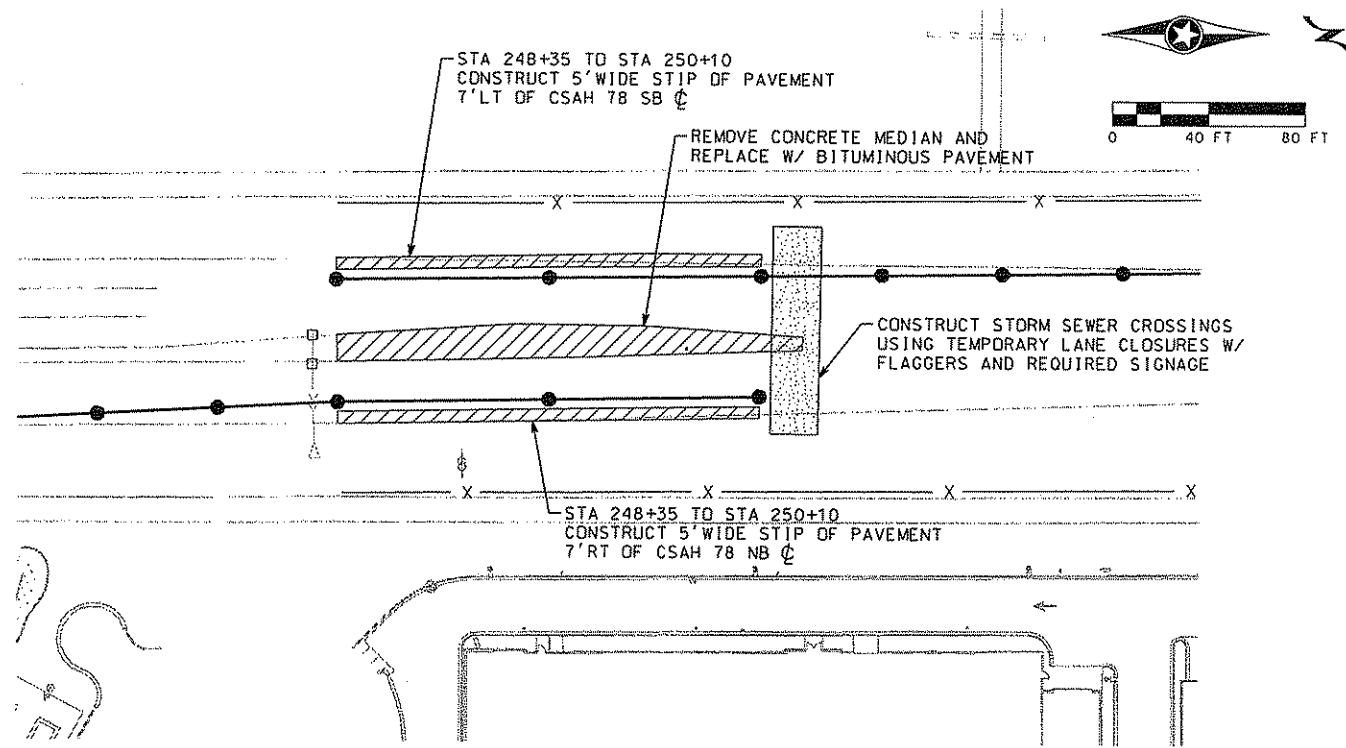
TITLE:

PORTABLE CONCRETE BARRIER END TREATMENT TYPICAL

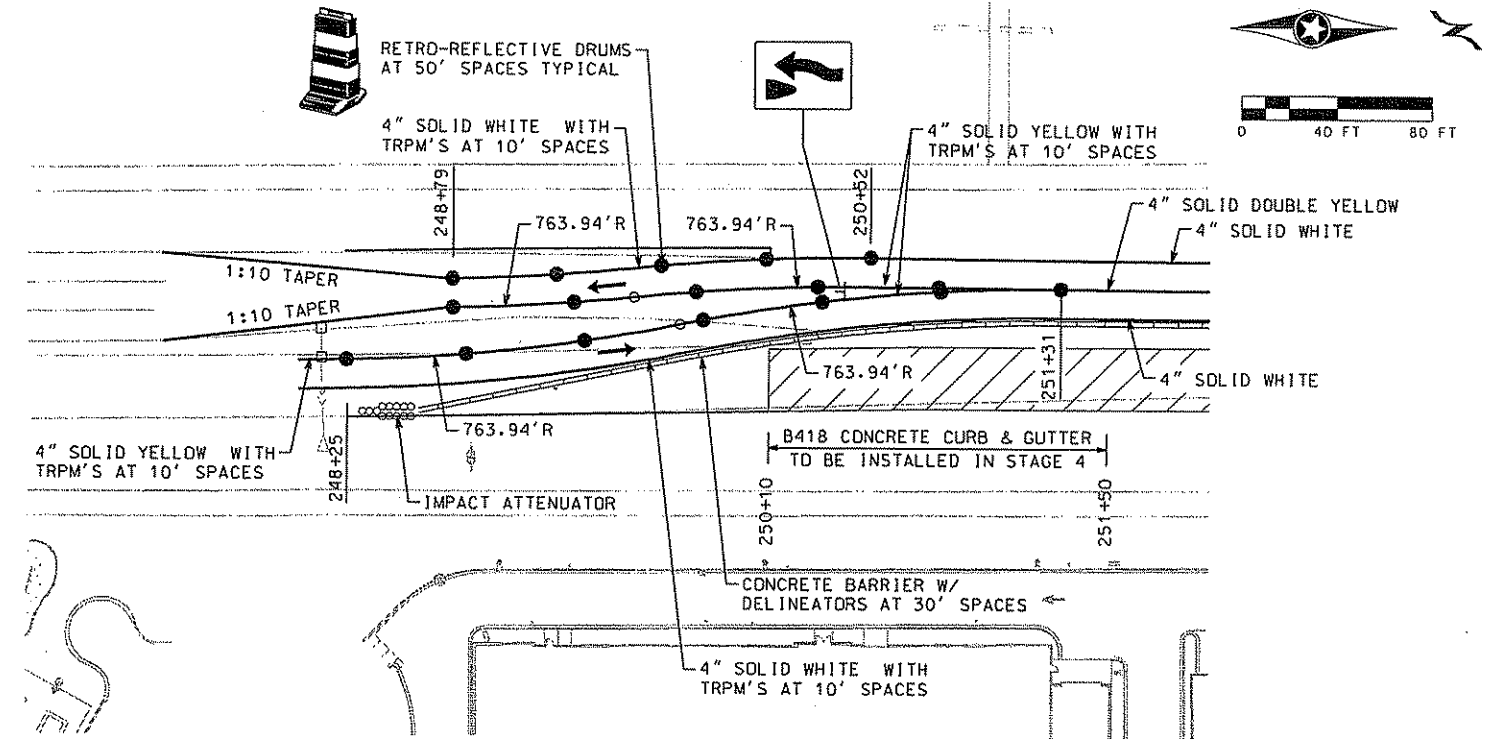
S.P. 02-678-18 / S.P. 198-020-26

SHEET NO 21 OF 88 SHEETS

Stage 1 - Construct Widening in Overlay Area

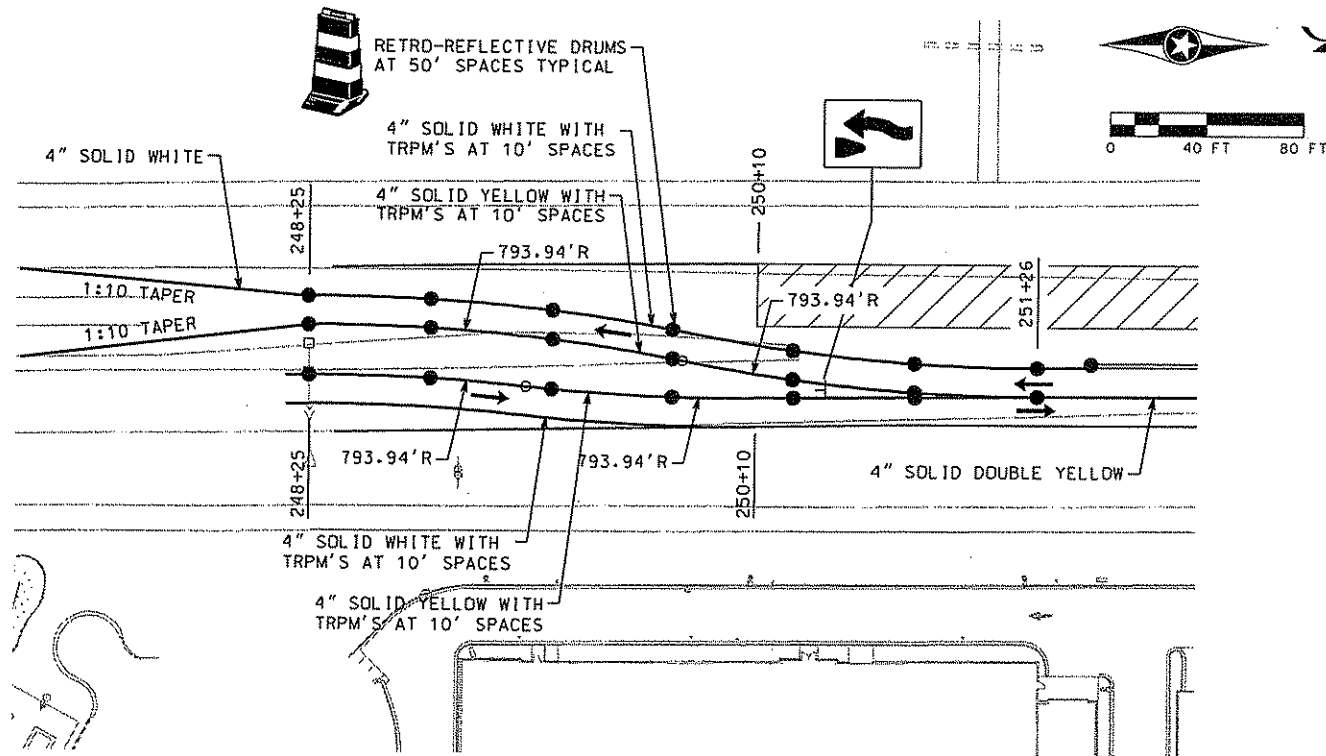


Stage 2 - Shift Traffic to West



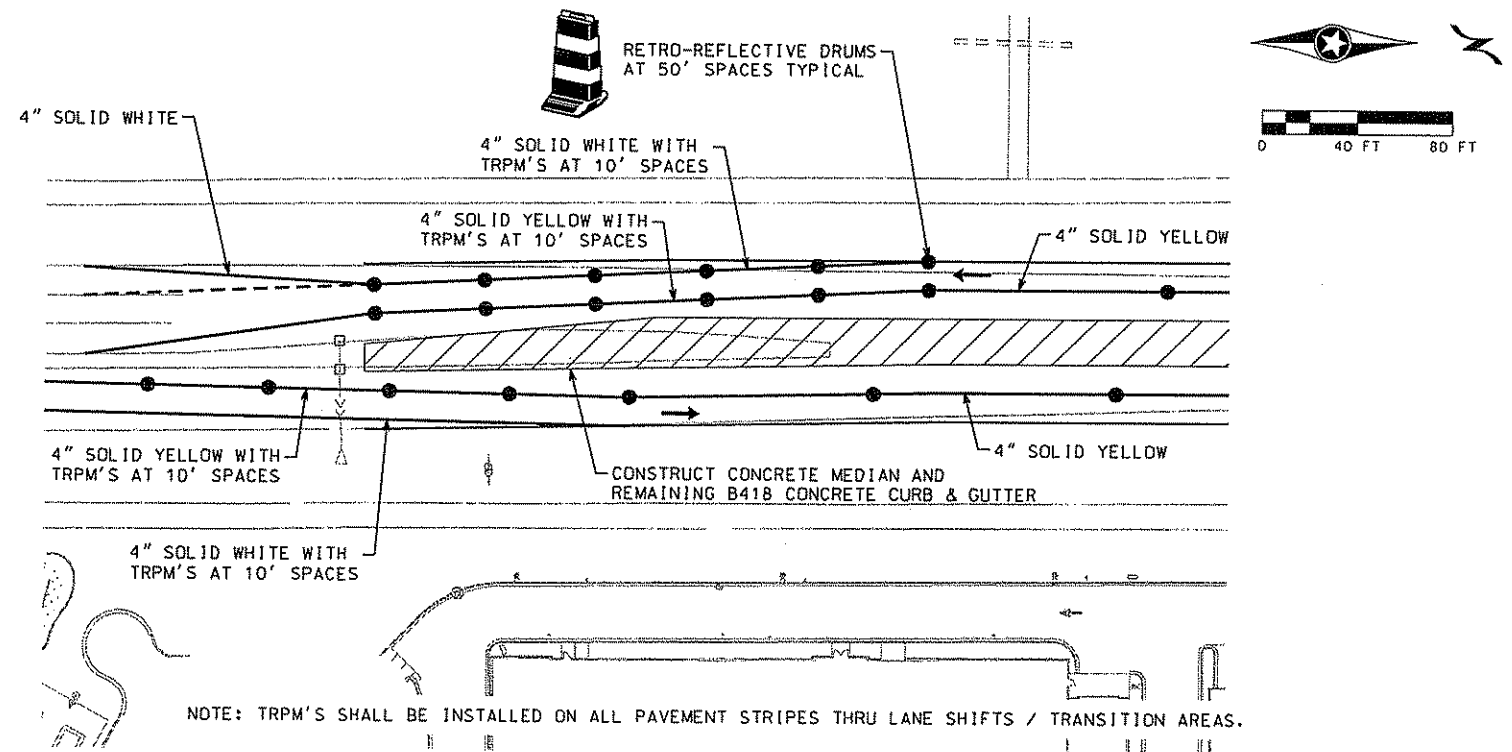
NOTE: TRPM'S SHALL BE INSTALLED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS / TRANSITION AREAS.

Stage 3 - Shift Traffic to East



NOTE: TRPM'S SHALL BE INSTALLED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS / TRANSITION AREAS.

Stage 4 - Construct Median



NOTE: TRPM'S SHALL BE INSTALLED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS / TRANSITION AREAS.

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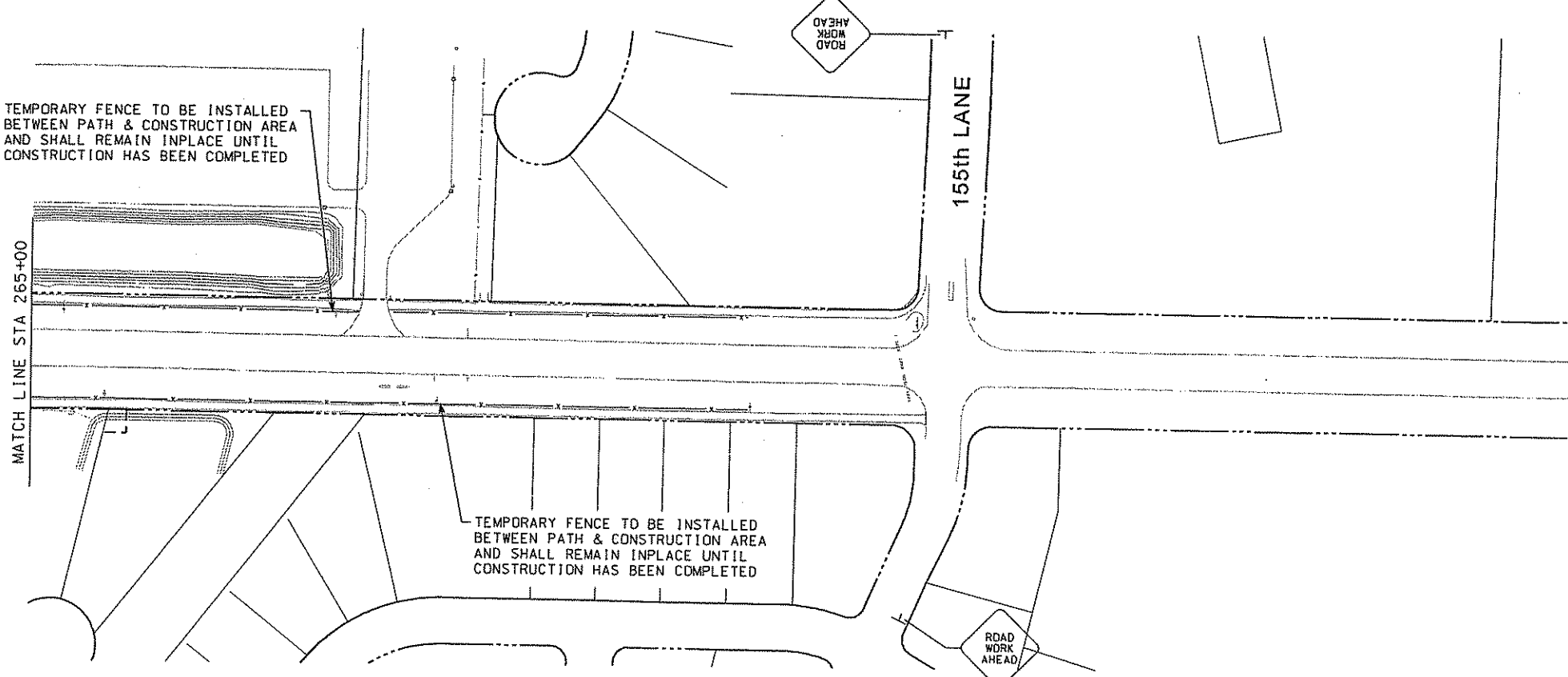
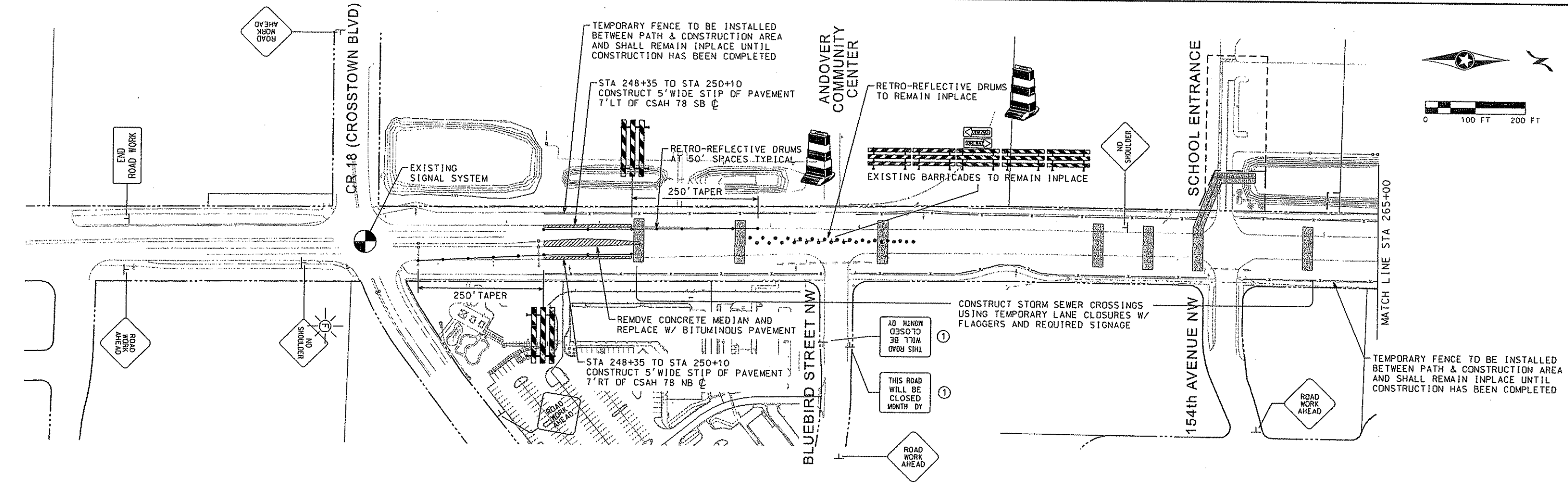
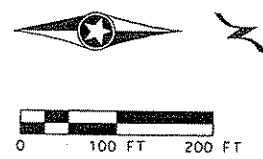
CERTIFIED BY: *Anthony J. Whitecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WHITECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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SHEET
 22
 OF
 90
 SHEETS



- LEGEND**
- UNDER CONSTRUCTION
 - CONSTRUCTION UNDER TRAFFIC
 - TRAFFIC CONTROL SIGN
 - TYPE III BARRICADE
 - INSTALL 7 DAYS PRIOR TO ROAD CLOSURE
- NOTES**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
 - COVER ALL CONFLICTING SIGNS.

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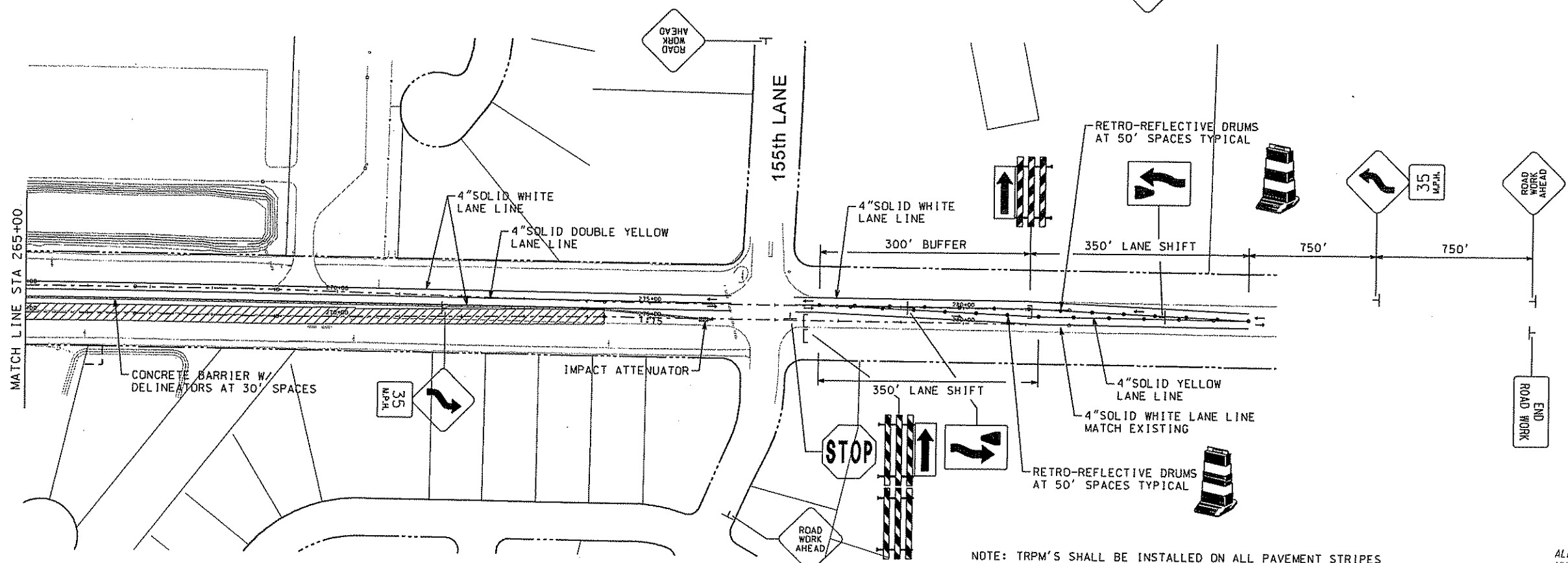
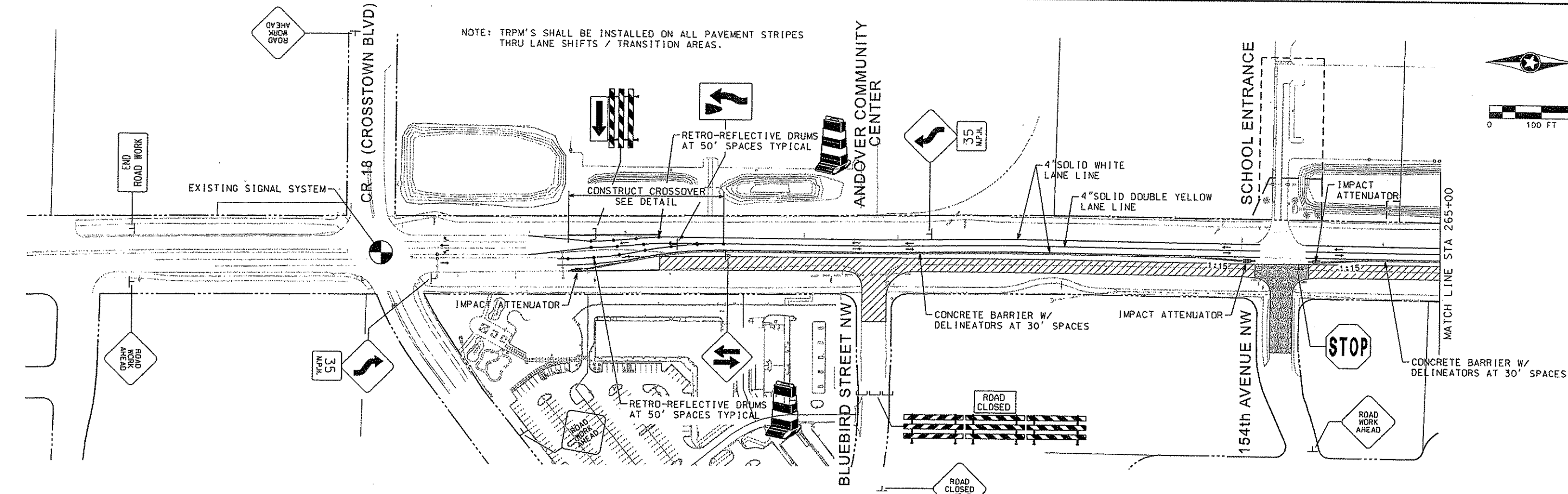
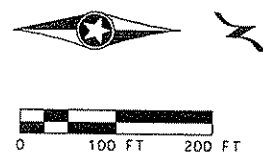
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90
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NOTE: TRPM'S SHALL BE INSTALLED ON ALL PAVEMENT STRIPES THRU LANE SHIFTS / TRANSITION AREAS.



- LEGEND**
- UNDER CONSTRUCTION
 - CONSTRUCTION UNDER TRAFFIC
 - TRAFFIC CONTROL SIGN
 - TYPE III BARRICADE
 - ① INSTALL 7 DAYS PRIOR TO ROAD CLOSURE
- NOTES**
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 - COVER ALL CONFLICTING SIGNS.

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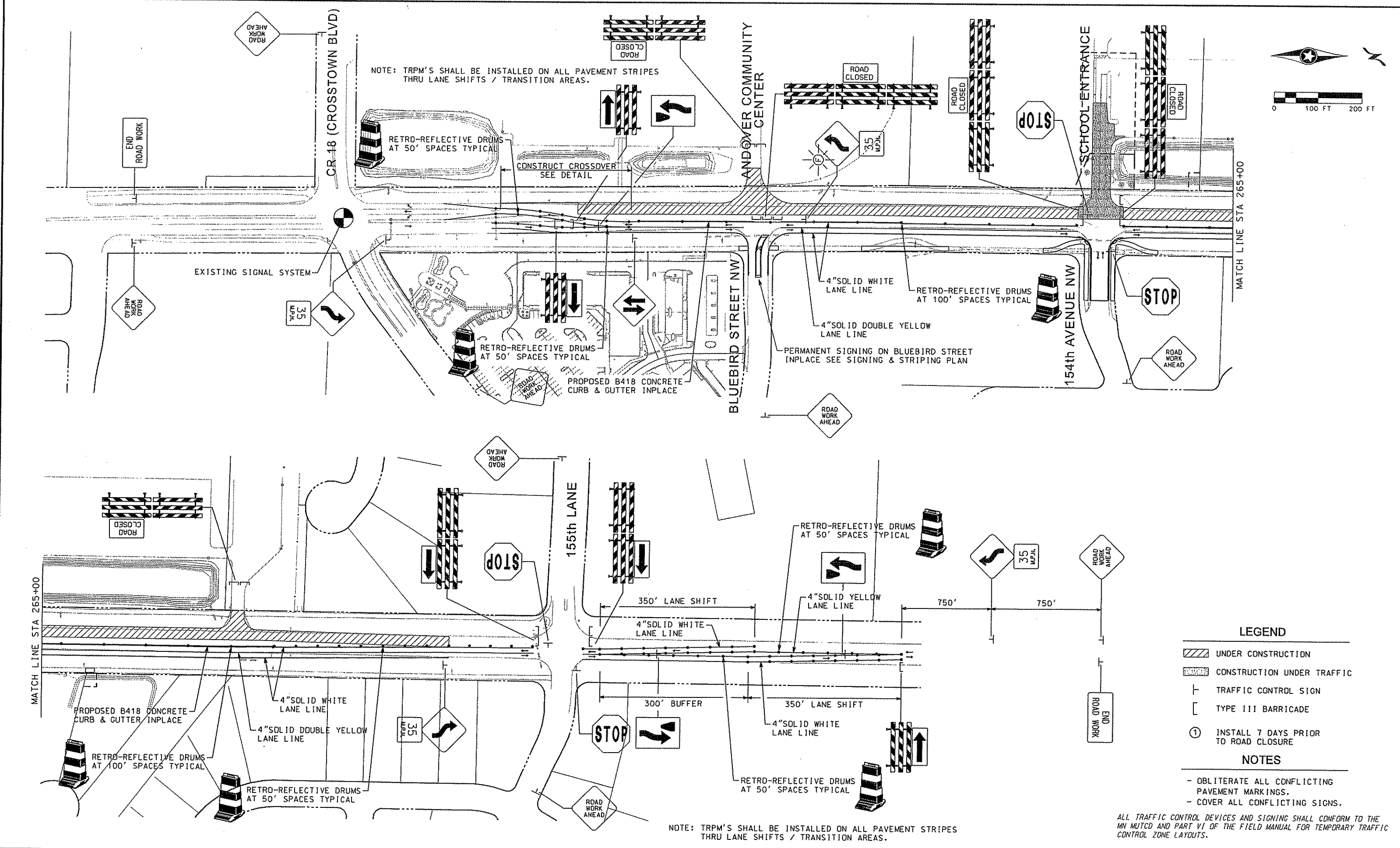
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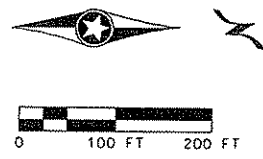
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 - TRAFFIC CONTROL SIGN
 - TYPE III BARRICADE
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- NOTES**
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 DATE: 8/30/05 L.I.C. NO: 23128

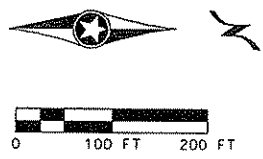
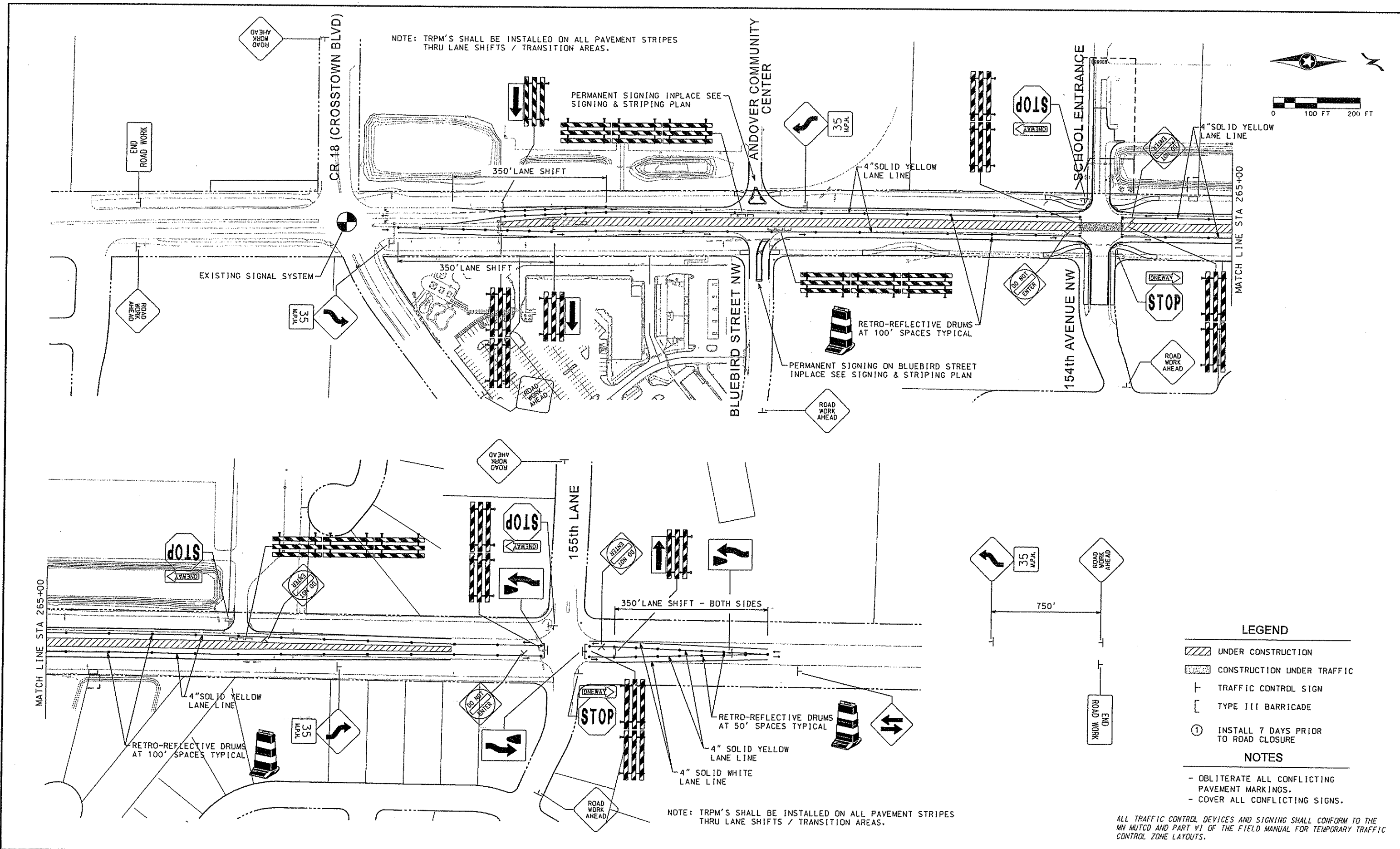
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- LEGEND**
- UNDER CONSTRUCTION
 - CONSTRUCTION UNDER TRAFFIC
 - TRAFFIC CONTROL SIGN
 - TYPE III BARRICADE
 - INSTALL 7 DAYS PRIOR TO ROAD CLOSURE
- NOTES**
- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
 - COVER ALL CONFLICTING SIGNS.
- ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD AND PART VI OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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 Pion By: CWK
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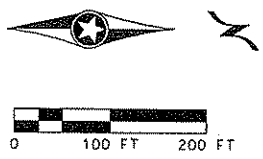
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SHEET
 26
 OF
 90
 SHEETS



NOTE: ALL PERMANENT SIGNING INPLACE
SEE SIGNING & STRIPING PLAN

STOP SIGN TO REMAIN UNTIL
SIGNAL SYSTEM IS COMPLETE

② EXISTING SIGNAL SYSTEM
TO BE PLACED ON RED FLASH
DURING PAVING OPERATIONS

STOP SIGN TO REMAIN UNTIL
SIGNAL SYSTEM IS COMPLETE

NOTE: ALL PERMANENT SIGNING INPLACE
SEE SIGNING & STRIPING PLAN

LEGEND

- UNDER CONSTRUCTION
- CONSTRUCTION UNDER TRAFFIC
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

- ① INSTALL 7 DAYS PRIOR TO ROAD CLOSURE
 - ② CONTRACTOR TO CONTACT ANOKA COUNTY FOR CHANGES IN SIGNAL OPERATION DURING CONSTRUCTION.
- NOTES**

- OBLITERATE ALL CONFLICTING PAVEMENT MARKINGS.
- COVER ALL CONFLICTING SIGNS.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD AND PART VI OF THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

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 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WHITECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

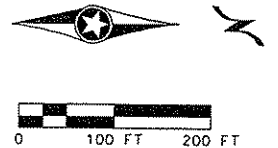
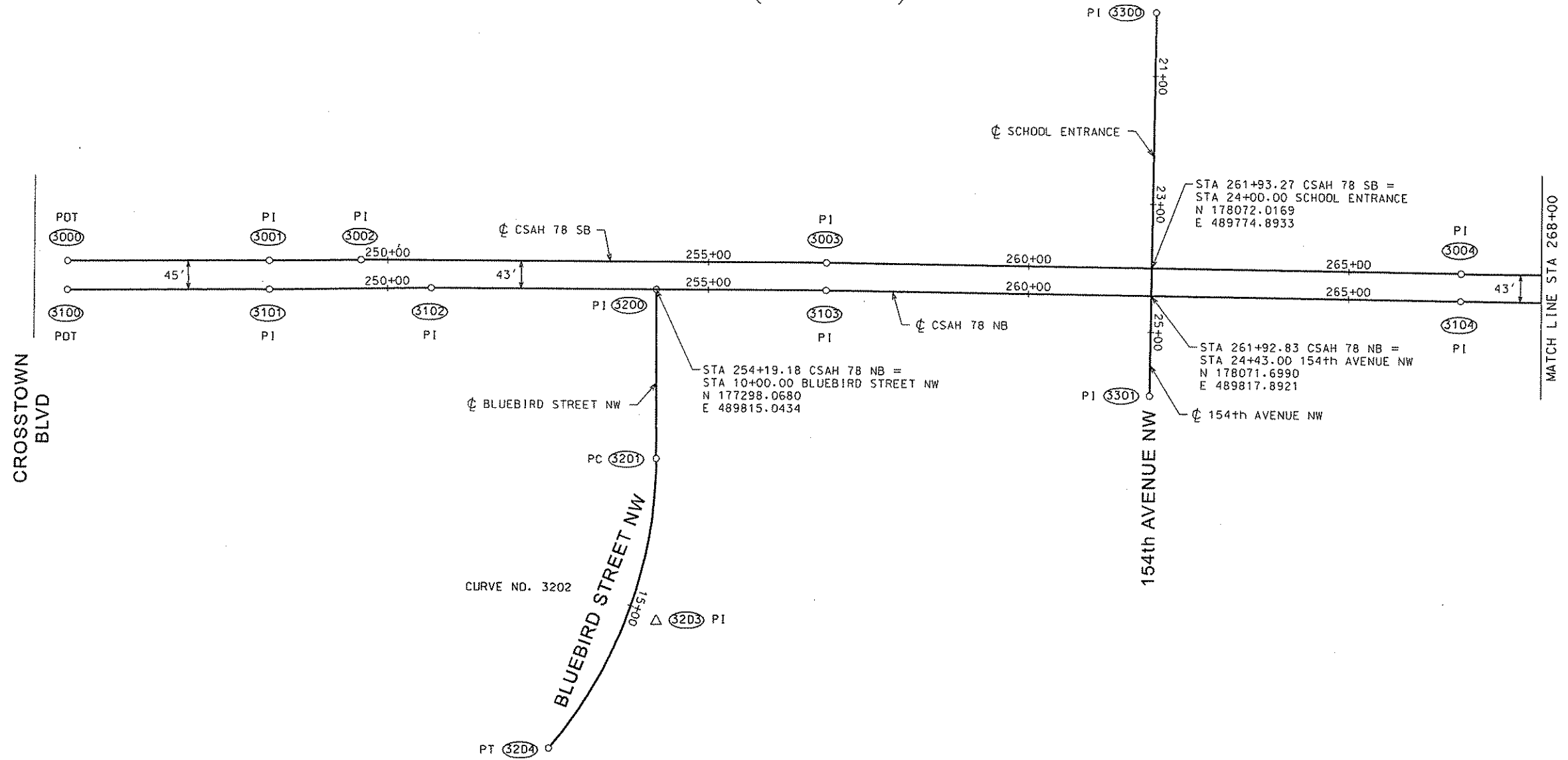
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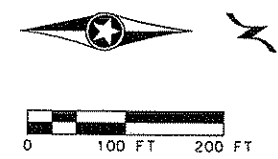
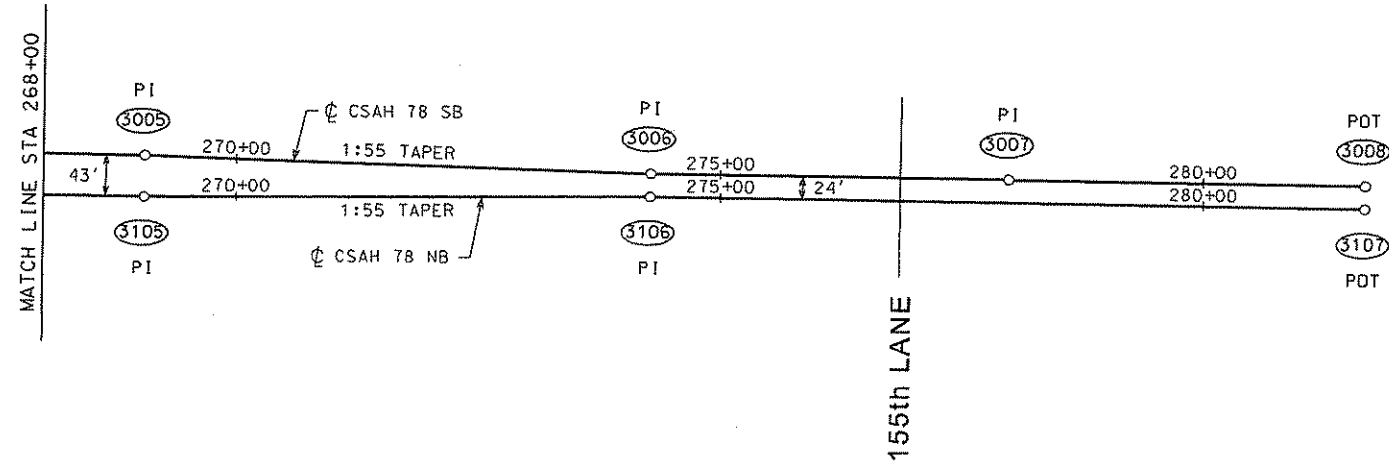
ANOKA COUNTY HIGHWAY DEPARTMENT
 STAGE 5
CONSTRUCTION STAGING & TRAFFIC CONTROL
 S.A.P 02-678-18, ETC.

SHEET
 27
 OF
 90
 SHEETS

CSAH 78 (Hanson Blvd)



CSAH 78 (Hanson Blvd)



COORDINATES BASED ON ANOKA COUNTY COORDINATE SYSTEM, VERTICAL NAD 83

Date Printed: 9/11/2005
WSB Filename: k:\01666-00\road\plan\1666a-1.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plon By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *[Signature]*
 LICENSED PROFESSIONAL ENGINEER - ANDREW J. WINECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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ANOKA COUNTY HIGHWAY DEPARTMENT
ALIGNMENT PLAN & TABULATION
 S.A.P 02-678-18, ETC.

SHEET 28 OF 90 SHEETS

CSAH 78 (HANSON BLVD) SOUTHBOUND ALIGNMENT TABULATION

ITEM	CONTROL POINT	STATION	DELTA ANGLE	DEGREE OF CURVE - ARC	TANGENT	RADIUS	ARC LENGTH	EASTING	NORTHING	DIRECTION	DISTANCE
3000	PDT	245+00.0000						489780.3480	176378.8215	N 00°45'22" W	314.3971
3001	PI	248+14.3971						489776.1991	176693.1912	N 01°11'14" W	143.9768
3002	PI	249+58.3739						489773.2157	176837.1371	N 00°08'45" W	726.4966
3003	PI	256+84.8705						489771.3679	177563.6313	N 00°23'50" E	991.0313
3004	PI	266+75.9018						489778.2401	178554.6388	N 00°25'56" E	229.2210
3005	PI	269+05.1228						489779.9688	178783.8533	N 01°28'25" E	522.5986
3006	PI	274+27.7214						489793.4090	179306.2791	N 00°25'56" E	370.7439
3007	PI	277+98.4653						489796.2050	179677.0124	N 00°25'56" E	370.7439
3008	PDT	281+69.2092						489799.0009	180047.7457		

BLUEBIRD STREET NW ALIGNMENT TABULATION

ITEM	CONTROL POINT	STATION	DELTA ANGLE	DEGREE OF CURVE - ARC	TANGENT	RADIUS	ARC LENGTH	EASTING	NORTHING	DIRECTION	DISTANCE
3200	PI	10+00.0000						489815.0434	177298.0680	N 89°25'22" E	265.2520
3201	PC	12+65.2520						490080.2819	177300.7397		
3202	RADIUS	N/A	40°06'54"	08°08'26"	256.9739	703.8300	492.7797	490087.3711	176596.9454		
3203	PI	15+22.2259						490337.2428	177303.3280		256.9700
3204	PI	17+58.0317						490535.4219	177139.7410		

CSAH 78 (HANSON BLVD) NORTHBOUND ALIGNMENT TABULATION

ITEM	CONTROL POINT	STATION	DELTA ANGLE	DEGREE OF CURVE - ARC	TANGENT	RADIUS	ARC LENGTH	EASTING	NORTHING	DIRECTION	DISTANCE
3100	PDT	245+00.0000						489825.3499	176378.9648	N 00°45'22" W	314.9380
3101	PI	248+14.9380						489821.1939	176693.8754	N 01°11'14" W	253.8069
3102	PI	250+68.7448						489815.9347	176947.6277	N 00°08'45" W	615.9112
3103	PI	256+84.6560						489814.3682	177563.5369	N 00°23'50" E	990.8255
3104	PI	266+75.4815						489821.2390	178554.3386	N 00°25'56" E	229.1969
3105	PI	269+04.6784						489822.9675	178783.5290	N 00°36'34" W	522.5986
3106	PI	274+27.2770						489817.4083	179306.0981	N 00°25'56" E	741.4877
3107	PDT	281+68.7648						489823.0002	180047.5647		

SCHOOL ENTRANCE / 154th AVENUE NW ALIGNMENT TABULATION

ITEM	CONTROL POINT	STATION	DELTA ANGLE	DEGREE OF CURVE - ARC	TANGENT	RADIUS	ARC LENGTH	EASTING	NORTHING	DIRECTION	DISTANCE
3300	PI	20+00.0000						489374.9043	178074.9747	S 89°34'35" E	600.0000
3301	PI	26+00.0000						489974.8879	178070.5381		

COORDINATES BASED ON ANOKA COUNTY COORDINATE SYSTEM, VERTICAL NAD 83

9/1/2005 WSB File Name: K:\1666-00\cad\plan\1666a-1.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Winecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINECKI, P.E.
 DATE: 8/30/05 LIC. NO. 23128

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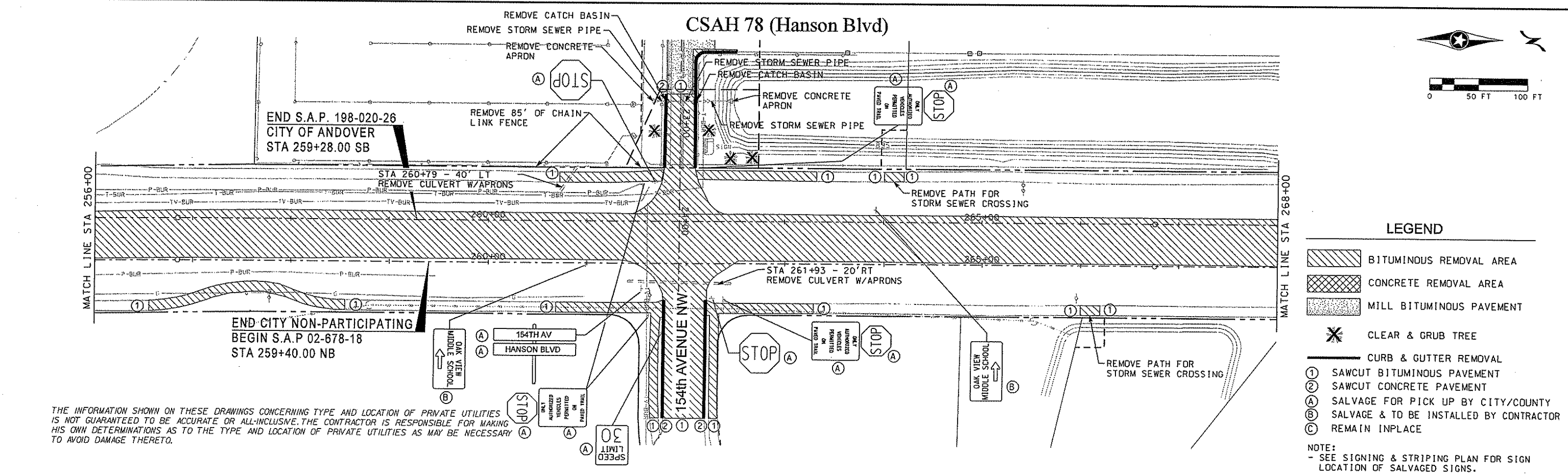
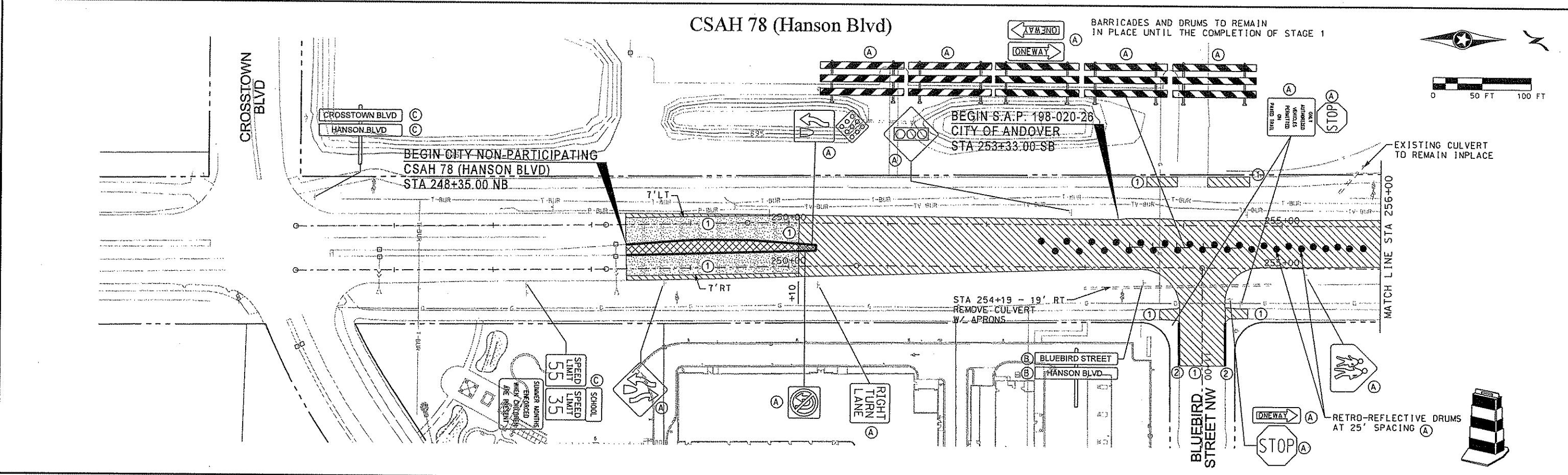
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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT

ALIGNMENT PLAN & TABULATION
 S.A.P 02-678-18, ETC.

SHEET 29 OF 90 SHEETS



- LEGEND**
- BITUMINOUS REMOVAL AREA
 - CONCRETE REMOVAL AREA
 - MILL BITUMINOUS PAVEMENT
 - CLEAR & GRUB TREE
 - CURB & GUTTER REMOVAL
 - SAWCUT BITUMINOUS PAVEMENT
 - SAWCUT CONCRETE PAVEMENT
 - SALVAGE FOR PICK UP BY CITY/COUNTY
 - SALVAGE & TO BE INSTALLED BY CONTRACTOR
 - REMAIN INPLACE
- NOTE:
- SEE SIGNING & STRIPING PLAN FOR SIGN LOCATION OF SALVAGED SIGNS.

THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

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NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

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CERTIFIED BY: *Anthony J. Winiecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

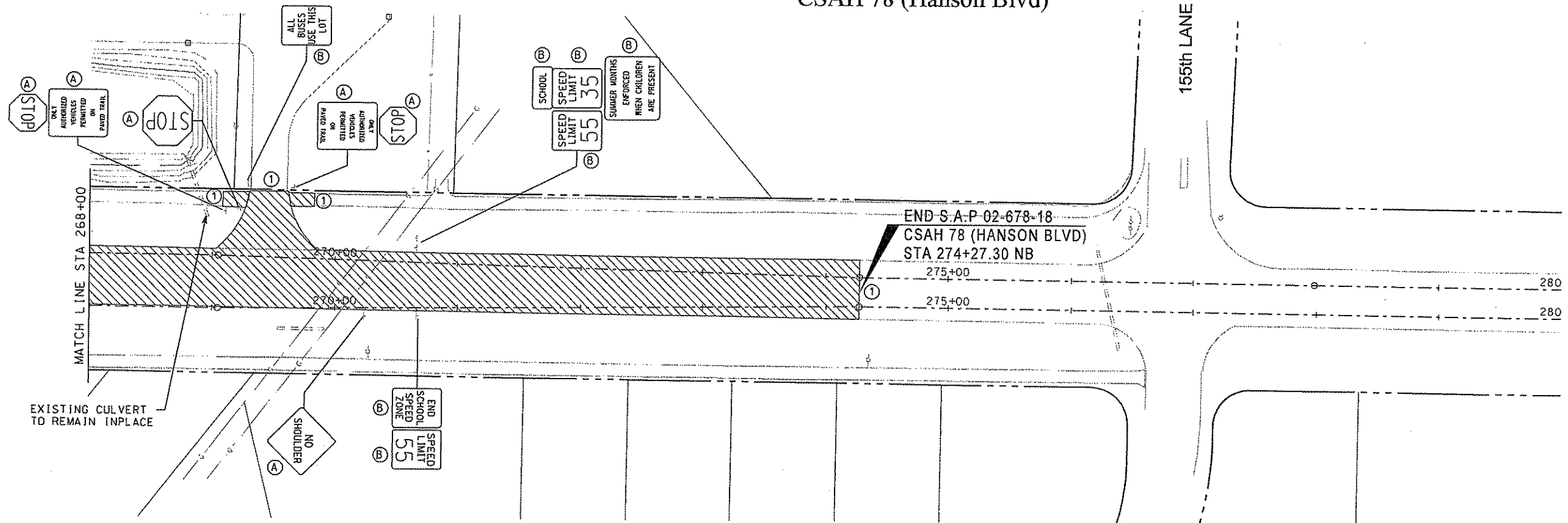
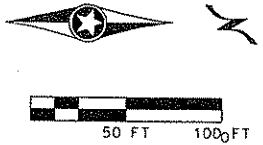
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EXISTING CONDITIONS & REMOVAL PLAN
 S.A.P 02-678-18, ETC.

SHEET
30
 OF
90
 SHEETS

CSAH 78 (Hanson Blvd)



LEGEND

- BITUMINOUS REMOVAL AREA
- CONCRETE REMOVAL AREA
- MILL BITUMINOUS PAVEMENT
- CLEAR & GRUB TREE
- CURB & GUTTER REMOVAL
- ① SAWCUT BITUMINOUS PAVEMENT
- ② SAWCUT CONCRETE PAVEMENT
- Ⓐ SALVAGE FOR PICK UP BY CITY/COUNTY
- Ⓑ SALVAGE & TO BE INSTALLED BY CONTRACTOR
- Ⓒ REMAIN INPLACE

NOTE:
- SEE SIGNING & STRIPING PLAN FOR SIGN LOCATION OF SALVAGED SIGNS.

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 Checked By: AJW
 Approved By: AJW

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CERTIFIED BY: *Anthony J. Winiacki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIACKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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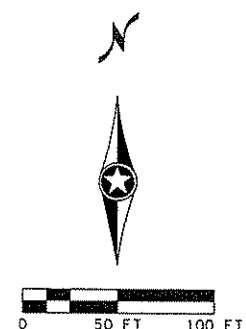
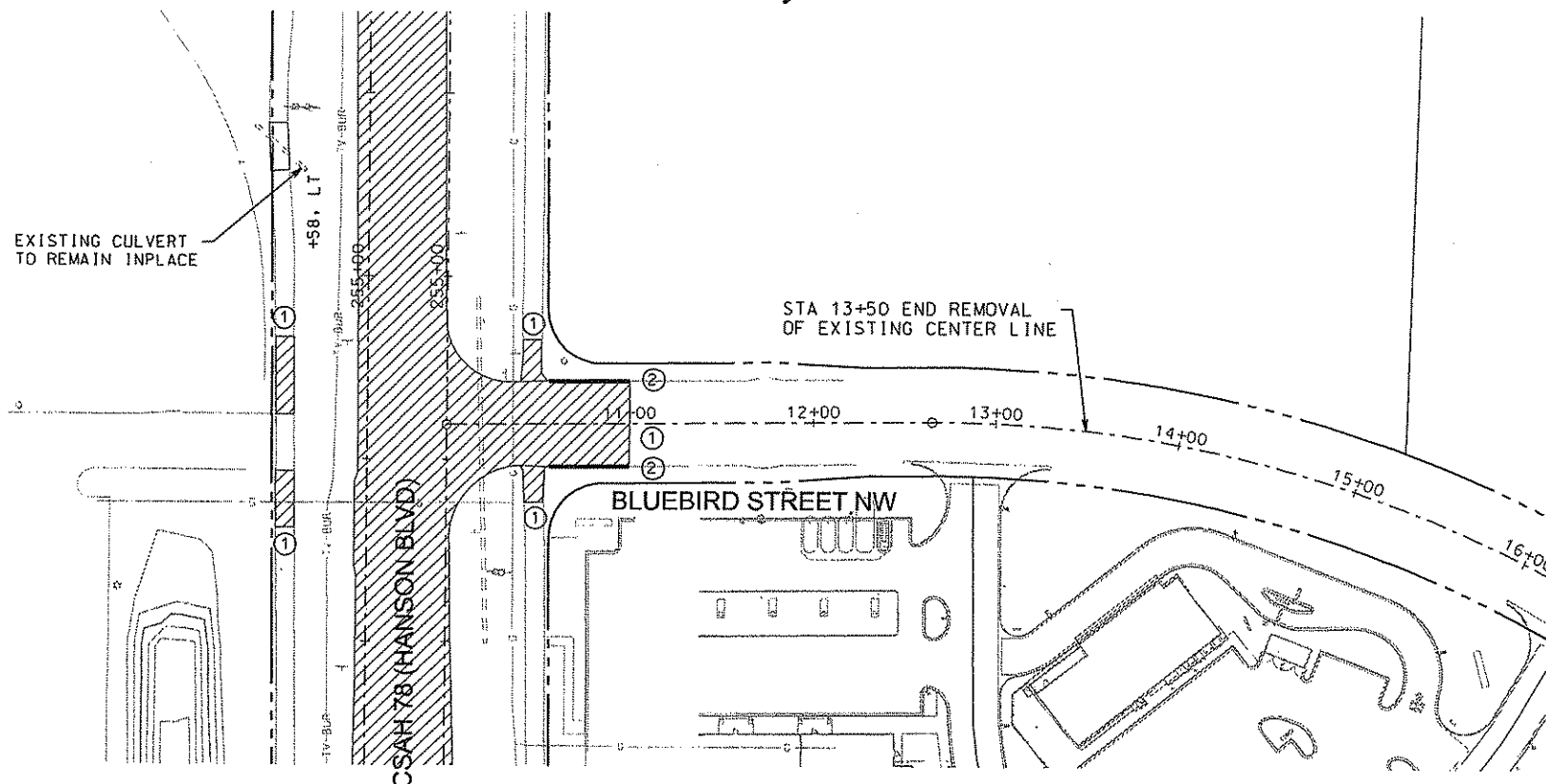
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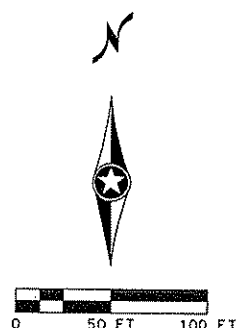
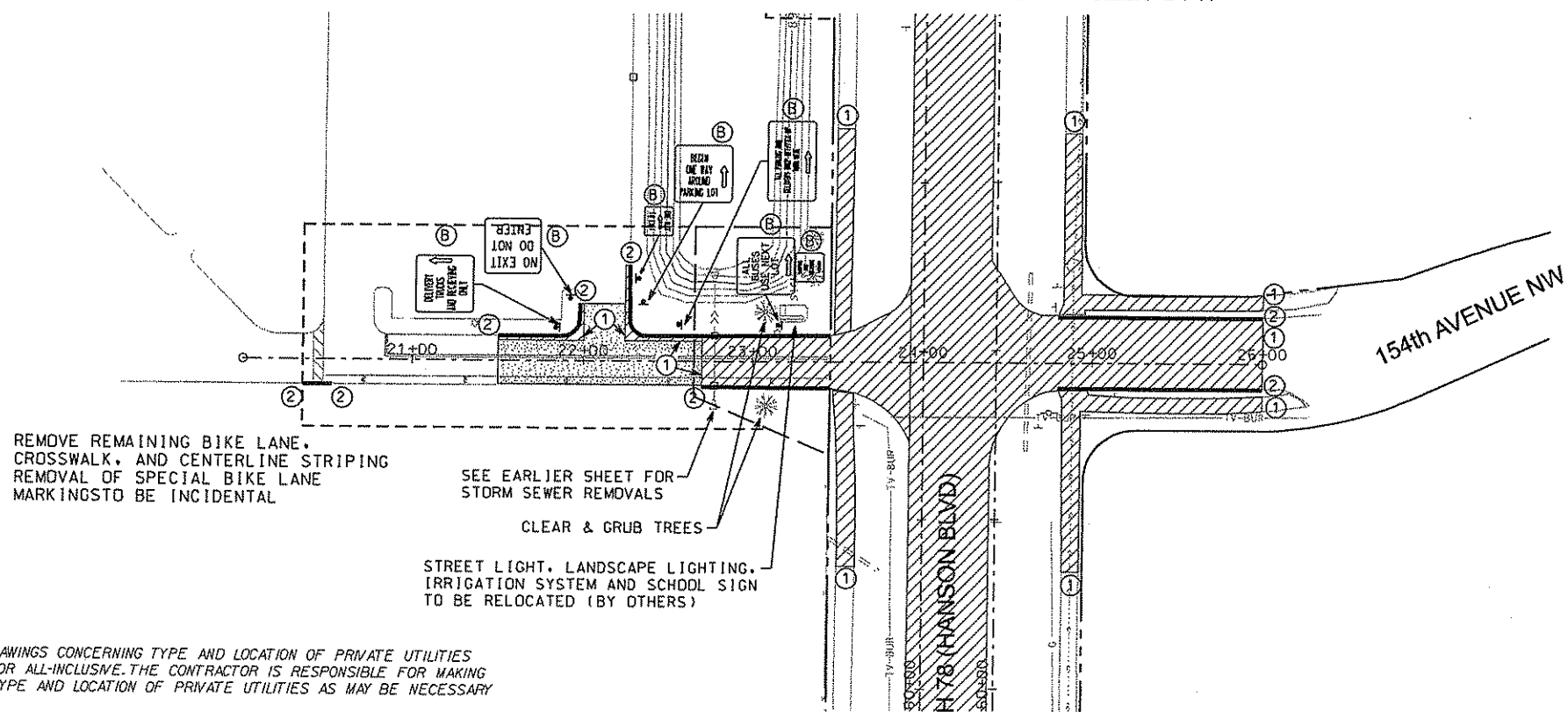
EXISTING CONDITIONS & REMOVAL PLAN
 S.A.P. 02-678-18, ETC.

SHEET
31
 OF
90
 SHEETS

Andover Community Center / Bluebird Street NW



School Entrance / 154th Avenue NW



LEGEND

- BITUMINOUS REMOVAL AREA
- CONCRETE REMOVAL AREA
- MILL BITUMINOUS PAVEMENT
- CLEAR & GRUB TREE
- CURB & GUTTER REMOVAL
- ① SAWCUT BITUMINOUS PAVEMENT
- ② SAWCUT CONCRETE PAVEMENT
- Ⓐ SALVAGE FOR PICK UP BY CITY/COUNTY
- Ⓑ SALVAGE & TO BE INSTALLED BY CONTRACTOR
- Ⓒ REMAIN INPLACE

NOTE:
- SEE SIGNING & STRIPING PLAN FOR SIGN LOCATION OF SALVAGED SIGNS.

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Design By: NEH/THG
 Plon By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Wintzell*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINTZELL, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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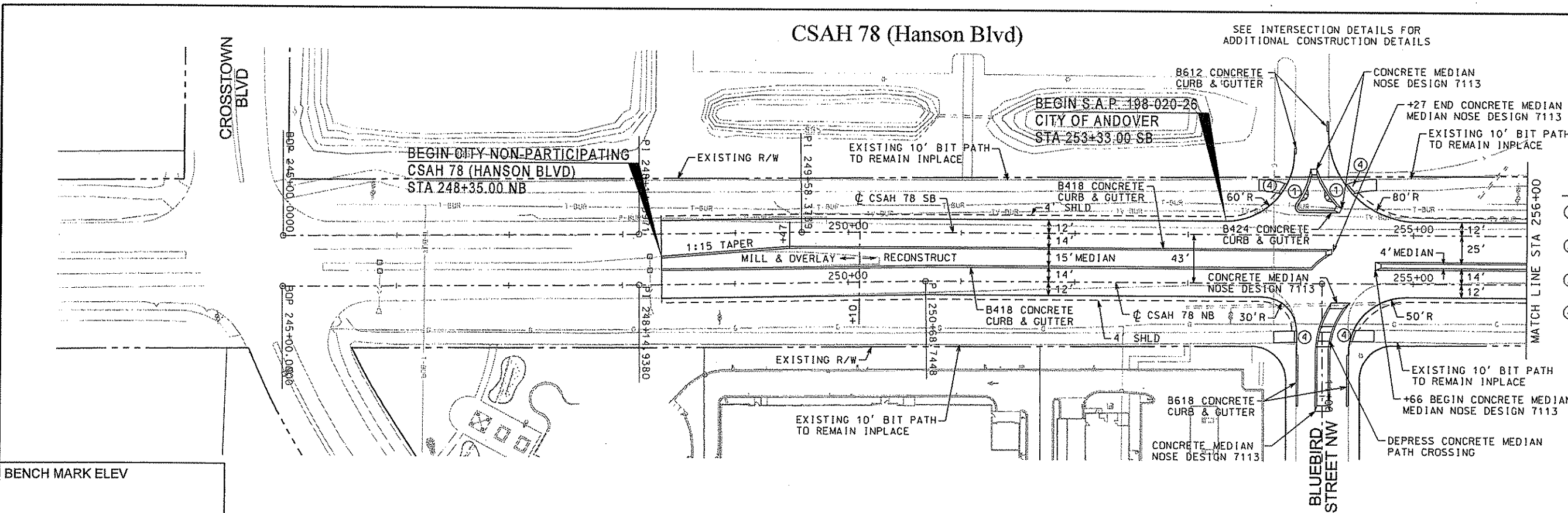
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ANOKA COUNTY HIGHWAY DEPARTMENT
 BLUEBIRD STREET NW / 154th AVENUE NW
EXISTING CONDITIONS & REMOVAL PLAN
 S.A.P 02-678-18, ETC.

SHEET
 32
 OF
 90
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CSAH 78 (Hanson Blvd)

SEE INTERSECTION DETAILS FOR
ADDITIONAL CONSTRUCTION DETAILS

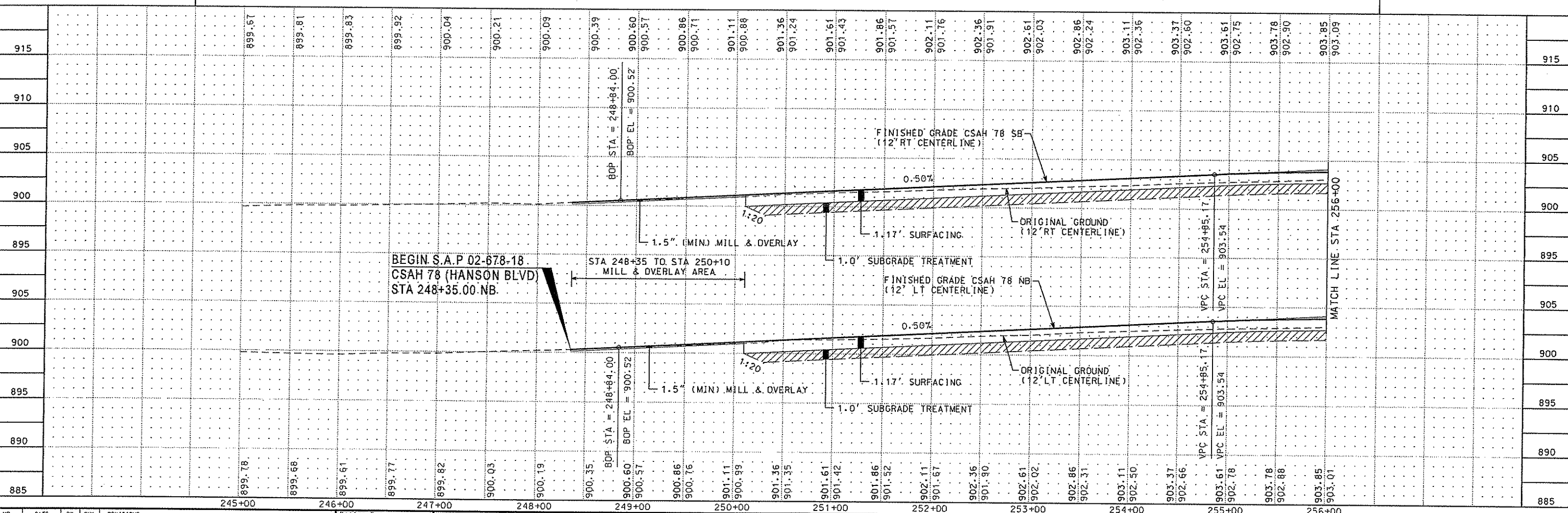


- ### LEGEND
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
 - ② DEPRESS CURB FOR BITUMINOUS PATH (INCIDENTAL)
 - ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
 - ④ TRUNCATED DOME IN BITUMINOUS PATH



BENCH MARK ELEV

BENCH MARK ELEV



NO.	DATE	BY	CHK	REVISIONS

Design By: **NEH/THG**
 Plan By: **CWK**
 Checked By: **AJW**
 Approved By: **AJW**

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Winicki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINICKI, P.E.
 DATE: 8/30/05 L.I.C. NO.: 23128

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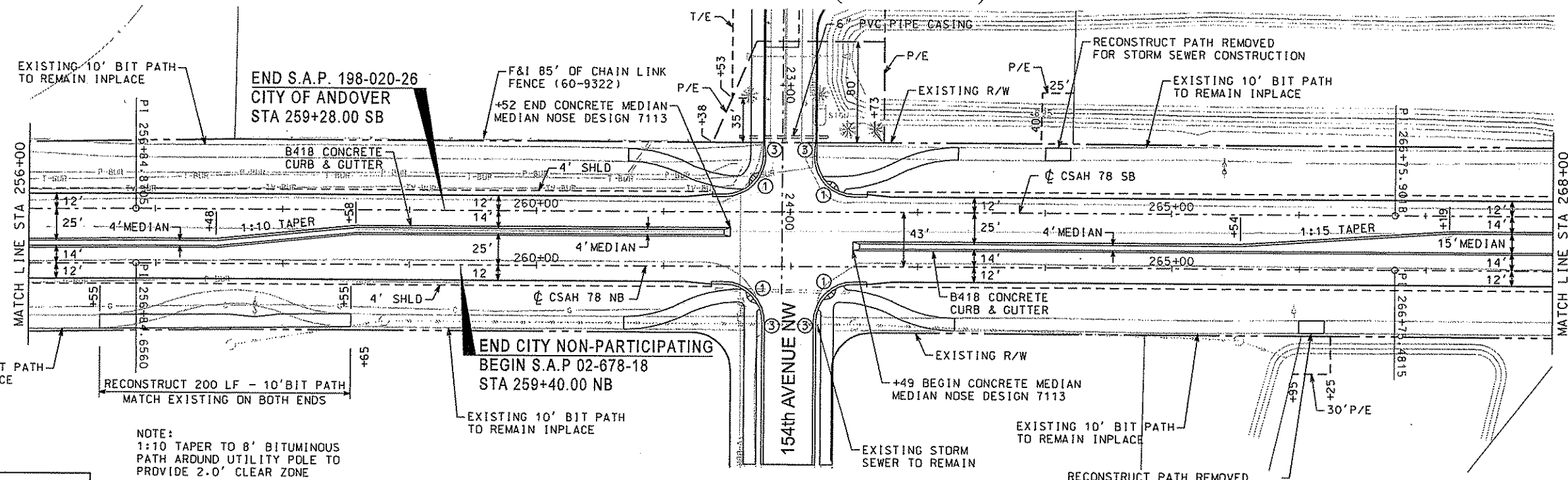
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ANOKA COUNTY HIGHWAY DEPARTMENT
 STA 245+00 TO STA 256+00
CONSTRUCTION PLAN & PROFILE
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SHEET
33
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90
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- LEGEND**
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
 - ② DEPRESS CURB FOR BITUMINOUS PATH (INCIDENTAL)
 - ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
 - ④ TRUNCATED DOME IN BITUMINOUS PATH

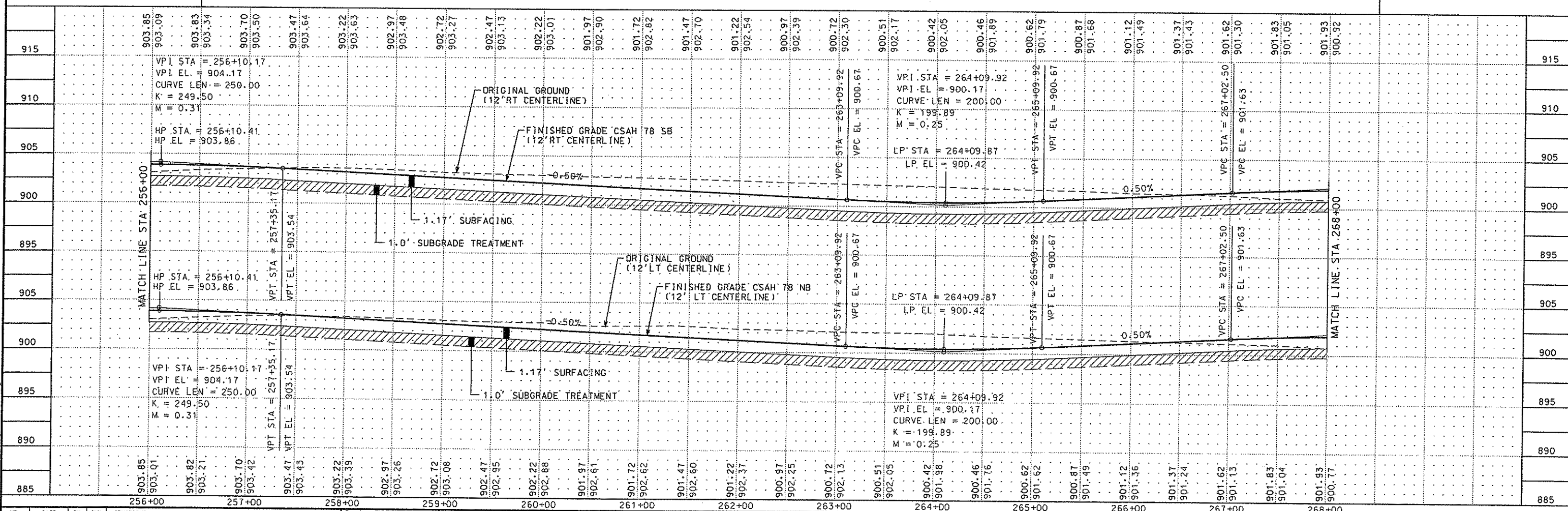


NOTE:
1:10 TAPER TO 8' BITUMINOUS PATH AROUND UTILITY POLE TO PROVIDE 2.0' CLEAR ZONE

SEE INTERSECTION DETAILS FOR ADDITIONAL CONSTRUCTION DETAILS

BENCH MARK ELEV

BENCH MARK ELEV



NO.	DATE	BY	CHK	REVISIONS

Design By: **NEH/THG**
 Plan By: **CWK**
 Checked By: **AJW**
 Approved By: **AJW**

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CERTIFIED BY: *Anthony J. Winecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

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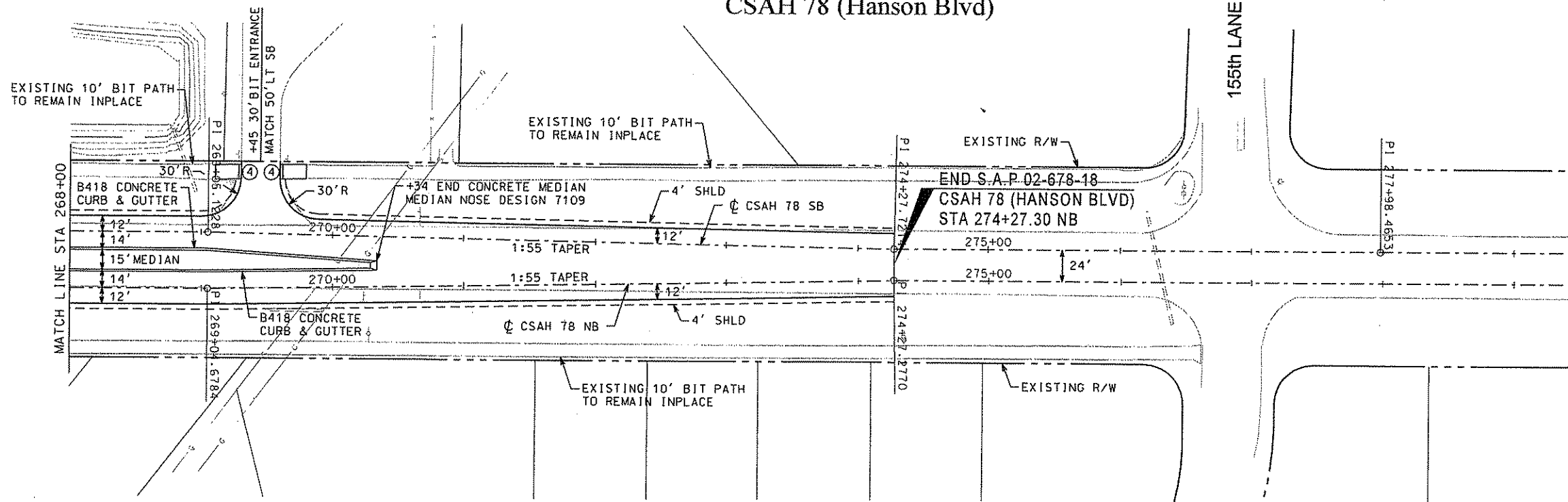
ANOKA COUNTY
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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 STA 256+00 TO STA 268+00
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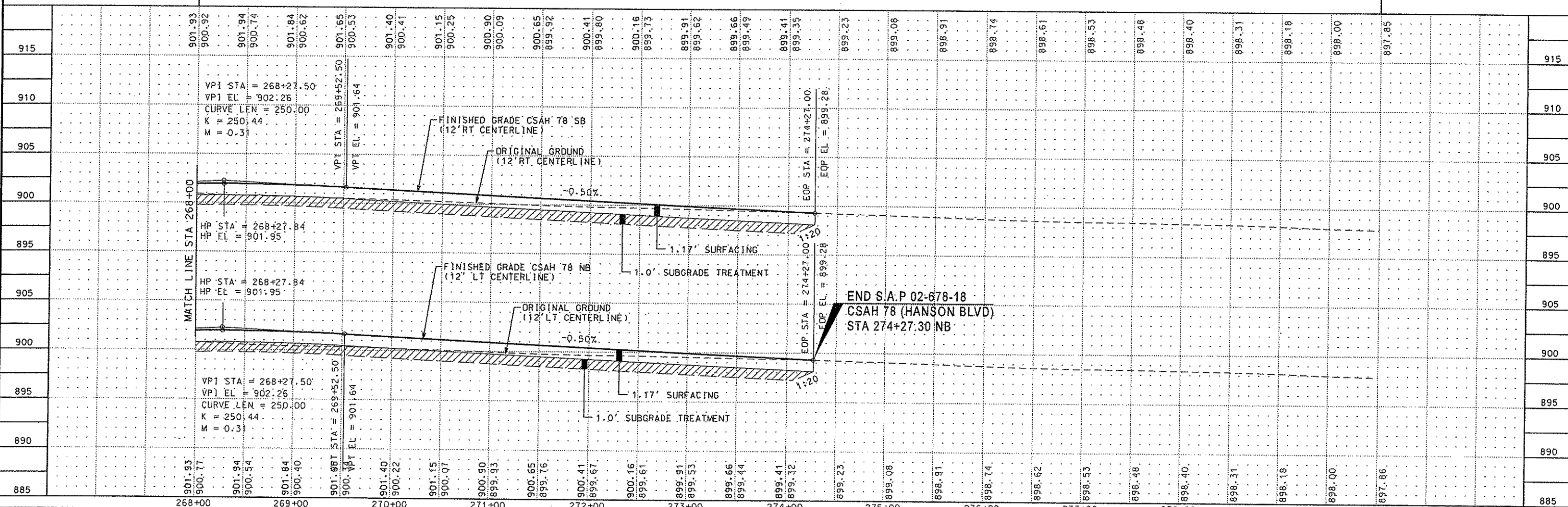


LEGEND

- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
- ② DEPRESS CURB FOR BITUMINOUS PATH (INCIDENTAL)
- ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
- ④ TRUNCATED DOME IN BITUMINOUS PATH

BENCH MARK ELEV

BENCH MARK ELEV



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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Whiteck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WHITECK, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

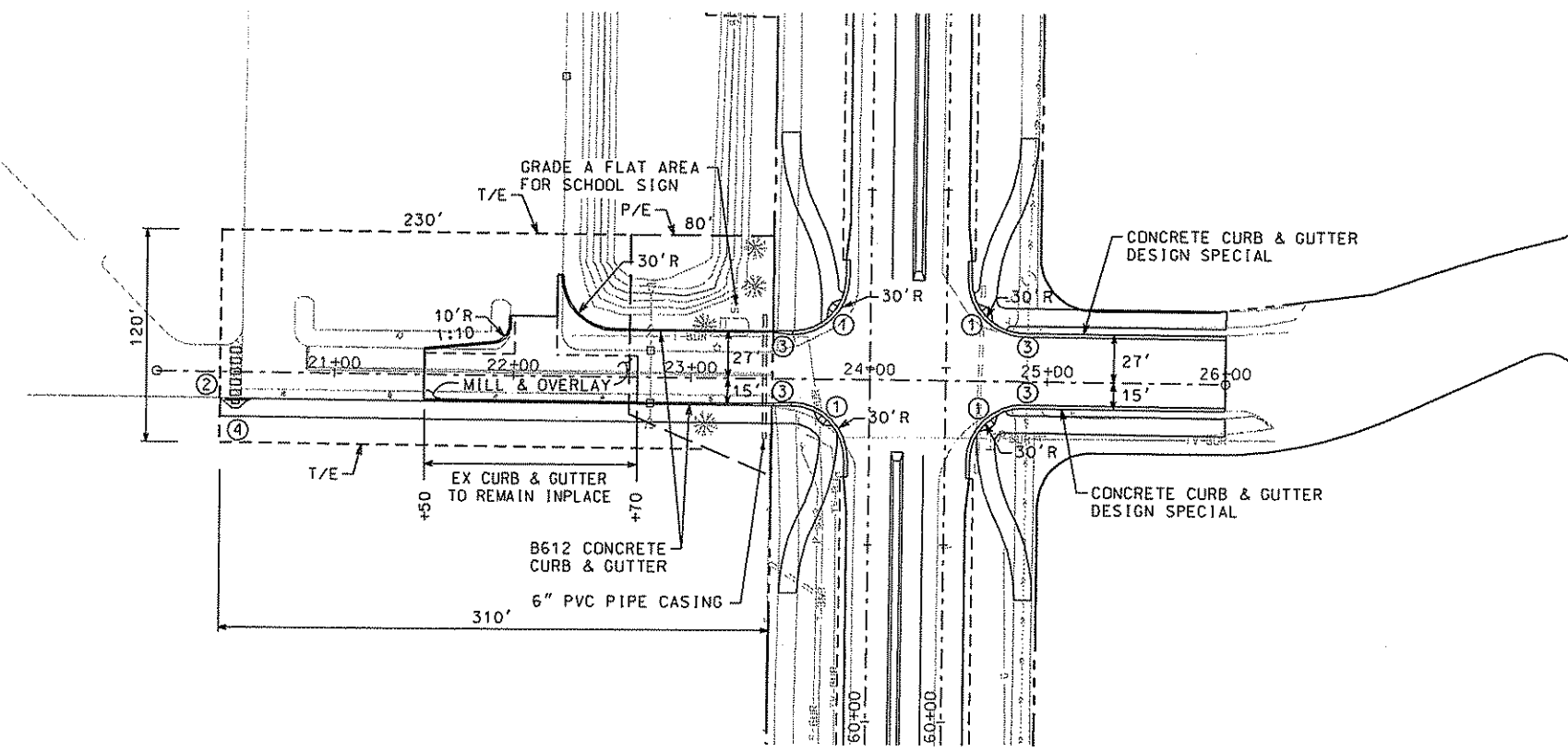
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CONSTRUCTION PLAN & PROFILE
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SHEET
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 OF
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School Entrance / 154th Avenue NW



LEGEND

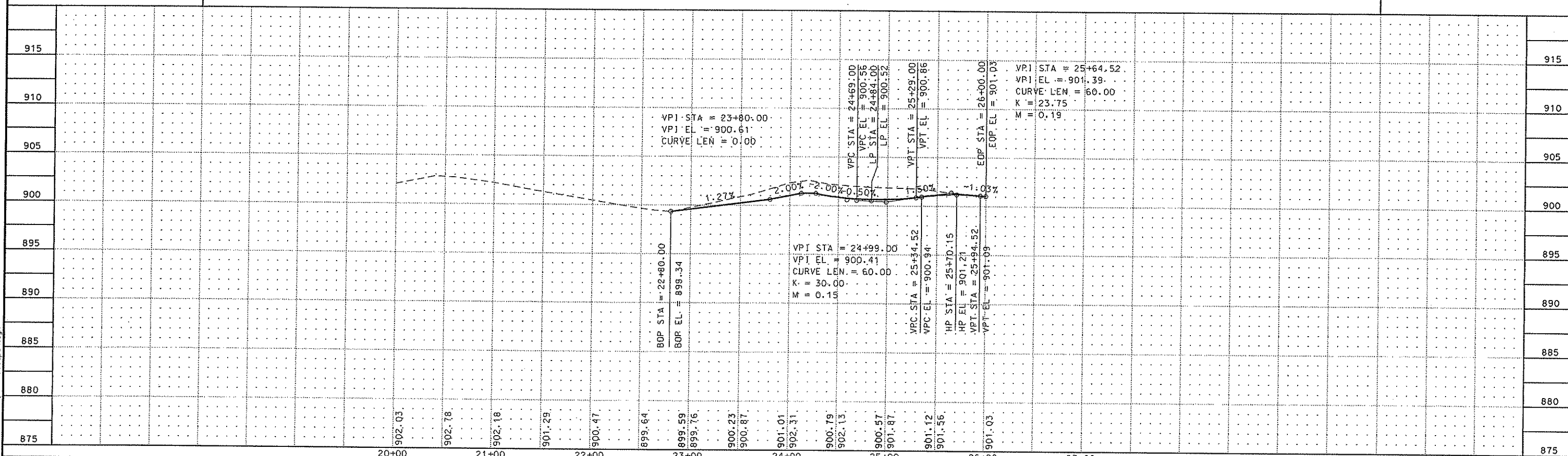
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
- ② DEPRESS CURB FOR BITUMINOUS PATH (INCIDENTAL)
- ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
- ④ TRUNCATED DOME IN BITUMINOUS PATH



SEE INTERSECTION DETAILS FOR ADDITIONAL CONSTRUCTION DETAILS

BENCH MARK ELEV

BENCH MARK ELEV



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 Approved By: AJW

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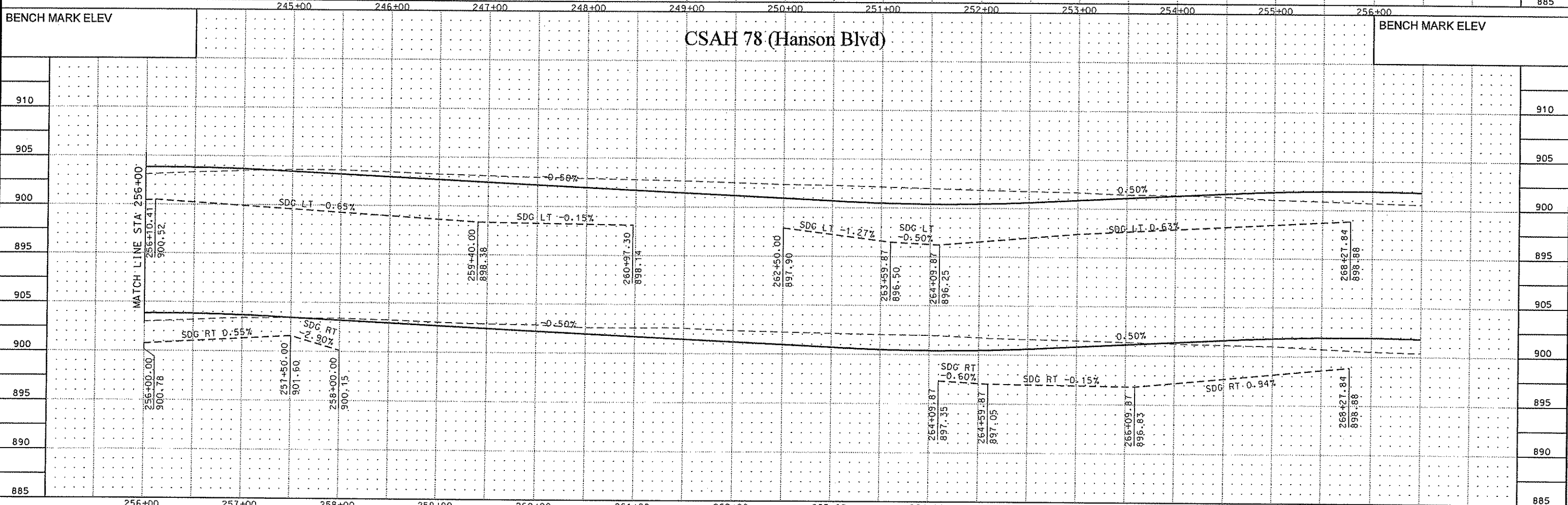
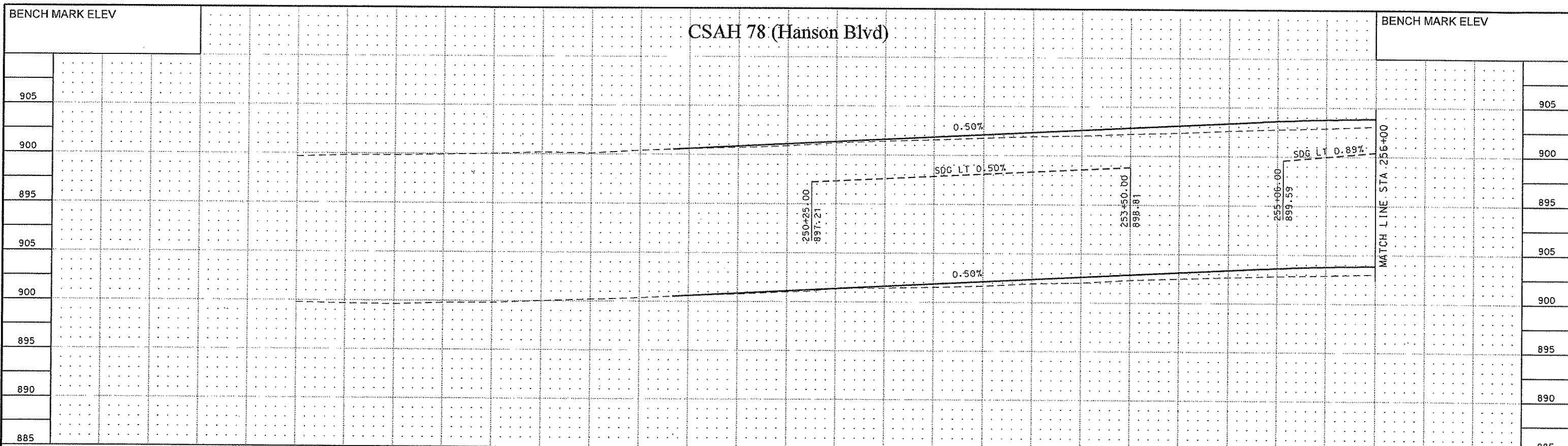
CERTIFIED BY: *Anthony J. Witbeck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITBECK, P.E.
 DATE: 8/30/05 L.I.C. NO.: 23128

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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 154th AVENUE NW
CONSTRUCTION PLAN & PROFILE
 S.A.P 02-678-18, ETC.

SHEET
 36
 OF
 90
 SHEETS



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 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Winicki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINICKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

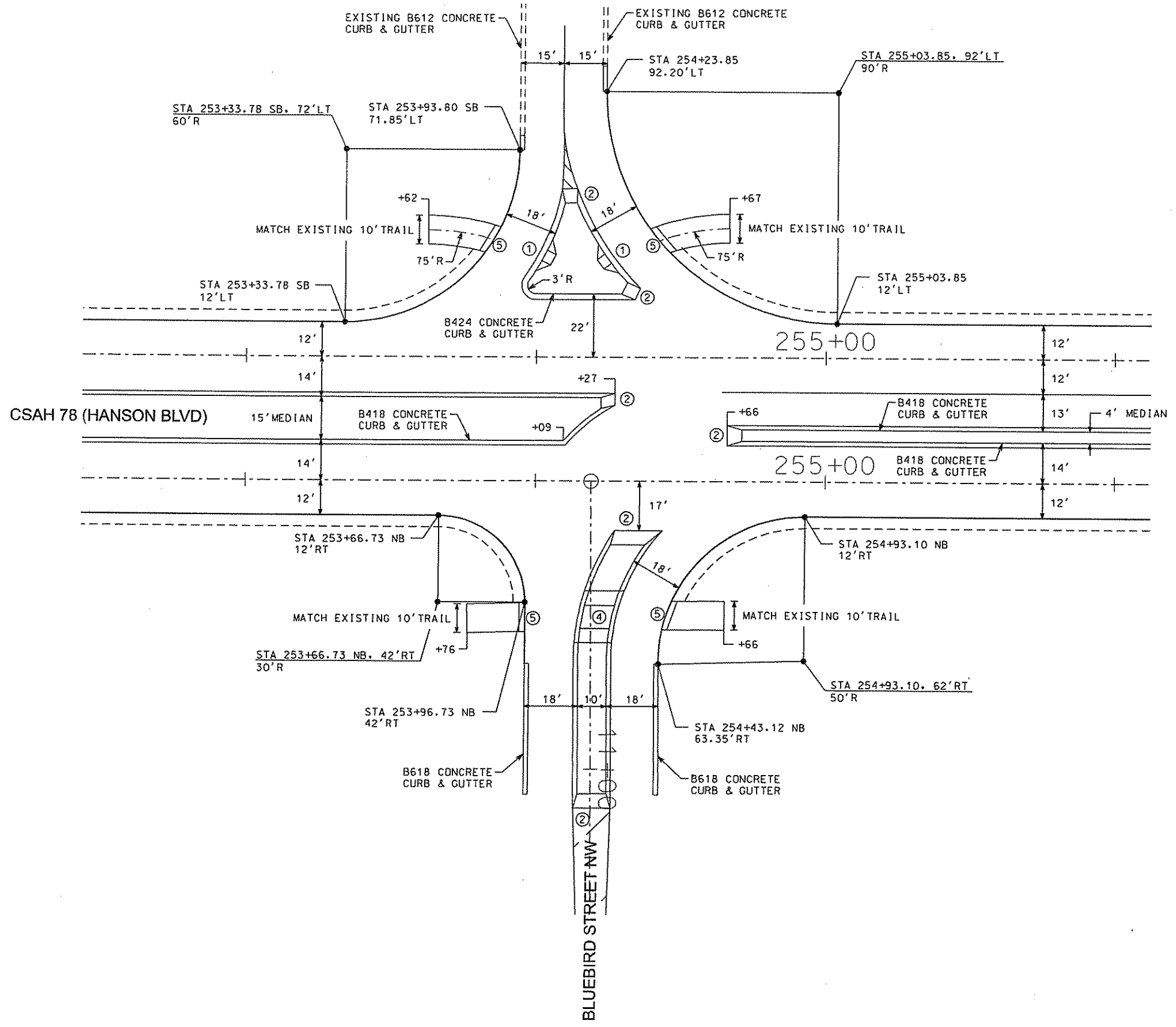
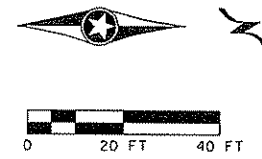
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ANOKA COUNTY
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CONSTRUCTION PLAN & PROFILE
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- LEGEND**
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
 - ② CONCRETE MEDIAN NOSE DESIGN T113
 - ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
 - ④ DEPRESS CONCRETE MEDIAN FOR PATH CROSSING
 - ⑤ TRUNCATED DOME IN BITUMINOUS PATH

9/1/2005
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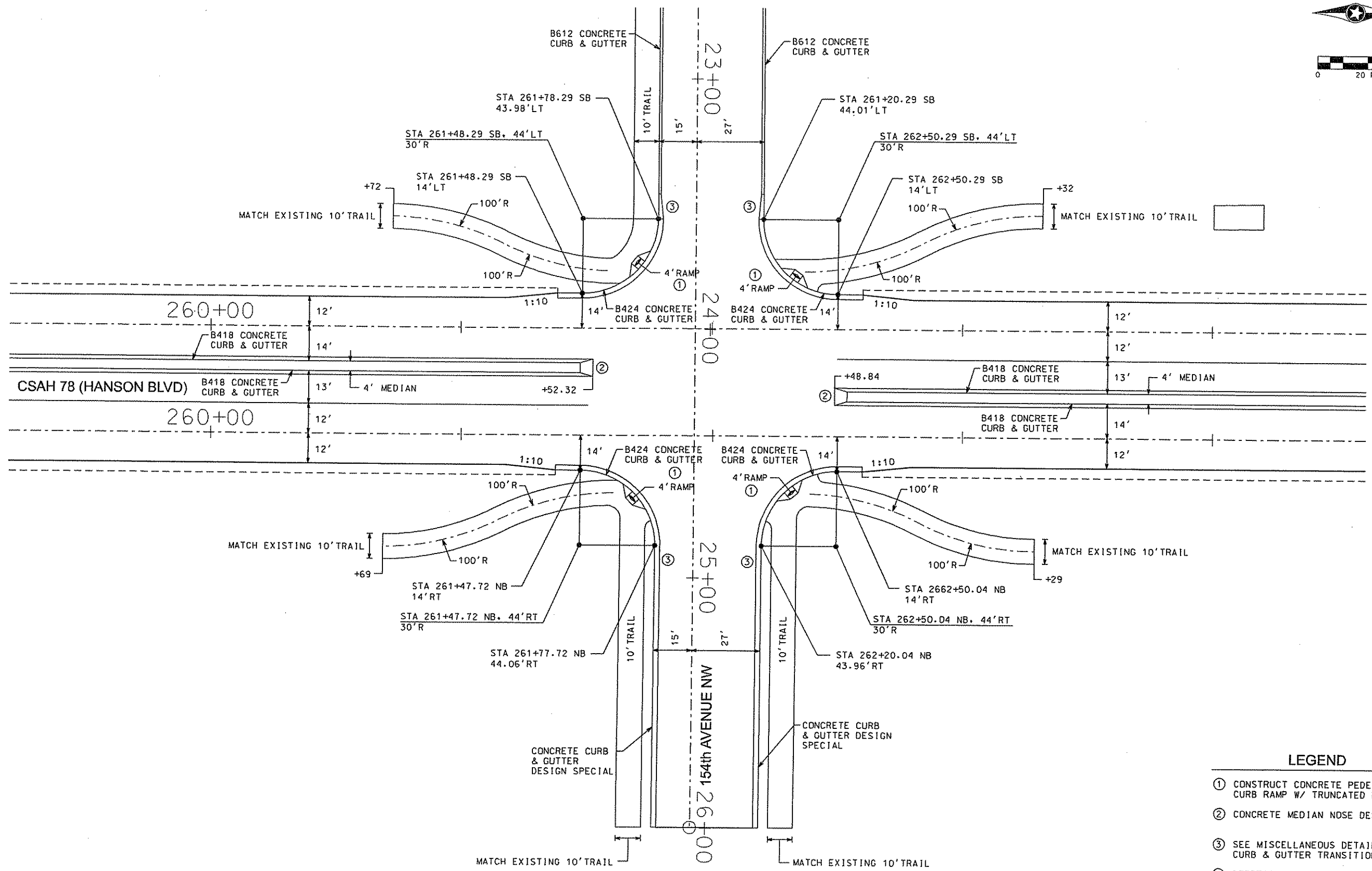
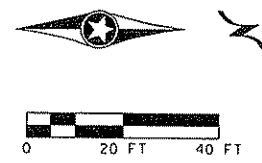
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ANOKA COUNTY HIGHWAY DEPARTMENT
 CSAH 78 (HANSON BLVD) AT BLUEBIRD STREET NW
INTERSECTION DETAILS
 S.A.P 02-678-18, ETC.

SHEET
38
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- LEGEND**
- ① CONSTRUCT CONCRETE PEDESTRIAN CURB RAMP W/ TRUNCATED DOMES
 - ② CONCRETE MEDIAN NOSE DESIGN 7113
 - ③ SEE MISCELLANEOUS DETAILS FOR CURB & GUTTER TRANSITION DETAIL
 - ④ DEPRESS CONCRETE MEDIAN FOR PATH CROSSING

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CSAH 78 (Hanson Blvd)

BEGIN S.A.P. 198-020-26
CITY OF ANDOVER
STA 253+33.00 SB

CROSTOWN
BLVD

NWL = 892.00
100 YR HWL = 892.18
2 - 100 YR HWL = 896.06

NWL = 892.00
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2 - 100 YR HWL = 894.97

NWL = 896.00
100 YR HWL = 896.55
2 - 100 YR HWL = 898.10

BEGIN CITY-NON-PARTICIPATING
CSAH 78 (HANSON BLVD)
STA 248+35.00 NB

STUB OUT FOR FUTURE
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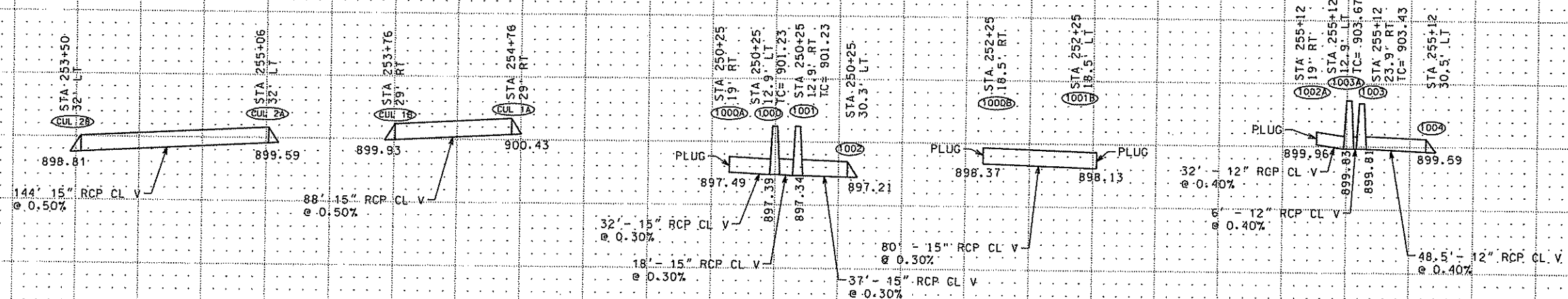
MATCH LINE STA 256+00

BLUEBIRD
STREET NW



BENCH MARK ELEV

BENCH MARK ELEV



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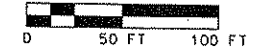
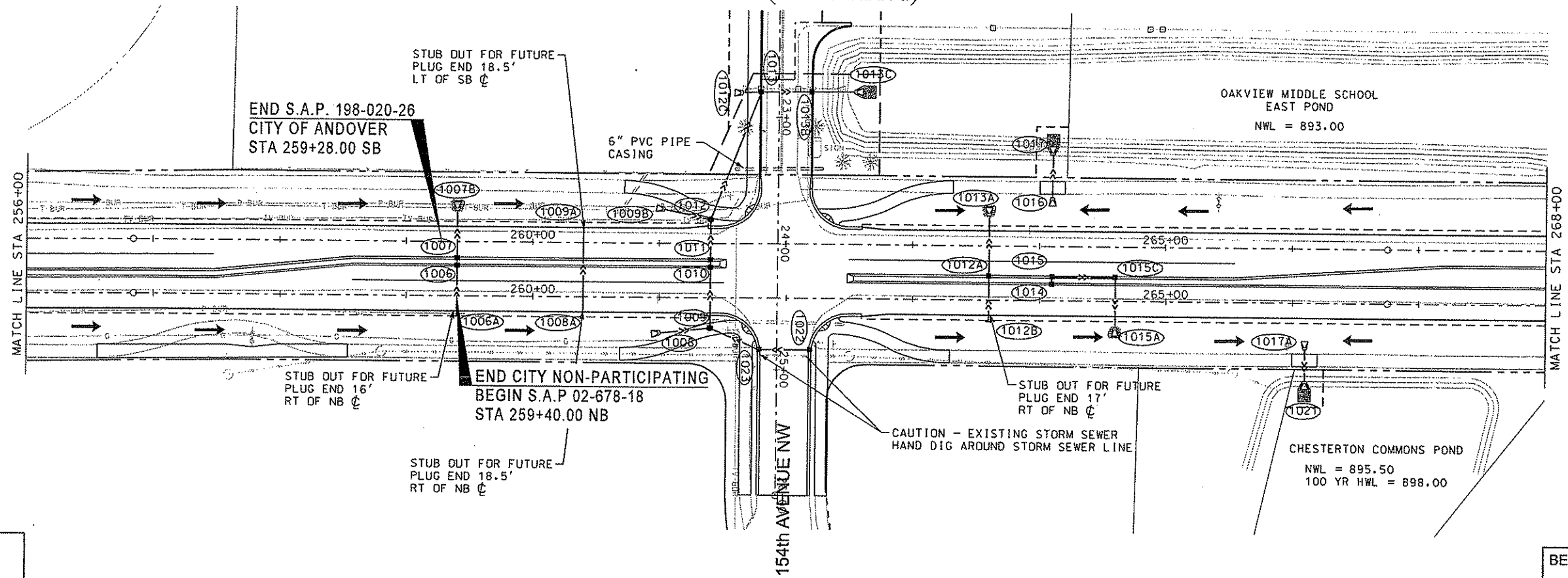
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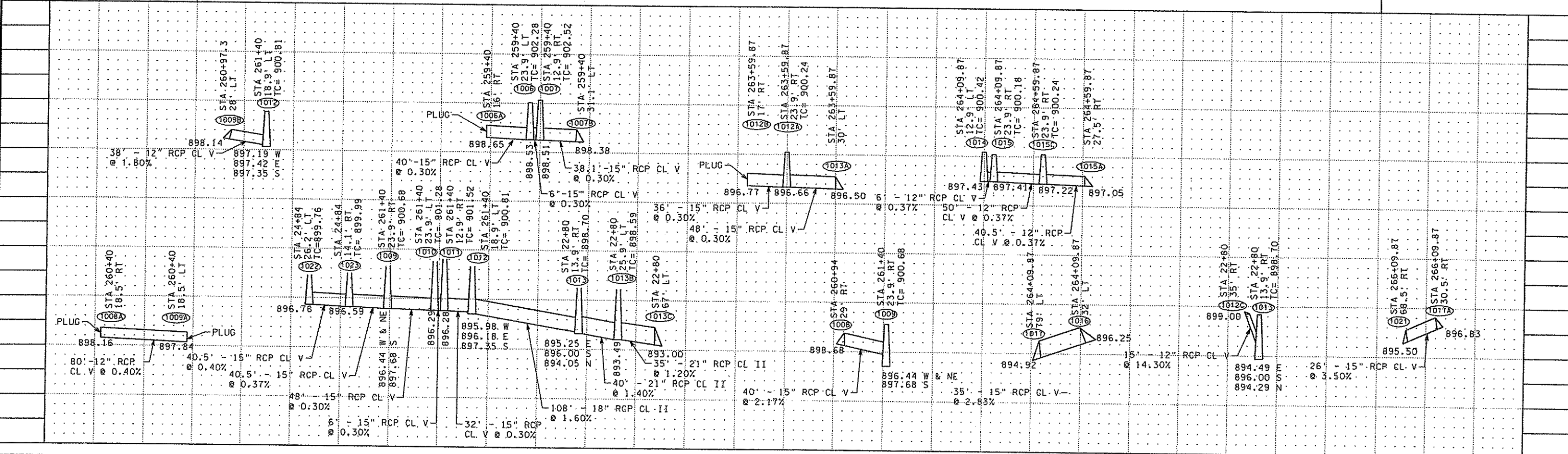
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BENCH MARK ELEV

BENCH MARK ELEV



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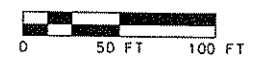
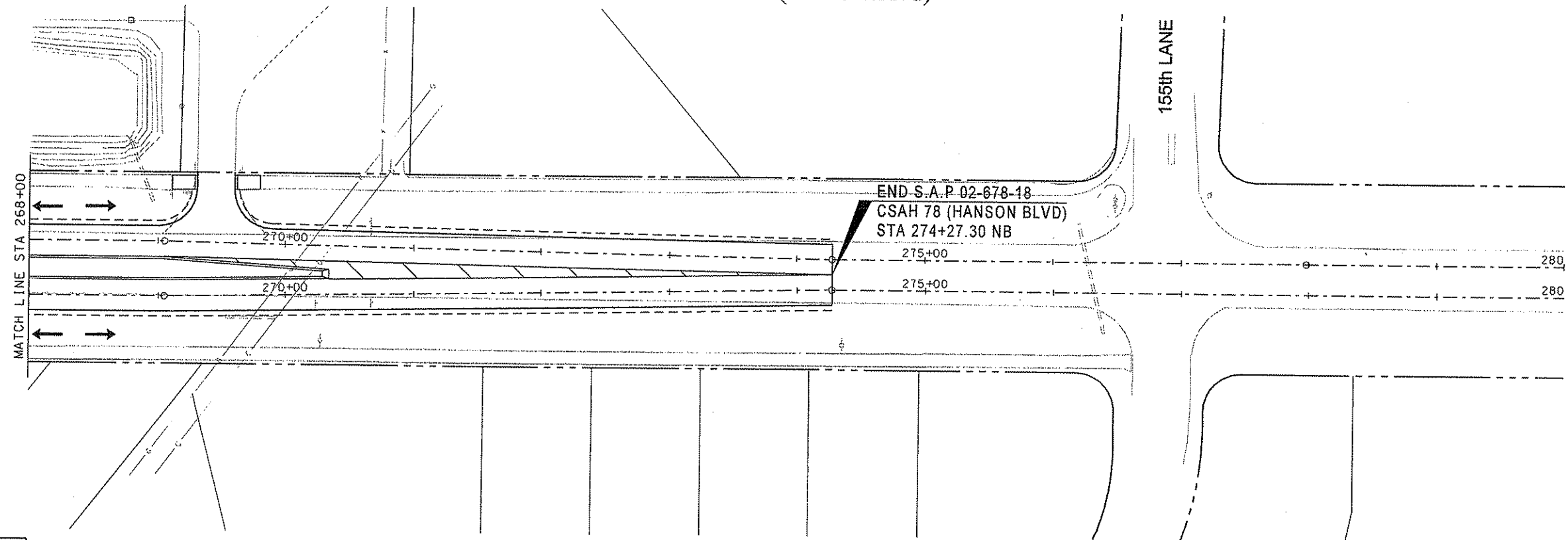
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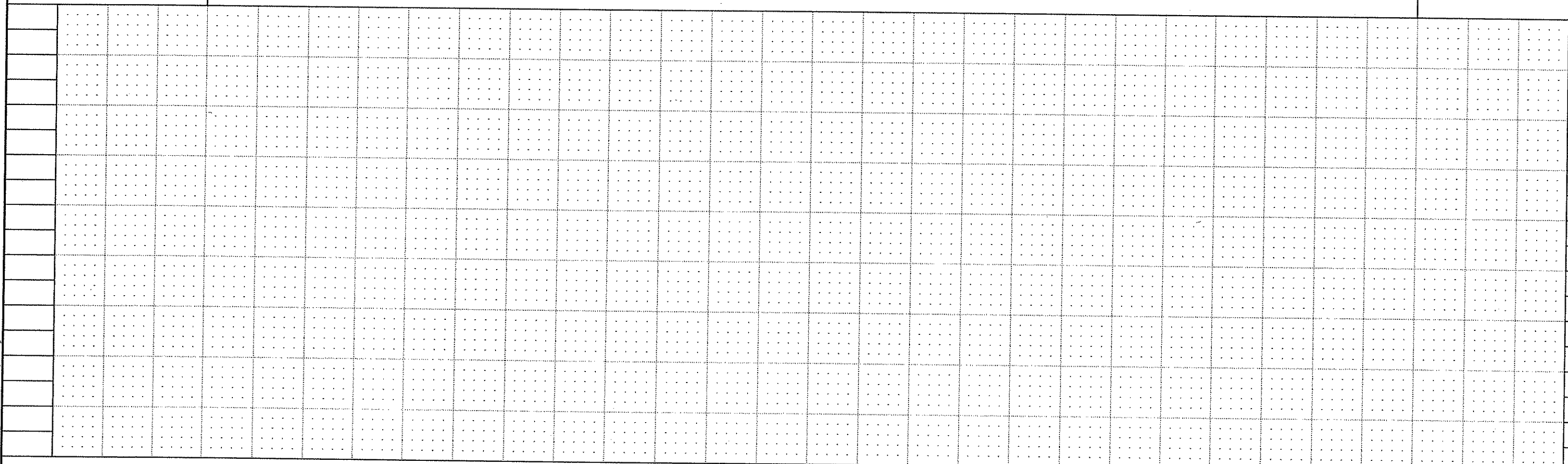
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BENCH MARK ELEV

BENCH MARK ELEV



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PLAN REQUIREMENTS

THE OWNER MUST DEVELOP A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH NPDES PERMIT REQUIREMENTS.

THE CONTRACTOR MUST SUBMIT A COMPLETED NPDES/SDS APPLICATION FORM WITH THE \$400 APPLICATION FEE TO THE MPCA.

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL TERMS AND CONDITIONS OF THE PERMIT.

THE CONTRACTOR MUST SUBMIT THE APPLICATION FOR GENERAL STORM WATER PERMIT FOR CONSTRUCTION ACTIVITY (MNR100001) TEN (10) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

THE CONTRACTOR MUST MONITOR AND REPORT ON STORM WATER MANAGEMENT REQUIREMENTS PER MPCA.

THE CONTRACTOR MUST IDENTIFY A PERSON KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPs WHO WILL:

1. OVERSEE THE IMPLEMENTATION OF THE SWPPP.
2. OVERSEE THE INSTALLATION, INSPECTION AND MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION.

THE CONTRACTOR MUST IDENTIFY WHO WILL HAVE THE LONG-TERM RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM AND DEVELOP A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL FINAL STABILIZATION AND SUBMITTAL OF THE NOT.

THE SWPPP MUST INCLUDE:

1. LOCATION AND TYPE OF ALL TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPs, INCLUDING PROCEDURES USED TO ESTABLISH ADDITIONAL TEMPORARY BMPs AS NECESSARY FOR THE SITE CONDITIONS DURING CONSTRUCTION.
2. A SITE MAP WITH EXISTING AND FINAL GRADES.
3. A WATERSHED DELINEATION SHOWING DRAINAGE DIRECTION OF FLOWS FOR PRE- AND POST-CONSTRUCTION STORM WATER RUNOFF DRAINAGE AREAS AND ALL POST-CONSTRUCTION STORM WATER OUTFALLS LEAVING THE SITE.
4. IMPERVIOUS AREAS AND SOIL TYPES.
5. LOCATION OF AREAS NOT TO BE DISTURBED.
6. LOCATION OF AREAS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE DURATION OF EXPOSED SOIL AREAS.
7. ALL SURFACE WATERS AND EXISTING WETLANDS.
8. METHODS TO BE USED FOR FINAL STABILIZATION OF ALL EXPOSED SOIL AREAS.

PERMIT REQUIRES THAT THERE BE NO UNBROKEN SLOPE LENGTH GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 3:1 OR STEEPER.

SEQUENCE OF CONSTRUCTION

1. CONTRACTOR TO VERIFY THAT ALL PERMITS HAVE BEEN OBTAINED.
2. CONTRACTOR TO SCHEDULE FIELD MEETING WITH COUNTY OR LGU AND/OR WATERSHED.
3. CONTRACTOR TO INSTALL ALL PERIMETER SEDIMENT CONTROL DEVICES, CONSTRUCTION ENTRANCES, AND PROTECTIVE FENCING FOR TREES, DITCHES, AND EXISTING WATER BODIES AND AREAS TO REMAIN UNDISTURBED.
4. CONTRACTOR TO CONSTRUCT STORM WATER AND/OR TEMPORARY SEDIMENTATION BASINS.
5. CONTRACTOR TO CONTACT COUNTY OR LGU AND/OR WATERSHED FOR APPROVAL OF SEDIMENT CONTROL DEVICES.
6. CONTRACTOR TO ROUGH GRADE SITE AND INSTALL UTILITIES.
7. CONTRACTOR TO INSTALL TEMPORARY SEED MIX AND EROSION CONTROL BLANKETS WITHIN 48 HOURS. PERMANENT SEED MIX TO BE INSTALLED ON STORM WATER POND SLOPES AND ALL AREAS WITH EROSION CONTROL BLANKETS WITHIN 5 DAYS OF ROUGH GRADING.
8. CONTRACTOR TO INSTALL TEMPORARY EROSION CONTROL DEVICES AS NECESSARY. CONTRACTOR TO FILL TEMPORARY SEDIMENTATION BASINS, COMPACTING TO SPECIFIED DENSITIES. REMOVE ALL UNSUITABLE SEDIMENT PER RECOMMENDATION OF GEOTECHNICAL ENGINEER.
9. CONTRACTOR TO INSTALL SUBBASE AND BASE FOR PAVEMENT.
10. CONTRACTOR TO INSTALL BITUMINOUS SURFACE.
11. THE CONTRACTOR IS TO PLACE A THREE-FOOT WIDE STRIP OF SOD BEHIND THE CURB FOLLOWING BACKFILLING OF SMALL UTILITIES TO PREVENT EROSION IN THIS AREA.

SEQUENCE OF CONSTRUCTION - CONT.

12. ONCE ALL DISTURBED AREAS HAVE BEEN STABILIZED, OBTAIN APPROVAL FROM THE COUNTY ENGINEER WITHIN TWO WEEKS OF FINAL STABILIZATION.
13. CONTRACTOR TO REMOVE SEDIMENT CONTROL DEVICES WITHIN TWO WEEKS OF APPROVAL.
14. SUBMIT NOTICE OF TERMINATION TO MPCA WITHIN 30 DAYS OF FINAL STABILIZATION.

PRECONSTRUCTION ACTIVITIES

THE COUNTY WILL INSPECT SILT FENCE PRIOR TO ANY LAND ALTERATION. ALL SILT FENCE SHALL BE CONSTRUCTED WITH WOOD OR STEEL POSTS (SEE DETAIL).

ALL EROSION CONTROL MEASURES MUST BE INSTALLED AND MAINTAINED ACCORDING TO THE DETAILS INCLUDED IN THE CONSTRUCTION DOCUMENTS. ALL SILT MUST BE REMOVED FROM SILT FENCE WHEN IT REACHES A HEIGHT EQUAL TO ONE-THIRD OF THE HEIGHT OF THE SILT FENCE. THE CONTRACTOR MUST PERFORM ANY CORRECTIVE MEASURES ORDERED BY THE RESIDENT ENGINEER, LOCAL GOVERNMENT UNIT, OR MPCA WITHIN 24 HOURS OF SUCH NOTICE. THE CONTRACTOR SHALL ALSO PLACE ANY ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY BY THE COUNTY OR MPCA WITHIN 24 HOURS NOTICE. ALL MEASURES MUST BE REPLACED OR REPAIRED WITH THE APPROVAL OF COUNTY, AND MPCA, WHEN THEY BECOME NONFUNCTIONAL.

ORANGE POLY SNOW FENCING MUST BE PLACED AROUND ALL NATURAL FEATURES THAT ARE TO BE PRESERVED. THIS INCLUDES ALL TREES, WETLANDS, SLOPES, ETC.. IN LOCATIONS WHERE PLACEMENT OF PROTECTION FENCING COINCIDES WITH THE PLACEMENT OF SILT FENCE, THE TOP PORTION OF THE SILT FENCE MAY BE PAINTED ORANGE AND CAUTION RIBBON MAY BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED IN THE CONSTRUCTION SPECIFICATION. RIBBON MUST BE MAINTAINED AT ALL TIMES IF THIS ALTERNATIVE IS TO BE USED.

ON-SITE TESTING MUST BE CONDUCTED TO VERIFY THAT A MINIMUM OF 2 FEET OF SEPARATION FROM BEDROCK OR SATURATED SOIL IS ACHIEVED.

ALL DOWN GRADIENT PERIMETER CONTROLS SHALL BE IN PLACE BEFORE ANY UP GRADIENT DISTURBANCE BEGINS, AND MAINTAINED UNTIL FINAL STABILIZATION.

TIMING AND INSTALLATION OF SEDIMENT CONTROL DEVICES CAN BE ADJUSTED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING AND GRUBBING.

ROCK CONSTRUCTION ENTRANCES OR EQUIVALENT SYSTEM MUST BE USED TO MINIMIZE TRACKING FROM SITE.

DEWATERING ACTIVITIES THAT MAY HAVE SEDIMENT-LADEN DISCHARGE MUST DISCHARGE INTO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN WHEN POSSIBLE. OTHERWISE IT MUST BE DISCHARGED THROUGH SOME FORM OF BEST MANAGEMENT PRACTICE (BMP).

FIELD REQUIREMENTS

THE PERMITTEE MUST AMEND THE SWPPP AS NECESSARY TO INCLUDE ADDITIONAL REQUIREMENTS, SUCH AS ADDITIONAL OR MODIFIED BMPs, DESIGNED TO CORRECT PROBLEMS IDENTIFIED OR ADDRESS SITUATIONS WHENEVER:

1. THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE.
2. WEATHER OR SEASONAL CONDITIONS THAT HAVE SIGNIFICANT EFFECT ON DISCHARGE. INSPECTION IS REQUIRED WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN ONE-HALF INCH.
3. INSPECTION OR INVESTIGATION BY SITE OPERATORS, LOCAL, STATE, OR FEDERAL OFFICIALS INDICATE THE SWPPP IS NOT EFFECTIVE.
4. THE SWPPP IS NOT ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS OR THE SWPPP IS NOT CONSISTENT WITH THE TERMS AND CONDITIONS OF THIS PERMIT.
5. THE MPCA DETERMINES THAT DISCHARGE MAY CAUSE OR CONTRIBUTE TO NON-ATTAINMENT OF ANY APPLICABLE WATER QUALITY STANDARDS OR THE SWPPP DOES NOT INCORPORATE THE REQUIREMENTS RELATED TO AN APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL); THE RUNOFF FROM THE SITE DISCHARGES TO AN IMPAIRED WATER WHICH HAS AN APPROVED TMDL AND HAS NOT BEEN PROPERLY DETAILED IN THE SWPPP.

STORM WATER PONDS, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT ON-SITE WILL BE CONSTRUCTED AS A FIRST STEP IN GRADING, AND WILL BE MADE FUNCTIONAL BEFORE LAND DISTURBANCE TAKES PLACE UP SLOPE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS MUST BE SEEDED AND MULCHED WITHIN 48 HOURS OF INSTALLATION. UTILITY AND PAVING WORK WILL COMMENCE UPON COMPLETION OF THE GRADING OPERATIONS. ALL EROSION CONTROL MEASURES AND PROTECTIVE FENCING MUST BE INSTALLED AND INSPECTED BY THE COUNTY OR LOCAL GOVERNMENT UNIT PRIOR TO BEGINNING OF ANY GRADING.

THE PERMITTEE MUST IMPLEMENT THE SWPPP AND INSTALL BMPs IDENTIFIED IN THE SWPPP IN AN APPROPRIATE AND FUNCTIONAL MANNER.

THE LOCATION OF AREAS NOT TO BE DISTURBED MUST BE DELINEATED ON THE SITE BEFORE DEVELOPMENT BEGINS.

FIELD REQUIREMENTS - CONT.

ALL EXPOSED AREAS WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 FEET OF A SURFACE WATER MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREA, YEAR ROUND, WITH THE FOLLOWING MAXIMUM TIMES AND AREA CAN REMAIN OPEN WHEN THE AREAS NOT ACTIVELY BEING WORKED:

1. SLOPES STEEPER THAN 3:1 (7 DAYS).
2. SLOPES OF 10:1 TO 3:1 (14 DAYS).
3. SLOPES OF 10:1 OR FLATTER (21 DAYS).

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE OR DIVERTS WATER AROUND A SITE MUST BE STABILIZED WITHIN 200 FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER.

CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING EXISTING PAVED SURFACES CLEAN OF SEDIMENT BY STREET SWEEPING ROADWAYS WHEN A SIGNIFICANT ACCUMULATION OF SEDIMENT OCCURS ON THESE SURFACES. ANY SEDIMENT TRACKED OFF-SITE IS TO BE REMOVED WITHIN 24 HOURS.

CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THE FOLLOWING POLLUTION MANAGEMENT MEASURES ON THE SITE:

1. SOLID WASTE: COLLECTED SEDIMENT, ASPHALT & CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.
2. HAZARDOUS MATERIALS: OIL, GASOLINE, PAINT, AND ANY HAZARDOUS SUBSTANCES MUST BE STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGES. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM, STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST COMPLY WITH MPCA REGULATIONS.
3. A DEFINED AREA OF THE SITE MUST BE DESIGNATED FOR USE AS A WASH AREA FOR TRUCKS AND OTHER EQUIPMENT. NO ENGINE DEGREASING ALLOWED ON SITE.

CONTRACTOR TO PROVIDE SILT BAG PROTECTION AT ALL CATCH BASIN INLETS IN THE ROADWAY, AND SILT FENCE PROTECTION AT ALL CATCH BASINS OUTSIDE OF THE ROADWAY. (SEE DETAILS.)

TEMPORARY AND PERMANENT SEDIMENTATION BASINS MUST BE DRAINED AND SEDIMENT REMOVED ONCE THE SEDIMENT COLLECTED REACHES ONE THIRD THE STORAGE VOLUME WITHIN 72 HOURS, AS FIELD CONDITIONS ALLOW.

ALL SEDIMENT DEPOSITS WITHIN SURFACE WATERS MUST BE REMOVED AND RESTABILIZED WITHIN 7 DAYS OF DISCOVERY. THIS INCLUDES DELTAS AND STORM SEWER SEDIMENT DEPOSITS.

DURING EXCAVATION, SEDIMENT AND EROSION CONTROL DEVICES SHOULD BE UTILIZED TO PREVENT SEDIMENTATION AND THE AREA MUST BE STAKED OFF AND MARKED SO THAT HEAVY CONSTRUCTION EQUIPMENT WILL NOT COMPACT THE SOIL.

TO PREVENT CLOGGING OF THE SYSTEM, A PRETREATMENT DEVICE MUST BE USED TO SETTLE PARTICULATES BEFORE RUNOFF DISCHARGES INTO THE INFILTRATION/FILTRATION SYSTEM.

ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION IS REACHING THE INFILTRATION AREA.

MAINTENANCE DURING CONSTRUCTION

MAINTAIN ALL EROSION CONTROL ITEMS, REMOVE ACCUMULATED SEDIMENTS, CLEAN UP MUD TRACKED FROM THE SITE ON TO ADJACENT STREETS, AND CONTROL DUST (PER MN/DOT SPEC 2130 AS NECESSARY TO ELIMINATE SIGNIFICANT DUST PER REQUIREMENTS OF ENGINEER, OWNER, AND/OR COUNTY UNTIL SUCH TIME AS THE ENGINEER HAS ACCEPTED THE WORK.

TEMPORARY STOCKPILES MAY BE LEFT ON THE SITE FOR USE IN BACKFILL REPLENISHMENT. STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE BMPs TO CONTROL RUNOFF. STOCKPILES CANNOT BE PLACED IN SURFACE WATER CONVEYANCE DEVICES (CURB AND GUTTER, SWALES OR DITCH). TOPSOIL WILL BE RESPREAD PROGRESSIVELY AS THE GRADING WORK CONTINUES. IF STOCKPILES ARE TO REMAIN FOR MORE THAN 60 DAYS, TEMPORARY SEEDING MUST BE PLACED.

INSPECTION AND RECORD RETENTION

THE SWPPP, ALL CHANGES TO IT, AND INSPECTIONS AND MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION BY THE PERMITTEE WHO HAS OPERATIONAL CONTROL OF THE PORTION OF THE SITE. ALL OWNERS MUST KEEP THE SWPPP ON FILE FOR THREE YEARS AFTER THE SUBMITTAL OF THE NOTICE OF TERMINATION, INCLUDING THE FOLLOWING INFORMATION:

1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT.
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION.
3. ALL PERMANENT OPERATION AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT-OF-WAY, CONTRACTS, COVENANTS, AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE.
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORM WATER MANAGEMENT SYSTEMS.

THE PERMITTEE MUST ROUTINELY INSPECT THE SITE ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND RETAINED WITH THE SWPPP.

INSPECTION AND RECORD RETENTION - CONT.

RECORDS MUST INCLUDE:

1. DATE AND TIME OF INSPECTIONS.
2. NAME OF PERSON CONDUCTING INSPECTION.
3. FINDING OF INSPECTION INCLUDING CORRECTIVE ACTION, DETAILS OF CORRECTIVE ACTION (DATE, TIME, PARTY COMPETING MAINTENANCE).
4. DATE AND AMOUNT OF RAINFALL GREATER THAN 0.5 INCHES IN 24 HOURS.
5. DOCUMENTATION OF CHANGES TO SWPPP.

IN AREAS OF PROJECT WHERE FINAL STABILIZATION IS COMPLETE, INSPECTIONS CAN BE REDUCED TO ONCE A MONTH.

INSPECTIONS CAN BE SUSPENDED DUE TO FROZEN GROUND CONDITIONS UNTIL FIRST RUNOFF OCCURS OR CONSTRUCTION ACTIVITIES RESUME.

RESTORATION

THE OWNER AND/OR CONTRACTOR SHALL ALSO SUBMIT AN NPDES NOTICE OF TERMINATION TO MPCA WITHIN ONE WEEK OF FINAL RESTORATION ACCEPTANCE BY THE OWNER.

RESPREAD TOPSOIL AND ESTABLISH TURF ON ALL ROUGH GRADED AREAS OTHER THAN THOSE DESIGNATED FOR PADS, BITUMINOUS, AND CONCRETE WITHIN 48 HOURS AFTER COMPLETION OF EARTH MOVING.

RESPREAD TOPSOIL AND ESTABLISH TURF ON ALL FINAL GRADED AREAS WITHIN 72 HOURS AFTER COMPLETION OF FINAL GRADING.

EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL SLOPES 3:1 OR STEEPER WITHIN 48 HOURS OF PLACING FINAL TOPSOIL AND SEED.

INFILTRATION/FILTRATION SYSTEMS SHOULD NOT BE EXCAVATED TO FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN FULLY STABILIZED.

THE CONTRACTOR SHALL COMPLETELY REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES UPON ESTABLISHMENT OF FINAL MEASURES AND SITE STABILIZATION. CONTRACTOR TO FILL TEMPORARY SEDIMENTATION BASINS, COMPACTING TO SPECIFIED DENSITIES. REMOVE ALL UNSTABLE SEDIMENT PER RECOMMENDATION OF THE ENGINEER.

NOTICE OF TERMINATION

PERMITTEES MUST SUBMIT A NOTICE OF TERMINATION (NOT) WITHIN 30 DAYS IF ONE OR MORE OF THE FOLLOWING CONDITIONS HAVE BEEN MET:

1. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH PERMITTEE IS RESPONSIBLE, INCLUDING THE REMOVAL OF ALL TEMPORARY MEASURES SUCH AS SILT FENCE.
2. ANOTHER OWNER HAS ASSUMED CONTROL OVER ALL PORTIONS OF THE SITE THAT HAVE NOT ACHIEVED FINAL STABILIZATION.
3. IN THE CASE OF RESIDENTIAL CONSTRUCTION, TEMPORARY EROSION PROTECTION AND DOWN GRADIENT PERIMETER CONTROL FOR INDIVIDUAL LOTS HAS BEEN COMPLETED AND THE RESIDENCE HAS BEEN TRANSFERRED TO THE HOMEOWNER.

PERMITTEE MUST ENSURE FINAL STABILIZATION OF THE SITE AND SUBMIT THE NOTICE OF TERMINATION WITHIN 30 DAYS OF FINAL STABILIZATION.

FINAL STABILIZATION CAN BE ACHIEVED IN THE FOLLOWING WAY:

1. ALL SOIL DISTURBING ACTIVITIES ARE COMPLETE AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE ENTIRE PVIOUS SURFACE HAS BEEN ACHIEVED, INCLUDING:

- STABILIZATION OF DITCHES AND SWALES.
- REMOVAL OF ALL TEMPORARY SYNTHETIC AND STRUCTURAL BMPs.
- REMOVAL OF SEDIMENTS FROM STORM WATER CONVEYANCES AND PERMANENT WATER QUALITY BASINS.

FOR RESIDENTIAL DEVELOPMENTS, FINAL STABILIZATION HAS BEEN ACHIEVED WHEN:

- TEMPORARY EROSION PROTECTION AND DOWN GRADIENT PERIMETER CONTROL FOR INDIVIDUAL LOTS HAVE BEEN COMPLETED.
- THE RESIDENCE HAS BEEN TRANSFERRED TO THE HOMEOWNER. THE PERMITTEE MUST DISTRIBUTE THE MPCA "HOMEOWNER FACT SHEET" TO THE HOMEOWNER.

PERMITS REQUIRED

THE FOLLOWING PERMITS OR APPROVALS HAVE BEEN APPLIED FOR:

1. NPDES PERMIT
2. COON CREEK WATERSHED DISTRICT

Date Printed: 9/1/2005 WSB Filename: c:\016616-00\Local\plan\166616e00.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Witbeck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITBECK, P.E.
 DATE: 9/30/05 LIC. NO: 23128

701 Xenia Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com

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CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPARTMENT

SWPPP NOTES
TURF ESTABLISHMENT & EROSION CONTROL
 S.A.P 02-678-18, ETC.

SHEET **44**
 OF **90**
 SHEETS

PROJECT DESCRIPTION

The project is for the reconstruction of CSAH 78 (Hanson Blvd) from CR 18 (Crosstown Blvd) to 155th Lane.

RECEIVING WATERS

Water is treated in stormwater ponds prior to infiltration or discharge to Public Wetland 704W.

RESPONSIBLE PARTIES

Contractor is responsible for implementation of the SWPPP and the installation, inspection, and maintenance of the erosion prevention and sediment control BMP's before and during construction. COUNTY and the contractor are co-permittees for the NPDES permit.

OWNER

ANOKA COUNTY HIGHWAY DEPARTMENT
1440 BUNKER LAKE BLVD
ANDOVER, MN 55304

RESPONSIBLE PARTY FOR LONG-TERM MAINTENANCE

ANOKA COUNTY HIGHWAY DEPARTMENT
1440 BUNKER LAKE BLVD
ANDOVER, MN 55304
AND
CITY OF ANDOVER
1685 CROSSTOWN BLVD NW
ANDOVER, MN 55304-2612

CONTRACTOR

TO BE DETERMINED

MISCELLANEOUS NOTES

Construction shall be governed by Mn/Dot Standard Specifications for Construction and Project Specifications.
The contractor shall keep the inspection and maintenance log as required by the NPDES permit.

SOILS

Soils information is in the Project Manual.

LOCATION OF SWPPP REQUIREMENTS IN THE PLAN

DESCRIPTION	TITLE	LOCATION
Summary of Impervious Surface	Turf Establishment & Erosion Control	Plan
Direction of Flow	Drainage Plan & Profile	Plan
Receiving Surface Waters	Drainage Plan & Profile	Plan
Permanent Erosion Control	Permanent Erosion Control	Plan
Temporary Erosion Control	Temporary Erosion Control	Plan
Drainage Structures	Drainage Plan & Profile	Plan
Erosion Control Details	Permanent & Temporary Erosion Control	Plan
Location of Ponds	Drainage Plan & Profile	Plan
Storm Pond Calculation	Project 1666-00 Hydraulic Calculations	Project File

CONTACTS

AGENCY	PERMIT	NAME	PHONE NUMBER
MPCA	NPDES	Brian Gove	651-296-7036
SWCD	N/A		
DNR Permit	N/A	N/A	
Watershed District	Permit	Tim Kelly	763-755-0975
ACDE	N/A	N/A	
State Duty Officer		MPCA	1-800-422-0798
SWPPP Design		Andrea Moffatt	763-287-7196

SPECIAL WATERS

There are no special waters or TMDL waters that receive water from this project within 2,000 feet.

CALCULATIONS

Existing Impervious Surface Area	=	4.71 Acres
Post Construction Impervious Area	=	5.77 Acres
Area to be Disturbed	=	9.09 Acres
PERMANENT POOL (Wet storage)	=	8.8 Acre-Feet
TEMPDRARY POOL (LIVE STORAGE)	=	6.8 Acre-Feet
NPDES Treatment Permit Required	=	0.04 Acre Feet

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NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
Plan By: CWK
Checked By: AJW
Approved By: AJW

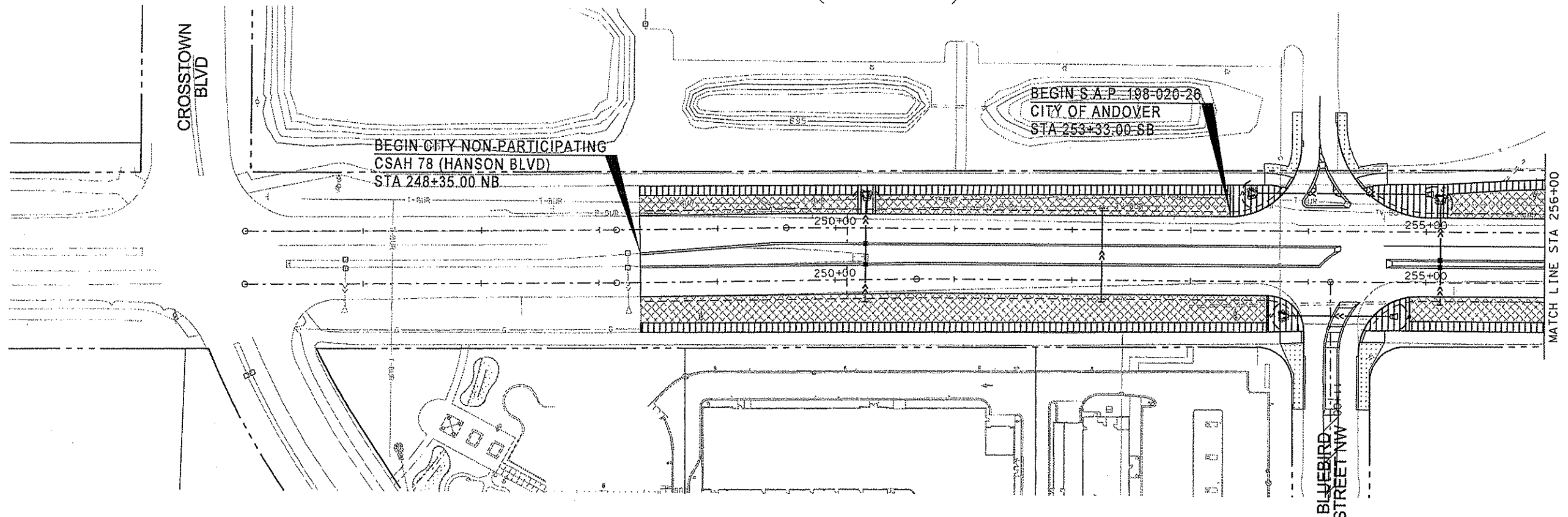
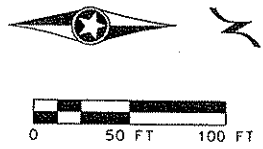
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CERTIFIED BY: *Anthony J. Winiecki*
LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
DATE: 8/30/05 LIC. NO. 23128

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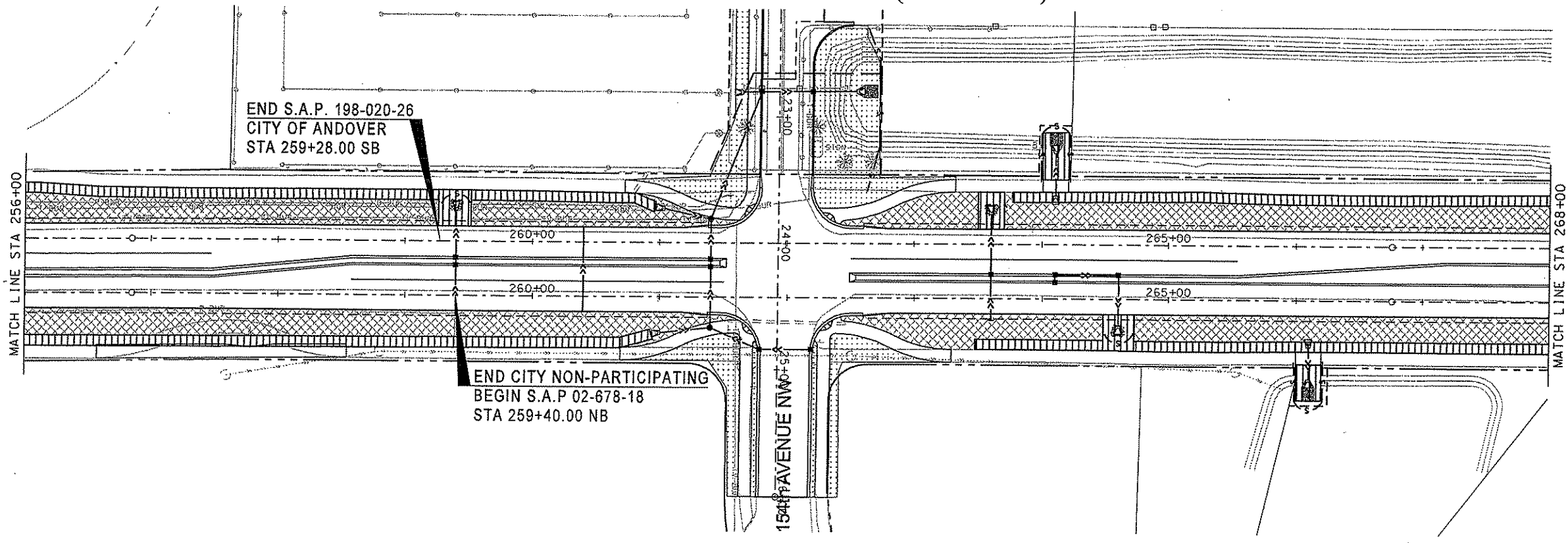
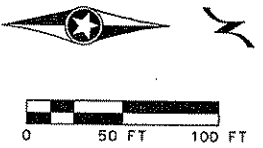
ANOKA COUNTY
CSAH 78 (Hanson Blvd)
City of Andover
Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
SWPPP NOTES
TURF ESTABLISHMENT & EROSION CONTROL
S.A.P 02-678-18, ETC.







CSAH 78 (Hanson Blvd)



CSAH 78 (Hanson Blvd)



LEGEND

-  SEED MIXTURE 250, FERTILIZER, MULCH TYPE 1, AND DISK ANCHOR
-  SOD TYPE SALT RESISTANT
-  EROSION CONTROL BLANKET CATEGORY 2 ON BACKSLOPES WITH 4" TOPSOIL & SEED MIXTURE 250
-  -S- SILT FENCE, TYPE MACHINE SLICED
-  BIORDLL
-  FES WITH RIPRAP

Date Printed: 9/1/2005
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NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plot By: CWK
 Checked By: AJW
 Approved By: AJW

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CERTIFIED BY: *Anthony J. Winiectki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

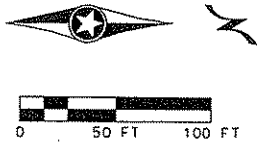
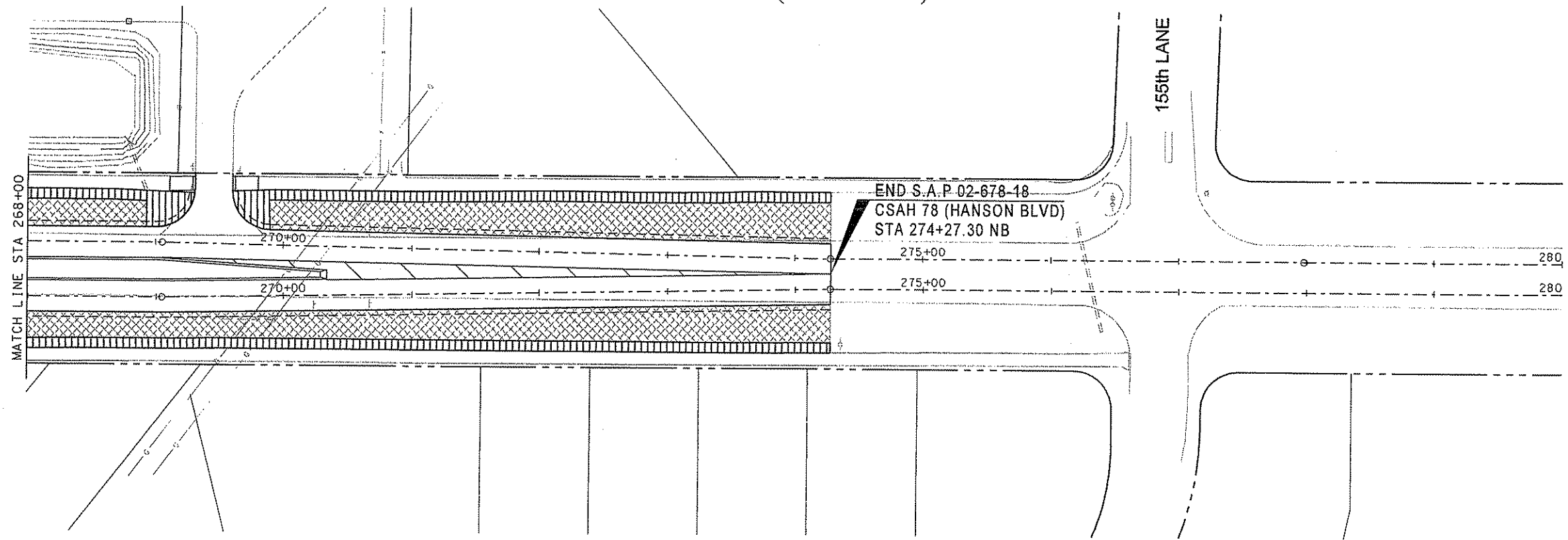
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 City of Andover
 Anoka County, Minnesota







ANOKA COUNTY HIGHWAY DEPARTMENT
 STA 245+00 TO STA 268+00
TURF ESTABLISHMENT & EROSION CONTROL
 S.A.P 02-678-18, ETC.

SHEET
46
 OF
90
 SHEETS

CSAH 78 (Hanson Blvd)



LEGEND

-  SEED MIXTURE 250, FERTILIZER, MULCH TYPE 1, AND DISK ANCHOR
-  SOD TYPE SALT RESISTANT
-  EROSION CONTROL BLANKET CATEGORY 2 ON BACKSLOPES WITH 4" TOPSOIL & SEED MIXTURE 250
-  -S- SILT FENCE, TYPE MACHINE SLICED
-  BIOROLL
-  FES WITH RIPRAP

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Design By: **NEH/THG**
 Plan By: **CWK**
 Checked By: **AJW**
 Approved By: **AJW**

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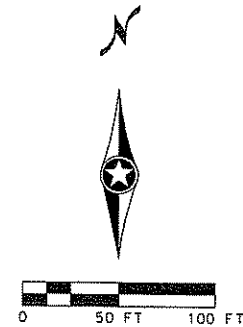
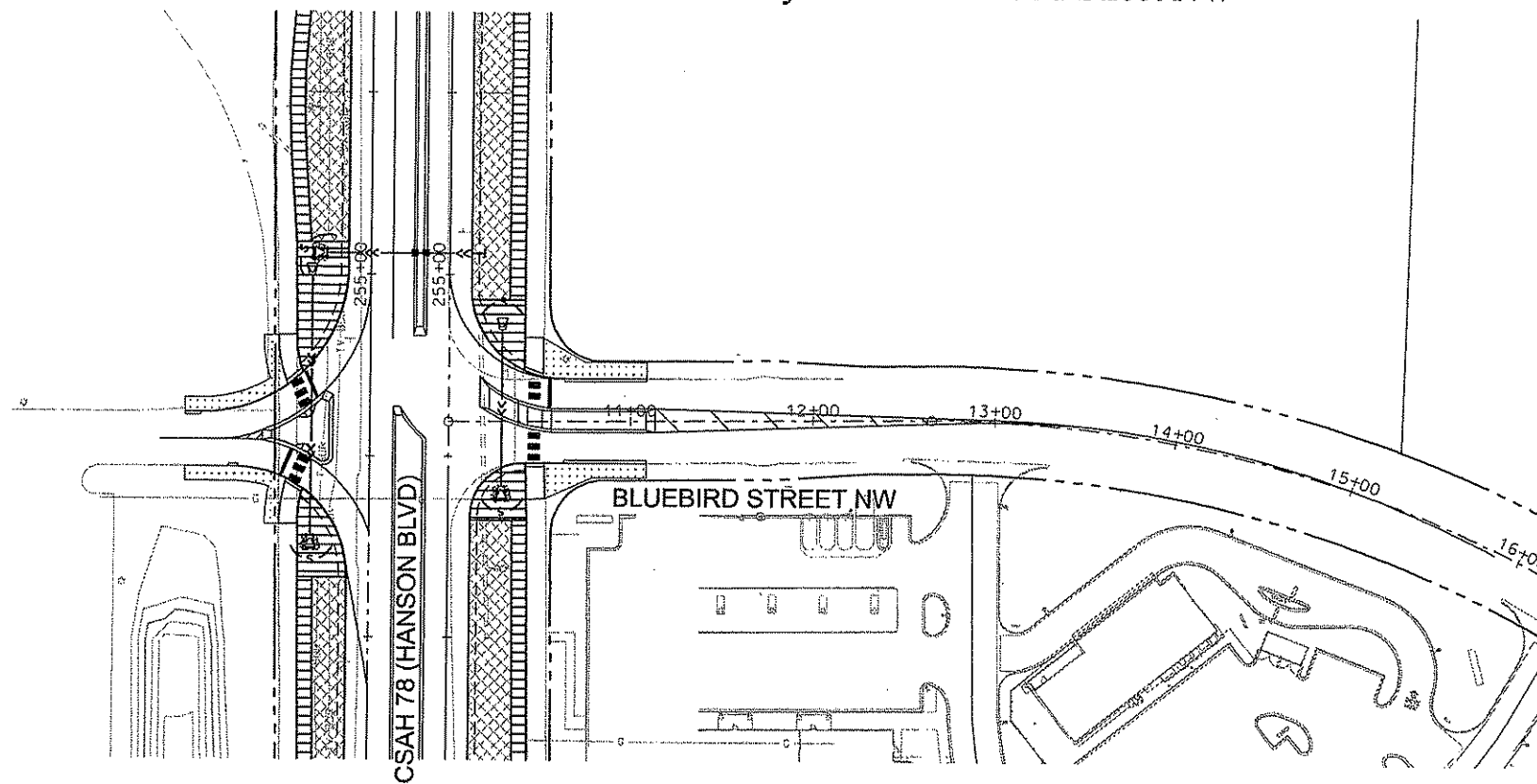
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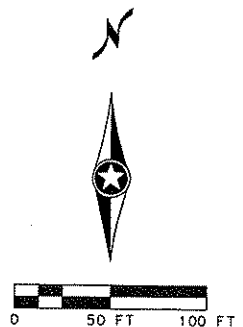
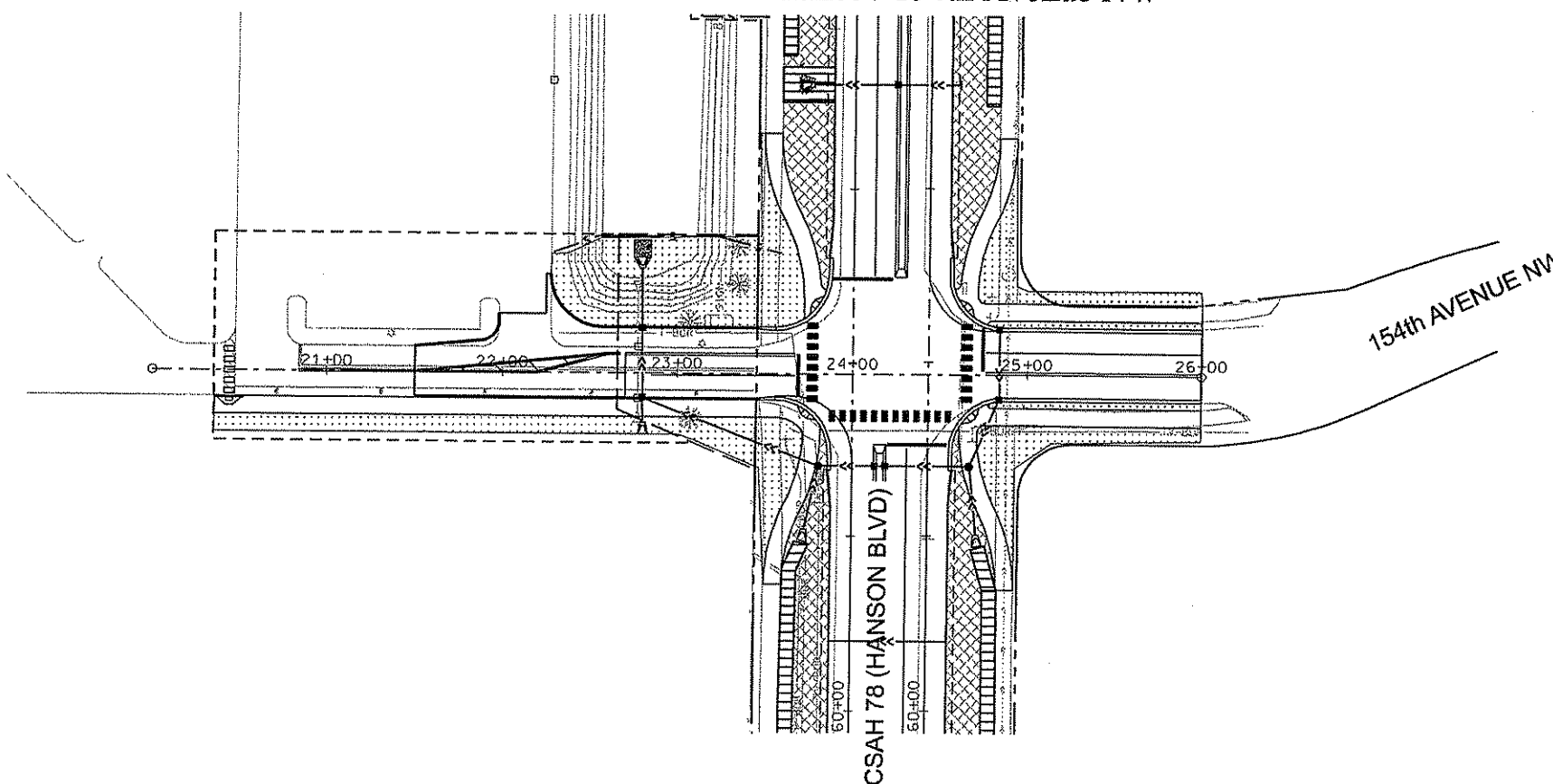
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 OF **90**
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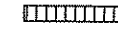

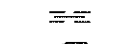

Andover Community Center / Bluebird Street NW



School Entrance / 154th Avenue NW



LEGEND

-  SEED MIXTURE 250, FERTILIZER, MULCH TYPE 1, AND DISK ANCHOR
-  SOD TYPE SALT RESISTANT
-  EROSION CONTROL BLANKET CATEGORY 2 ON BACKSLOPES WITH 4" TOPSOIL & SEED MIXTURE 250
-  -S- SILT FENCE, TYPE MACHINE SLICED
-  BIORDLL
-  FES WITH RIPRAP

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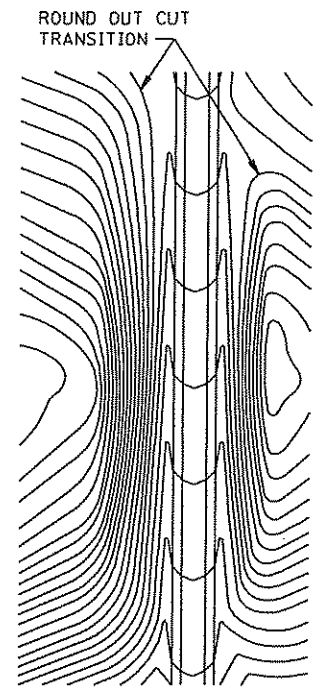
CERTIFIED BY: *Anthony J. Vinteck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. VINTECK, P.E.
 DATE: 8/30/05 L.I.C. NO.: 23128

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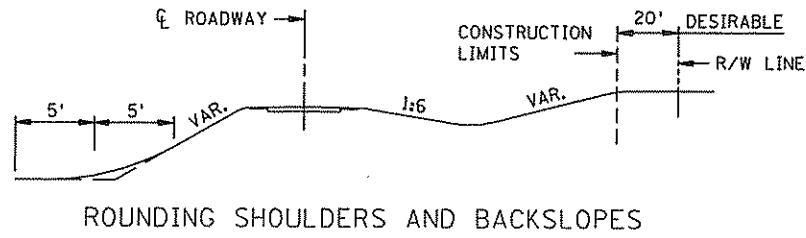
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 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 BLUEBIRD STREET NW / 154th AVENUE NW
TURF ESTABLISHMENT & EROSION CONTROL
 S.A.P 02-678-18, ETC.

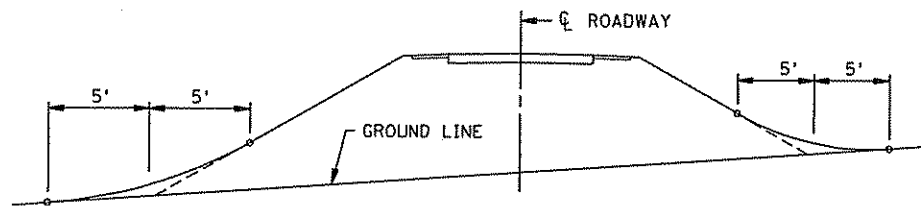
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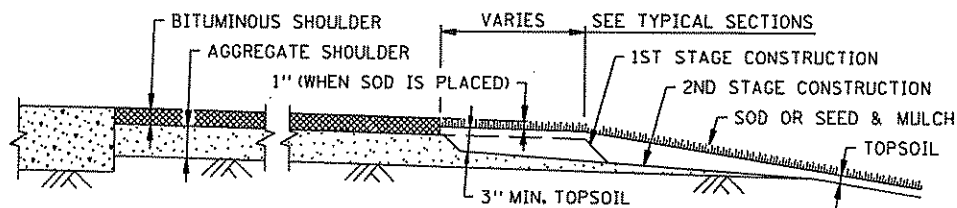
CONTOURING ROAD CUTS



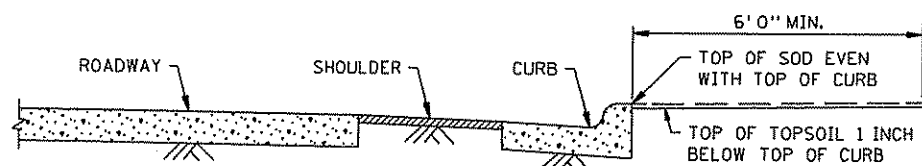
ROUNDING SHOULDERS AND BACKSLOPES



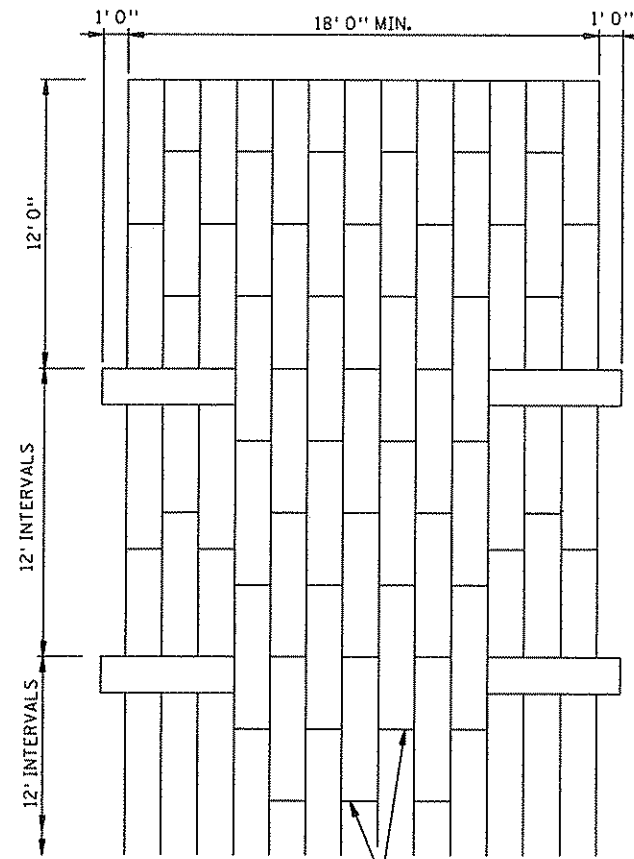
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



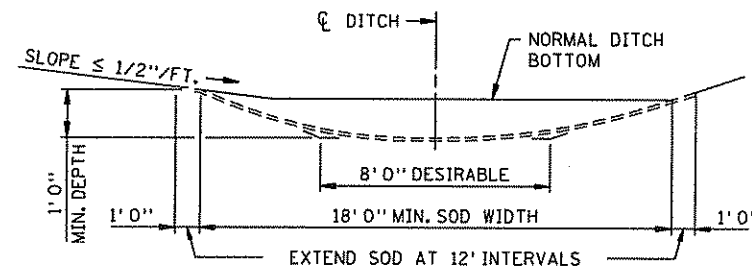
SHAPING AND TOPSOILING INSLOPES



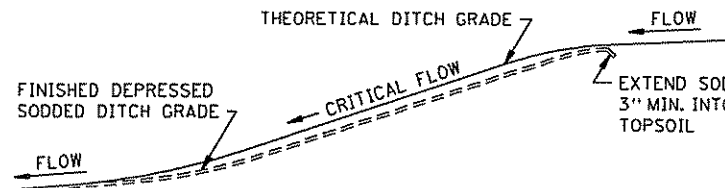
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



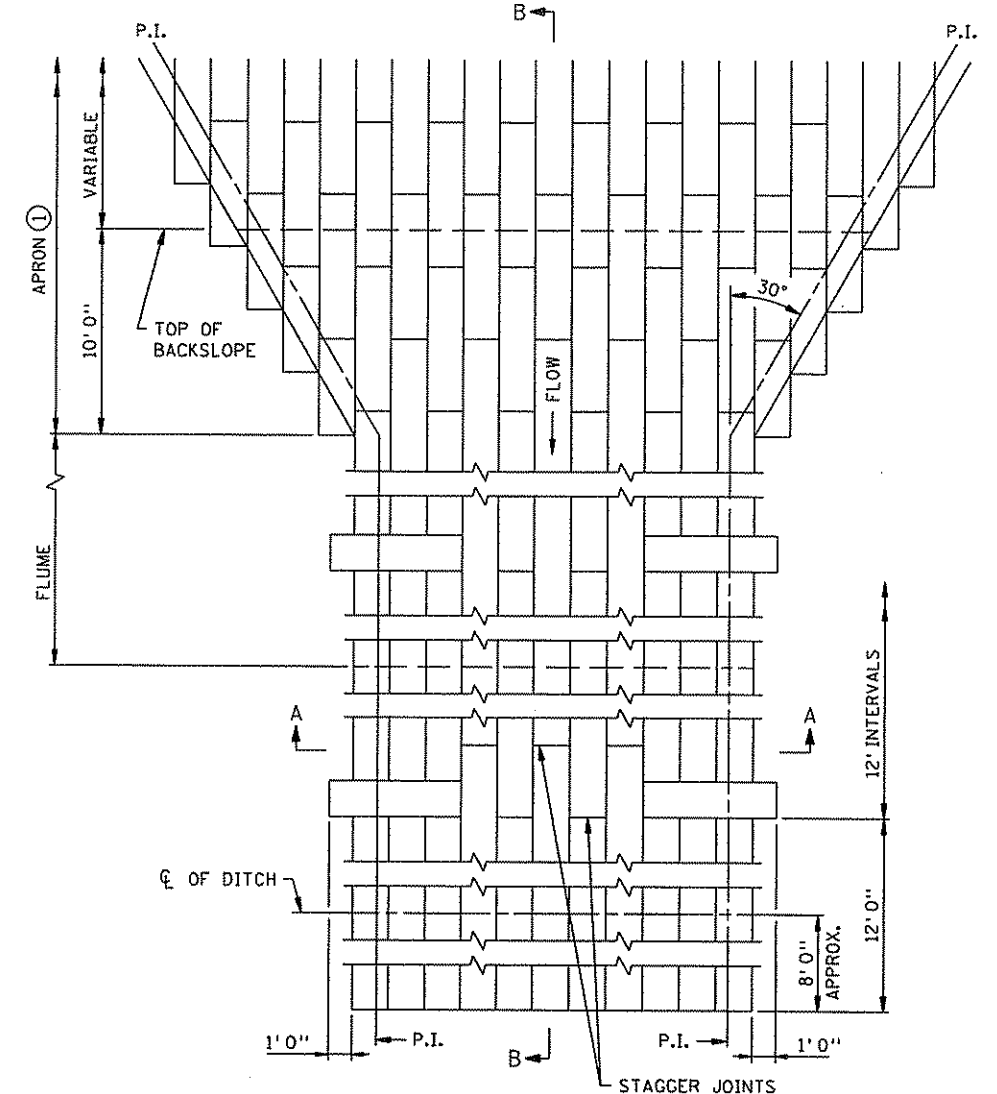
STAGGER JOINTS
PLAN VIEW



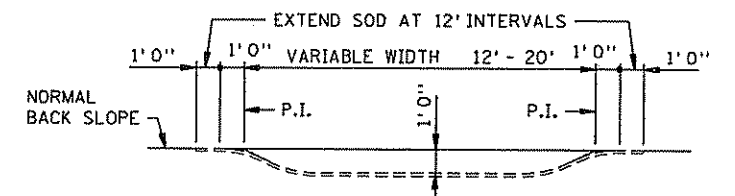
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



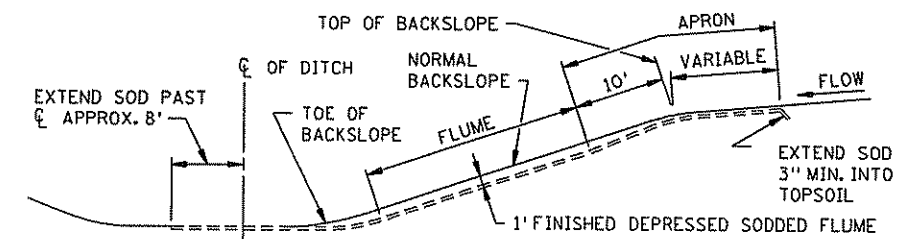
SODDED DITCH DETAILS



STAGGER JOINTS
PLAN VIEW



SECTION A-A

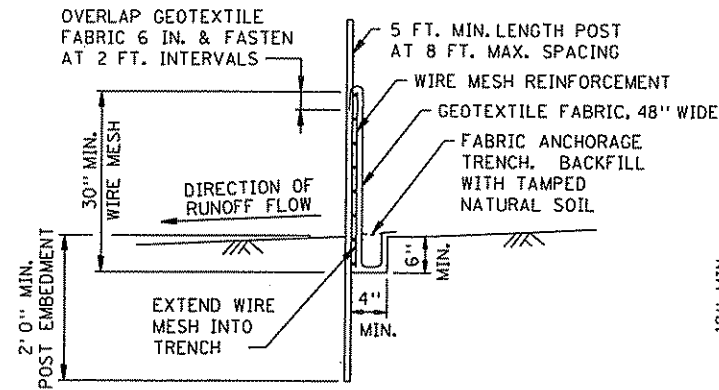


SECTION B-B
SODDED FLUME DETAILS

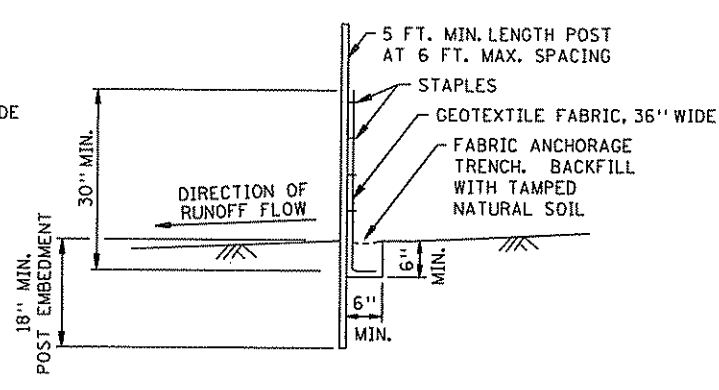
NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE:
STANDARD APPROVED: NOVEMBER 20, 2002	

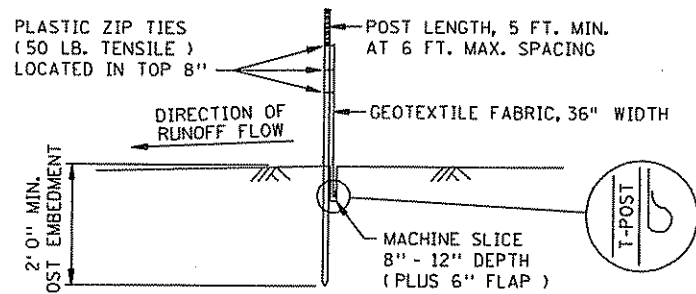
PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES



HEAVY DUTY



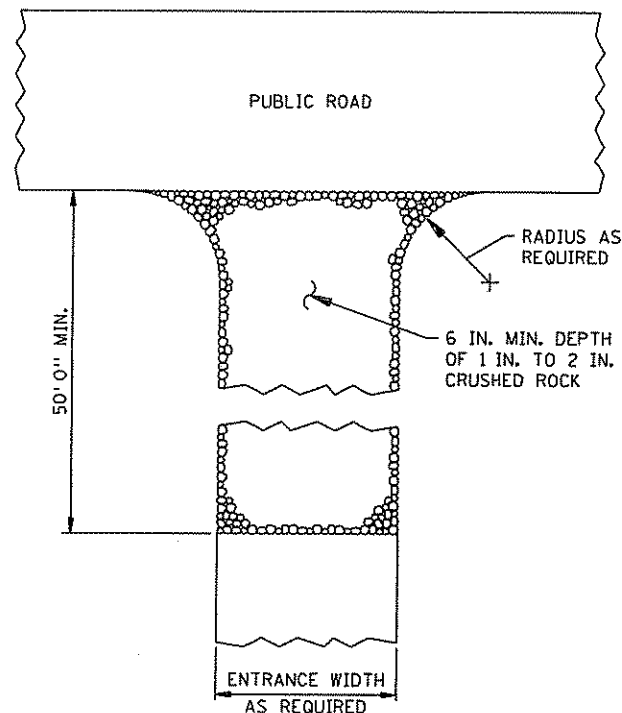
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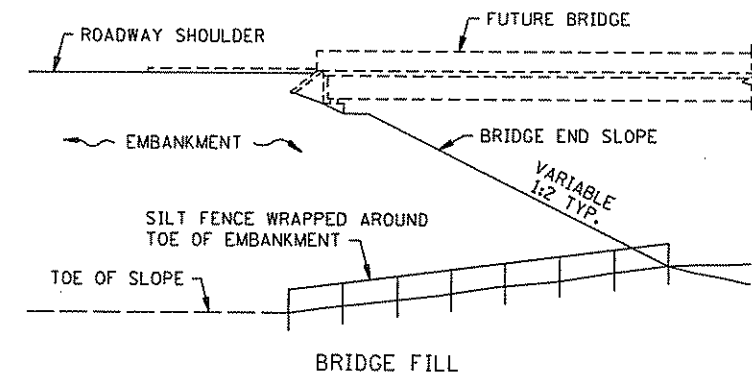
STANDARD MACHINE SLICED

DESIGN GUIDELINES:
MAXIMUM CONTRIBUTING AREA: 3 ACRES

SILT FENCE DETAILS
TO PROTECT AREAS FROM SHEET FLOW
(SEE SPEC. 3886)

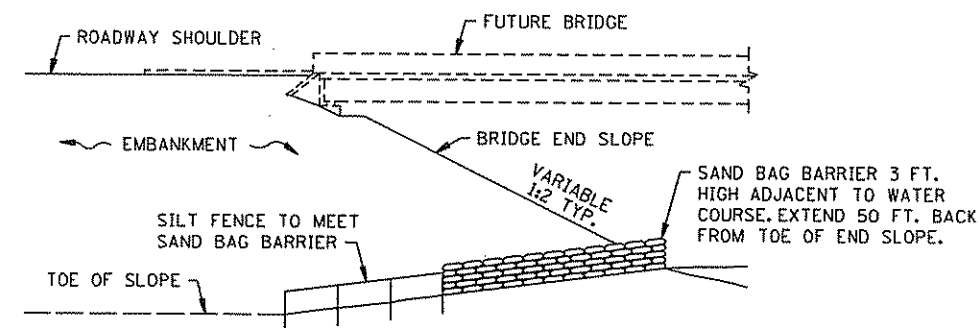


ROCK CONSTRUCTION ENTRANCE ①



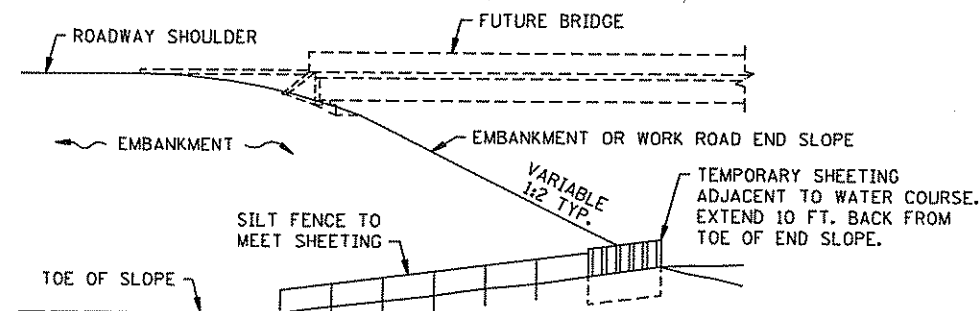
BRIDGE FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 1/2 ACRE



BRIDGE FILL

DESIGN GUIDELINES:
MAX. WATER COURSE FLOW VELOCITY: 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1 ACRE



EMBANKMENT OR WORK ROAD FILL

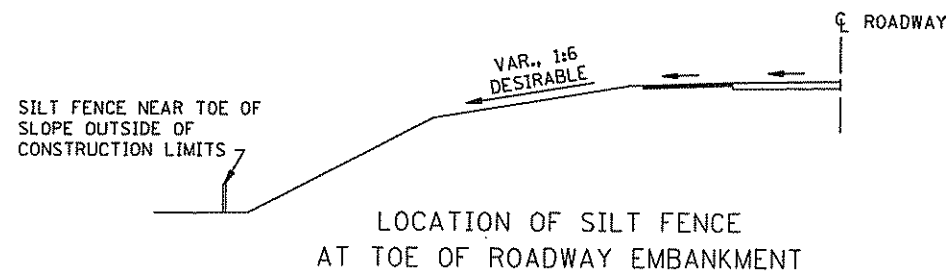
DESIGN GUIDELINES:
MAX. WATER COURSE FLOW VELOCITY: 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT

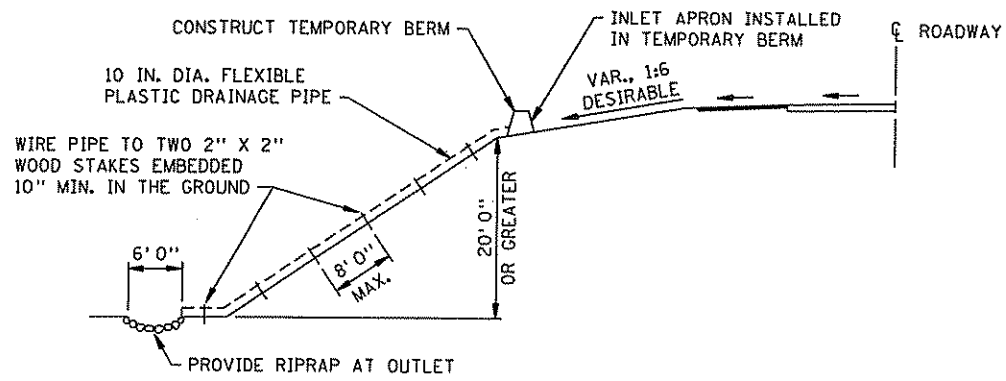
NOTES:

SEE SPECS. 2573 & 3886.

① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE DRIVING ON MAIN ROAD. THIS WILL PREVENT AUTO DAMAGE. WE NEED TO KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS.

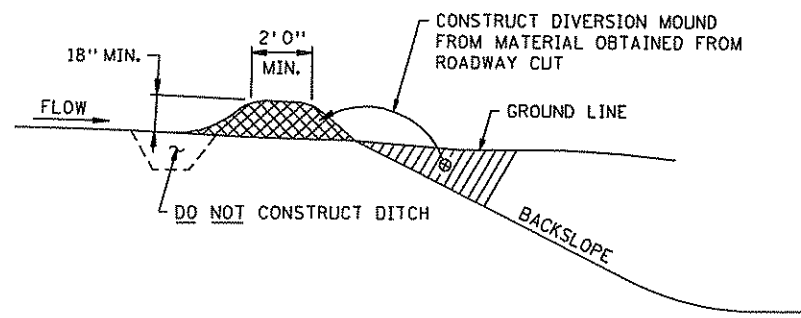


LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



TEMPORARY DRAIN ON FILL SLOPE

DESIGN GUIDELINES:
STORM FREQUENCY: 2 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 3 ACRES

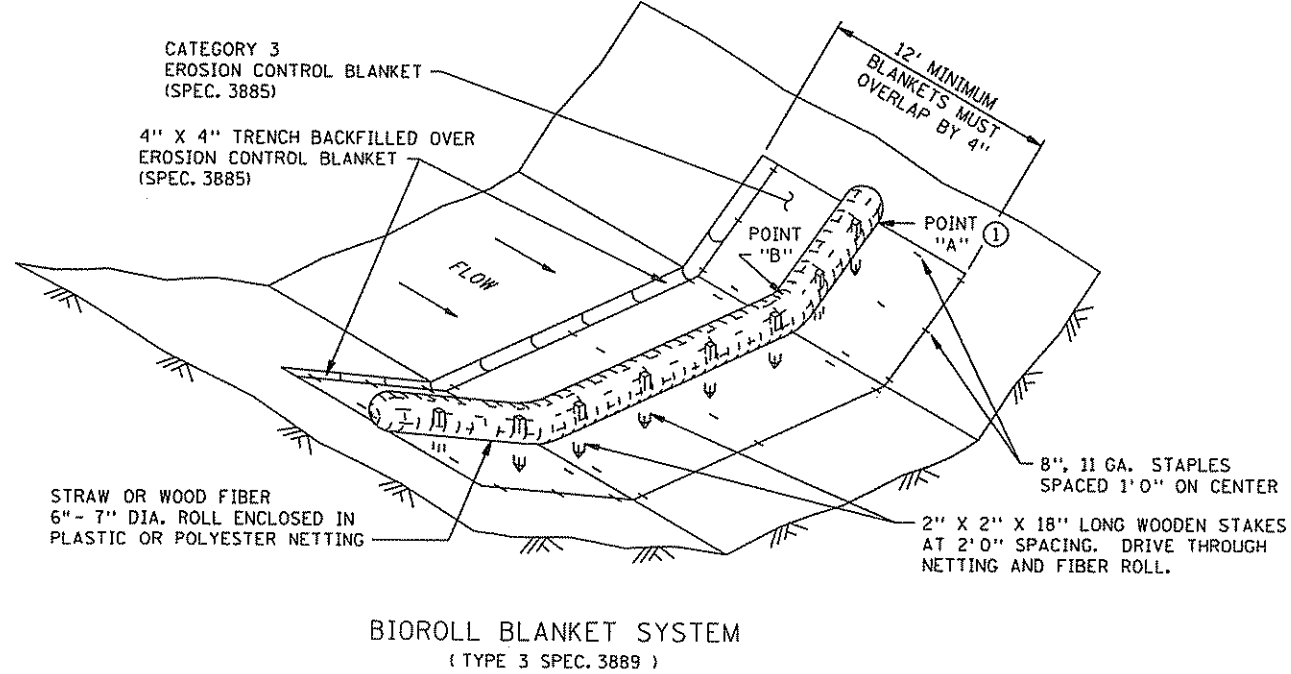


DIVERSION MOUND

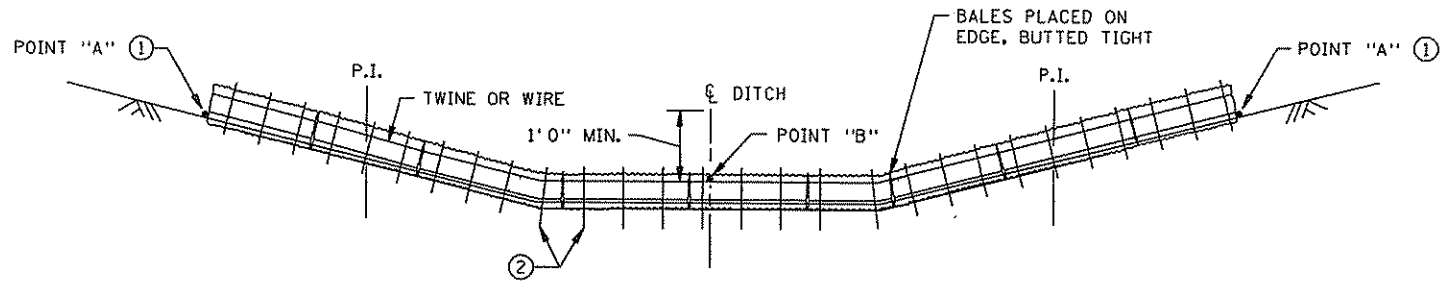
DESIGN GUIDELINES:
STORM FREQUENCY: 10 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 5 ACRES
MAXIMUM DIVERSION: GRADE 5%

DATE PRINTED: 9/1/2005
WSB FILENAME: K:\01666-00\Cad\Plan\1666te04.dgn
FILE NAME: S4052C01.SPN

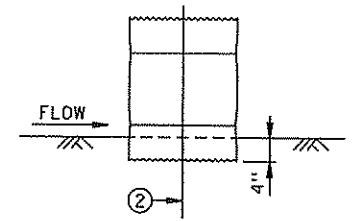
STANDARD SHEET NO. 5-297.405 (2 OF 4)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: JULY 30, 2001	
S.A.P. 02-678-18 / S.A.P. 198-020-26 SHEET NO. 50 OF 90 SHEETS	



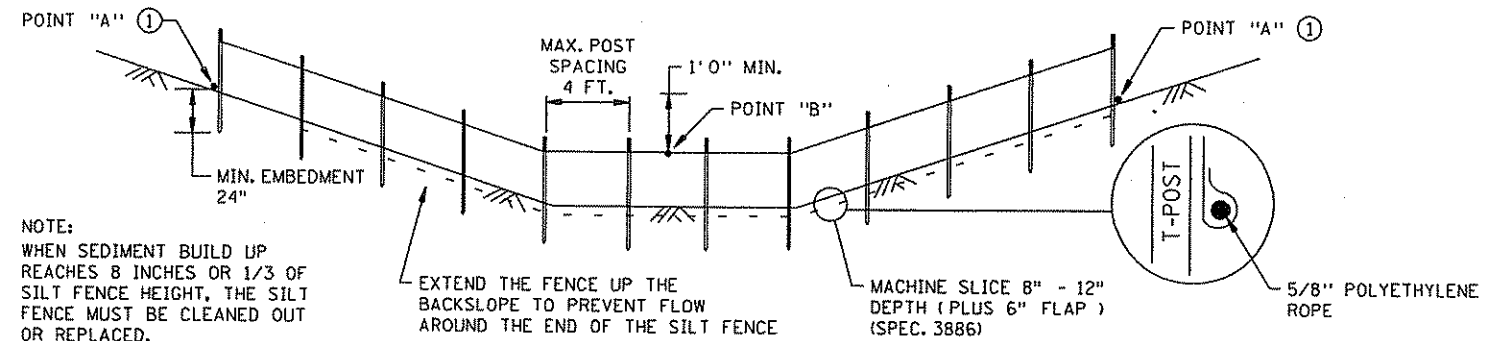
BIOROLL BLANKET SYSTEM
(TYPE 3 SPEC. 3889)



BALE DITCH CHECK
(USED ON ROUGH GRADED SOIL. REMOVE AFTER ROUGH GRADING IS COMPLETED. CAN BE USED AT WETLAND PERIMETERS ANYTIME)

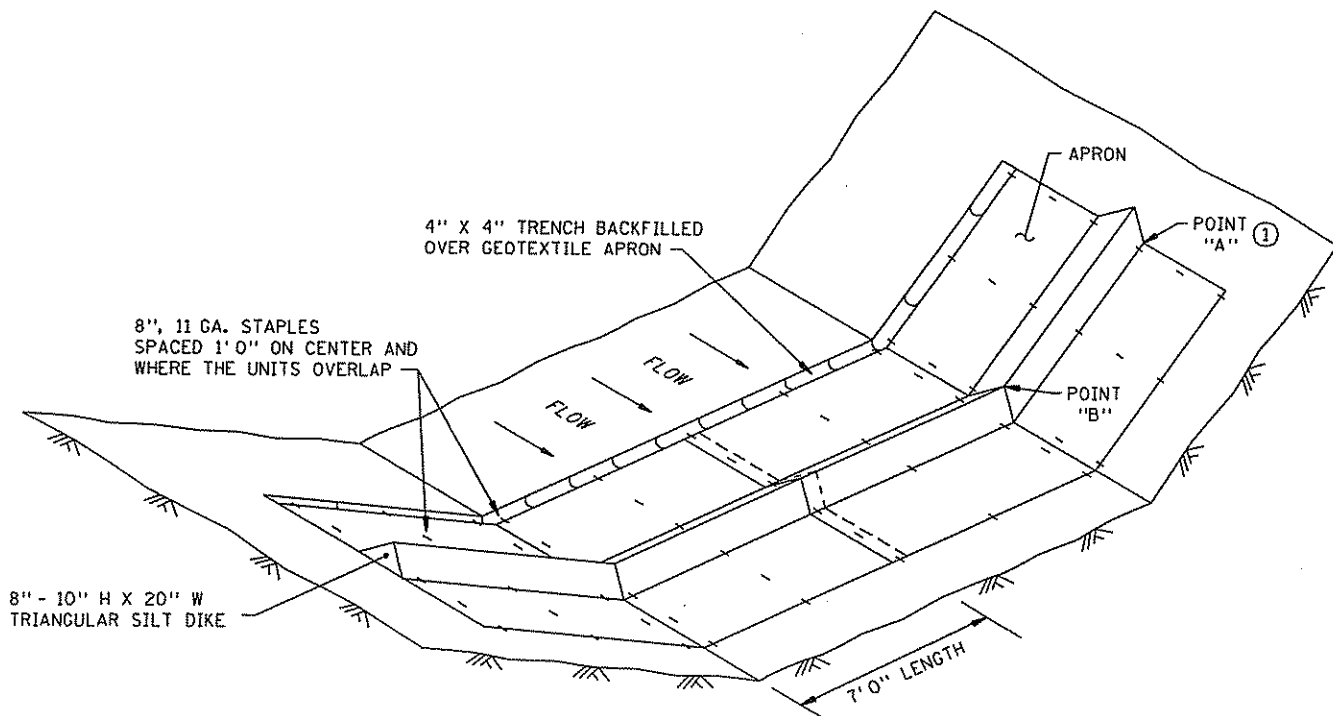


**EMBEDMENT METHOD
BALE CHECK DETAIL**

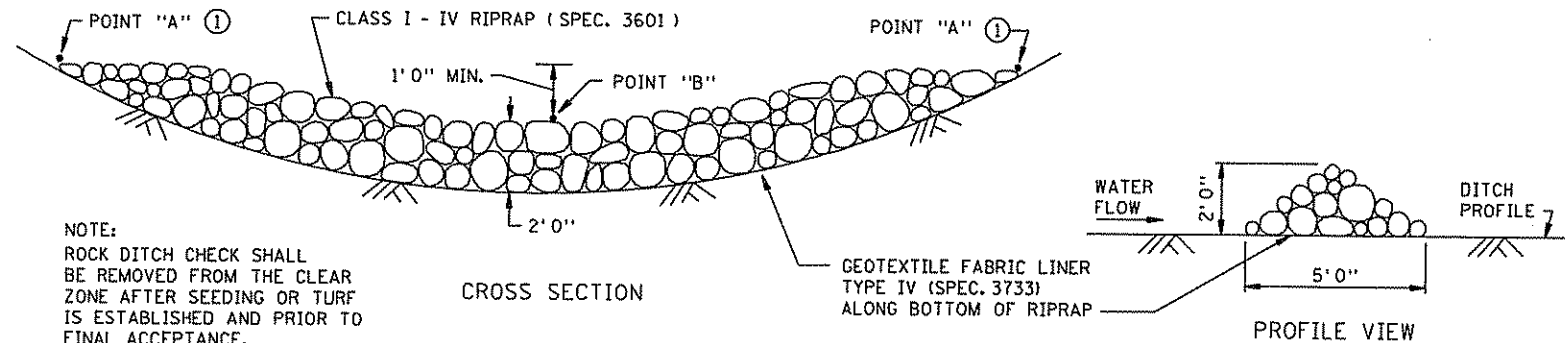


NOTE:
WHEN SEDIMENT BUILD UP REACHES 8 INCHES OR 1/3 OF SILT FENCE HEIGHT, THE SILT FENCE MUST BE CLEANED OUT OR REPLACED.

MACHINE SLICED SILT FENCE
(TYPE 1 SPEC. 3889)



GEOTEXTILE TRIANGULAR DIKE
(TYPE 6 SPEC. 3889)



NOTE:
ROCK DITCH CHECK SHALL BE REMOVED FROM THE CLEAR ZONE AFTER SEEDING OR TURF IS ESTABLISHED AND PRIOR TO FINAL ACCEPTANCE.

ROCK CHECK
(TYPE 7 SPEC. 3889)

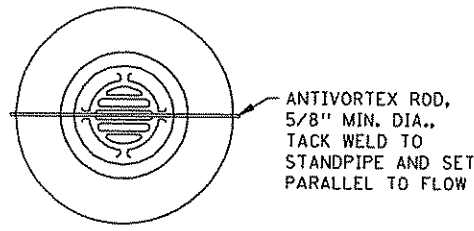
NOTES:
SEE SPECS. 2573, 3882, 3885, 3886 & 3889.
SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM SPACING FORMULA:
$$\text{SPACING OF DITCH CHECKS (FT)} = \left(\frac{\text{HEIGHT OF DITCH CHECK (FT)} \times 100}{\text{DITCH GRADE IN PERCENT}} \right)$$

- ① POINT A MUST BE 1'0" MIN. HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10 IN. MINIMUM.

MODIFIED

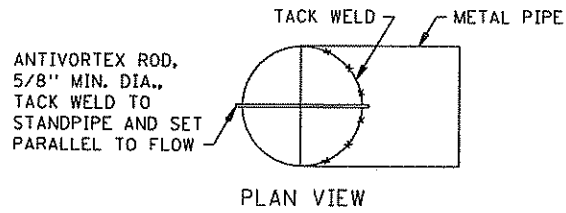
STANDARD SHEET NO.
5-297.405 (3 OF 4)
STANDARD APPROVED:
NOVEMBER 5, 2002

TITLE:
TEMPORARY EROSION CONTROL
DITCH CHECKS



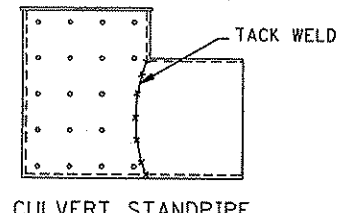
ANTIVORTEX ROD,
5/8" MIN. DIA.,
TACK WELD TO
STANDPIPE AND SET
PARALLEL TO FLOW

PLAN VIEW

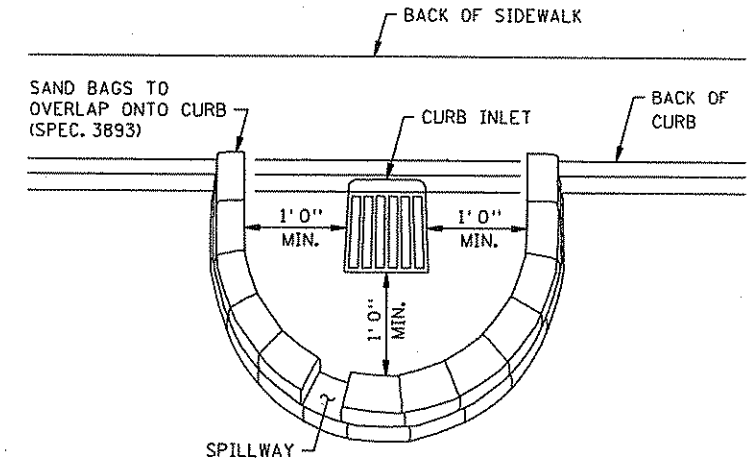


ANTIVORTEX ROD,
5/8" MIN. DIA.,
TACK WELD TO
STANDPIPE AND SET
PARALLEL TO FLOW

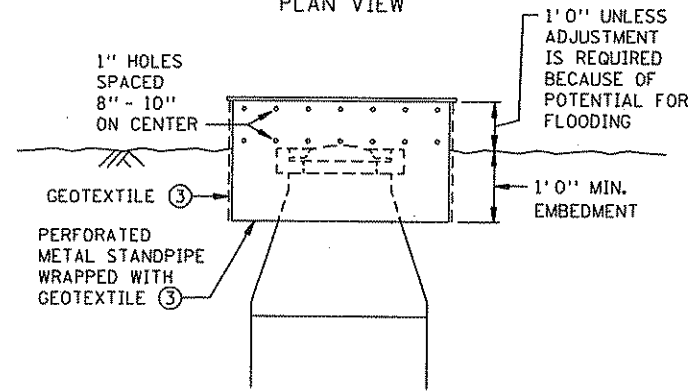
PLAN VIEW



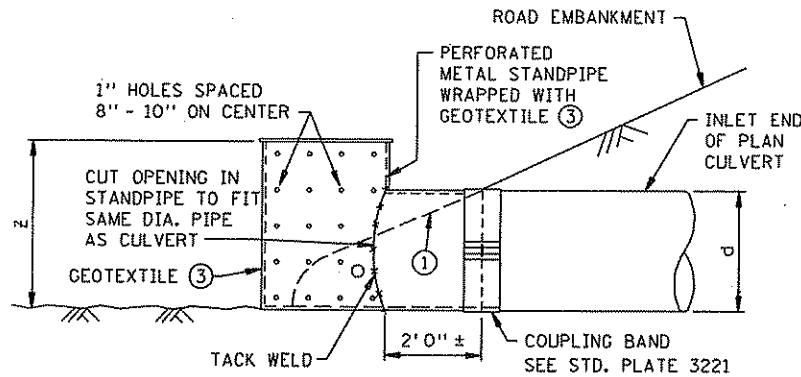
CULVERT STANDPIPE



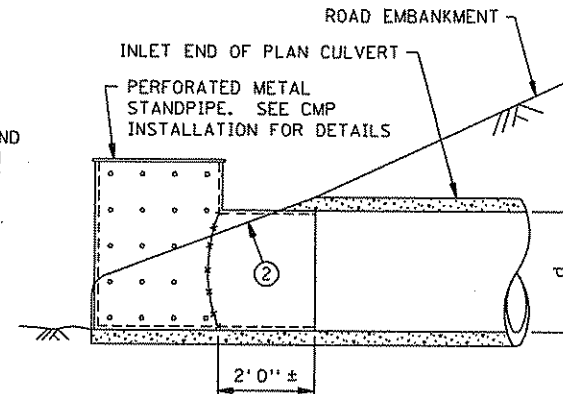
SANDBAG BARRIER AT STREET INLET
THIS INLET PROTECTION IS USED DURING ROUGH GRADING
ONLY. USE BEFORE ROAD IS OPEN TO TRAFFIC OR IS PAVED.
(SPEC. 3893)



ELEVATION
RISER STANDPIPE
TO PROTECT DROP INLET



ELEVATION OF CSP INSTALLATION



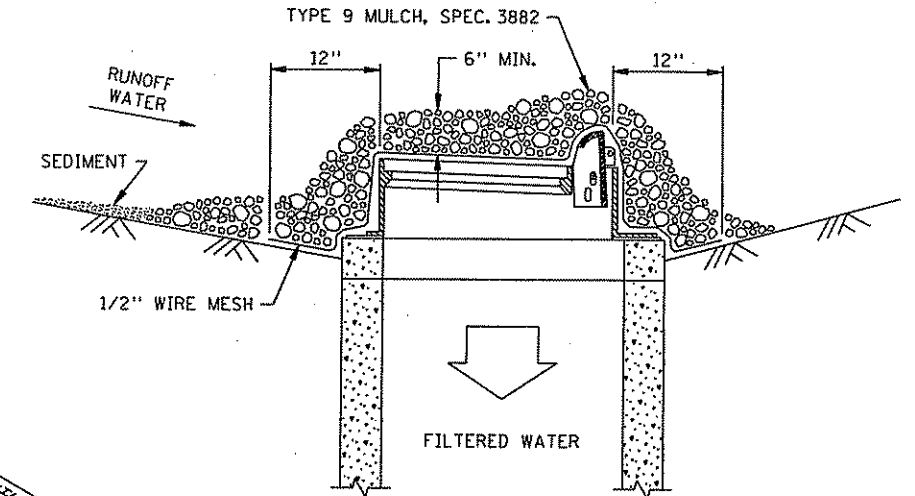
ELEVATION OF RCP INSTALLATION

CULVERT STANDPIPE PROTECTION

FOR SEDIMENT CONTROL ON CULVERT INLET
(TYPE D SPEC. 3891)

CULVERT SIZE: 12" - 36"

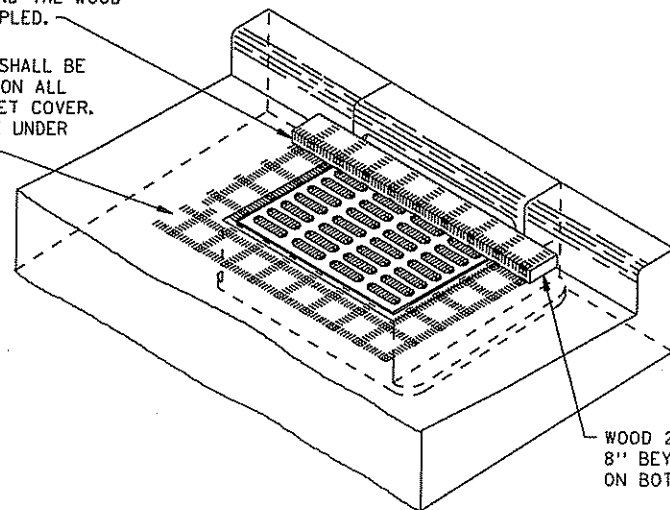
d = DIA. OF STANDPIPE EQUAL TO DIA. OF PLAN CULVERT
z = LENGTH OF PERFORATED STANDPIPE (d + 12")



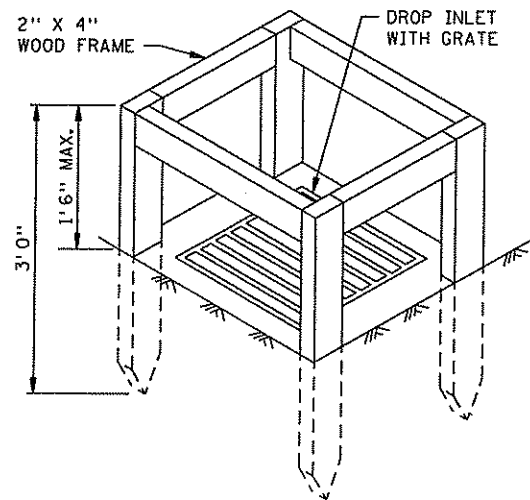
AGGREGATE FILTER AT CURB INLET
(TYPE B WITHOUT CURB SPEC. 3891)
(TYPE C WITH CURB SPEC. 3891)

AN ADDITIONAL 18" OF GEOTEXTILE
IS WRAPPED AROUND THE WOOD
2" X 4" AND STAPLED.

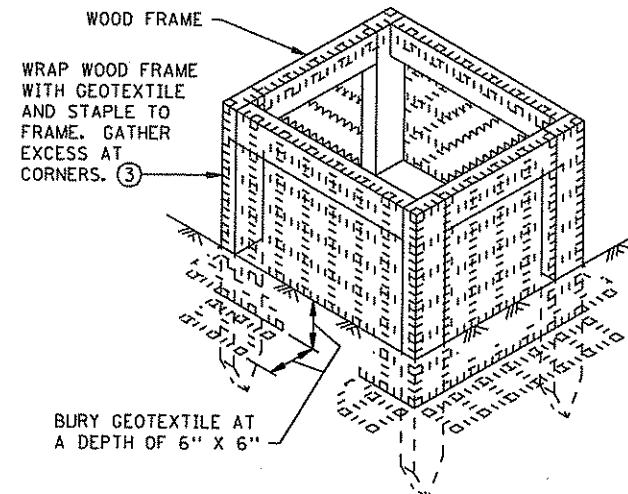
GEOTEXTILE SIZE SHALL BE
8" MIN. GREATER ON ALL
SIDES OF THE INLET COVER.
PLACE GEOTEXTILE UNDER
INLET COVER. ③



GEOTEXTILE FILTER AT STREET INLET WITH CURB BOX
TYPE C SPEC. 3891



SILT FENCE BOX TO PROTECT DROP INLETS
USE WHERE INLET DRAINS AN AREA WITH SLOPES AT 1:3 OR LESS
(TYPE A SPEC. 3891)



BURY GEOTEXTILE AT
A DEPTH OF 6" X 6"

NOTES:

SEE SPECS. 2573, 3891 & 3893.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S
APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

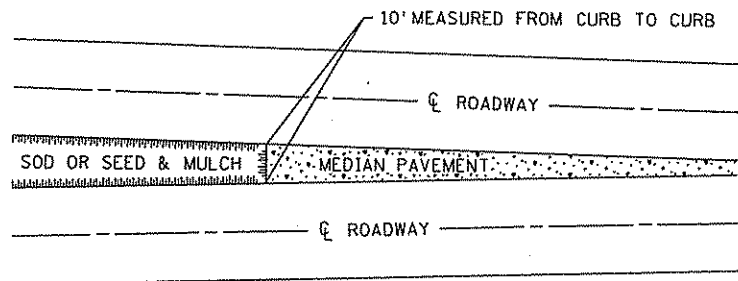
① FOR CSP, REMOVE TEMPORARY STANDPIPE AND INSTALL
CULVERT APRON AFTER VEGETATION IS ESTABLISHED.

② FOR RCP, INSTALL CULVERT APRON AND SLIDE
TEMPORARY STANDPIPE INTO RCP. AFTER VEGETATION
IS ESTABLISHED REMOVE TEMPORARY STANDPIPE.

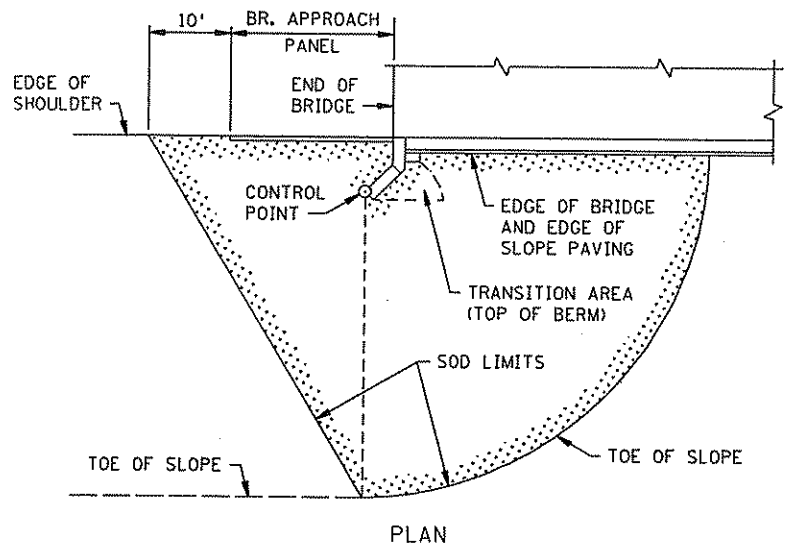
③ ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE
MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886
FOR MACHINE SLICED.

STANDARD SHEET NO. 5-297.405 (4 OF 4)	TITLE:
STANDARD APPROVED: NOVEMBER 5, 2002	

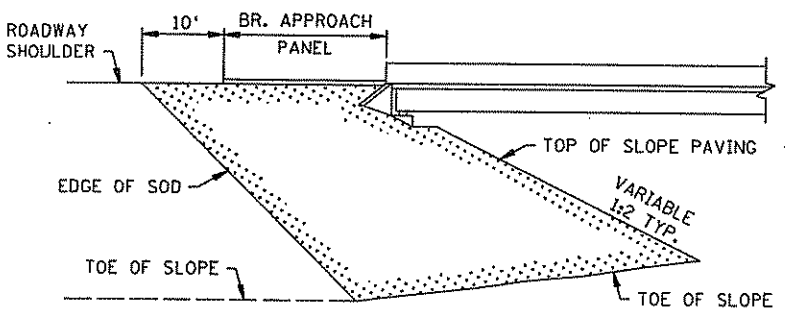
TEMPORARY EROSION CONTROL
TEMPORARY INLET PROTECTION



SODDING LIMITS AT GORE AREA

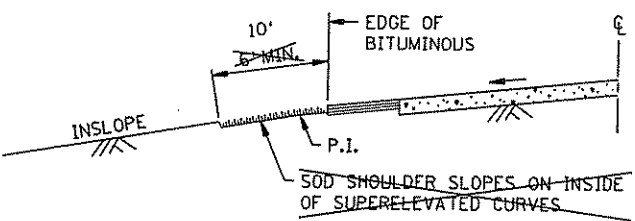


PLAN

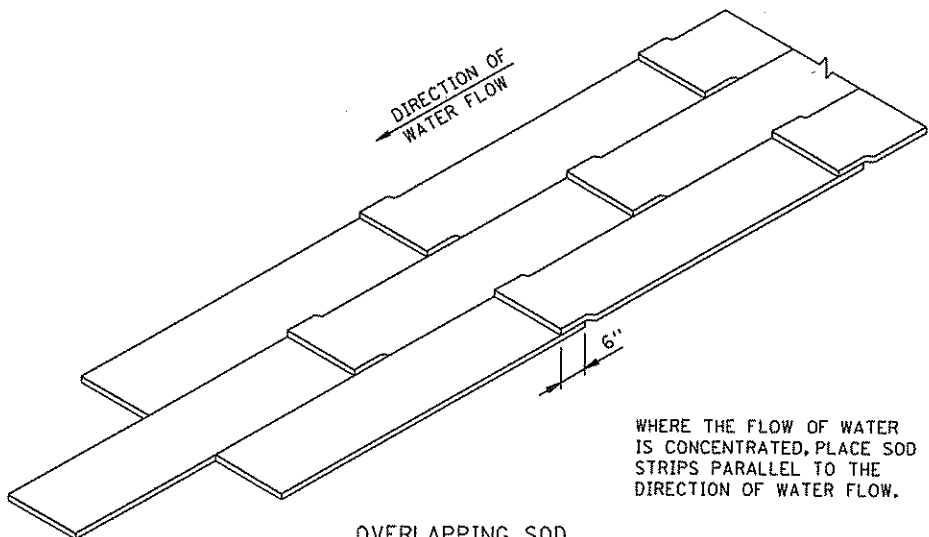


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

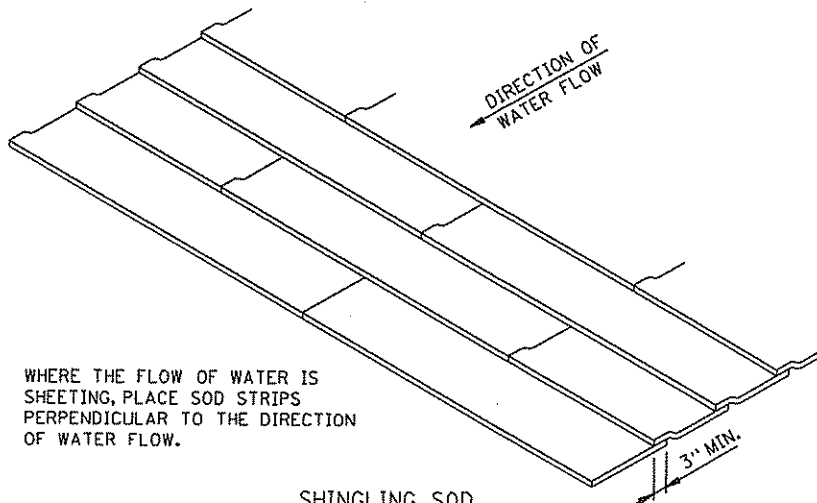


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

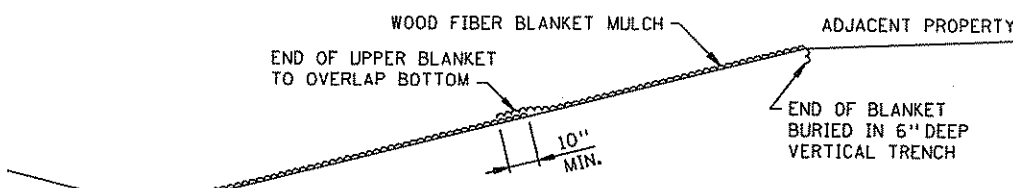
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



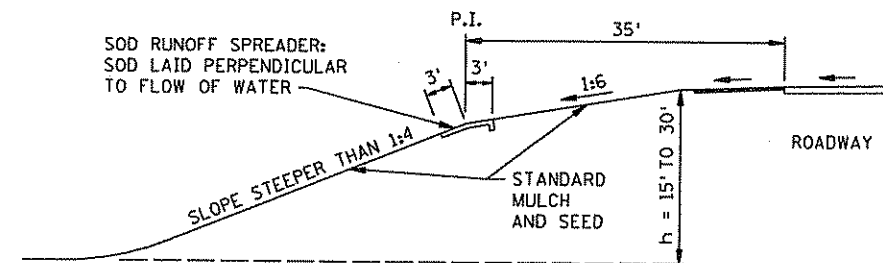
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

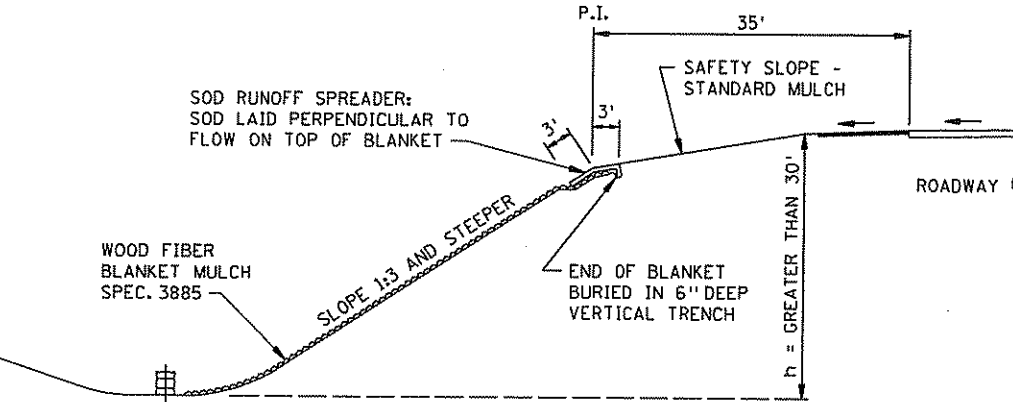
SPECIAL SOD PLACEMENT TECHNIQUES



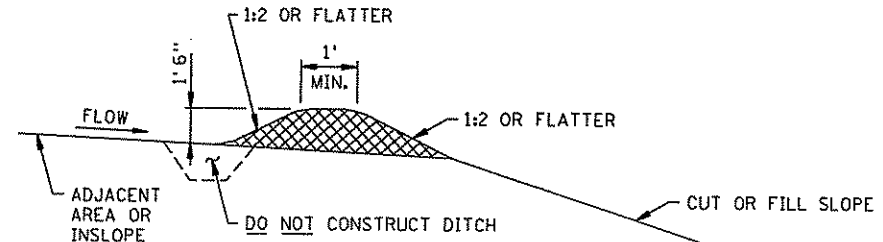
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE

DATE PRINTED: 9/17/2005
 WSB FILENAME: K:\01666-00\Cad\Plan\16661e04.dgn
 FILE NAME: S406A85.SPN

MODIFIED		TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD SHEET NO. 5-297.406		
STANDARD APPROVED: JANUARY 31, 1985		
REVISION DATE 10-26-2000	S.A.P. 02-678-18 / S.A.P. 198-020-26	SHEET NO. 53 OF 90 SHEETS

SALVAGE SIGN - TYPE SPECIAL [L]		
REMOVE SIGN TYPE SPECIAL	GROUP C	PANEL LEGEND
EACH	1	154TH AV
EACH	1	HANSON BLVD NW

SALVAGE & INSTALL SIGN - TYPE SPECIAL - GROUP A [N]			
SALVAGE SIGN TYPE SPECIAL	INSTALL SIGN TYPE SPECIAL	NO. OF POSTS & TYPE	PANEL LEGEND
1	1	1-ROUND	BLUEBIRD STREET NW
1	1		HANSON BLVD NW

SALVAGE SIGN - TYPE C [M]				
REMOVE SIGN TYPE C	GROUP A	GROUP B	GROUP C	TOTAL GROUP
EACH	9	0	7	16

SALVAGE & INSTALL SIGN - TYPE D [O]						
MMUTCD CODE	GROUP A	GROUP C	TOTAL QUANTITY	SIGN PANEL SIZE (INCHES)	NO. OF POSTS & TYPE	PANEL LEGEND
D-1	1	1	2		2-U	OAK VIEW MIDDLE SCHOOL

SALVAGE & INSTALL SIGN - TYPE C [P]							
MMUTCD CODE	QUANTITY				SIGN PANEL SIZE (INCHES)	NO. OF POSTS & TYPE	PANEL LEGEND
	GROUP A	GROUP B	GROUP C	TOTAL GROUP			
S4-3	1		1	2	24" X 8"	1-U	SCHOOL
R2-1	1	1	1	2	24" X 30"	1-U	SPEED LIMIT 55
R2-1	1	1	1	2	24" X 30"	1-U	SPEED LIMIT 35
	1	1	1	2		1-U	SUMMER MONTHS ETC...
** R1-1	2	6	8	18	18" X 18"	1-	STOP
**	2	6	8			WOOD	ONLY AUTHORIZED VEH...
S5-2		1	1	2	24" X 30"	1-U	END SCHOOL SPEED ZONE
R2-1		1	1	2	24" X 30"	1-U	SPEED LIMIT 55
		1	1	2		1-U	DELIVERY TRUCKS...
		1	1	2		1-U	BEGIN ONE WAY AROUND...
		1	1	2		1-U	ALL PARKING AND...
		1	1	2		1-U	ALL BUSES USE NEXT LOT
		1	1	2		1-U	SHIPPING AND RECEIVING
		1	1	2		1-U	ONE WAY TO EXIT
		1	1	2		1-U	NO EXIT DO NOT ENTER

** SALVAGED FOR PICK UP BY CITY/COUNTY

PERMANENT STRIPING QUANTITIES [R]						
TYPE	UNIT	QUANTITY				
		GROUP A	GROUP B	GROUP C	GROUP D	TOTAL GROUP
4" SOLID WHITE - EPOXY	LIN FT	1810	960	4816	37	7623
24" SOLID WHITE - POLY PREFORMED	LIN FT	12	24	120		156
4" SOLID YELLOW - EPOXY	LIN FT	1480	78	2255		3813
4" SOLID DOUBLE YELLOW - EPOXY	LIN FT	736	80	925	335	2076
24" SOLID YELLOW - EPOXY	LIN FT		25	100	25	150
PAVEMENT MESSAGE ARROW (LEFT) POLY PREFORMED	EACH	2		6		8
PAVEMENT MESSAGE ARROW (RIGHT) POLY PREFORMED	EACH	1	2	6		9
PAVEMENT MESSAGE ARROW (THRU) POLY PREFORMED	EACH			1		1
PAVEMENT MESSAGE ARROW (THRU, RT) POLY PREFORMED	SQ FT			2		2
CROSSWALK - POLY PREFORMED	SQ FT	138	120	522	90	870

GROUP A = CITY OF ANDOVER
 GROUP B = TURN LANE S.A.P. 198-020-26
 GROUP C = ANOKA COUNTY S.A.P. 02-678-18
 GROUP D = ANOKA COUNTY NON-PARTICIPATING

SIGN PANELS - TYPE C				
MMUTCD CODE	TOTAL QUANTITY	SIGN PANEL		PANEL LEGEND
		SIZE (INCHES)	TOTAL AREA (SQ FT)	
R6-1R	4	36" X 12"	12.00	ONEWAY RT
R1-1	3	30" X 30"	18.75	STOP
R3-X1	5	30" X 30"	31.25	RIGHT TURN LANE
R3-X2	3	30" X 30"	18.75	LEFT TURN LANE
R4-7	8	24" X 30"	40.00	KEEP RT
X4-2	10	18" X 18"	22.50	HAZARD MARKER
R5-1	3	30" X 30"	18.75	DO NOT ENTER
W3-3	4	36" X 30"	36.00	SIGNAL AHEAD
S1-1	2	36P	18.00	PEDESTRIAN
R2-1	1	24" X 30"	5.00	SPEED LIMIT 30MPH
R3-7	3	30" X 30"	18.75	ALL TRAFFIC MUST TURN RT
R3-2	5	24" X 24"	20.00	NO LEFT TURN
W6-2	1	36" X 36"	9.00	DIVIDED HIGHWAY ENDS
R3-30AD	2	36" X 30"	15.00	LT & THRU/RT
W6-3	1	30" X 30"	6.25	TWO WAY TRAFFIC
W3-4	1	24" X 24"	4.00	NO U TURN
M3-3a	1	24" X 12"	2.00	SOUTH
M1-6a	2	24" X 24"	8.00	CSAH 78
M3-1a	1	24" X 12"	2.00	NORTH
TOTAL	60		306.00	

SIGN PANELS - TYPE C [Q]																	
M.M.U.T.C.D SIGN NUMBER	PANEL SIZE	PANEL AREA	QUANTITY GROUND POST MOUNT INSTALLATIONS	QUANTITY ISLAND/MEDIAN MOUNT INSTALLATIONS	SIGN PANEL	QUANTITY					# POSTS/INSTALLATION	MOUNTING HEIGHT	GROUP A PANEL AREA	GROUP B PANEL AREA	GROUP C PANEL AREA	GROUP D PANEL AREA	TOTAL PANEL AREA
						GROUP A	GROUP B	GROUP C	GROUP D	TOTAL QUANTITY							
						INCHES	SQ FT	FT	SQ FT	SQ FT							
R6-1R	36" X 12"	3.00	3	0		1	1	1		3	2	7	3.00	3.00	3.00		9.00
R1-1	30" X 30"	6.25				1	1	1		3		7	6.25	6.25	6.25		18.75
R6-1R	36" X 12"	3.00	0	1				1		1	2	7			3.00		3.00
R3-X1	30" X 30"	6.25	5	0		2	1	2		5	2	7	12.50	6.25	12.50		31.25
R3-X2	30" X 30"	6.25	0	4		2		1		3	2	7	12.50		6.25		18.75
R3-2	24" X 24"	4.00	0	1		2				2	1	7	8.00				8.00
R4-7	24" X 30"	5.00				2				2		7	10.00				10.00
X4-2	18" X 18"	2.25				2				2		7	4.50				4.50
R4-7	24" X 30"	5.00	0	3		2	1	2		5	1	7	10.00	5.00	10.00		25.00
X4-2	18" X 18"	2.25				2	1	2		5		7	4.50	2.25	4.50		11.25
R5-1	30" X 30"	6.25	0	3				3		3	1	7			18.75		18.75
W3-3	36" X 36"	9.00	4	0		2		1	1	4	2	7	18.00		9.00	9.00	36.00
S1-1	36P	9.00	2	0		1		1		2	2	7	9.00		9.00		18.00
R2-1	24" X 30"	5.00	1	0				1		1	1	7			5.00		5.00
R3-4	24" X 24"	4.00	0	1				1		1	2	7			4.00		4.00
R4-7	24" X 30"	5.00						1		1		7			5.00		5.00
X4-2	18" X 18"	2.25						1		1		7			2.25		2.25
W6-2	36" X 36"	9.00	1	0				1		1	2	7			9.00		9.00
R3-2	24" X 24"	4.00	4	0		1	1	1		3	2	7	4.00	4.00	4.00		12.00
R3-7	30" X 30"	6.25				1	1	1		3		7	6.25	6.25	6.25		18.75
M3-3a	24" X 12"	2.00	1	0				1		1	1	7			2.00		2.00
M1-6a	24" X 24"	4.00						1		1		7			4.00		4.00
M3-1a	24" X 12"	2.00	1	0				1		1	1	7			2.00		2.00
M1-6a	24" X 24"	4.00						1		1		7			4.00		4.00
X4-2	18" X 18"	2.25	0	2		1	1			2	1	7	2.25	2.25			4.50
R3-30AD	36" X 30"	7.50	2	0					2	2	2	7					15.00
W6-3	30" X 30"	6.25	1	0				1		1	2	7			6.25		12.50
TOTAL						22	8	27	3	60			110.75	35.25	136.00	24.00	306.00

Date Printed: 9/1/2005 File Name: k:\01666-00\cad\plan\1666s00.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY:
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. MINIECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

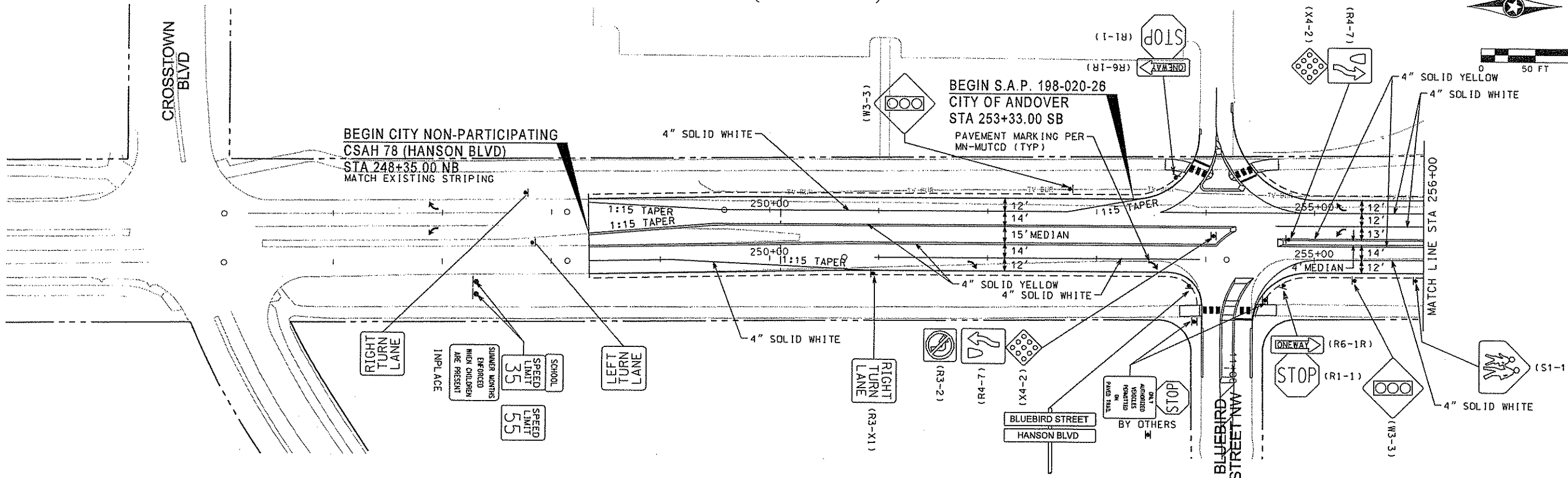
WSB & Associates, Inc.
 701 Xenia Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com
 763-541-4800 - Fax: 763-541-4700
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

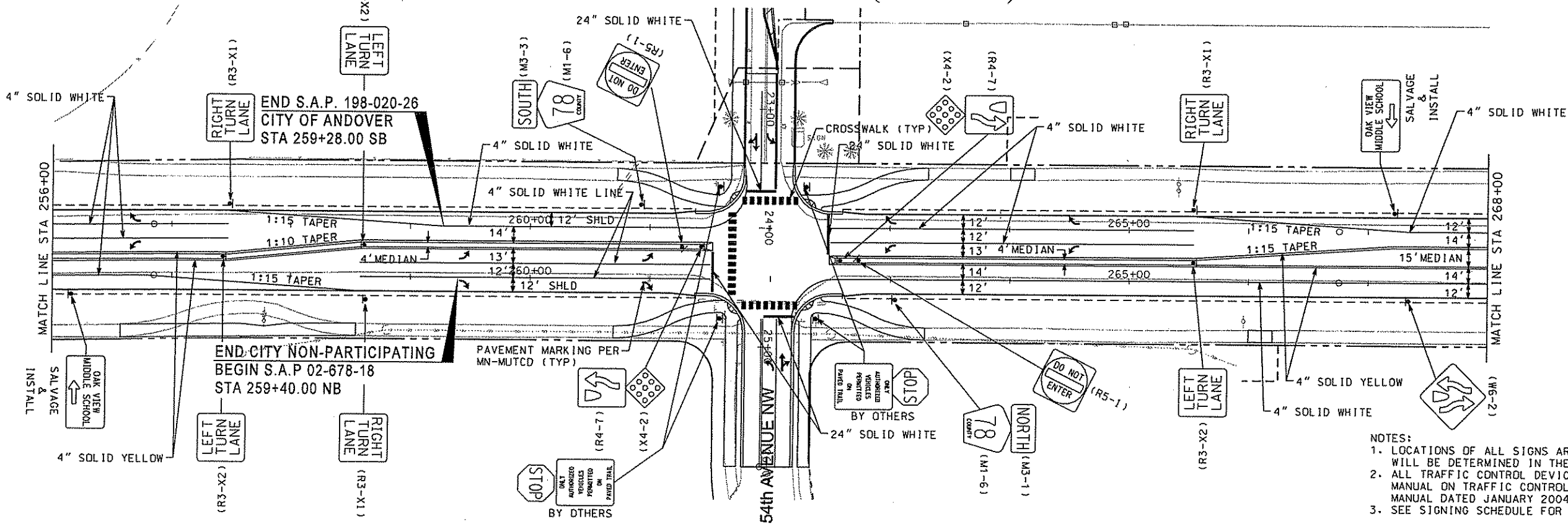
ANOKA COUNTY HIGHWAY DEPARTMENT
 QUANTITIES
SIGNING & STRIPING PLAN
 S.A.P 02-678-18, ETC.

SHEET 54 OF 90 SHEETS

CSAH 78 (Hanson Blvd)



CSAH 78 (Hanson Blvd)



- NOTES:
1. LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY 2004.
 3. SEE SIGNING SCHEDULE FOR SIZE AND QUANTITY.

Date Printed: 9/1/2005
WSB Filename: c:\01666-00\local\pilot\1666ss01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: **NEH/THG**
 Pion By: **CWK**
 Checked By: **AJW**
 Approved By: **AJW**

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CERTIFIED BY: *Anthony J. Winicki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINICKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

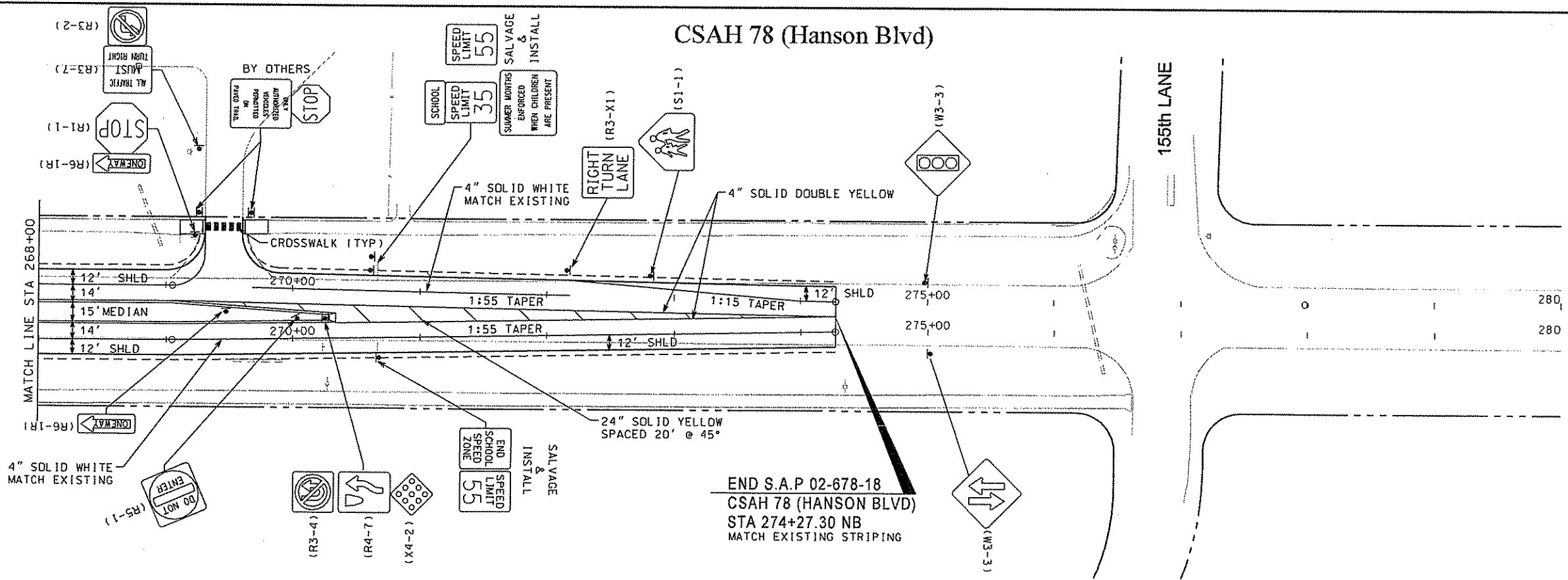
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 STA 245+00 TO STA 268+00
SIGNING & STRIPING PLAN
 S.A.P. 02-678-18, ETC.

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END S.A.P 02-678-18
 CSAH 78 (HANSON BLVD)
 STA 274+27.30 NB
 MATCH EXISTING STRIPING

- NOTES:
1. LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY 2004.
 3. SEE SIGNING SCHEDULE FOR SIZE AND QUANTITY.

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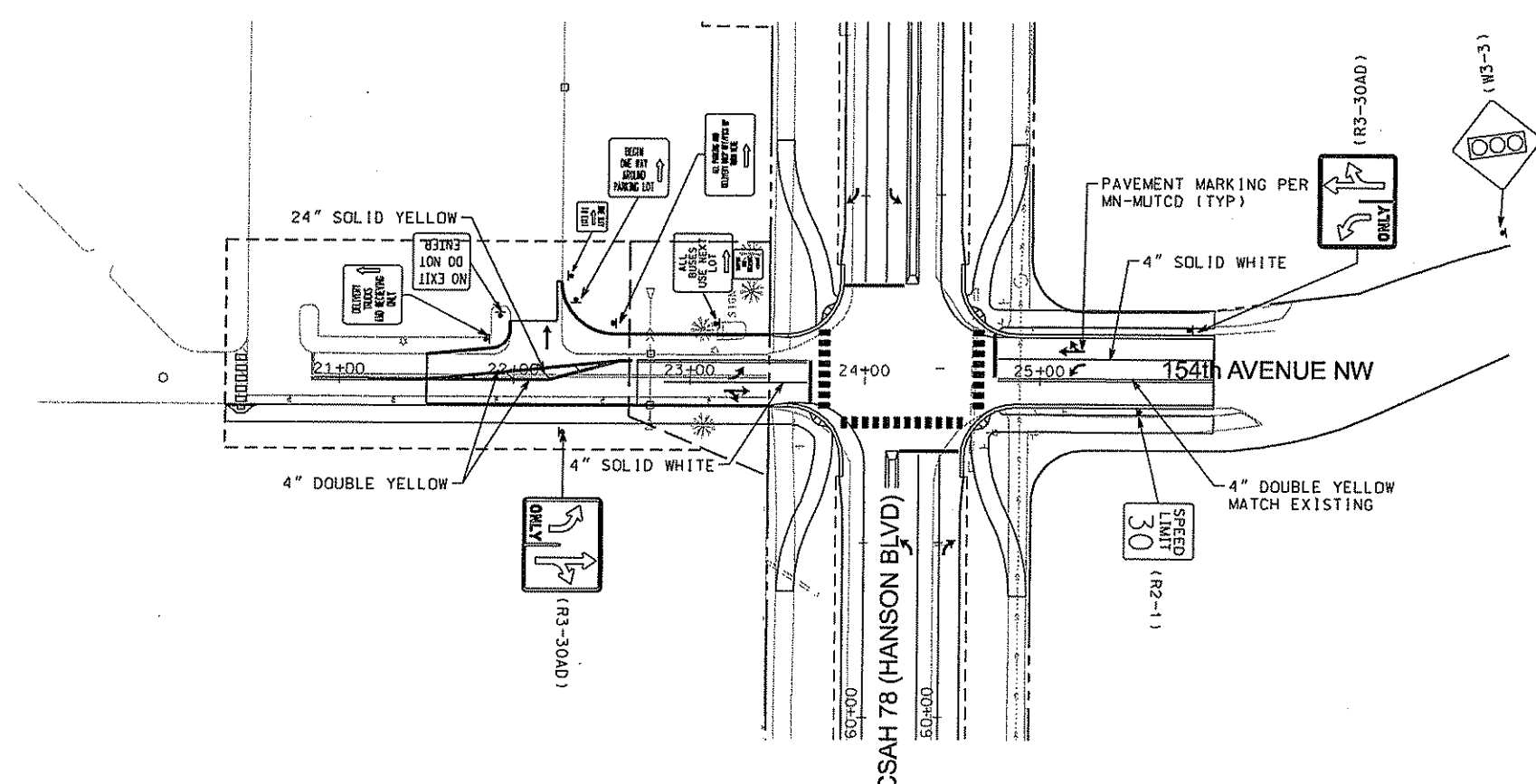
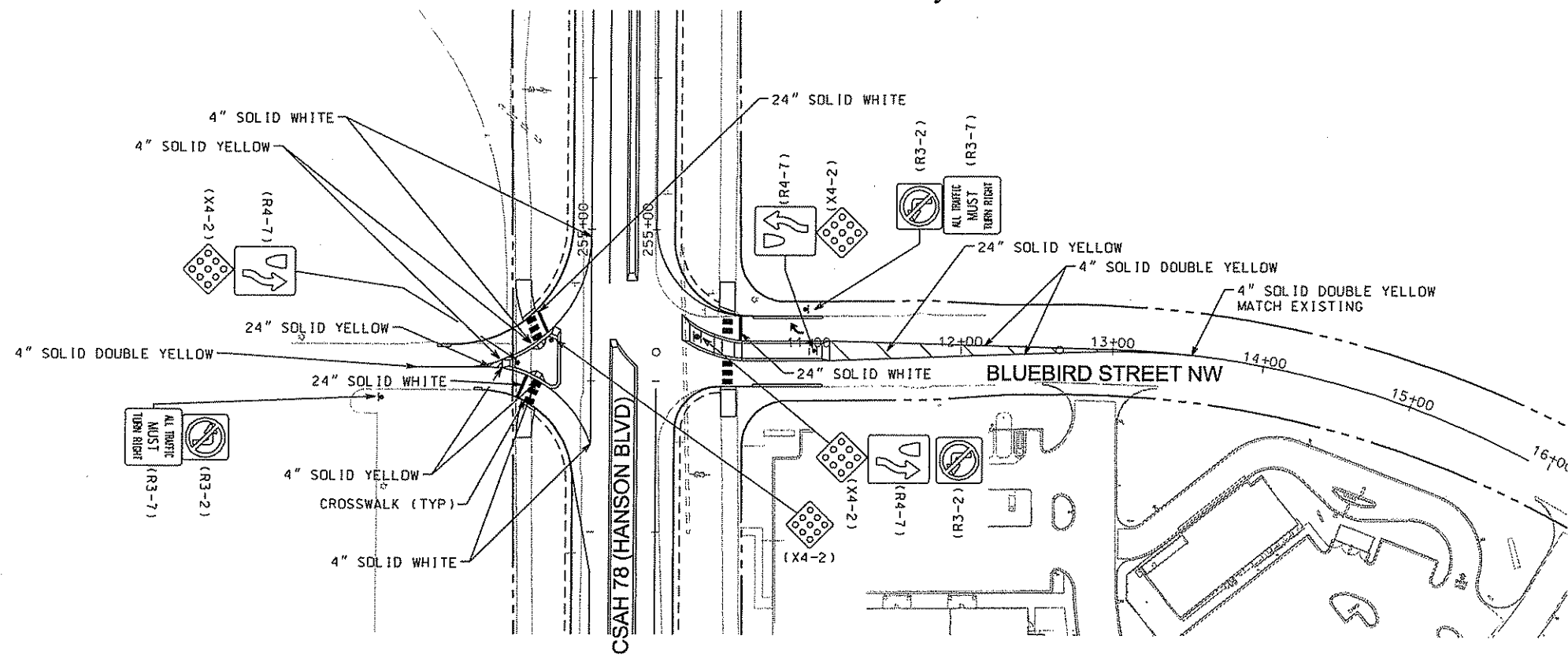
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Andover Community Center / Bluebird Street NW



- NOTES:
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 2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY 2004.
 3. SEE SIGNING SCHEDULE FOR SIZE AND QUANTITY.

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CERTIFIED BY: *Anthony J. Whiteck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WHITECK, P.E.
 DATE: 8/30/05 LIC. NO: 23128

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GENERAL REQUIREMENTS

THE ENGINEERS INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD SPOTTING, LOCATION AND INSPECTION. THE ENGINEER WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. BROKEN LINE INTERVALS WILL NOT BE MARKED. LONGITUDINAL JOINTS, PAVEMENT EDGES, AND EXISTING MARKINGS SHALL SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4" OVER OR UNDER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 6" FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 2". MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINT. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

IF OVERLAY APPLICATION IS SPECIFIED OR AUTHORIZED BY THE ENGINEER

1. TEMPERATURE REQUIREMENTS
 - . MINIMUM AIR TEMPERATURE 60°F (16°C) AND RISING
 - . MINIMUM PAVEMENT TEMPERATURE 70°F (21°C) AND RISING
 - . MINIMUM OVERNIGHT TEMPERATURE 60°F (16°C) AND RISING
2. SURFACE PREPARATION
 - A. ASPHALT-LESS THAN 11 DAYS OLD
 1. ALL - SWEEP OR BLOW CLEAN
 2. 0 - 3 DAYS OLD - NO PRIMER
 3. 4 - 10 DAYS OLD - STAMARK™ SP44 ONLY
 4. 11+ DAYS - STAMARK™ E44 OR SP44 DEPENDING ON APPLICATION. SEE MANUFACTURERS SPECIFICATION
 3. OLD MARKINGS
 - A. DO NOT APPLY OVER PAINT, EPOXY, OR THERMOPLASTIC UNLESS VERY WELL WORN AND WELL ADHERED TO THE ROAD. OLD MARKINGS MUST BE AT LEAST 75%-80% WORN AWAY
 - B. GRIND OR SANDBLAST OLD MARKINGS AND SWEEP OR BLOW SURFACE CLEAN
 - C. APPLY REQUIRED PRIMER
 3. WORN STAMARK™ MARKINGS
 - A. OK TO APPLY NEW MATERIAL OVER WORN STAMARK™. REMOVE ALL LOOSE MATERIAL WITH SCRAPER OR KNIFE.
 - B. SWEEP OR BLDW SURFACE CLEAN.
 - C. APPLY REQUIRED PRIMER

EPOXY

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC), OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4 INCHES WIDE AND 15 MIL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF (1) GAL OF COMPONENTS FOR 320 FT OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50°F OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY MARKINGS.

PAINT

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

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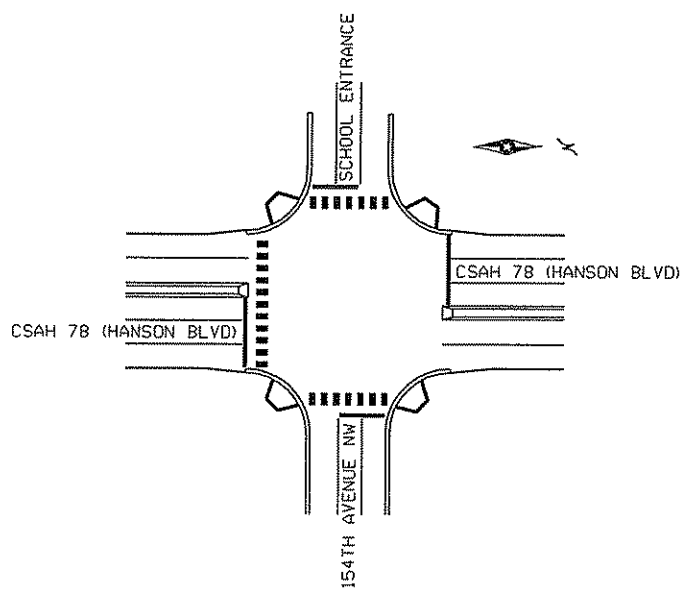
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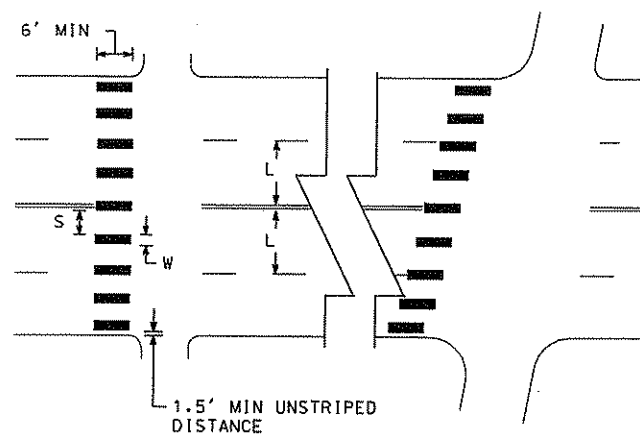
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(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'



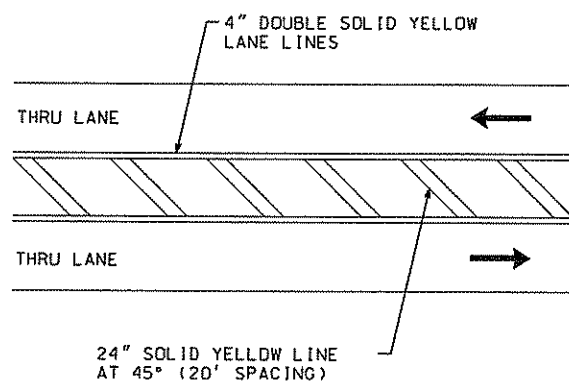
SCHOOL ENTRANCE / 154TH AVENUE
PEDESTRIAN MARKINGS



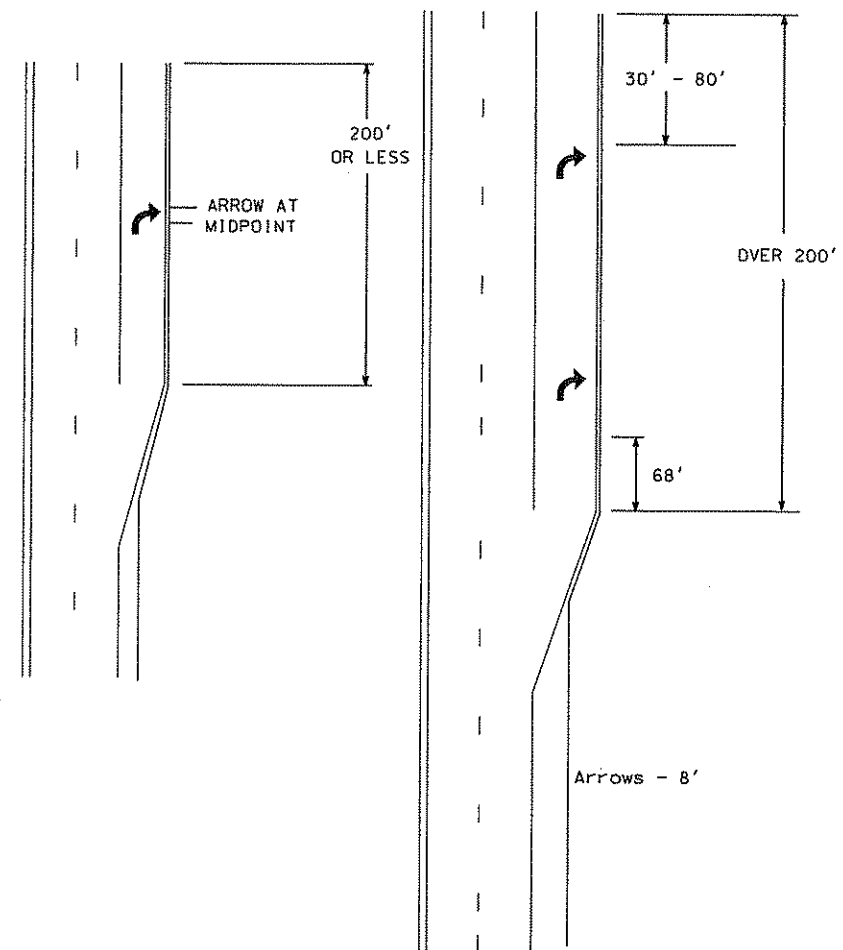
NOTES

1. TAPED AREAS TO BE CENTERED AND ALIGNED ON CENTER LINE AND LANE LINES.
2. ZEBRA CROSSWALKS AND 24" STOP LINES SHALL BE REFLECTORIZED WHITE POLYMER PREFORMED TAPE.
3. A MINIMUM OF 1.5' CLEAR DISTANCE MUST BE LEFT ADJACENT TO CURB.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE TAPED AREAS SHOULD BE MADE IN THE MEDIAN SO THAT THE TAPED AREAS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE TAPED AREAS ARE TO REMAIN PARALLEL TO THE LANE LINES.
6. CONCRETE PAVEMENT SURFACES AND BITUMINOUS SURFACES, WHERE PAVEMENT MARKINGS CANNOT BE INLAYED IN THE HOT MAT, SHALL BE GROOVED FOR THE INSTALLATION OF THE POLY-PREFORMED MARKINGS. GROOVING SPECIFICATIONS ARE DETAILED IN MN/DDT SPECIAL PROVISIONS.

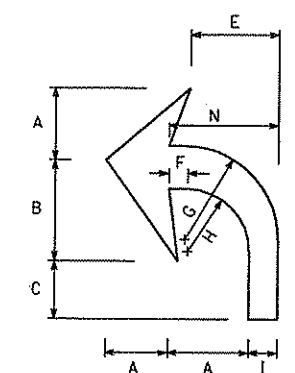
MARKINGS FOR PEDESTRIAN CROSSINGS
(POLY-PREFORM)



STRIPED MEDIAN DETAIL



TYPICAL MESSAGE PLACEMENT FOR TURN LANES



SIZE 6' x 8'

PAVEMENT MARKING DETAILS
(POLY-PREFORM)

DIMENSION TABLE	
A	2' - 6"
B	3' - 6"
C	2' - 0"
D	2' - 6"
E	3' - 1"
F	0' - 8"
G	3' - 3"
H	2' - 2"
I	1' - 0"
J	1' - 0"
K	1' - 3"
L	5' - 0"
M	7' - 8"
N	3' - 10"
P	4' - 6"

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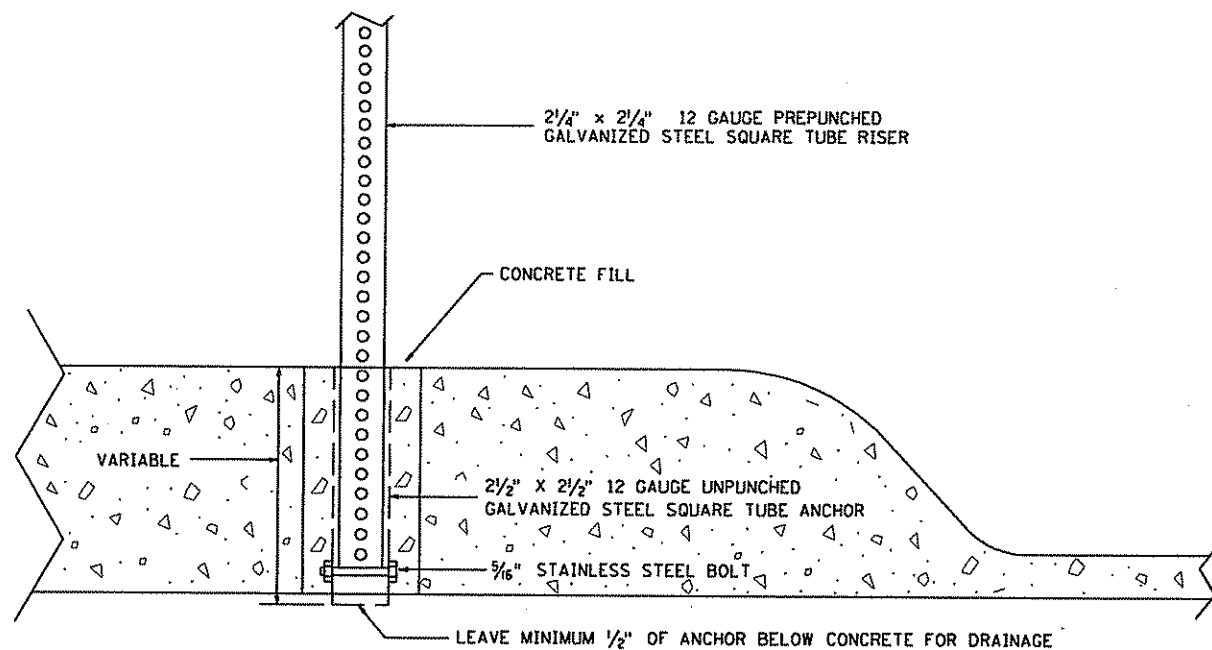
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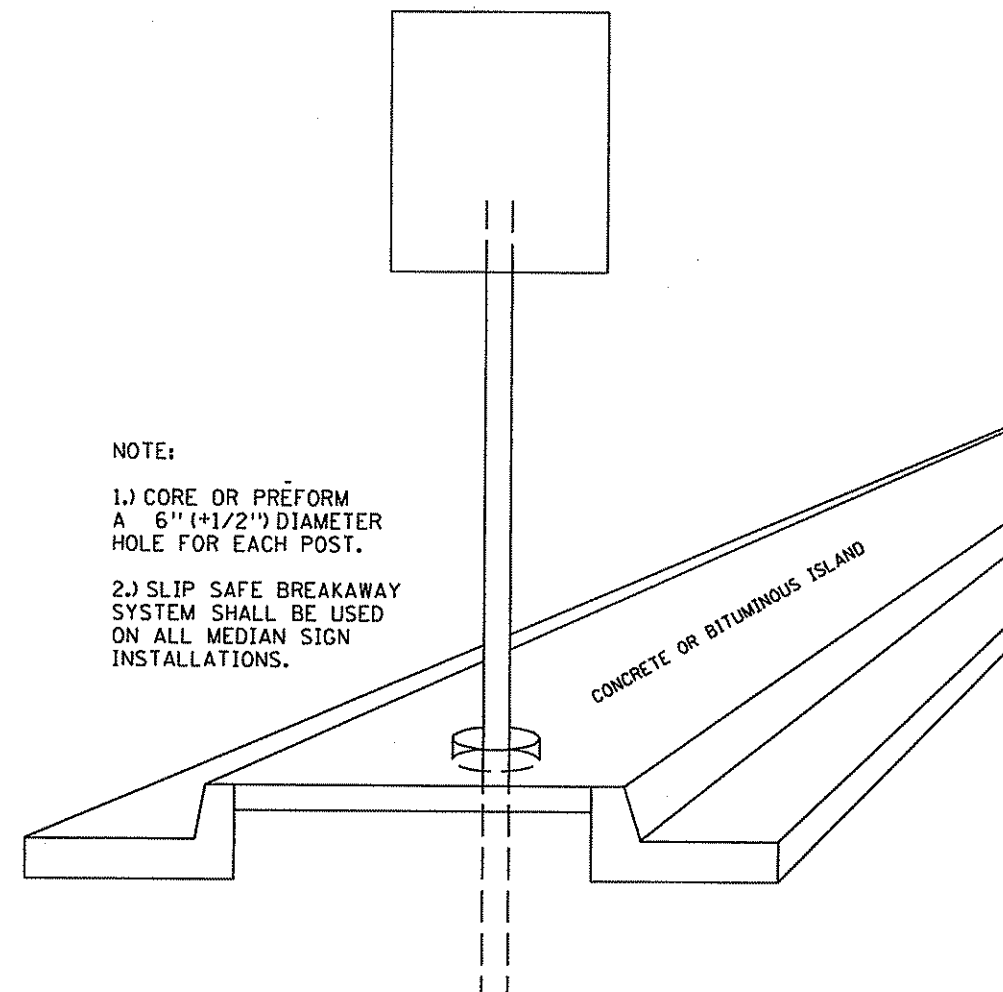


NOTES:

1. DRILL A 8" DIAMETER HOLE THE FULL DEPTH OF THE CONCRETE ISLAND.
2. DRILL 3/8" HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A 5/16" STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED SQUARE TUBE ANCHOR) WILL REST ON BOLT.
3. INSERT THE ANCHOR IN THE PRE DRILLED HOLE IN THE CONCRETE ISLAND.
4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.

TYPE C SIGNS, DELINEATORS & MARKERS IN CONCRETE

Revised 4-04-05



NOTE:

- 1.) CORE OR PREFORM A 6" (+1/2") DIAMETER HOLE FOR EACH POST.
- 2.) SLIP SAFE BREAKAWAY SYSTEM SHALL BE USED ON ALL MEDIAN SIGN INSTALLATIONS.

FLANGED CHANNEL POST MOUNTED THROUGH SURFACED
MEDIAN OR SIDEWALK

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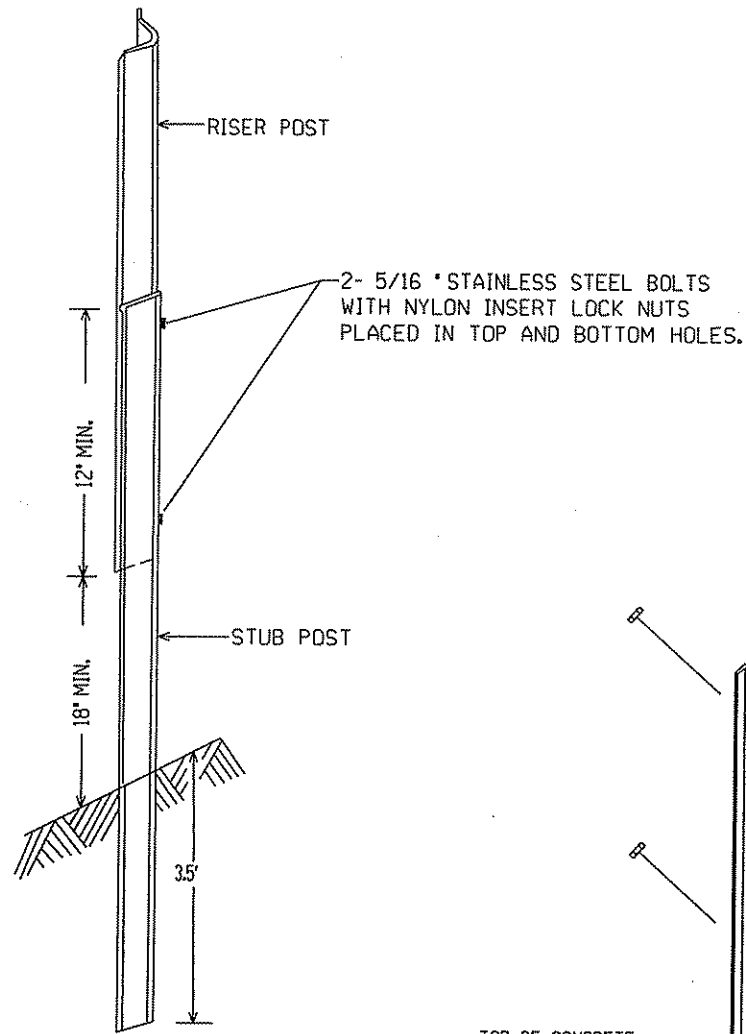
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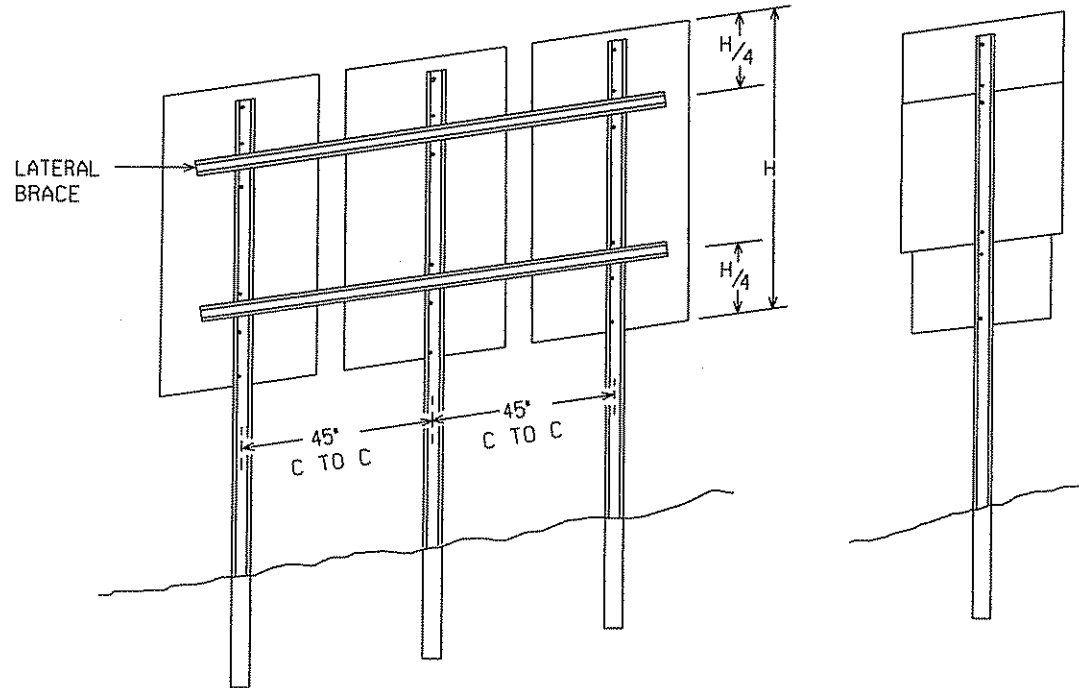
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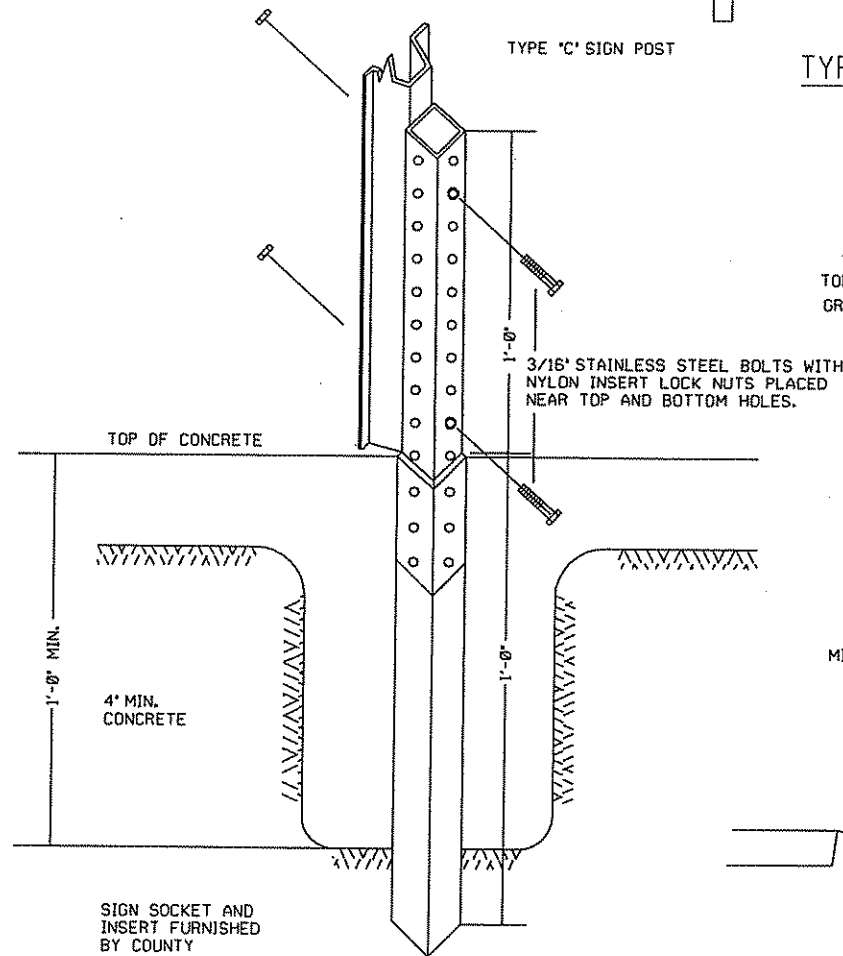
TYPE "C" & "D" POST



"U" POST SPLICE



TYPICAL TYPE "C" INSTALLATIONS



SIGN SOCKET DETAIL FOR SIGNS MOUNTED IN CONCRETE ISLANDS

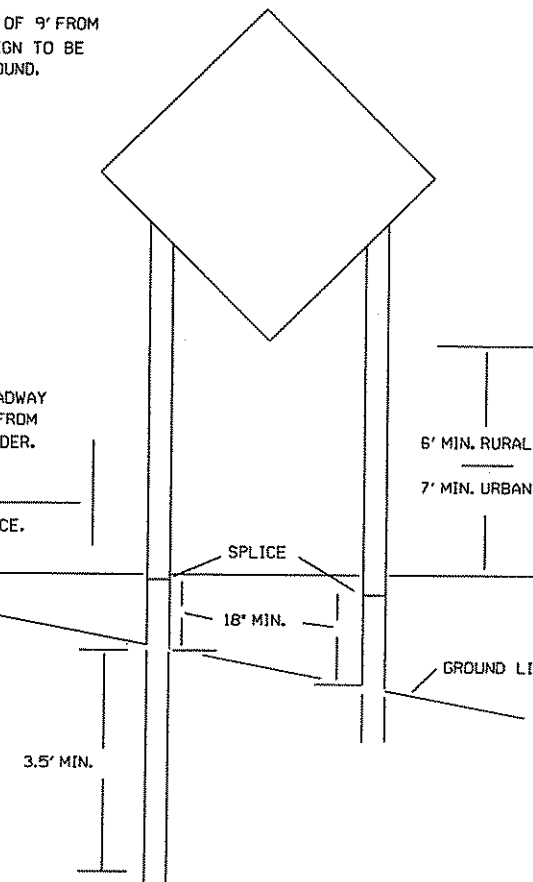
(NO SCALE)

TOP OF SIGN TO BE A MIN. OF 9' FROM GROUND AND BOTTOM OF SIGN TO BE A MIN. OF 7' FROM GROUND.

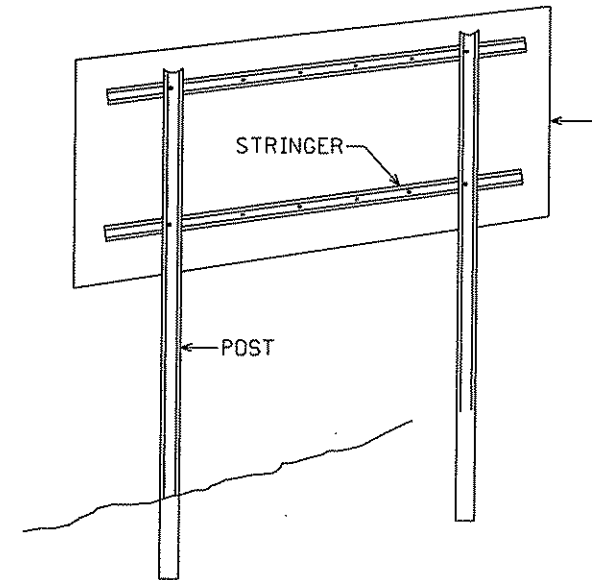
MIN. 12' FROM EDGE OF ROADWAY AND NOT LESS THAN 6' FROM EDGE OF PAVED SHOULDER. RURAL

2' MIN. FROM CURB FACE. URBAN

6' MIN. RURAL
7' MIN. URBAN



SIGNING & STRIPING PLAN - "C" & "D" SIGN DETAILS

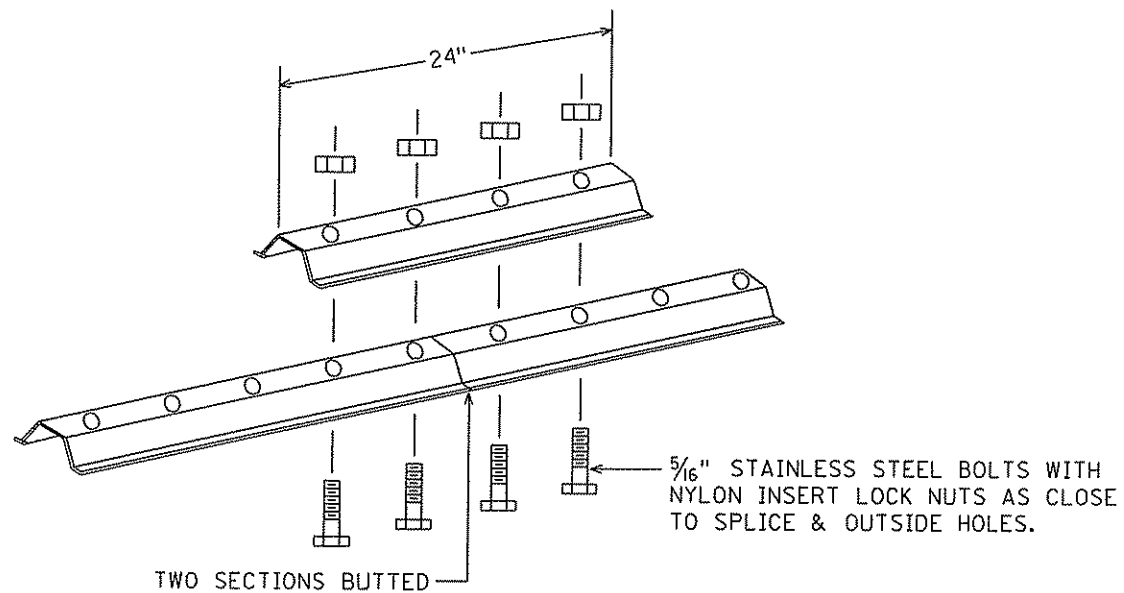


TYPICAL TYPE "D" INSTALLATION

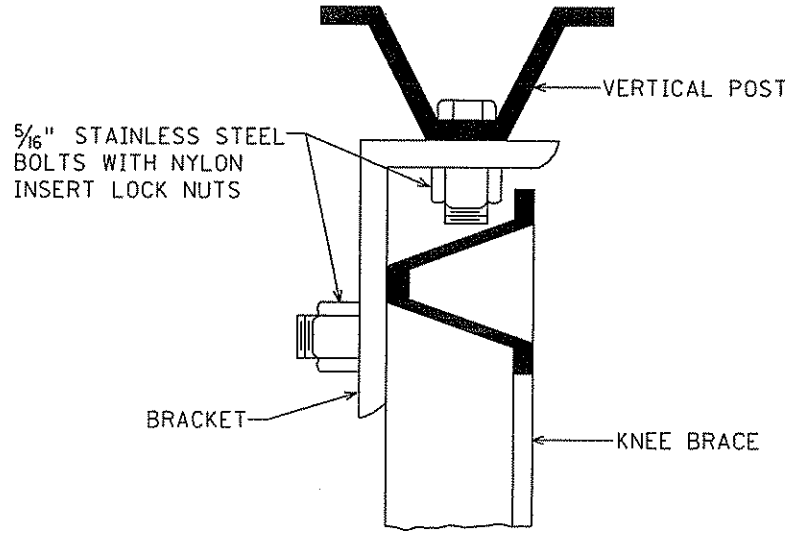
TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 1 of 3

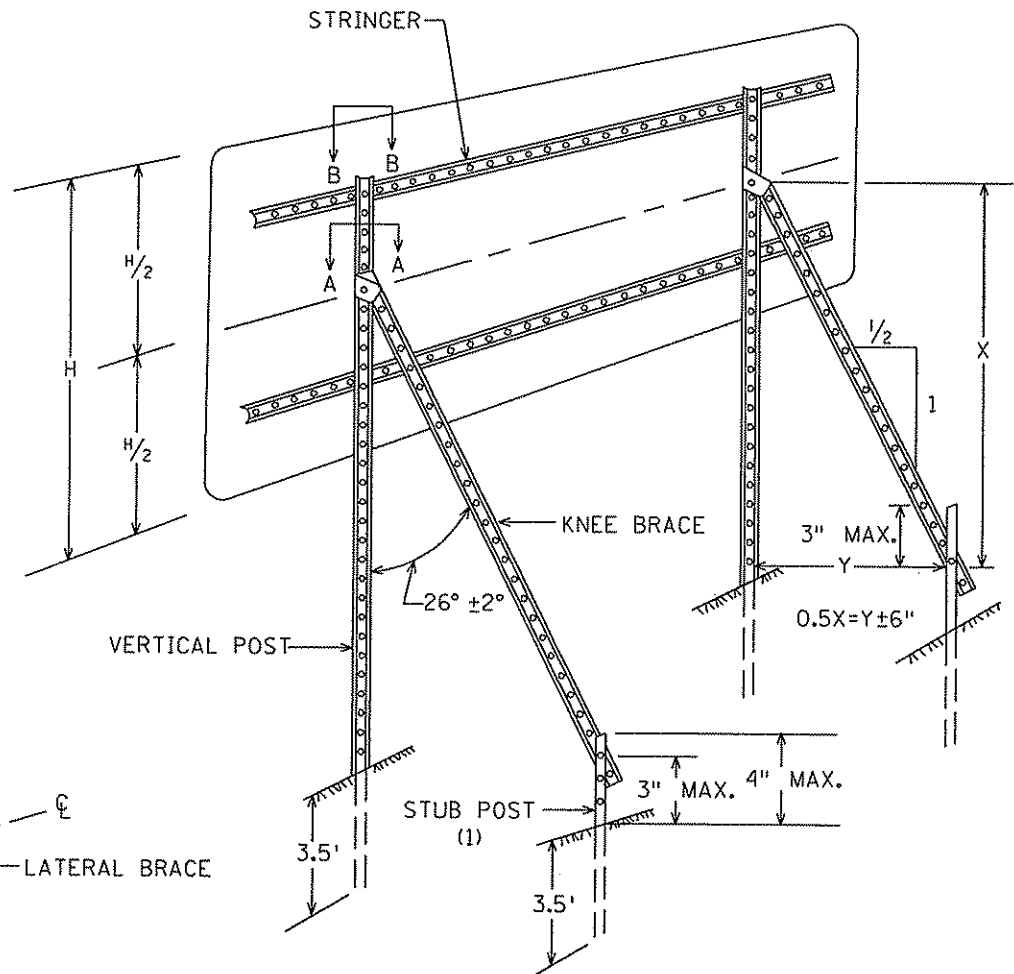
- NOTES:
1. USE 3" STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
 2. FOR TYPE "D" SIGN POSTS LENGTHS AND SPACINGS. SEE SIGN DATA SHEET.
 3. TYPE "D" SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH TYPE "D" STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
 4. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
 5. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
 6. USE STAINLESS STEEL 5/16" BOLTS, WASHERS, AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
 7. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
 8. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 3' 12".
 9. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394.
 10. COLLARS SHALL BE USED TO SHIM OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MN/DOT 3352.2A4.
 11. 2 AND 3 POST TYPE "C" SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
 12. WHERE 2 OR MORE SINGLE POST SIGNS (TYPE "C") ARE MOUNTED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 POST SECTIONS. BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN SKETCH.



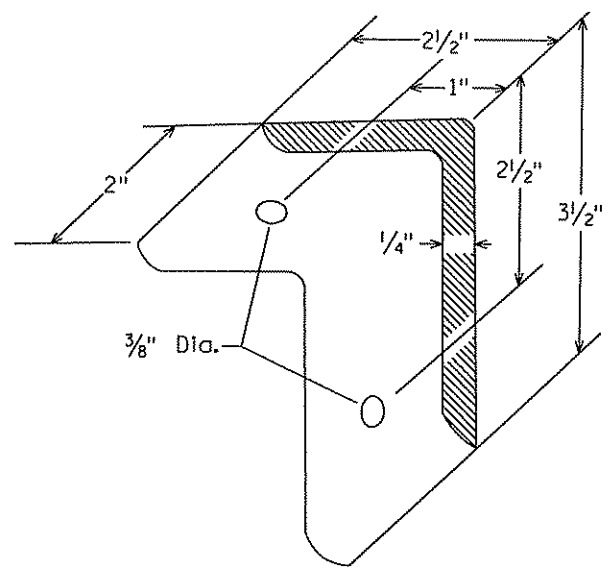
LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

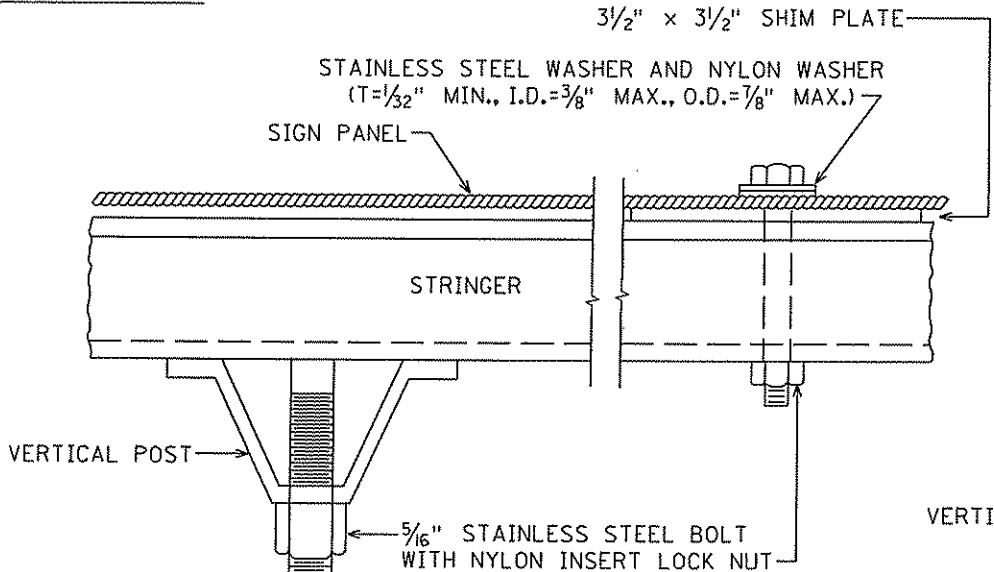


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

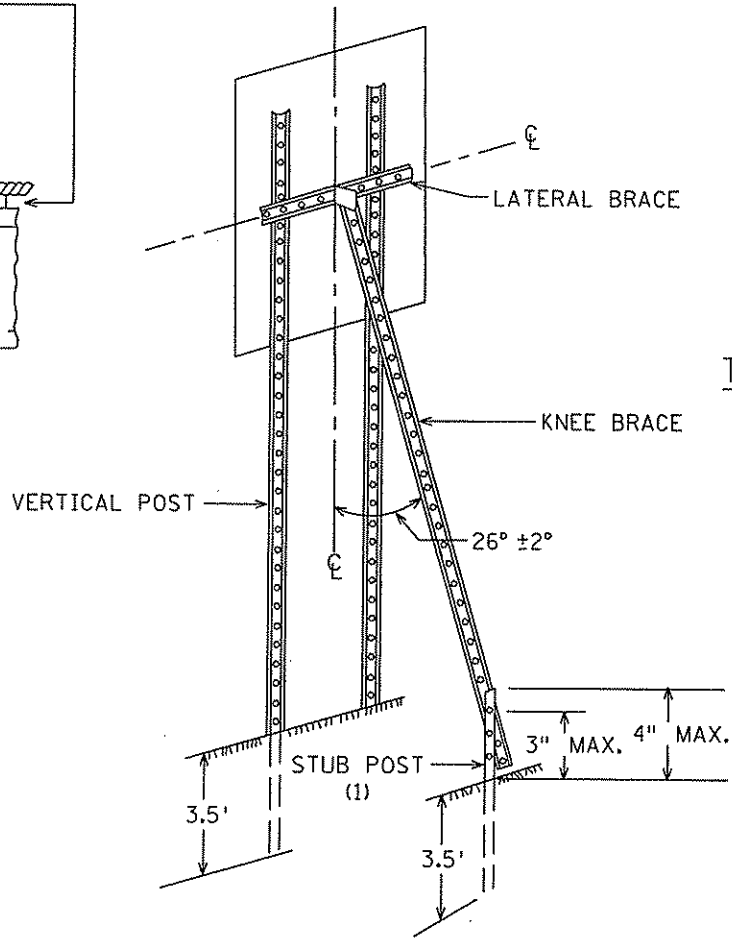


A-FRAME BRACKET

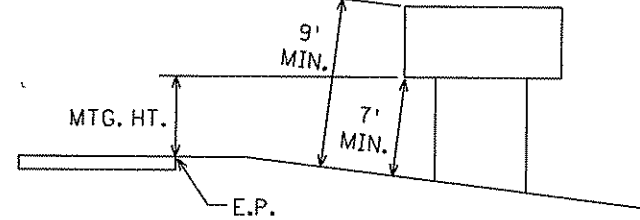
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B-B

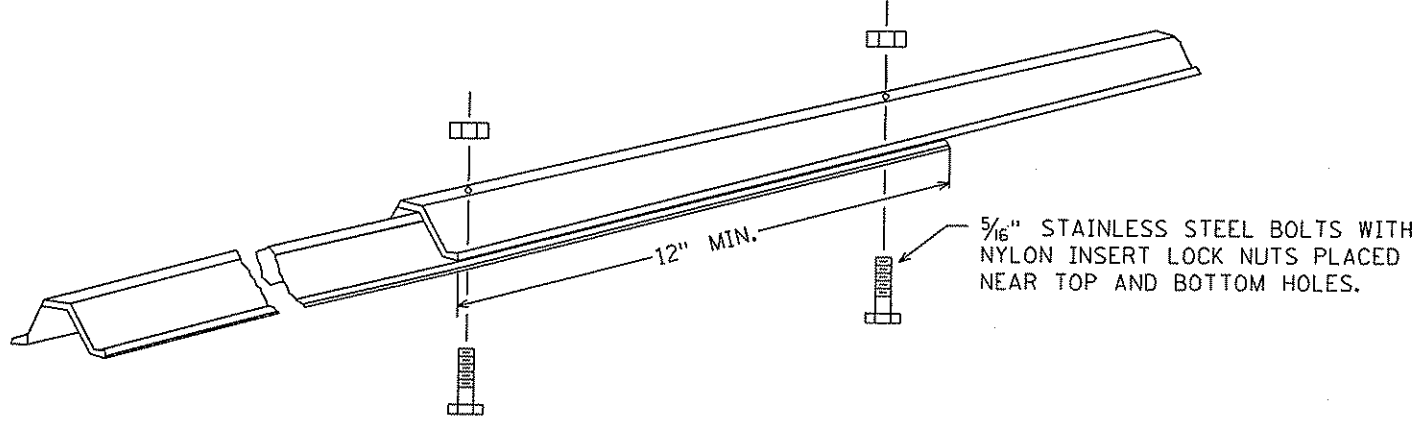


TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY
RELATIVE TO VERTICAL POST.



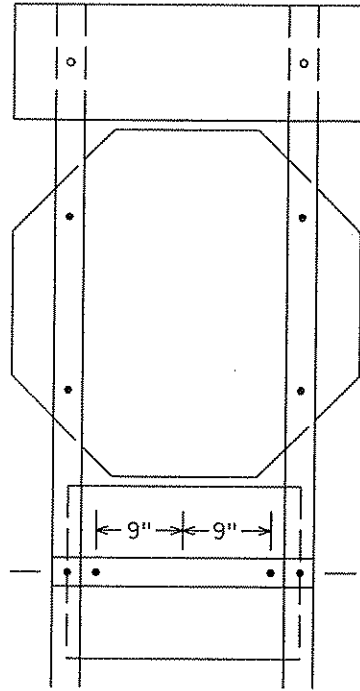
KNEE BRACE SPLICE

TYPE C & D SIGN
STRUCTURAL DETAILS

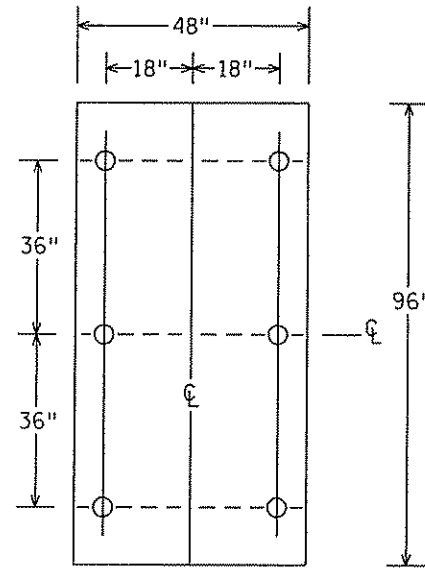
Sheet 2 of 3

9/17/2005
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C & D SIGN STR. (SHT. 67) 11-01-01

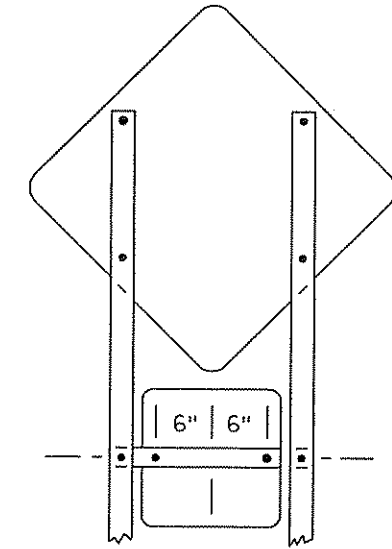
Revised 6-18-99



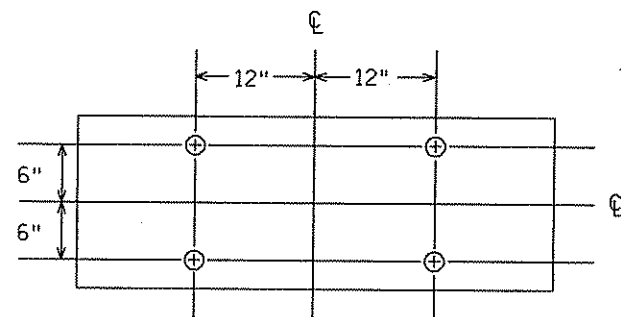
R6-1, R1-1 & (R6-3 OR R6-3a)
MOUNTING



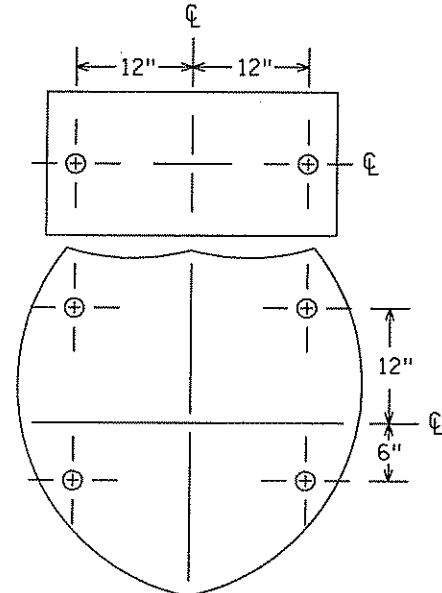
PUNCHING FOR R2-4b
SPEED LIMIT



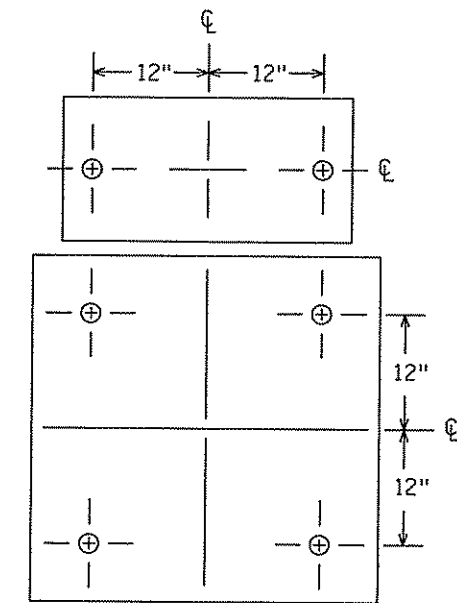
(W1-1, W1-2, W1-3, W1-4 OR W1-5) & W13-1
MOUNTING



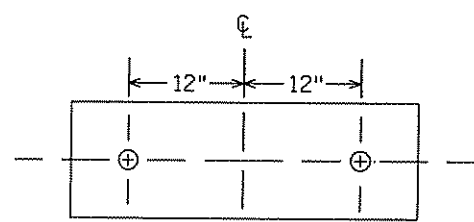
PUNCHING FOR R6-1(48" x 18")



(M3-1A, M3-2A, M3-3A OR M3-4A) [30" x 15"] AND
M1-1 [45" x 36" OR 36" x 36"]
PUNCHING



(M3-1, M3-1A, M3-2, M3-2A, M3-3, M3-3A, M3-4 OR
M3-4A) [30" x 15"] AND (M1-4 OR M1-5A) [36" x 36"]
PUNCHING



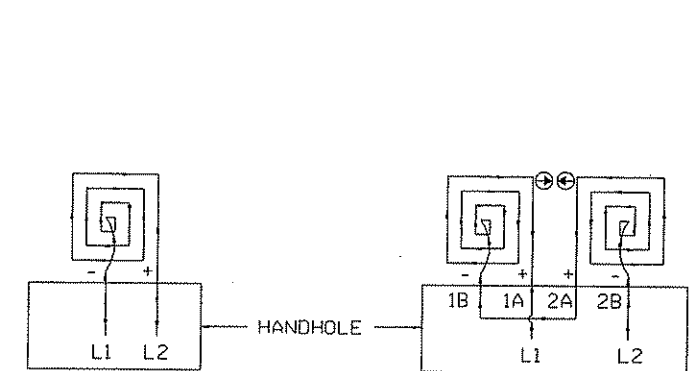
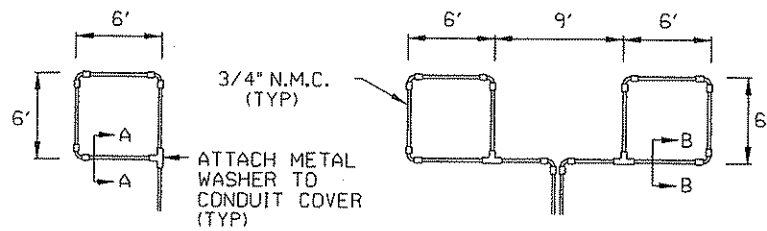
PUNCHING FOR R6-1(36" x 12")

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 3 of 3

9/17/2005
K:\01666-00\cadd\pcon\1666s06.dgn
CD3 6-18-99

Revised 12-05-02

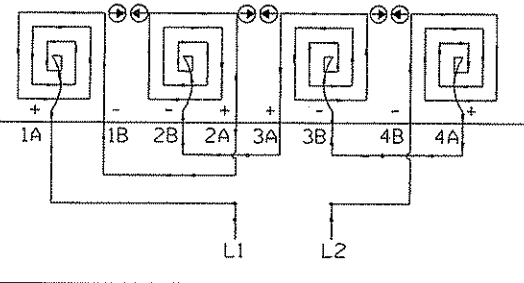
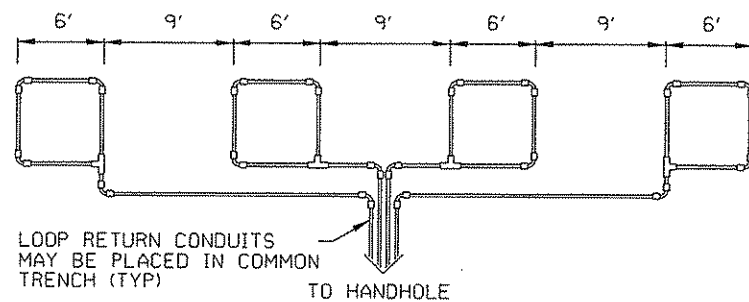


LOOP DETECTOR
DETAIL 'A'
(LOOP PHASING FOR
SINGLE CONNECTION)

LOOP CONNECTIONS SHALL BE
LABELED AND SPLICED IN THE
HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO L2

LOOP DETECTOR
DETAIL 'B'
(LOOP PHASING FOR
SERIES CONNECTION)

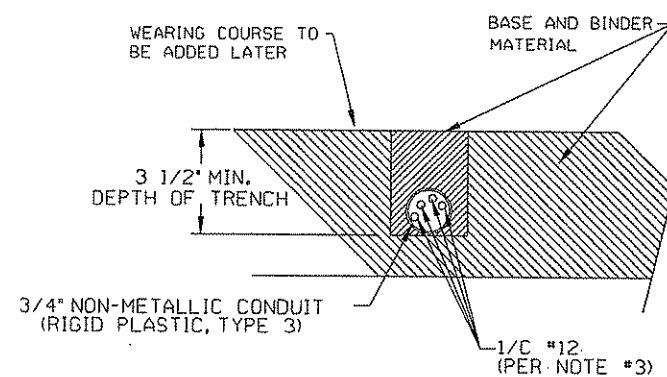


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED
IN THE HANDHOLE AS FOLLOWS:

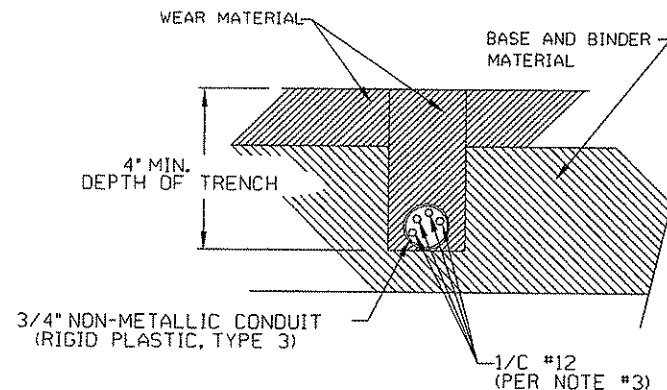
L1 TO 1A 3B TO 4A
1B TO 2A 4B TO L2
2B TO 3A

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE.
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE
(1A, 1B, ECT)

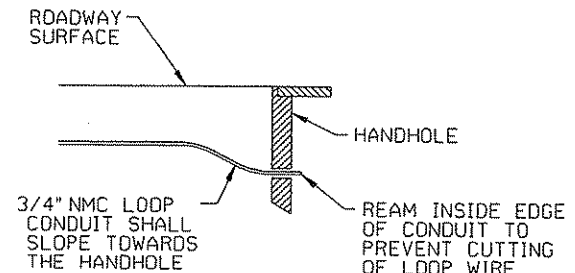
LOOP DETECTOR
DETAIL 'C'
(LOOP PHASING FOR
SERIES CONNECTION)



SECTION A-A
DETAIL FOR LOOP INSTALLATION
IN NEW ROADWAY



SECTION B-B
DETAIL FOR LOOP INSTALLATION
IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLPE). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(B)
SIGNAL FACE NO.	(C)
LUMINAIRE NO.	(D)
CONTROLLER AND CABINET	(E)
CONTROLLER AND CABINET - IN PLACE	(F)
HANDHOLE	(G)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(I)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(J)
SIGNAL FACE WITH BACKGROUND SHIELD	(K)
SIGNAL FACE W/D BACKGROUND SHIELD	(L)
SIGNAL FACE - IN PLACE	(M)
PEDESTRIAN INDICATORS	(N)
PEDESTRIAN INDICATORS - IN PLACE	(O)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(P)
PEDESTRIAN PUSH BUTTON STATION	(Q)
TRAFFIC SIGNAL PEDESTAL	(R)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(S)
TRAFFIC SIGNAL POLE AND MAST ARM	(T)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(U)
STREET LIGHT POLE AND LUMINAIRE	(V)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(W)
MAST ARM AND LUMINAIRE	(X)
MAST ARM AND LUMINAIRE - INPLACE	(Y)
WOOD POLE	(Z)
WOOD POLE - IN PLACE	(AA)
SOURCE OF POWER	(AB)
RAILROAD SIGNAL - IN PLACE	(AC)
RIGHT OF WAY LINE	(AD)
CENTERLINE	(AE)
EDGE OF ROADWAY	(AF)
SHOULDERLINE	(AG)
CURB LINE	(AH)
STOP BAR	(AI)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(AJ)

ABBREVIATIONS

3-1(EG)	SIGNAL HEAD PHASE '3' - NO. '1'	P2-1(EG)	PED INDICATION PHASE '2' - NO. '1'
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE '2' - NO. '1'
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE '2' - NO. '1'	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EGG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BDX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:	
PLATE NO.	DESCRIPTION
8110 D	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 D	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
8112 C	PEDESTAL FOUNDATION
8114 A	PVC HANDHOLE/PULLBOX
8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8118 C	SERVICE EQUIPMENT AND POLE - TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 L	PA85 POLE FOUNDATION
8121 D	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
8123 E	POLE AND MAST ARM
8124 E	MAST ARM SIGNAL HEAD MOUNTS
8126 G	PA90 AND PA100 POLE FOUNDATION

* - APPLIES TO THIS PROJECT

CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

Date Printed: 9/1/2005
WSB Filename: k:\01666-00\acad\plan\1666sp01.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Witbeck*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITBECK, P.E.
 DATE: 8/30/05 LIC. NO: 23128

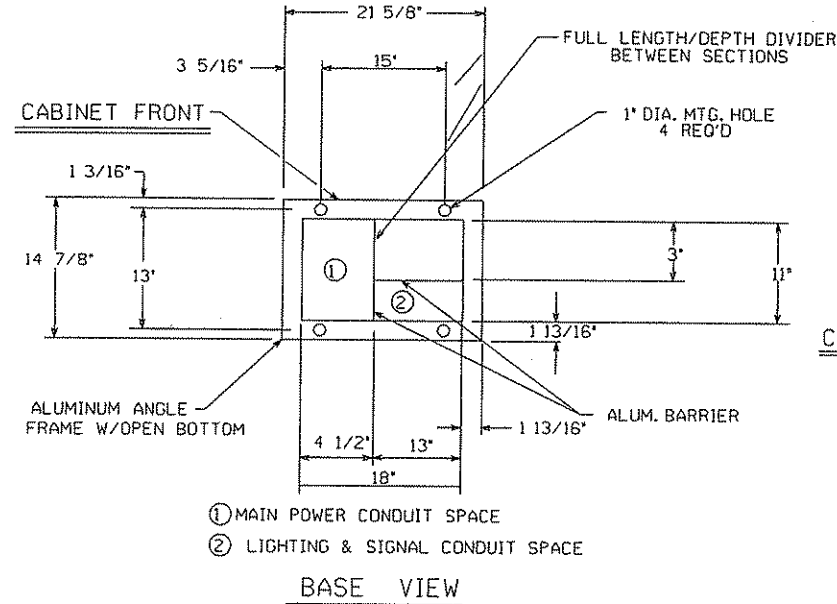
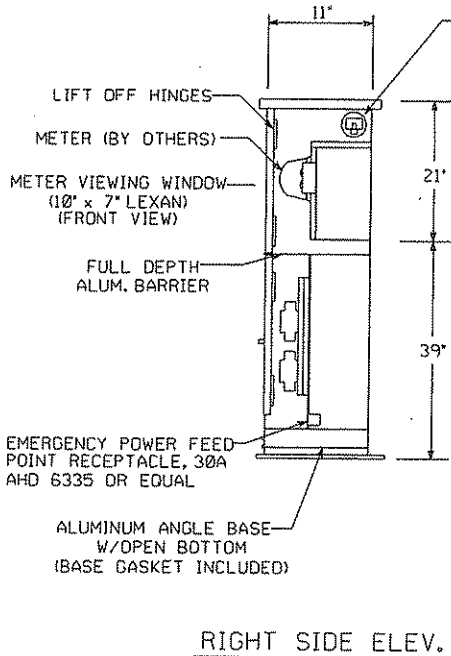
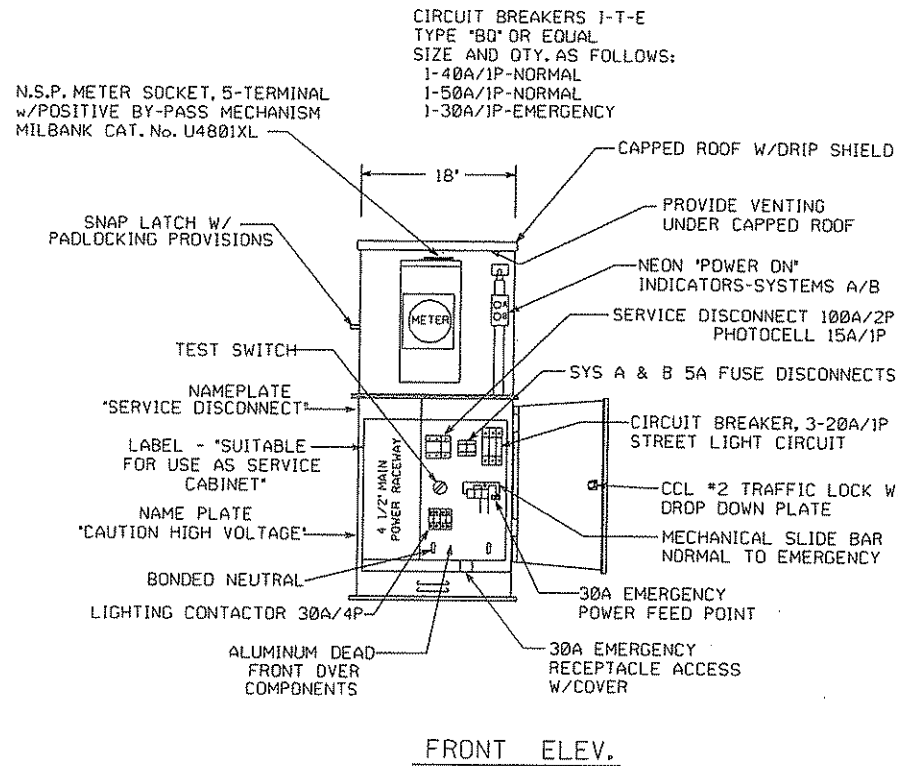
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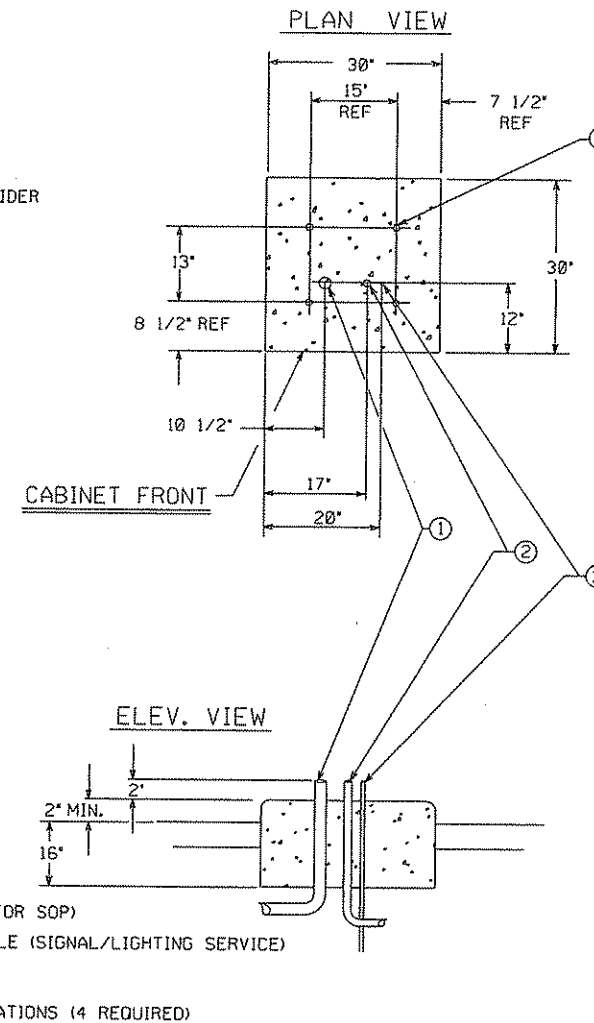
ANOKA COUNTY HIGHWAY DEPARTMENT
 DETAILS AND STANDARD PLATES
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET **64** OF **90** SHEETS

SIGNAL SERVICE CABINET



SERVICE CABINET FOUNDATION



CONSTRUCTION NOTES

ENCLOSURE SHALL BE FABRICATED FROM 1/8" ALUMINUM FOR OUTDOOR WEATHERPROOF SERVICE.

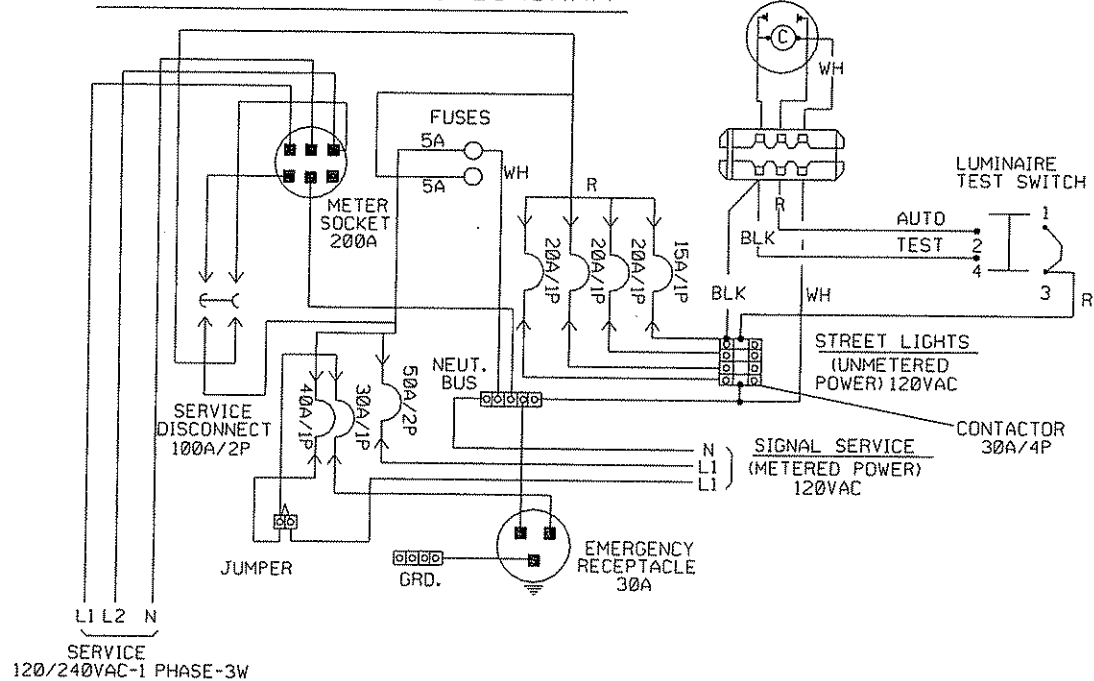
DOORS TO BE NEOPRENE GASKETED. ALL HINGES, PINS AND LOCKS TO BE OF NON-CORRODING CONSTRUCTION.

CABINET SHALL HAVE ANODIC COATING FOR ALL ALUMINUM SURFACES. SEE SPECIAL PROVISIONS.

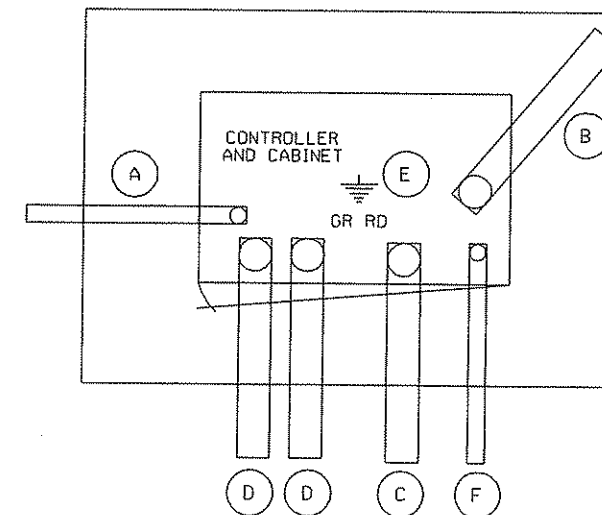
NEMA 3R ENCLOSURE SHALL BE "UL" APPROVED.

CABINET SHALL HAVE BASE GASKET INCLUDED.

FEED POINT WIRING DIAGRAM



- Ⓐ 2" R.S.C. FOR SERVICE CONNECTION (VIA HH 16)
- Ⓑ 4" R.S.C. TO HH 1
- Ⓒ 4" R.S.C. TO HH 15
- Ⓓ 3" R.S.C. STUBOUT, THREAD & CAP BOTH ENDS (FOR FUTURE USE).
- Ⓔ 5/8" DIA X 15' GROUND ROD
- Ⓕ 1" R.S.C. STUBOUT, THREAD & CAP BOTH ENDS (FOR FUTURE PHONE LINE).



SEE INTERSECTION LAYOUT FOR CONDUIT & CABLE INFORMATION

TYPICAL CONTROLLER CABINET PAD LAYOUT

9/1/2005
 WSB File Number: 1-10-1666-00.tcd\plan\1666sp02.dgn

NO.	DATE	BY	CHK	REVISIONS

Design By: **NEH/THG**

Plan By: **CWK**

Checked By: **AJW**

Approved By: **AJW**

DATE: **8/30/05**

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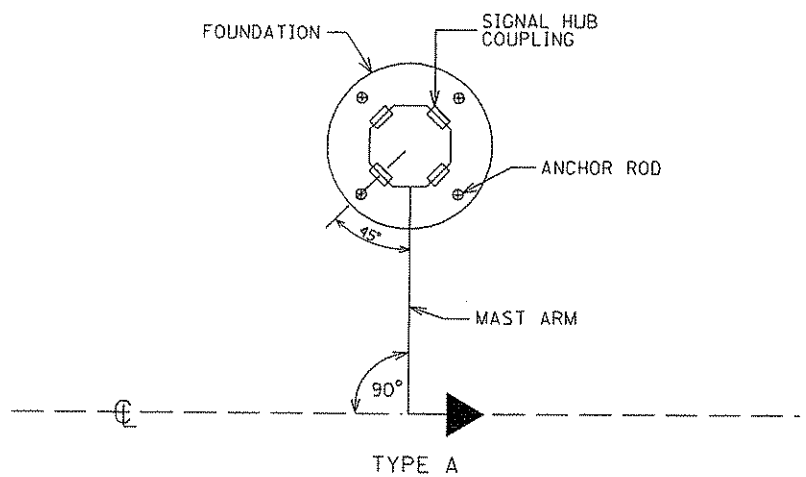
CERTIFIED BY: *Anthony J. Witek*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITEK, P.E.
 LIC. NO. 23128

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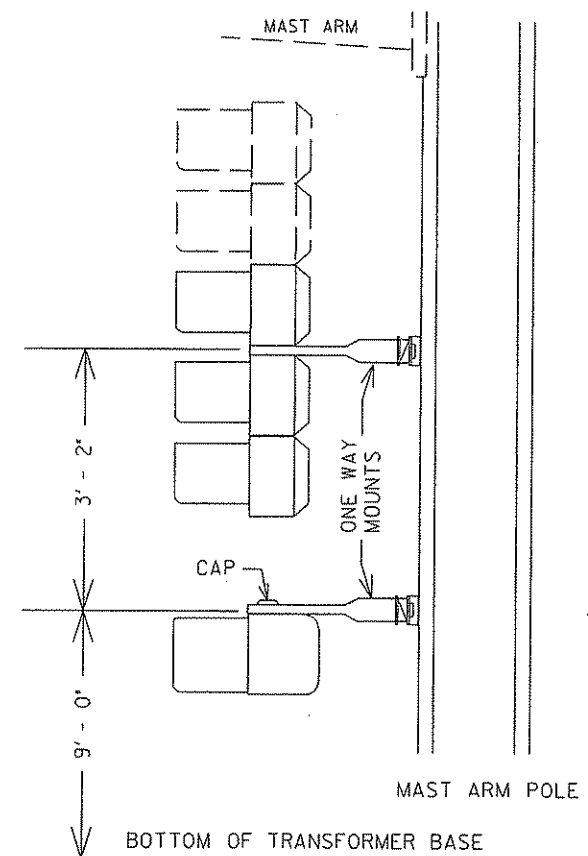
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ANOKA COUNTY HIGHWAY DEPARTMENT
 CABINET DETAILS
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

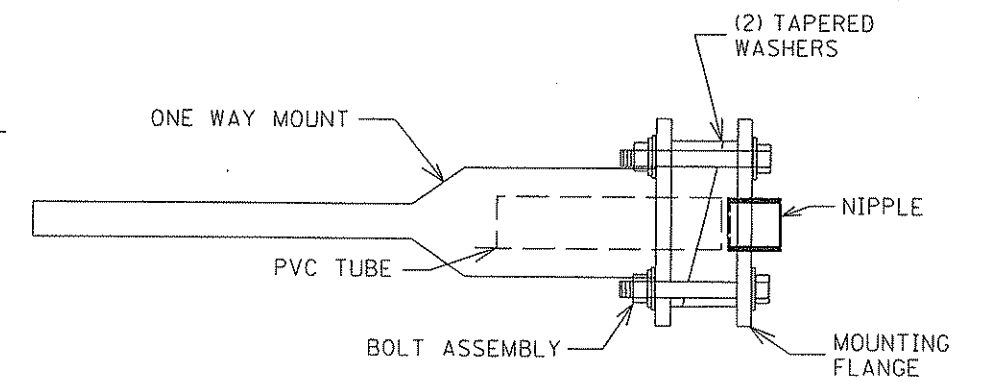
SHEET **65**
 OF **90**
 SHEETS



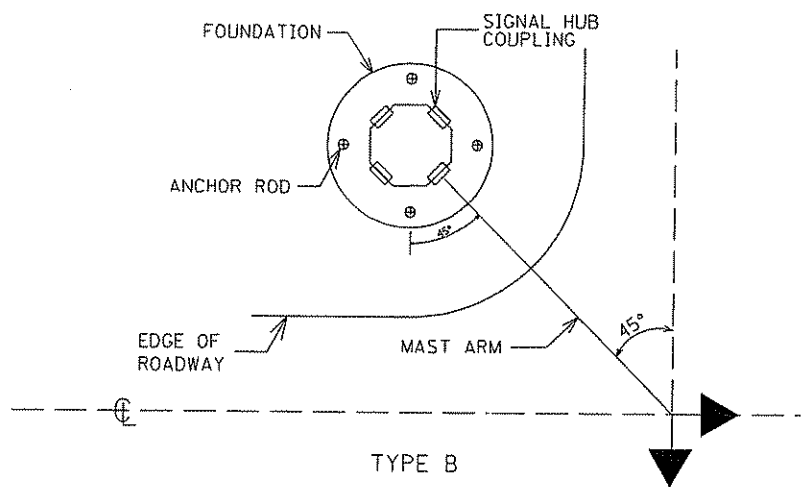
TYPE A
ANCHOR ROD PLACEMENT,
MAST ARM ORIENTATION
AND SIGNAL HUB LOCATIONS



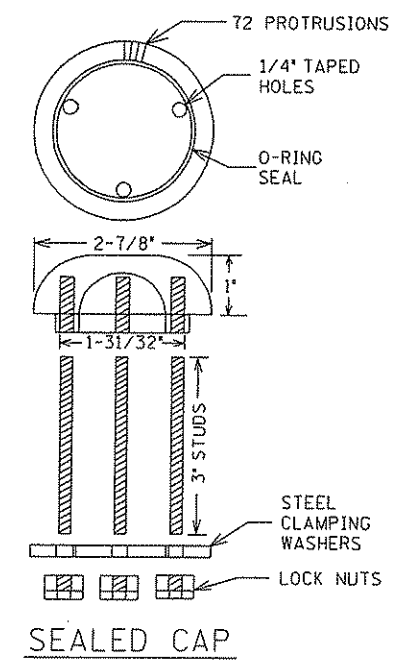
BOTTOM OF TRANSFORMER BASE



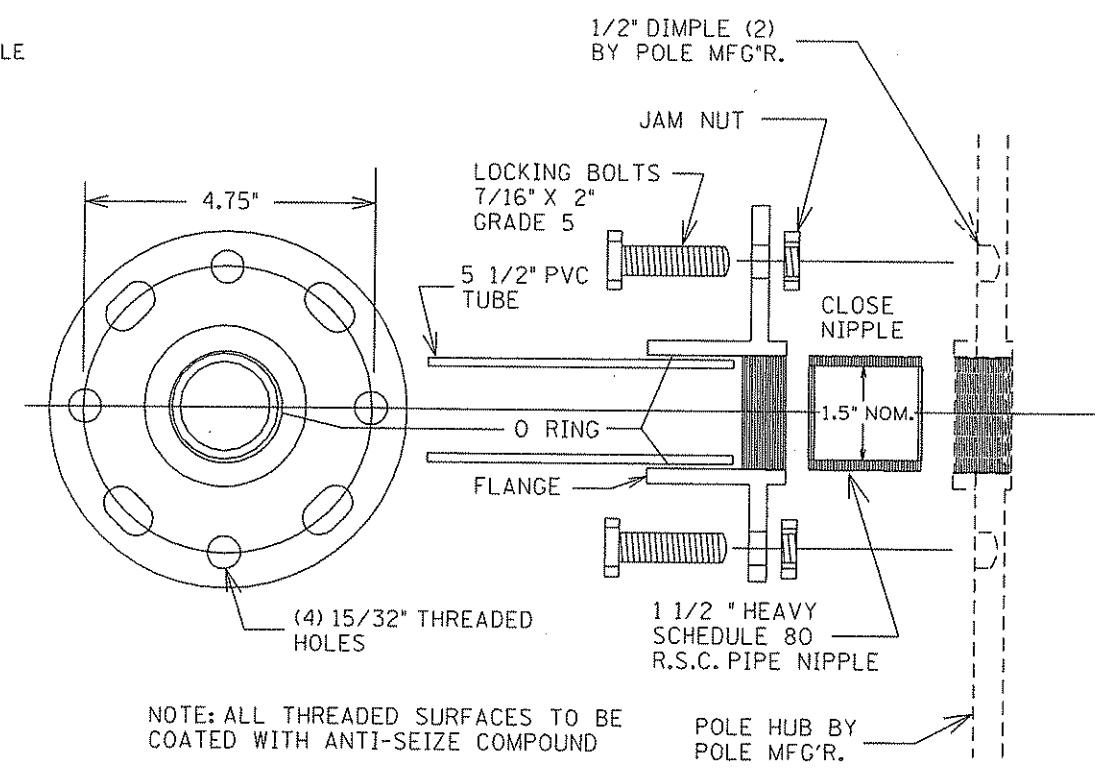
MOUNTING DETAIL



TYPE B
ANCHOR ROD PLACEMENT,
MAST ARM ORIENTATION
AND SIGNAL HUB LOCATIONS



SEALED CAP



NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND

MACHINE HUB & NIPPLE

POLE MOUNTED ONE WAY SIGNAL AND PEDESTRIAN INDICATION

Date Printed: 9/11/2005
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Design By: NEH/THG
Plan By: CWK
Checked By: AJW
Approved By: AJW

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DATE: 8/30/05 L.I.C. NO. 23128

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ANOKA COUNTY HIGHWAY DEPARTMENT
POLE MOUNTING DETAILS
TRAFFIC SIGNAL PLAN
S.A.P 02-678-18, ETC.

SHEET 66 OF 90 SHEETS

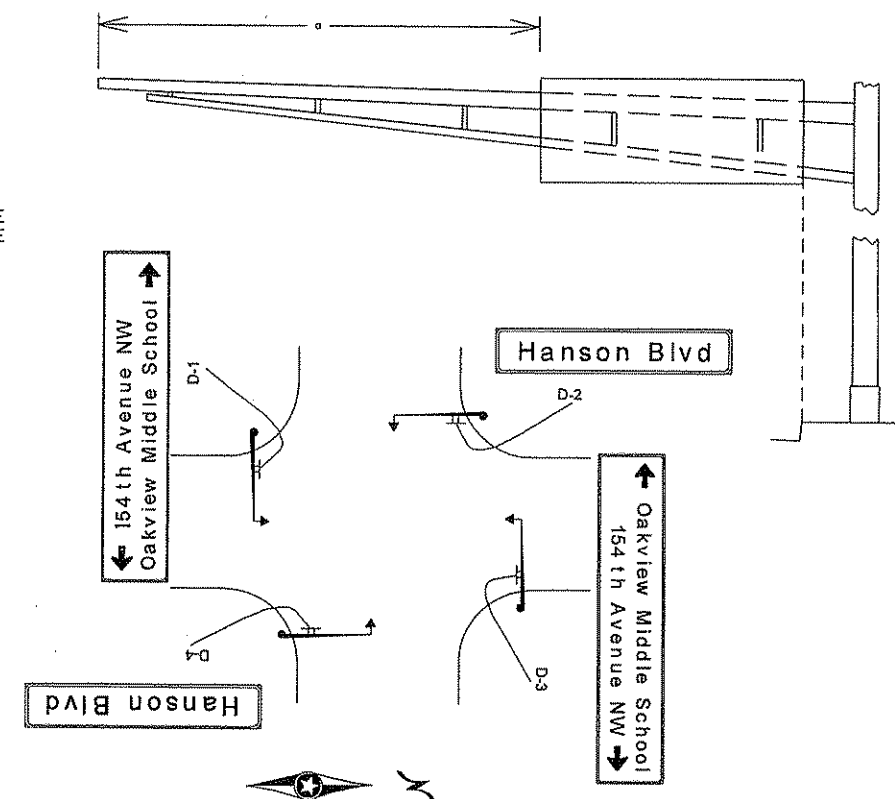
MAST ARM MOUNTED SIGNS							
SIGN PANELS - TYPE D							
SIGN PANEL	SIZE (IN.)	NO. REQ.	NO. PDSTS/STIFFENERS PER SIGN	BAND SPACING (**)	SO. FT. PER SIGN	POLE NO.	Ø (FT)
D-1	180X36	1	2		45.00	1	19
D-2	96X18	1	2		12.00	2	8
D-3	180X36	1	2		45.00	3	19
D-4	96X18	1	2		12.00	4	8

(**) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE SPECIAL PROVISIONS AND STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 1/1/03) FOR BRACKET SPACING REQUIREMENTS.

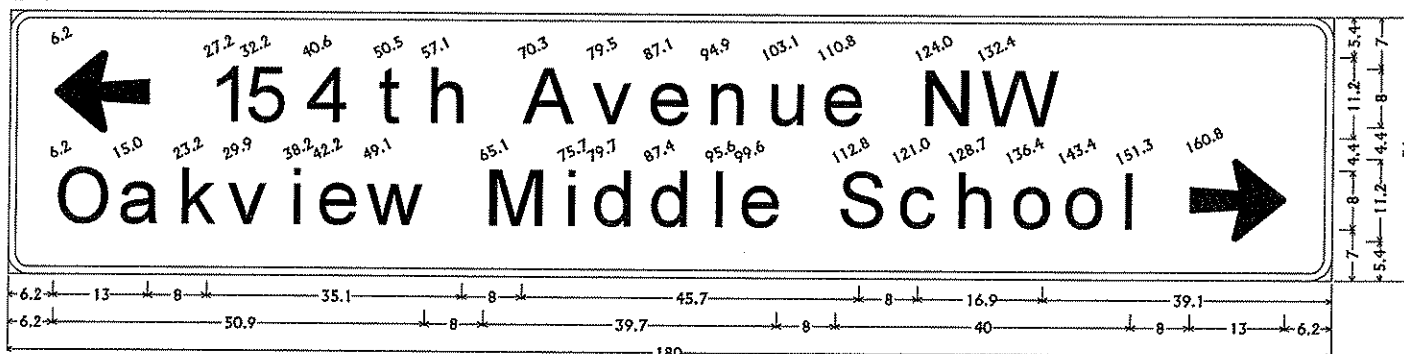
SIGNAL POLE MOUNTED SIGNS							
SIGN PANELS - TYPE C							
SIGN PANEL	SIZE (IN.)	NO. REQ.	NO. PDSTS/STIFFENERS PER SIGN	BAND SPACING (**)	SO. FT. PER SIGN	POLE NO.	Ø (FT)
R6-1L	36X12	2	①	-	3.00	1.3	-
R6-1R	36X12	2	①	-	3.00	1.3	-
TOTAL QUANTITIES		4			12.00		

- COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 1/1/03), AND SPECIAL PROVISIONS.
- SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
- FURNISHING AND INSTALLING TYPE C AND D SIGNS SHALL BE CONSIDERED INCIDENTAL TO ITEM NO. 2565.511 (FULL TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM). SEE SPECIAL PROVISIONS.
- ALL NEW TYPE C AND D SIGN PANELS SHALL BE FABRICATED USING VIP SHEETING. SEE SPECIAL PROVISIONS.
- ① = INSTALL SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE.

TYPE "D" SIGN DETAILS

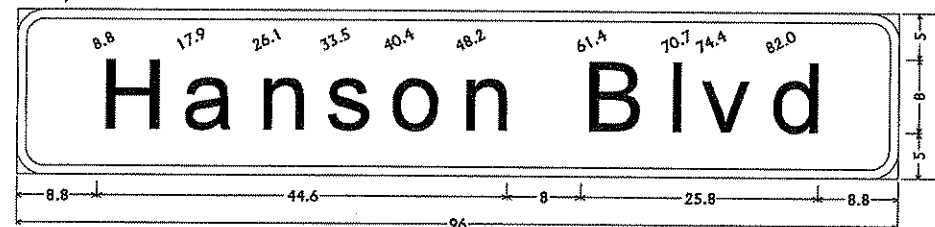


D-1



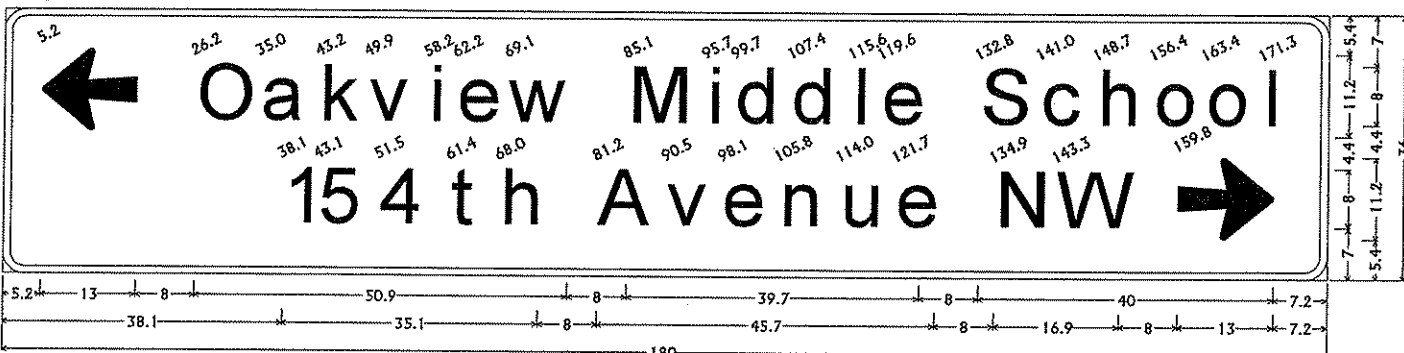
D-3; 3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180; [154th Avenue NW] E Mod; [Oakview Middle School] E Mod; Arrow 5 - 13.0" 0;

D-2, D-4



D-3, D-4; 3.0" Radius, 1.0" Border, White on Green;
[Hanson Blvd] E Mod;

D-3



D-3; 3.0" Radius, 1.0" Border, White on Green;
Arrow 5 - 13.0" 180; [Oakview Middle School] E Mod; [154th Avenue NW] E Mod; Arrow 5 - 13.0" 0;

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Design By: NEH/THG
 Plan By: CWK
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 Approved By: AJW

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 DATE: 8/30/05 L.I.C. NO: 23128

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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 MAST ARM SIGN DETAILS
TRAFFIC SIGNAL PLANS
 S.A.P 02-678-18, ETC.

(A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
 CABINET FOUNDATION
 EXTEND INTO H.H. 16:
 METERED SIGNAL SERVICE
 2" RSC
 3-1/C*6
 EXTEND INTO H.H. 1:
 4" RSC
 3-12/C*12
 7-3/C*12
 6-2/C*14
 2-3/C*20
 EXTEND INTO H.H. 15:
 4" RSC
 3-12/C*12
 7-3/C*12
 7-2/C*14
 2-3/C*20
 1-FIBER OPTIC
 STUB OUT 2-3" RSC FROM CABINET TO NORTH (THREAD AND CAP-FOR FUTURE USE)
 STUB OUT 1" RSC FROM CABINET TO NORTH (THREAD AND CAP-FOR FUTURE PHONE LINE)

(B) SIGNAL SERVICE CABINET (FURNISHED BY COUNTY)
 CABINET FOUNDATION
 EXTEND INTO H.H. 16:
 METERED SIGNAL SERVICE
 2" RSC
 3-1/C*6
 UNMETERED STREET LIGHT SERVICE
 2-3/C*12 (LUM)
 STUB OUT 2" RSC FROM SERVICE CABINET TO NORTH (FOR SERVICE BY CONNEXUS)

(1) PA100 POLE FOUNDATION TYPE PA100-B-45-D40-9 (DAVIT AT 350')
 2-ONE WAY SIGNALS OVERHEAD (0' & 11' FROM END OF MAST ARM)
 ONE WAY SIGNAL-POLE MOUNTED AT 45°
 ONE WAY SIGNAL-POLE MOUNTED AT 225°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 45°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 225°
 LUMINAIRE-250W HPS
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD (D-1)
 ONE WAY EVP DETECTOR & LIGHT (01 & 06)
 R6-1L SIGN PANEL-POLE MOUNTED AT 0°
 R6-1R SIGN PANEL-POLE MOUNTED AT 180°
 EXTEND INTO H.H. 1:
 3" RSC
 2-12/C*12
 3-3/C*12
 1-3/C*12 (LUM)
 1-3/C*20

(2) PA90 POLE FOUNDATION TYPE PA90-B-25
 ONE WAY SIGNAL OVERHEAD
 ONE WAY SIGNAL-POLE MOUNTED AT 45°
 ONE WAY SIGNAL-POLE MOUNTED AT 225°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 45°
 1-PEDESTRIAN PUSH BUTTON
 TYPE D SIGN PANEL-OVERHEAD (D-2)
 ONE WAY EVP DETECTOR & LIGHT (08)
 EXTEND INTO H.H. 3:
 3" RSC
 1-12/C*12
 4-3/C*12
 3-2/C*14
 1-3/C*20

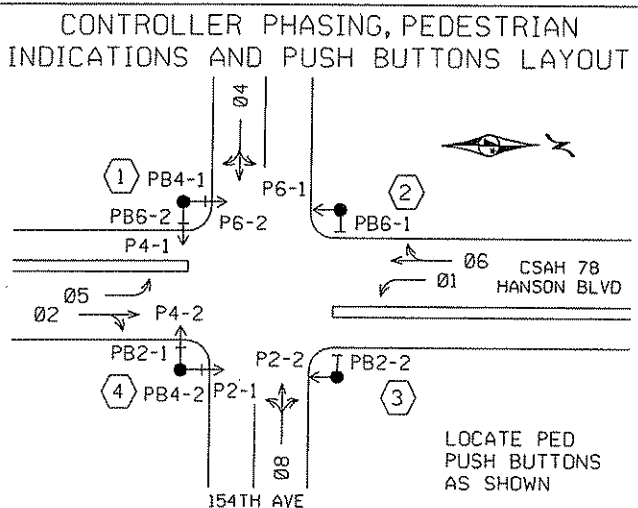
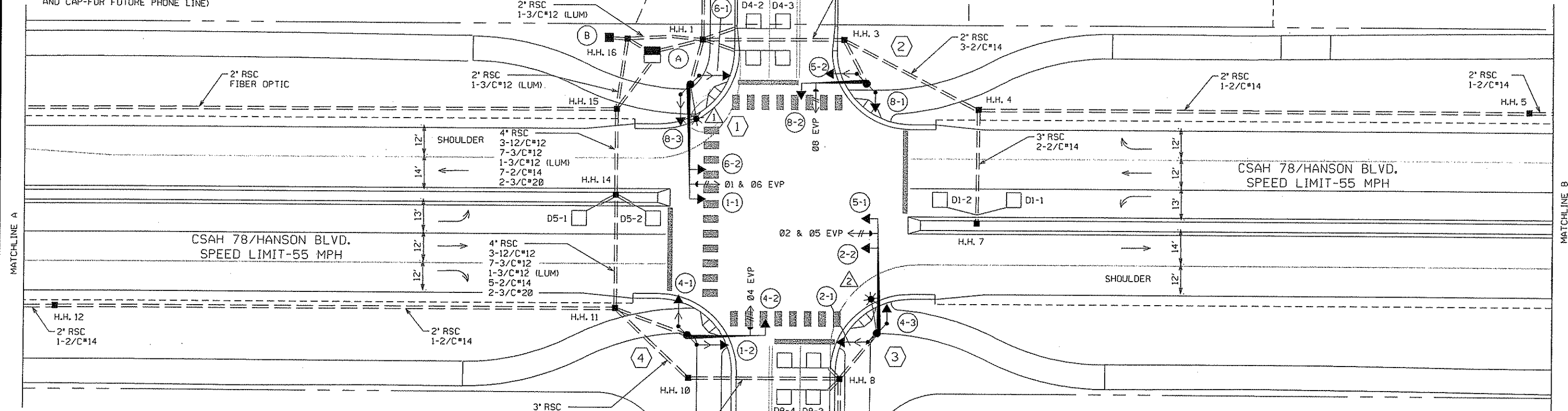
LOOP DETECTOR FUNCTIONS:
 1) CALL AND EXTEND
 2) CALL ONLY
 3) EXTEND ONLY
 4) CALL ONLY DENSITY
 5) DELAYED CALL ONLY
 6) DELAYED CALL ONLY DENSITY
 7) DELAYED CALL-IMMEDIATE EXTEND
 8) CARRY OVER (STRETCH)
 9) ADVISORY DETECTOR
 10) SAMPLING DETECTOR
 11) COUNTING DETECTOR

NMC LOOP DETECTORS			
NUMBER	SIZE	LOCATION	FUNCTION
D1-1	6'X6'	40'	
D1-2	6'X6'	10'	
D2-1	6'X6'	475'	
D4-1	6'X6'	120'	
D4-2, D4-3	2-6'X6'	5' & 20'	
D5-1	6'X6'	40'	
D5-2	6'X6'	10'	
D6-1	6'X6'	475'	
D8-1, D8-2	6'X6'	120'	
D8-3, D8-4	2-6'X6'	5' & 20'	

LOCATION: DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR

SIGNAL FACES			
FACE	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2	●	●	●
4-1, 4-2, 4-3	●	●	●
5-1, 5-2	←	←	←
6-1, 6-2	●	●	●
8-1, 8-2, 8-3	●	●	●

-ALL SIGNAL INDICATIONS SHALL BE 12"
 -ALL SIGNAL INDICATIONS SHALL BE LED
 -ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD



(4) PA90 POLE FOUNDATION TYPE PA90-B-30
 ONE WAY SIGNAL OVERHEAD
 ONE WAY SIGNAL-POLE MOUNTED AT 45°
 ONE WAY SIGNAL-POLE MOUNTED AT 225°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 45°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 225°
 2-PEDESTRIAN PUSH BUTTONS
 TYPE D SIGN PANEL-OVERHEAD (D-4)
 ONE WAY EVP DETECTOR & LIGHT (04)
 EXTEND INTO H.H. 11:
 3" RSC
 1-12/C*12
 4-3/C*12
 1-3/C*20

SIGNAL SYSTEM OPERATION
 -SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED
 -NORMAL OPERATION SHALL BE SIX PHASE
 -PHASES 1 AND 5 SHALL BE PROTECTED LEFT TURNS
 -PHASES 2 AND 6 SHALL BE ON RECALL

(3) PA100 POLE FOUNDATION TYPE PA100-B-45-D40-9 (DAVIT AT 350')
 2-ONE WAY SIGNALS OVERHEAD (0' & 11' FROM END OF MAST ARM)
 ONE WAY SIGNAL-POLE MOUNTED AT 45°
 ONE WAY SIGNAL-POLE MOUNTED AT 225°
 PEDESTRIAN INDICATION-POLE MOUNTED AT 225°
 LUMINAIRE-250W HPS
 1-PEDESTRIAN PUSH BUTTON
 TYPE D SIGN PANEL-OVERHEAD (D-3)
 ONE WAY EVP DETECTOR & LIGHT (02 & 05)
 R6-1L SIGN PANEL-POLE MOUNTED AT 0°
 R6-1R SIGN PANEL-POLE MOUNTED AT 180°
 EXTEND INTO H.H. 8:
 3" RSC
 2-12/C*12
 3-3/C*12
 1-3/C*12 (LUM)
 1-3/C*20

- NOTES:**
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLPE) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
 - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
 - 5) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION HAND/WALKING PERSON INDICATION.
 - 6) ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNING TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511 FOR THIS SIGNAL SYSTEM).
 - 8) CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL FACE.
 - 9) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
 - 10) CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL INSTALLATION WITH ROAD CONSTRUCTION TO BE COMPLETED BY OTHERS AS PART OF ENTIRE PROJECT.
 - 11) ALL POLE MOUNTED SIGNAL FACES AND PEDESTRIAN INDICATIONS SHALL USE RC DESIGN MOUNTING. (SEE DETAIL)

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Ptan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Winiecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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ANOKA COUNTY

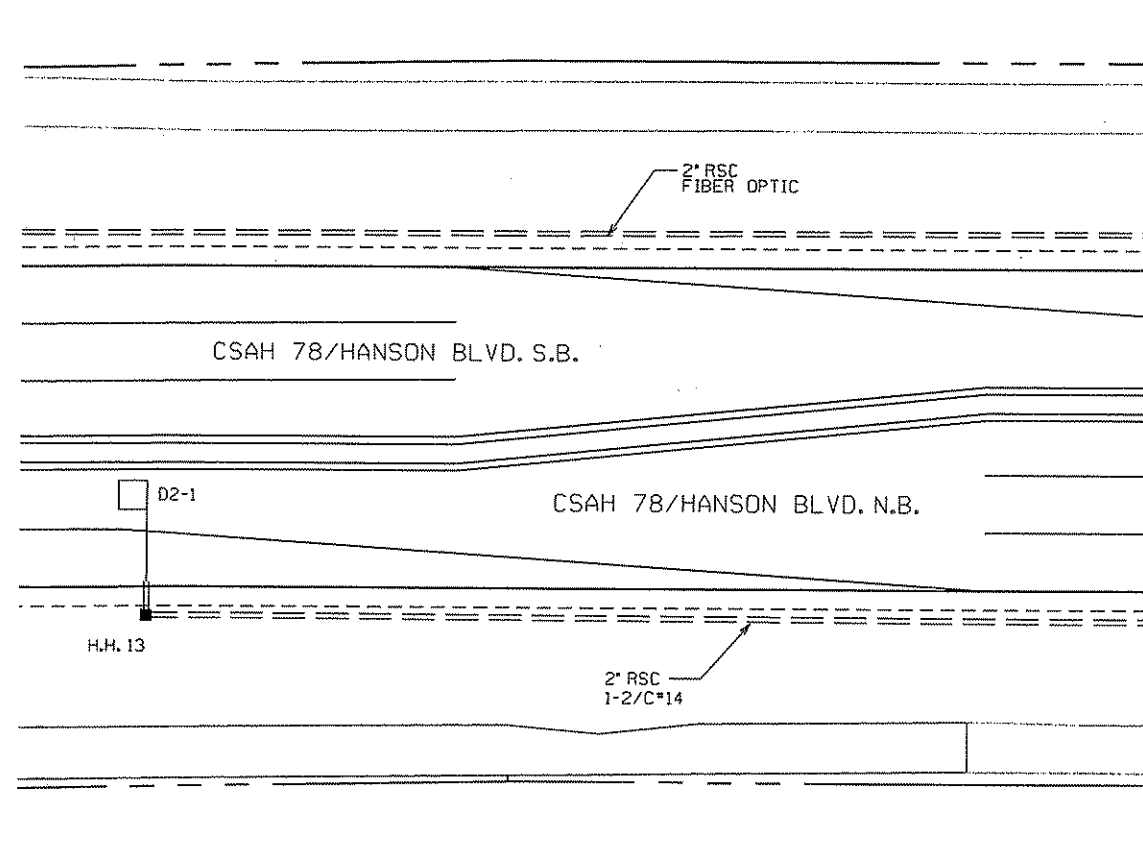
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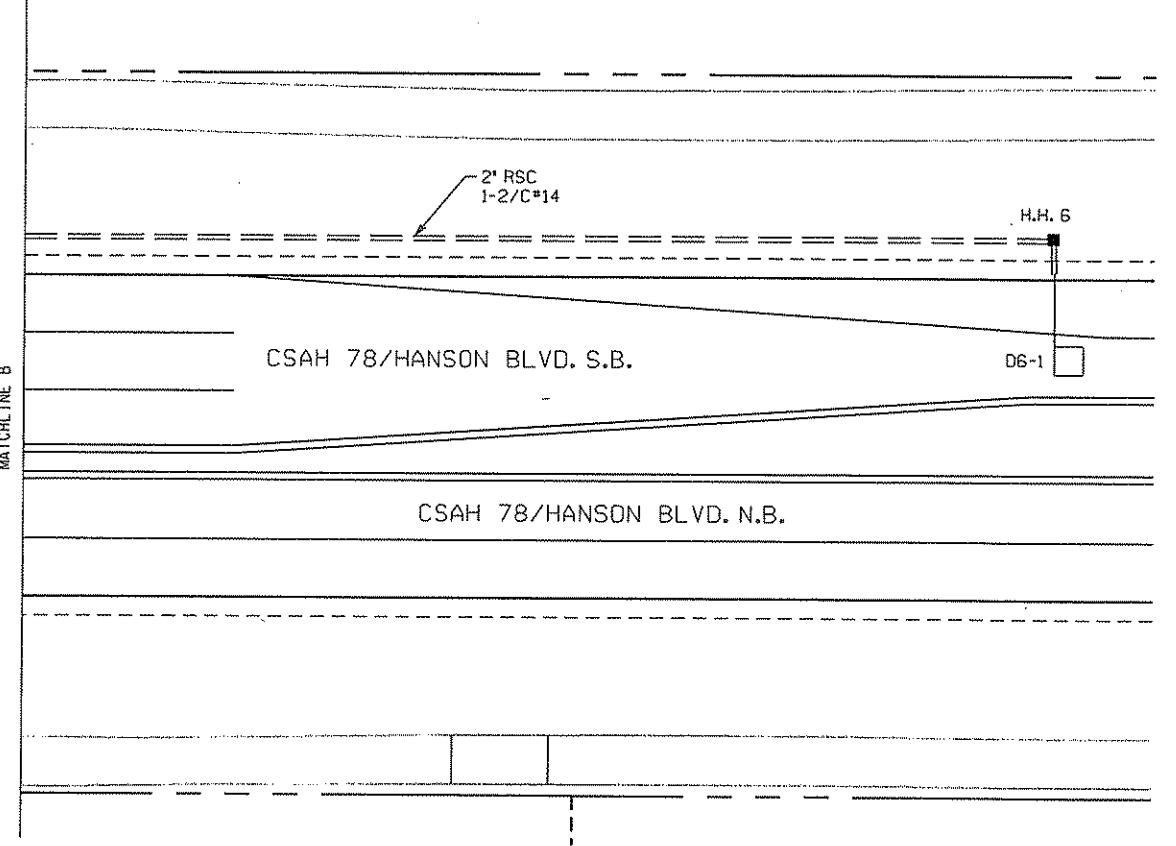
INTERSECTION LAYOUT
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET **68** OF **90** SHEETS

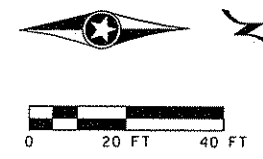
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MATCHLINE A



MATCHLINE B



Date Printed: 9/11/2005
WSB Filename: k:\01666-00\cad\plan\1666sp05.dgn

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 Plon By: CWK
 Checked By: AJW
 Approved By: AJW

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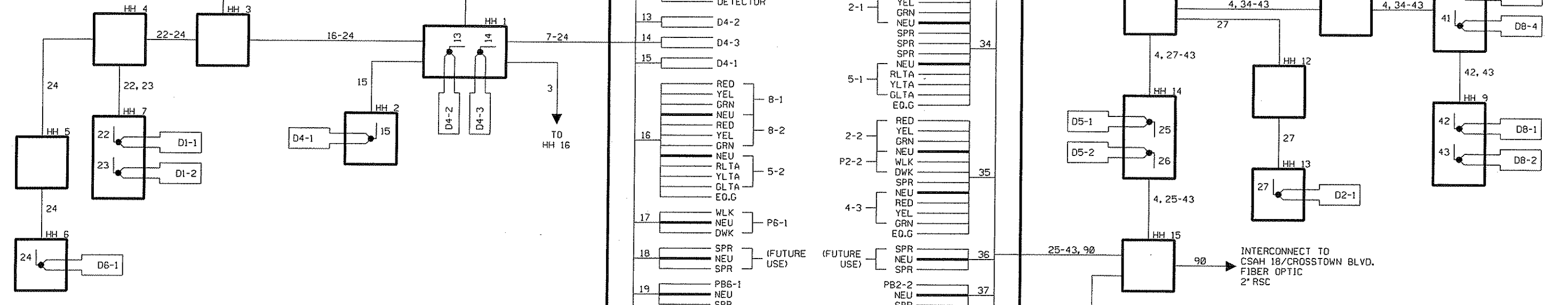
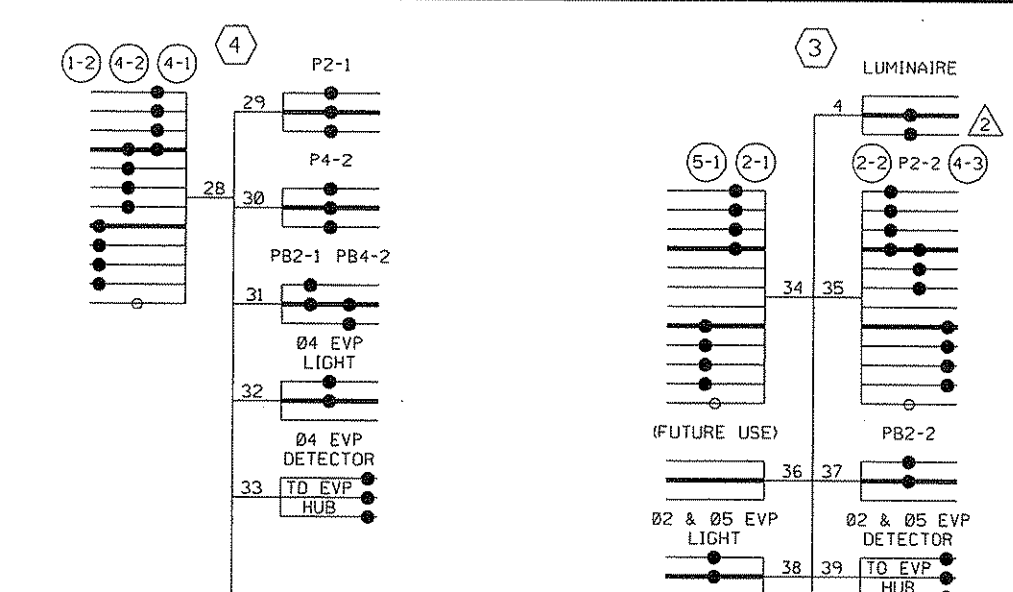
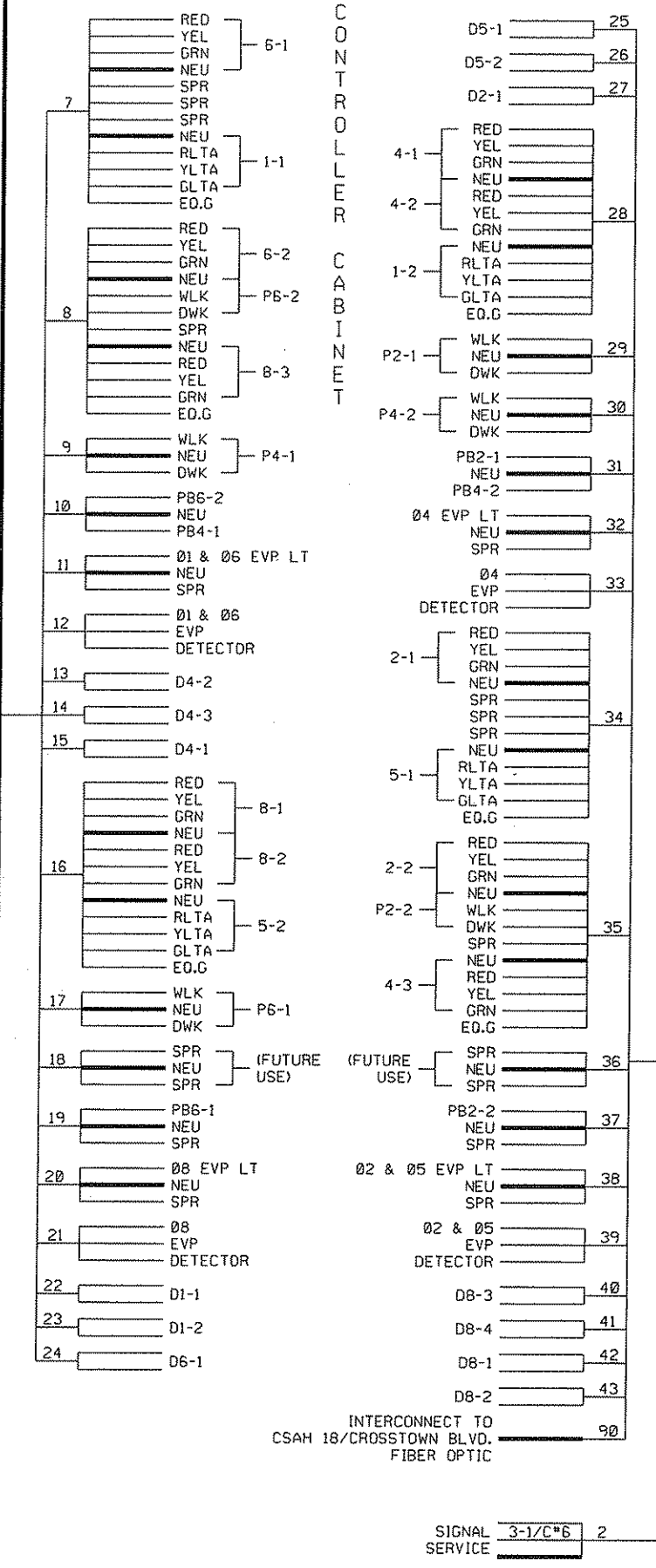
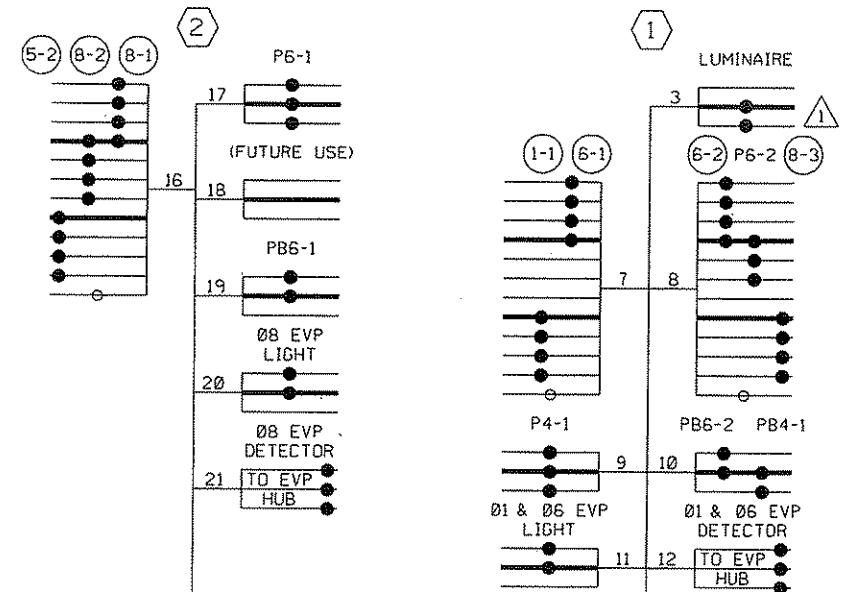
CERTIFIED BY: *Anthony J. Winiecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIECKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 MATCHLINE LAYOUT
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET
69
 OF
90
 SHEETS



CONDUCTOR COLOR CODING

R	R
O	O
BL	5/C*12 BL
WH	WH
R/BLK	G
O/BLK	
BL/BLK	R OR O
WH/BLK	WH OR YEL
BLK	BLK OR BL
BLK/WH	
G/BLK	2-1/C
G	
R	
3/C*12 WH	2/C*14 BLK
BLK	CLR
6PR*19	

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Pion By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

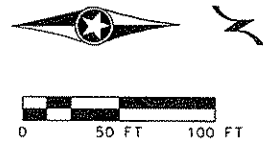
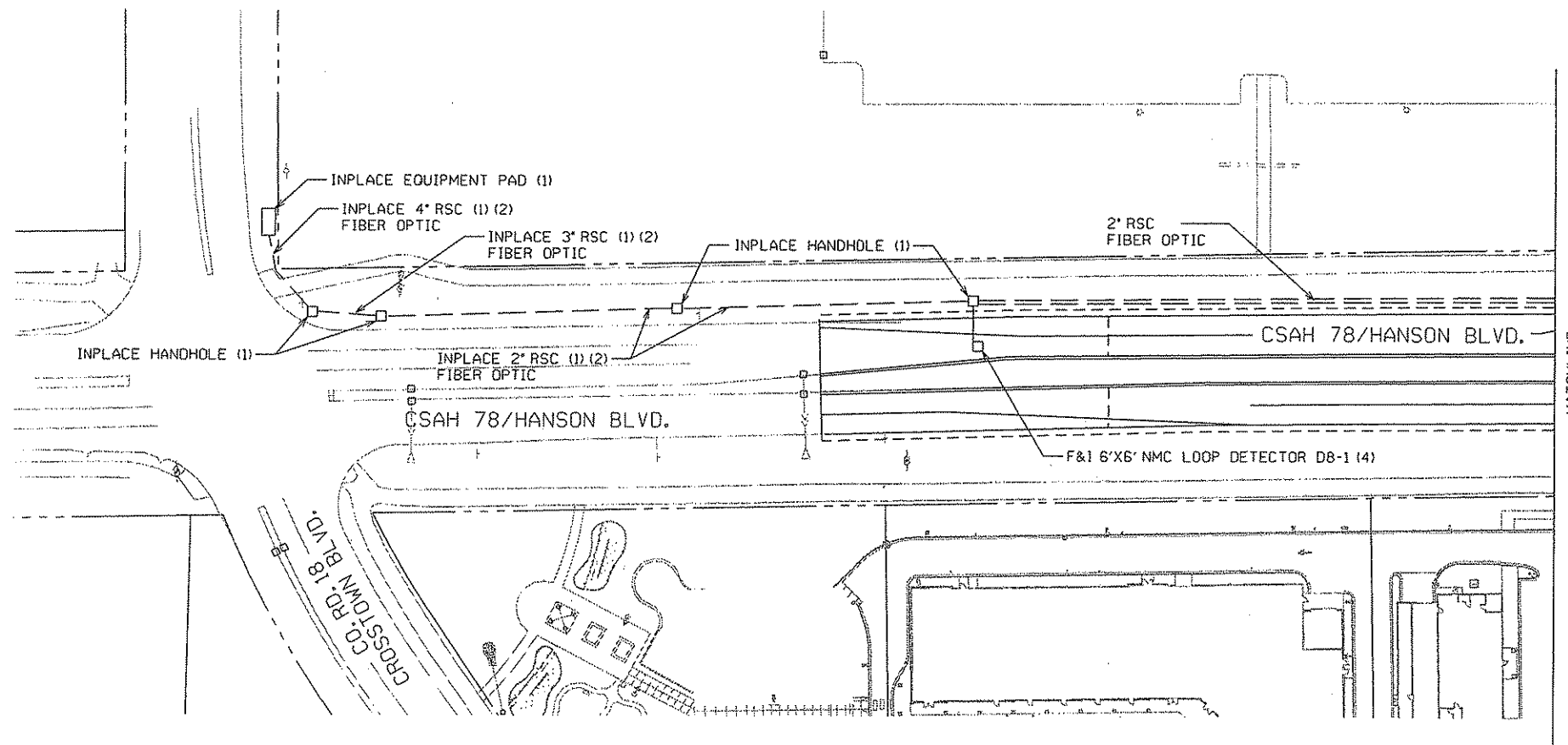
CERTIFIED BY: *Anthony J. Wiernecki*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WIERNECKI, P.E.
 DATE: 8/30/05 LIC. NO: 23128

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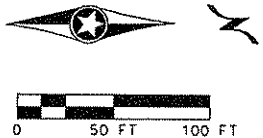
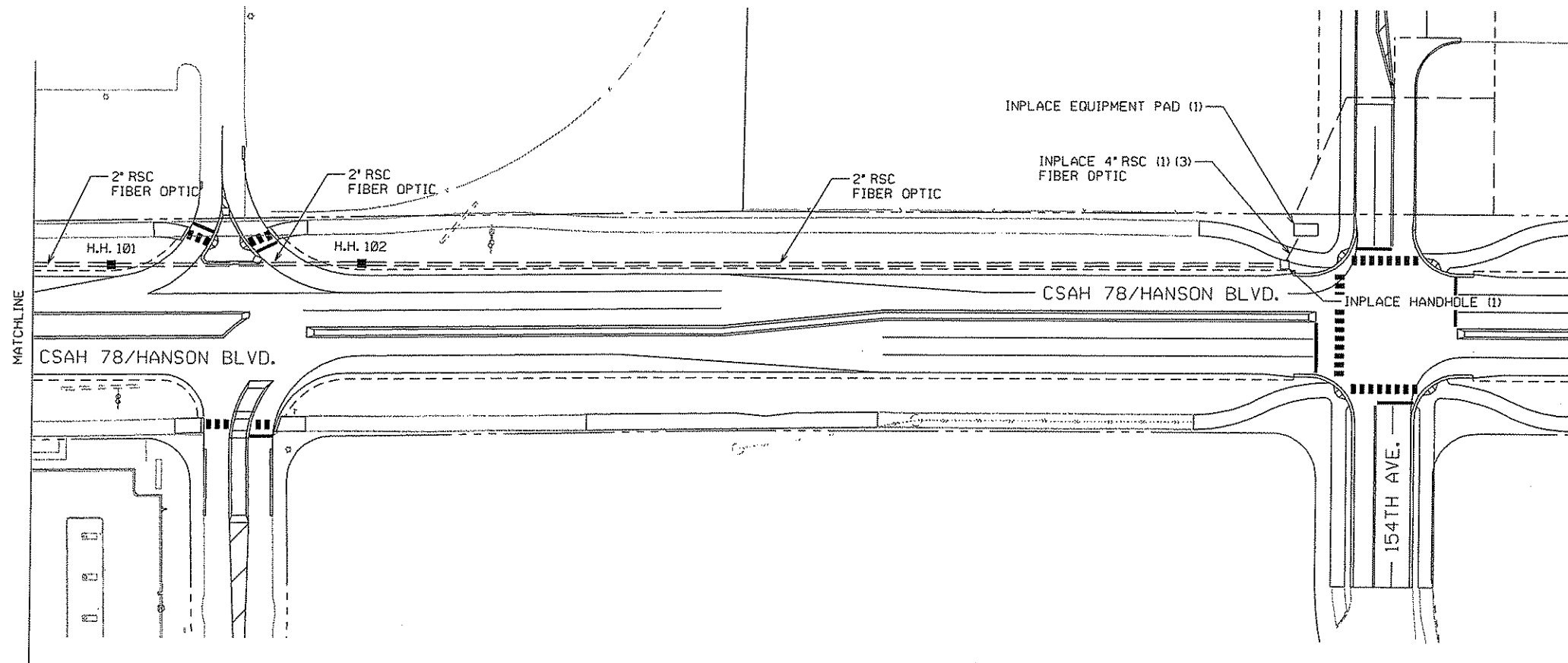
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ANOKA COUNTY HIGHWAY DEPARTMENT
 FIELD WIRING DIAGRAM
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

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- NOTES:
- 1) INPLACE SIGNAL ITEM LOCATIONS ARE APPROXIMATE.
 - 2) SEE CSAH 18 INTERSECTION LAYOUT FOR INPLACE CABLES IN CONDUIT.
 - 3) SEE 154TH AVENUE INTERSECTION LAYOUT FOR INPLACE CABLES IN CONDUIT.
 - 4) F&I 6'X8' NMC LOOP DETECTOR (D8-1) AT LOCATION SHOWN IN THE 'FOR INFORMATION' TRAFFIC SIGNAL PLAN. ITEM TO BE INCIDENTAL TO SIGNAL SYSTEM PAY ITEM 2565.511.



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 Checked By: **AJW**
 Approved By: **AJW**

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CERTIFIED BY: *Anthony J. Minneckl*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. MINNECKL, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

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ANOKA COUNTY
CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 INTERCONNECT LAYOUT
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET
71
 OF
90
 SHEETS

FOR INFORMATION ONLY

NOTES:

- ① LOCATIONS OF POLES, EQUIPMENT PAD, LOOP DETECTORS AND HANDHOLES WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ② SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- ③ LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 19 mm N.M.C. (SEE SPECIAL PROVISIONS AND DETAILS.)
- ④ NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER Mn/DOT STANDARD PLATE NO. M8114.
- ⑤ EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- ⑥ ALL VEHICLE SIGNAL INDICATIONS AND ALL PEDESTRIAN INDICATIONS SHALL BE L.E.D. TYPE. (SEE SPECIAL PROVISIONS.)
- ⑦ EACH PEDESTRIAN INDICATION SHALL BE A SINGLE SECTION HAND / WALKING PERSON INDICATION. (SEE SPECIAL PROVISIONS.)
- ⑧ SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

- (A) EQUIPMENT PAD (SEE DETAIL)**
 INSTALL CONTROLLER AND CABINET (TO BE FURNISHED BY ANOKA COUNTY)
 CONTROLLER CABINET TO SERVICE CABINET VIA H.H. 16 :
 53 mm R.S.C. (METERED SIGNAL SERVICE)
 2-1/C #4
 1-1/C #6 BARE GROUND
 CONTR. CABINET TO H.H. 1 :
 103 mm R.S.C.
 5-12/C #12
 5-3/C #12
 6-2/C #14
 2-3/C #20
 CONTR. CABINET TO H.H. 15 :
 103 mm R.S.C.
 5-12/C #12
 5-3/C #12
 6-2/C #14
 2-3/C #20

- (C) SOURCE OF POWER**
 EXISTING TRANSFORMER
 (CONNECTION TO BE MADE BY CONNEXUS ENERGY)
 EXTEND INTO H.H. 17:
 53 mm R.S.C.
 3-1/C #4 (POWER FEED)

- (1) PA90 POLE FOUNDATION**
 TYPE PA90-A-10.7
 1-ONE WAY SIGNAL OVERHEAD (END MOUNTED)
 1-ONE WAY SIGNAL OVERHEAD AT 4.0 m
 1-TYPE 10B POLE MOUNTED AT 0'
 1-TYPE 10B POLE MOUNTED AT 270'
 2-PEDESTRIAN PUSH BUTTONS
 1-SIGN (R6-1L) ONE WAY
 1-SIGN (R6-1R) ONE WAY
 EXTEND INTO HH 1:
 78 mm RSC
 3-12/C #12
 2-3/C #12
 1-3/C #20

- 35 mm R.S.C.
 1-3/C #12 (LUM.)

- 103 mm R.S.C.
 5-12/C #12
 5-3/C #12
 1-3/C #12 (LUM.)
 6-2/C #14
 2-3/C #20

- 78 mm R.S.C.
 2-12/C #12
 3-3/C #12
 1-3/C #12 (LUM.)
 6-2/C #14
 1-3/C #20

- (2) PA100 POLE FOUNDATION**
 TYPE PA100-A-15.2-D12.2-2.7 (DAVT AT 350')
 LUMINAIRE -- 200 WATT H.P.S WITH PEC
 AND CHECK SWITCH
 1-ONE WAY SIGNAL OVERHEAD (END MOUNTED)
 1-ONE WAY SIGNAL OVERHEAD AT 3.6 m
 1-TYPE 10B POLE MOUNTED AT 0'
 1-TYPE 10A POLE MOUNTED AT 180'
 1-TYPE 10B POLE MOUNTED AT 270'
 2-PEDESTRIAN PUSH BUTTONS
 1-SIGN (R6-1L) ONE WAY
 1-SIGN (R6-1R) ONE WAY
 EXTEND INTO HH 5:
 78 mm RSC
 2-12/C #12
 3-3/C #12
 4-2/C #14
 1-3/C #20

- (3) PA90 POLE FOUNDATION**
 TYPE PA90-A-10.7
 1-ONE WAY SIGNAL OVERHEAD (END MOUNTED)
 1-ONE WAY SIGNAL OVERHEAD AT 4.0 m
 1-TYPE 10B POLE MOUNTED AT 0'
 1-TYPE 10B POLE MOUNTED AT 270'
 2-PEDESTRIAN PUSH BUTTONS
 1-SIGN (R6-1L) ONE WAY
 1-SIGN (R6-1R) ONE WAY
 EXTEND INTO HH 9:
 78 mm RSC
 3-12/C #12
 2-3/C #12
 1-3/C #20

- (4) PA100 POLE FOUNDATION**
 TYPE PA100-A-13.7-D12.2-2.7 (DAVT AT 350')
 LUMINAIRE -- 200 WATT H.P.S WITH PEC
 AND CHECK SWITCH
 1-ONE WAY SIGNAL OVERHEAD (END MOUNTED)
 1-ONE WAY SIGNAL OVERHEAD AT 3.6 m
 1-TYPE 10B POLE MOUNTED AT 0'
 1-TYPE 10B POLE MOUNTED AT 270'
 2-PEDESTRIAN PUSH BUTTONS
 1-SIGN (R6-1L) ONE WAY
 1-SIGN (R6-1R) ONE WAY
 EXTEND INTO HH 12:
 78 mm R.S.C.
 2-12/C #12
 3-3/C #12
 1-3/C #12 (LUM.)
 1-3/C #20

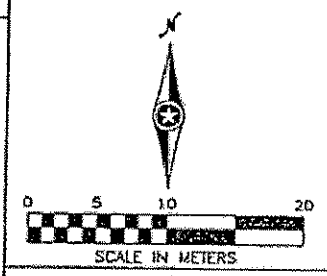
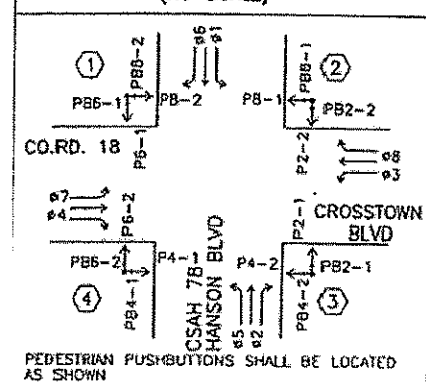
- (B) SERVICE CABINET (SEE DETAIL)**
 CABINET FOUNDATION (SEE DETAIL)
 SERVICE CABINET TO S.O.P. VIA H.H. 17 :
 53 mm R.S.C. (POWER FEED)
 3-1/C #4 (CONNECTION AT S.O.P. BY CONNEXUS)
 SERVICE CABINET TO CONTROLLER CABINET VIA H.H. 16 :
 53 mm R.S.C. (METERED SIGNAL SERVICE)
 3-1/C #5
 2-3/C #12 (LUM.)

LOOP DETECTORS (ALL NMC TYPE)			
NUMBER	SIZE (m)	FUNCTION	LOCATION m'
D1-1	2-1.7x1.7	1	3.0, 12.0
D2-1	1.7x1.7	1	145.0
D3-1	2-1.7x1.7	1	3.0, 12.0
D4-1	1.7x1.7	3	92.0
D4-2	2-1.7x1.7	2	0, 2.75
D4-3	2-1.7x1.7	5	-1.5, 1.2
D5-1	2-1.7x1.7	1	3.0, 12.0
D6-1	1.7x1.7	1	145.0
D7-1	2-1.7x1.7	1	3.0, 12.0
DB-1	1.7x1.7	3	122
DB-2	2-1.7x1.7	2	0, 2.75
DB-3	2-1.7x1.7	5	-1.5, 1.2

* LOCATION IS DISTANCE FROM STOP BAR TO FRONT OF DETECTOR
 LOOP DETECTOR FUNCTION CODES:
 1) CALL AND EXTEND
 2) CALL ONLY
 3) EXTEND ONLY
 4) CALL ONLY - DENSITY
 5) DELAYED CALL ONLY
 6) DELAYED CALL ONLY - DENSITY
 7) DELAYED CALL - IMMEDIATE EXTEND
 8) CARRY OVER (STRETCH)
 9) ADVISORY DETECTOR

SIGNAL FACES (ALL INDICATIONS SHALL BE 300 mm LED)						
FACE	RED	YELLOW	GREEN	RLTA	YLTA	GLTA
1-1						
1-2						
2-1	•	•	•			
2-2	•	•	•			
3-1						
3-2						
4-1	•	•	•			
4-2	•	•	•			
5-1						
5-2						
6-1	•	•	•			
6-2	•	•	•			
7-1						
7-2						
8-1	•	•	•			
8-2	•	•	•			
8-3	•	•	•			

CONTROLLER PHASING, PEDESTRIAN INDICATIONS, AND PUSHBUTTON LAYOUT (NO SCALE)



SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED
- NORMAL OPERATION IS B PHASE, WITH PHASES 1, 3, 5 AND 7 BEING PROTECTED LEFT TURNS.
- PHASES 2 AND 6 SHALL BE ON RECALL TO VEHICLE MINIMUM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DESIGN BY: DRA DATE: 12/01

STATE PROJECT NO. 02-678-13
 STATE PROJECT NO. 195-020-18
 STATE PROJECT NO. 198-131-02

ANOKA COUNTY

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
 C.S.A.H. 78 (HANSON BLVD.) @ CO. RD. 18 (CROSSTOWN BLVD.)

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Anthony J. Witbeck*
 REGISTERED PROFESSIONAL ENGINEER - ANTHONY J. WITBECK, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

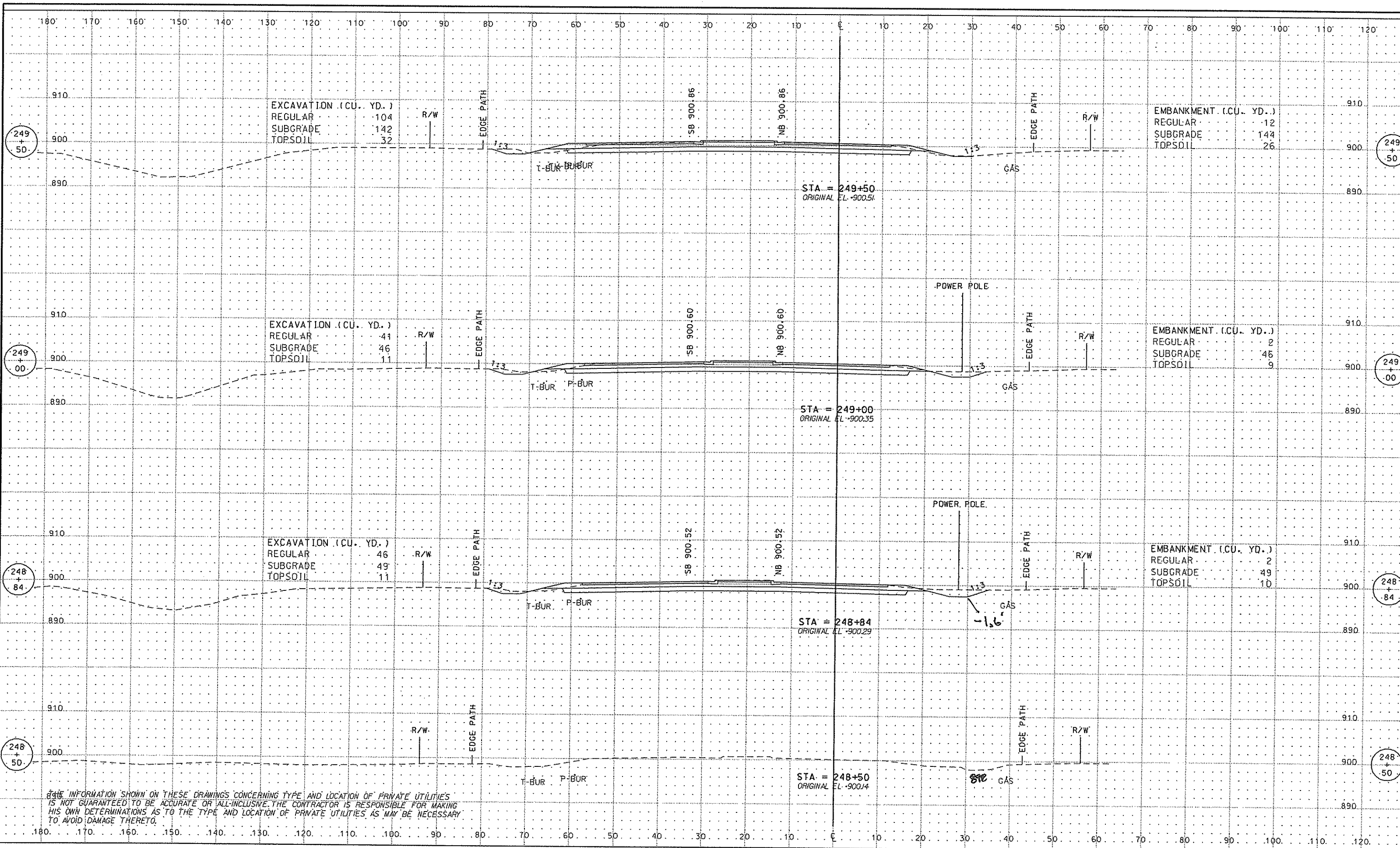
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ANOKA COUNTY HIGHWAY DEPARTMENT
 FOR INFORMATION ONLY
TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET 72 OF 90 SHEETS

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ALL INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

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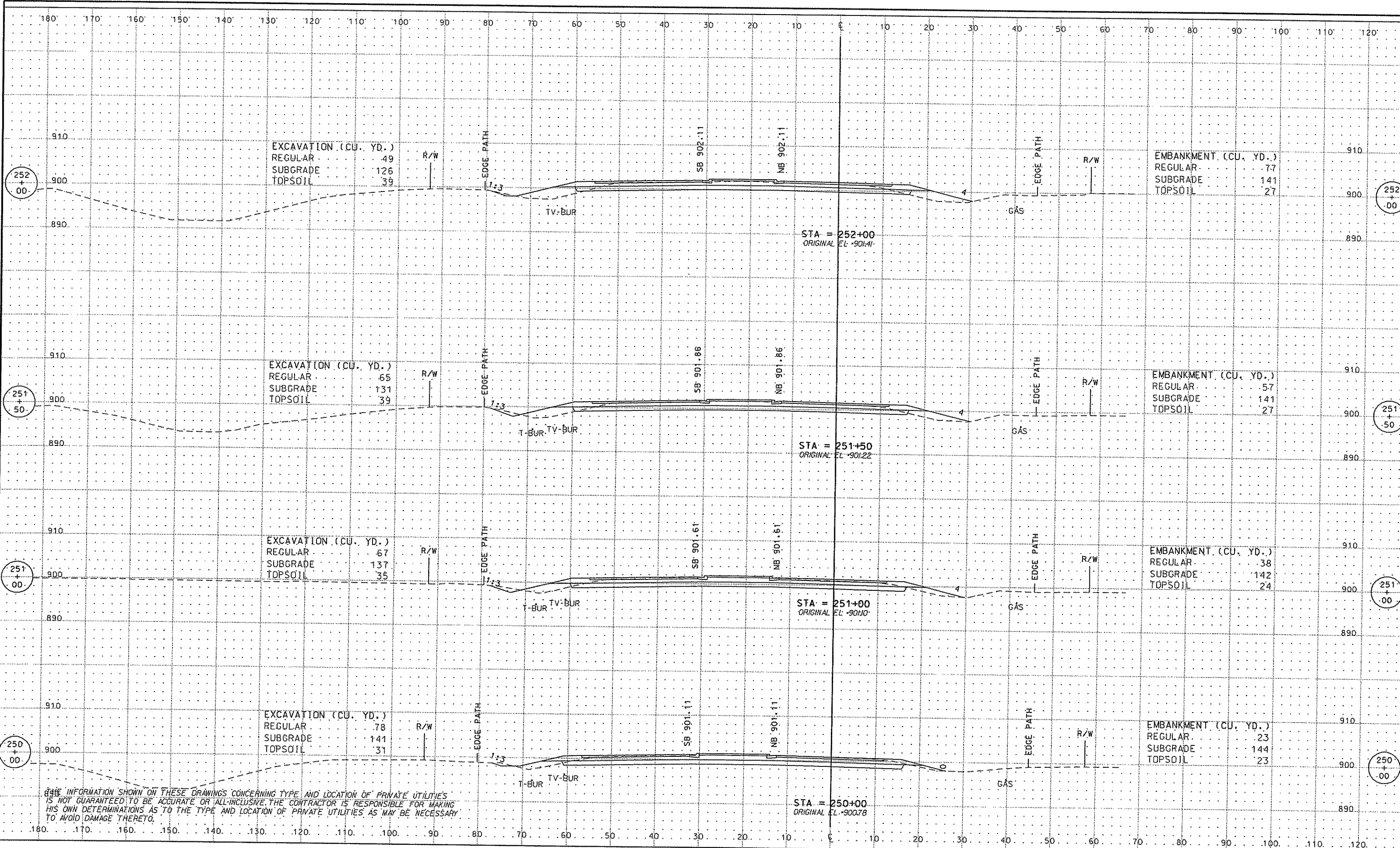
CERTIFIED BY: *Anthony J. Witek*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WITEK, P.E.
 DATE: 8/30/05 L.I.C. NO.: 23128

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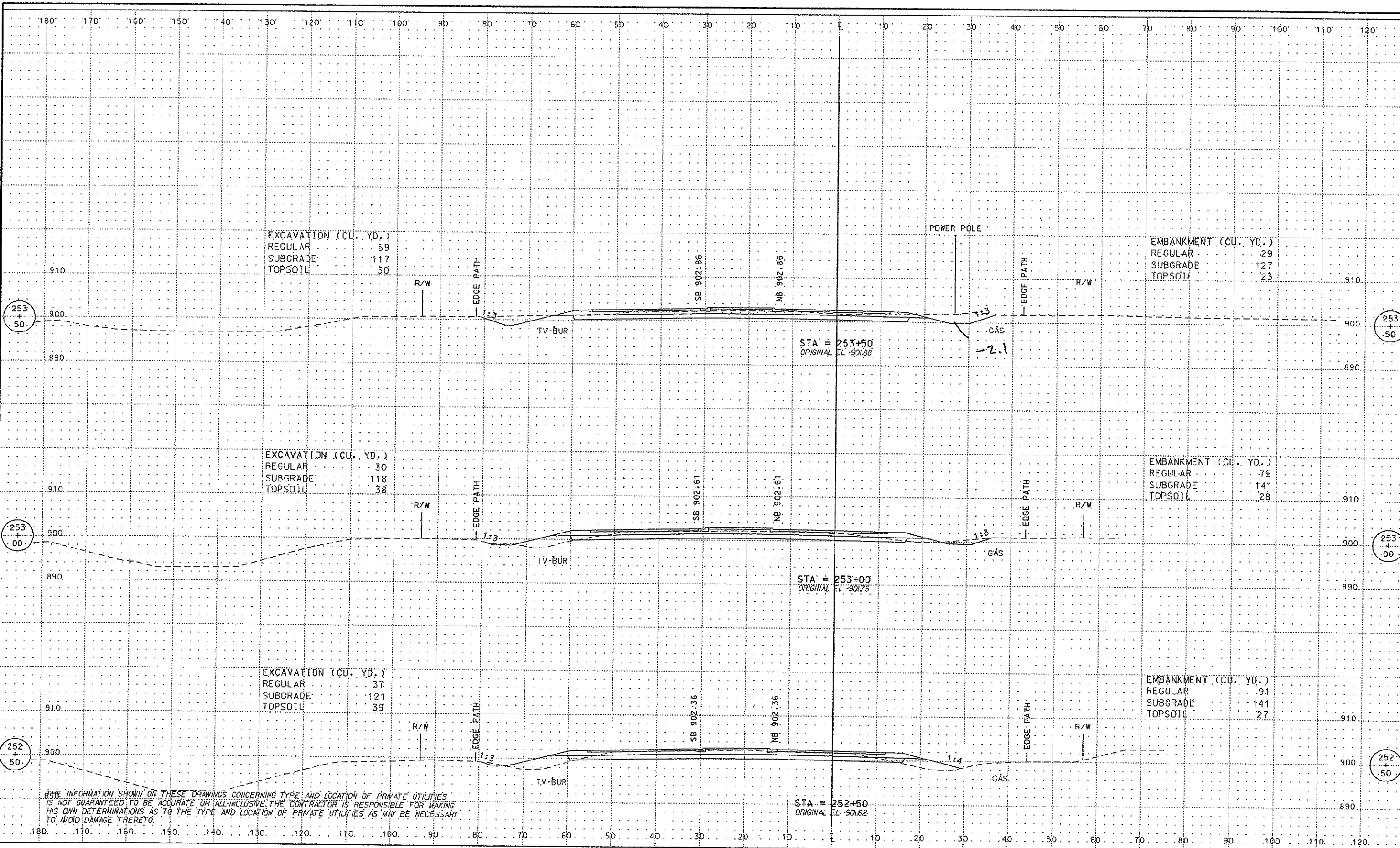
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 CERTIFIED BY: *Anthony J. Winiecki*
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 DATE: 8/30/05 LIC. NO: 23128

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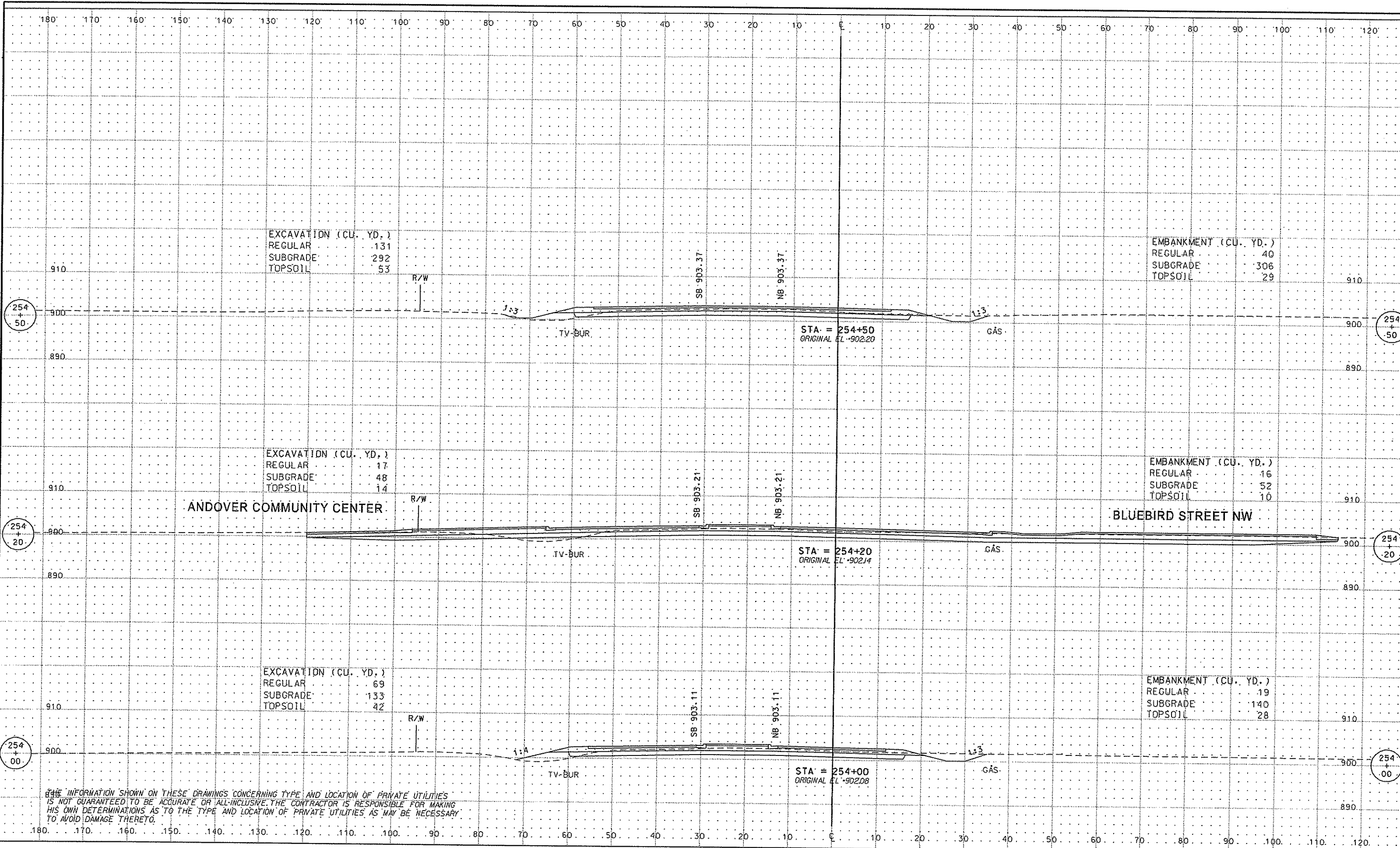
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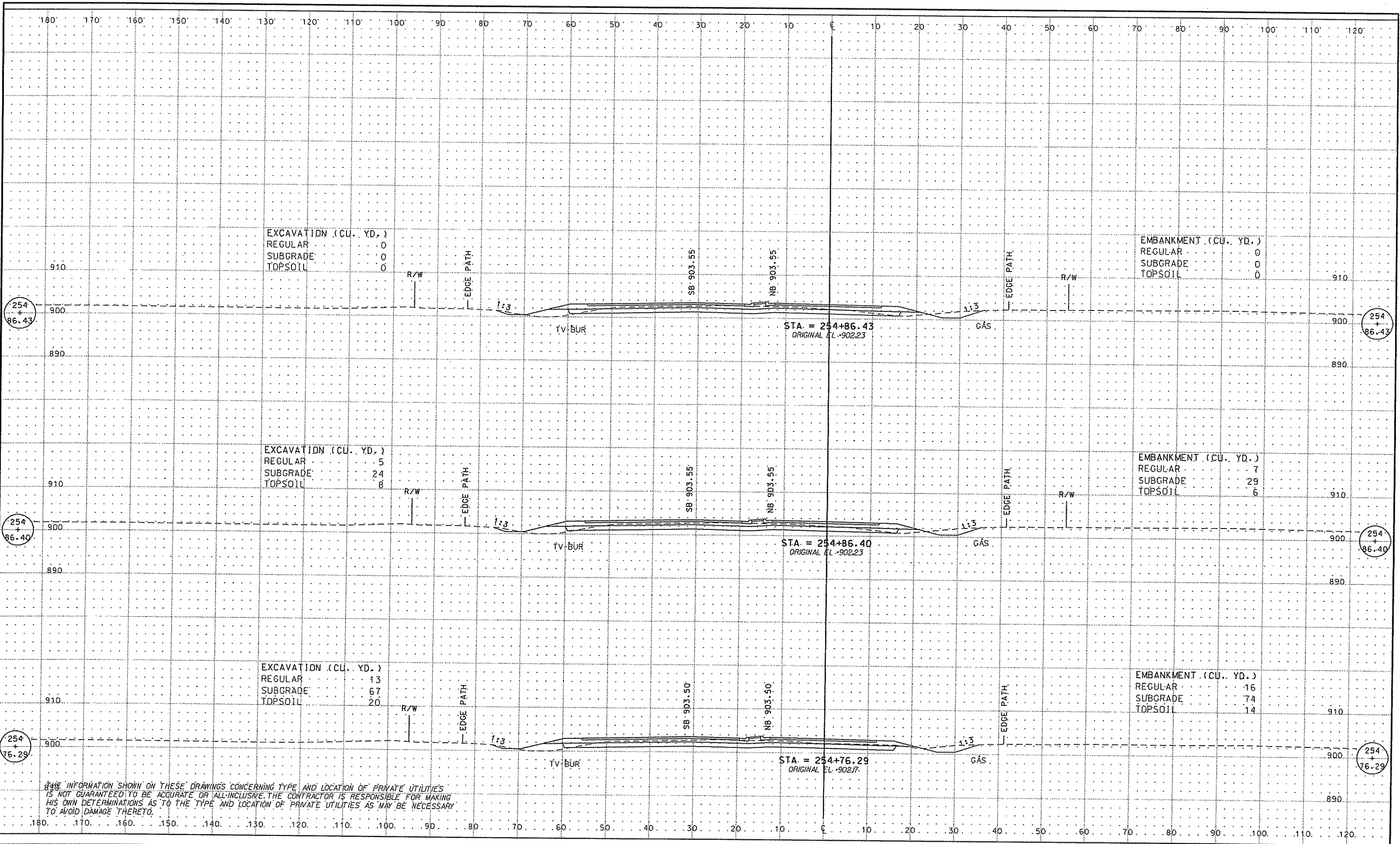
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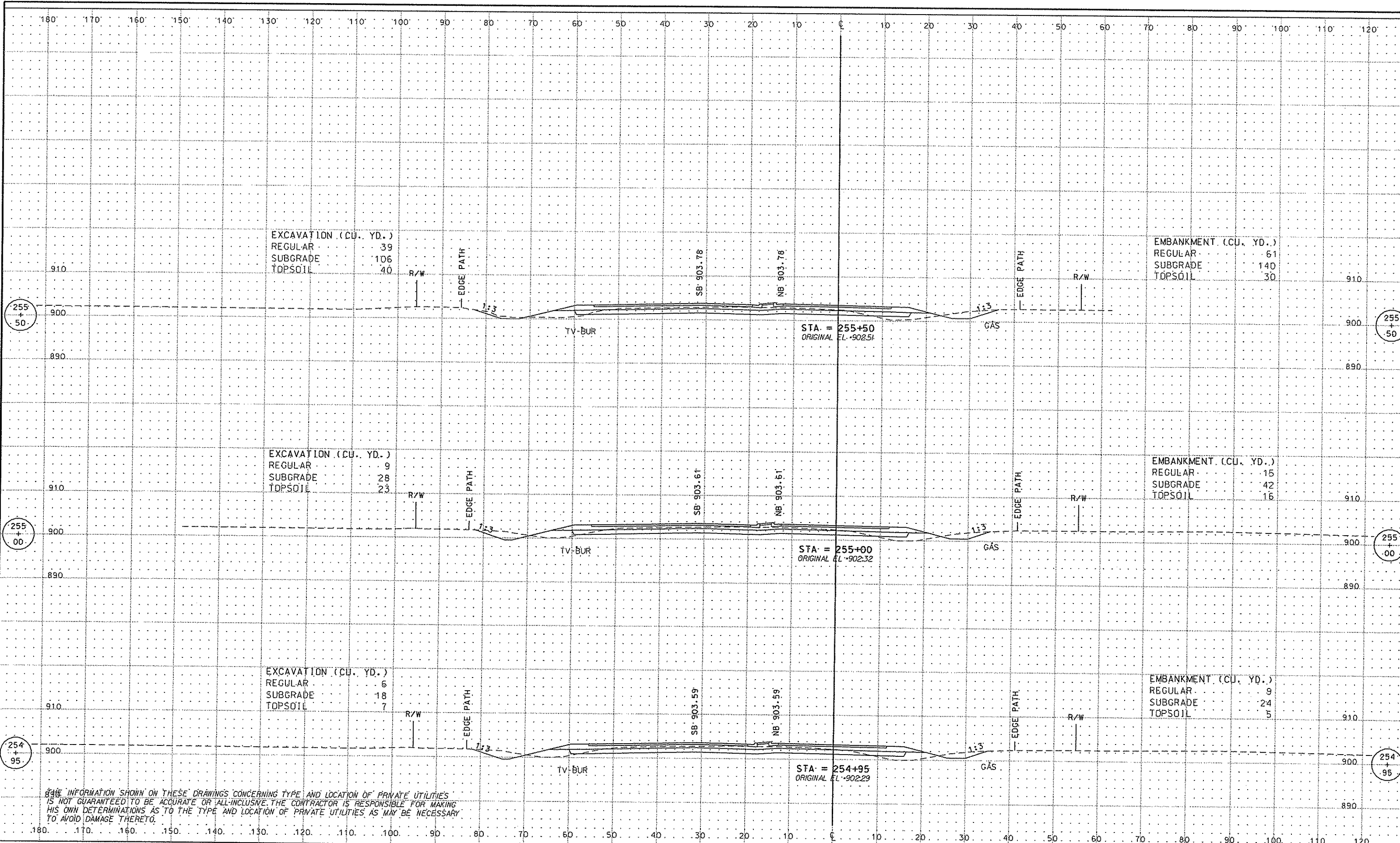
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EXCAVATION (CU. YD.)

REGULAR	39
SUBGRADE	106
TOPSOIL	40

EMBANKMENT (CU. YD.)

REGULAR	61
SUBGRADE	140
TOPSOIL	30

EXCAVATION (CU. YD.)

REGULAR	9
SUBGRADE	28
TOPSOIL	23

EMBANKMENT (CU. YD.)

REGULAR	15
SUBGRADE	42
TOPSOIL	16

EXCAVATION (CU. YD.)

REGULAR	6
SUBGRADE	18
TOPSOIL	7

EMBANKMENT (CU. YD.)

REGULAR	9
SUBGRADE	24
TOPSOIL	5

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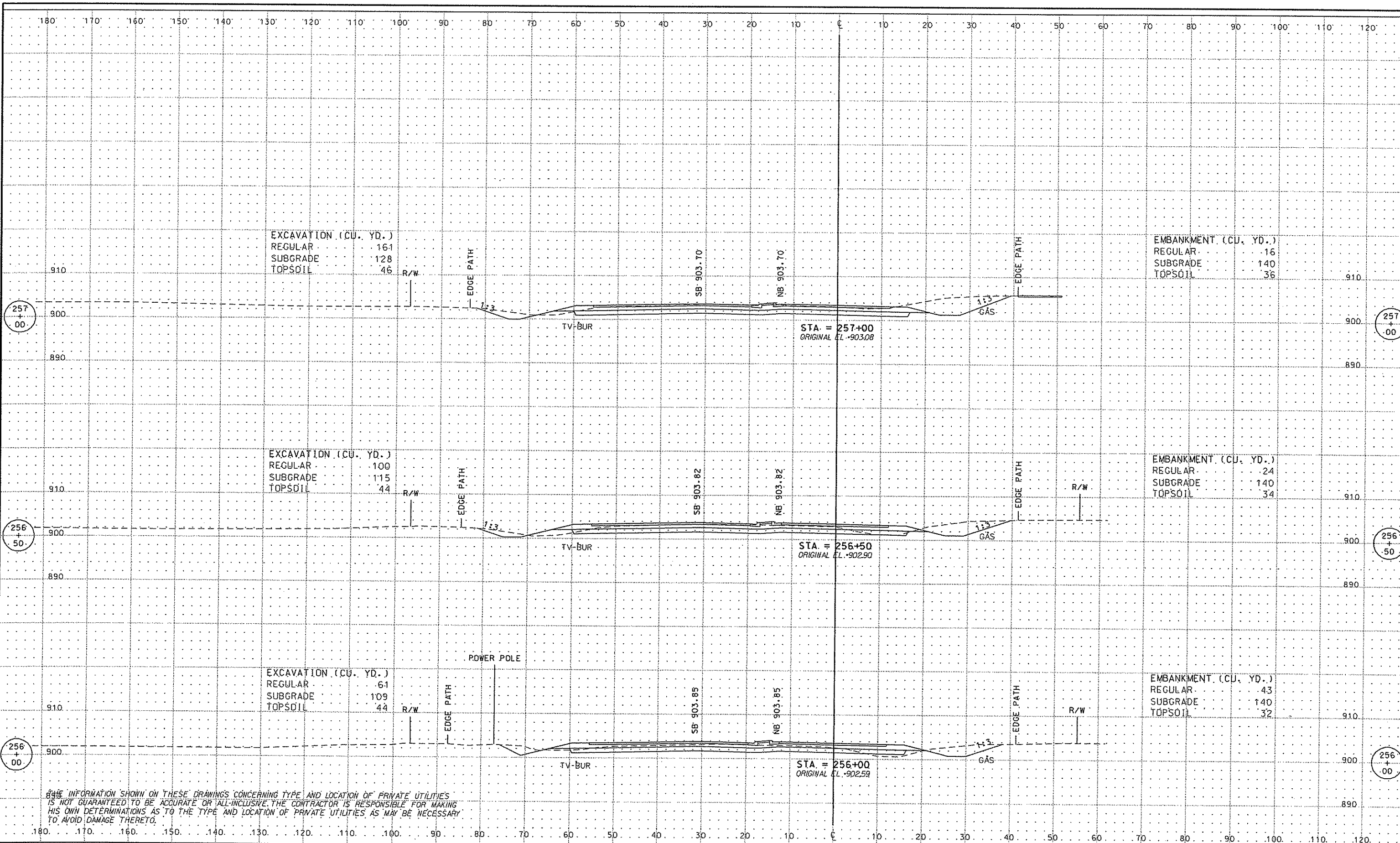
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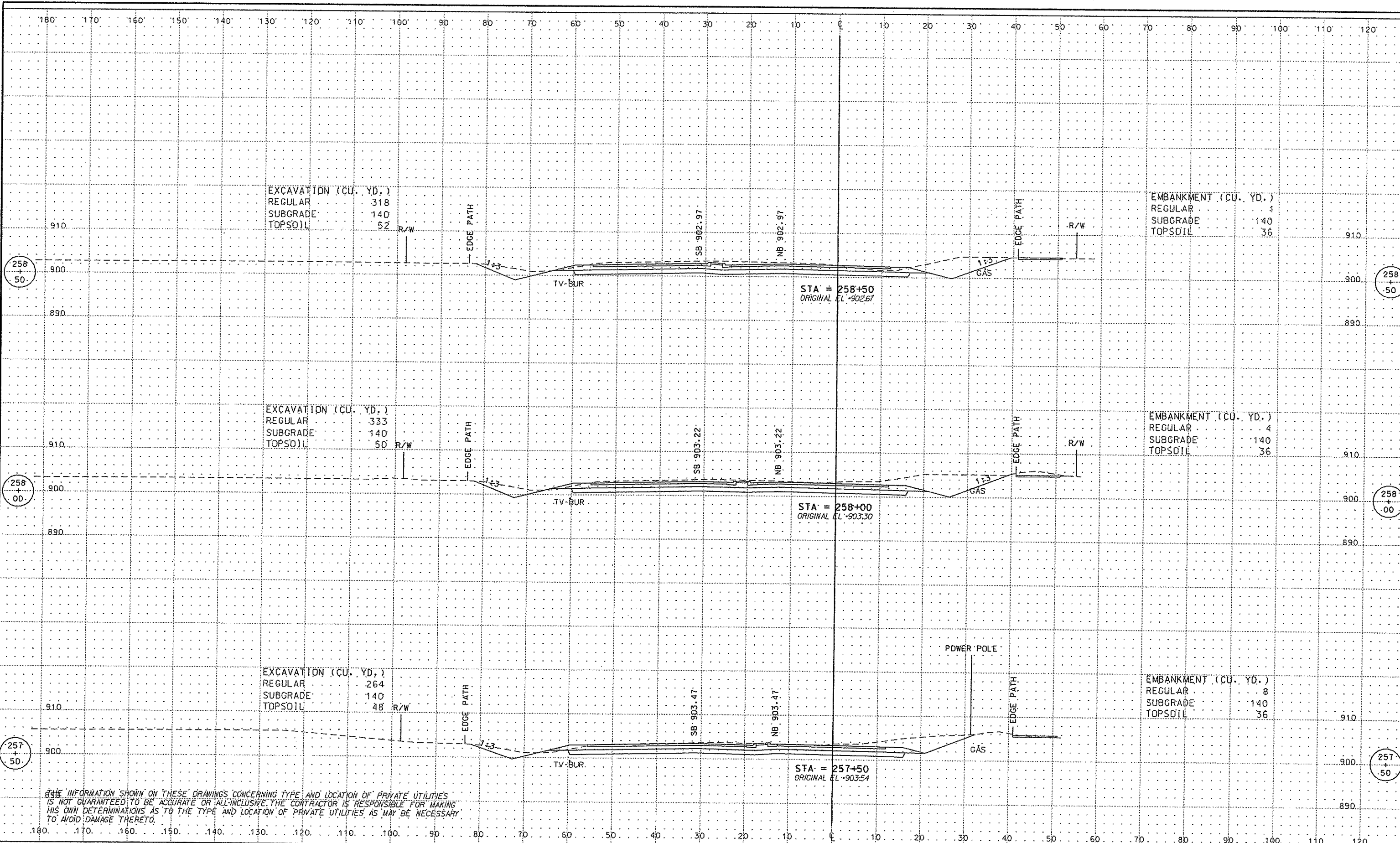
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 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINIACKI, P.E.
 DATE: 8/30/05 L.I.C. NO: 23128

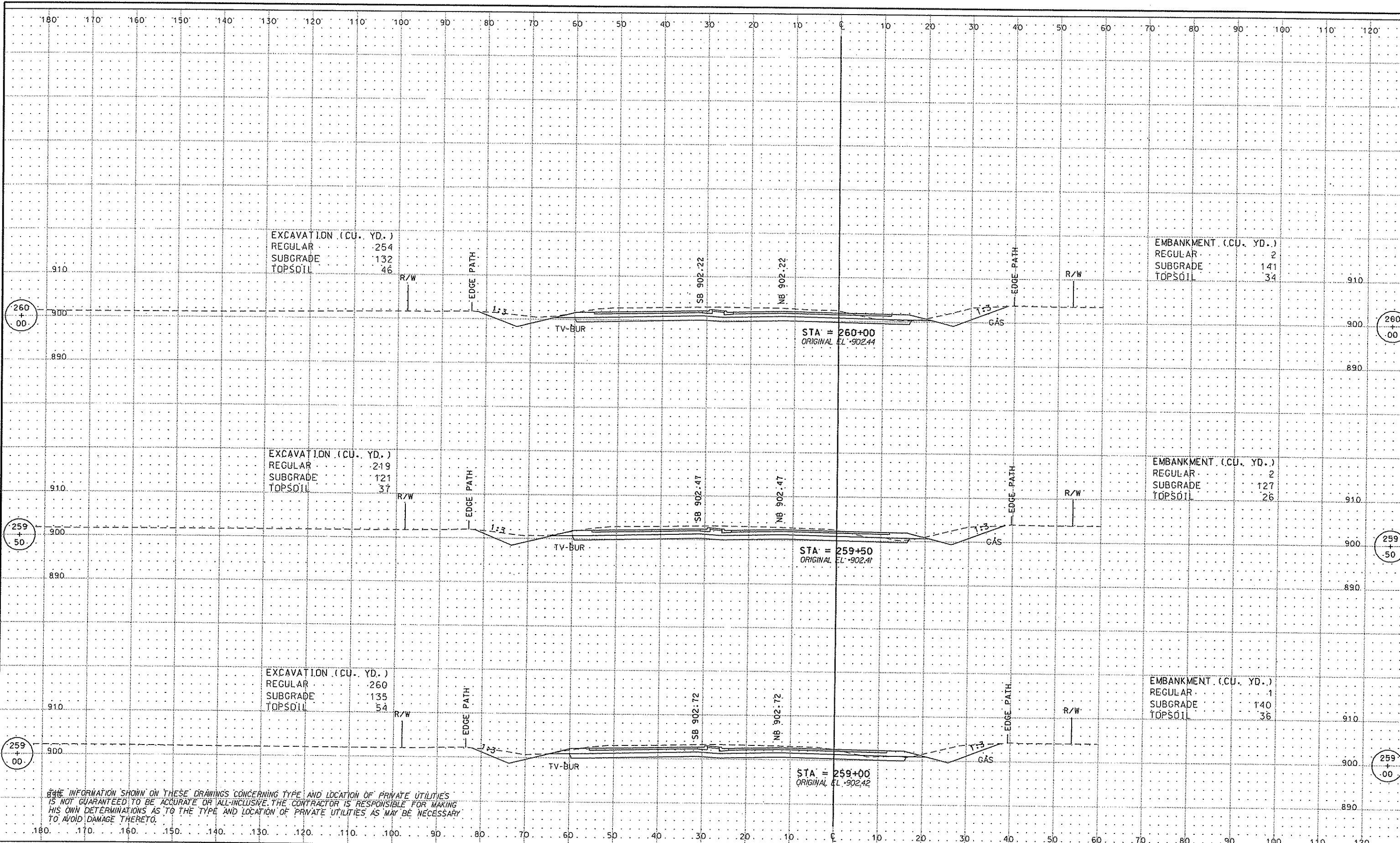
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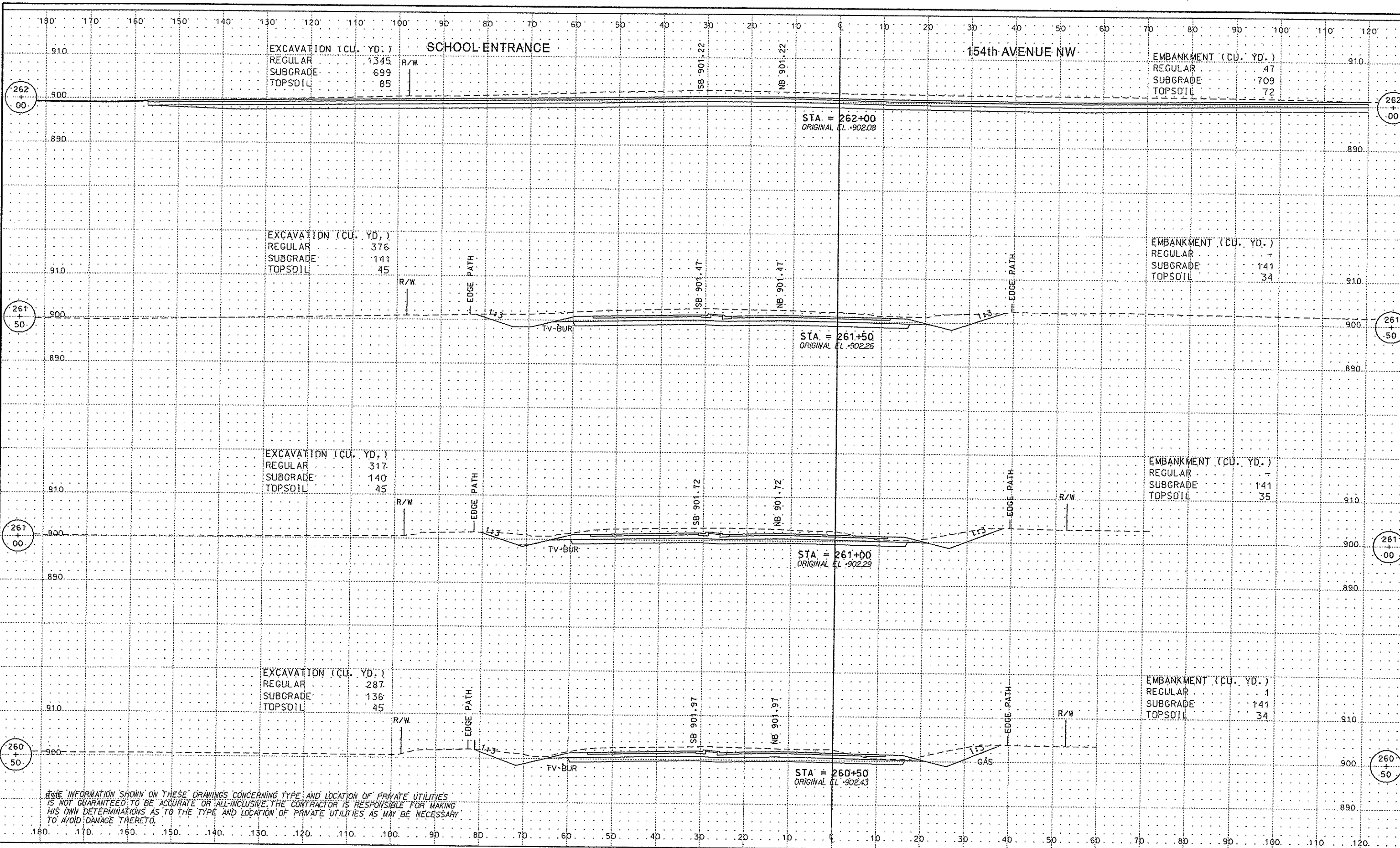
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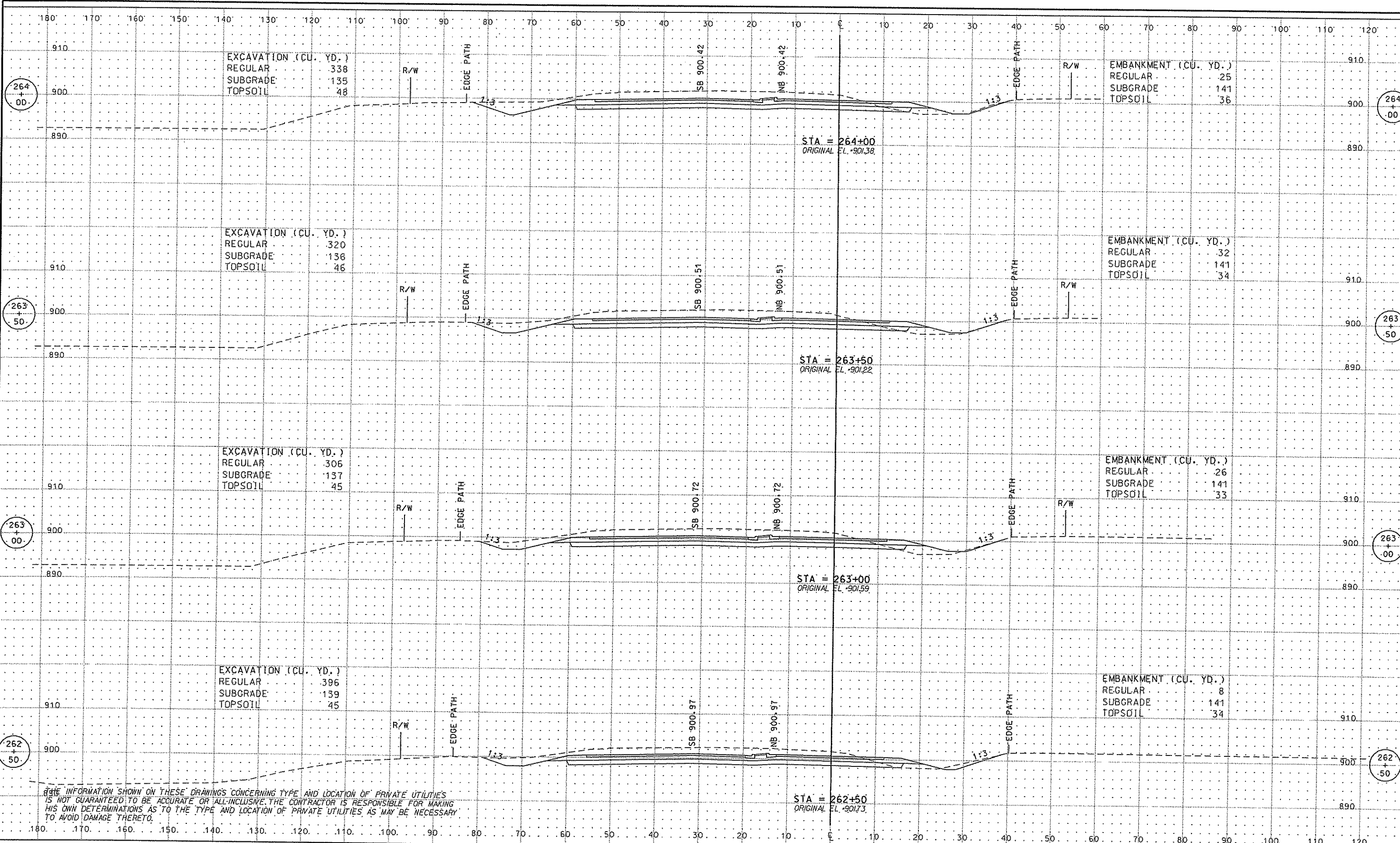
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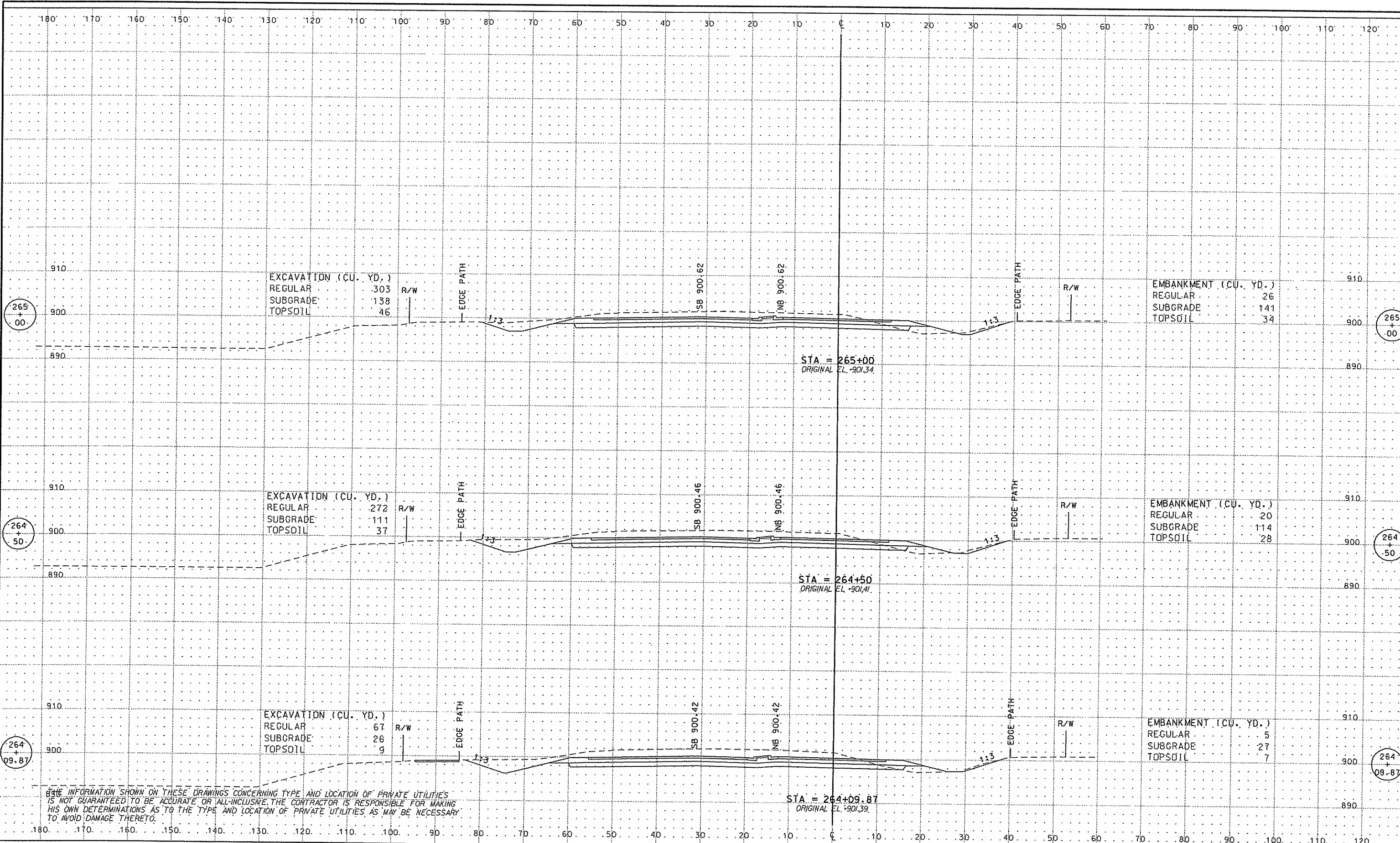
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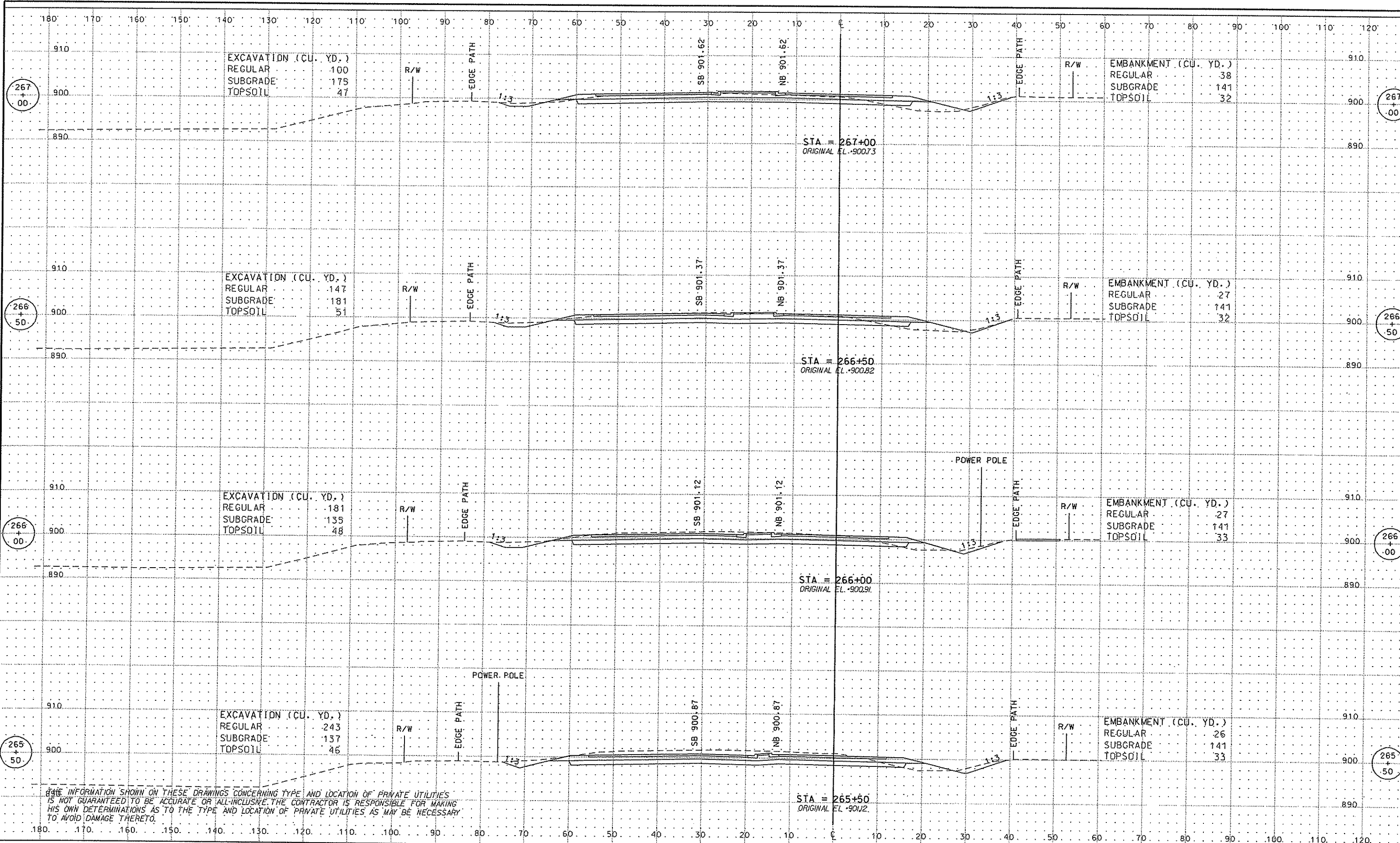
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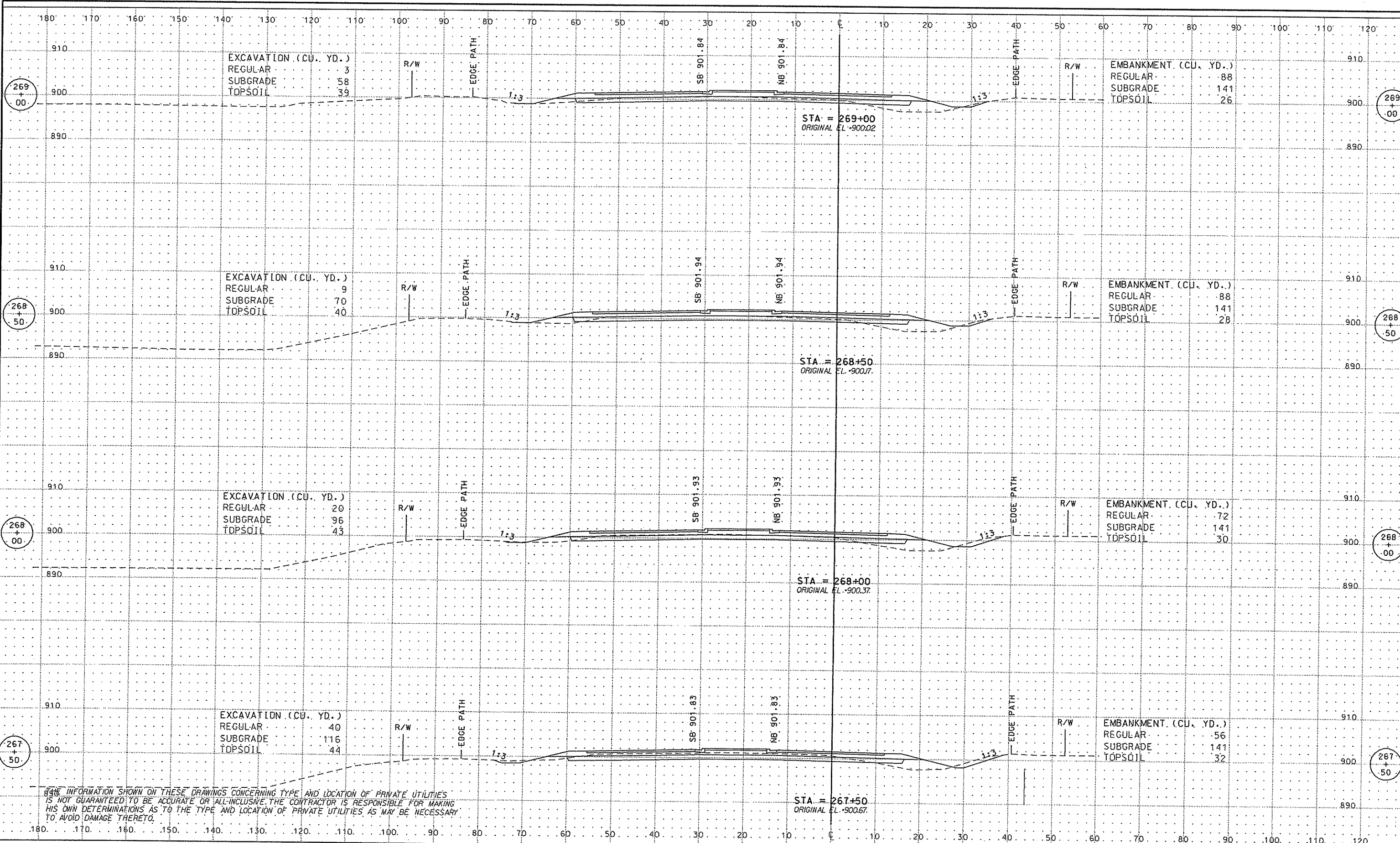
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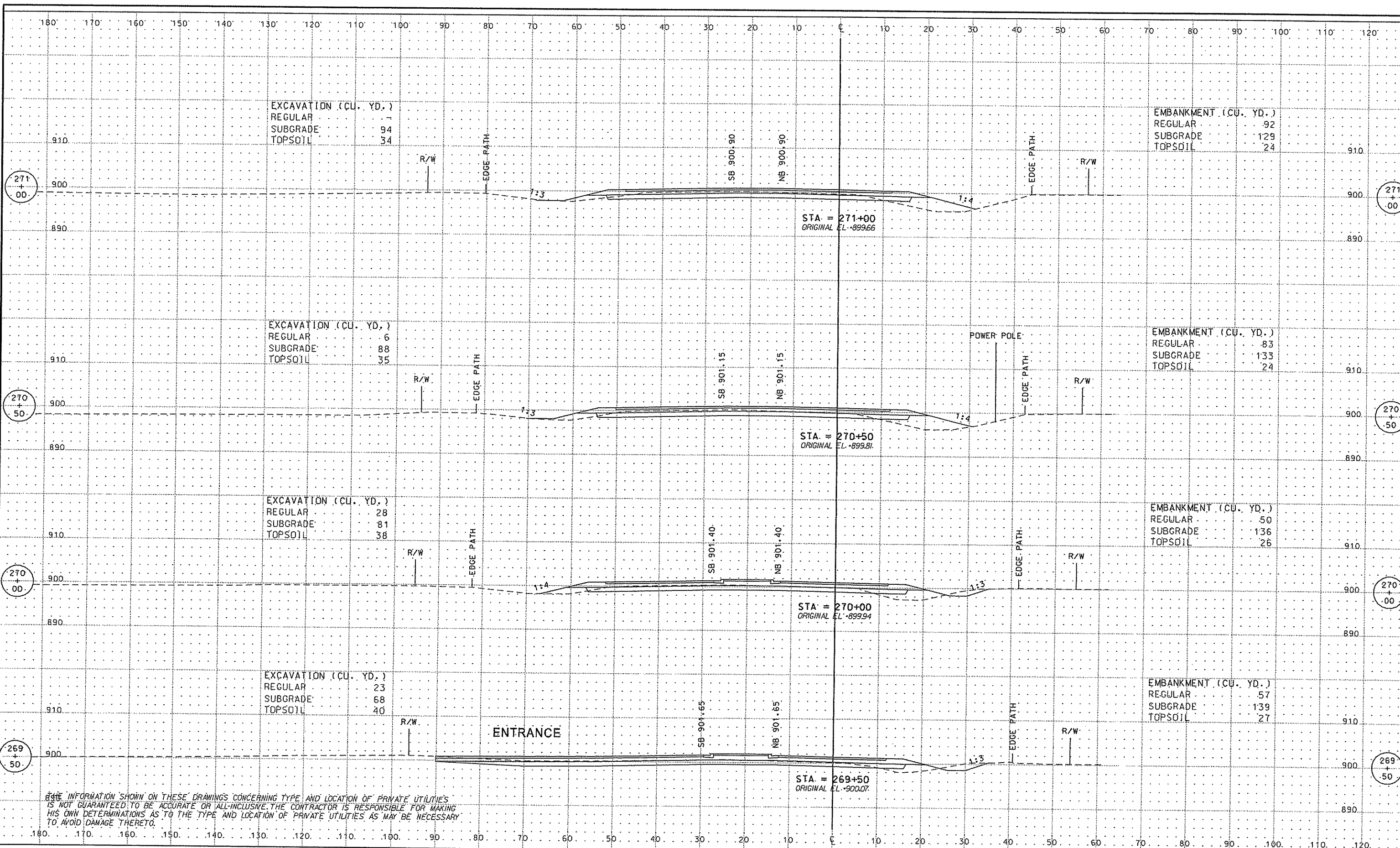
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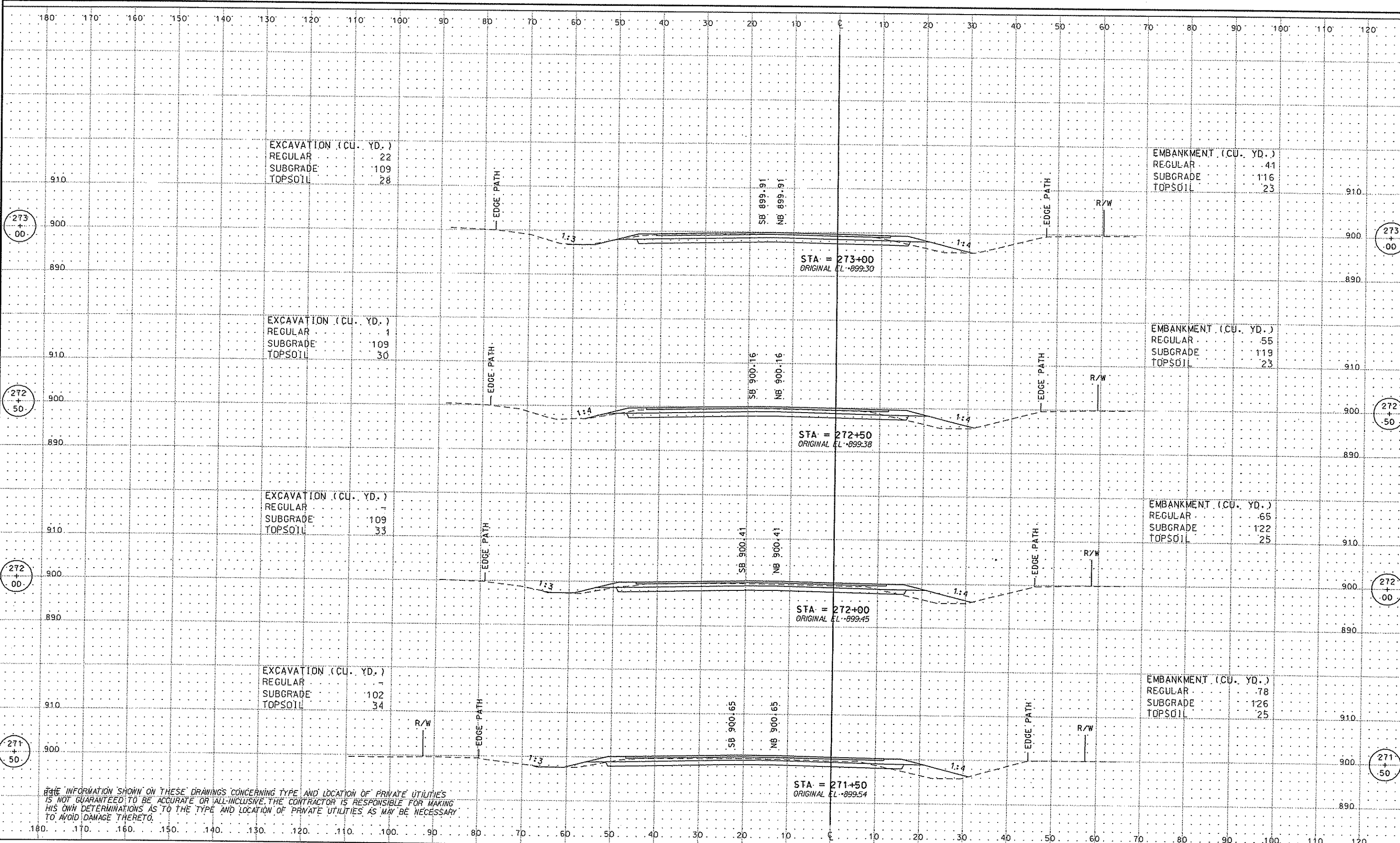
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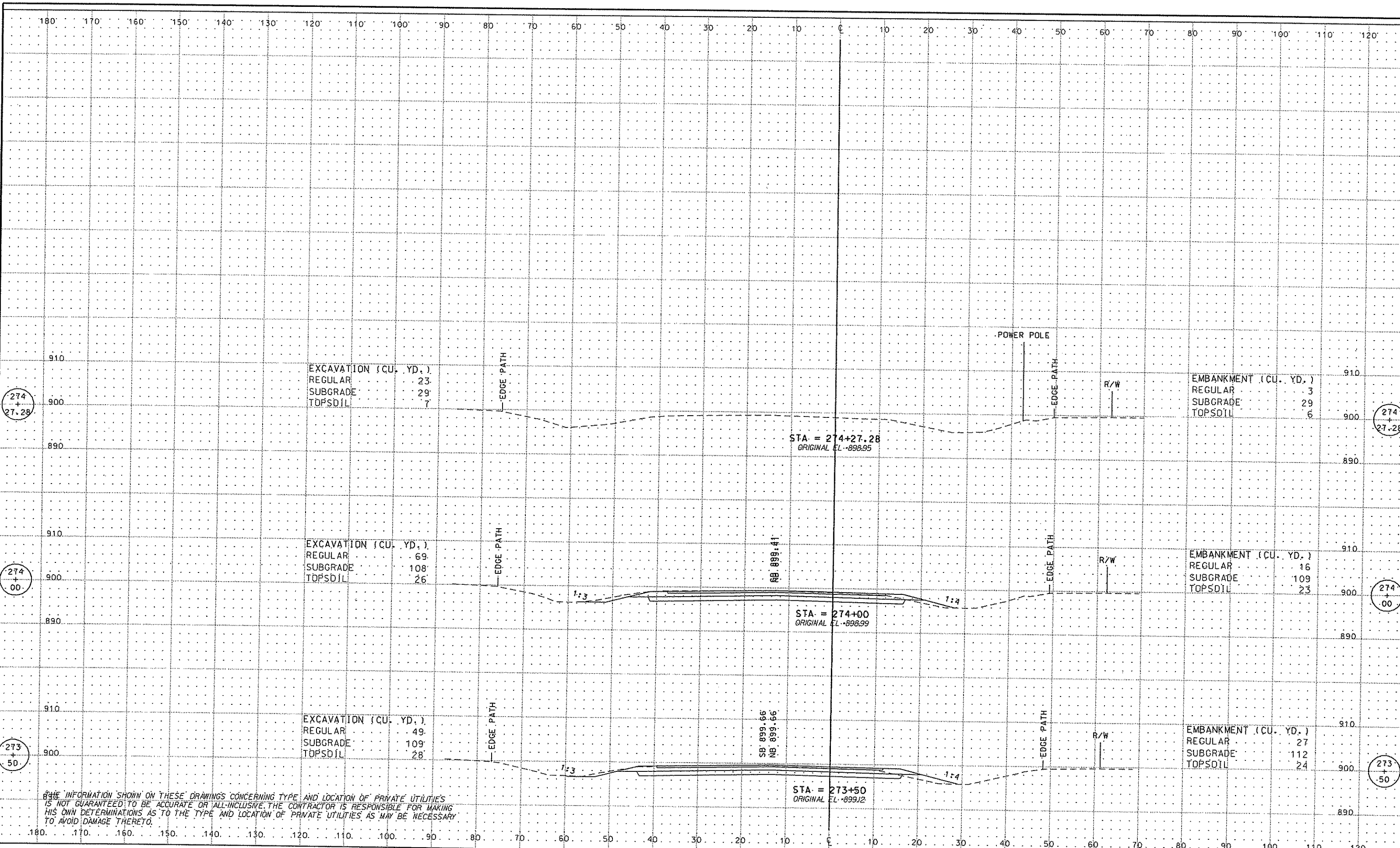
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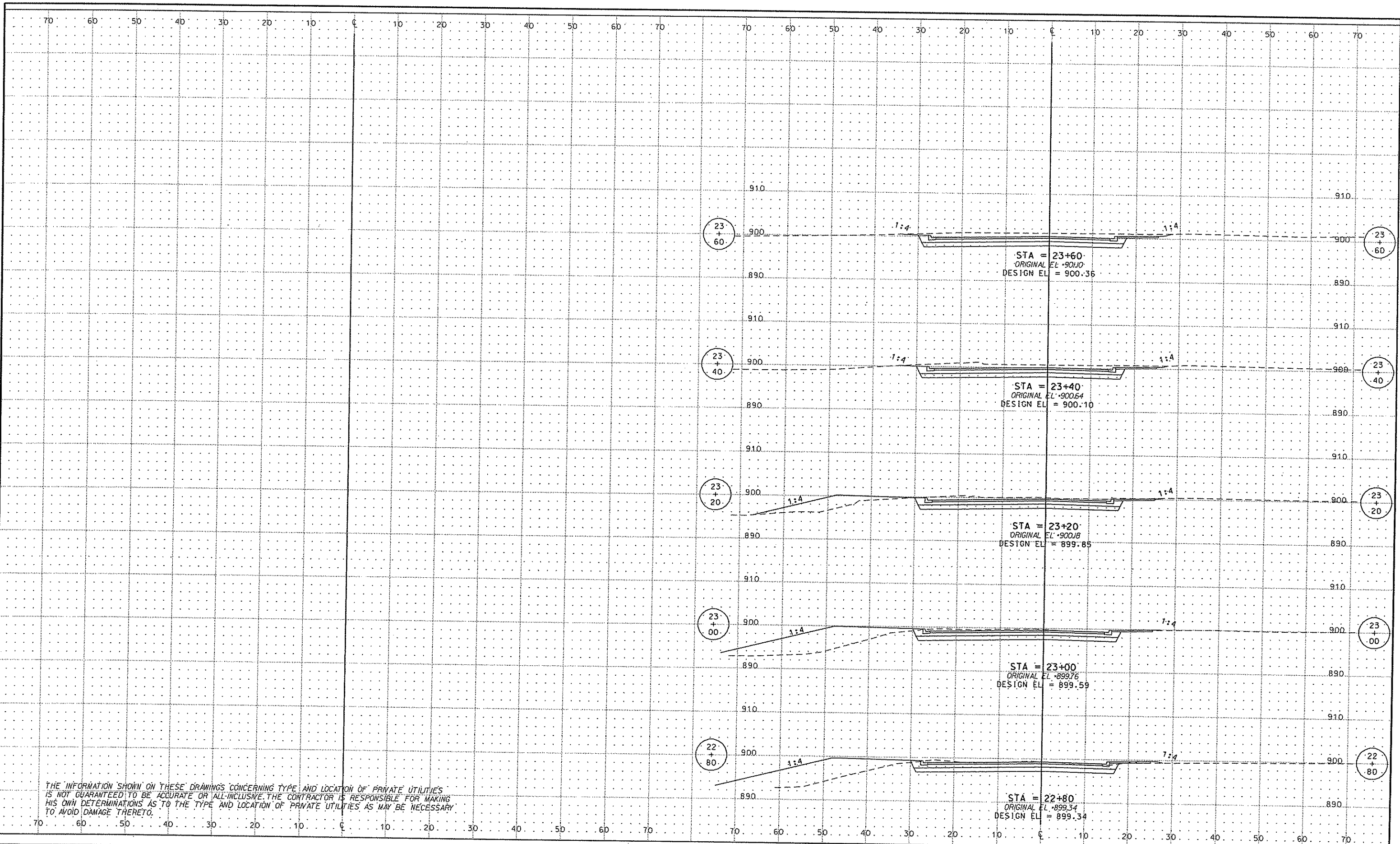
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