MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR GRADING, DRAINAGE, AGGREGATE BASE, BITUMINOUS SURFACING, CURB & GUTTER, SIGNAL SYSTEMS, AND BIT. PATH.

LOCATED ON T. H. 47 BETWEEN 300' S. OF COOLIDGE STREET IN CITY OF ANOKA AND 142ND AVE N.W. IN CITY OF RAMSEY (GEOGRAPHIC DESCRIPTION)

FROM A POINT 962.911' NO. & 3888.706' W. OF THE E. 1/4 COR. OF SEC. 3, T30 N, R24 W. TO A POINT 569.396' SO. & 591.634' W. OF THE NE. COR. OF SEC. 35, T31 N, R24 W. (LEGAL DESCRIPTION)

STATE PROJ. NO. 0206-47

GROSS LENGTH	2327.43	FEET	0.441 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	2327.43	FEET	0.441 MILES

STATE AID PROJ. NO. 02-716-01

GROSS LENGTH	1043.90	FEET	0.198 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH	183.08	FEET	0.035 MILES
NET LENGTH	860.82	FEET	0.163 MILES

STATE AID PROJ. NO. 199-010-02

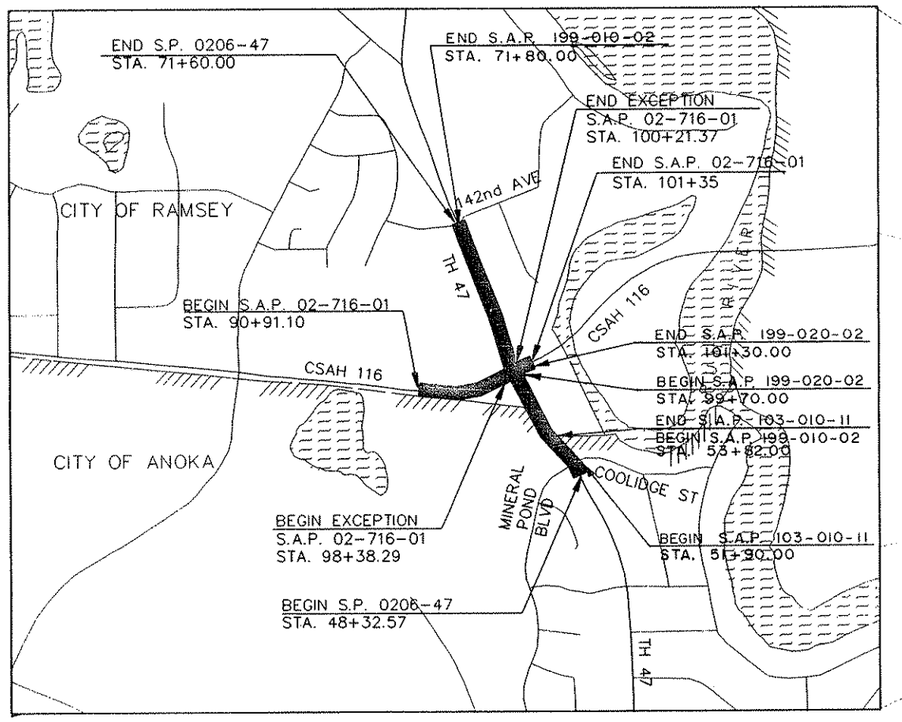
GROSS LENGTH	1798.0	FEET	0.341 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	1798.0	FEET	0.341 MILES

STATE AID PROJ. NO. 199-020-02

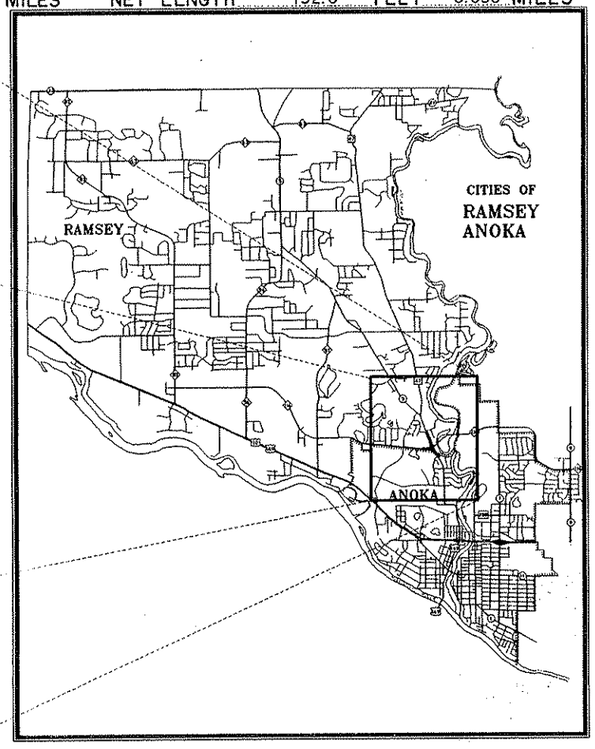
GROSS LENGTH	160.0	FEET	0.030 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	160.0	FEET	0.030 MILES

STATE AID PROJ. NO. 103-010-11

GROSS LENGTH	192.0	FEET	0.036 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	192.0	FEET	0.036 MILES



VICINITY MAP



INDEX MAP

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S

3 REVISION DATE 10-1-96 SHT. 22, 23
2 REVISION DATE 9-20-96 SHT. 45, 46, 47, 48, 49, 50
1 REVISION DATE 9-17-96 SHT. 27A
A REVISION DATE 8-28-96 SHT. 2, 4, 5, 14, 15, 16, 26, 28, 40, 41

AGREEMENT NO. 75067
ANOKA COUNTY
S.P. 0206-47 (T.H.47=110)
STATE FUNDS
METRO DIVISION

MINN. PROJ. NO.
MINN. PROJ. NO.

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE "SUPPLEMENTAL SPECIFICATIONS" DATED MAY 2, 1994 SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, DATED APRIL 1995.

SHEET INDEX

THIS PLAN CONTAINS 59 SHEETS

DESIGN DESIGNATION

	S.P. 0206-47	S.A.P. 02-716-01
$\Sigma N18_{20}$	2,838,169	1,913,722
R VALUE	60	60
ADT (1996)=	15,912	9,656
Proj. ADT (2016)=	27,050	16,415
Proj. HCADT (2016)=	1,974	1,231
Soil Factor	N/A	N/A
10 TON DESIGN		
No. of Traffic Lanes	2	4 (Urban) 2 (Rural)
Shoulder Width	10'	0' (Urban) 10' (Rural)
No. of Parking Lanes	0	0
Design Speed	45 MPH	50 MPH
Functional Classification	ARTERIAL	ARTERIAL

Based on Stopping Sight Distance
Height of eye 3.5' Height of object 0.5'
Design Speed not achieved at: N/A
STA. TO STA. MPH.
STA. TO STA. MPH.

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

DATE 7/16/96 REG. NO. 20235 ENGR. Douglas M. Fischer ASSISTANT COUNTY ENGINEER
DESIGN SQUAD K. YANG/B. LUIKART/H. GRAMS

Approved	ANOKA COUNTY ENGINEER	7/22, 19 96
Approved	CITY OF ANOKA ENGINEER	7/22, 19 96
Approved	CITY OF RAMSEY ENGINEER	7/22, 19 96
Recommended for Approval	TRAFFIC ENGINEERS DIVISION	8/1, 19 96
Recommended for Approval	STATE TRAFFIC ENGINEER	8/1, 19 96
Recommended for Approval	STATE PRE-LETTING ENGINEER	8-12, 19 96
Right of Way Approval	STATE RIGHT OF WAY ENGINEER	8-19, 19 96
Approved	STATE DESIGN ENGINEER	8-22, 19 96
Recommended for Approval		, 19
Recommended for Approval		, 19
Approved	STATE AID ENGINEER	8/1, 19 96

STATE AID PROJ. NO. 103-010-11
STATE AID PROJ. NO. 199-010-02
STATE AID PROJ. NO. 199-020-02

STATE AID PROJ. NO. 02-716-01 COUNTY PROJECT NO.
STATE PROJ. NO. 0206-47 (47=110) SHEET NO. 1 OF 56 SHEETS

PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
SLOPE EASEMENT
PRESENT RIGHT OF WAY
PROPERTY LINE
CORPORATE OR CITY LIMITS
DAY LIGHT LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY
RIVER OR CREEK
DRAINAGE DITCH
CULVERT
DROP INLET
GAURD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
WOOD FENCE
STONE WALL OR FENCE
HEDGE
LOWLAND
TIMBER / ORCHARD / BRUSH / NURSERY
CATTLE GAURD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
RAILROAD CROSSING BELL
RAILROAD CROSSING GATE
MANHOLE M.H.
CATCH BASIN
FIRE HYDRANT
CAST IRON MONUMENT
IRON PIN
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY
GEOTECHNICAL SOILS BORING

UTILITY SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE & POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (Cable Terminal)
GAS MAIN
WATERMAIN
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER (Sanitary or Storm)
SEWER MANHOLE

SCALES

PLAN 0 50 100
PROFILE HORIZONTAL 0 50 100
PROFILE VERTICAL 0 5 10
X-SECTIONS HORIZONTAL 0 10 20
X-SECTIONS VERTICAL 0 10 20
DETAILS 0 20 40
VICINITY MAP 0 200 400
INDEX MAP 0 2000 4000

REVISIONS

DATE	BY	DATE	BY
7-29-96	KTS		

FILE NAME: P:\9023116\PLANS\47116C1.DWG MN (7-16-96)

Fed. Project No. _____

STATEMENT OF ESTIMATED QUANTITIES

CHART NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED	TOTAL FINAL	S.A.P. 02-716-01 ESTIMATED	S.A.P. 02-716-01 FINAL	S.P. 0206-47 ESTIMATED	S.P. 0206-47 FINAL	SAP 103-010-11 SAP 199-010-02 SAP 199-020-02 ESTIMATED	SAP 103-010-11 SAP 199-010-02 SAP 199-020-02 FINAL
		0013.601	CELLULAR MOBILE TELEPHONE	LUMP SUM	1.0		0.13		0.87			
		0013.601	COMPUTER EQUIPMENT	LUMP SUM	1.0		0.13		0.87			
		2021.501	MOBILIZATION	LUMP SUM	1.0		0.13		0.87			
		2031.501	FIELD OFFICE TYPE D	EACH	1.0		0.13		0.87			
A		2101.501	CLEARING	ACRE	0.10				0.10			
A		2101.502	CLEARING	TREE	28.0				28.0			
A		2101.508	GRUBBING	ACRE	0.10				0.10			
A		2101.507	GRUBBING	TREE	28.0				28.0			
		2102.502	PAVEMENT MARKING REMOVAL	LIN FT	13,090		2,090		11,000			
H		2104.501	REMOVE CURB & GUTTER	LIN FT	930		811		119			
J	(1)	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	401		58		343			
D		2104.501	REMOVE IRON FENCE	LIN FT	95				95			
E		2104.503	REMOVE RETAINING WALL	SQ FT	475				475			
F	(2)	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	14,572		1,379		13,193			
G		2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	291		153		138			
I		2104.509	REMOVE BITUMINOUS FLUME	EACH	1				1			
J		2104.509	REMOVE PIPE APRONS	EACH	13		3		10			
J		2104.509	REMOVE DRAINAGE STRUCTURE	EACH	1				1			
B		2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	1,569		947		622			
D		2104.521	SALVAGE IRON FENCE	LIN FT	43				43			
		2104.523	SALVAGE SIGN TYPE C	EACH	48		17		31			
		2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	4				4			
J	(1)	0104.606	ABANDON STORM SEWER	LIN FT	204		91		113			
AA		2105.501	COMMON EXCAVATION (P)	CU YD	20,140		1,396		18,744			
	(3)	2130.501	WATER	M GAL	30		5		25			
L		2211.503	AGGREGATE BASE (CV) CLASS 6	CU YD	2,983 (P)		295		2,688			
C		2232.501	MILL BITUMINOUS SURFACE (3")	SQ YD	1,275		1,275					
R	(5)(8)	0331.607	WEARING COURSE MIXTURE	SQ YD-IN	4,498						4,498	
L		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	1,581		251		1,330			
L	(6)	2340.510	TYPE 41 BINDER COURSE MIXTURE	TON	1,845		293		1,552			
L	(6)	2340.514	TYPE 31 BASE COURSE MIXTURE	TON	4,182		413		3,769			
L		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1,918		305		1,613			
O		0411.603	PRECAST CONCRETE STONE RETAINING WALL	SQ FT	1,946				1,946			
Y		2501.515	24" RC PIPE APRON	EACH	2				2			
Y		2501.567	15" CS SAFETY APRON & GRATE DES 3128	EACH	1		1					
Y		2501.567	18" RC SAFETY APRON & GRATE DES 3128	EACH	1				1			
Y		2503.511	15" CS PIPE SEWER	LIN FT	77		77					
Y		2503.541	12" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	252		125		127			
Y		2503.541	15" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	480				480			
Y		2503.541	18" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	887				887			
Y		2503.541	24" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	615				615			
Y		2503.541	27" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	193				193			
X		0504.602	ADJUST VALVE BOX-WATER	EACH	2				2			
W		0504.602	RELOCATE HYDRANT AND VALVE	EACH	1				1			
Y		2506.501	CONST DRAINAGE STRUCTURE DESIGN H	LIN FT	9.0				9.0			
Y		2506.501	CONST DRAINAGE STRUCTURE DESIGN C, G	LIN FT	26.5		7.2		19.3			
Y		2506.501	CONST DRAINAGE STRUCTURE DESIGN A, F	LIN FT	55.3				55.3			
Y		2506.501	CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	59.5				59.5			
Y		2506.501	CONST DRAINAGE STRUCTURE DES 54-4020	LIN FT	5.7				5.7			
Y		2506.501	CONST DRAINAGE STRUCTURE DES 60-4020	LIN FT	4.6				4.6			
Z		2506.516	CASTING ASSEMBLY	EACH	34		3		31			
Y		0506.602	CONNECT TO EXISTING DRAINAGE STRUCTURE	EACH	5		1		4			
Y		0506.602	CONNECT TO EXISTING SEWER	EACH	1				1			
M		0506.602	ADJUST FRAME AND RING CASTING (SPEC)	EACH	5				5			
V		2511.507	GROUTED RIP RAP	CU YD	24				24			
Q	(4)	2521.501	4" CONCRETE WALK	SQ FT	10,848		1,497		9,351			
N		2531.501	CONCRETE CURB & GUTTER DESIGN B612	LIN FT	681		545		136			
N		2531.501	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	3,922		38		3,884			
N		2535.501	BITUMINOUS CURB	LIN FT	280				280			
BB		0531.602	CONCRETE MEDIAN NOSE-SPECIAL	EACH	5		2		3			
P		0557.603	INSTALL IRON FENCE	LIN FT	43				43			
P		0557.603	F & I CHAIN LINK FENCE	LIN FT	270				270			
		0563.601	TRAFFIC CONTROL STAGE 1	LUMP SUM	1		0.13		0.87			
		0563.601	TRAFFIC CONTROL STAGE 2	LUMP SUM	1		0.13		0.87			
		0563.601	TRAFFIC CONTROL STAGE 3	LUMP SUM	1		0.13		0.87			

CHART NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL ESTIMATED	TOTAL FINAL	S.A.P. 02-716-01 ESTIMATED	S.A.P. 02-716-01 FINAL	S.P. 0206-47 ESTIMATED	S.P. 0206-47 FINAL	SAP 103-010-11 SAP 199-010-02 SAP 199-020-02 ESTIMATED	SAP 103-010-11 SAP 199-010-02 SAP 199-020-02 FINAL
		0563.603	ONE-WAY RAISED PAVT MARKER, TEMP	EACH	620		30		590			
		0563.603	REPLACEMENT ONE-WAY RPM, TEMP	EACH	104		5		99			
		2564.531	F & I SIGN PANELS TYPE C	SQ FT	362		147		215			
		0564.602	INSTALL SIGN TYPE SPECIAL	EACH	4				4			
		0564.602	INSTALL SIGN TYPE C	EACH	2				2			
		0564.602	PAVEMENT MESSAGE(RIGHT ARROW) PAINT	EACH	2		2					
		0564.602	PAVEMENT MESSAGE(RT ARROW) POLY PREF	EACH	14				14			
		0564.602	PAVEMENT MESSAGE(LEFT ARROW) PAINT	EACH	4		4					
		0564.602	PAVEMENT MESSAGE(LT ARROW) POLY PREF	EACH	4				4			
		0564.602	PAVEMENT MESSAGE (ONLY) POLY PREFORMED	EACH	3		3					
		0564.603	4" SOLID LINE WHITE - PAINT	LIN FT	10,290		3,840		6,450			
		0564.603	4" BROKEN LINE WHITE - PAINT	LIN FT	260		260					
		0564.603	4" SOLID LINE YELLOW - PAINT	LIN FT	2,900		700		2,200			
		0564.603	4" DOUBLE SOLID LINE YELLOW - PAINT	LIN FT	3,430		1,930		1,500			
		0564.603	24" SOLID LINE YELLOW - PAINT	LIN FT	690		490		200			
		0564.603	24" STOP LINE WHITE - POLY PREFORMED	LIN FT	100		100					
		0564.604	CROSS WALK MARKING - POLY PREFORMED	SQ FT	1,080		558		522			
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM	SIG SYS	1		0.25		0.75			
		0565.601	SALVAGE SIGNAL SYSTEM	LUMP SUM	1		0.50		0.50			
U		2573.501	BALE CHECK	EACH	348		74		274			
T	(7)	2573.508	BITUMINOUS LINED FLUME	SQ YD	9				9			
T		2575.501	SEEDING	ACRE	1.12 (P)				1.12			
T		2575.502	SEED MIXTURE 700	POUND	40				40			
T		2575.505	SODDING TYPE LAWN AND BOULEVARD	SQ YD	15,635		3,598		12,037			
T		2575.511	MULCH MATERIAL TYPE 1	TON	2.3				2.3			
		2575.519	DISK ANCHORING	ACRE	1.12 (P)				1.12			
T		2575.532	COMMERCIAL FERT ANALYSIS 10-10-10	POUND	2,185		375		1,810			
		2580.501	TEMPORARY LANE MARKING	ROAD STA	35		9		26			
		2581.501	REMOVABLE PREFORMED PLASTIC MARKING	LIN FT	6,650		800		5,850			

INDEX OF TABULATION CHARTS

CHART	SHEET NO.	DESCRIPTION
A	3	CLEARING AND GRUBBING
B	3	SAWING BITUMINOUS PAVEMENT
C	3	MILL BITUMINOUS SURFACE
D	3	FENCE REMOVAL
E	3	RETAINING WALL REMOVAL
F	3	BITUMINOUS PAVEMENT REMOVAL
G	3	CONCRETE PAVEMENT REMOVAL
H	3	CURB AND GUTTER REMOVAL
I	3	BITUMINOUS FLUME
J	3	REMOVAL OF EXISTING DRAINAGE
K		
L	4	BITUMINOUS PAVEMENT
M	4	SEWER MANHOLE COVER ADJUSTMENT
N	4	CONCRETE CURB AND GUTTER/BITUMINOUS CURB
O	4	RETAINING WALLS
P	4	FENCE
Q	4	CONCRETE WALK
R	4	BITUMINOUS BIKE PATH
S		
T	4	TURF ESTABLISHMENT
U	4	BALE CHECK
V	5	GROUTED RIP RAP
W	4	FIRE HYDRANT RELOCATION
X	4	GATE VALVE COVER ADJUSTMENT
Y	5	DRAINAGE TABULATION CHART
Z	5	CASTING SCHEDULE
AA	6	EARTHWORK SUMMARY
BB	7	SPECIAL MEDIAN NOSE

BASIS OF PLANNED QUANTITIES

2340	TYPE 41 PLANT MIXED WEARING COURSE: BIT.MIXTURE 110 LBS/SQ.YD. PER 1" THICKNESS
2340	TYPE 31 PLANT MIXED BINDER AND BASE COURSE: BIT. MIXTURE 110 LBS/SQ.YD. PER 1" THICKNESS
2357	BITUMINOUS MIXTURE FOR TACK COAT: 0.05 GALS PER SQ.YD. PER LAYER APPLIED
2575	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10: 500 LBS./ACRE ON ALL SEED AND SOD AREAS
2575	MULCH MATERIAL, TYPE 1: 2 TONS PER ACRE
2575	ROADSIDE SEEDING BASED ON HORIZONTAL MEASUREMENT: +10% SEED MIXTURE NO. 700: 35 LBS. PER ACRE

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR R.C. PIPE
3007B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURE
3022A	PRECAST CONCRETE END SECTION
3040F	CORRUGATED METAL PIPE CULVERT
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3128F	SAFETY APRON
3133B	RIP RAP AT RCP OUTLETS
3145E	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND
4005L	MANHOLE OR CATCH BASIN (DESIGN F)
4003A	30" PRECAST CATCH BASIN (DESIGN N)
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4010G	CONC. SHORT CONE & ADJUSTING RING
4011E	PRECAST CONCRETE BASE
4101C	RING CASTING FOR MANHOLE OR CATCH BASIN
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE)
4132F	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE)
4134A	CURB BOX CASTING FOR CATCH BASIN
4143E	STOOL GRATE & CONCRETE FRAME
4154B	CATCH BASIN GRATE CASTING
4180H	MANHOLE OR CATCH BASIN STEP
7065C	BITUMINOUS CURB
7100G	CONCRETE CURB AND GUTTER (DESIGN B)
7109C	MEDIAN NOSE AND ISLAND
7111H	INSTALLATION AND REINFORCEMENT OF CATCH BASIN CASTING
7113A	CONCRETE APPROACH NOSE DETAIL
8000I	STANDARD BARRICADES
9102D	TURF ESTABLISHMENT AREAS (AT PIPE CULVERTS ENDS).
9322J	CHAIN LINK FENCE

SEE TRAFFIC SIGNAL PLAN SHEETS FOR ADDITIONAL STANDARD PLATES

NOTES:

1. INCLUDES RCP. AND RCP-ARCH. & CMP. INCLUDES VARIOUS SIZED CULVERT AND STORM SEWER PIPE.
2. INCLUDES ALL BITUMINOUS SURFACING REGARDLESS OF DEPTH AND EXISTING AGGREGATE BASE MATERIAL.
3. FOR DUST CONTROL AS DIRECTED BY ENGINEER.
4. FOR IN MEDIAN ISLAND.
5. PAY ITEM INCLUDES BITUMINOUS PATH CONSTRUCTION WHICH CONSISTS OF 2" OF BITUMINOUS SURFACE OVER 4" OF AGGREGATE BASE CLASS 5.
6. QUANTITY INLCLUDES AN ADDITIONAL 1/4" TO THE DESIGNED THICKNESS.
7. FOR BITUMINOUS FLUME, SEE SHEET 7 FOR DETAILS.
8. QUANTITY FOR SAP 103-010-11 = 370 SQ YD-IN; SAP 199-010-02 = 3,860 SQ YD-IN; SAP 199-020-02 = 268 SQ YD-IN.

REVISIONS		
DATE	BY	
7-29-96	KTY	
8-28-96	KTY	

CERTIFIED BY Douglas W. Fowler P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

STATEMENT OF ESTIMATED QUANTITIES

Sheet No. 2 of 56 Sheets

Fed. Project No. _____

CLEARING AND GRUBBING (A)

STATION – STATION	LOCATION	CLEARING TREE	CLEARING ACRE	GRUBBING TREE	GRUBBING ACRE
S.P. 0206-47					
50+16	41' RT LNB	1		1	
50+30	41' RT LNB	1		1	
50+45	41' RT LNB	1		1	
50+80	40' RT LNB	1		1	
51+17	42' RT LNB	1		1	
51+96	50' RT LNB	1		1	
52+08	31' RT LNB	1		1	
52+17	31' RT LNB	1		1	
52+35	24' RT LNB	1		1	
52+46	26' RT LNB	1		1	
53+00	22' RT LNB	1		1	
53+11	22' RT LNB	1		1	
53+25	29' RT LNB	1		1	
53+46	25' RT LNB	1		1	
53+56	31' RT LNB	1		1	
53+61	25' RT LNB	1		1	
53+75 TO 55+64	14'-52'RT LNB		0.1		0.1
55+86	22' RT LNB	1		1	
55+99	30' RT LNB	1		1	
56+02	15' RT LNB	1		1	
56+95	7' LT LSB	1		1	
57+04	8' LT LSB	1		1	
57+14	7' LT LSB	1		1	
69+10	18' LT LSB	1		1	
69+24	17' LT LSB	1		1	
69+29	34' LT LSB	1		1	
69+31	16' LT LSB	1		1	
69+53	19' LT LSB	1		1	
69+56	35' LT LSB	1		1	
	TOTAL	28	0.10	28	0.10
S.A.P. 02-716-01					
NONE	NONE	NONE	NONE	NONE	NONE
	TOTAL	0	0	0	0

SAWING BITUMINOUS PAVEMENT (B)

STATION – STATION	LOCATION	LIN. FT.
S.P. 0206-47		
48+34 TO 51+25	T.H. 47 1' LT. LNB	293
51+25	2' RT. LNB TO 14' LT. LSB	40
51+39 TO 51+73	38' LT. LSB	36
51+51 TO 51+85	47' RT. LNB	34
57+70 TO 58+00	38' RT. LNB	42
66+50 TO 66+79	50' RT. LNB	29
66+59 TO 66+85	43' LT. LSB	27
71+60	T.H. 47 12' RT. LNB TO 36' LT LNB	48
98+38	C.S.A.H. 116 5' TO 40' RT.	35
100+22	C.S.A.H. 116 3' TO 41' LT.	38
	TOTAL	622
S.A.P. 02-716-01		
90+91 TO 95+67	C.S.A.H. 116 24' LT.	476
95+65	5' RT. TO 23' LT.	28
95+65 TO 98+38	5' RT	273
101+00 TO 101+35	3' TO 57' RT.	92
101+23 TO 101+62	C.S.A.H. 116 45' TO 95' RT. AT FINA GAS STA. ENTRANCE	78
	TOTAL	947

MILL BITUMINOUS SURFACE (C)

STATION – STATION	LOC.	DESCRIPTION	SQ. YD.
S.P. 0206-47			
NONE		NONE	NONE
		TOTAL	0
S.A.P. 02-716-01			
90+91 TO 95+67	LT.	MILLING 3" DEEP OF EXIST. BIT. SURFACE	1,275
		TOTAL	1,275

FENCE REMOVAL (D)

STATION – STATION	LOCATION	DESCRIPTION	SALVAGE LIN. FT.	REMOVAL LIN. FT.
S.P. 0206-47				
54+69 TO 55+64	RT. LNB	6' HIGH WROUGHT IRON		95
57+18 TO 57+60	RT. LNB	REMOVE AND SALVAGE 6' HIGH WROUGHT IRON	43	
		TOTAL	43	95
S.A.P. 02-716-01				
NONE	NONE	NONE	NONE	NONE
		TOTAL	0	0

RETAINING WALL REMOVAL (E)

STATION – STATION	LOCATION	DESCRIPTION	SQ. FT.
S.P. 0206-47			
54+69 TO 55+64	RT. LNB	5' HIGH STONE BLOCK WALL	475
		TOTAL	475
S.A.P. 02-716-01			
NONE	NONE	NONE	NONE
		TOTAL	0

BITUMINOUS PAVEMENT REMOVAL (F)

STATION – STATION	LOCATION	DESCRIPTION	SQ.YDS.
S.P. 0206-47			
48+34 TO 51+25	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	6,676
51+25 TO 62+00	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	194
62+00 TO 71+60	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	5,464
98+38 TO 98+60	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	272
99+98 TO 101+25	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	435
101+25 TO 101+60	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	152
		TOTAL	13,193
S.A.P. 02-716-01			
90+91 TO 91+75	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	31
91+75 TO 95+64	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	339
95+64 TO 98+38	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	770
95+64 TO 98+38	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	239
		TOTAL	1,379

CONCRETE REMOVAL (G)

STATION – STATION	LOCATION	DESCRIPTION	SQ. YD.
S.P. 0206-47			
48+62 TO 48+90	RT. LNB	T. H. 47 CONCRETE DRIVEWAY	138
		TOTAL	138
STATION – STATION	LOCATION	DESCRIPTION	SQ. YD.
S.A.P. 02-716-01			
95+71 TO 98+78	CL	C.S.A.H. 116 CONCRETE MEDIAN	103
99+72 TO 101+00	CL	C.S.A.H. 116 CONCRETE MEDIAN	43
101+15 TO 101+35	RT.	C.S.A.H. 116 CONCRETE GUTTER	5
		TOTAL	153

CURB AND GUTTER REMOVAL (H)

STATION – STATION	LOCATION	DESCRIPTION	LIN.FT.
S.P. 0206-47			
51+80	37.5' LT.	T. H. 47 CONCRETE C & G	5
57+66	33' RT.	T. H. 47 CONC. C & G AT FOOD N FUEL ENTRANCE	6
58+01	33' RT.	T. H. 47 CONC. C & G AT FOOD N FUEL ENTRANCE	3
99+95 TO 101+00	CL.	C.S.A.H. 116 CONCRETE MEDIAN C & G	105
		TOTAL	119
S.A.P. 02-716-01			
94+20 TO 94+45	LT.	C.S.A.H. 116 SUPER AMERICA ENTRANCE C & G	45
95+71 TO 98+78	CL	C.S.A.H. 116 CONCRETE MEDIAN C & G	614
100+21 TO 101+15	RT.	C.S.A.H. 116 CONCRETE C & G (B-618)	94
101+15 TO 101+30	RT.	C.S.A.H. 116 CONCRETE C & G B-618	52
101+63	55' LT.	C.S.A.H. 116 CONCRETE C & G AT SEWER TRENCHING	6
		TOTAL	811

BITUMINOUS FLUME (I)

STATION – STATION	LOCATION	DESCRIPTION	REMOVE EACH	INSTALL SQ. YDS.
S.P. 0206-47				
71+53	37' RT. LNG	REMOVE BIT FLUME AT T.H. 47 AND 142ND	1	
71+62	37' RT. LNB	INSTALL BIT FLUME AT T.H. 47 AND 142ND		9
		TOTAL	1	9
S.A.P. 02-716-01				
NONE	NONE	NONE	0	0
		TOTAL	0	0

REMOVAL OF EXISTING DRAINAGE (PIPE & CULVERT) (J)

STATION	LOCATION	REMARKS	ABANDON SEWER PIPE LIN. FT.	REMOVAL SEWER PIPE LIN. FT.	REMOVAL C.B. EACH	REMOVAL APRONS EACH
S.P. 0206-47						
57+45	30' RT LNB	REMOVE EXIST. 12" RCP (3)		23		1
57+50-59+70	27' RT LNB	REMOVE EXIST. 15" RCP (1)		220		2
59+87-61+00	14'-22' RT LNB	ABANDON 13" ARCH RCP (2)	113			2
62+01	25' RT LNB	REMOVE EXIST. 15" RCP (3)		22		1
66+35	30' RT LNB	REMOVE EXIST. 15" RCP & STRUCT.		22	1	1
66+42-67+00	15'-18' RT LNB	REMOVE EXIST. 12" RCP		68		2
71+53-71+63	34' RT LNB	REMOVE PART OF EXIST. 18" RCP		10		1
		TOTAL	113	343	1	10
S.A.P. 02-716-01						
93+80-94+45	56' RT	REMOVE EXIST. 15" SMP (3)		58		1
97+00	41' LT-50' RT	ABANDON EXIST. 13" ARCH RCP (2)	91			2
		TOTAL	91	58	0	3

NOTES:

① REMOVE EXIST. STORM SEWER PIPE AND APRONS INCLUDING TRASH GUARDS.

② ABANDON EXISTING STORM SEWER PIPE INPLACE. REMOVE APRONS AND FILL EXISTING STORM SEWER PIPE WITH SAND. FILL BOTH ENDS OF PIPE WITH CONCRETE.

③ REMOVE ONLY THE EXISTING STORM SEWER PIPE AND APRON. PROTECT EXISTING DRAINAGE STRUCTURE TO REMAIN.

TABULATION CHARTS

CLEARING & GRUBBING
SAWING BITUMINOUS PAVEMENT
MILL BITUMINOUS SURFACE
FENCE REMOVAL
RETAINING WALL REMOVAL
BITUMINOUS PAVEMENT REMOVAL
CONCRETE REMOVAL
CURB & GUTTER REMOVAL
BITUMINOUS FLUME
REMOVAL OF EXISTING DRAINAGE

FILE NAME: C:\P\902316\PLANS\47116C3.DWG LN(7-16-96)

REVISIONS

DATE	BY	DATE	BY
7-29-96	KTY		

CERTIFIED BY _____ P.E. REG NO. _____ _____ 19 __

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Fed. Project No. _____

BITUMINOUS PAVEMENT (L)

STATION - STATION	TYPE 31 BASE DEPTH (IN)	TYPE 31 BASE AREA (SQ. YD.)	TYPE 31 BASE WEIGHT (TON)	TYPE 41 BINDER DEPTH (IN)	TYPE 41 BINDER AREA (SQ. YD.)	TYPE 41 BINDER WEIGHT (TON)	TYPE 41 WEARING DEPTH (IN)	TYPE 41 WEARING AREA (SQ. YD.)	TYPE 41 WEARING WEIGHT (TON)	TACK COAT (GALLON)	AGGREGATE BASE CLASS-6 DEPTH (IN)	AGGREGATE BASE CLASS-6 AREA (SQ. YD.)	AGGREGATE BASE CLASS-6 VOLUME (CU. YD.)	REMARK
S.P. 0206-47														
48+32 TO 71+60	4.0"	16,124	3,547	1.5"	16,124	1,330	1.5"	16,124	1,330	1,613	6.0	16,124	2,688	
					16,124			16,124		1,613		16,124		
TOTAL		16,124	3,547			1,330			1,330				2,688	
S.A.P. 02-716-01														
90+91 TO 101+23	4.0"	1,769	389	1.5"	1,769	146	1.5"	1,769	146	177	6.0	1,769	295	
90+91 TO 95+67				1.5"	1,275	105	1.5"	1,275	105	128				BITUMINOUS OVERLAY
TOTAL		1,769	389		3,044	251		3,044	251	305		1,769	295	

SEWER MANHOLE COVER ADJUSTMENT (M)

STATION	LOCATION	OWNERSHIP	INPLACE ELEVATION	PROPOSED ELEVATION	ADJUST EACH	REMARKS
S.P. 0206-47						
49+20	27' RT CL	FRIDLEY	867.49	867.00	1	FIELD VERIFY PROP. EL.
51+61	18' RT LNB	FRIDLEY	866.33	867.19	1	FIELD VERIFY PROP. EL.
51+64	23' LT LSB	FRIDLEY	866.05	866.94	1	FIELD VERIFY PROP. EL.
67+09	34' RT LNB	FRIDLEY	858.84	858.63	1	
67+64	37' RT LNB	FRIDLEY	858.06	859.36	1	
TOTAL					5	
S.A.P. 02-716-01						
NONE					0	
TOTAL					0	

CONCRETE CURB AND GUTTER/BITUMINOUS CURB (N)

STATION - STATION	LOCATION	DESCRIPTION	BIT. CURB LIN. FT.	B424 LIN. FT.	B612 LIN. FT.	
S.P. 0206-47						
51+86 TO 57+75	RT.	T. H. 47		627		
51+80 TO 60+02	LT.			873		
55+23 TO 59+80	MEDIAN			914		
60+97 TO 67+83	MEDIAN			1,390		
100+20 TO 101+00	RT.	CSAH 116		80		
99+93 TO 101+00	MEDIAN	CSAH 116			136	
67+70 TO 70+50	LT.	T. H. 47	280			
TOTAL			280	3,884	136	
S.A.P. 02-716-01						
95+96 TO 98+68	MEDIAN	CSAH 116			545	
101+00 TO 101+35	RT.	CSAH 116		38		
TOTAL			0	38	545	

RETAINING WALL (O)

STATION - STATION	LOCATION	SQ. FT.	REMARKS
S.P. 0206-47			
53+95 TO 54+50	LT. (LSB)	303	T.H. 47
54+40 TO 57+10	RT. (LNB)	1,643	T.H. 47
TOTAL		1,946	
S.A.P. 02-716-01			
NONE	NONE	NONE	
TOTAL		0	

FENCE (P)

STATION - STATION	LOCATION	CHAINLINK LIN. FT.	IRON LIN. FT.	REMARKS
S.P. 0206-47				
54+40 TO 57+10	RT. T.H. 47	270		5 FT HIGH CHAIN LINK FENCE
57+10 TO 57+53	RT. T.H. 47		43	INSTALL SALVAGED IRON FENCE
TOTAL		270	43	
S.A.P. 02-716-01				
NONE	NONE	NONE	NONE	
TOTAL		0	0	

CONCRETE WALK (Q)

STATION - STATION	LOCATION	SQ. FT.	REMARKS
S.P. 0206-47			
61+05 TO 67+83	T.H. 47 MEDIAN	5,795	NORTH OF C.R. 116
61+05 TO 67+83	T.H. 47 MEDIAN	3,556	SOUTH OF C.R. 116
TOTAL		9,351	
S.A.P. 02-716-01			
93+99 TO 98+65	CSAH 116 MEDIAN	420	EAST OF C.R. 116
99+96 TO 101+00	CSAH 116 MEDIAN	1,077	EAST OF C.R. 116
TOTAL		1,497	

BITUMINOUS PATH (R)

STATION - STATION	LOCATION	SQ YD-IN	REMARKS
S.A.P. 199-010-02			
53+80 TO 57+80	RT. T.H. 47	664	
57+92 TO 59+97	RT.	316	
60+94 TO 66+55	RT.	996	
60+90 TO 66+58	LT.	1,008	
66+84 TO 71+80	RT.	876	
TOTAL		3,860	
S.A.P. 199-020-02			
99+70 TO 101+30	RT CSAH 116	268	
TOTAL		268	
S.A.P. 103-010-11			
51+90 TO 53+82	RT. T.H. 47	370	
TOTAL		370	

TURF ESTABLISHMENT (T)

STATION - STATION	LOCATION	SODDING SQ. YD.	SEEDING ACRE	SEED POUND	MULCH TON	FIBER SQ. YD.	FERTILIZER POUND
S.P. 0206-47							
48+33 - 51+30	RT.	1388					145
51+20 - 51+30	LT.	17					1.8
52+86 - 57+64	RT.	2166					225
51+81 - 59+95	LT.	1809					186.9
58+15 - 59+84	RT.	364					37.6
60+85 - 66+46	RT.	2097					216.6
66+82 - 72+43	RT.	2387					246.6
66+86 - 72+43	LT.	570					130
60+84 - 66+61	LT.	1239					80
91+25 - 93+40	LT.		0.16	5.6	0.32		480
94+44 - 98+65	RT.		0.96	33.6	1.92		
TOTAL		12,037	1.12	39.2	2.24		1,809.5
S.A.P. 02-716-01							
93+65 - 93+85	LT.	41					4.2
94+28 - 98+68	LT.	1022					105.6
96+04 - 98+34	RT.	1062					110
99+71 - 101+25	LT.	765					80
99+88 - 101+63	RT.	518					55
101+55 - 102+00	LT.	190					20
TOTAL		3,598					374.8

BALE CHECK (U)

STATION - STATION	LOCATION	EACH	REMARKS
S.P. 0206-47			
50+00	30' RT LNB	11	
51+20	34' RT LNB	11	AT INLET - A1
52+05 TO 54+10	40'-45' RT LNB	68	
57+51	43' RT LNB	11	AT INLET - D2
98+63	68' LT CL CSAH 116	11	AT INLET - G5
61+31	20' RT LNB	11	AT INLET - G6
100+23	59' LT CL CSAH 116	11	AT INLET - G7
63+34	20' LT LSB	11	AT INLET - J1
63+34	21' RT LNB	11	AT INLET - J2
66+90 TO 68+05	35' TO 25' LT LSB	40	
69+00	28' RT LNB	11	
70+25 TO 71+60	18' LT LSB	45	
71+30	28.6' RT LNB	11	AT INLET - K2
71+60	35' RT LNB	11	AT INLET - K2
TOTAL		274	
S.A.P. 02-716-01			
90+95	45' LT CL	11	
93+00	45' LT CL	11	
94+56	47.5' LT CL	11	AT INLET - N1
96+50	70' RT CL	11	
97+50	95' RT CL	12	AT POND BOTTOM
99+90	145' RT CL	12	AT POND BOTTOM
101+70	60' LT CL	6	AT INLET - F1
TOTAL		74	

RELOCATE HYDRANT (W)

INPLACE STATION	INPLACE LOCATION	DESCRIPTION	RELOCATE TO STATION	RELOCATE TO LOCATION	EACH
S.P. 0206-47					
57+41	11' LT LSB		57+41	13' LT LSB	1
TOTAL					1
S.A.P. 02-716-01					
NONE					0
TOTAL					0

GATE VALVE COVER ADJUSTMENT (X)

STATION - STATION	LOCATION	EACH	REMARKS
S.P. 0206-47			
51+67	48' RT LNB	1	
66+20	35' LT LSB	1	
TOTAL		2	
S.A.P. 02-716-01			
NONE		0	
TOTAL		0	

TABULATION CHARTS

BITUMINOUS PAVEMENT
SEWER MANHOLE COVER ADJUSTMENT
RETAINING WALL
FENCE
CONCRETE PAVEMENT
BITUMINOUS PATH
TURF ESTABLISHMENT
BALE CHECK
RELOCATE FIRE HYDRANT
GATE VALVE COVER ADJUSTMENT
CONCRETE CURB AND GUTTER/BIT CURB

REVISIONS

DATE	BY	DATE	BY
7-29-96	KTY		
8-28-96	KTY		

FILE NAME: C:\P\9603116\PLANS\471165C4.DWG JAN(7-16-96)

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S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Fed. Project No. ______

DRAINAGE TABULATION (Y)

STRUCT NO.	STATION	LOCATION	REMARKS	MH/CB	DESIGN	PAY HT. LIN.FT	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DRAINS TO	GRADE IN %	INLET ELEV.	INSTALL CAST.	F & I CAST. ASSY.	FURNISH & INSTALL							CONNECT		GROUTED RIPRAP CU.YD.	CLASS OF PIPE	STR NO.
														12" RCP.	15" RCP.	18" RCP.	24" RCP.	27" RCP.	15" CSP	RCP APRON	TO EXIST CB	TO EXIST PIPE			
S. P. 0206-47																									
A1	51+20	34' RT LNB		CB	C, G, H	2.5	864.25	861.16	A2	0.50	860.86	M-11				60								CL III	A1
A2	51+79	43' RT LNB	(4) CONC. COVER	CB	48-4020	3.8	865.30	860.86	A3	0.48	860.58	B-17				52									A2
B1	52+24	12.9' LT LSB		CB	C, G, H	3.4	866.81	862.75	A3	1.50	861.91	B-9		56											B1
A3	52+25	19.0' RT LNB	(4) CONC. COVER	CB	48-4020	5.7	866.92	860.58	A12	0.48	859.64	MH-1				195									A3
A4	54+20	12.9' RT LNB		CB	A, F	6.2	866.48	859.84	A12	3.33	859.64	B-9				6									A4
A5	55+82	12.9' RT LNB	(4) CONC. COVER	CB	48-4020	5.0	864.43	859.00	A13	3.33	858.80	B-9				6									A5
A6	57+47	12.9' RT LNB	(4) CONC. COVER	CB	48-4020	4.9	862.99	859.21	A14	3.33	859.00	B-9				6									A6
C1	57+34	8.9' LT LSB		CB	C, G	3.9	864.48	859.92	C2	1.00	859.68	B-9		24											C1
C2	57+41	14.9' RT LSB		CB	C, G	3.9	864.20	859.68	C3	1.00	859.59	B-9		9											C2
C3	57+37	24.2' LT LNB		CB	C, G	3.3	863.50	859.59	A6	1.00	859.21	B-9		38											C3
D1	57+52	56' RT LNB	EXIST. CB	CB	—	—	861.69	859.33	D2	6.30	858.61	—			13						1				D1
D2	57+51	43' RT LNB		CB	C, G	2.7	862.00	858.61	A14	1.00	858.46	M-11			30										D2
A7	59+43	12.9' RT LNB	(4) CONC. COVER	CB	60-4020	4.6	861.24	855.93	A8	0.60	855.65	B-9					45								A7
A8	59+73	24.9' LT LNB	(4) CONC. COVER	CB	48-4020	5.0	861.29	855.65	A9	0.60	855.53	B-9					8								A8
A9	59+72	14.9' RT LSB	(4) CONC. COVER	CB	48-4020	5.6	861.26	855.00	A10	0.60	854.73	B-9					44								A9
A10	59+35	8.9' LT LSB	(3) TYPE B CONE	CB	A, F	6.0	861.45	854.73	A11	0.60	854.39	B-9					40								A10
A11	59+05	58' LT LSB	(2) RIP RAP & APRON	APRON	—	—	—	855.67	POND											1					A11
A12	54+20	19' RT LNB	(3) TYPE B CONE	MH	A, F	6.8	867.08	859.64	A13	0.52	858.80	MH-1				161									A12
A13	55+82	19' RT LNB	(4) CONC. COVER	MH	48-4020	5.6	865.03	858.80	A14	0.52	857.93	MH-1				167									A13
A14	57+49	19' RT LNB	(4) CONC. COVER	MH	48-4020	5.5	863.59	857.43	A7	0.43	856.60	MH-1					194								A14
G1	98+26	80' RT C/L	(2) RIP RAP & APRON	APRON	—	—	—	856.17	G2	3.68	854.37	—					42			1					G1
G2	98+53	41' RT C/L	(4) CONC. COVER	CB	48-4020	5.4	860.43	854.37	G3	2.00	853.25	B-9					56								G2
G3	98+58	8.9' LT C/L	(3) TYPE B CONE	CB	A, F	6.3	860.18	853.25	G4	2.00	853.13	B-9					6								G3
G4	98+59	15.1' LT C/L	(3) TYPE B CONE	CB	A, F	6.4	860.13	853.13	G5	2.00	851.85	B-9					64								G4
G5	61+19	47' LT LSB	(4) CONC. COVER	CB	54-4020	5.7	858.25	851.85	G6	2.00	849.53	M-11					116								G5
G6	61+25	20' RT LNB	(3) TYPE B CONE	CB	A, F	8.4	858.50	849.43	G7	0.50	848.65	MH-1						78							G6
G7	100+57	84' LT C/L	(3) TYPE B CONE	CB	A, F	9.2	858.50	848.65	F1	0.50	847.50	M-11						115							G7
F1	101+70	60' LT C/L	(1) EXIST MH	MH	—	—	859.61	846.97	OXBOW	—	—	—									1				F1
J1	63+34	20' LT LSB		CB	C, G, H	3.1	855.60	851.86	J2	0.50	851.64	M-11			45										J1
J2	63+34	24.9' RT LSB	(4) CONC. COVER	CB	48-4020	4.6	856.85	851.64	J3	0.50	851.60	B-17			8										J2
J3	63+34	14.9' LT LNB	(4) CONC. COVER	CB	48-4020	4.9	857.13	851.60	J4	0.50	851.42	B-17			35										J3
J4	63+34	21' RT LNB	(4) CONC. COVER	CB	48-4020	3.5	855.60	851.42	J5	0.60	850.62	M-11				134									J4
J5	62+00	20' RT LNB	(3) TYPE B CONE	CB	A, F	6.0	857.32	850.62	G6	0.60	850.21	M-11				76									J5
M1	62+00	49' RT LSB	(1) EXIST CB	CB	—	—	858.08	856.26	J5	7.53	853.00	—			30						1				M1
K1	71+30	28.6' RT LNB		APRON	—	—	—	855.00	K2	1.45	854.56	—				24				1					K1
K2	71+60	35' RT LNB	CONNECT TO EXIST PIPE	CB	C, G	2.1	857.30	854.56	EXIST PIPE	—	—	M-11										1			K2
H1	66+28	62.6' RT LNB	(1) EXIST CB	CB	—		858.20	856.40	H2	10.00	853.20	—			32						1				H1
H2	66+20.8	22.2' RT LNB		CB	C, G	3.4	857.23	853.20	J4	0.53	851.67	M-11			287										H2
TOTAL												31		127	480	887	615	193		3	4	1			
SAP 02-617-01																									
N1	94+56	47.5' LT C/L		APRON	—	—	—	858.00	N2	0.92	857.29	—							77	1					N1
N2	93+75	45.4' LT C/L	(1) EXIST CB	CB	—	—	862.29	857.29	EXIST PIPE	—	—	—									1				N2
E1	100+00	3.1' LT C/L		CB	C, G	2.4	860.32	857.24	E2	1.00	857.18	B-9		6										CL III	E1
E2	100+00	3.1' RT C/L		CB	C, G	2.4	860.29	857.18	E3	0.50	856.98	B-9		42										CL III	E2
E3	100+24	38.9' RT C/L		CB	C, G	2.4	860.70	856.98	A7	0.50	856.60	B-17		77										CL III	E3
TOTAL												3		125					77	1	1				

NOTE: ALL CATCH BASIN DESIGN F SHALL BE TYPE B CONE AND SHALL HAVE STEPS PER STD PLATES NO. 4180H. SEE NOTE (3) BELOW FOR ADDITIONAL OR OTHER CONDITIONAL REQUIREMENTS.

NOTES:

(1) CONNECT STORM SEWER PIPE INTO EXISTING CATCH BASIN STRUCTURE.

(2) PROVIDE GROUTED RIP RAP MINIMUM 2' WIDE AROUND PIPE DIAMETER AND SLOPE DOWN TO THE BOTTOM OF THE SEDIMENTATION POND. PROVIDE SAFETY APRON PER STD PLATES NO 3128F.

(3) CATCH BASIN STRUCTURE DESIGN TYPE F MAY BE CONSTRUCTED WITH TYPE C CONCRETE SHORT CONE AND ADJUSTING RING PER STD. PLATE NO. 4010G AS REQUIRED.

(4) CATCH BASIN STRUCTURE DESIGN TYPE 48-4020, 54-4020, OR 60-4020 SHALL HAVE MANHOLE OR CATCH BASIN COVER PER STD. PLATE NO. 4020G.

GROUTED RIP RAP (V)

STATION TO STATION	LOCATION	CU YD	REMARK
S. P. 0206-47			
59+05	58' LT LSB	7	AT OUTLET - A11
96+60 TO 96+95	80' TO 95' RT CL	10	AT POND SLOPE
98+26	80' RT CL	7	AT INLET - G1
TOTAL		24	
S. A. P. 02-716-01			
NONE			
TOTAL		0	

CASTING SCHEDULE (Z)

ASS'LY TYPE	NO. REQ'D	FRAME CASTING	GRATE CASTING	CURB BOX
SP 0206-47				
B-9	14	805 (STD PL 4132F)	816 (STD PL 4154B)	—
B-17	3	806 (STD PL 4125D)	816 (STD PL 4154B)	825 (STD PL 4134A)
M-11	9	ROUND CONC. (STD PL 4143E)	731 (STD PL 4143E)	—
MH-1	5	700-8 (STD PL 4101C)	715 (STD PL 4110E)	—
TOTAL	31			
SAP 02-716-01				
B-9	2	805 (STD PL 4132F)	816 (STD PL 4154B)	—
B-17	1	806 (STD PL 4125D)	816 (STD PL 4154B)	825 (STD PL 4134A)
TOTAL	3			

DRAINAGE TABULATION CHART

DRAINAGE TABULATION
GROUTED RIP RAP
CASTING SCHEDULE

S:\SDSKPROJ\9023116\PLANS\4716C5 9-18-96 8:43:40 am EST

REVISIONS		
DATE	BY	
7-29-96	KTY	
8-28-96	KTY	

CERTIFIED BY [signature] P.E. REG NO. 20235 10/2 1996 S.P. 0206-47 S.A.P. 02-716-01 C.P. ______

Fed. Project No. _____

EARTHWORK SUMMARY (AA)

EXCAVATION (EV)

S. P. 0206-47

COMMON EXCAVATION ..... 18,744 CU YD

- REGULAR ..... 4,228 CU. YD. (1)
- SUBCUT ..... 5,722 CU. YD.
- TOPSOIL ..... 3,367 CU. YD.
- SEDIMENTATION POND EXCAVATION..... 4,940 CU. YD.
- SEDIMENTATION POND TOPSOIL REMOVAL..... 487 CU. YD.

S.A.P. 02-716-01

COMMON EXCAVATION ..... 1,396 CU YD

- REGULAR ..... 94 CU. YD. (1)
- SUBCUT ..... 645 CU. YD.
- TOPSOIL ..... 657 CU. YD.

NOTE:

(1) EXCAVATION QUANTITIES ARE BASED ON ALL EXIST BITUMINOUS OR CONCRETE AND BASE MATERIAL (TOTAL BIT. OR CONCRETE & BASE THICKNESS OF 1.0 FT) HAVE BEEN REMOVED DURING REMOVAL OF THE EXISTING ROAD SURFACE. AND THEY ARE NOT INCLUDED IN THE EXCAVATION QUANTITIES.

EMBANKMENT (CV)

S. P. 0206-47

GRANULAR ..... 3,350 CU. YD.

TOPSOIL ..... 2,470 CU. YD.

S.A.P. 02-716-01

GRANULAR ..... 289 CU. YD.

TOPSOIL ..... 1,308 CU. YD.

SOIL FACTORS:

1.) REGULAR GRADING AND TOPSOIL DRESSING (EV TO CV): 85% SHRINKAGE

2.) SUBCUT COMPACTION (EV TO CV): 90% SHRINKAGE

BALANCE

S. P. 0206-47

TOPSOIL

TOPSOIL DRESSING (CV) - [TOPSOIL STRIPING (EV) x SHRINKAGE FACTOR] - [SED. POND TOPSOIL STRIPING x SHRINKAGE FACTOR] = EXCESS(-) OR SHORTAGE(+)

2,470 - (3,367 x 0.85) - (487 x 0.85) = -806 CU YD (EXCESS)

GRANULAR

GRANULAR (CV) + SUBCUT - [REGULAR EXCAVATION(EV) x SHRINKAGE FACTOR] - [SUBCUT EXCAVATION x SHRINKAGE FACTOR] - [SED. POND EXCAVATION x SHRINKAGE FACTOR] = EXCESS (-) OR SHORTAGE (+)

3,350 + 5,722 - (4,228 x 0.85) - (5,722 x 0.90) - (4,940 x 0.85) = -3,871 CU YD (EXCESS)

S.A.P. 02-716-01

TOPSOIL

TOPSOIL DRESSING (CV) - [TOPSOIL STRIPING (EV) x SHRINKAGE FACTOR] = EXCESS(-) OR SHORTAGE(+)

1,308 - (657 x 0.85) = 750 CU YD (SHORTAGE) (1)

GRANULAR

GRANULAR (CV) + SUBCUT - [REGULAR EXCAVATION(EV) x SHRINKAGE FACTOR] - [SUBCUT EXCAVATION x SHRINKAGE FACTOR] = EXCESS (-) OR SHORTAGE (+)

289 + 645 - (94 x 0.85) - (645 x 0.90) = 274 CU YD (SHORTAGE) (1)

NOTE:

(1) GRANULAR MATERIAL AND TOP SOIL REQUIRED FOR C.S.H.A. 116 SHALL BE PROVIDED FROM EXCESS GRANULAR AND TOP SOIL FROM T. H. 47 EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE.

SOILS AND CONSTRUCTION NOTES

1. TOP OF PROFILE GRADE IS DEFINED AS THE TOP OF THE BITUMINOUS WEARING COURSE.
2. IN FILL AREAS, THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECTED GRADING MATERIAL.
3. SELECTED GRADING MATERIALS SHALL CONSIST OF SELECT GRANULAR MATERIALS.
4. GRANULAR MATERIAL, REGARDLESS OF SOURCE, SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2A.
5. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC 3149.2B.
6. COMPACTION OF THE GRADING PORTION OF THIS PROJECT SHALL BE BY THE "QUALITY COMPACTION METHOD" WITH THE EXCEPTION OF CULVERT AND STORM SEWER TRENCHES WHICH SHALL BE COMPACTED BY THE "SPECIFIED DENSITY METHOD".
7. TEST ROLLING WILL NOT BE REQUIRED.
8. BITUMINOUS AND/OR CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 WITH NO DIRECT COMPENSATION MADE THEREFORE.
9. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPEC. 2105.3D WITH NO DIRECT COMPENSATION MADE THEREFORE.
10. WHERE MATCHING INTO THE INPLACE ROADWAY AT THE ENDS OF CONSTRUCTION, CUT VERTICALLY TO THE TOP OF THE GRADING SUBGRADE AND THEN AT A 20:1 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
11. WHERE CONNECTING NEW SURFACING TO AN INPLACE PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING THE INPLACE PAVEMENT.
12. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES PRIOR TO PLACING BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING CONCRETE OR BITUMINOUS SURFACES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS PER SQUARE YARD BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY); ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
13. COMPACTION OF THE BITUMINOUS BASE, BINDER, AND WEAR SHALL BE BY THE "MODIFIED SPECIFIED DENSITY METHOD".
14. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE BY THE "SPECIFIED DENSITY METHOD".
15. IN AREAS TO BE DISTURBED BY CONSTRUCTION, STRIP AND RE-USE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING. REFER TO THE CROSS-SECTIONS FOR THE LIMITS OF TOPSOIL STRIPPING. GENERAL DEPTHS OF TOPSOIL LAYER ARE ASSUMED TO BE 4 INCHES.
16. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
17. PLACE A MINIMUM OF 6 INCHES TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. FERTILIZE WITH COMMERCIAL FERTILIZER, ANALYSIS 10-10-10, AT A RATE OF 450 POUNDS PER ACRE, OR EQUIVALENT.
18. ON ALL DISTURBED AREAS, USE MIXTURE 700 SEED WITH TYPE 1 MULCH, AND DISK ANCHORING, UNLESS SPECIFIED FOR SOD.
19. SOD ALL PERMANENT BOULEVARD AREAS, AND DISTURBED LAWNS.
20. ALL SOD UTILIZED WITHIN THE PROJECT LIMITS SHALL MEET THE REQUIREMENTS OF SPEC. 3878.2A (LAWN AND BOULEVARD SOD).
21. EXCESS TOPSOIL AND MUCK EXC. MAY BE USED IN EMBANKMENT CONSTRUCTION IN AREAS OUTSIDE OF A 1 1/2:1 SLOPE FROM THE GRADING SHOULDER P.I.
22. EXISTING STABILIZED SUBGRADE MUST BE PULVERIZED PRIOR TO USE AS EMBANKMENT MATERIAL.
23. GEOTEXTILE FABRIC SHALL BE UTILIZED, WHEN DIRECTED BY THE ENGINEER, IN AREAS WHERE THE SUBCUT AND SUBGRADE EXCAVATION OPERATIONS ENCOUNTER UNSUITABLE UNDERLYING SUBSOILS. THE FABRIC SHALL BE PLACED AND MEET THE REQUIREMENTS AS PROVIDED IN THE SPECIAL PROVISIONS.
24. EXCESS MUCK EXCAVATION TO BE DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE RIGHT-OF-WAY LIMITS AS APPROVED BY THE ENGINEER.
25. BITUMINOUS REMOVAL QUANTITY BASED ON 7" BITUMINOUS SURFACING AND STABILIZED BASE AND 6" AGGREGATE BASE. CONTRACTOR SHALL INVESTIGATE AND MAKE THIER OWN DETERMINATION OF ACTUAL PAVEMENT DEPTH.

EARTHWORK SUMMARY AND CONSTRUCTION NOTES

REVISIONS

DATE	BY
3-29-96	KCV

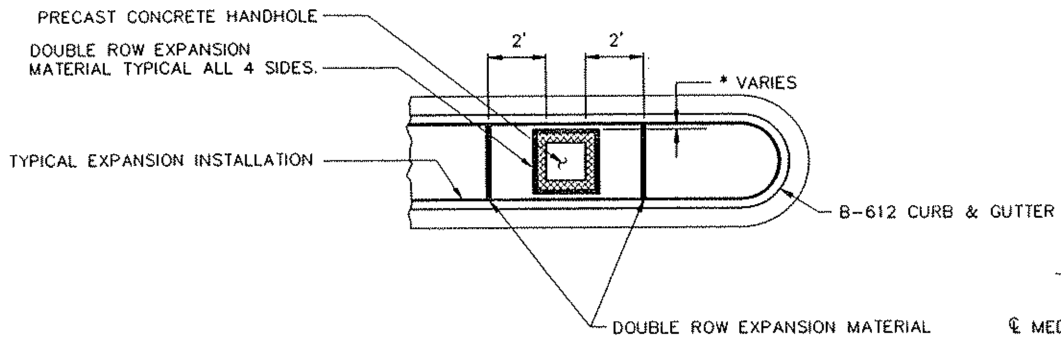
FILE NAME: C:\P\9023116\PLANS\A711667.DWG MN(5-16-96)

CERTIFIED BY Douglas M. Fynboh P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

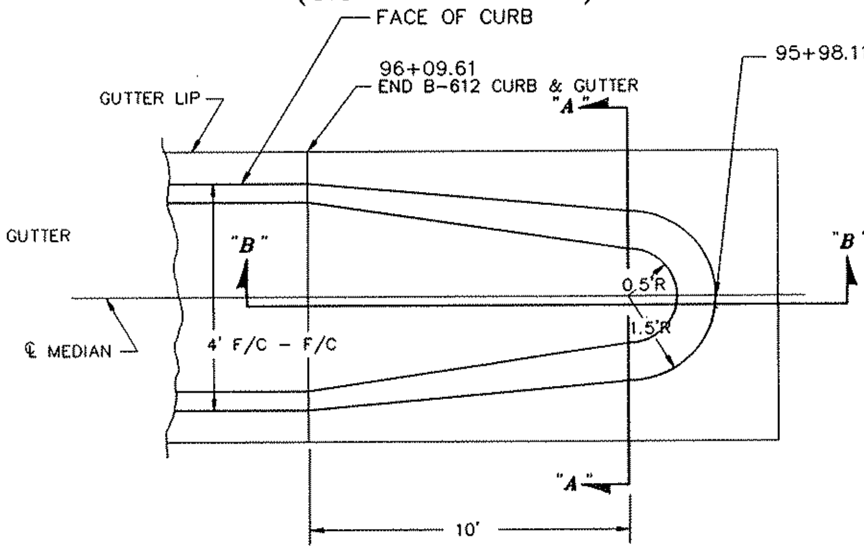
Sheet No. 6 of 56 Sheets

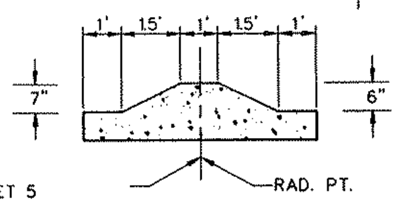
EXPANSION MATERIAL PLACEMENT FOR PRECAST HANDHOLES



NOTE: * DIMENSION VARIES DEPENDING ON ISLAND WIDTH OR PLACEMENT OF HANDHOLE OTHER THAN IN AN ISLAND.

SPECIAL CONCRETE MEDIAN NOSE DETAIL (C.S.A.H. 116 ONLY)





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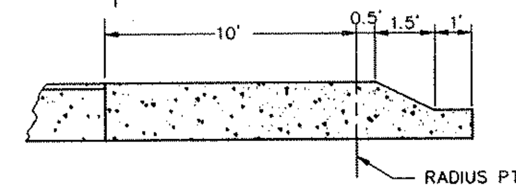
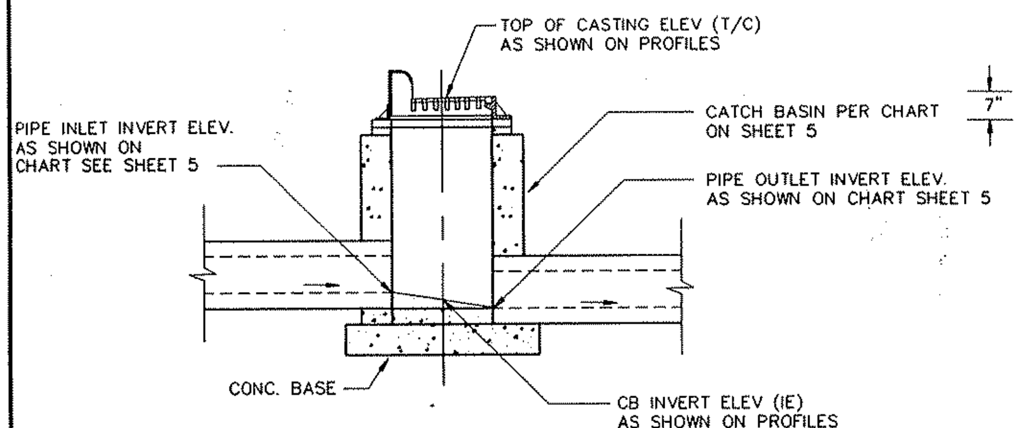
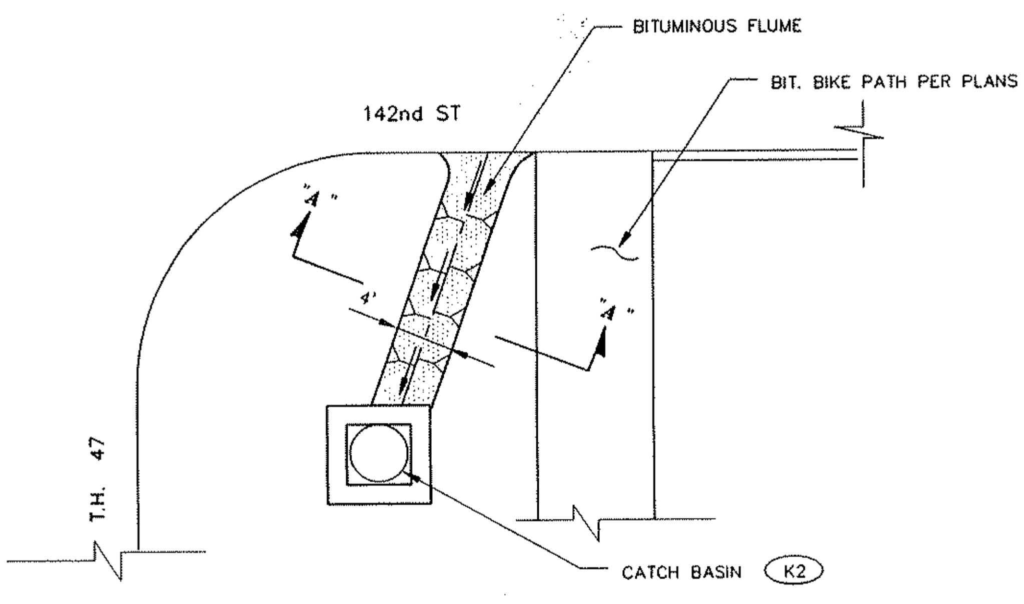


SECTION "B"-"B"

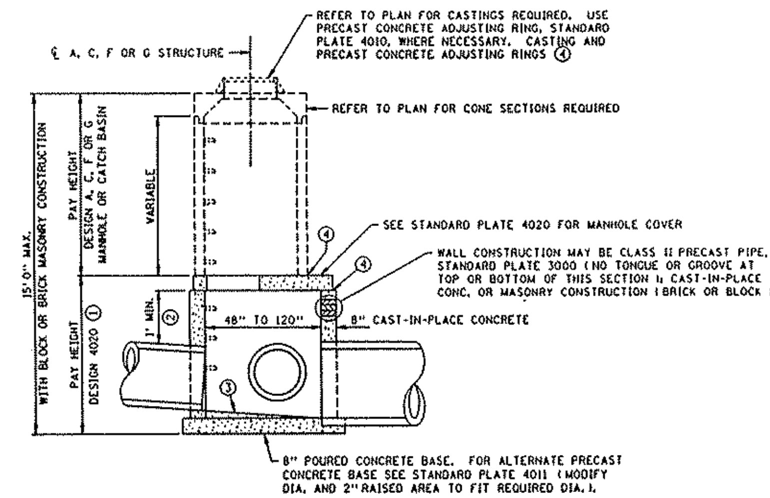
CONCRETE MEDIAN NOSE (BB)			
STA	LOCATION	EACH	REMARK
S.P. 0206-47			
55+26.28	LSB	1	CONC. MED NOSE DES. 7109C
67+83.41	LSB	1	CONC. MED NOSE DES. 7109C
TOTAL		2	
S.A.P. 02-716-01			
95+99.61	C/L	1	SPECIAL CONC. MED NOSE
98+65.61	C/L	1	CONC. MED NOSE DES. 7113A
99+96.71	C/L	1	CONC. MED NOSE DES. 7113A
TOTAL		3	

TYPICAL CATCH BASIN

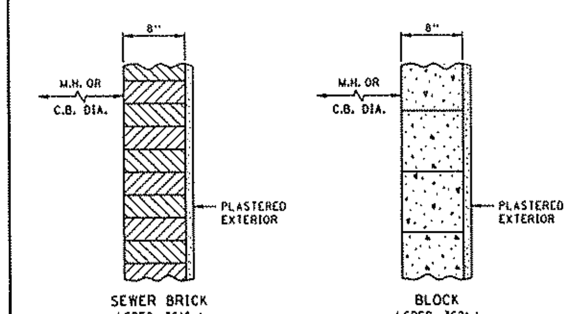




BITUMINOUS FLUME DETAIL



VIEW OF INSTALLATION



MASONRY CONSTRUCTION

INSTALLATION NOTES:
SEE SPEC. 2506 FOR CONSTRUCTION NOTES.

GENERAL DIMENSIONS FOR CONCRETE CONSTRUCTION APPLY TO BRICK AND CONCRETE MASONRY UNIT CONSTRUCTION ALSO, EXCEPT AS NOTED.

① REFER TO PLANS FOR HEIGHT, DIAMETER AND STEP REQUIREMENTS.

② 1 FT. MINIMUM FOR PRECAST. 3 BRICKS OR 1 BLOCK MINIMUM FOR MASONRY CONSTRUCTION.

③ PROVIDE MORTAR FILLETS TO FIT BOTTOM PORTIONS OF PIPE TO DIRECT FLOW TO OUTLET.

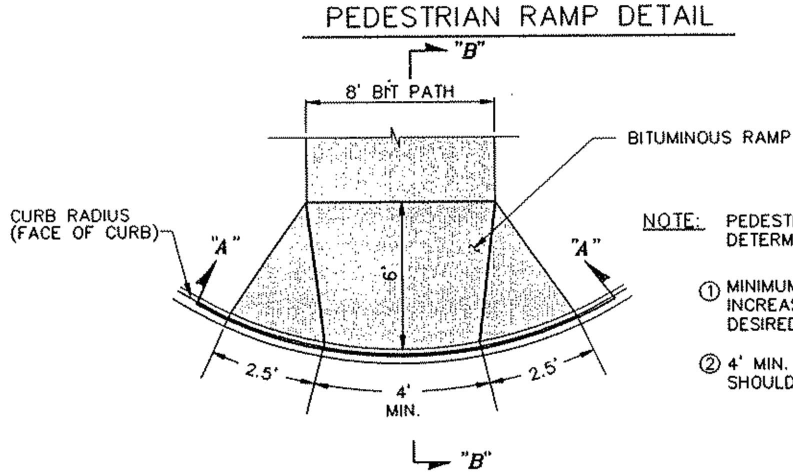
④ PROVIDE A FULL MORTAR BED.

DESIGNER NOTE:
WHEN STRUCTURE IS USED AS A CATCH BASIN, GIVE X, Y COORDINATES OF BOTH THE CENTERLINE FOR A, C, F OR G STRUCTURE AND THE CENTERLINE FOR THE 4020 STRUCTURE.

DESIGNATION:
DESIGN DIA.-STANDARD PLATE
EXAMPLE: DESIGN 66-4020

MANHOLE OR CATCH BASIN STRUCTURE FOR USE UNDER ALL TRAFFIC CONDITIONS
INSTALLATION DETAILS

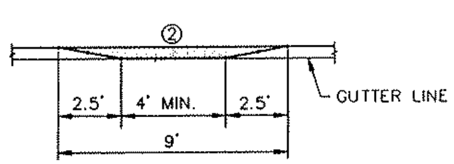
PEDESTRIAN RAMP DETAIL



NOTE: PEDESTRIAN RAMP LOCATION TO BE DETERMIND BY ENGINEER.

① MINIMUM DIMENSION – MAY INCREASE TO ACHIEVE DESIRED SLOPE.

② 4' MIN. VALLEY FROM GUTTER LINE SHOULD HAVE A SMOOTH TRANSITION



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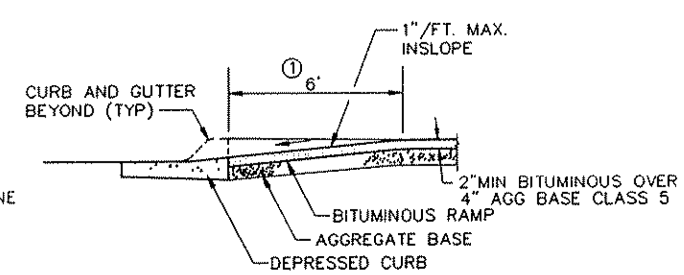

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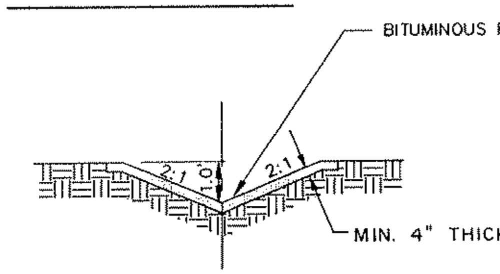


SECTION "A"-"A"

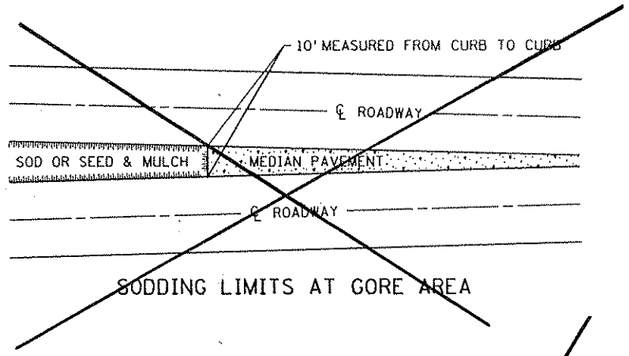
CONSTRUCTION DETAILS

REVISIONS			
DATE	BY	DATE	BY
7.29.96	KZY		

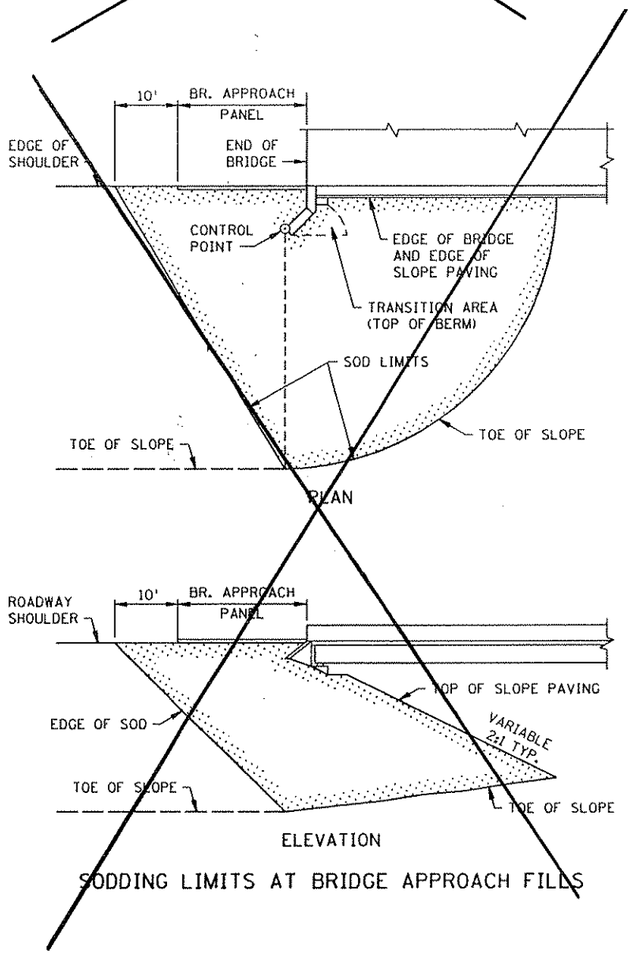
C:\P\9023116\PLANS\4711GC6 7-17-96 10:24:21 am EST

CERTIFIED BY ____ P.E. REG NO. ____ ____ 19 __

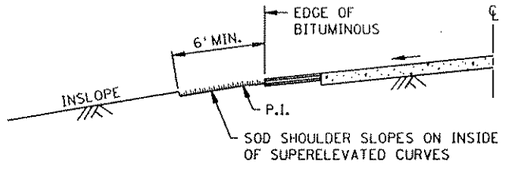
S.P. 0206-47 S.A.P. 02-716-01 C.P. ____



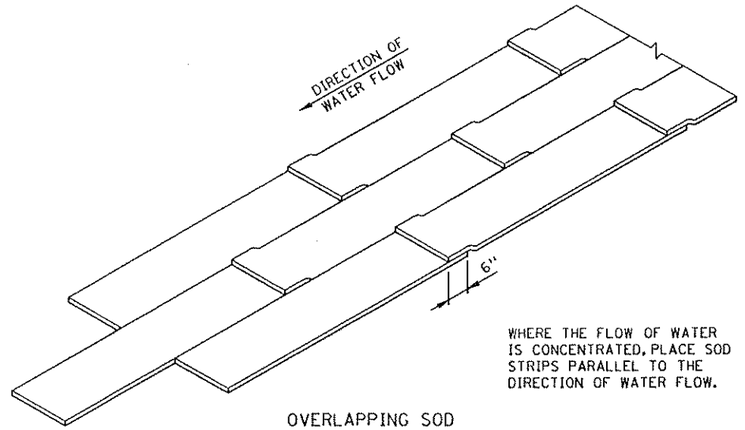
SODDING LIMITS AT GORE AREA



SODDING LIMITS AT BRIDGE APPROACH FILLS

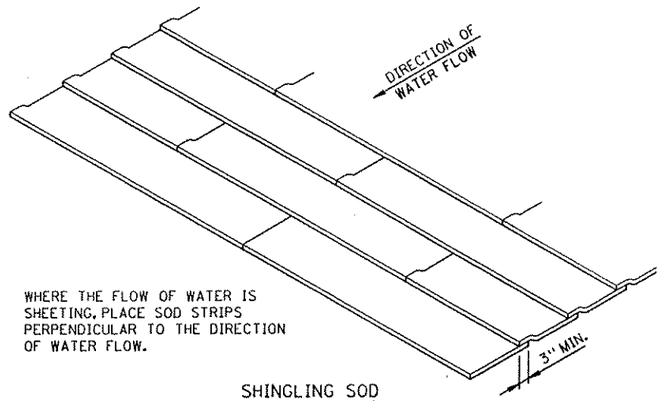


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

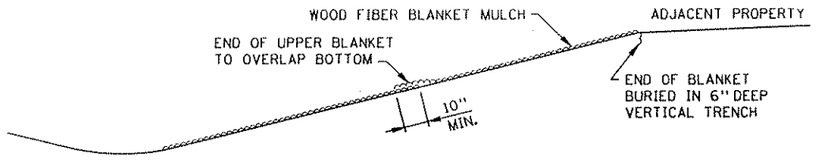
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



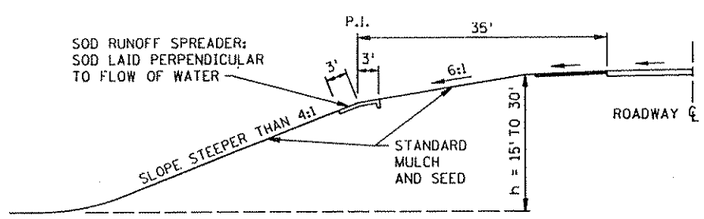
SHINGLING SOD

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

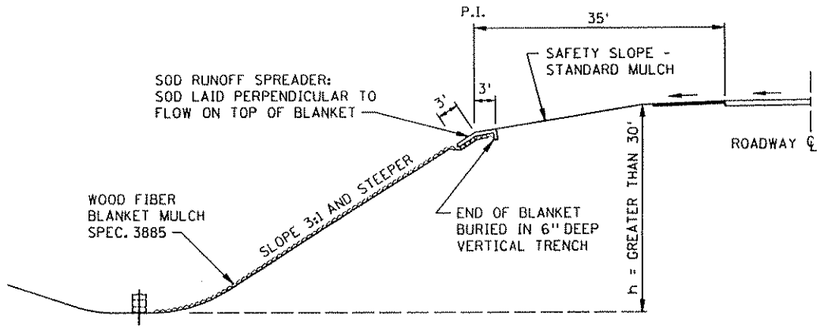
SPECIAL SOD PLACEMENT TECHNIQUES



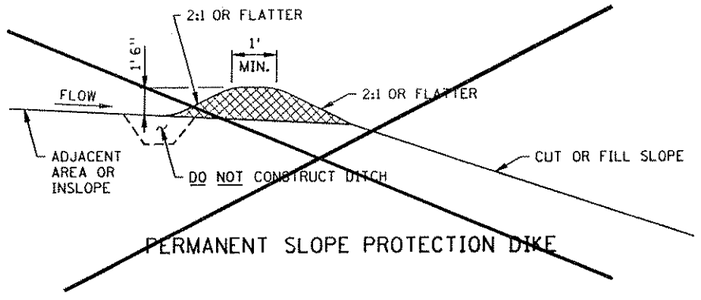
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



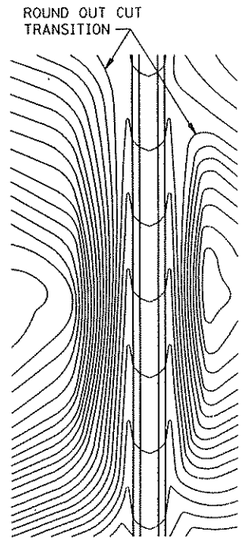
PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	

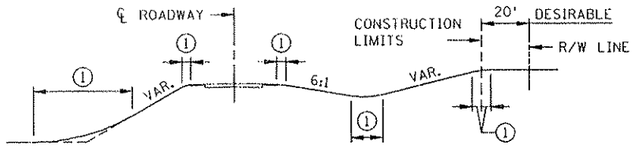
CERTIFIED BY Douglas M. Bush P.E. REG. NO. 20235 4/18 19 96

STATE PROJ. NO. 0206-47 S.A.P. 02-716-01 SHEET NO. 8 OF 56 SHEETS

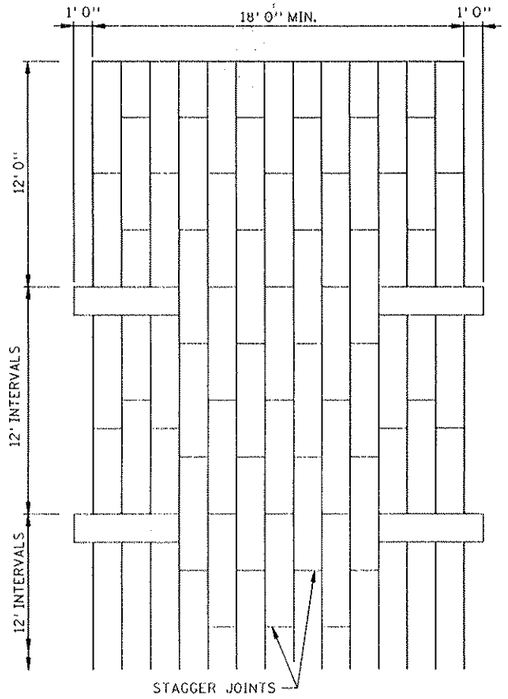
VAX780 QSA3:[45,100] FILE NAME S406A85.SPN



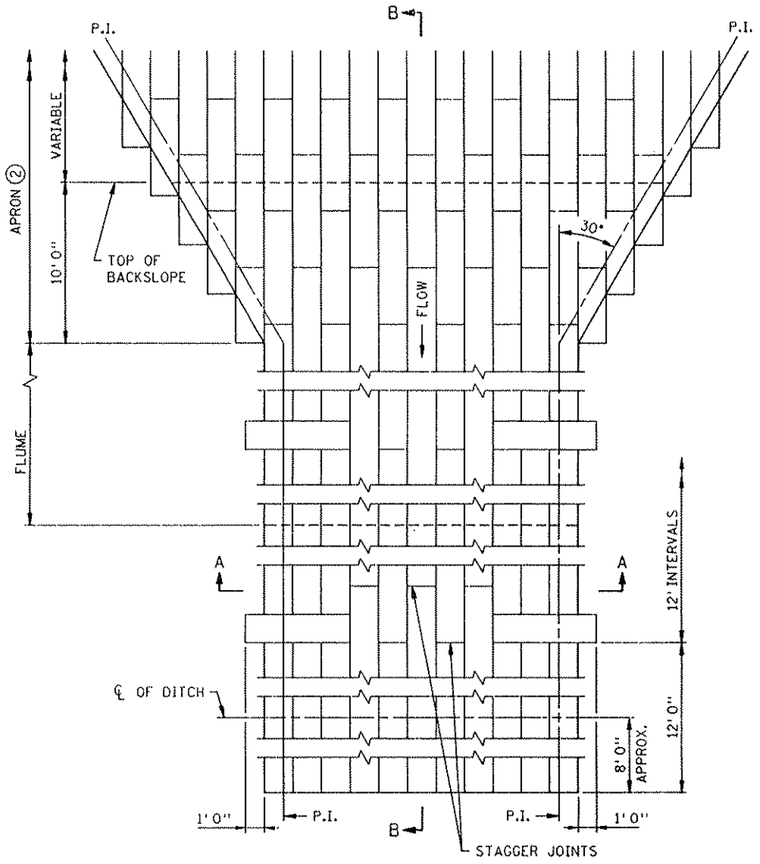
CONTOURING ROAD CUTS



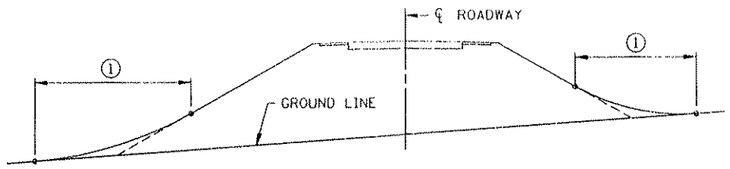
ROUNDING SHOULDERS AND BACKSLOPES



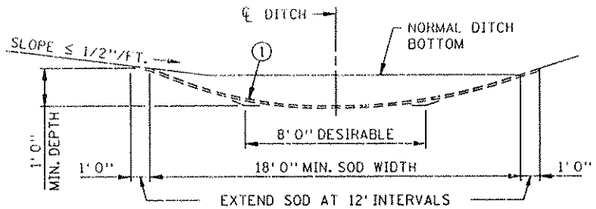
PLAN VIEW



PLAN VIEW

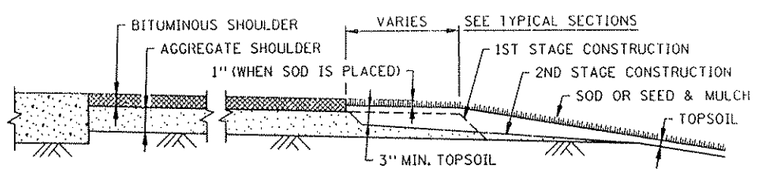


SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

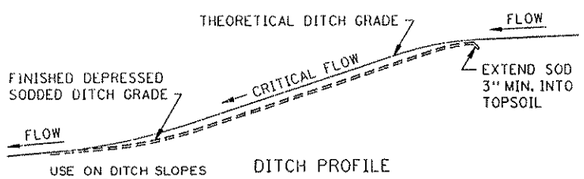


SODDED DITCH CROSS SECTION

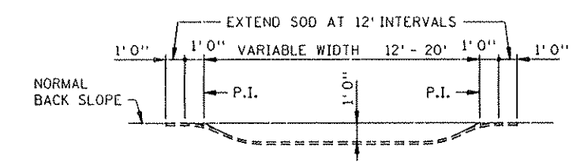
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THAN PROVIDE ROUNDING.



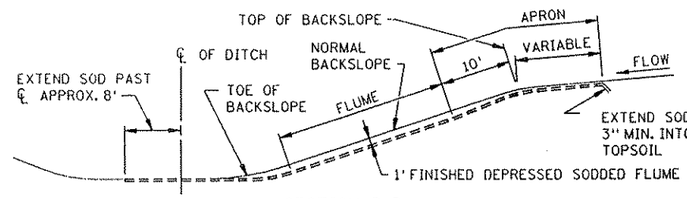
SHAPING AND TOPSOILING INSLOPES



SODDED DITCH DETAILS

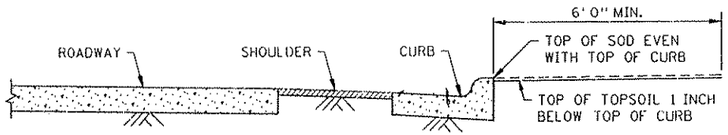


SECTION A-A



SECTION B-B

SODDED FLUME DETAILS



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① FOR ROUNDING, SEE ROAD DESIGN MANUAL.

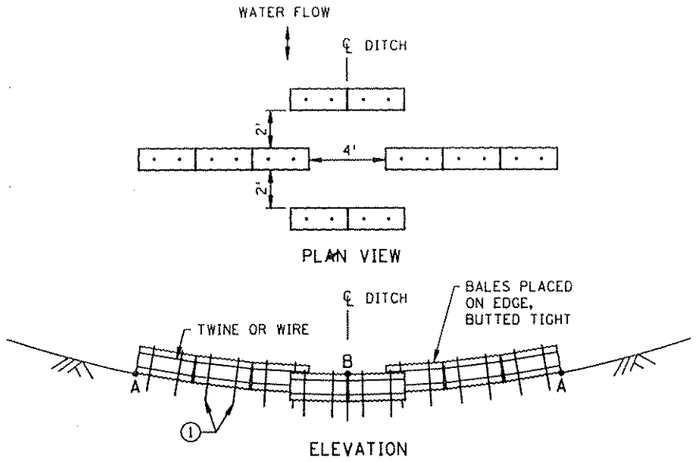
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: DECEMBER 19, 1990	

CERTIFIED BY Douglas M. Smith P.E. REG. NO. 20235 7/18 19 96

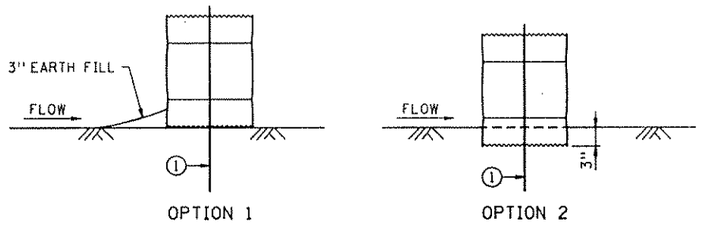
S.P. 0206-47 S.A.P. 02-716-01 C.P. SHEET NO. 9 OF 56 SHEETS

/AX780 QSA3:[45,100] FILE NAME S404L90.SPN

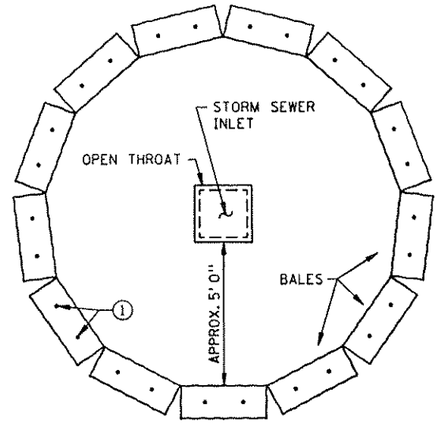


NOTE:
POINT A MUST BE HIGHER THAN POINT B

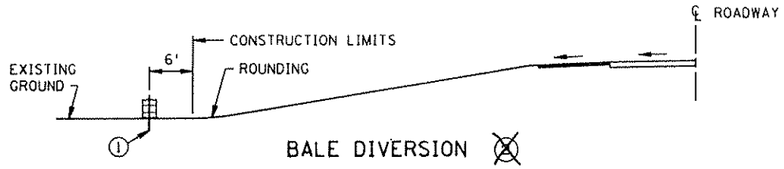
BALE DITCH VELOCITY CHECKS
(WILL REQUIRE A MINUMUM OF 10 BALES PER SITE)



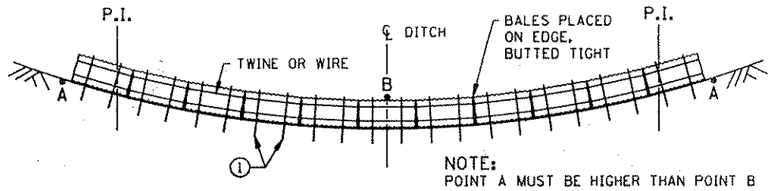
BALE CHECK DETAILS



BALE CHECK
TO PROTECT STORM SEWER INLETS



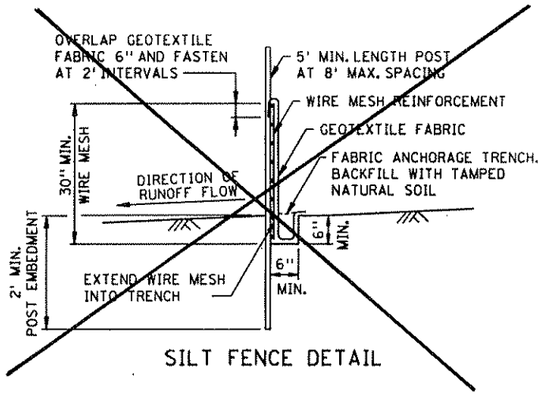
BALE DIVERSION ⊗



NOTE:
POINT A MUST BE HIGHER THAN POINT B

BALE DITCH SEDIMENT CHECK

RECOMMENDED SPACING BETWEEN BALE DITCH CHECKS	
DITCH GRADE (%)	SPACING (FT.)
2	100
4	75
6	50
8	40
10	25



SILT FENCE DETAIL

NOTE:
① TWO 2" X 2" WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10" MINIMUM.

~~② SILT FENCE MAY ALSO BE USED AS A DEVERSION DEVICE.~~

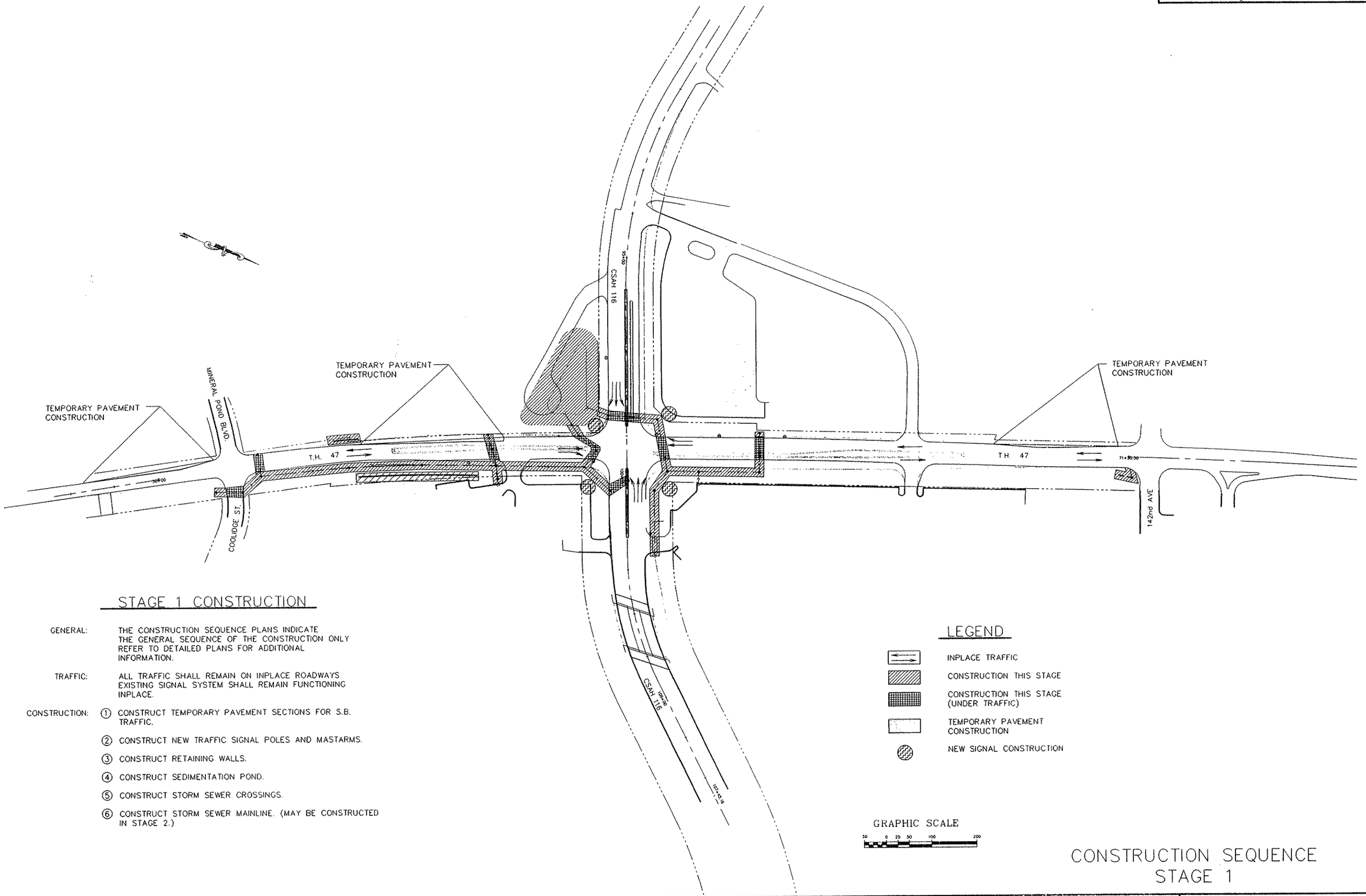
SERVER CA64S1:/USR/STANDARDS FILE NAME S4052H93.SPN

CERTIFIED BY Douglas W. Church P.E. REG NO. 20235 7/18 19 96

STANDARD SHEET NO.	TITLE:
5-297.405 (MODIFIED)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: AUGUST 2, 1993	

S.P. 0206-47 S.A.P. 02-716-01 C.P. SHEET NO. 10 OF 56 SHEETS

Fed. Project No. _____



STAGE 1 CONSTRUCTION

GENERAL: THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.

TRAFFIC: ALL TRAFFIC SHALL REMAIN ON INPLACE ROADWAYS EXISTING SIGNAL SYSTEM SHALL REMAIN FUNCTIONING INPLACE.

CONSTRUCTION:

1. CONSTRUCT TEMPORARY PAVEMENT SECTIONS FOR S.B. TRAFFIC.
2. CONSTRUCT NEW TRAFFIC SIGNAL POLES AND MASTARMS.
3. CONSTRUCT RETAINING WALLS.
4. CONSTRUCT SEDIMENTATION POND.
5. CONSTRUCT STORM SEWER CROSSINGS.
6. CONSTRUCT STORM SEWER MAINLINE. (MAY BE CONSTRUCTED IN STAGE 2.)

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- TEMPORARY PAVEMENT CONSTRUCTION
- NEW SIGNAL CONSTRUCTION

GRAPHIC SCALE

50 0 25 50 100 200

CONSTRUCTION SEQUENCE STAGE 1

T:\RANDY\47@116\STAGE1.DWG 5/16/96

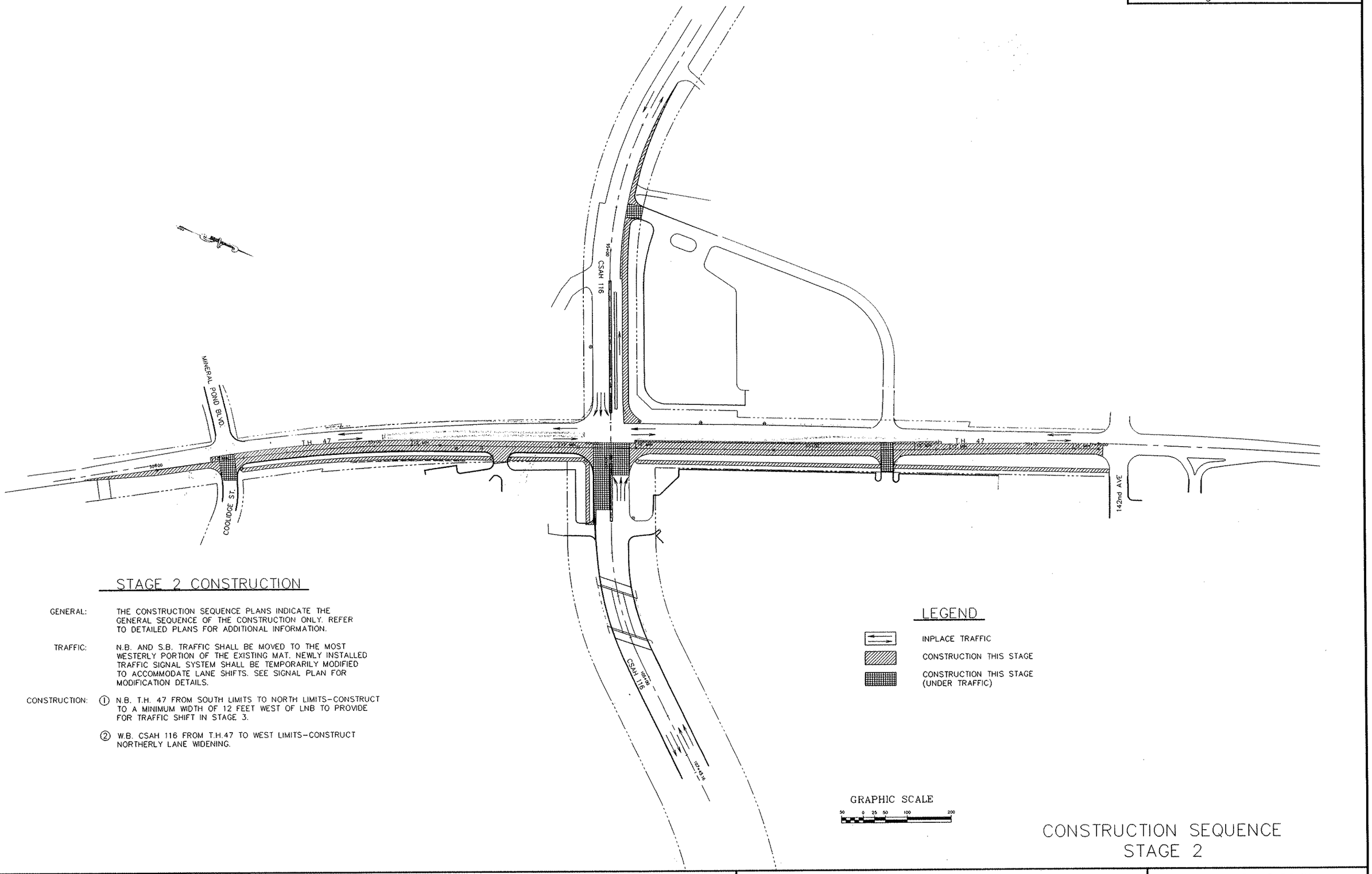
REVISIONS					
DATE	BY	DATE	BY	DATE	BY

CERTIFIED BY Douglas W. Funk P. E. REG NO. 20224 7/18 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 11 of 56 Sheets

Fed. Project No. _____



STAGE 2 CONSTRUCTION

GENERAL: THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY. REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.

TRAFFIC: N.B. AND S.B. TRAFFIC SHALL BE MOVED TO THE MOST WESTERLY PORTION OF THE EXISTING MAT. NEWLY INSTALLED TRAFFIC SIGNAL SYSTEM SHALL BE TEMPORARILY MODIFIED TO ACCOMMODATE LANE SHIFTS. SEE SIGNAL PLAN FOR MODIFICATION DETAILS.

CONSTRUCTION:
① N.B. T.H. 47 FROM SOUTH LIMITS TO NORTH LIMITS–CONSTRUCT TO A MINIMUM WIDTH OF 12 FEET WEST OF LNB TO PROVIDE FOR TRAFFIC SHIFT IN STAGE 3.

② W.B. CSAH 116 FROM T.H.47 TO WEST LIMITS–CONSTRUCT NORTHERLY LANE WIDENING.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)

GRAPHIC SCALE

50 0 25 50 100 200

CONSTRUCTION SEQUENCE STAGE 2

T:\RANDY\47@116\STAGE2.DWG 5/16/96

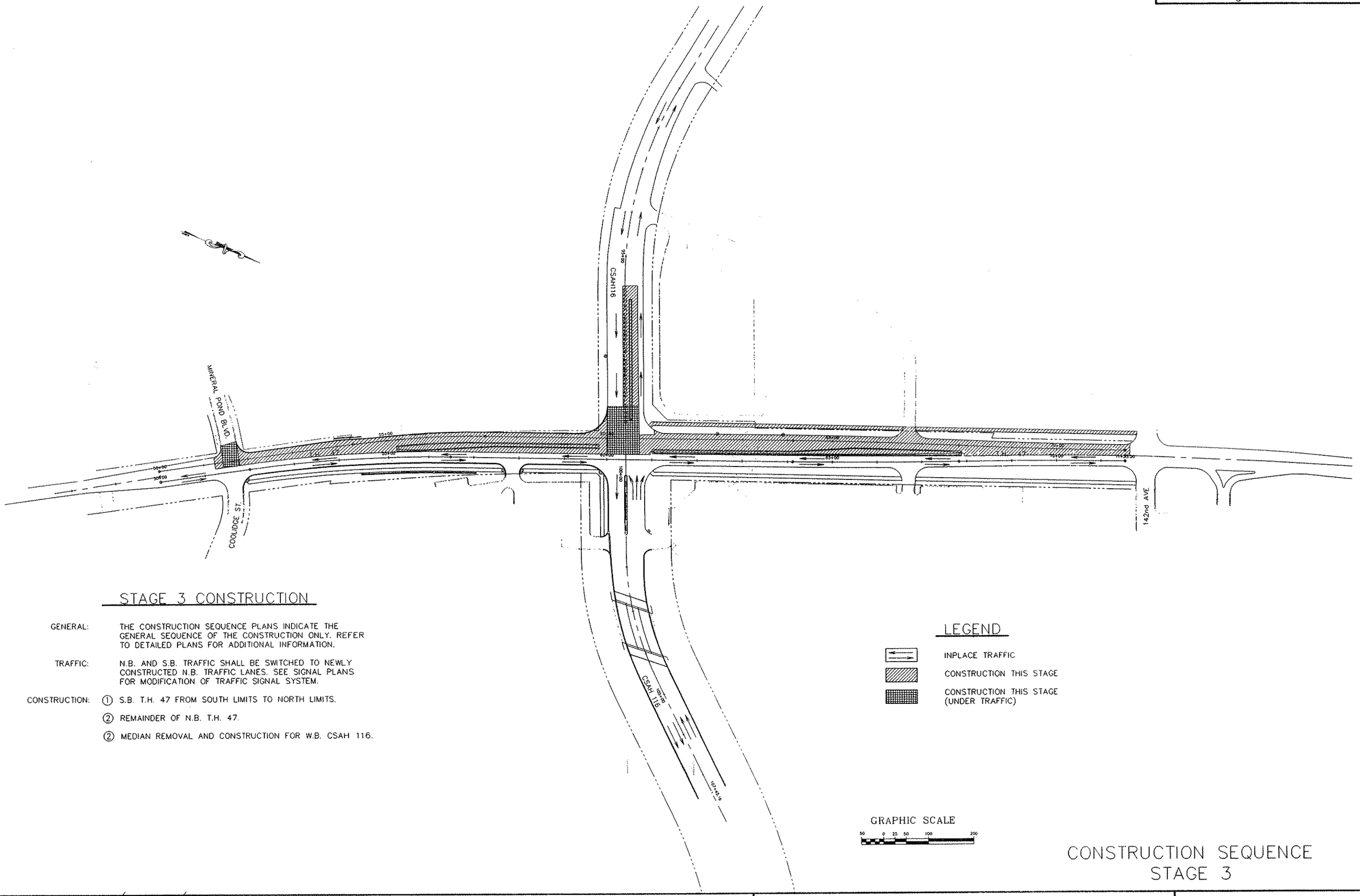
REVISIONS					
DATE	BY	DATE	BY	DATE	BY

CERTIFIED BY _____ P. E. REG NO. 20225 1/18 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 12 of 56 Sheets

Fed. Project No. _____



STAGE 3 CONSTRUCTION

GENERAL: THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY. REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.

TRAFFIC: N.B. AND S.B. TRAFFIC SHALL BE SWITCHED TO NEWLY CONSTRUCTED N.B. TRAFFIC LANES. SEE SIGNAL PLANS FOR MODIFICATION OF TRAFFIC SIGNAL SYSTEM.

CONSTRUCTION:
① S.B. T.H. 47 FROM SOUTH LIMITS TO NORTH LIMITS.
② REMAINDER OF N.B. T.H. 47.
② MEDIAN REMOVAL AND CONSTRUCTION FOR W.B. CSAH 116.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)

GRAPHIC SCALE

50 0 25 50 100 200

CONSTRUCTION SEQUENCE STAGE 3

T:\RANDY\47@116\STAGE3.DWG 5/16/96

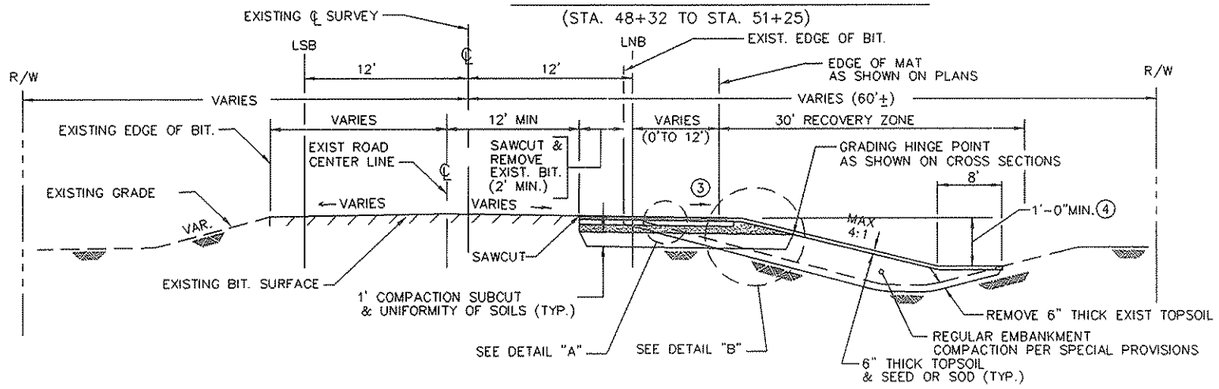
REVISIONS					
DATE	BY	DATE	BY	DATE	BY

CERTIFIED BY _____ P. E. REG NO. _____ _____ 19 __

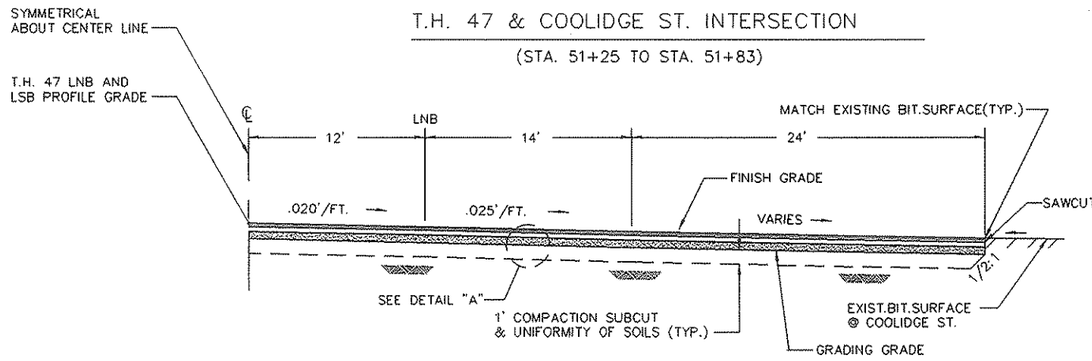
S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Fed. Project No. _____

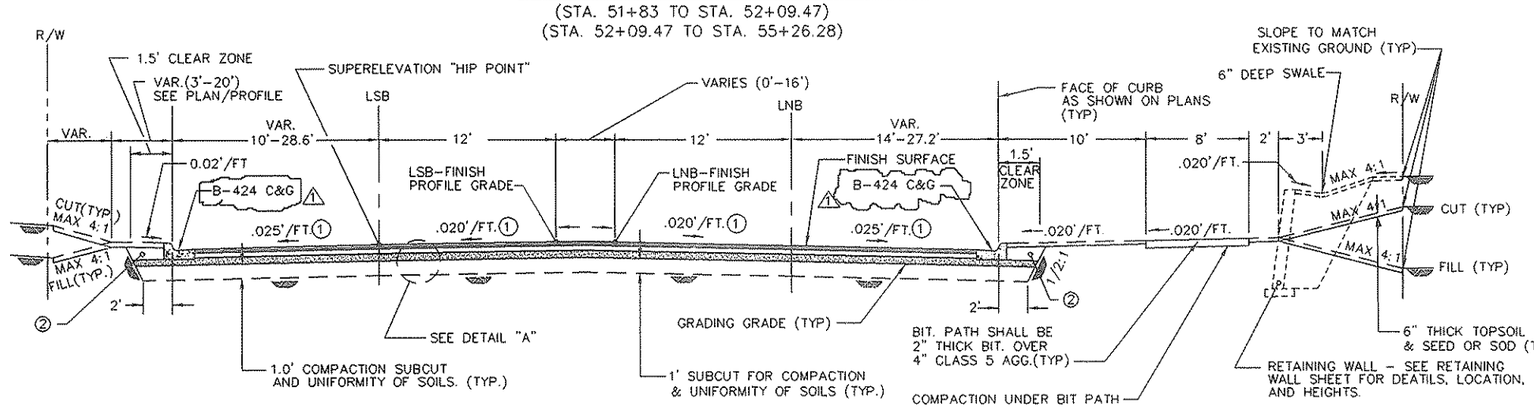
TYPICAL SECTION T.H. 47
(STA. 48+32 TO STA. 51+25)



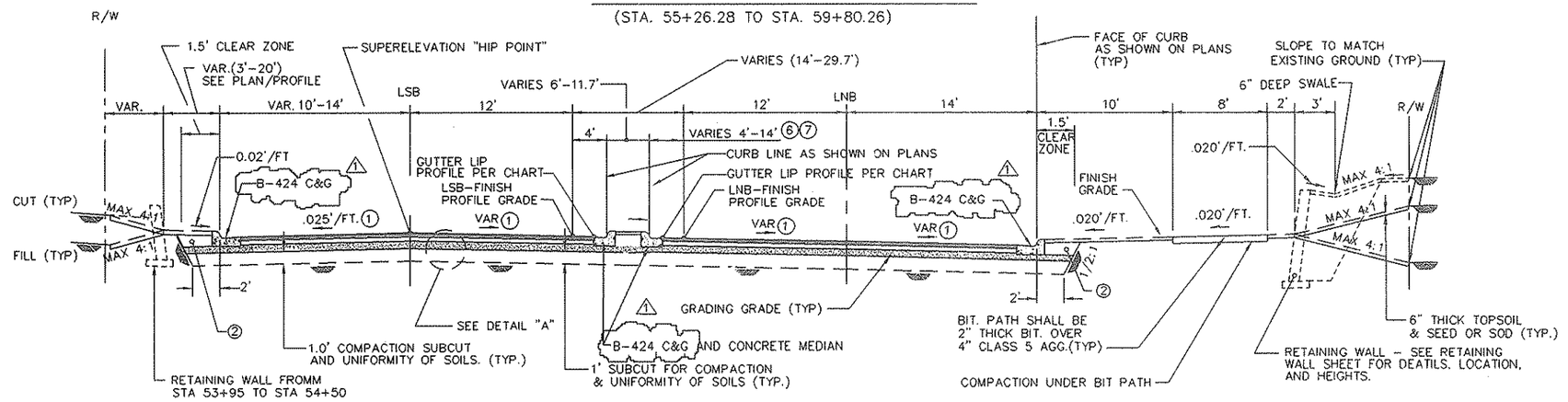
T.H. 47 & COOLIDGE ST. INTERSECTION
(STA. 51+25 TO STA. 51+83)



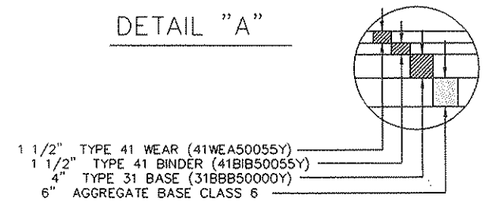
TYPICAL SECTION T.H. 47
(STA. 51+83 TO STA. 52+09.47)
(STA. 52+09.47 TO STA. 55+26.28)



TYPICAL SECTION T.H. 47
(STA. 55+26.28 TO STA. 59+80.26)



DETAIL "A"



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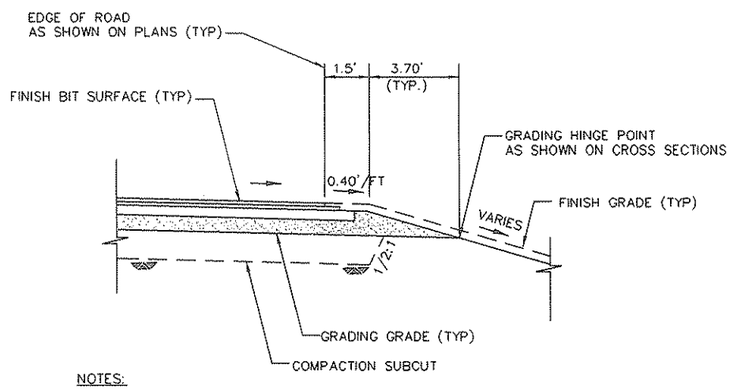

NOTES:

① SEE SUPERELEVATION CHART FOR SUPER SLOPES.
② BACKFILL WITH GRANULAR MATERIAL & COMPACT PER SPECIFICATIONS.
③ SLOPE TO MATCH EXISTING ROADWAY.
④ SEE PLAN & PROFILE SHEETS & CROSS SECTIONS FOR ACTUAL.
⑤ 4" THICK CONCRETE MEDIAN PAVING.
⑥ LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
⑦ FOR FINISH GRADE ELEVATION AT INTERSECTION AND LEFT TURN LANES, SEE SHEET 25.

TYPICAL SECTIONS
T.H. 47

REVISIONS

DATE	BY
8-28-96	KTY

FILE NAME: P:\902316\PLANS\47116C11.DWG MN. (05-16-96)

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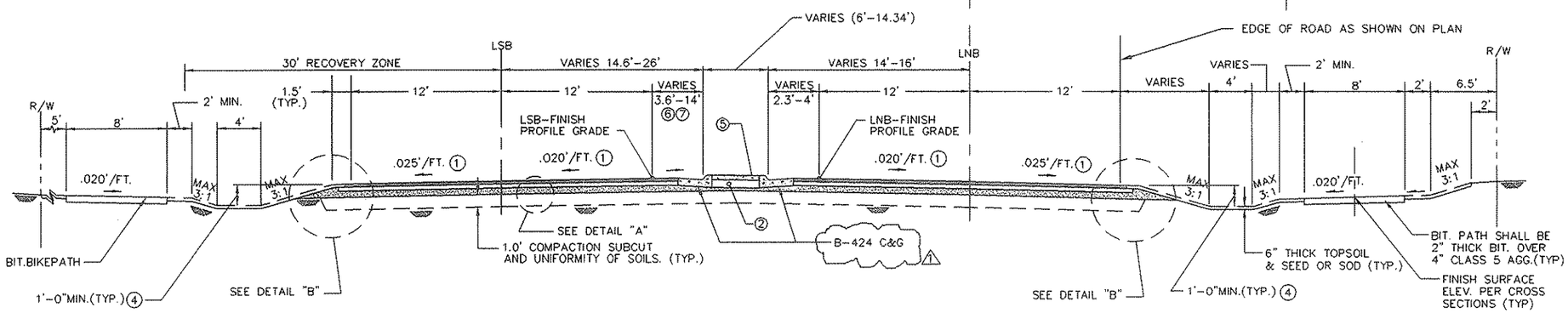
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Fed. Project No. _____

TYPICAL SECTION T.H. 47

(STA. 61+02.29 TO STA. 67+83.41)



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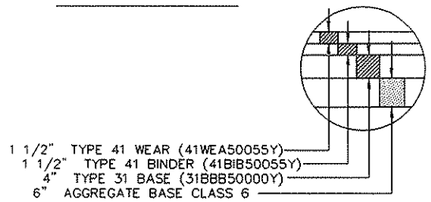
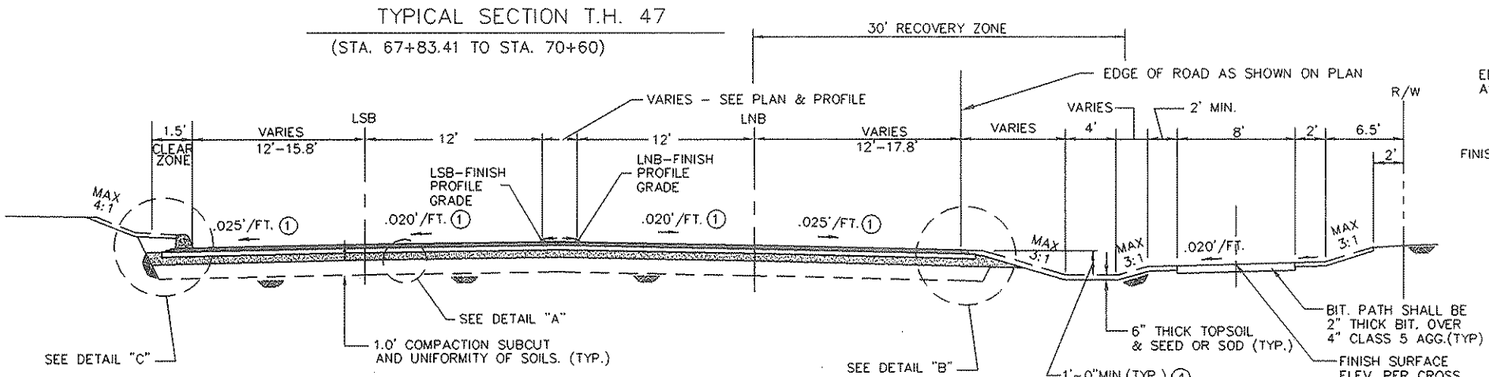


TYPICAL SECTION T.H. 47

(STA. 67+83.41 TO STA. 70+60)



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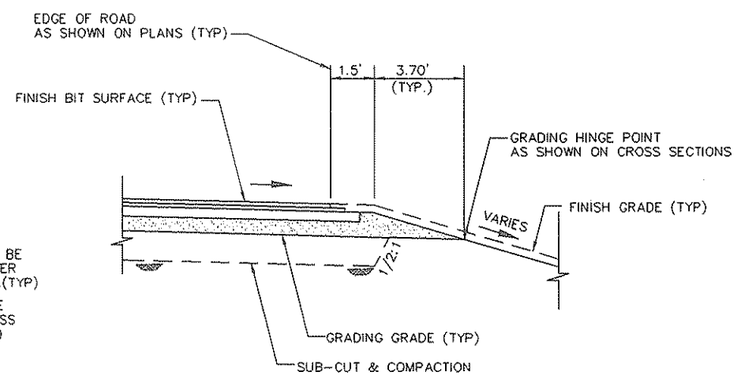
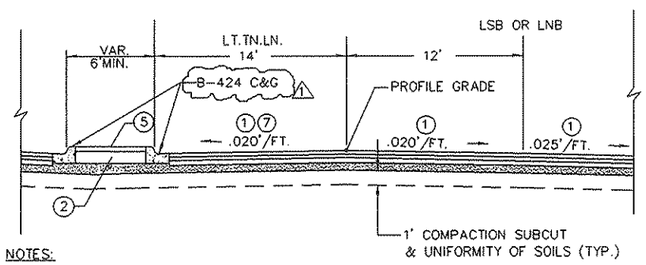


TYPICAL SECTION T.H. 47

(MEDIAN & LT. TURN LANE)
(STA.55+88.03 TO STA.59+80.38)
(STA.60+96.82 TO STA.65+49.61)

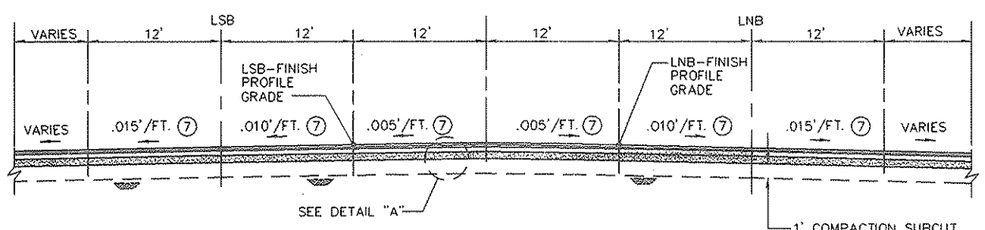


NOTES:

1. ① SEE SUPERELEVATION CHART FOR SUPER SLOPES.
2. ② BACKFILL WITH GRANULAR MATERIAL & COMPACT PER SPECIFICATIONS.
3. ③ SLOPE TO MATCH EXISTING ROADWAY.
4. ④ SEE PLAN & PROFILE SHEETS & CROSS SECTIONS FOR ACTUAL.
5. ⑤ 4" THICK CONCRETE MEDIAN PAVING.
6. ⑥ LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
7. ⑦ FOR FINISH GRADE ELEVATION AT LEFT TURN LANES, SEE SHEET 25.

TYPICAL SECTION T.H. 47

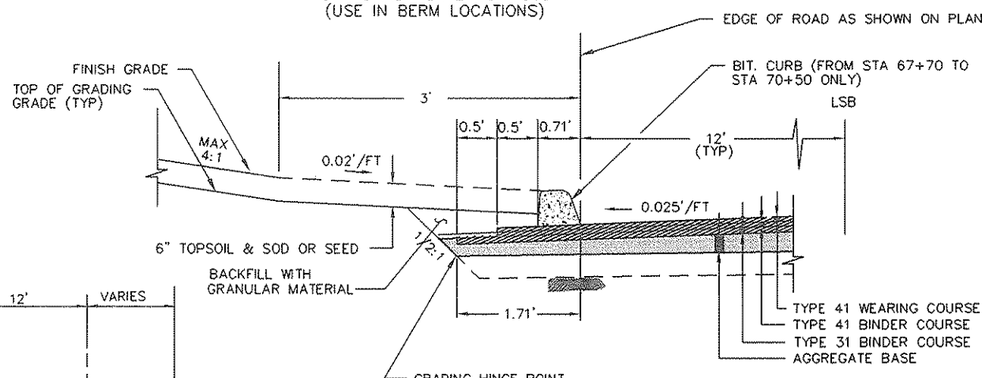
(INTERSECTION C.S.A.H. 116)
(STA. 59+80.38 TO STA. 61+02.29)



DETAIL "C"

BITUMINOUS CURB DETAIL

STANDARD PLATE NO. 7065
(USE IN BERM LOCATIONS)



TYPICAL SECTIONS

T.H. 47

REVISIONS

DATE	BY	DATE	BY
7-29-96	KTY		
9-26-96	KTY		

FILE NAME: P:\9023116\PLANS\47116C01.DWG MN. (05-16-96)

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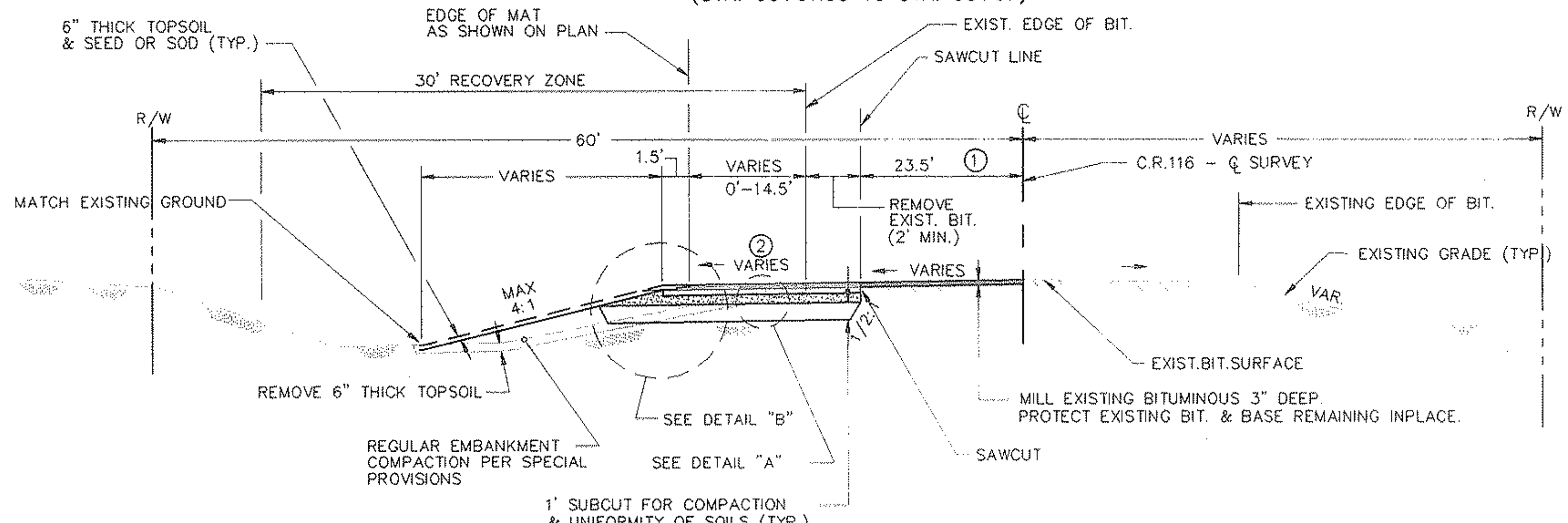
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

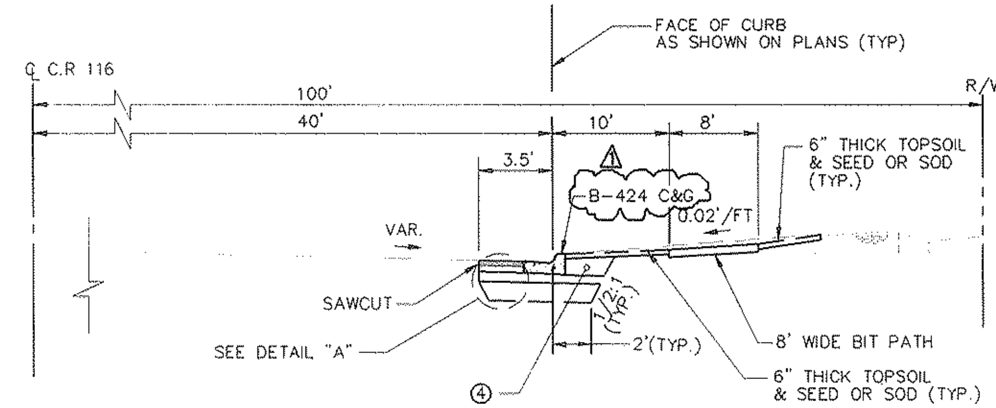
Sheet No. 15 of 56 Sheets

Fed. Project No.

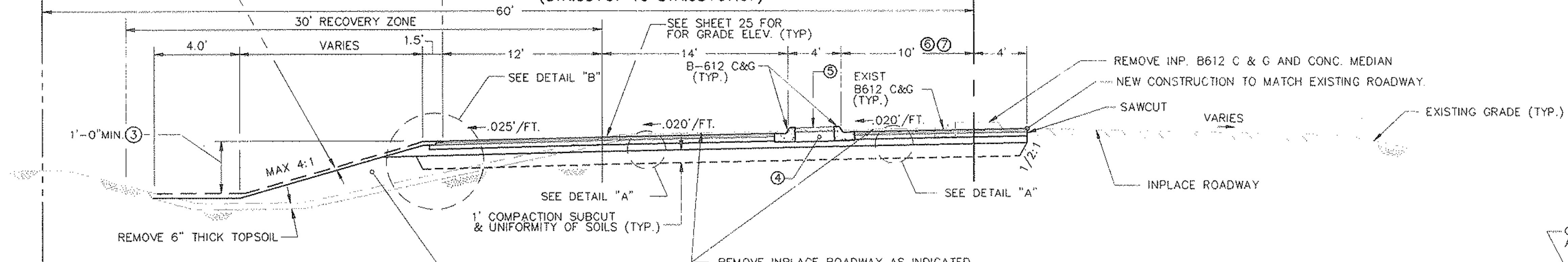
TYPICAL SECTION C.S.A.H. 116
(STA. 90+91.58 TO STA. 95+67)



TYPICAL SECTION C.S.A.H 116
(STA. 101+00 TO STA. 101+35)



TYPICAL SECTION C.S.A.H. 116
(STA.95+67 TO STA.98+67.67)



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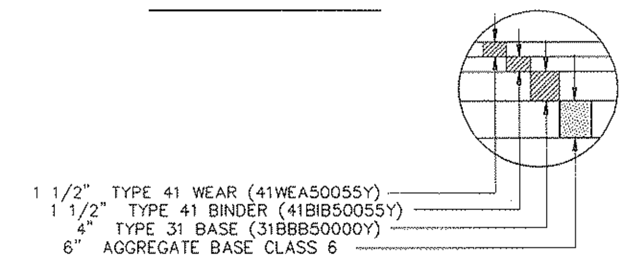
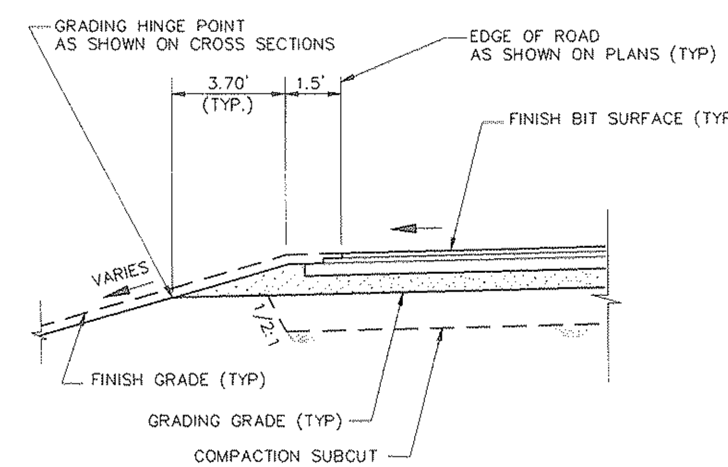
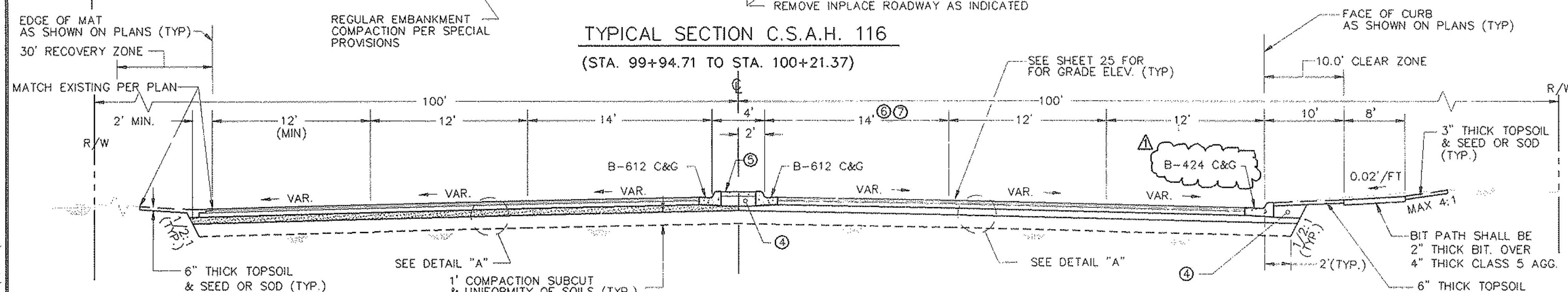


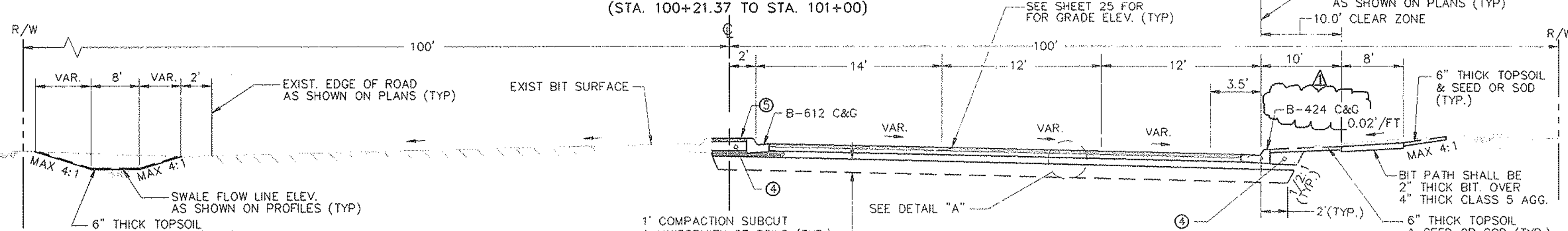
DETAIL "B"



TYPICAL SECTION C.S.A.H. 116
(STA. 99+94.71 TO STA. 100+21.37)



TYPICAL SECTION C.S.A.H 116
(STA. 100+21.37 TO STA. 101+00)



NOTES:

1. SEE PLAN & PROFILE SHEETS.
2. PROPOSED SLOPE SHALL MATCH INPLACE BITUMINOUS AND SHALL BE A CONTINUOUS SLOPE AS PROJECTING FROM ROAD C.L.
3. SEE PLAN & PROFILE SHEETS FOR SPECIAL DITCH DEPTHS & WIDTHS.
4. BACKFILL WITH GRANULAR & COMPACT PER SPECIFICATIONS.
5. 4" THICK CONCRETE MEDIAN PAVING.
6. LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
7. FOR FINISH GRADE ELEVATIONS AT INTERSECTION AND LEFT TURN LANES, SEE SHEET 25.

TYPICAL SECTIONS
C.S.A.H. 116

S:\SPSKPROJ\9023116\PLANS\47116012 10-1-96 10:08:22 am EST

REVISIONS		
DATE	BY	
DATE	BY	

CERTIFIED BY [signature] P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

Fed. Project No. _____

B.M. #1
STA 52+00 LT. 60'
TOP OF HYD. ELEV= 868.83

CONTROL PT. #10008
CONC. NAIL IN BIT.
N= 110991.2010
E= 855798.6320

CONTROL PT. #10009
CONC. NAIL IN BIT.
N= 111283.0160
E= 855661.3640

CONTROL PT. #10007
CONC. NAIL IN BIT.
N=111815.6420
E=855577.0930

CONTROL PT. #10011
P.K. NAIL IN BIT.
N=112403.5650
E=855202.5300

B.M. #3
STA. 72+45 73' RT
TOP HYD. ELEV= 860.83

GRAPHIC SCALE
50 0 25 50 100

T.H. 47 ALIGNMENT PLAN

ALIGNMENT PLAN T.H. 47

CITY OF ANOKA
CITY OF RAMSEY
T.H. 47
COOLIDGE ST.
MINERAL POND BLVD.
WOOD FENCE
WROUGHT IRON FENCE
CHAINLINK FENCE
RETAINING WALL
HOUSE
EXIST. CL SURVEY
BEIGN S.P. 0206-47
STA 48+32.57
EXISTING EDGE OF BIT. MAT
NEW R/W
LSB
R/W
CONSTR. LIMITS (TYP)
MATCH LINE SEE SHEET 18
MATCH LINE STA 62+00 (LSB) SEE BELOW
MATCH LINE STA 62+00 (LSB) SEE ABOVE
SIGNAL CABINET
PUMP ISLAND
FOOD N FUEL
C.S.A.H. 116
MEDIAN NOSE TRANSITION PER SHEET 18
BEGIN EDGE OF MAT SHALL MATCH EXIST. BIT. SURFACE
EXIST R/W
142nd AVE
T.H. 47 C/L SURVEY
END S.P. 0206-47 STA 71+60.00
EXIST. EDGE OF MAT (TYP)
BORING # 1
BORING # 2
BORING # 3
BORING # 4
N31°50'37"W
S21°34'18"E
VARIES
LVARIES
BEGIN C&G MATCH EXISTING C&G
BEGIN S.A.P. 103-010-11 STA. 51+90
END S.A.P. 103-010-11
BEGIN S.A.P. 199-010-02 STA. 53+82
END S.A.P. 199-010-02 STA. 100+20.53
END S.A.P. 199-010-02 STA. 71+80.00
STATION EQUATION 59+50.00 LNB = STA AHEAD: 59+50.00 LNB STA BACK: 59+44.06 LNB
BEGIN S.A.P. 199-020-02 STA. 99+95 MATCH STA. 100+20.53 C.S.A.H. 116 ℄
END C&G SHALL MATCH EXIST C&G
BEGIN C&G SHALL MATCH EXIST C&G
BEGIN EDGE OF MAT SHALL MATCH EXIST. GUTTER LINE
END OF EDGE MAT SHALL MATCH EXIST. GUTTER LINE
END OF CURVE SHALL MATCH EXIST. C&G SURFACE AND C&G.
BEGIN CONC. MEDIAN ISLAND
END CONC. MEDIAN ISLAND
BEGIN TURN LANE TRANSITION
END MEDIAN TRANSITION
BEGIN LEFT TURN LANE
BEG. MEDIAN TRANSITION
END MEDIAN TRANSITION
BEGIN MEDIAN TRANSITION
BEGIN BIT. CURB
END BIT. CURB
END CONSTRUCTION
BEGIN MED. TRANS.
BEGIN ROAD WIDENING SHALL MATCH EXIST. SURFACE
BEGIN EDGE OF MAT TRANS.
END EDGE OF MAT TRANSITION
MED. NOSE & TRANSITION
MEDIAN NOSE & TRANSITION
MATCH STA 98+38.29 CSAH 116 ℄
PCR – MATCH STA 98+49.85 CSAH 116 ℄
PCR – BEGIN C&G MATCH EXIST. C&G
PCR – END C&G
SIGN
50+00.00 ℄ SURVEY = 50+00.00 LNB N 110715.3043 E 855991.1855
50+00.00 ℄ SURVEY = 50+00.00 LSB N 110709.1452 E 855980.8867
50+00.00 CL SURVEY = 50+00.00 LNB N 110721.4635 E 856001.4843
51+25 BEGIN FULL WIDTH CONSTR.
52+09.47 PCR
54+32.16 PC (LSB) N 111080.0391 E 855759.0743
54+07.53 BEGIN TRANSITION
54+74.34 END TRANSITION
55+26.28 16' RT
57+30.36 PT
N 111346.8454 E 855626.5812
59+40.05 PCR
59+77.26 PCR
61+65.67 PCR
61+34.53 PCR
61+05.29 PCR
58+22.28 PCR
57+49.49 PCR
57+47.57 26' LT
55+88.37 16' LT
55+53.78 16' LT
55+23.82 17.96' LT
52+10.59 PCR
51+14.29 PCR
56+48.54 PT
N 111294.3884 E 855699.4527
64+11.83 26' RT LSB
64+11.83 PC N 111978.9800 E 855372.0091
65+49.61 16' RT LSB
65+87.01 16' RT LSB
66+28.28 PCR
67+12.99 PCR
67+63.17 14.65'RT LSB
67+70
67+82.67 PCR
N 112325.1542 E 855239.0667
67+83.41 15.66'RT LSB
70+50
71+49.31 PCR
71+53.50 PT (LSB) =
STA. 71+50.00 T.H. 47 ℄ SURVEY N 112675.8099 E 855117.2561
STA 71+60 END CONSTRUCTION
71+50.00 T.H. 47 ℄ SURVEY N 112675.8099 N 855117.2561
64+11.83 PC
64+11.83 PC N 111996.9110 E 855416.5341
65+87.01 PT 16' LT LNB BEGIN MED. TRANS.
66+25.43 PCR
67+82.67 PRC N 112358.6025 E 855272.4684
67+83.41 14.32'LT LNB END MEDIAN
71+43.64 PCR
71+53.50 PT (LNB)=
STA. 71+50.00 T.H. 47 ℄ SURVEY N 112680.2926 E 855128.3873
STA 71+60 END CONSTRUCTION
END S.A.P. 199-010-02 STA. 71+80.00
CONTROL PT. # 10007 CONC. NAIL IN BIT. N=111815.6420 E=855577.0930

REVISIONS

DATE	BY	DATE	BY
7-29-96	KDV		

FILE NAME: C:\P\9023116\PLANS\47116C13.DWG MN(7-16-96)

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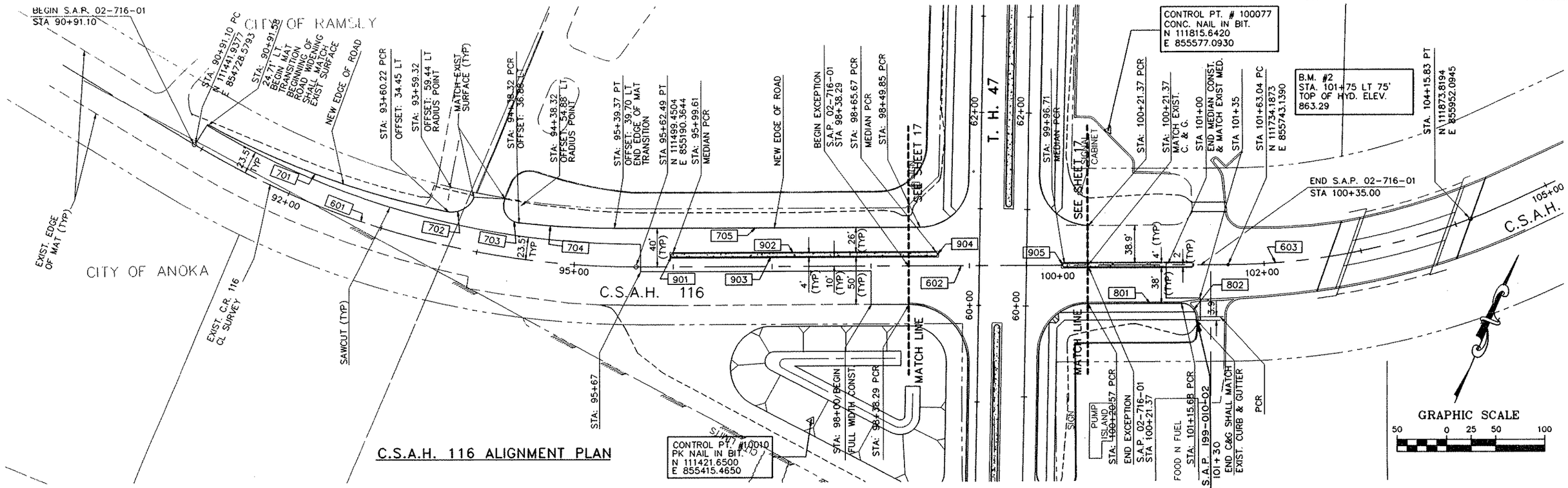
S.P. 0260-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 17 of 56 Sheets

Fed. Project No. _____



C.S.A.H. 116 ALIGNMENT PLAN

CURVE DATA TABLE

I.D.	DELTA OR BEARING	RADIUS OR DISTANCE	TANGENT	ARC LENGTH	DESCRIPTION
101	N 30°52'53" W	432.16'	–	–	T.H. 47 LSB
102	08°56'45"	1909.85'	149.40'	298.20'	
103	N 21°56'08" W	1484.78'	–	–	
104	01°51'15"	11459.16'	185.44'	370.84'	
105	01°51'15"	11459.16'	185.44'	370.84'	T.H. 47 LSB
201	N 35°52'53" W	201.24'	–	–	T.H. 47 LNB
202	08°56'45"	2864.79'	224.10'	447.30'	
203	N 21°56'08" W	757.35'	–	–	
204	01°51'15"	11459.16'	185.44'	370.84'	
205	01°51'15"	11459.16'	185.44'	370.84'	T.H. 47 LSB
300	80°24'33"	21.52'	18.19'	30.20'	EDGE OF MAT.
301	87°22'08"	30.00'	28.65'	45.75'	B-618 C&G
302	N 30°52'53" W	198.06'	–	–	
303	N 27°04'03" W	67.17'	–	–	
304	07°40'50"	1919.85	128.87'	257.36'	
305	N 21°56'08" W	209.54'	–	–	
306	91°04'23"	60.00'	61.13'	95.37'	B-618 C&G
307	88°55'37"	50.00'	49.07'	77.60'	EDGE OF MAT
308	N 21°56'08" W	281.59'	–	–	
309	01°04'56"	11471.16'	108.35'	216.68'	
310	90°52'51"	30.00'	30.46'	47.59'	
311	88°41'45"	30.00'	29.32'	46.44'	EDGE OF MAT
312	00°20'54"	11471.16'	34.88'	69.75'	EDGE OF MAT/BERM
313	01°48'52"	11447.16'	181.28'	362.52'	EDGE OF MAT/BERM
314	28°57'27"	30.00'	7.75'	15.16'	EDGE OF MAT
401	N 27°04'03" W	167.61'	–	–	EDGE OF MAT
402	N 30°52'53" W	114.29'	–	–	EDGE OF MAT
403	93°02'12"	30.00'	31.63'	48.71'	EDGE OF MAT
404	84°42'39"	30.00'	27.35'	44.35'	B-618 C&G
405	08°45'32"	2850.79'	218.33'	435.81'	
406	N 21°56'08" W	100.95'	–	–	
407	89°28'48"	20.00'	19.82'	31.23'	
408	90°31'12"	20.00'	20.18'	31.60'	
409	N 21°56'08" W	125.25'	–	–	
410	88°55'37"	50.00'	49.07'	77.60'	B-618 C&G
411	90°27'30"	50.00'	50.40'	78.94'	EDGE OF MAT
412	N 21°56'08" W	277.29'	–	–	
413	01°04'05"	11471.16'	106.92'	213.82'	
414	89°17'20"	30.00'	29.63'	46.75'	
415	88°30'31"	30.00'	29.23'	46.34'	
416	00°20'26"	11471.16'	34.10'	68.20'	
417	01°49'38"	11447.16'	182.55'	365.07'	
418	33°50'08"	35.00'	10.65'	20.67'	EDGE OF MAT
501	06°07'21"	1893.85'	101.28'	202.37'	B-624 C&G
502	N 20°24'07" W	30.20'	–	–	
503	00°41'31"	2880.79'	17.40'	34.79'	
504	N 25°44'59" W	159.88'	–	–	
505	N 21°56'08" W	224.00'	–	–	
506	N 21°56'08" W	246.91'	–	–	
507	180°00'00"	3.00'	–	9.42'	
508	180°00'00"	3.00'	–	9.42'	
509	N 21°56'08" W	306.54	–	–	
510	N 21°56'08" W	306.07'	–	–	B-624 C&G
511	N 25°48'59" W	137.90'	–	–	
512	00°52'33"	11443.16'	87.47'	174.94'	
513	N 22°48'41" W	196.19'	–	–	
514	00°11'13"	11443.16'	18.67'	37.35'	
515	N 21°03'35" W	201.02'	–	–	
516	N 17°15'18" W	20.24'	–	–	B-624 C&G
601	31°49'07"	848.83	241.94'	471.39'	C.S.A.H. 116 CL SURVEY
602	N 66°59'29" E	600.55'	–	–	C.S.A.H. 116 CL SURVEY
603	21°29'15"	674.07'	127.90'	252.79'	C.S.A.H. 116 CL SURVEY
701	17°44'11"	838.00'	130.75'	259.41'	EDGE OF MAT
702	79°05'09"	25.00'	20.64'	34.51'	
703	106°53'45"	18.00'	24.28'	33.58'	
704	06°35'59"	838.00'	48.32'	96.53'	
705	N 66°59'29" E	309.40'	–	–	EDGE OF MAT
801	N 66°59'29" E	95.17	–	–	B-618 C&G
802	85°57'12"	15.00'	13.98'	22.50'	B-618 C&G
901	180°00'00"	2.00'	–	6.28'	MED. NOSE & TRANS.
902	N 66°59'29" E	266.06'	–	–	B-612 C&G
903	N 66°59'29" E	266.06'	–	–	B-612 C&G
904	180°00'00"	2.00'	–	6.28'	MED. NOSE & TRANS.
905	180°00'00"	2.00'	–	6.28'	MED. NOSE & TRANS.

NOTE:
1. REFER TO SHEET 17 FOR T.H. 47 ROAD ALIGNMENT PLAN.

ALIGNMENT PLAN
C.S.A.H 116
AND TABULATION

REVISIONS
DATE | BY | DATE | BY

FILE NAME: C:\P\9023116\PLANS\47116C14.DWG MN(5-16-96)

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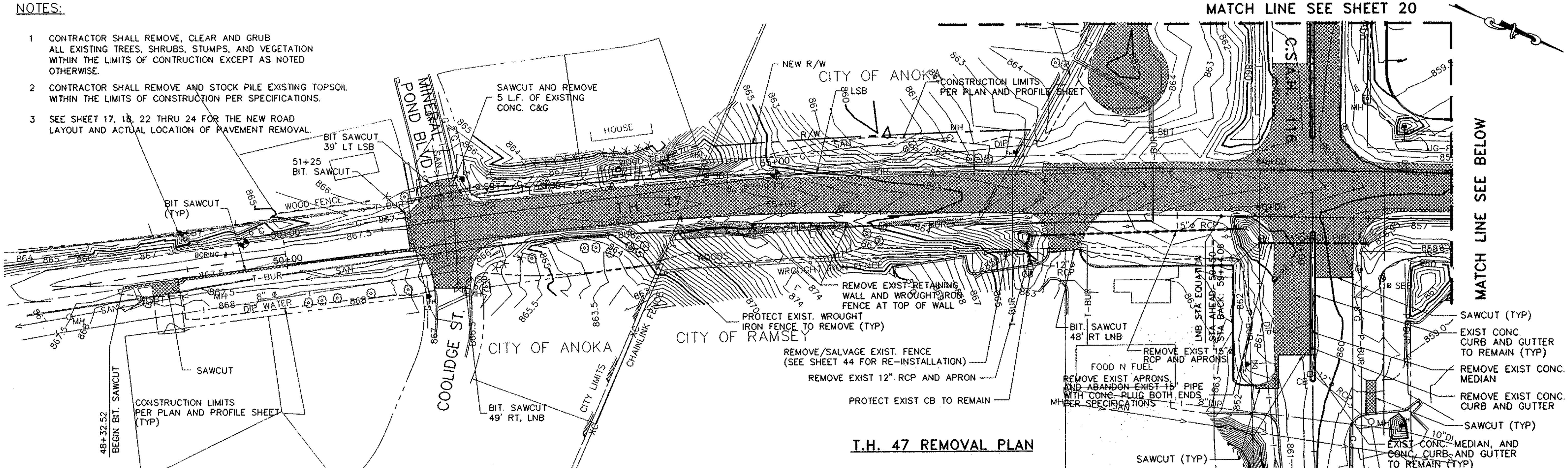
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

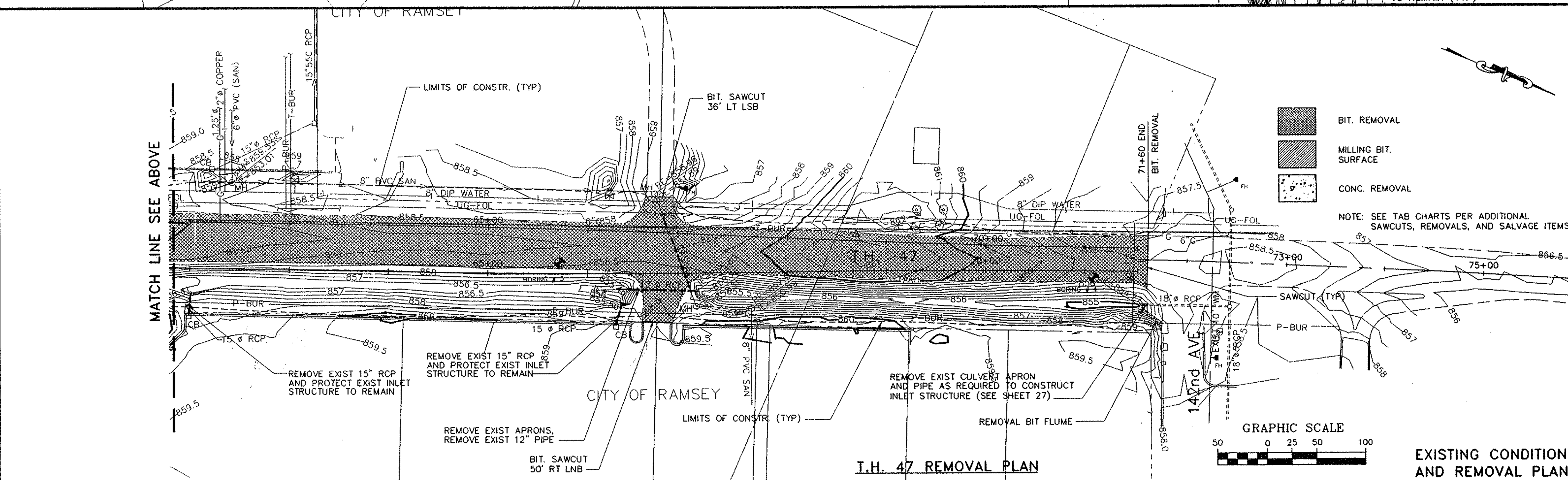
Sheet No. 18 of 56 Sheets

Fed. Project No. ______

NOTES:

1. CONTRACTOR SHALL REMOVE, CLEAR AND GRUB ALL EXISTING TREES, SHRUBS, STUMPS, AND VEGETATION WITHIN THE LIMITS OF CONTRUCTION EXCEPT AS NOTED OTHERWISE.
2. CONTRACTOR SHALL REMOVE AND STOCK PILE EXISTING TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION PER SPECIFICATIONS.
3. SEE SHEET 17, 18, 22 THRU 24 FOR THE NEW ROAD LAYOUT AND ACTUAL LOCATION OF PAVEMENT REMOVAL.





EXISTING CONDITION AND REMOVAL PLAN

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DATE	BY	DATE	BY
REVISIONS			

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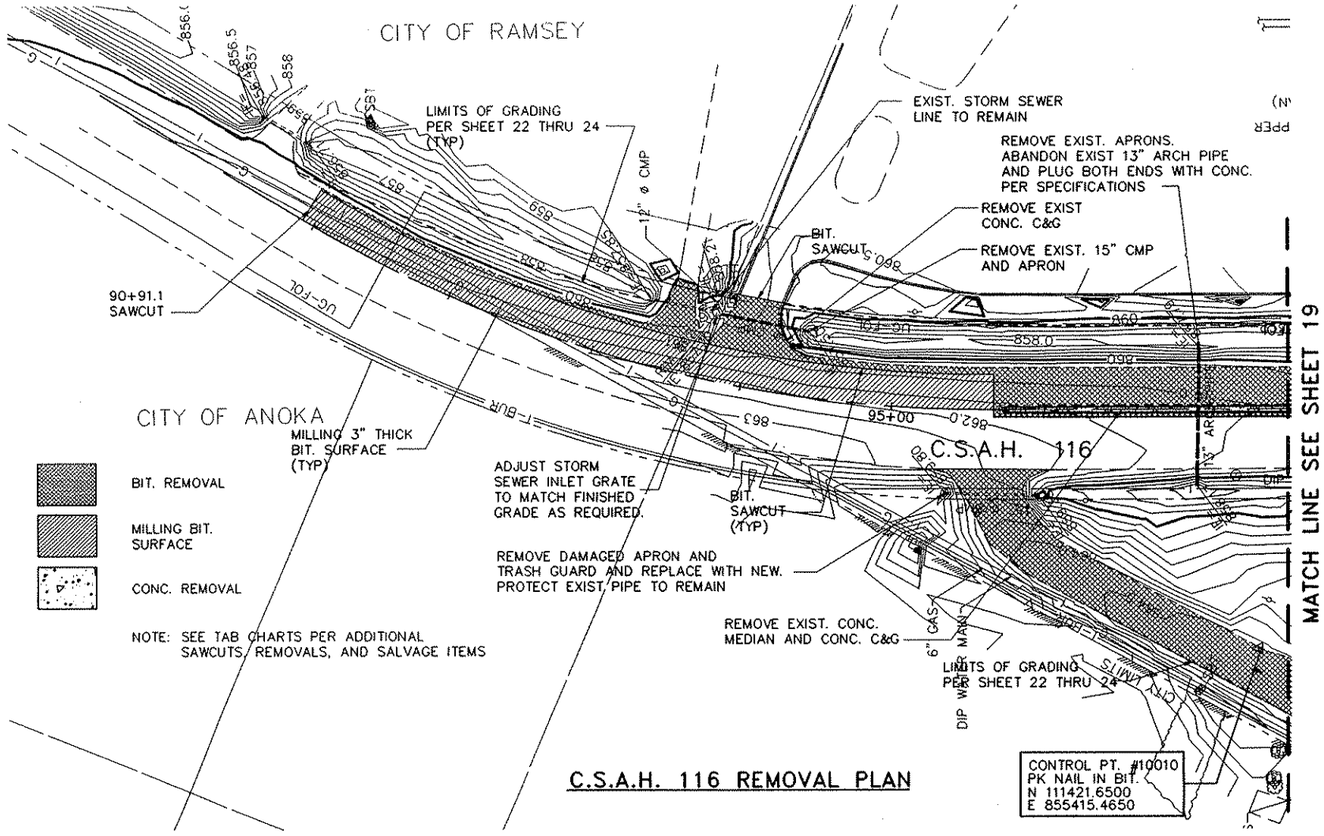
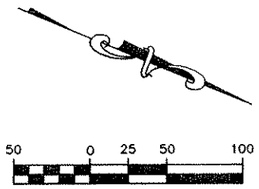
Fed. Project No. _____



C.S.A.H. 116 REMOVAL PLAN



NOTES:

1 CONTRACTOR SHALL REMOVE, CLEAR AND GRUB ALL EXISTING TREES, SHRUBS, STUMPS, AND VEGETATION WITHIN THE LIMITS OF CONTRUCTION EXCEPT AS NOTED OTHERWISE.

2 CONTRACTOR SHALL REMOVE AND STOCK PILE EXISTING TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION PER SPECIFICATIONS.

3 SEE SHEET 17, 18, 22 THRU 24 FOR THE NEW ROAD LAYOUT AND ACTUAL LOCATION OF PAVEMENT REMOVAL.

REVISIONS

DATE	BY	DATE	BY

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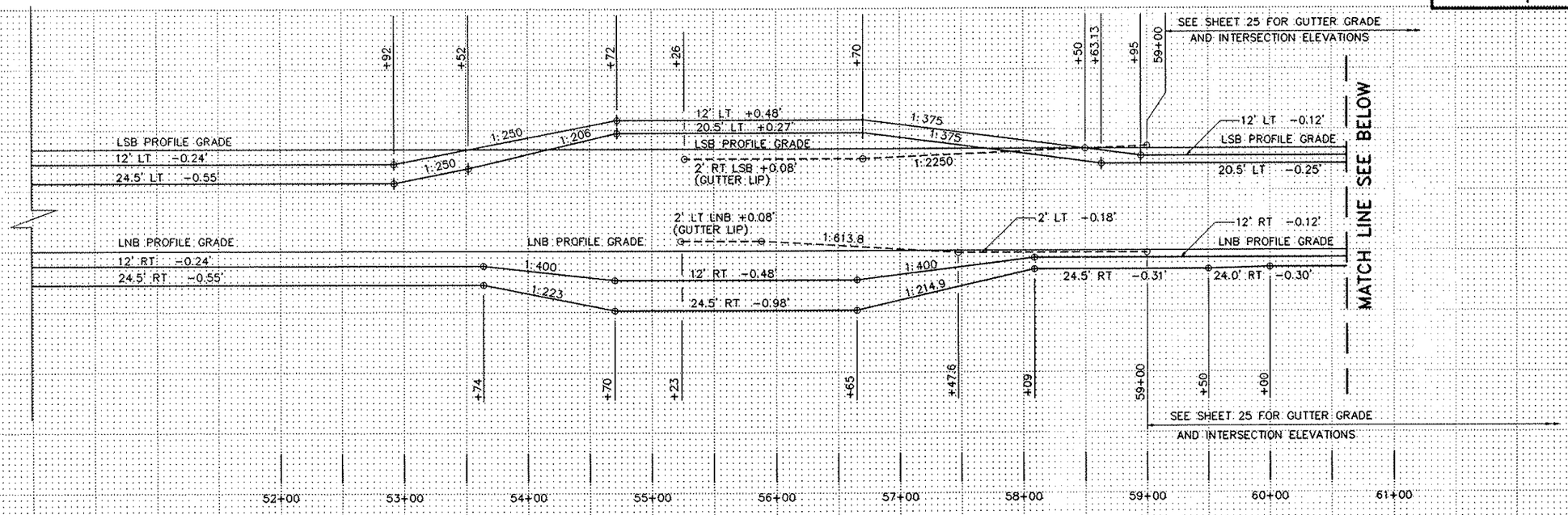
EXISTING CONDITION AND REMOVAL PLAN

CERTIFIED BY _____ P.E. REG NO. _____ _____ 19 __

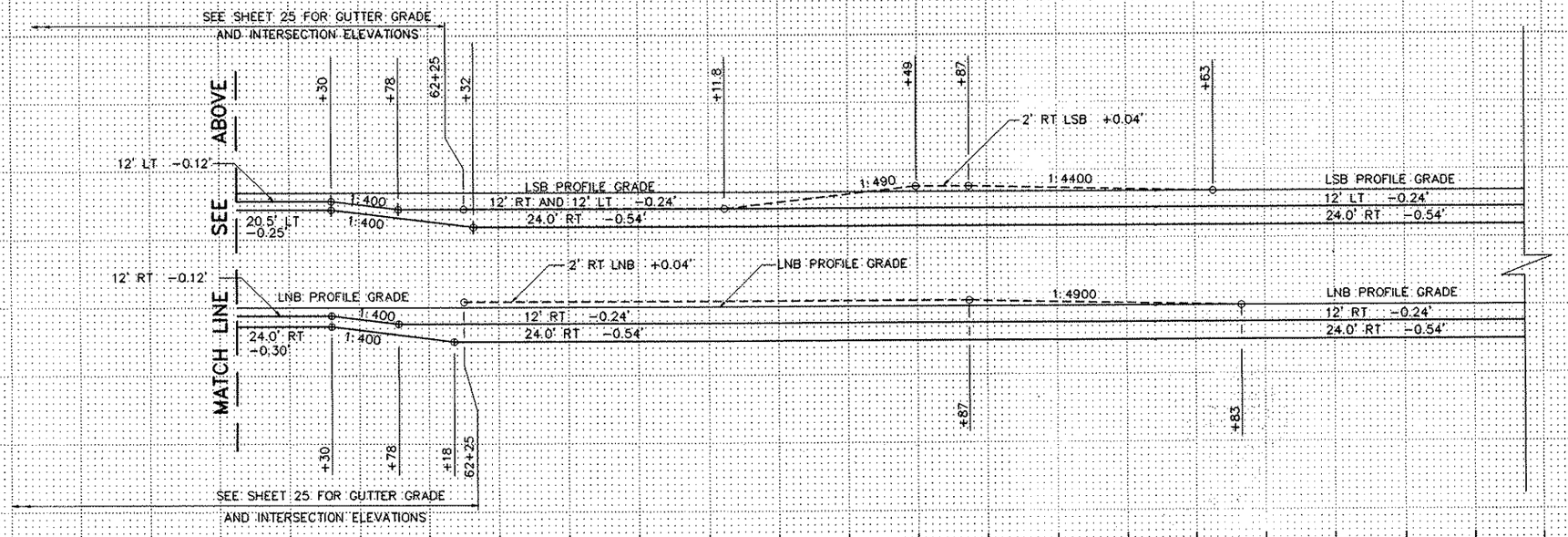
S.P. 0206-47 S.A.P. 02-716-01 C.P. 90-23-116

Sheet No. 20 of 56 Sheets

Fed. Project No.



SUPERELEVATION CHART FOR T.H.47



SUPERELEVATION CHART FOR T.H.47

GRAPHIC SCALE

HORIZONTAL

VERTICAL

SUPERELEVATION CHART

REVISIONS

DATE	BY	DATE	BY

FILE NAME: C:\P\92031165\PLANS\47116C17.DWG MN/7-16-96)

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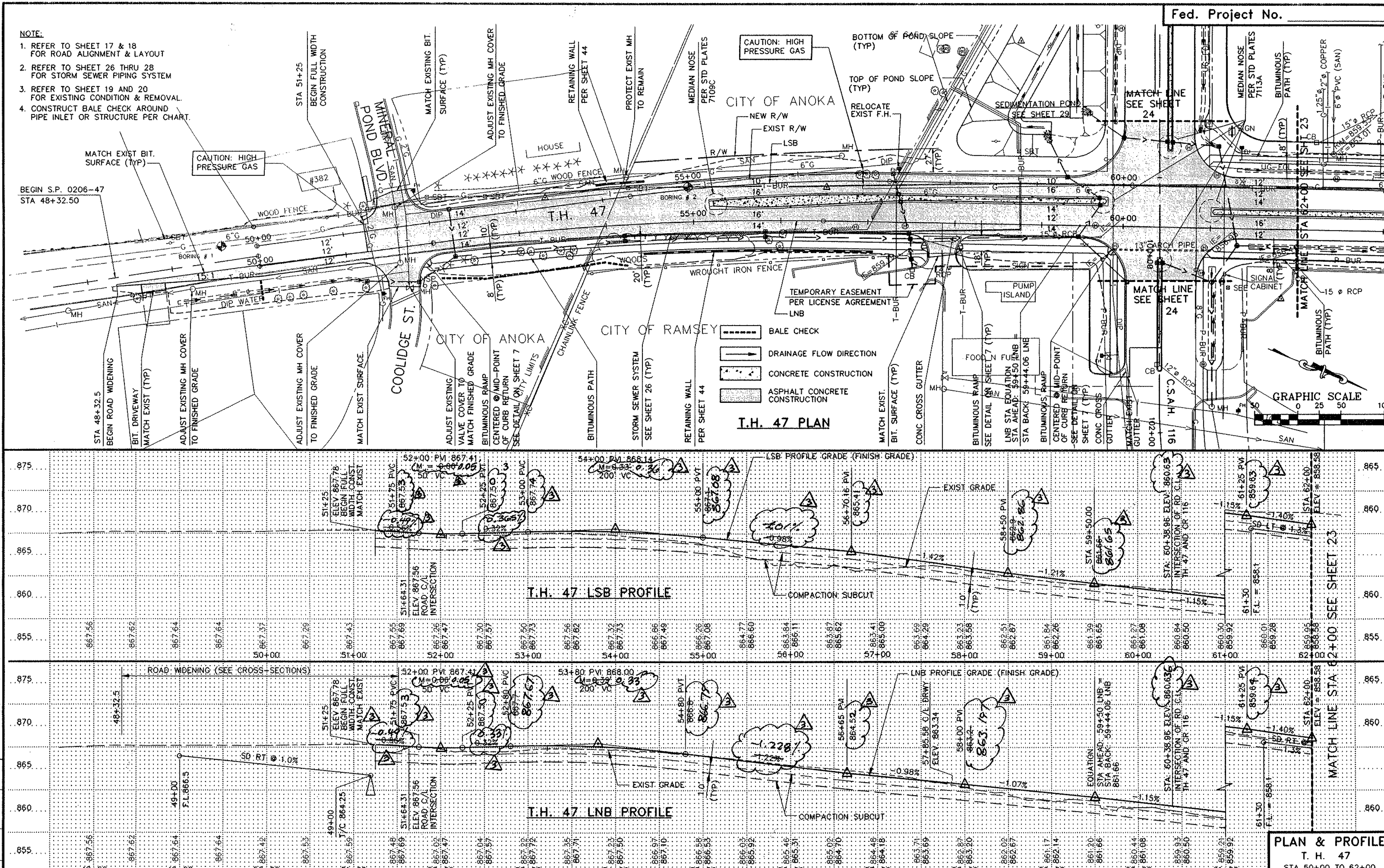
S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 21 of 56 Sheets


Fed. Project No.
NOTE:
1. REFER TO SHEET 17 & 18 FOR ROAD ALIGNMENT & LAYOUT
2. REFER TO SHEET 26 THRU 28 FOR STORM SEWER PIPING SYSTEM
3. REFER TO SHEET 19 AND 20 FOR EXISTING CONDITION & REMOVAL.
4. CONSTRUCT BALE CHECK AROUND PIPE INLET OR STRUCTURE PER CHART.
BEGIN S.P. 0206-47
STA 48+32.50
MATCH EXIST BIT. SURFACE (TYP)
CAUTION: HIGH PRESSURE GAS
STA 51+25
BEGIN FULL WIDTH CONSTRUCTION
MINERAL POND BLVD.
MATCH EXISTING BIT. SURFACE (TYP)
ADJUST EXISTING MH COVER TO FINISHED GRADE
RETAINING WALL PER SHEET 44
PROTECT EXIST MH TO REMAIN
MEDIAN NOSE PER STD PLATES 7109C
CITY OF ANOKA
NEW R/W
EXIST R/W
LSB
BOTTOM OF POND SLOPE (TYP)
TOP OF POND SLOPE (TYP)
RELOCATE EXIST F.H.
SEDIMENTATION POND SEE SHEET 29
MATCH LINE SEE SHEET 24
MEDIAN NOSE PER STD PLATES 7113A
BITUMINOUS PATH (TYP)
HOUSE
#382
WOOD FENCE
6"G WOOD FENCE
T.H. 47
COOLIDGE ST.
CITY OF ANOKA
CITY OF RAMSEY
CHAINLINK FENCE
CITY LIMITS
WOODS
WROUGHT IRON FENCE
TEMPORARY EASEMENT PER LICENSE AGREEMENT
LNB
PUMP ISLAND
FOOD N FUEL
MATCH LINE SEE SHEET 24
SIGNAL CABINET
C.S.A.H. 116
MATCH LINE STA 62+00 SEE SHEET 23
BALE CHECK
DRAINAGE FLOW DIRECTION
CONCRETE CONSTRUCTION
ASPHALT CONCRETE CONSTRUCTION
T.H. 47 PLAN
GRAPHIC SCALE
50 0 25 50 100
STA 48+32.5 BEGIN ROAD WIDENING
BIT. DRIVEWAY MATCH EXIST (TYP)
ADJUST EXISTING MH COVER TO FINISHED GRADE
ADJUST EXISTING MH COVER TO FINISHED GRADE
MATCH EXIST SURFACE.
ADJUST EXISTING VALVE COVER TO MATCH FINISHED GRADE
BITUMINOUS RAMP CENTERED @ MID-POINT OF CURB RETURN SEE DETAIL ON SHEET 7
BITUMINOUS PATH
STORM SEWER SYSTEM SEE SHEET 26 (TYP)
RETAINING WALL PER SHEET 44
MATCH EXIST. BIT. SURFACE (TYP)
CONC CROSS GUTTER
BITUMINOUS RAMP SEE DETAIL ON SHEET 7 (TYP)
LNB STA EQUATION: STA AHEAD: 59+50 LNB = STA BACK: 59+44.06 LNE
CONC CROSS GUTTER
MATCH EXIST GUTTER
LSB PROFILE GRADE (FINISH GRADE)
EXIST GRADE
COMPACTION SUBCUT
T.H. 47 LSB PROFILE
ROAD WIDENING (SEE CROSS-SECTIONS)
LNB PROFILE GRADE (FINISH GRADE)
EXIST GRADE
COMPACTION SUBCUT
T.H. 47 LNB PROFILE
SD RT. @ 1.0%
STA. 60+38.96 ELEV. 860.63 INTERSECTION OF RD. C.L. TH 47 AND CR 116
EQUATION: STA AHEAD: 59+50 LNB = STA BACK: 59+44.06 LNB
STA 62+00 ELEV = 858.58
MATCH LINE STA 62+00 SEE SHEET 23
48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00
875 870 865 860 855

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10/01/96	KJV	

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PLAN & PROFILE
T. H. 47
STA 50+00 TO 62+00

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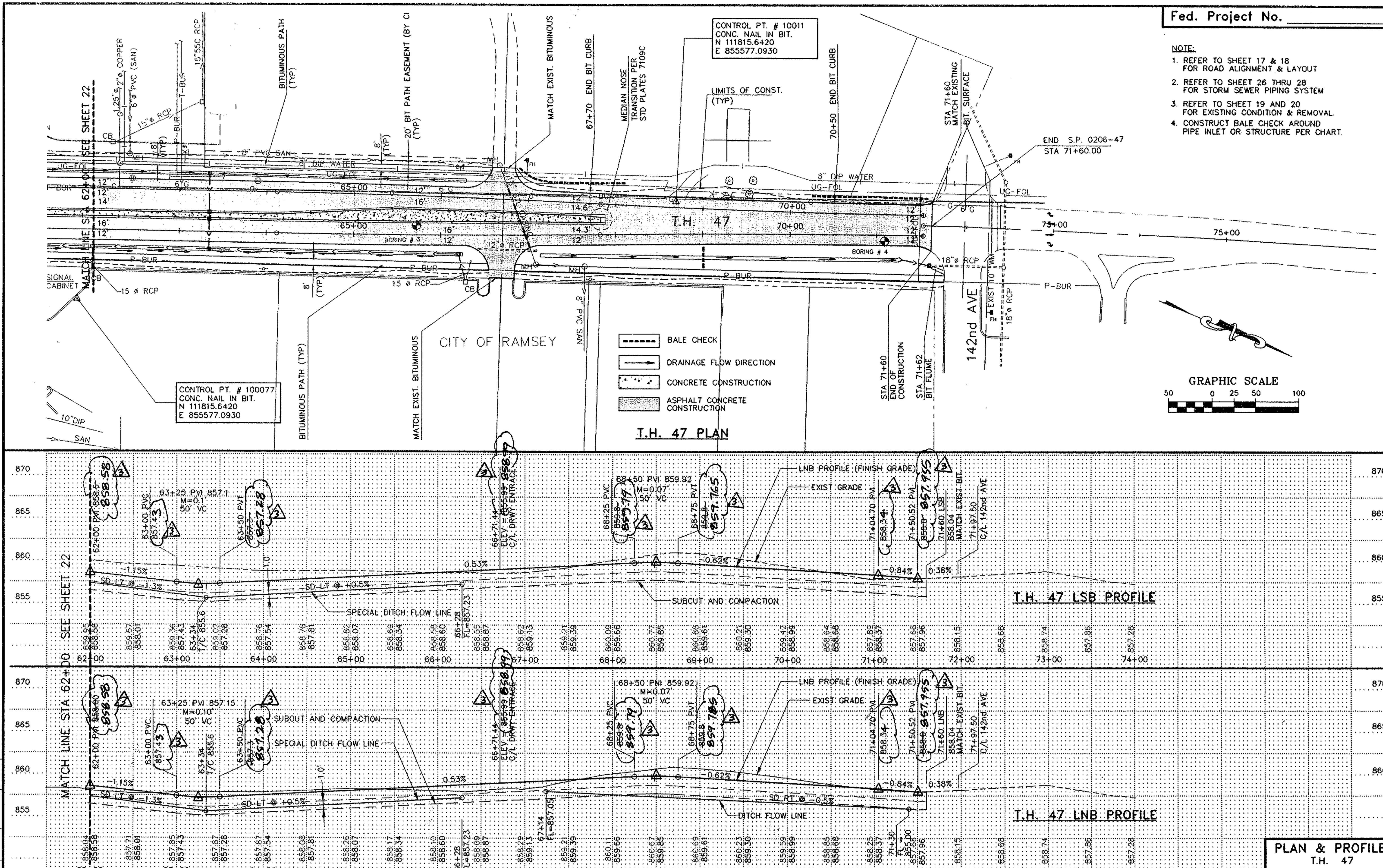
S.P. 0260-47 S.A.P. 02-716-01 C.P.

Sheet No. 22 of 56 Sheets

Fed. Project No.

NOTE:
1. REFER TO SHEET 17 & 18 FOR ROAD ALIGNMENT & LAYOUT
2. REFER TO SHEET 26 THRU 28 FOR STORM SEWER PIPING SYSTEM
3. REFER TO SHEET 19 AND 20 FOR EXISTING CONDITION & REMOVAL.
4. CONSTRUCT BALE CHECK AROUND PIPE INLET OR STRUCTURE PER CHART.



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PLAN & PROFILE
T.H. 47
STA 62+00 TO 71+53.50

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S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 23 of 56 Sheets

Fed. Project No. _____

BEGIN S.A.P.02-716-01
STA. 90+91.10

STA 90+91.10
BEGIN BIT. OVERLAY

CITY OF ANOKA

NOTE:
1. REFER TO SHEET 17 & 18 FOR ROAD ALIGNMENT & LAYOUT
2. REFER TO SHEET 26 THRU 28 FOR STORM SEWER PIPING SYSTEM
3. REFER TO SHEET 19 AND 20 FOR EXISTING CONDITION & REMOVAL.
4. CONSTRUCT BALE CHECK AROUND PIPE INLET OR STRUCTURE PER CHART.

MATCH EXIST BIT. SURFACE

ROAD OVERLAY (TYP)

STA 95+67
END BIT. OVERLAY

STA 95+35 55' RT
REPLACE DAMAGED APRON & TRASH GUARD

6" GAS

DIP WATER MAIN

MATCH EXIST. BIT. SURFACE

TOP OF POND SLOPE (TYP)

BOTTOM OF POND SLOPE (TYP)

STA 90+91.10
BEGIN ROAD WIDENING

MATCH EXIST. BIT. SURFACE

12" ø CMP

SPECIAL MEDIAN NOSE TRANSITION PER DETAIL ON SHT 7

BEGIN EXCEPTION S.A.P.02-617-01
STA. 98+38.29

SEE SHEET 22

95+00

C.S.A.H. 116

13" ARCH PIPE

15" ø CMP

SEDIMENTATION POND
SEE SHEET 29

MATCH LINE

60+00

6" ø PVC (SAN)

1.25" ø COPPER

2" ø PVC

15 ø RCP

SIGNAL CABINET

SEE SHEET 22

100+00

13" ARCH PIPE

12" ø RCP

T.H. 47

PUMP ISLAND

FOOD N FUEL

END S.A.P.02-617-01
STA. 101+35.00

MATCH EXIST BIT. SURFACE (TYP)

10" DIP

30" ø RCP

8" G

105+00

C.S.A.H.

BALE CHECK
DRAINAGE FLOW DIRECTION
CONCRETE CONSTRUCTION
ASPHALT CONCRETE CONSTRUCTION

END EXCEPTION S.A.P.02-617-01
STA. 100+21.37

GRAPHIC SCALE
50 0 25 50 100

C.S.A.H. 116 PLAN

BIT. OVERLAY SHALL MATCH EXIST SURFACE (TYP)

FULL WIDTH IMPROVEMENT (SEE SHEET 25 FOR ELEV.)

EAST BOUND IMPROVEMENT (SEE SHEET 25 FOR ELEV.)

C.S.A.H. 116 CENTER LINE (FINISH GRADE)
(SEE SHEET 25 FOR PROPOSED ELEVATIONS)

EXIST TOP OF CURB

90+91.10 860.81
95+67
98+36 FL = 859.00
99+10.18 T.H. 47 LSB 860.49
99+58.18 T.H. 47 LNB 860.49
100+21.37
101+00

865
860
855

SD LT. @ +0.5%
SD LT. @ -0.5%
SD RT. @ +0.5%
SD LT. @ +1.1%

LT. DITCH FLOW LINE
RT. DITCH FLOW LINE

94+56 FL = 858.00
96+60 FL = 858.15
97+20 H.P. FL = 859.00
98+36 FL = 858.40
98+65 T/C = 858.25
100+25 T/C = 858.50
101+14 FL = 859.50

LT. DITCH FLOW LINE

861.61 861.61 | 861.19 861.19 | 861.35 861.35 | 861.58 861.58 | 861.81 861.81 | 862.05 862.05 | 862.12 862.12 | 861.91 861.91 | 861.86 861.85 | 861.72 861.72 | 861.99 861.61 | 861.81 861.43 | 861.63 861.23 | 861.46 861.02 | 861.31 860.83 | 861.15 860.59 | 860.80 860.33 | 860.24 860.57 | 860.75 860.39 | 860.98 860.48 | 860.99 860.59 | 860.30 | 860.10

91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00 99+00 100+00 101+00 102+00

C.S.A.H. 116 PLAN

PLAN & PROFILE
C.S.A.H. 116
STA 90+91.58 TO 102+00

REVISIONS

DATE	BY	DATE	BY

FILE NAME: C:\P\9023116\PLANS\47116C20.DWG MN(7-16-96)

CERTIFIED BY Douglas M Finch P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 24 of 56 Sheets

Fed. Project No. _____

FOR CONTINUATION SEE PLAN & PROFILE SHEET 23

NOTE:
1. ALL SPOT ELEVATIONS SHOWN ON THIS PLAN ARE BITUMINOUS FINISHED SURFACE GRADE ELEVATIONS.
2. FOR TOP OF CURB ELEVATIONS ADD 0.375' TO THE GUTTER LIP ELEVATIONS AS SHOWN.

FOR CONTINUATION SEE PLAN & PROFILE SHEET 24

EDGE OF MAT (TYP)

MEDIAN CURB LINE (SEE NOTE 2)

SIGN

SIGNAL CABINET

GRAPHIC SCALE
20 0 10 20 40

96+00

98+00

62+00

62+00

100+00

60+00

60+00

C. S. A. H. 116

T. H. 47

MATCH EXISTING SURFACE (TYP)

EXIST. EDGE OF MAT

EXIST. MED. C&G TO REMAIN

NEW CONC. MEDIAN

NEW B-612 C&G SEE NOTE 2

EXIST.COND.MED. WITH CURB & GUTTER TO REMAIN.

MATCH EXIST. BIT. SURFACE

MATCH EXIST. CONC. GUTTER

NEW CONC GUTTER

MATCH EXIST. CONC. C & G

PCR

D/4 (TYP)

SEDIMENTATION POND
SEE SHEET 29

CURB LINE SEE NOTE 2

PUMP ISLAND

FUEL

INTERSECTION PAVING PLAN

INTERSECTION DETAILS

FOR CONTINUATION SEE PLAN & PROFILE SHEET 22

FILE NAME: C:\P\9023116\PLANS\47116C21.DWG MN(5-16-96)

REVISIONS

DATE	BY	DATE	BY

CERTIFIED BY Douglas M Fuerst P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 25 of 56 Sheets

Fed. Project No.

MATCH LINE SEE SHT 27

MATCH LINE SEE SHT 27

MINERAL POND BLVD.

COOLIDGE ST.

T.H. 47

R/W

CONSTRUCTION LIMITS (TYP)

TEMPORARY EASEMENT

CITY OF ANOKA

CITY OF PAVSE

C.S.A.H. 116

STA AHEAD: 59+50
STA BACK: 59+44.06

GRAPHIC SCALE
50 0 25 50 100

STORM SEWER PLAN

STORM SEWER PROFILE

LNB FINISH GRADE PROFILE (SEE NOTE - 1)

LNB EXIST GRADE

TOP OF PIPE (TYP)

PIPE INVERT (TYP)

T/C 884.23
T/C 865.36
T/C 866.92
T/C 867.08
T/C 865.03
T/C 863.69
T/C 861.24
T/C 858.15
T/C 859.00
T/C 857.32
T/C 855.69

-0.56%
0.32%
-1.22%
-0.98%
-1.07%
-1.15%
-1.40%
-1.15%
0.50%

861.16
860.58
859.64
858.80
857.93
857.43
856.60
848.65
849.43
850.16
850.62
851.42
851.67

60 x 18" RCP @ 0.50%
195' x 18" RCP @ 0.48%
161' x 18" RCP @ 0.52%
167' x 18" RCP @ 0.52%
194' x 24" RCP @ 0.43%
287' x 15" RCP @ 0.53%
134' x 18" RCP @ 0.60%
69' x 18" RCP @ 0.60%
78' x 27" RCP @ 1.0%
52' x 18" RCP @ 0.48%
6' x 18" RCP @ 3.33%
6' x 18" RCP @ 3.33%

860.83
859.84
859.00

INLET PIPE FROM CB (B1) SEE PROFILE SHEET 28

INLET SUB-DRAINAGE PIPE PIPE FROM RETAINING WALL

INLET PIPE FROM CB (A6) AND CB (D2) SEE PROFILE ON SHEET 28

INLET PIPE FROM CB (E3) SEE PROFILE ON SHEET 28

OUTLET PIPE TO CB (A8)

OUTLET PIPE TO CB (F1)

INLET PIPE FROM CB (E1)

INLET PIPE FROM CB (G5)

INLET PIPE FROM CB (M1)

INLET PIPE FROM CB (J4)

NOTES:
1. SEE SHEET 22 AND 23 FOR ALL FINISH GRADE PROFILE DATA.

875 870 865 860 855 850 845 840

50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00

REVISIONS
DATE | BY | DATE | BY
6/28/96 | KTY

FILE NAME: C:\P\9023116\PLANS\47116C23.DWG UNK(8-29-96)

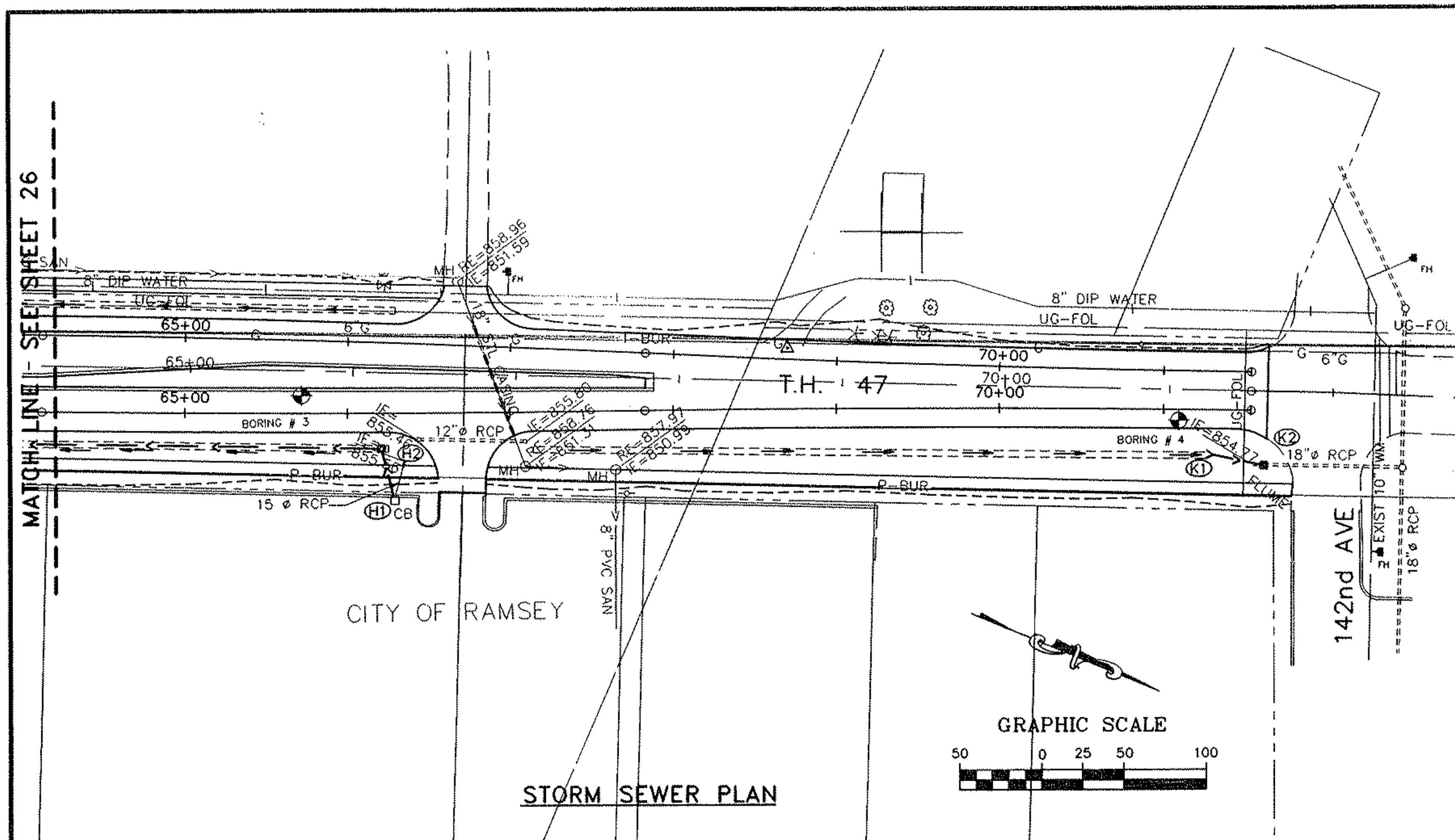
CERTIFIED BY Douglas W. Brooks P.E. REG NO. 20235 10/2 19 96

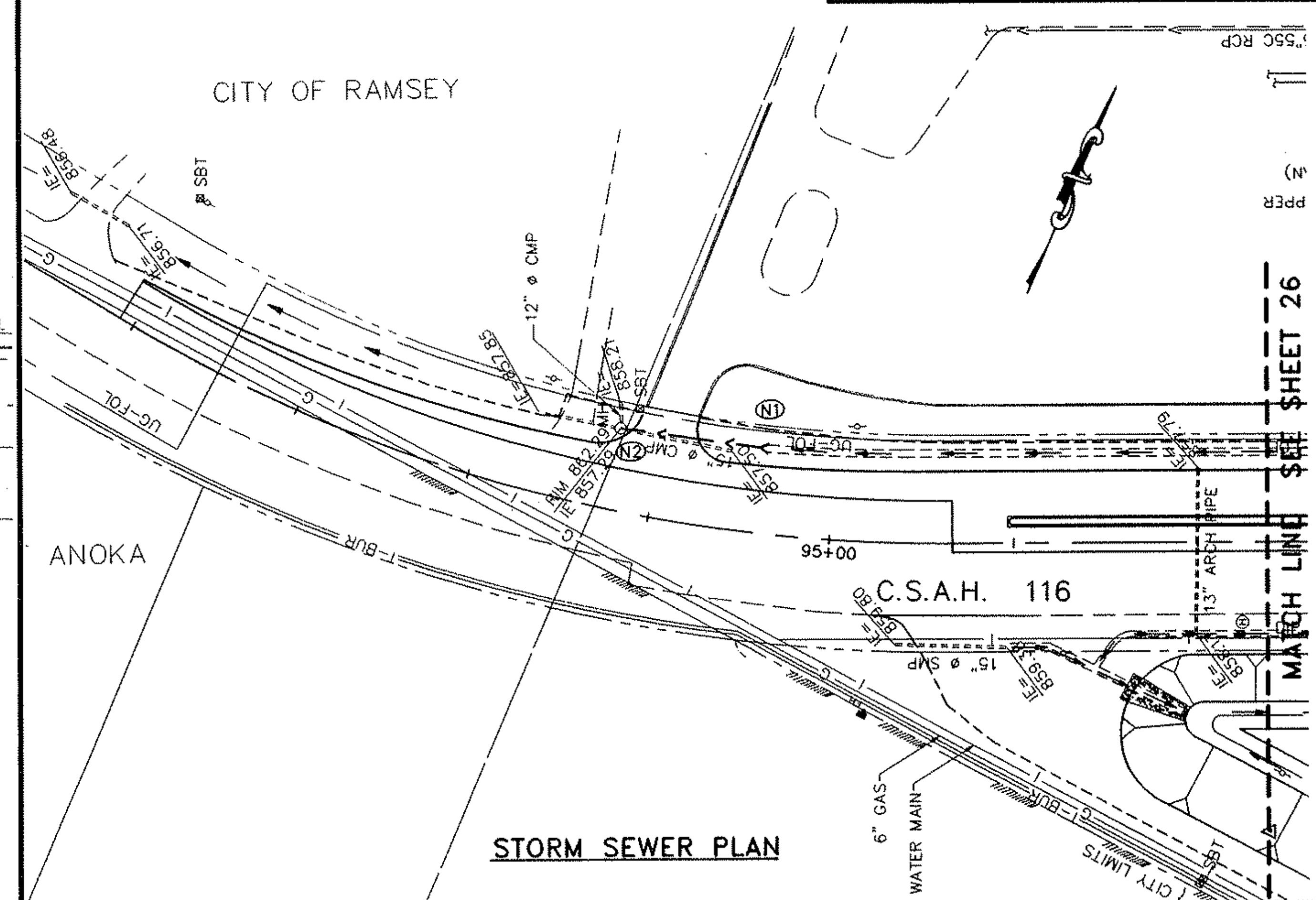
S.P. 0206-47 S.A.P. 02-716-01 C.P.

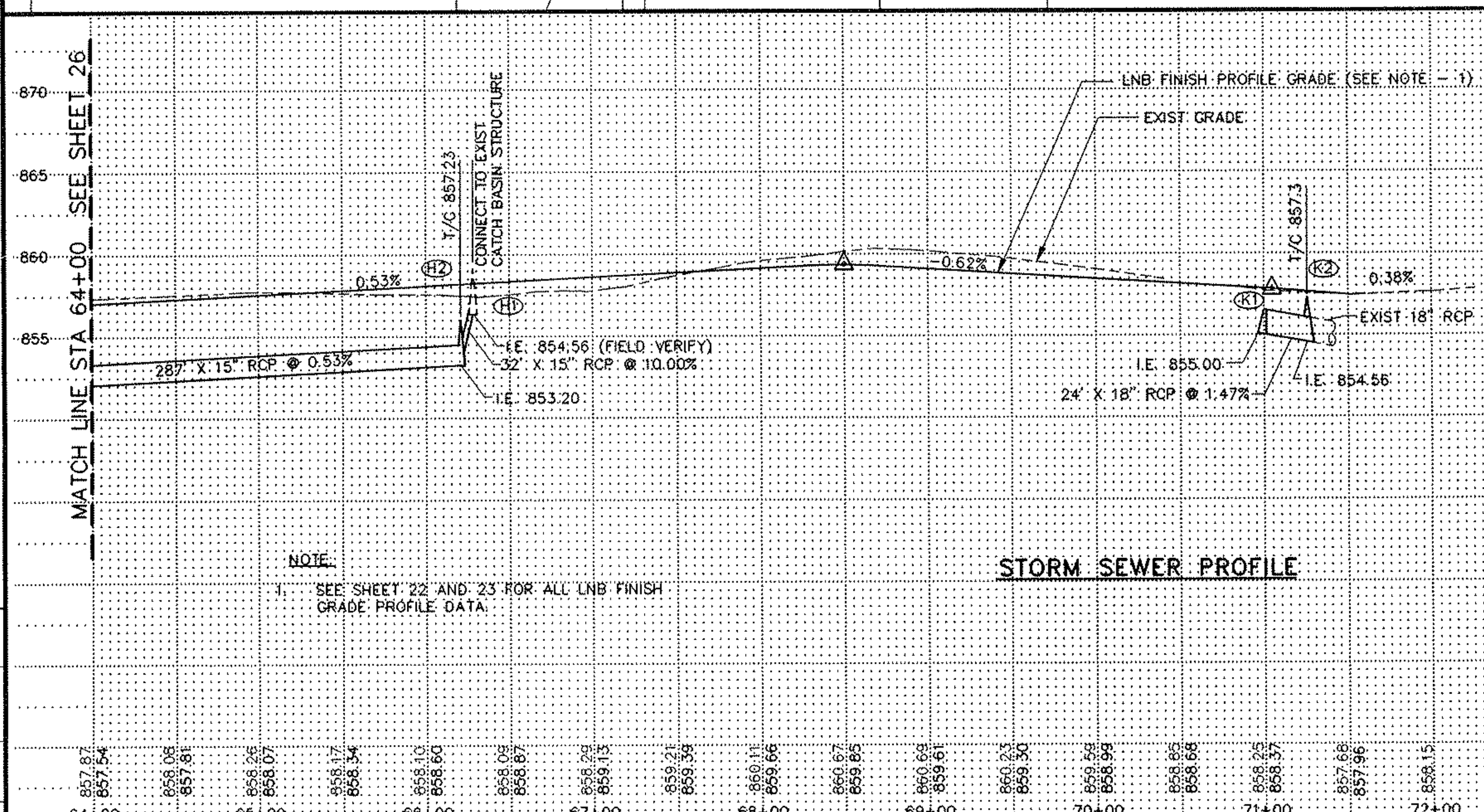
STORM SEWER
STA 51+00 TO STA 64+00

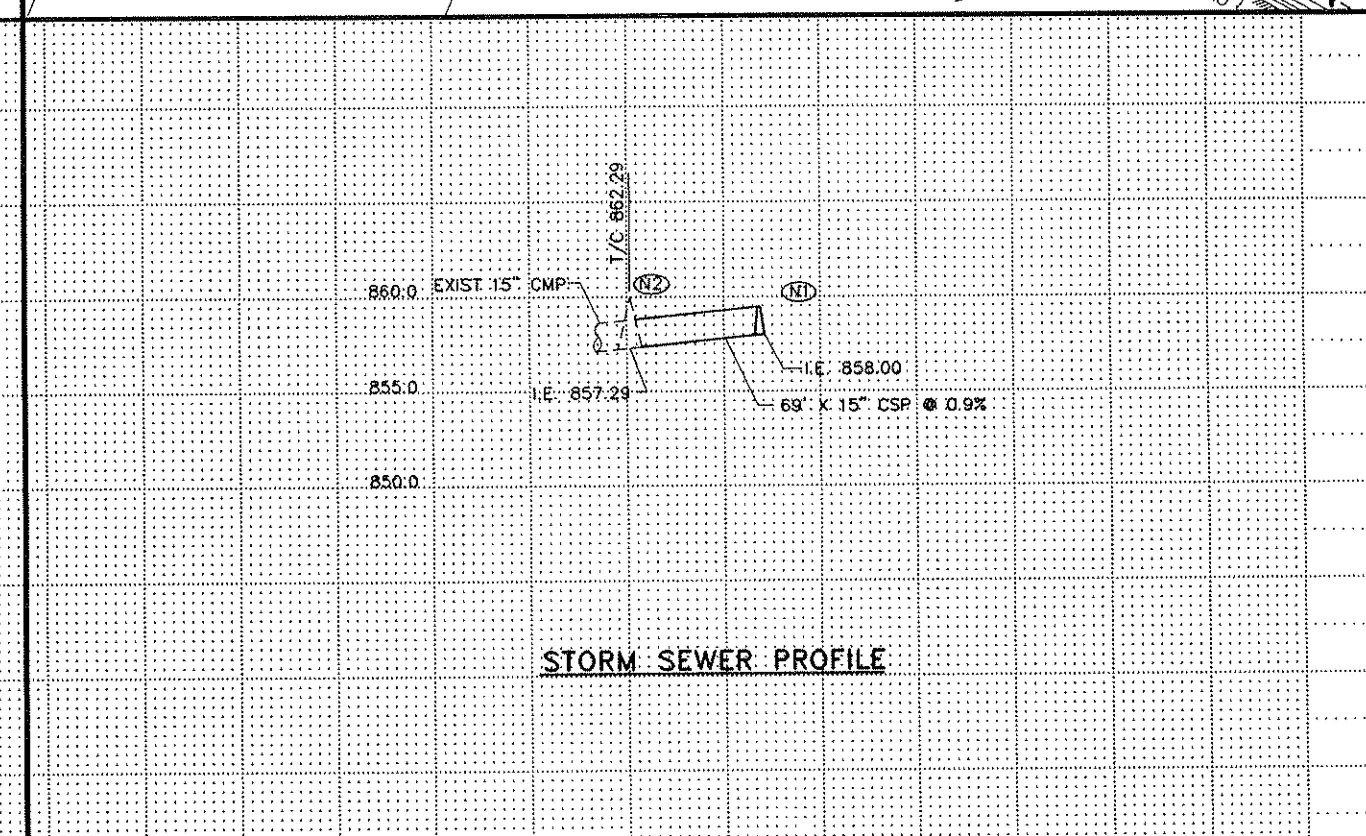
Sheet No. 26 of 56 Sheets

Fed. Project No. ______






MATCH LINE STA 64+00 - SEE SHEET 26
870
865
860
855
LNB FINISH PROFILE GRADE (SEE NOTE - 1)
EXIST GRADE
T/C 857.23
CONNECT TO EXIST CATCH BASIN STRUCTURE
H2
H1
0.53%
-0.62%
0.38%
T/C 857.3
K2
K1
EXIST 18" RCP
I.E. 854.56 (FIELD VERIFY)
32' X 15" RCP @ 10.00%
287' X 15" RCP @ 0.53%
I.E. 853.20
I.E. 855.00
I.E. 854.56
24' X 18" RCP @ 1.47%
NOTE:
1. SEE SHEET 22 AND 23 FOR ALL LNB FINISH GRADE PROFILE DATA.
STORM SEWER PROFILE
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
72+00



STORM SEWER
STA 64+00 TO STA 71+60
STA 94+00 TO STA 97+00

REVISIONS		
DATE	BY	DATE	BY

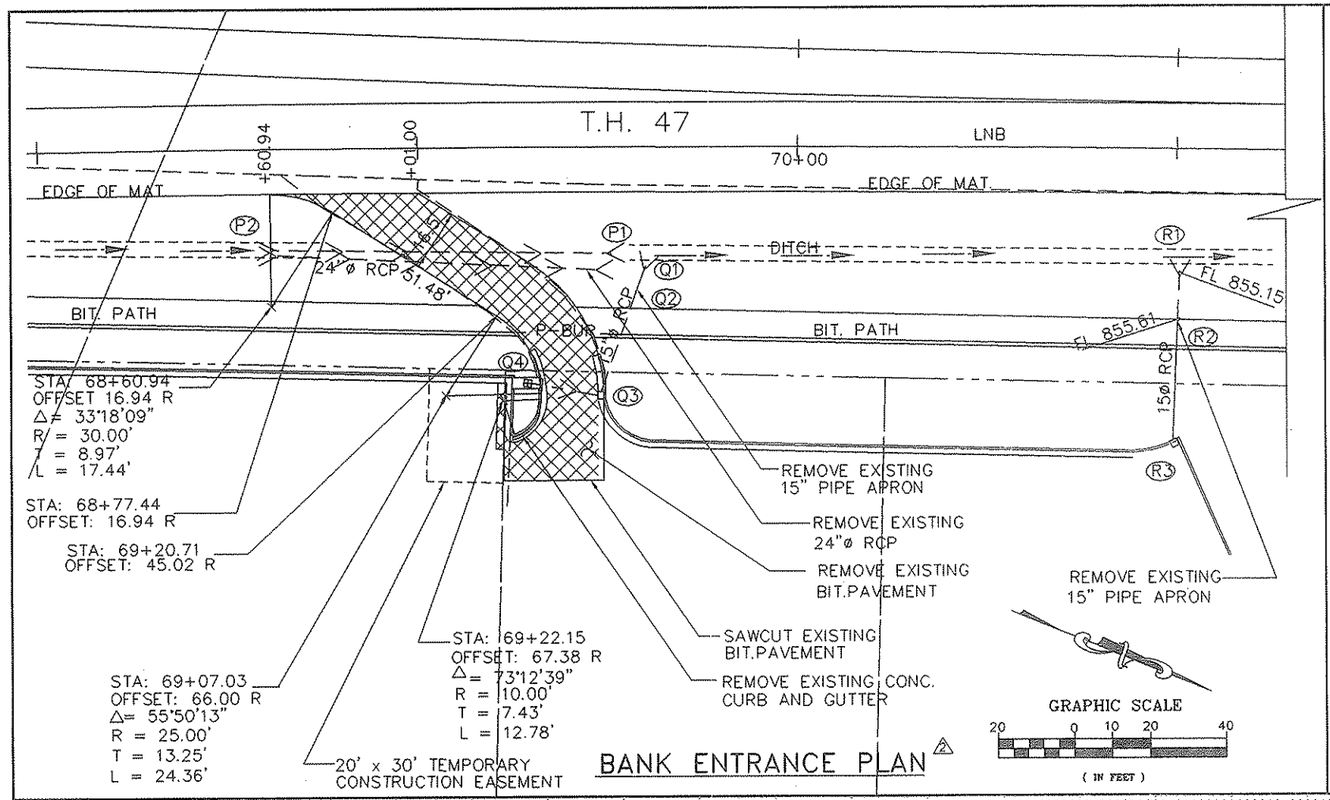
FILE NAME: C:\P\9023116\PLANS\47116C24.DWG MN(7-16-96)

CERTIFIED BY [signature] P.E. REG NO. 20235 7/18 19 96

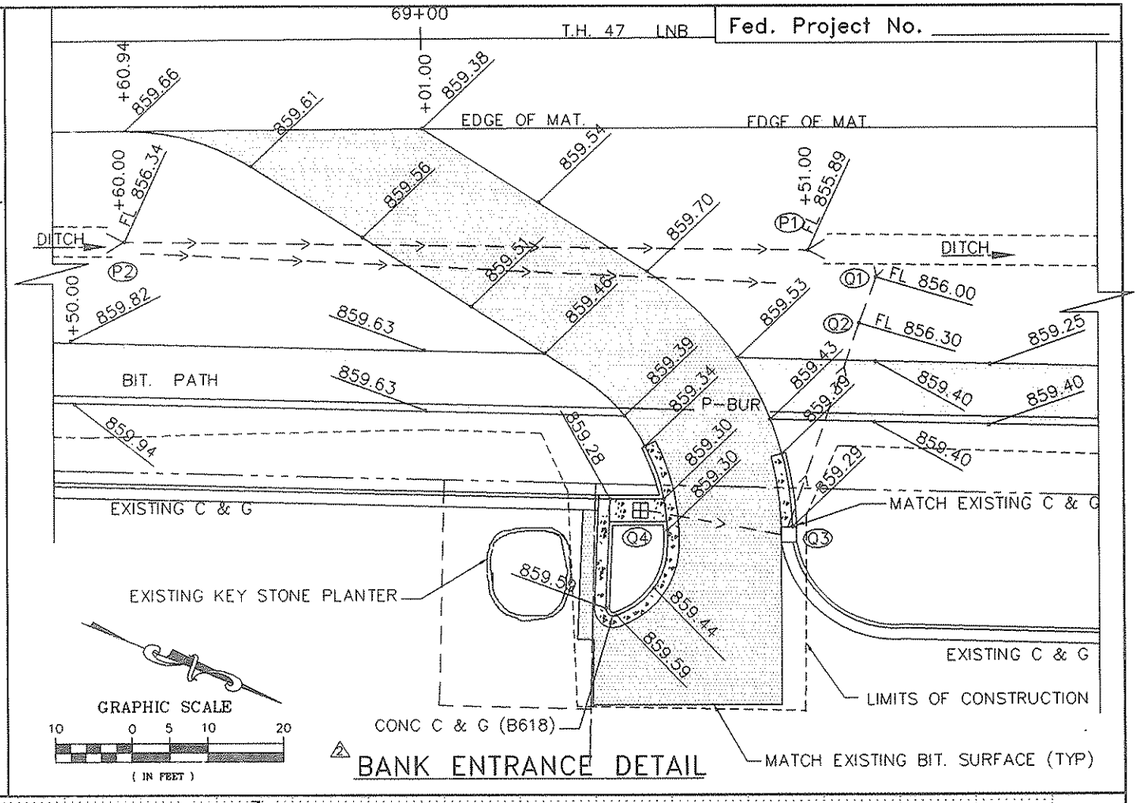
S.P. 0206-47 S.A.P. 02-716-01 C.P. ______

Sheet No. 27 of 56 Sheets

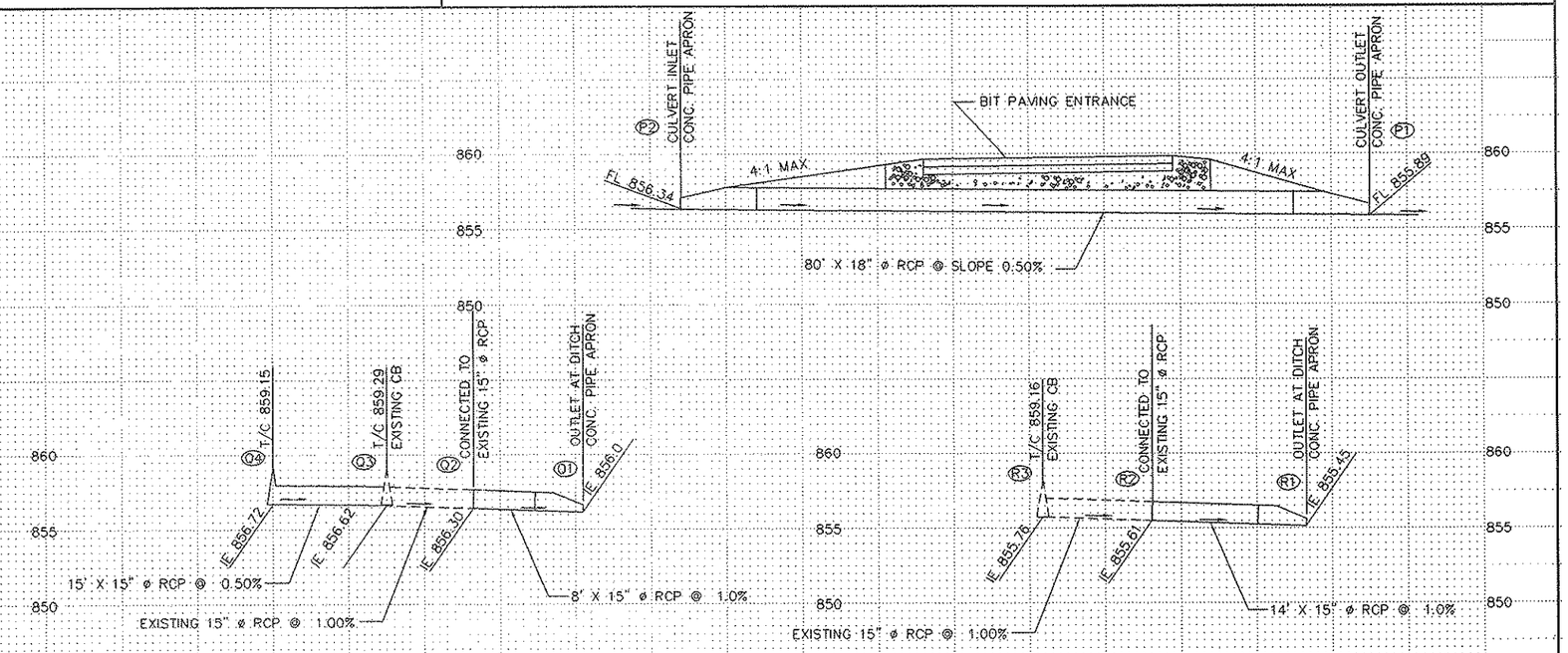
Fed. Project No. _____



BANK ENTRANCE PLAN



BANK ENTRANCE DETAIL



STORM SEWER PROFILE

STORM SEWER

REVISIONS

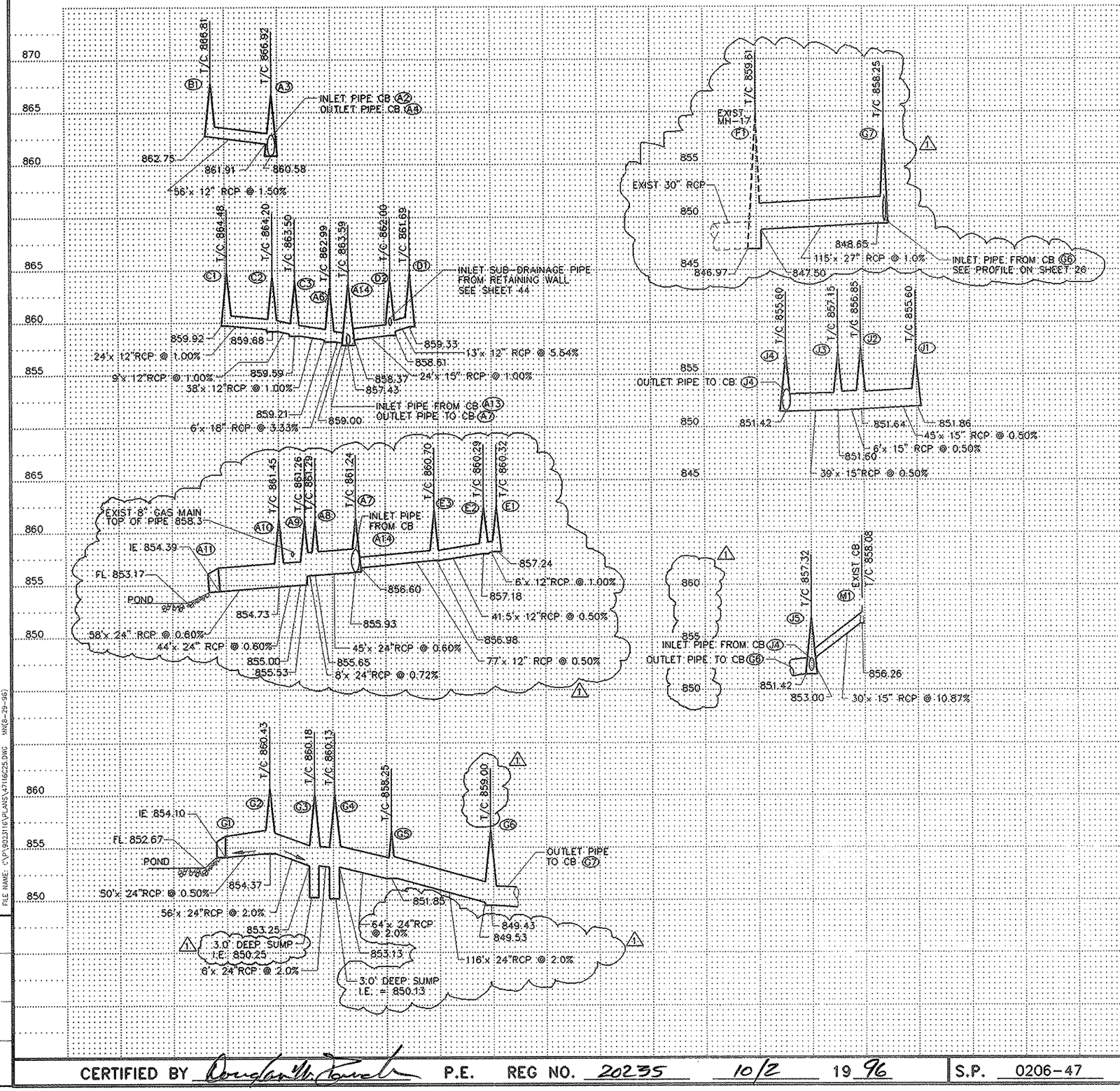
DATE	BY	DATE	BY
9-17-96	KAO		

CERTIFIED BY Douglas W. Bruce P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 27A of 56 Sheets

Fed. Project No.



FILE NAME: C:\P\90\3116\PLANS\47116C25.DWG MN(8-29-96)

REVISIONS

DATE	BY	DATE	BY
8-28-96	KTY		

CERTIFIED BY Douglas W. Fowler P.E. REG NO. 20235 10/2 19 96

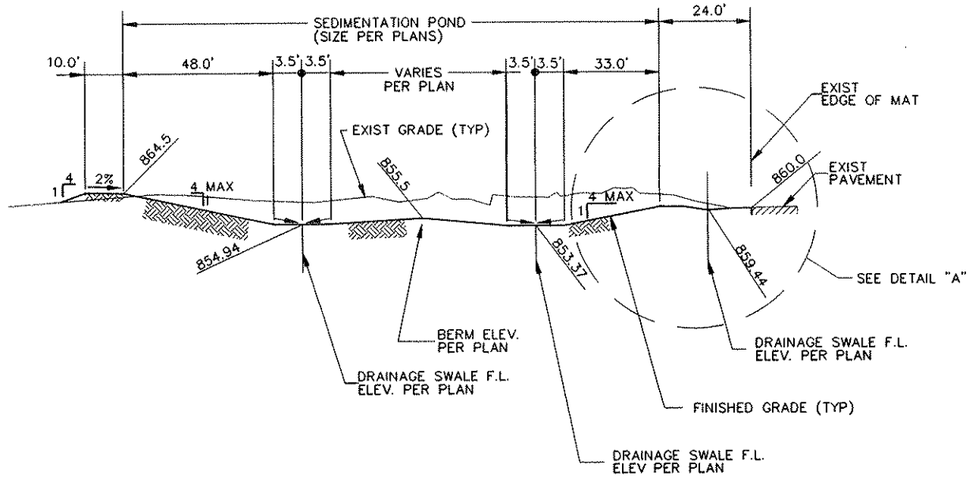
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 28 of 56 Sheets

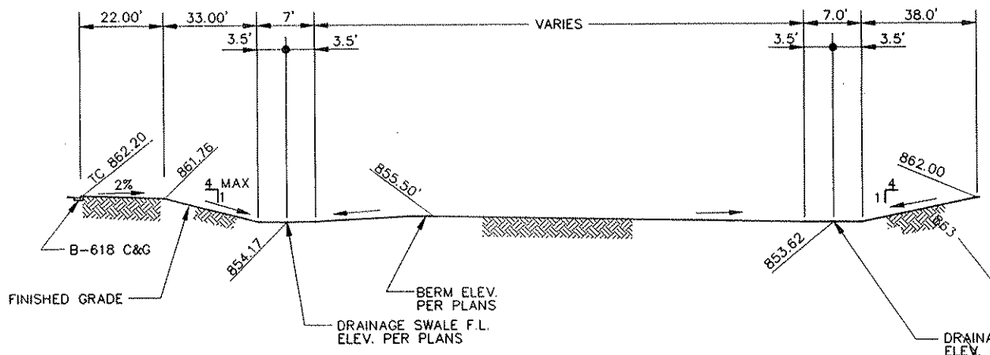
STORM SEWER
LATERALS

Fed. Project No. _____

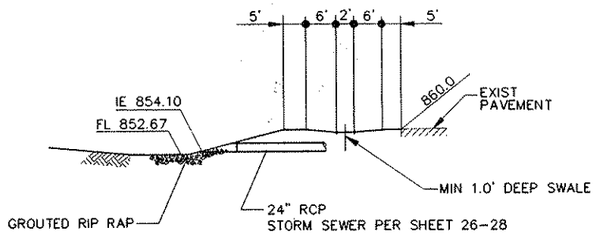
SEDIMENTATION POND
SECTION A–A

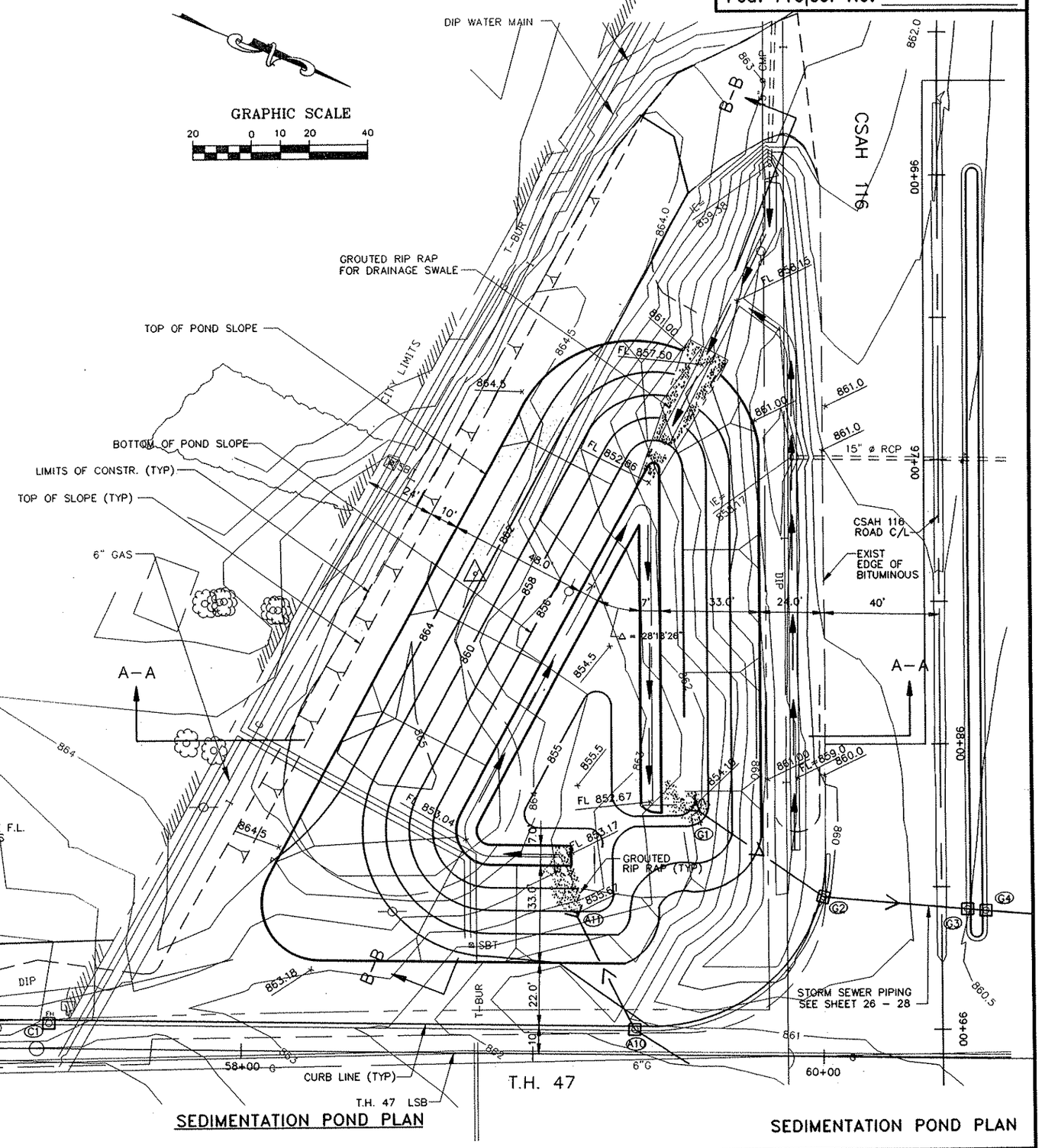


SEDIMENTATION POND
SECTION B–B



DETAIL "A"





SEDIMENTATION POND PLAN

SEDIMENTATION POND PLAN

REVISIONS					
DATE	BY		DATE	BY	

FILE NAME: CVP\9023116\Plans\47116C26.DWG MN(5-16-96)

CERTIFIED BY _____ P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 29 of 56 Sheets

Fed. Project No. _____

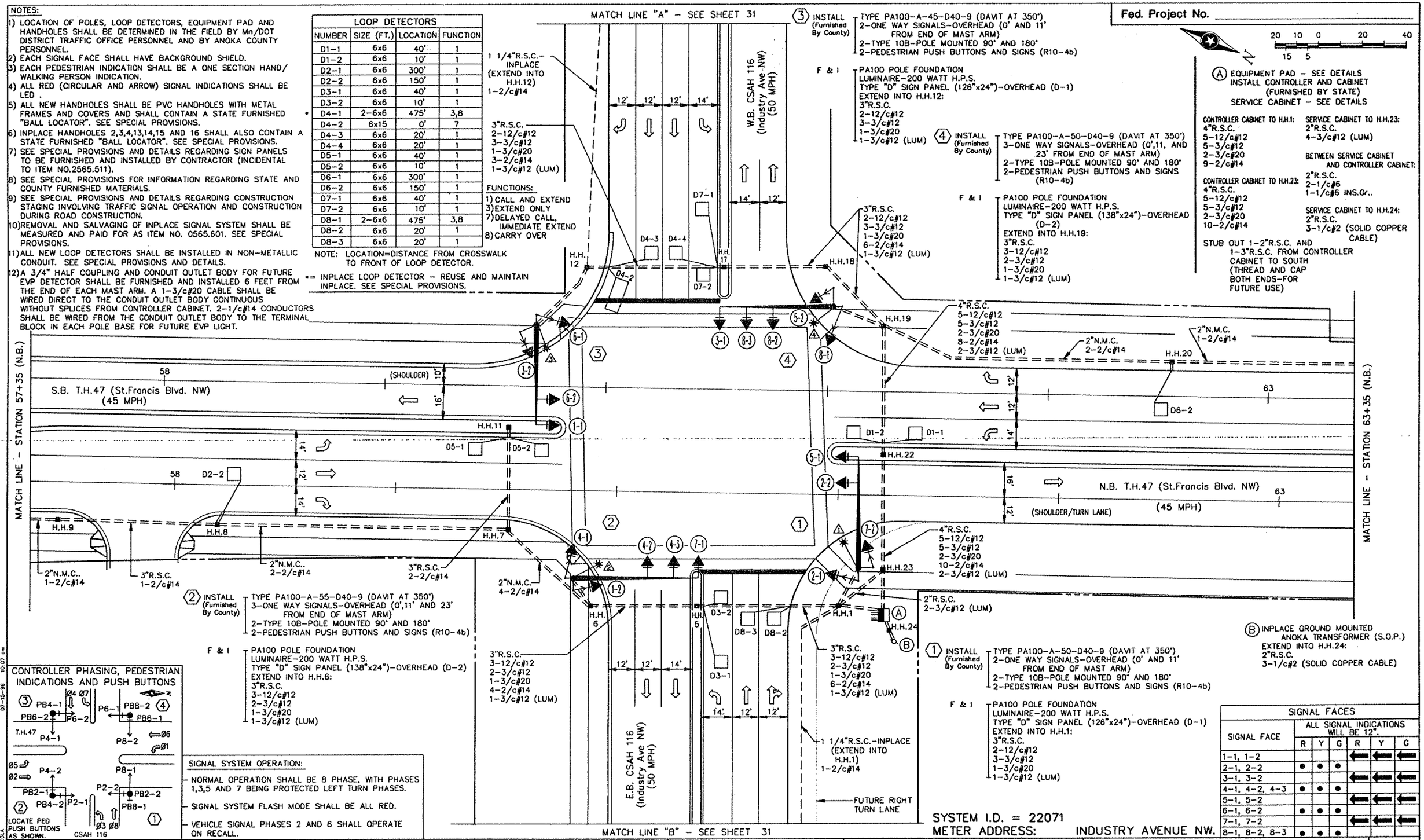
NOTES:

1) LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY Mn/DOT DISTRICT TRAFFIC OFFICE PERSONNEL AND BY ANOKA COUNTY PERSONNEL.
2) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
3) EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION HAND/WALKING PERSON INDICATION.
4) ALL RED (CIRCULAR AND ARROW) SIGNAL INDICATIONS SHALL BE LED .
5) ALL NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND SHALL CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
6) INPLACE HANDHOLES 2,3,4,13,14,15 AND 16 SHALL ALSO CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO.2565.511).
8) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING STATE AND COUNTY FURNISHED MATERIALS.
9) SEE SPECIAL PROVISIONS AND DETAILS REGARDING CONSTRUCTION STAGING INVOLVING TRAFFIC SIGNAL OPERATION AND CONSTRUCTION DURING ROAD CONSTRUCTION.
10) REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM SHALL BE MEASURED AND PAID FOR AS ITEM NO. 0565.601. SEE SPECIAL PROVISIONS.
11) ALL NEW LOOP DETECTORS SHALL BE INSTALLED IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
12) A 3/4" HALF COUPLING AND CONDUIT OUTLET BODY FOR FUTURE EVP DETECTOR SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM. A 1-3/c#20 CABLE SHALL BE WIRED DIRECT TO THE CONDUIT OUTLET BODY CONTINUOUS WITHOUT SPLICES FROM CONTROLLER CABINET. 2-1/c#14 CONDUCTORS SHALL BE WIRED FROM THE CONDUIT OUTLET BODY TO THE TERMINAL BLOCK IN EACH POLE BASE FOR FUTURE EVP LIGHT.

LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	10'	1
D2-1	6x6	300'	1
D2-2	6x6	150'	1
D3-1	6x6	40'	1
D3-2	6x6	10'	1
D4-1	2-6x6	475'	3,8
D4-2	6x15	0'	7
D4-3	6x6	20'	1
D4-4	6x6	20'	1
D5-1	6x6	40'	1
D5-2	6x6	10'	1
D6-1	6x6	300'	1
D6-2	6x6	150'	1
D7-1	6x6	40'	1
D7-2	6x6	10'	1
D8-1	2-6x6	475'	3,8
D8-2	6x6	20'	1
D8-3	6x6	20'	1

NOTE: LOCATION=DISTANCE FROM CROSSWALK TO FRONT OF LOOP DETECTOR.

* = INPLACE LOOP DETECTOR - REUSE AND MAINTAIN INPLACE. SEE SPECIAL PROVISIONS.



③ INSTALL (Furnished By County) — TYPE PA100-A-45-D40-9 (DAVIT AT 350°)
2-ONE WAY SIGNALS-OVERHEAD (0° AND 11° FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)

F & I — PA100 POLE FOUNDATION
LUMINAIRE-200 WATT H.P.S.
TYPE "D" SIGN PANEL (126"x24")-OVERHEAD (D-1)
EXTEND INTO H.H.12:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#20
1-3/c#12 (LUM)

④ INSTALL (Furnished By County) — TYPE PA100-A-50-D40-9 (DAVIT AT 350°)
3-ONE WAY SIGNALS-OVERHEAD (0',11, AND 23' FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)

F & I — PA100 POLE FOUNDATION
LUMINAIRE-200 WATT H.P.S.
TYPE "D" SIGN PANEL (138"x24")-OVERHEAD (D-2)
EXTEND INTO H.H.19:
3"R.S.C.
3-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

② INSTALL (Furnished By County) — TYPE PA100-A-55-D40-9 (DAVIT AT 350°)
3-ONE WAY SIGNALS-OVERHEAD (0',11' AND 23' FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)

F & I — PA100 POLE FOUNDATION
LUMINAIRE-200 WATT H.P.S.
TYPE "D" SIGN PANEL (138"x24")-OVERHEAD (D-2)
EXTEND INTO H.H.6:
3"R.S.C.
3-12/c#12
2-3/c#12
1-3/c#20
1-3/c#12 (LUM)

① INSTALL (Furnished By County) — TYPE PA100-A-50-D40-9 (DAVIT AT 350°)
2-ONE WAY SIGNALS-OVERHEAD (0° AND 11° FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)

F & I — PA100 POLE FOUNDATION
LUMINAIRE-200 WATT H.P.S.
TYPE "D" SIGN PANEL (126"x24")-OVERHEAD (D-1)
EXTEND INTO H.H.1:
3"R.S.C.
2-12/c#12
3-3/c#12
1-3/c#20
1-3/c#12 (LUM)

Ⓑ INPLACE GROUND MOUNTED ANOKA TRANSFORMER (S.O.P.)
EXTEND INTO H.H.24:
2"R.S.C.
3-1/c#2 (SOLID COPPER CABLE)

20 10 0 20 40
15 5

Ⓐ EQUIPMENT PAD - SEE DETAILS
INSTALL CONTROLLER AND CABINET (FURNISHED BY STATE)
SERVICE CABINET - SEE DETAILS

CONTROLLER CABINET TO H.H.1:
4"R.S.C.
5-12/c#12
5-3/c#12
2-3/c#20
9-2/c#14

CONTROLLER CABINET TO H.H.23:
4"R.S.C.
5-12/c#12
5-3/c#12
2-3/c#20
10-2/c#14

STUB OUT 1-2"R.S.C. AND 1-3"R.S.C. FROM CONTROLLER CABINET TO SOUTH (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)

SERVICE CABINET TO H.H.23:
2"R.S.C.
4-3/c#12 (LUM)

BETWEEN SERVICE CABINET AND CONTROLLER CABINET:
2"R.S.C.
2-1/c#6
1-1/c#6 INS.Gr..

SERVICE CABINET TO H.H.24:
2"R.S.C.
3-1/c#2 (SOLID COPPER CABLE)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

SIGNAL SYSTEM OPERATION:

- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 AND 7 BEING PROTECTED LEFT TURN PHASES.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SIGNAL FACES						
SIGNAL FACE	ALL SIGNAL INDICATIONS WILL BE 12".					
	R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2	●	●	●			
3-1, 3-2				←	←	←
4-1, 4-2, 4-3	●	●	●			
5-1, 5-2				←		
6-1, 6-2	●	●	●			
7-1, 7-2				←	←	←
8-1, 8-2, 8-3	●	●	●			

SYSTEM I.D. = 22071
METER ADDRESS: INDUSTRY AVENUE NW.

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments
2	JMG	7/96	Per Mn/DOT Comments

"ELECTRICAL ENGINEER CERTIFICATION"
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Robert A. Ellen
Date 5/14/96 Reg. No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
John M. Gray
Date 5/14/96 Reg. No. 22457

SEH ENGINEERS ARCHITECTS PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 30 of 56 Sheets

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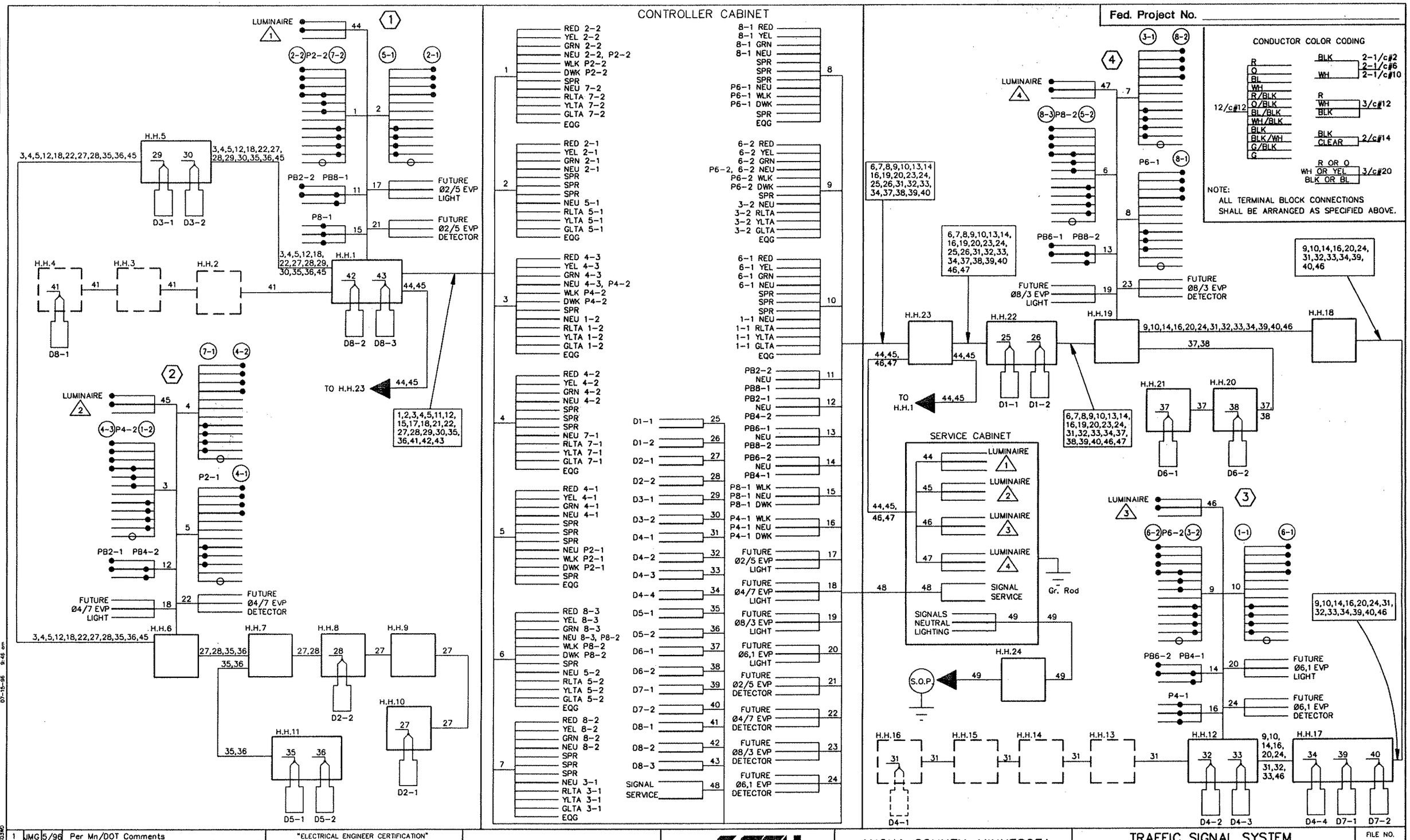
Fed. Project No. _____



NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments
2	JMG	7/96	Per Mn/DOT Comments

"ELECTRICAL ENGINEER CERTIFICATION"
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Robert A. Ellefson
Date: 5/14/96 Reg. No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
John M. Gray
Date: 5/14/96 Reg. No. 22457

ENGINEERS ARCHITECTS PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 32 of 56 Sheets

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Fed. Project No. _____

BASE /OVERLAY/BRG. NO.

LEGEND OF SYMBOLS

- CONTROLLER AND SERVICE EQUIP. NO's
- SIGNAL BASE NO.
- SIGNAL FACE NO.
- LUMINAIRE NO.
- CONTROLLER AND CABINET
- CONTROLLER AND CABINET – IN PLACE
- HANDHOLE
- HANDHOLE – IN PLACE
- RIGID STEEL CONDUIT (RSC)
- RIGID STEEL CONDUIT (RSC) – IN PLACE
- SIGNAL FACE WITH BACKGROUND SHIELD
- SIGNAL FACE W/O BACKGROUND SHIELD
- SIGNAL FACE – IN PLACE
- PEDESTRIAN INDICATORS
- PEDESTRIAN INDICATORS – IN PLACE
- PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE
- PEDESTRIAN PUSH BUTTON STATION
- TRAFFIC SIGNAL PEDESTAL
- TRAFFIC SIGNAL PEDESTAL – INPLACE
- TRAFFIC SIGNAL POLE AND MAST ARM
- TRAFFIC SIGNAL POLE AND MAST ARM – IN PLACE
- STREET LIGHT POLE AND LUMINAIRE
- STREET LIGHT POLE AND LUMINAIRE – IN PLACE
- MAST ARM AND LUMINAIRE
- MAST ARM AND LUMINAIRE – INPLACE
- WOOD POLE
- WOOD POLE – IN PLACE
- SOURCE OF POWER
- RAILROAD SIGNAL – IN PLACE
- RIGHT OF WAY LINE
- CENTERLINE
- EDGE OF ROADWAY
- SHOULDERLINE
- CURB LINE
- STOP BAR

ABBREVIATIONS

3–1(EG)	SIGNAL HEAD PHASE "3" – NO "1"	P2–1(EG)	PEDESTRIAN 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
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE–EMPTION	RLTA	RED 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 RIGTH TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	TDW	TELEPHONE DROP WIRE
HPS	HIGH PRESSURE SODIUM	WLK	WALK
JB	JUNCTION BOX	YEL	YELLOW
LUM	LUMINAIRE	YLTA	YELLOW LEFT TURN ARROW
NEU	NEUTRAL	YRTA	YELLOW RIGHT TURN ARROW
NMC	NONMETALLIC CONDUIT	YTHA	YELLOW THRU ARROW

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

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

	PLATE NO.	DESCRIPTION
*	8110 C	TRAFFIC SIGNAL BRACKETING – POLE MOUNTED
	8111 B	TRAFFIC SIGNAL BRACKETING – PEDESTAL MOUNTED
	8112 C	PEDESTAL FOUNDATION
	8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
	8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
	8117 F	PRECAST CONCRETE HANDHOLE
	8118 C	SERVICE EQUIPMENT AND POLE–TRAFFIC CONTROL SIGNALS
*	8119 C	GROUND MOUNTED CABINET FOUNDATION
	8120 K	PA85 POLE FOUNDATION
*	8121 D	TRANSFORMER BASE AND POLE BASE PLATE
	8122 C	PEDESTAL AND PEDESTAL BASE
*	8123 D	POLE AND MAST ARM
*	8124 D	MAST ARM SIGNAL HEAD MOUNTS
*	8126 F	PA90 AND PA100 POLE FOUNDATION
	8130 D	SAW CUT LOOP DETECTORS

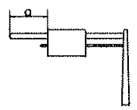
* – APPLIES TO THIS PROJECT

SIGN DETAILS

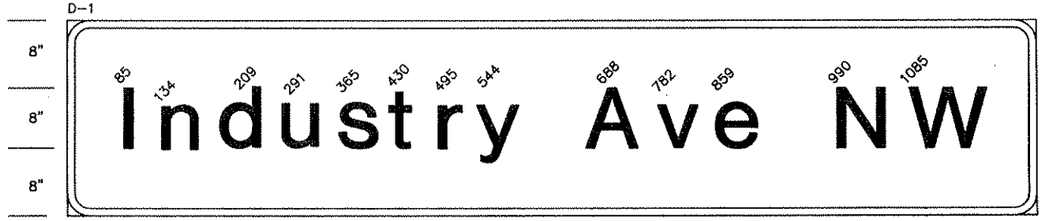
TYPE "D" SIGNS (F & I)						
SIGN PANEL	NO. REQ.	PANEL SIZE (IN).	PANEL AREA (Sq.Ft.)	NO. POSTS PER SIGN	POST SPACING	a
D–1	2	126x24	21.00	3	45"	16'
D–2	2	138x24	23.00	3	48"	28'

NOTES:

1) COLOR–WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3) FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A AND B.
4) FOR TYPE "D" STRINGER AND PANEL–JOINT DETAIL, SEE STANDARD SIGNS MANUAL.
5) SIGN PANELS TO BE FURNISHED AND INSTALLED INCIDENTAL TO ITEM NO.2565.511.

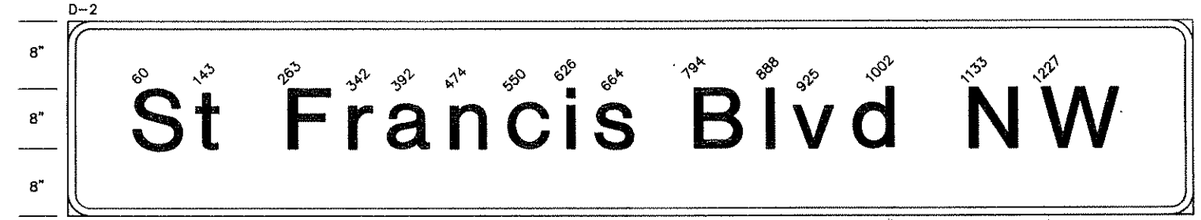


D–1



126"x24", 3"R. 1.0"B
Line 1 108.6: 8"–6" E MOD.

D–2



138"x24", 3"R. 1.0"B
Line 1 125.4: 8"–6" E MOD.

05–14–96 9:41 am

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"ELECTRICAL ENGINEER CERTIFICATION"
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Robert A. Ellis
Date: 5/14/96 Reg. No. 5859

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John M. Shay
Date: 5/14/96 Reg. No. 22457

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
DETAILS AND STANDARD PLATES
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

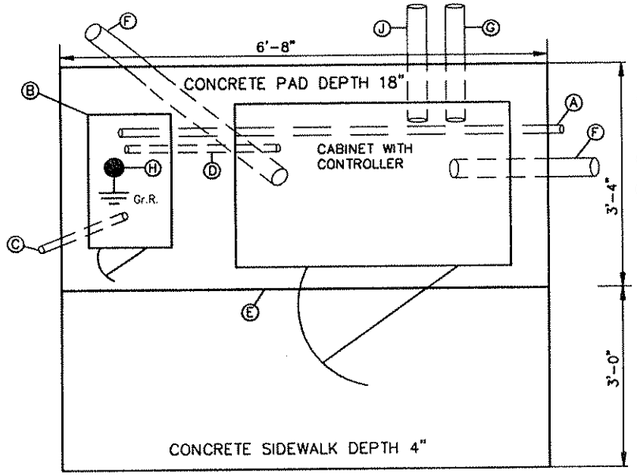
S.A.P. 02–716–01 S.P. 0206–47 C.P. _____

Sheet No. 33 of 56 Sheets

Fed. Project No. _____

TYPICAL PAD WITH CABINET, CONTROLLER, SERVICE EQUIPMENT

SEE INTERSECTION LAYOUT FOR CONDUIT AND CABLE INFORMATION

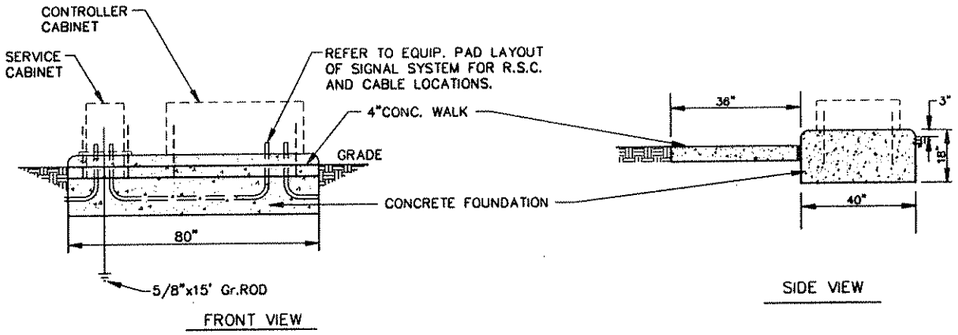


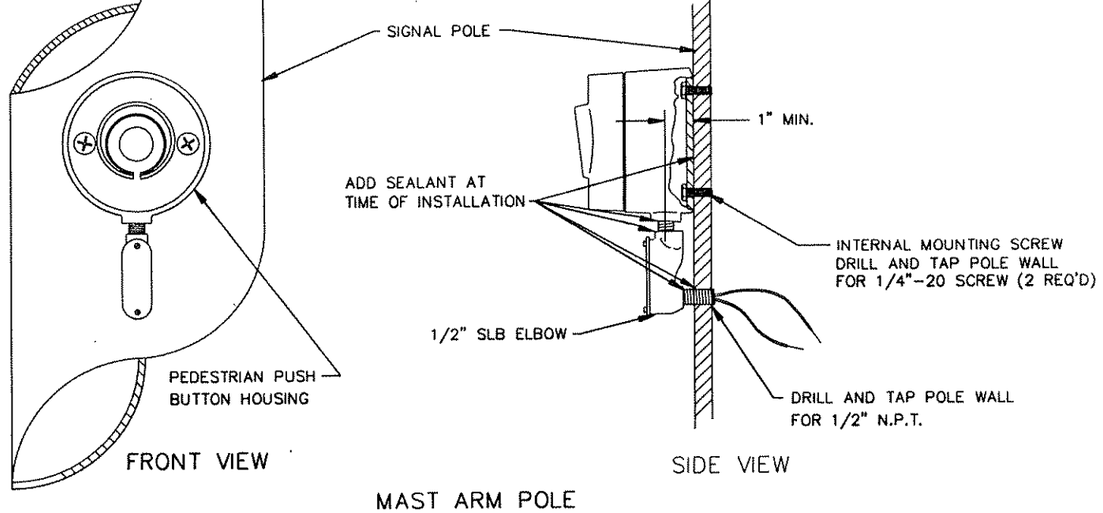
Ⓐ 2"R.S.C. TO H.H.23 WITH 4-3/c#12 CABLES (LUM.)
Ⓑ SERVICE CABINET
Ⓒ 2"R.S.C. WITH 3-1/c#2 SOLID COPPER CABLE TO H.H.24
Ⓓ 2"R.S.C. WITH 2-1/c#6 AND 1-1/c#6 INS.Gr.
Ⓔ PREFORMED JOINT FILLER
Ⓕ 4"R.S.C. TO H.H.
Ⓖ 3"R.S.C. STUB OUT (THREADED BOTH ENDS AND CAPPED)
Ⓗ GROUND ROD
Ⓙ 2"R.S.C. STUB OUT (THREADED BOTH ENDS AND CAPPED)

EQUIPMENT PAD FOUNDATION

NOTES:

1) ANCHOR RODS, NUTS AND WASHERS PER Mn/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER. NUMBER, SIZE AND LENGTH OF ANCHOR RODS SHALL BE AS REQUIRED BY THE CABINET MANUFACTURER.
2) UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER IN THE FIELD.
3) TOP OF CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED). CONDUITS SHALL PROJECT A MINIMUM OF 2"ABOVE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH CABINET FUNCTIONS OR SUPPORTING MEMBERS, ETC.
4) CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR FOUNDATION AND CONCRETE WALK.
5) CONDUITS WHICH HAVE BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
6) EXACT LOCATIONS OF CONDUIT WITHIN THE PAD SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.
7) REFER TO EQUIPMENT PAD LAYOUT OF SIGNAL SYSTEM FOR FOUNDATION SIZE, CONDUIT PLACEMENT AND EQUIPMENT TO BE INSTALLED.
8) ANCHOR RODS, NUTS AND WASHERS FOR THE STATE FURNISHED CONTROLLER AND CABINET WILL BE FURNISHED BY THE STATE FOR THE CONTRACTOR TO INSTALL.

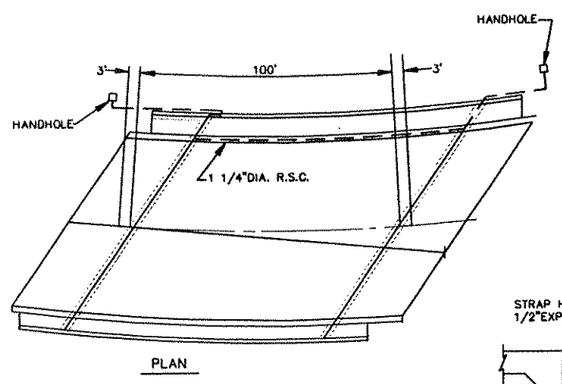


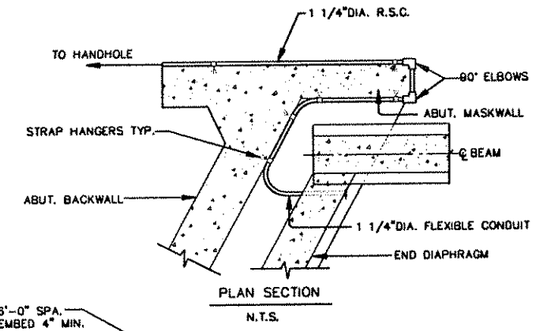


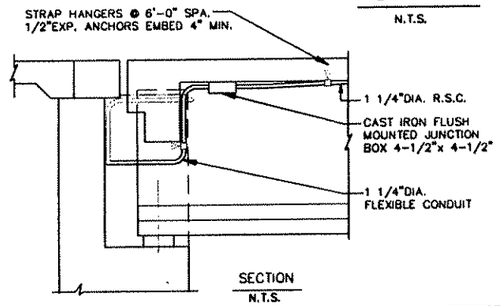
MAST ARM POLE PEDESTRIAN PUSH BUTTON DETAIL

DETAIL FOR INSTALLATION AND MOUNTING OF CONDUIT ON BRIDGE

FOR INFORMATION ONLY







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2	JMG	7/96	Per Mn/DOT Comments

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ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
DETAILS
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 34 of 56 Sheets

07-15-96 9:51 am
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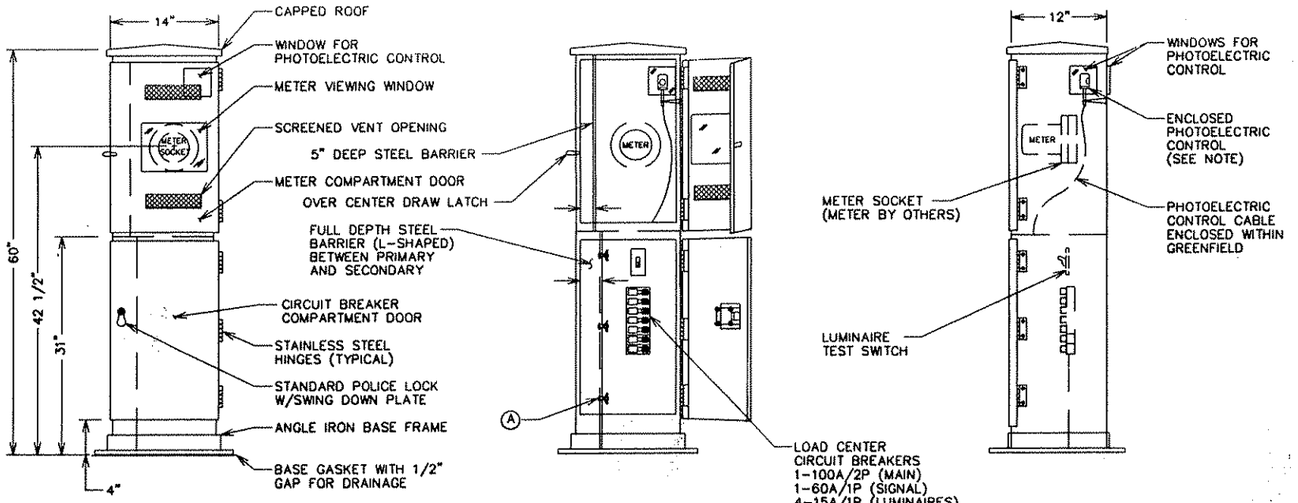
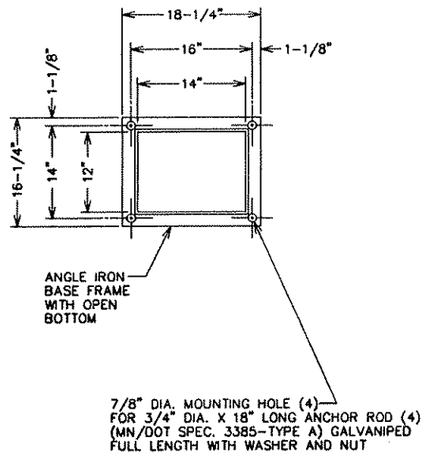
SERVICE CABINET DETAILS



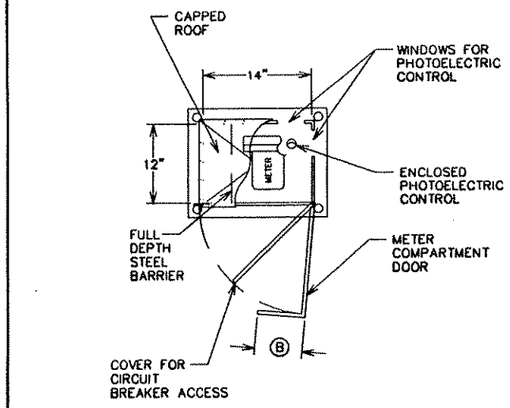
(A) ATTACH DEADFRONT WITH THREE (3) SCREWS, ONE OF WHICH SHALL BE A SEALING SCREW

FRONT ELEVATION (DOORS CLOSED) | FRONT ELEVATION (DOORS OPEN) | RIGHT SIDE ELEVATION

CABINET BASE DETAILS

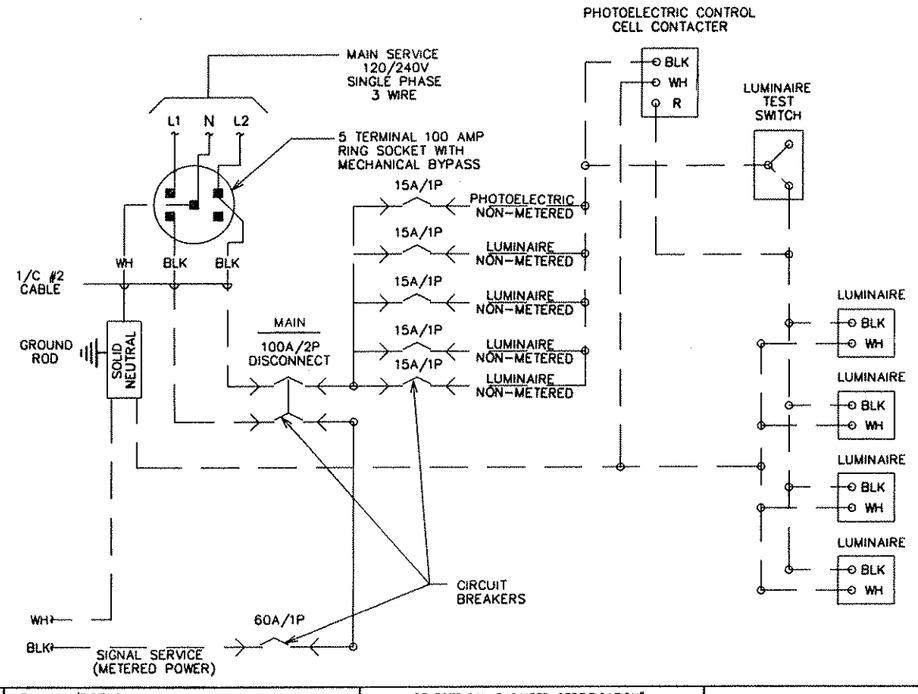


BASE LAYOUT



TOP ELEVATION

FEED POINT WIRING DIAGRAM



CONSTRUCTION NOTES

1. THE SERVICE CABINET SHALL BE FABRICATED FROM FORMED AND WELDED NO. 12 GAUGE, COLD ROLLED STEEL.
2. ALL HINGES, HINGE PINS AND LOCKS SHALL BE OF NON-CORRODING MATERIALS.
3. THE SERVICE CABINET DOORS SHALL BE ATTACHED TO THE ENCLOSURE WITH NON-CORRODING TYPE TAMPERPROOF CARRIAGE BOLTS.
4. THE METER COMPARTMENT DOOR SHALL BE SECURED WITH AN OVER CENTER DRAW LATCH AND DUAL LOCKING FIXTURE WITH LOCK.
5. THE CIRCUIT BREAKER COMPARTMENT DOOR SHALL BE SECURED WITH A STANDARD POLICE LOCK EQUIPPED WITH A SWING DOWN PLATE WITH TWO (2) KEYS.
6. BOTH DOOR OPENINGS SHALL BE SEALED WITH NEOPRENE GASKETS TO FORM A COMPLETE SEAL WITH THE ENCLOSURE.
7. THE VIEWING WINDOW (7" X 7" MINIMUM) AND PHOTOELECTRIC CONTROL WINDOW (4" X 4") SHALL BE CLEAR LEXAN MATERIAL.
8. THE SERVICE CABINET SHALL BE PROTECTED INSIDE AND OUTSIDE WITH A RUST INHIBITING RED IRON OXIDE ENAMEL PRIMER AND FINISHED WITH AN OVEN BAKED ENAMEL, SILVER.
9. CIRCUIT BREAKERS SHALL BE 120/240 VOLT AC, 60Hz AND SHALL BE CLEARLY MARKED WITH THE "ON" AND "OFF" POSITIONS AND IDENTIFIED WITH THE LOAD WHICH IT IS CARRYING (E.G. "SIGNALS" OR "LIGHTING").
10. ALL CIRCUIT BREAKERS SHALL BE CLEARLY MARKED IN A MANNER THAT WILL NOT DETERIORATE WITH MOISTURE OR AGE.
11. SHORT CIRCUIT RATING - 10,000 AIC SYMMETRICAL.
12. PROVIDE CLEARANCE TO INSTALL OR REMOVE PHOTOELECTRIC CONTROL.
13. PHOTOELECTRIC CONTROL LENS SHALL BE ORIENTED TO ELIMINATE INTERFERENCE BY MANMADE LIGHT SOURCES, PHOTOELECTRIC CONTROL LENS SHALL NORMALLY FACE NORTH AND EAST.
14. ALL CONDUIT ENTERING FOUNDATION SHALL BE SEALED WITH AN APPROVED DUCT SEALER.
15. THE SERVICE CABINET SHALL BE U.L. LISTED AND APPROVED FOR USE AS OUTDOOR WEATHER PROOF SERVICE ENTRANCE EQUIPMENT.
16. THE SERVICE CABINET SHALL BE WELDED TO THE BASE IN ACCORDANCE WITH U.L. STANDARDS.
17. RED CONDUCTOR OF 3/C#12 WIRE USED FOR LUMINAIRES MUST BE TAPED WITH GREEN TAPE AT BOTH THE ORIGINATION AND TERMINUS OF THE CONDUCTOR AND IDENTIFIED AS GROUNDING CONDUCTOR.

DRAWN BY:	REVISED BY:	REVISED BY:	AS BUILT BY:
CKD BY: DATE:	CKD BY: DATE:	CKD BY: DATE:	CKD BY: DATE:

SIGNAL SERVICE CABINET DETAILS
T.H. 47
IN ANOKA COUNTY

CERTIFIED BY _____ REG. NO. _____ 19____
PROFESSIONAL ENGINEER

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments
2	JMG	7/96	Per Mn/DOT Comments

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SEH ENGINEERS ARCHITECTS PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM DETAILS
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 35 of 56 Sheets

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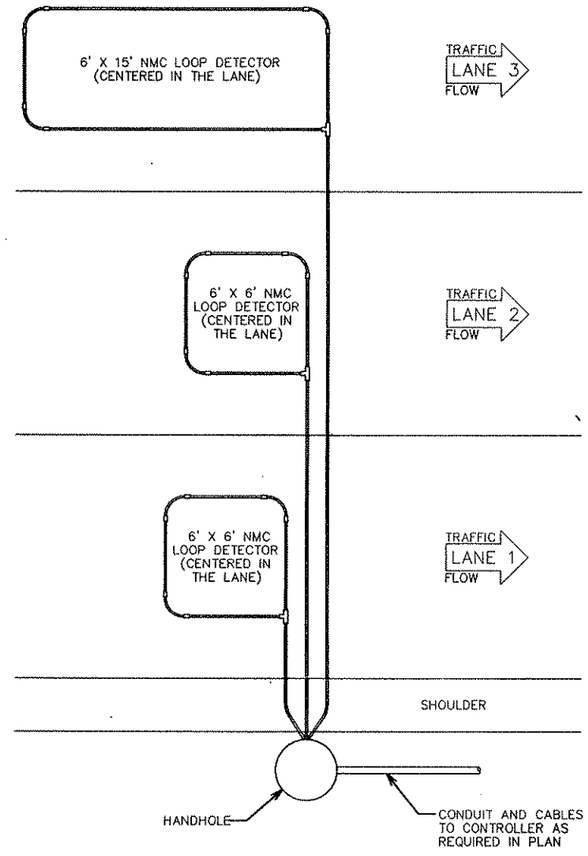
BASE OVERLAY DRG. NO.

TYPICAL NMC LOOP DETECTOR LAYOUT

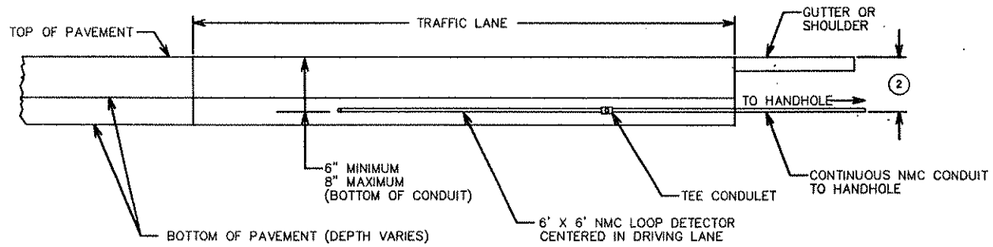


GENERAL NOTES:

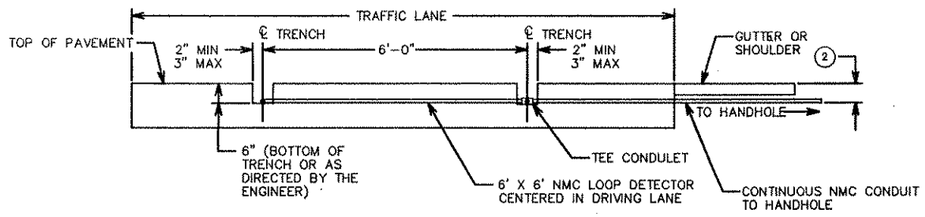
1. SEE SPECIAL PROVISIONS FOR REQUIRED LOOP DETECTOR CONDUCTORS, SPLICE KITS, TESTS AND ACCEPTANCE PARAMETERS.
2. THE 3/4" NON-METALLIC CONDUIT (NMC) AND FITTINGS SHALL BE SCHEDULE 40 HEAVY WALL RIGID POLYVINYL CHLORIDE (PVC). SEE SPEC. 3803.
3. THREE CORNERS OF EACH LOOP DETECTOR SHALL BE A 90° FACTORY ELBOW (6" RADIUS). THE FOURTH SHALL BE A NMC TEE CONDULET.
4. APPROVED PVC PRIMER AND CEMENT SHALL BE USED FOR THE PVC JOINTS.
5. ALL SLACK MUST BE REMOVED FROM LOOP DETECTOR CONDUCTORS WITHIN THE NMC.
6. THE LOOP DETECTOR CONDUCTORS (1/C#14) SHALL BE TWISTED THREE TURNS PER FOOT FROM THE NMC TEE CONDULET TO THE HANDHOLE.
7. ATTACH A FERROUS METAL ITEM TO THE INTERIOR OF THE TEE CONDULET COVER.
8. EACH LOOP DETECTOR CONDUIT TO THE HANDHOLE SHALL BE SLOPED TOWARDS THE HANDHOLE.
9. LOOP DETECTOR CONDUITS TO THE HANDHOLE MAY BE PLACED WITHIN THE SAME TRENCH.
10. THE LOOP DETECTOR CONDUCTORS SHALL END IN THE HANDHOLE.
11. NO SPLICES ALLOWED IN CONDUIT OR TEE CONDULET.
12. TYPICAL LOOP DETECTOR SIZES SHALL BE 6' X 6', 6' X 10', 6' X 15' AND 6' X 20'. REFER TO THE INTERSECTION LAYOUT FOR SPECIFIC LOOP DETECTORS TO BE PLACED.
13. ALL LOOP DETECTORS SHALL HAVE FOUR (4) TURNS OF WIRE.

TYPICAL NMC LOOP DETECTOR INSTALLATION

NEW BITUMINOUS OR CONCRETE PAVEMENT



INPLACE BITUMINOUS PAVEMENT

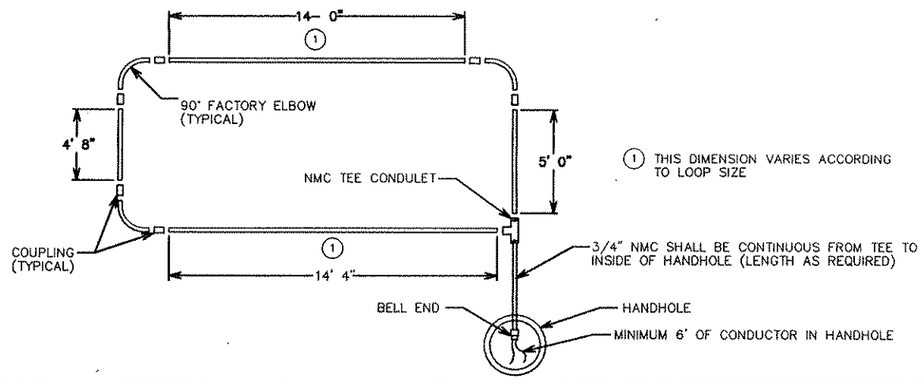


(2) VARIABLE DEPTH-MAINTAIN DRAINAGE TO HANDHOLE

NOTES:

1. USE THE ACTUAL LOOP DETECTOR TO BE PLACED FOR MARKING THE PAVEMENT FOR MILLING LOCATION.
2. MILL PAST THE CENTER OF THE CONDUIT TO BE PLACED.
3. ACHIEVE A MINIMUM 2 INCH VERTICAL EDGE ON ALL CUTS.
4. AN AIR COMPRESSOR UNIT (50 HP) IS REQUIRED FOR REMOVING ALL LOOSE MATERIAL FROM TRENCH PRIOR TO TACK APPLICATION.
5. BOTTOM AND EDGES OF MILLED AREA SHALL BE THOROUGHLY COVERED WITH TACK. (EMULSIFIED ASPHALT-SEE SPEC. 2357.2A)
6. USE TYPE 41 WEARING COURSE (TYPE 41WEA50055X OR Y) OR TYPE APPROVED BY ENGINEER.
7. DO NOT USE PETROLEUM DISTILLATES AS A RELEASE AGENT. REFER TO MN/DOT TECHNICAL MEMORANDUM NO. 94-16-MRE-05 DATED 3/10/94 FOR ADDITIONAL INFORMATION.
8. COMPACTION SHALL BE OBTAINED BY THE ORDINARY COMPACTION METHOD. A MINIMUM OF TWO LIFTS SHALL BE USED. DETERMINE LIFT DEPTHS SUCH THAT THERE IS NO DAMAGE TO CONDUIT. ENSURE BITUMINOUS PLACEMENT ADJACENT TO SIDES OF CONDUIT.
9. CREATE AN OVERFILL OF 1/4 INCH - 1/2 INCH OVER EXISTING PAVEMENT SURFACE.
10. APPLY A COAT OF TACK OVER THE FINAL ROADWAY SURFACE. IF UNDER TRAFFIC, SPRINKLE WITH SAND TO PREVENT TRACKING AND SPRAYING.

TYPICAL NMC LOOP DETECTOR DETAIL- (6' X 15' LOOP)



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CKD BY: DATE:	CKD BY: DATE:	CKD BY: DATE:	CKD BY: DATE:

PREFORMED NON-METALLIC CONDUIT LOOP DETECTOR DETAILS FOR TRAFFIC CONTROL SIGNAL SYSTEM

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments

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ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
DETAILS
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
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Sheet No. 36 of 56 Sheets

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Fed. Project No. _____

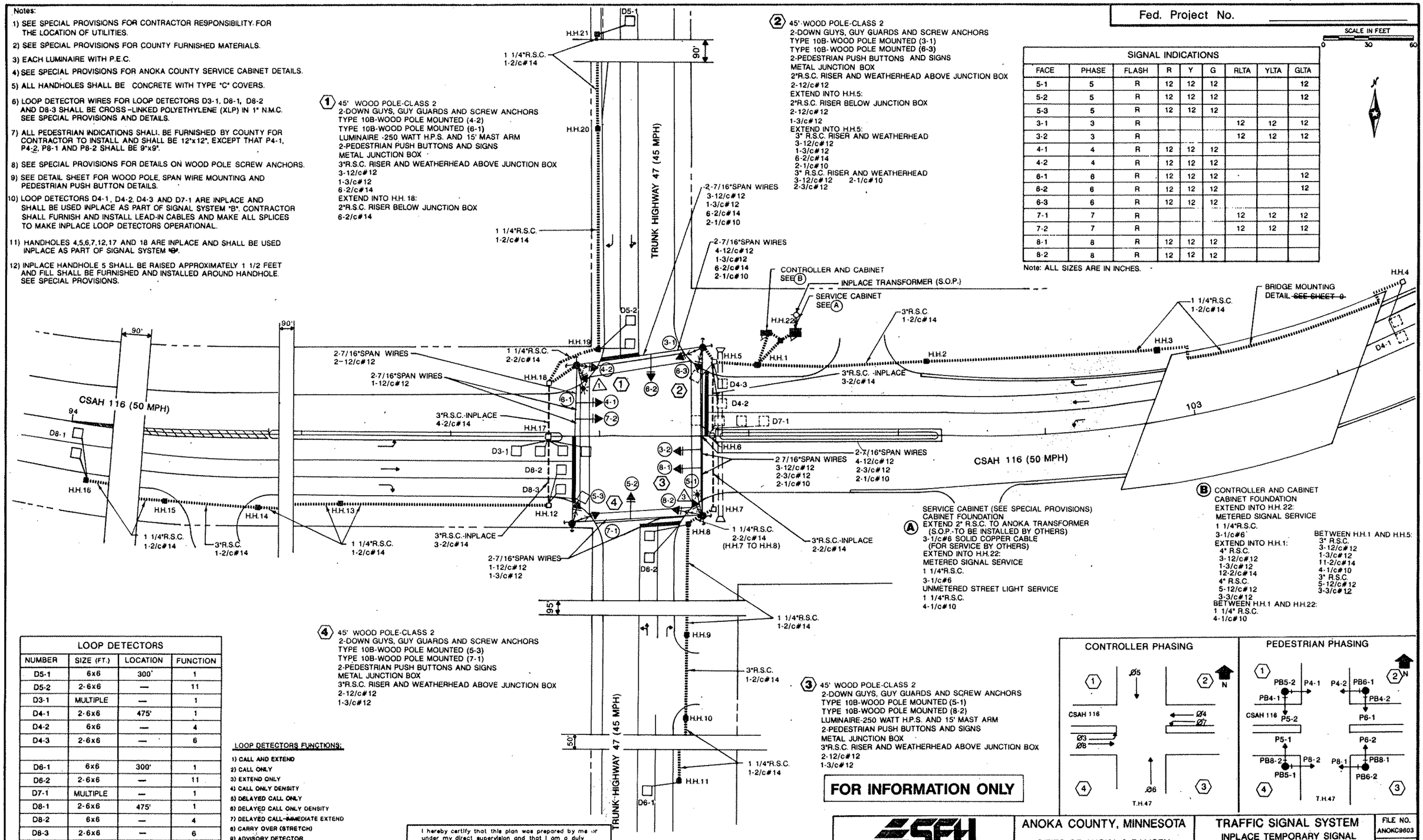
Notes:

1) SEE SPECIAL PROVISIONS FOR CONTRACTOR RESPONSIBILITY FOR THE LOCATION OF UTILITIES.
2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
3) EACH LUMINAIRE WITH P.E.C.
4) SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
5) ALL HANDHOLES SHALL BE CONCRETE WITH TYPE "C" COVERS.
6) LOOP DETECTOR WIRES FOR LOOP DETECTORS D3-1, D8-1, D8-2 AND D8-3 SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
7) ALL PEDESTRIAN INDICATIONS SHALL BE FURNISHED BY COUNTY FOR CONTRACTOR TO INSTALL AND SHALL BE 12"x12", EXCEPT THAT P4-1, P4-2, P8-1 AND P8-2 SHALL BE 9"x9".
8) SEE SPECIAL PROVISIONS FOR DETAILS ON WOOD POLE SCREW ANCHORS.
9) SEE DETAIL SHEET FOR WOOD POLE, SPAN WIRE MOUNTING AND PEDESTRIAN PUSH BUTTON DETAILS.
10) LOOP DETECTORS D4-1, D4-2, D4-3 AND D7-1 ARE INPLACE AND SHALL BE USED INPLACE AS PART OF SIGNAL SYSTEM "B". CONTRACTOR SHALL FURNISH AND INSTALL LEAD-IN CABLES AND MAKE ALL SPLICES TO MAKE INPLACE LOOP DETECTORS OPERATIONAL.
11) HANDHOLES 4,5,6,7,12,17 AND 18 ARE INPLACE AND SHALL BE USED INPLACE AS PART OF SIGNAL SYSTEM "B".
12) INPLACE HANDHOLE 5 SHALL BE RAISED APPROXIMATELY 1 1/2 FEET AND FILL SHALL BE FURNISHED AND INSTALLED AROUND HANDHOLE. SEE SPECIAL PROVISIONS.

SCALE IN FEET 0 30 60

SIGNAL INDICATIONS								
FACE	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA
5-1	5	R	12	12	12			12
5-2	5	R	12	12	12			12
5-3	5	R	12	12	12			
3-1	3	R				12	12	12
3-2	3	R				12	12	12
4-1	4	R	12	12	12			
4-2	4	R	12	12	12			
6-1	6	R	12	12	12			12
6-2	6	R	12	12	12			12
6-3	6	R	12	12	12			
7-1	7	R				12	12	12
7-2	7	R				12	12	12
8-1	8	R	12	12	12			
8-2	8	R	12	12	12			

Note: ALL SIZES ARE IN INCHES.



(1) 45' WOOD POLE-CLASS 2
2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
TYPE 10B-WOOD POLE MOUNTED (4-2)
TYPE 10B-WOOD POLE MOUNTED (6-1)
LUMINAIRE -250 WATT H.P.S. AND 15' MAST ARM
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
METAL JUNCTION BOX
3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
3-12/c#12
1-3/c#12
6-2/c#14
EXTEND INTO H.H. 18:
2"R.S.C. RISER BELOW JUNCTION BOX
6-2/c#14

(2) 45' WOOD POLE-CLASS 2
2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
TYPE 10B-WOOD POLE MOUNTED (3-1)
TYPE 10B-WOOD POLE MOUNTED (6-3)
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
METAL JUNCTION BOX
2"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
2-12/c#12
EXTEND INTO H.H.5:
2"R.S.C. RISER BELOW JUNCTION BOX
2-12/c#12
1-3/c#12
EXTEND INTO H.H.5:
3" R.S.C. RISER AND WEATHERHEAD
3-12/c#12
1-3/c#12
6-2/c#14
2-1/c#10
3" R.S.C. RISER AND WEATHERHEAD
3-12/c#12 2-1/c#10
2-3/c#12

(3) 45' WOOD POLE-CLASS 2
2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
TYPE 10B-WOOD POLE MOUNTED (5-1)
TYPE 10B-WOOD POLE MOUNTED (8-2)
LUMINAIRE-250 WATT H.P.S. AND 15' MAST ARM
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
METAL JUNCTION BOX
3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
2-12/c#12
1-3/c#12

(4) 45' WOOD POLE-CLASS 2
2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
TYPE 10B-WOOD POLE MOUNTED (5-3)
TYPE 10B-WOOD POLE MOUNTED (7-1)
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
METAL JUNCTION BOX
3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
2-12/c#12
1-3/c#12

(A) SERVICE CABINET (SEE SPECIAL PROVISIONS)
CABINET FOUNDATION
EXTEND 2" R.S.C. TO ANOKA TRANSFORMER (S.O.P.-TO BE INSTALLED BY OTHERS)
3-1/c#6 SOLID COPPER CABLE (FOR SERVICE BY OTHERS)
EXTEND INTO H.H.22:
METERED SIGNAL SERVICE
1 1/4"R.S.C.
3-1/c#6
UNMETERED STREET LIGHT SERVICE
1 1/4"R.S.C.
4-1/c#10

(B) CONTROLLER AND CABINET
CABINET FOUNDATION
EXTEND INTO H.H. 22:
METERED SIGNAL SERVICE
1 1/4"R.S.C.
3-1/c#6
EXTEND INTO H.H.1:
4" R.S.C.
3-12/c#12
1-3/c#12
12-2/c#14
4" R.S.C.
5-12/c#12
3-3/c#12
BETWEEN H.H.1 AND H.H.22:
1 1/4" R.S.C.
4-1/c#10
BETWEEN H.H.1 AND H.H.5:
3" R.S.C.
3-12/c#12
1-3/c#12
11-2/c#14
4-1/c#10
3" R.S.C.
5-12/c#12
3-3/c#12

LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D5-1	6x6	300'	1
D5-2	2-6x6	—	11
D3-1	MULTIPLE	—	1
D4-1	2-6x6	475'	1
D4-2	6x6	—	4
D4-3	2-6x6	—	6
D8-1	6x6	300'	1
D8-2	2-6x6	—	11
D7-1	MULTIPLE	—	1
D8-1	2-6x6	475'	1
D8-2	6x6	—	4
D8-3	2-6x6	—	6

Note: LOCATION=DISTANCE FROM STOP BAR TO LOOP DETECTOR.

LOOP DETECTORS 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) SPECIAL DETECTOR (EXTEND AFTER TIME DELAY).
12) CALL AND EXTEND AFTER TIME DELAY

CONTROLLER PHASING

PEDESTRIAN PHASING

FOR INFORMATION ONLY

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
Date: 5/14/96 Reg. No. 22457

REVISIONS			
DATE	BY	DATE	BY
7/96	JMG		

ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA & RAMSEY

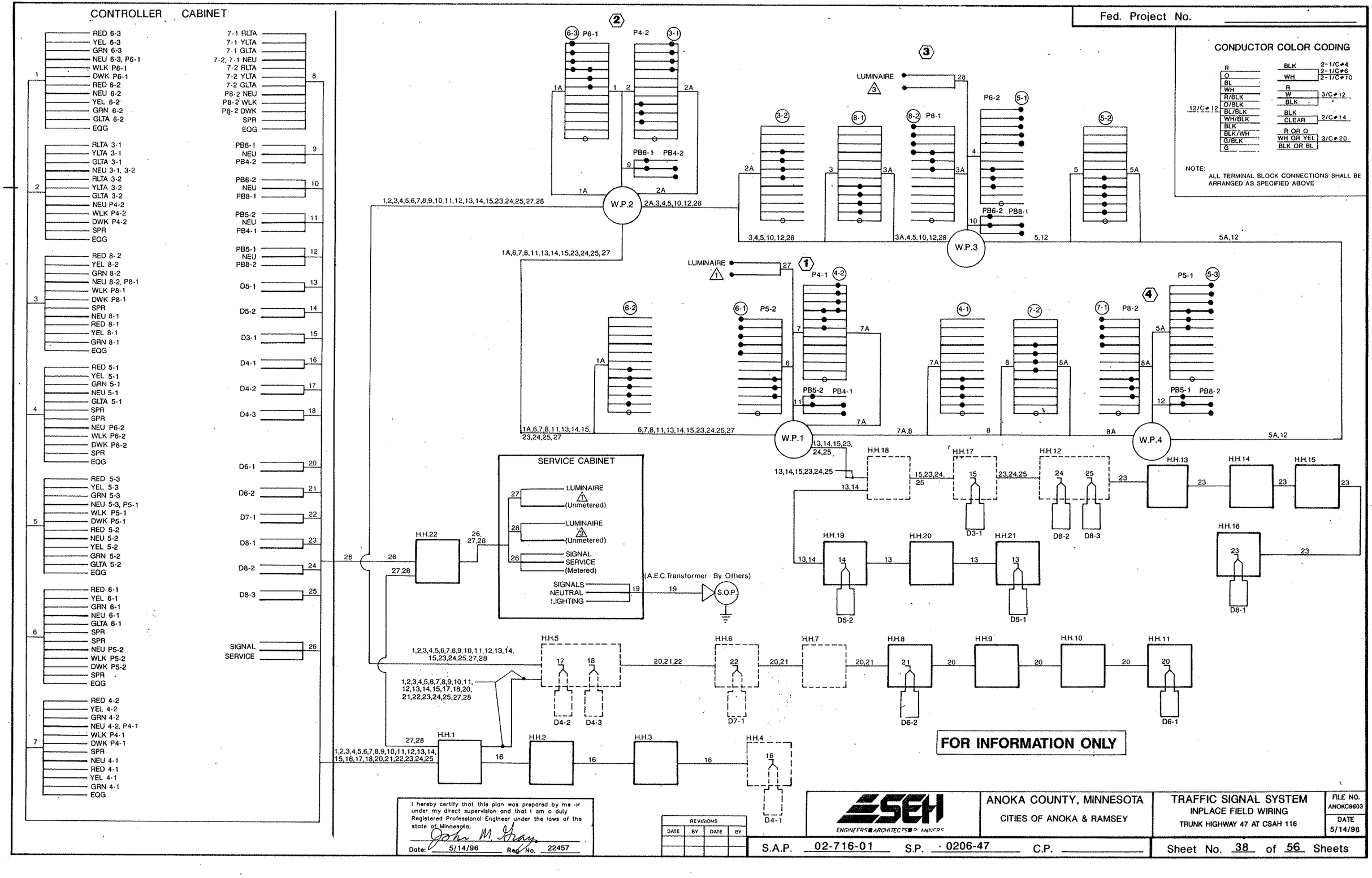
TRAFFIC SIGNAL SYSTEM
INPLACE TEMPORARY SIGNAL
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 37 of 56 Sheets

Fed. Project No. _____



CONDUCTOR COLOR CODING

12/C#12	R	BLK	2-1/C#4
	O	WH	2-1/C#6
	BL		2-1/C#10
	WH	R	
	R/BLK	W	3/C#12
	O/BLK	BLK	
	BL/BLK	BLK	
	WH/BLK	CLEAR	2/C#14
	BLK	R OR O	
	BLK/WH	WH OR YEL	3/C#20
	G/BLK	BLK OR BL	
	G		

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

FOR INFORMATION ONLY

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.

John M. Gray

Date: 5/14/96 Reg. No. 22457

REVISIONS			
DATE	BY	DATE	BY

ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA & RAMSEY

TRAFFIC SIGNAL SYSTEM
INPLACE FIELD WIRING
TRUNK HIGHWAY 47 AT CSAH 116

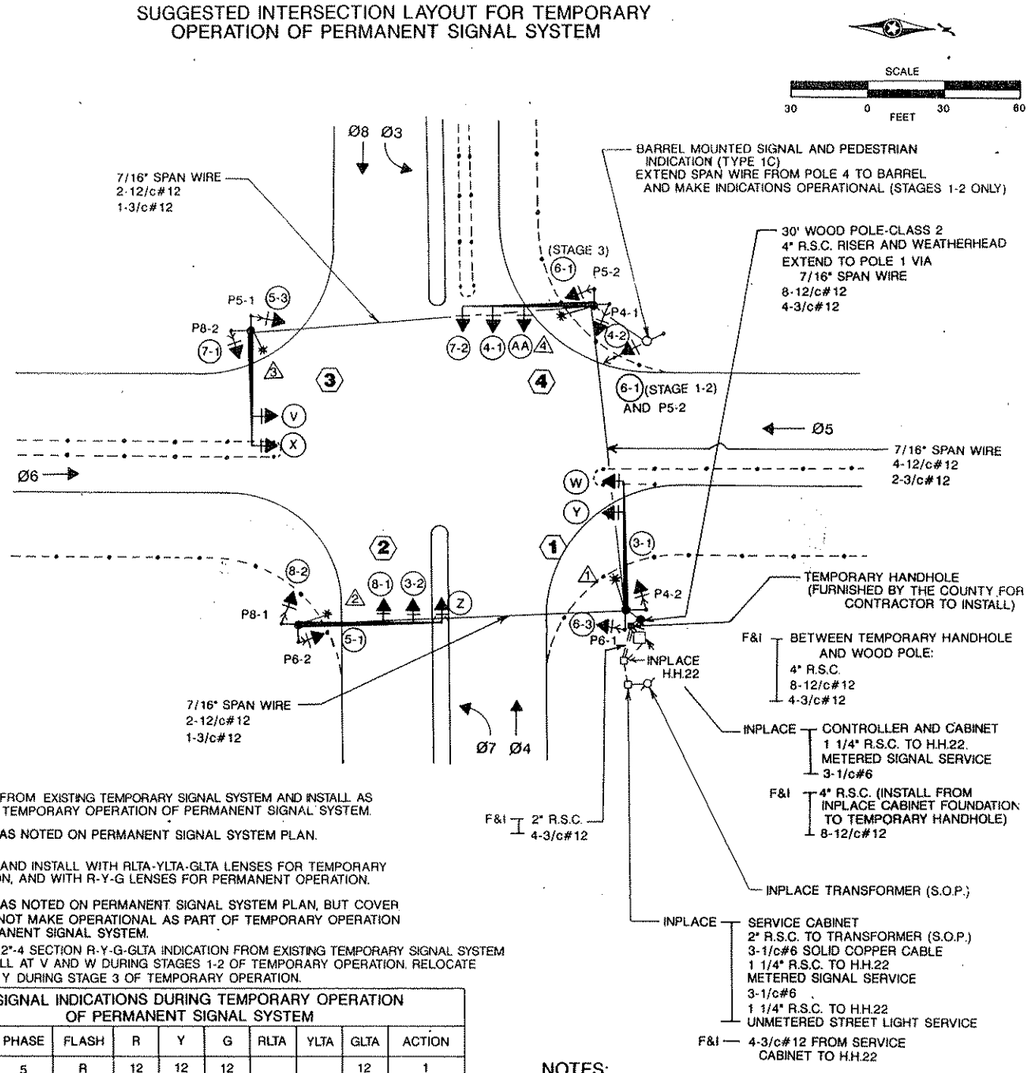
FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P. _____

Sheet No. 38 of 56 Sheets

Fed. Project No.

SUGGESTED INTERSECTION LAYOUT FOR TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM



ACTION

1) REMOVE FROM EXISTING TEMPORARY SIGNAL SYSTEM AND INSTALL AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.

2) INSTALL AS NOTED ON PERMANENT SIGNAL SYSTEM PLAN.

3) FURNISH AND INSTALL WITH RLTA-YLTA-GLTA LENSES FOR TEMPORARY OPERATION, AND WITH R-Y-G LENSES FOR PERMANENT OPERATION.

4) INSTALL AS NOTED ON PERMANENT SIGNAL SYSTEM PLAN, BUT COVER AND DO NOT MAKE OPERATIONAL AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.

5) REMOVE 12"-4 SECTION R-Y-G-GLTA INDICATION FROM EXISTING TEMPORARY SIGNAL SYSTEM AND INSTALL AT V AND W DURING STAGES 1-2 OF TEMPORARY OPERATION. RELOCATE TO X AND Y DURING STAGE 3 OF TEMPORARY OPERATION.

SIGNAL INDICATIONS DURING TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM

PERM FACE NO	TEMP FACE NO	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA	ACTION
(1-2)	5-1	5	R	12	12	12			12	1
(6-2)	V	5	R	12	12	12			12	5
(6-1)	5-3	5	R	12	12	12				2
(7-2)	3-1	3	R				12	12	12	2
(4-3)	3-2	3	R				12	12	12	3
(8-3)	4-1	4	R	12	12	12				2
(8-1)	4-2	4	R	12	12	12				2
(5-2)	6-1	6	R	12	12	12			12	1
(5-1)	W	6	R	12	12	12			12	5
(2-1)	6-3	6	R	12	12	12				2
(3-2)	7-1	7	R				12	12	12	2
(3-1)	7-2	7	R				12	12	12	2
(4-2)	8-1	8	R	12	12	12				2
(4-1)	8-2	8	R	12	12	12				2
(1-1)	X	5	R	12	12	12			12	5
(2-2)	Y	6	R	12	12	12			12	5
(7-1)	Z	—	—				12	12	12	4
(8-2)	AA	—	—	12	12	12				4

NOTES:

1) ---•--- = FUTURE ROADWAY IMPROVEMENTS.

2) CONTRACTOR SHALL FURNISH AND INSTALL SPAN WIRE (FOR OVERHEAD CABLE RUNS) APPROXIMATELY 5 FEET ABOVE EACH LUMINAIRE EXTENSION BASE AND BETWEEN LUMINAIRES, MAINTAINING A MINIMUM SPAN WIRE CLEARANCE OVER ROADWAY OF 23 FEET.

3) POLES 1,2,3 AND 4 SHALL BE INSTALLED BY CONTRACTOR AS DETAILED ON PERMANENT TRAFFIC SIGNAL LAYOUT, EXCEPT THAT PEDESTRIAN PUSH BUTTONS AND SIGNS, TYPE D SIGN PANELS, PERMANENT SIGNAL CABLES, AND CONDUIT EXTENSIONS INTO NEW HANDHOLES SHALL NOT BE FURNISHED OR INSTALLED AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.

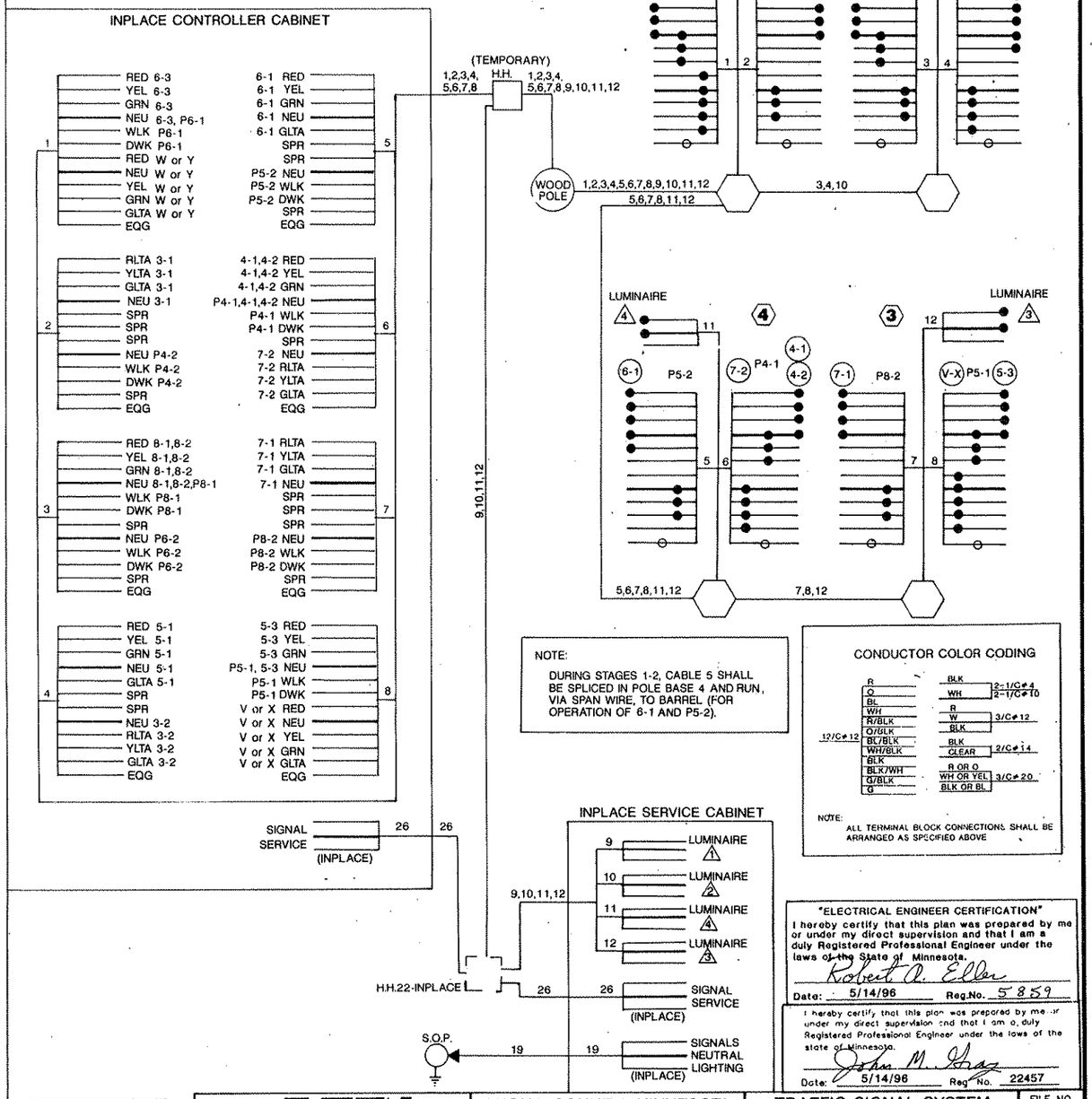
4) SEE "ACTION" TABLE ON THIS PLAN SHEET FOR INFORMATION REGARDING VEHICLE SIGNAL FACES.

5) TEMP FACE NO= SIGNAL FACE NUMBER DURING TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.

6) PERM FACE NO= SIGNAL FACE NUMBER FOR PERMANENT SIGNAL SYSTEM.

7) DURING STAGES 1 AND 2, WHILE V AND W ARE IN OPERATION, CONTRACTOR SHALL NOT INSTALL SIGNALS ON MOUNTS AT X AND Y. WHEN 12"-4 SECTION R-Y-G-GLTA INDICATIONS ARE RELOCATED TO X AND Y FOR STAGE 3 OPERATION, CONTRACTOR SHALL INSTALL SIGNAL INDICATIONS FOR V AND W AS NOTED ON PERMANENT SIGNAL PLAN, BUT SHALL COVER AND NOT MAKE V AND W OPERATIONAL DURING STAGE 3.

FIELD WIRING DIAGRAM FOR TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM



NOTE:

DURING STAGES 1-2, CABLE 5 SHALL BE SPLICED IN POLE BASE 4 AND RUN, VIA SPAN WIRE, TO BARREL (FOR OPERATION OF 6-1 AND P5-2).

CONDUCTOR COLOR CODING

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

"ELECTRICAL ENGINEER CERTIFICATION"
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Robert A. Elder
Date: 5/14/96 Reg.No. 5859

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the state of Minnesota.
John M. Gray
Date: 5/14/96 Reg No. 22457

REVISIONS			
DATE	BY	DATE	BY

ENGINEERS ■ ARCHITECTS ■ PLANNERS

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA & RAMSEY

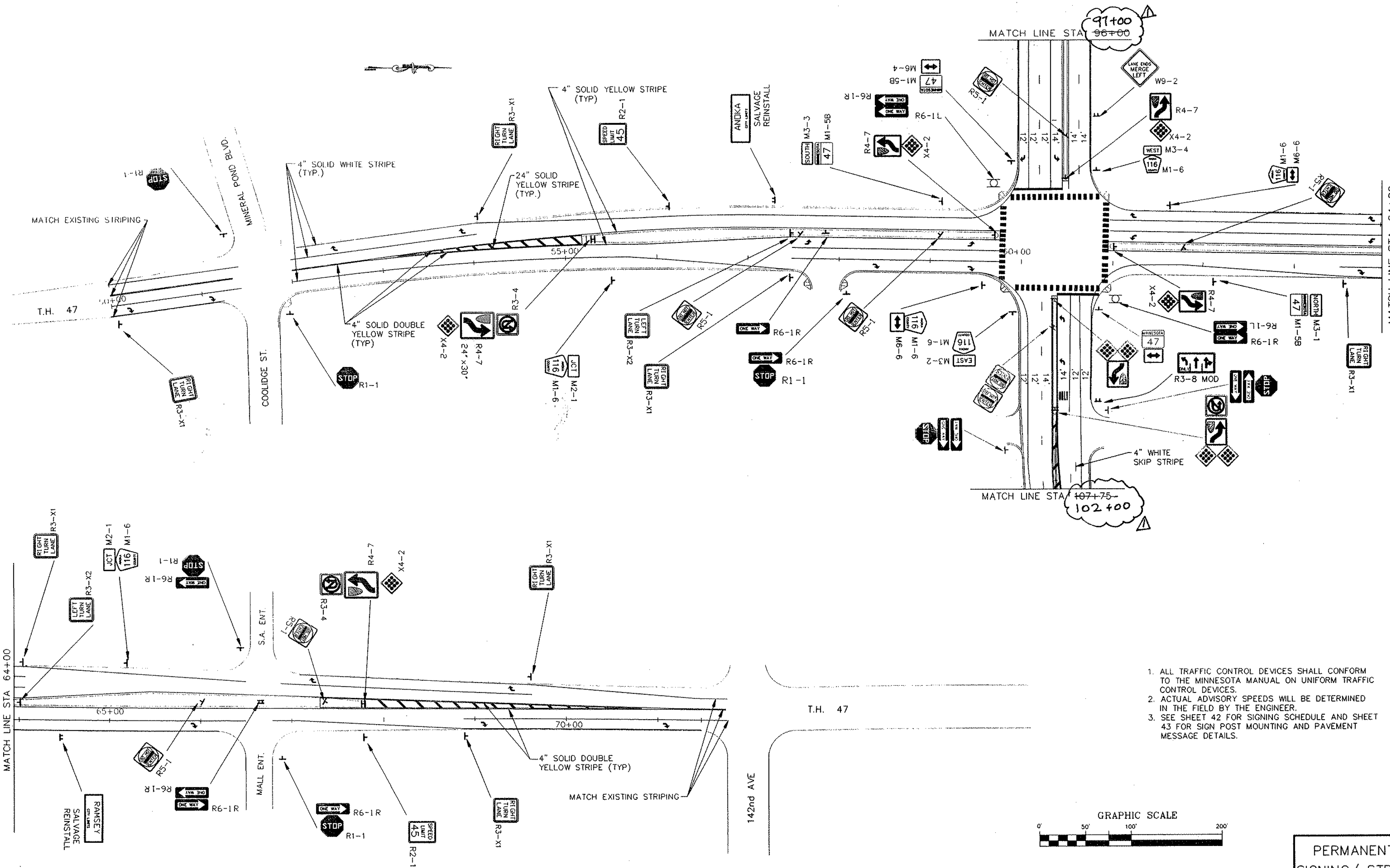
TRAFFIC SIGNAL SYSTEM
TEMPORARY OPERATION DETAIL
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/96

S.A.P. 02-716-01 S.P. 0206-47 C.P.

Sheet No. 39 of 56 Sheets

Fed. Project No. ______



1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ACTUAL ADVISORY SPEEDS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SEE SHEET 42 FOR SIGNING SCHEDULE AND SHEET 43 FOR SIGN POST MOUNTING AND PAVEMENT MESSAGE DETAILS.

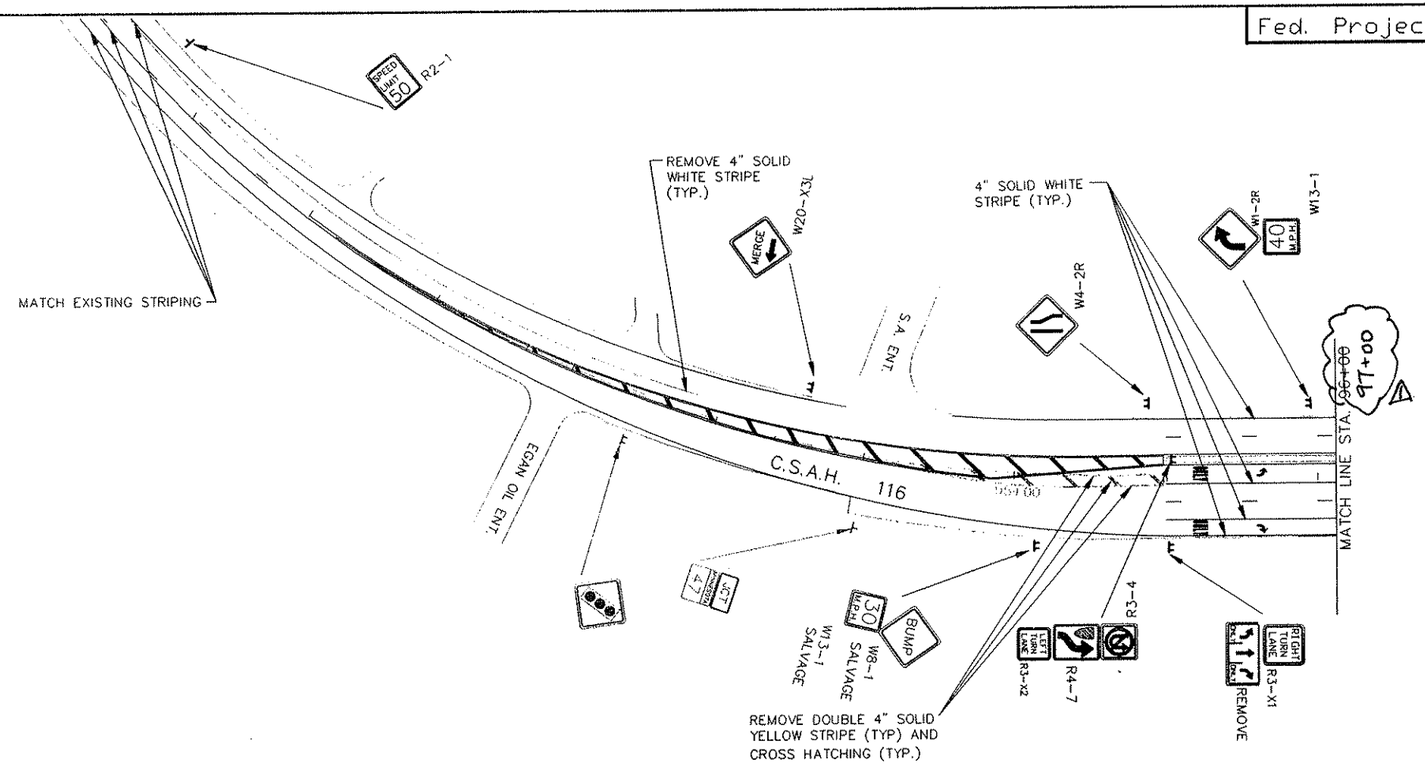
PERMANENT SIGNING/ STRIPING

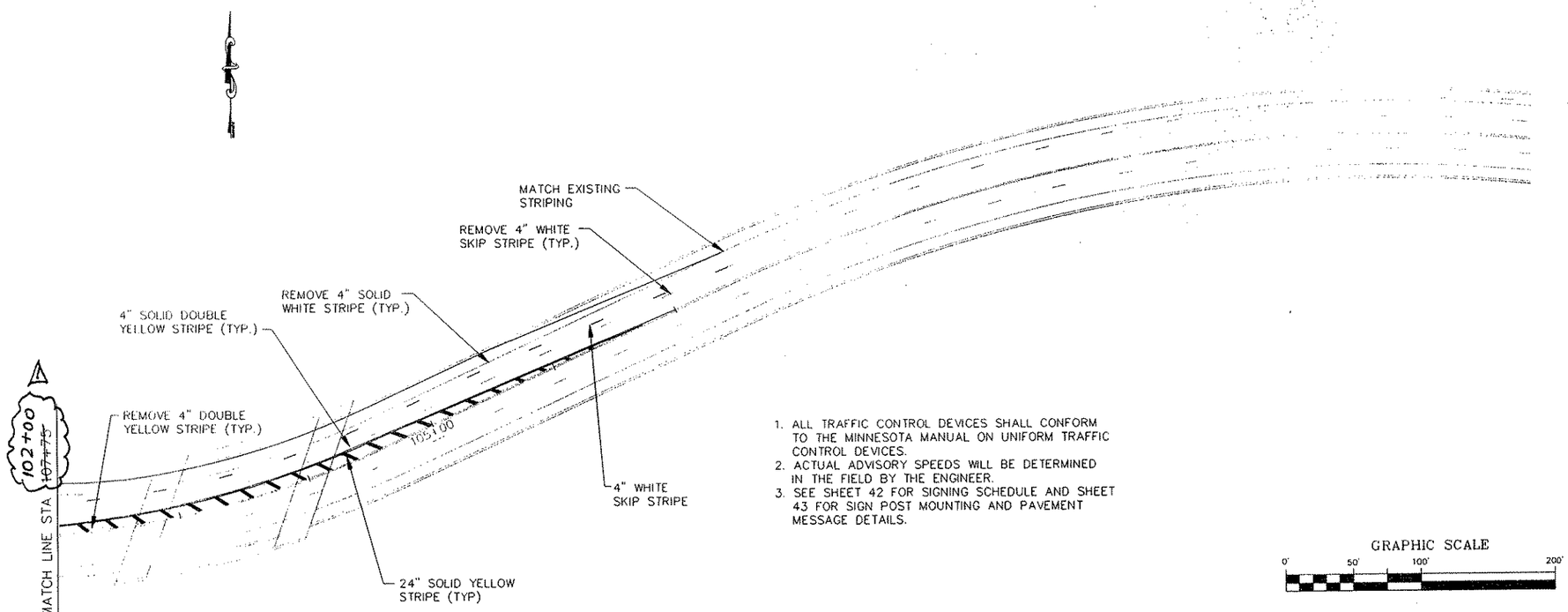
REVISIONS		
DATE	BY	DATE
8/28/96	KG	

CERTIFIED BY [signature] P. E. REG NO. 20235 7/16 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. ______

Fed. Project No. _____





1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ACTUAL ADVISORY SPEEDS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SEE SHEET 42 FOR SIGNING SCHEDULE AND SHEET 43 FOR SIGN POST MOUNTING AND PAVEMENT MESSAGE DETAILS.

GRAPHIC SCALE
0' 50' 100' 200'

PERMANENT SIGNING/ STRIPING

REVISIONS		
DATE	BY	DATE	BY
8/28/96	RM		

CERTIFIED BY _____ P. E. REG NO. 20235 7/15 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 41 of 56 Sheets

Fed. Project No. _____

M.U.T.C.D. CODE	SIZE	AREA (SQ.FT.)	QTY. GROUND POST INSTALLATIONS	QTY. ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	# POST/INSTALLATION ①	MOUNTING HEIGHT	
R1-1	30"x30"	6.25	5	0	STOP	2U	7.0'	
R2-1	24"x30"	5.00	2	0	SPEED LIMIT 45	2U	7.0'	
R1-1	24"x30"	5.00	1	0	SPEED LIMIT 50	2U	7.0'	
R3-4	24"x24"	4.00	0	3	NO 'U' TURN	0	7.0'	(3) MOUNTED BEHIND R4-7 (30"x36")
R3-8M	48"x30"	10.00	1	0	LANE DESIGNATION	2U-1A	7.0'	②
R3-X1	30"x30"	6.25	8	0	RIGHT TURN LANE	2U	7.0'	
R3-X2	30"x30"	6.25	0	3	LEFT TURN LANE	2U	7.0'	(1) MOUNTED BEHIND R4-7
R4-7	24"x30"	5.00	0	6	KEEP RIGHT	2U	7.0'	
X4-2	18"x18"	2.25	0	6	HAZARD MARKER			
R5-1	30"x30"	6.25	0	6	DO NOT ENTER	2U	7.0'	(1) MOUNTED BEHIND R3-X1 (1) MOUNTED BEHIND M1-6
R6-1R	36"x12"	3.00	5	3	ONE WAY (RIGHT)	2U	7.0'	(3) MOUNTED ABOVE R1-1 (4) ON SIGNAL POST
R6-1L	36"x12"	3.00	2	0	ONE WAY (LEFT)	2U	7.0'	(4) MOUNTED ON SIGNAL POST

M.U.T.C.D. CODE	SIZE	AREA (SQ.FT.)	QTY. GROUND POST INSTALLATIONS	QTY. ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	# POST/INSTALLATION ①	MOUNTING HEIGHT	
W1-2R	48"x48"	16.00	1	0	RIGHT CURVE	2U	7.0'	
W13-1	24"x24"	4.00	1	0	40 M.P.H. ADVISORY SPEED	0		
W4-2R	48"x48"	16.00	1	0	LANE REDUCTION TRANSITION	2U	7.0'	
W9-2	48"x48"	16.00	1	0	LANE ENDS MERGE LEFT	2U	7.0'	
W20-X3L	48"x48"	16.00	1	0	MERGE LEFT	2U	7.0'	
M2-1A	21"x15"	2.19	2		JCT EAST WEST			
M3-2A	24"x12"	2.00	1					
M3-4A	24"x12"	2.00	1					
M1-6	24"x24"	4.00	6	0	ANOKA 116 COUNTY	2U-1A	7.0'	②
M6-4A	21"x15"	2.19	2					
M3-1A	24"x12"	2.00	1		NORTH SOUTH			
M3-3A	24"x12"	2.00	1					
M1-5B	24"x24"	4.00	3	0	MINNESOTA 47	2U-1A	7.0'	②
M6-4A	21"x15"	2.19	1					

① U= VERTICAL 'U' POST
A= KNEE BRACE

② KNEE BRACE NOT REQUIRED ON SIGN SUPPORTS ALONG CSAH 116

REVISIONS

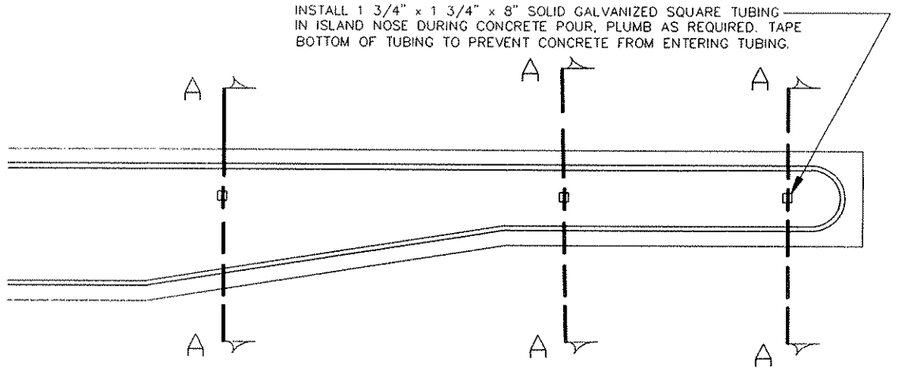
DATE	BY	DATE	BY

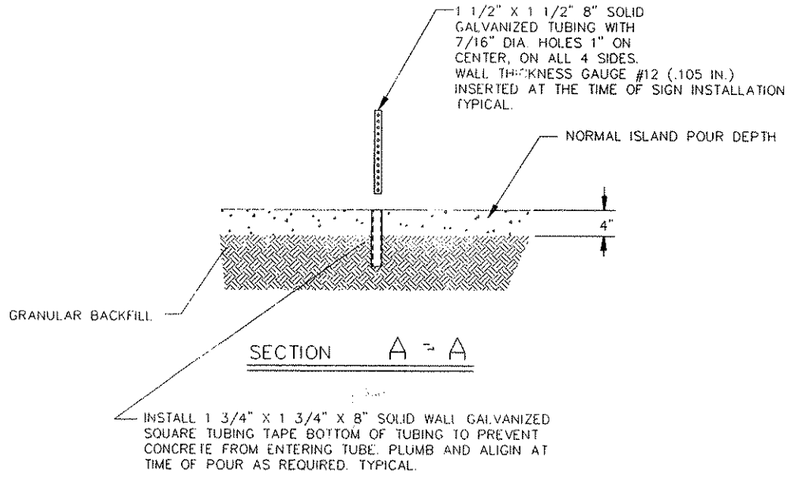
CERTIFIED BY _____ P. E. REG NO. 20205 7/15 19 16

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

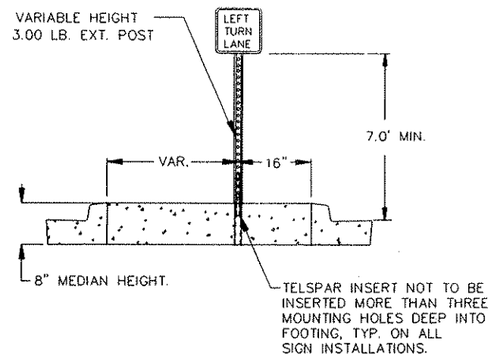
PERMANENT SIGNING QUANTITIES

Fed. Project No. _____

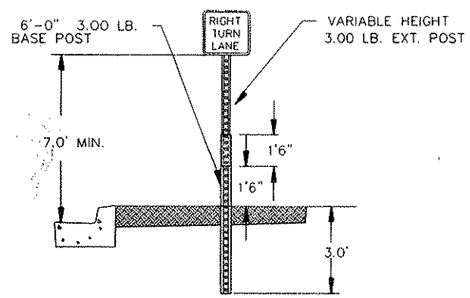




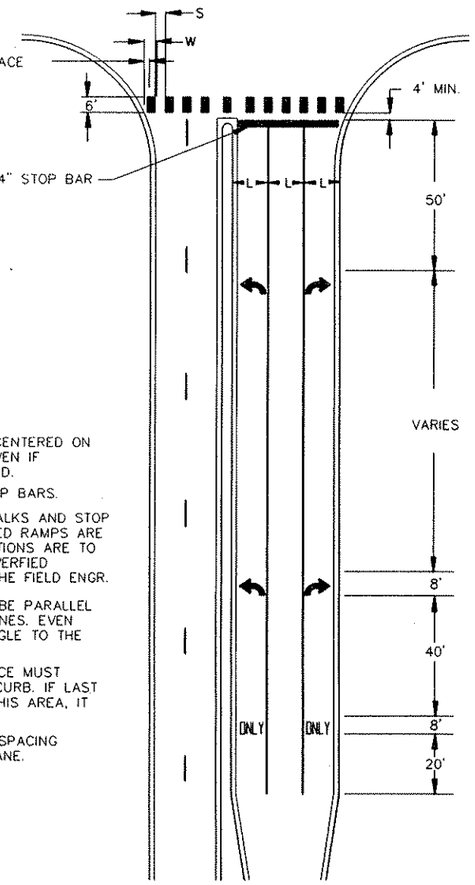
ISLAND MOUNT BREAK-AWAY SIGN POST INSTALLATION TYPICAL



GROUND POST MOUNT SIGN INSTALLATION TYPICAL



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(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'



NOTES: CROSSWALKS:

1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.

2.) ZEBRA CROSSWALKS AND STOP BARS.

3.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERFIED DURING CONSTRUCTION BY THE FIELD ENGR.

4.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.

5.) A MIN. OF 1.5' CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.

6.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' INSIDE LANE.

REVISIONS					
DATE	BY	DATE	BY		

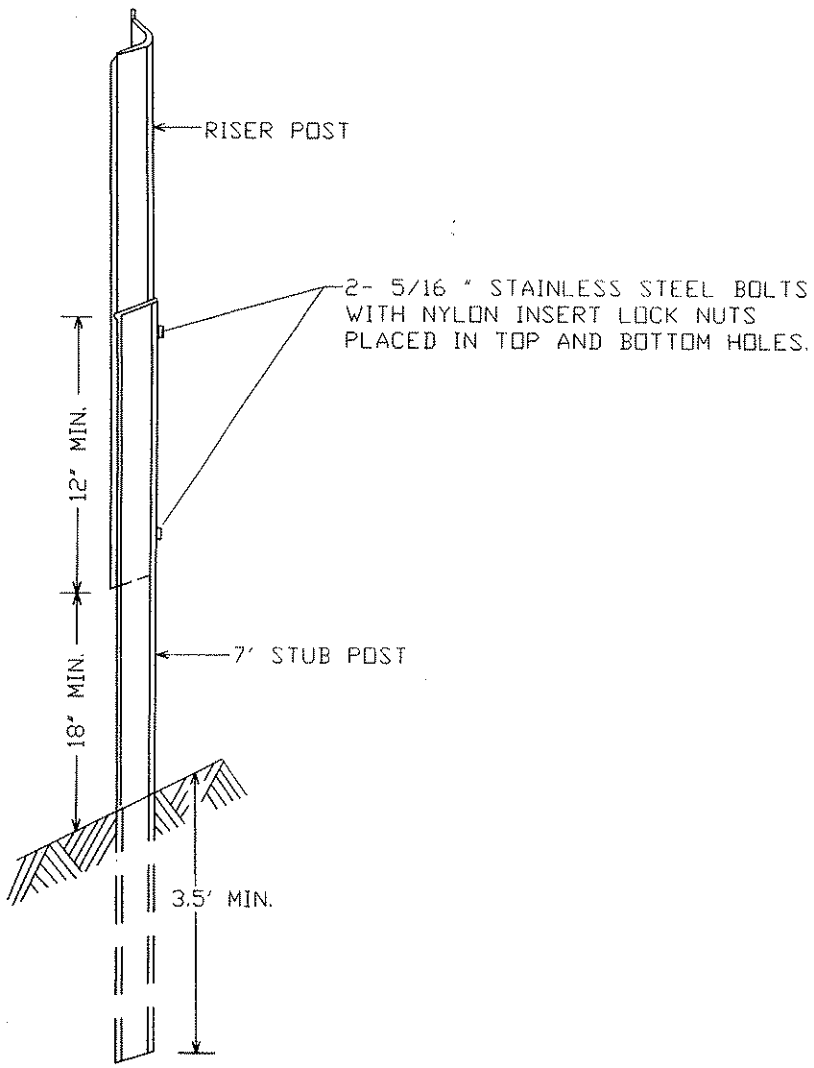
SIGNING/ STRIPING DETAILS

CERTIFIED BY _____ P. E. REG NO. 20225 7/15 19 24

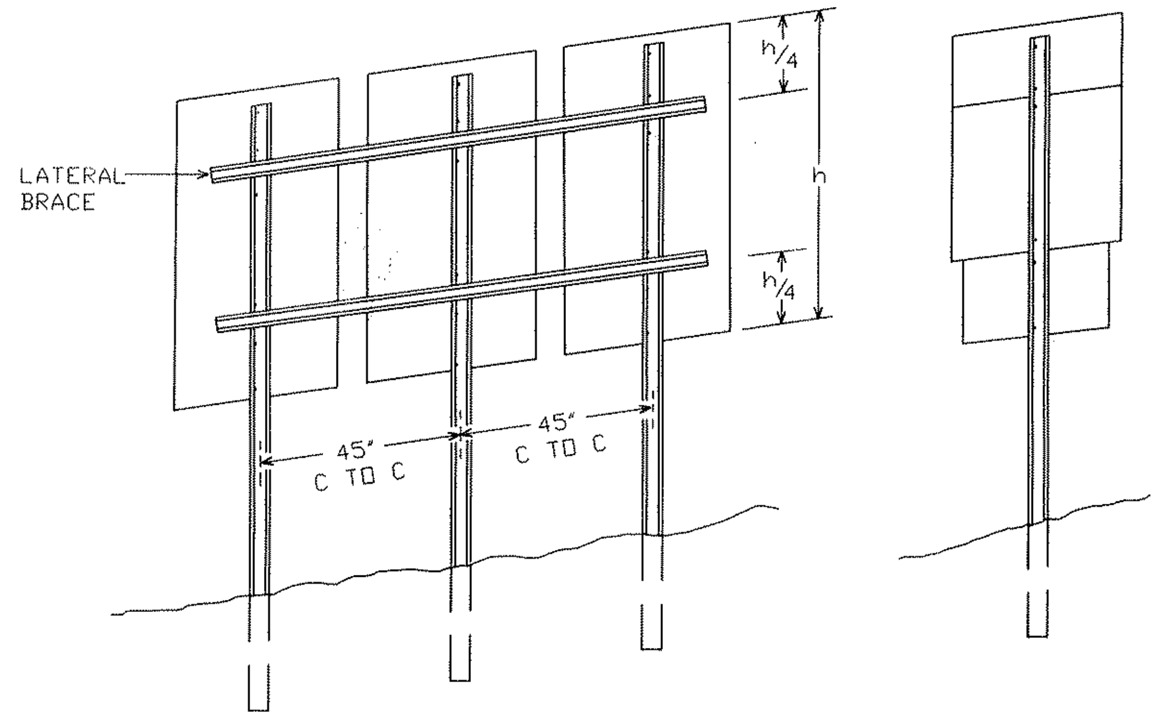
S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 43 of 56 Sheets

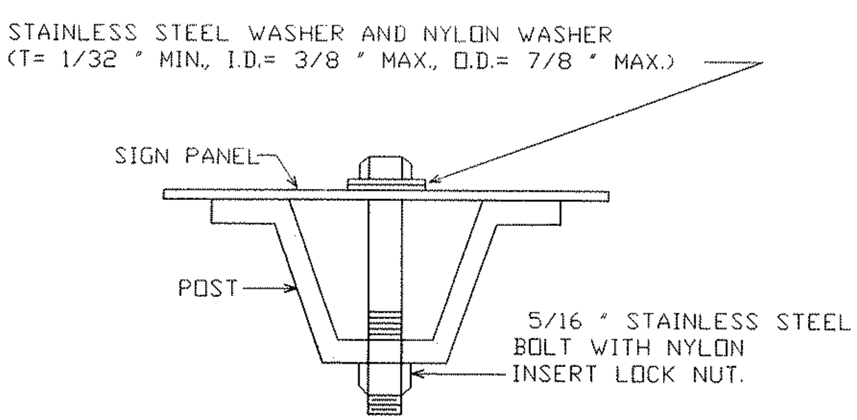
TYPE "C" & "D" POST



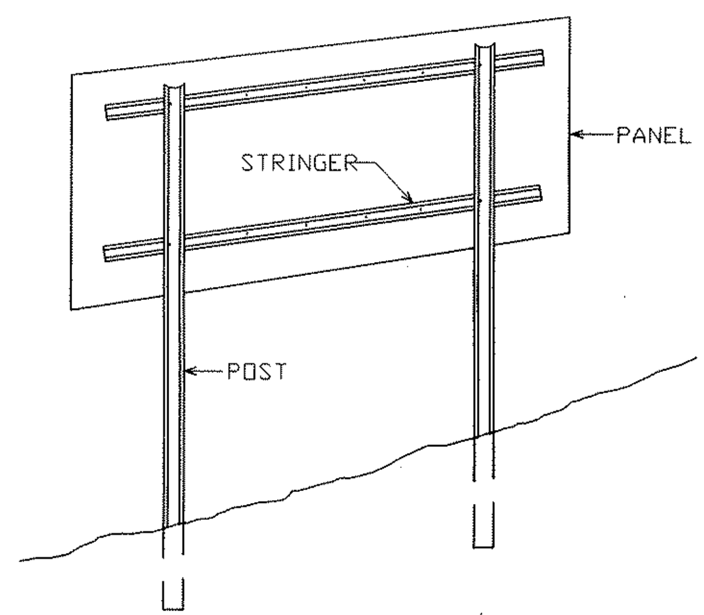
"U POST"SPLICE



TYPICAL TYPE "C" INSTALLATIONS



"U POST" MOUNTING
TYPE "C" SIGNS



TYPICAL TYPE "D" INSTALLATION

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 1/2 ".
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 3352.2A7.
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.

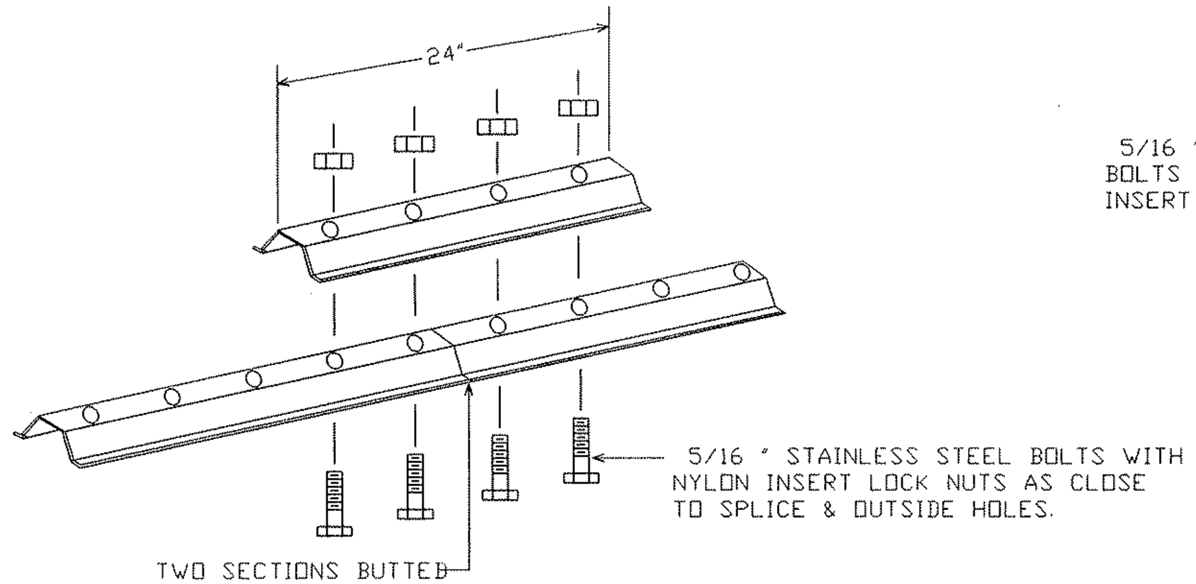
"C" & "D" SIGN DETAILS

DESIGN A
Sheet 1 of 3

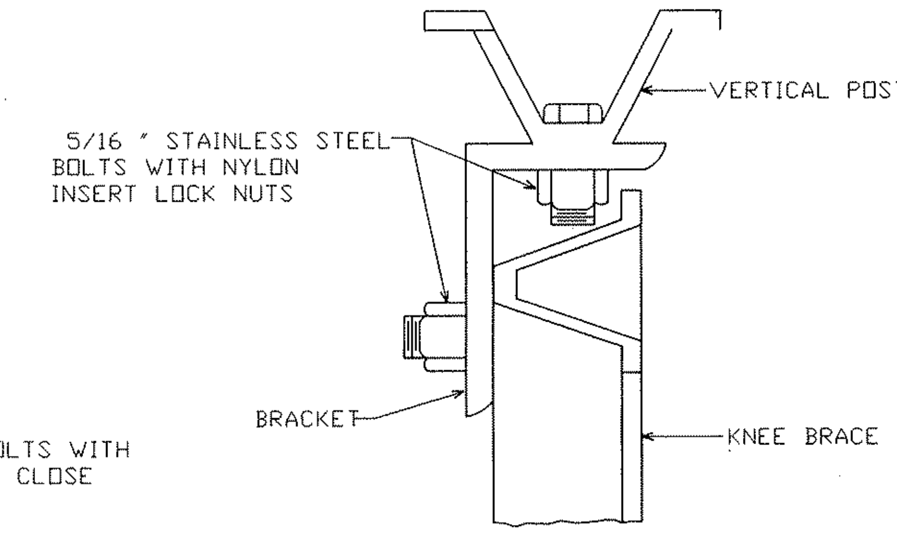
Rev. 7-20-93
Rev. 3-23-90

47116SGN.DWG DATE: 7/16/96

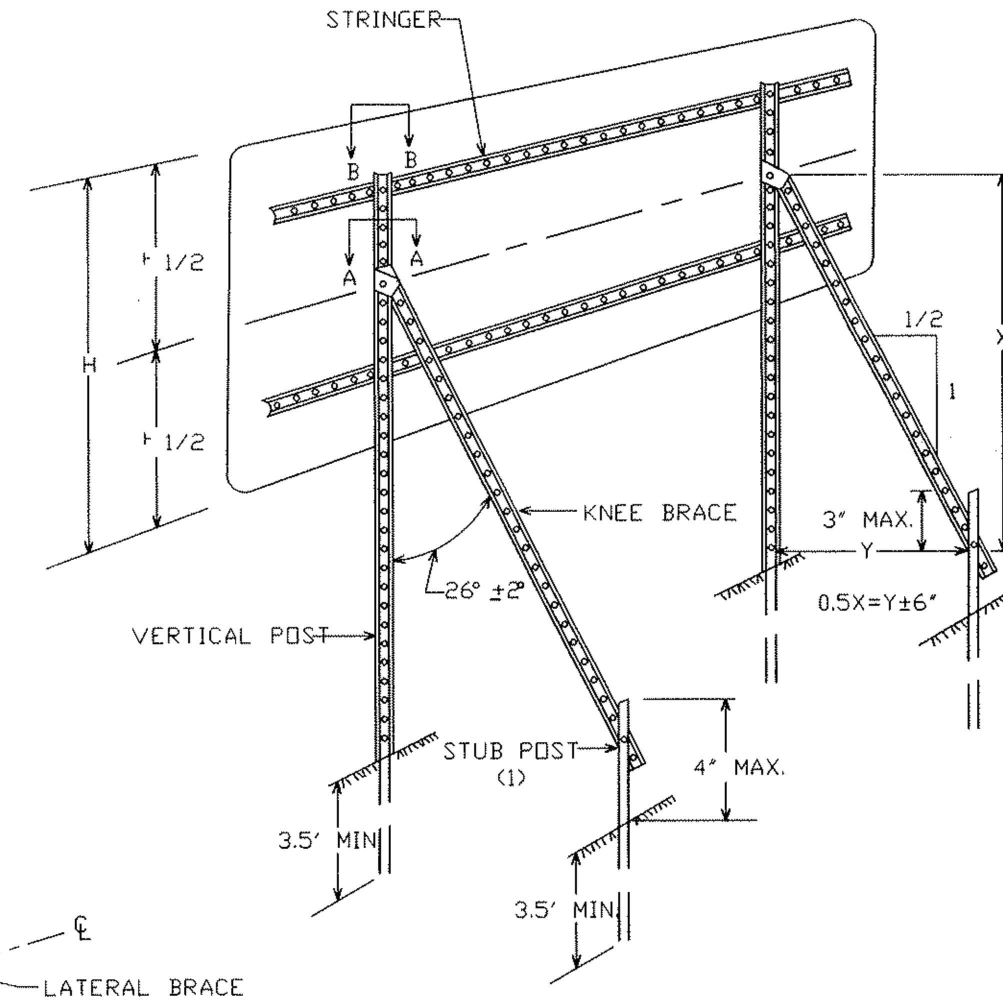
CDSIGN.STR CDI 6-12-96



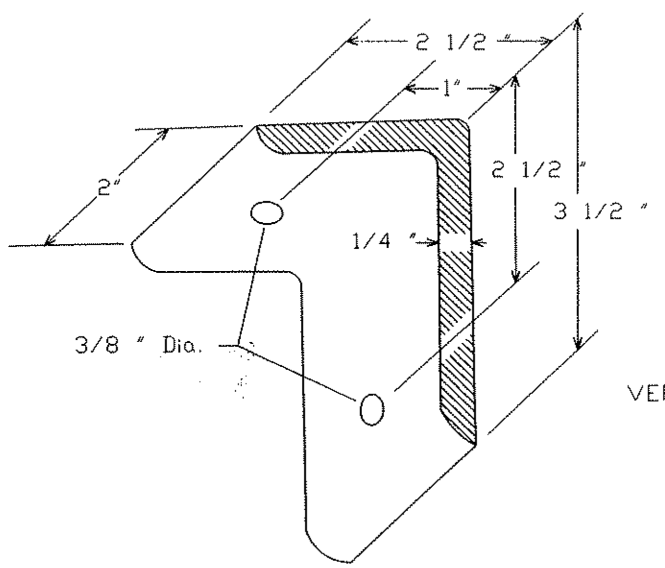
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

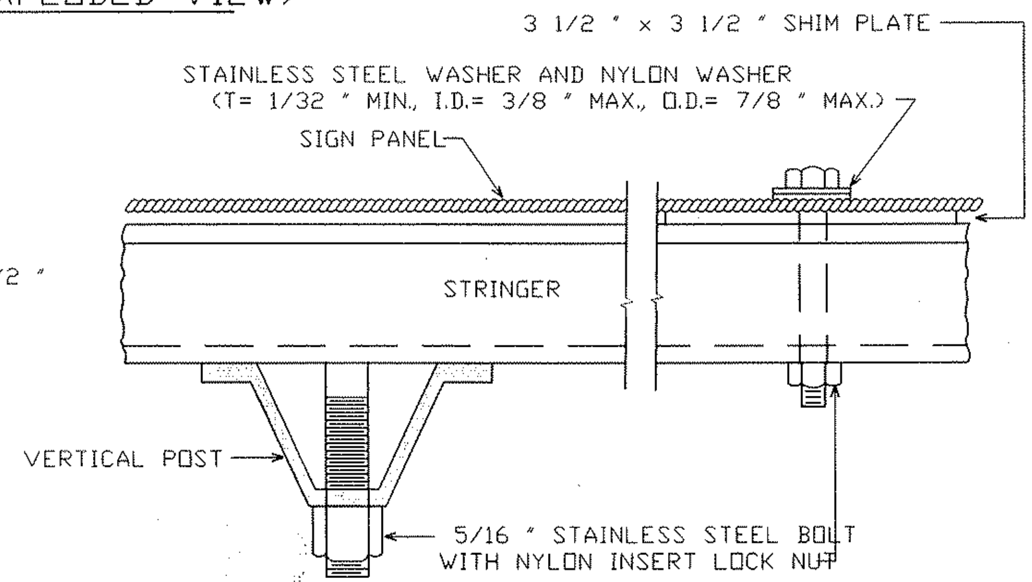


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

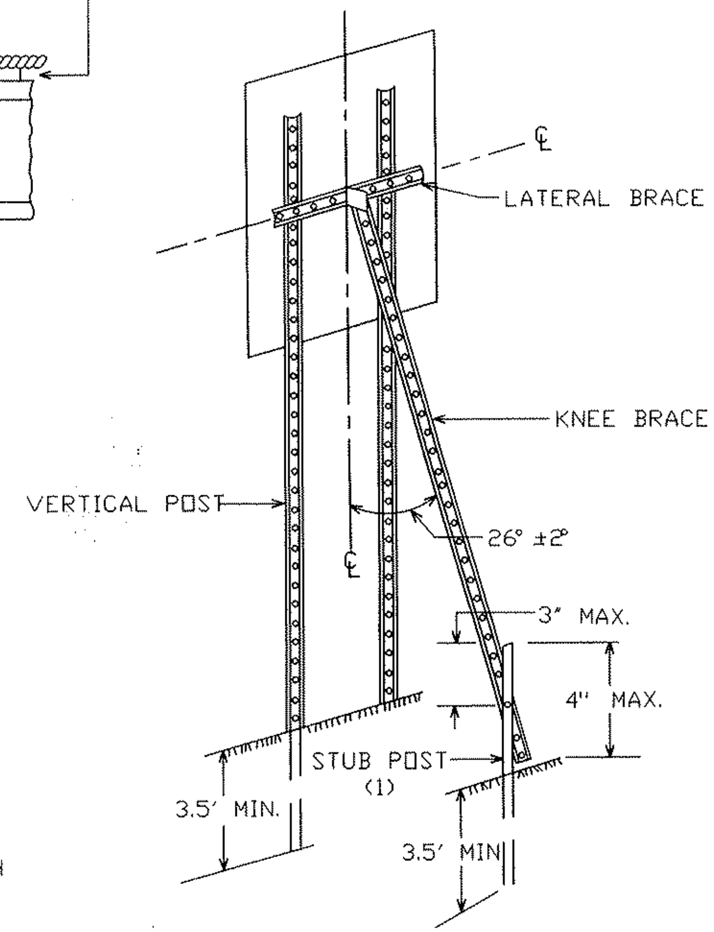


A-FRAME BRACKET

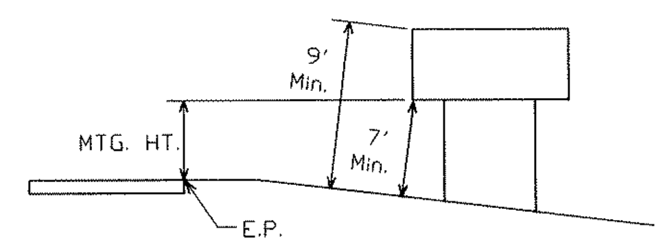
(Steel Mn/DOT 3306 galvanized per Mn/DOT 3394)



SECTION B-B

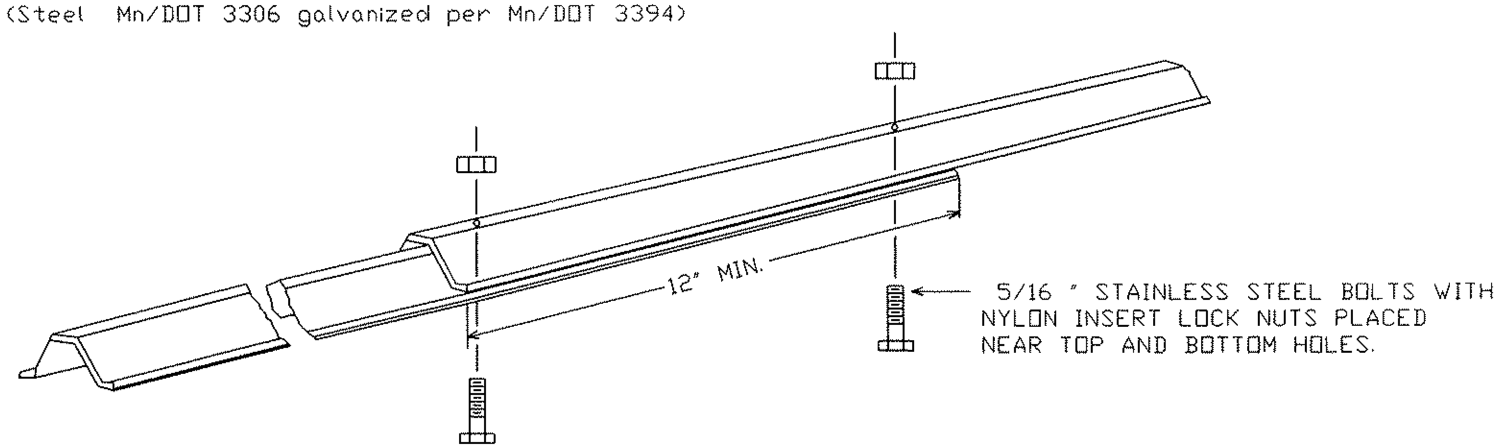


TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



TYPICAL MOUNTING

(1) Offset stub post 1' toward roadway relative to vertical post.



KNEE BRACE SPLICE

Rev. 3-31-93
Rev. 3-23-90

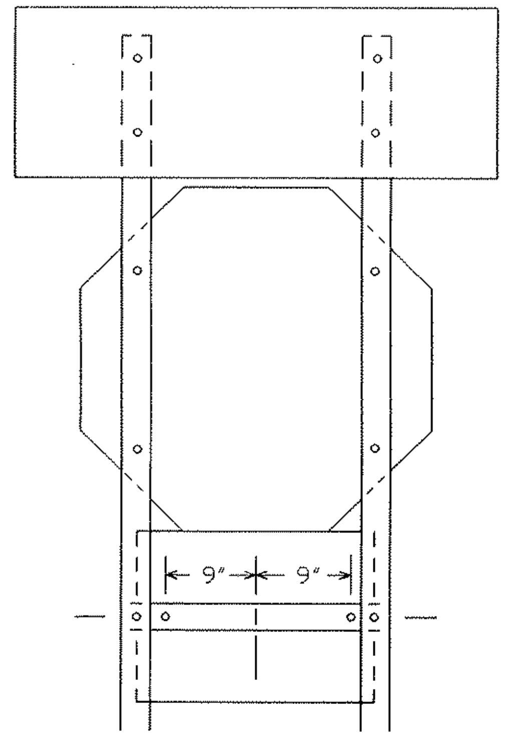
"C" & "D" SIGN DETAILS

DESIGN A

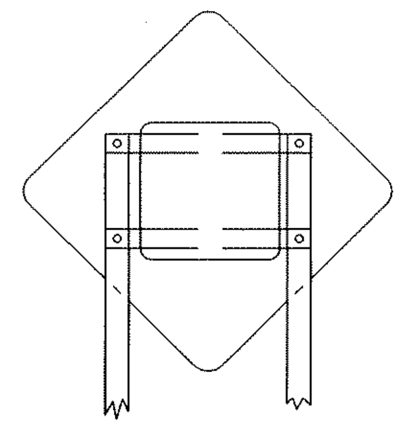
Sheet 2 of 3

47116SGN.DWG DATE: 7/16/96

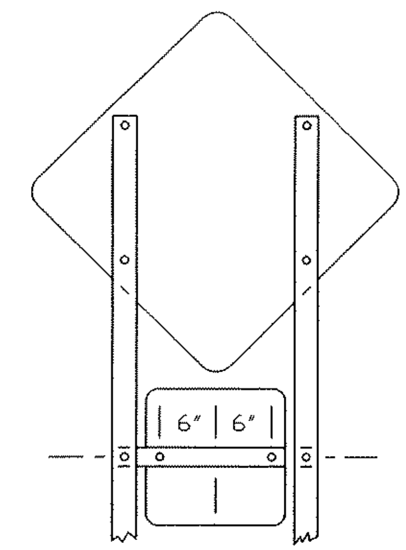
State Proj. No. 0206-47 State Aid Proj. No. 02-716-01 Sheet No. 43B of 56 Sheets



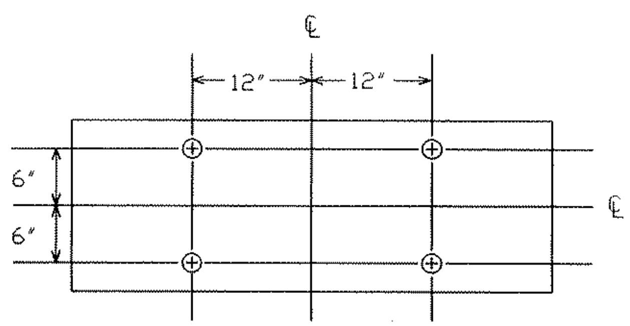
R6-1, R1-1 & (R6-3 or R6-3a)
Mounting



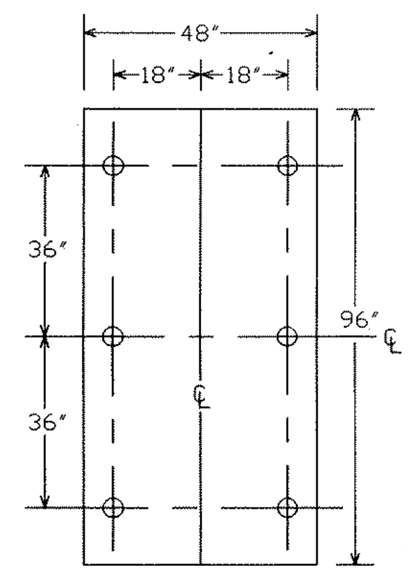
Back to back mounting
of R4-7 and W9-2



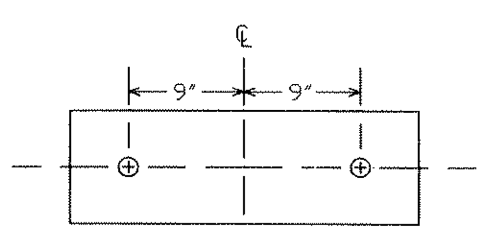
(W1-1, W1-2, W1-3, W1-4 or W1-5) & W13-1
Mounting



Punching for R6-1(48"x18")



Punching for R2-4a
SPEED LIMIT



Punching for R6-1(36"x12")

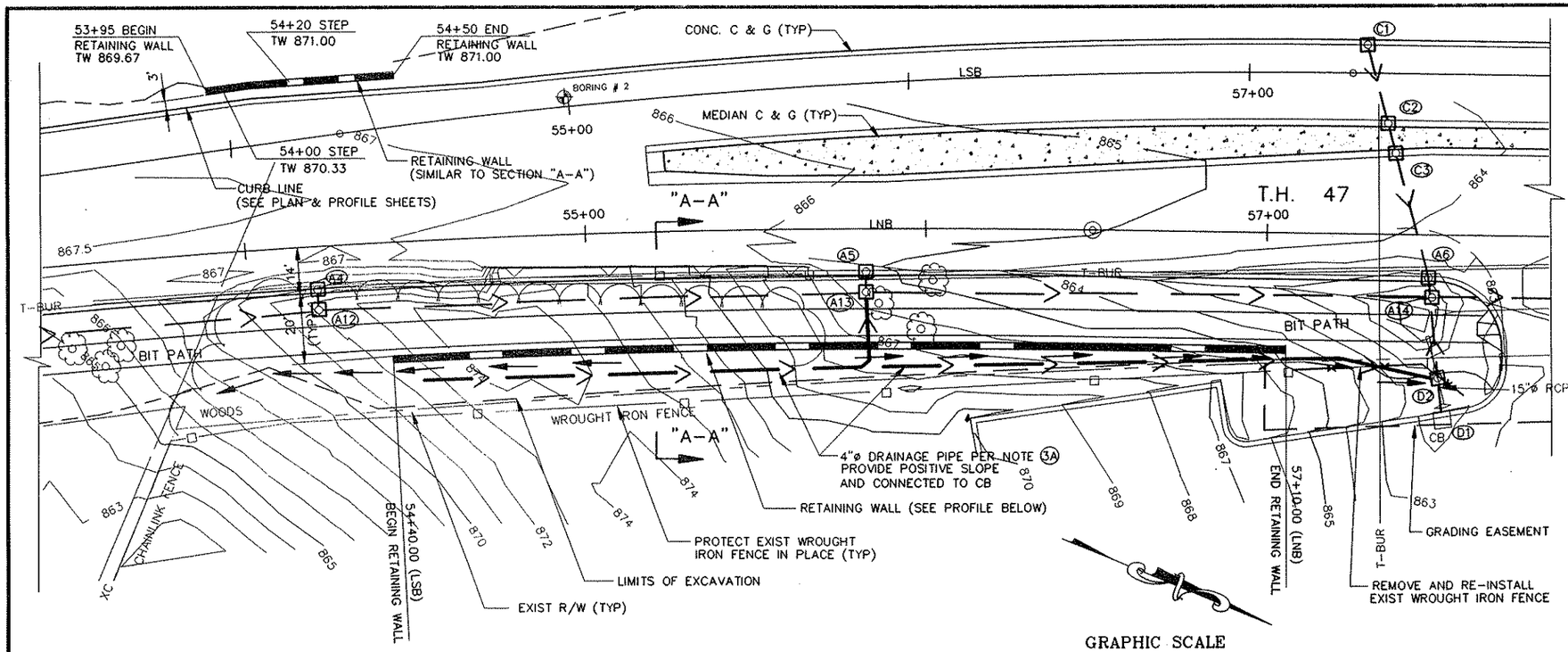
47116SGN.DWG DATE: 7/16/96

Rev. 3-31-93
Rev. 3-23-90

"C" & "D" SIGN DETAILS

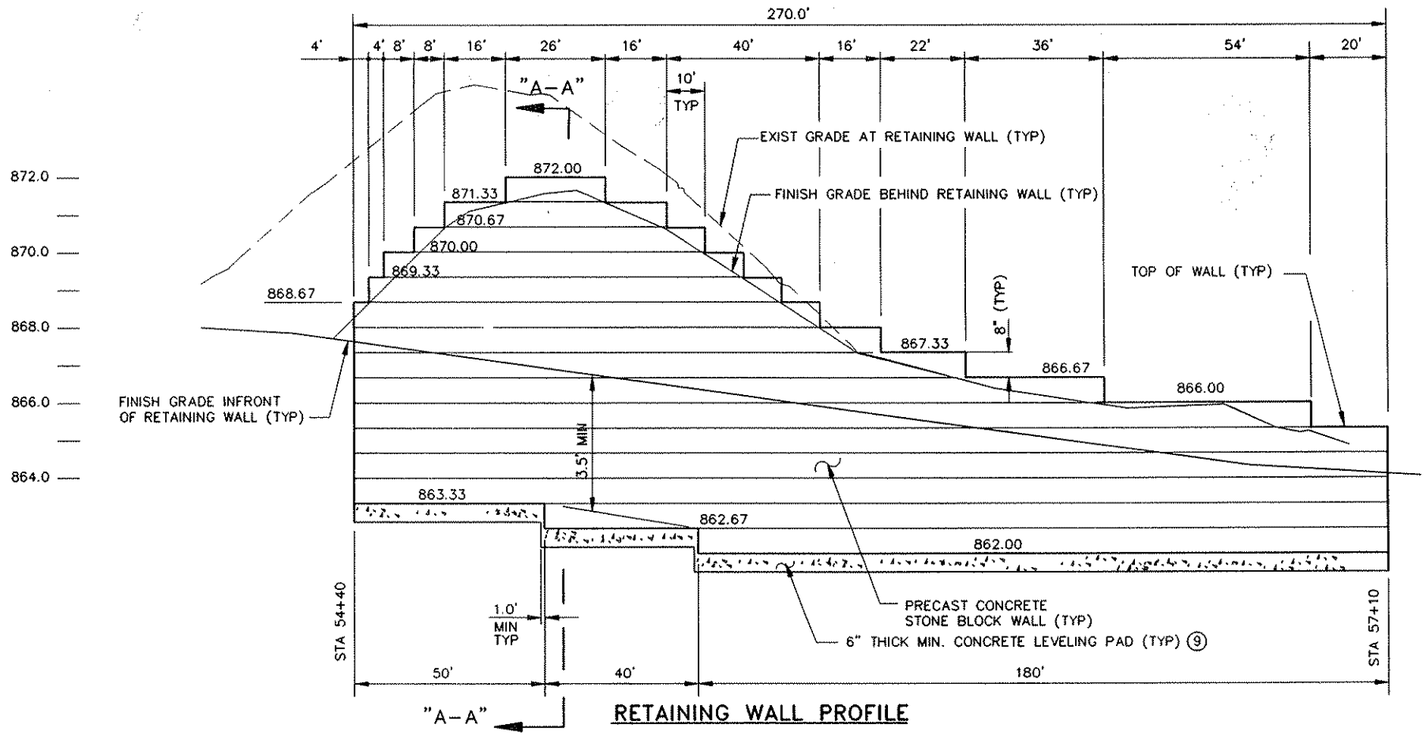
DESIGN A
Sheet 3 of 3

Fed. Project No. _____



RETAINING WALL PLAN

GRAPHIC SCALE
20 0 10 20 40



RETAINING WALL PROFILE

NOTES

A THE WALL SHALL BE DESIGNED AND THE DETAILED DRAWINGS PREPARED BY A PROFESSIONAL ENGINEER EXPERIENCED IN RETAINING WALL DESIGN WHO IS REGISTERED IN THE STATE OF MINNESOTA. THE DESIGN COMPUTATIONS AND THE PLANS SHALL BE CERTIFIED BY THE ENGINEER AND SUBMITTED TO THE WALL OWNER FOR THEIR REVIEW AND PERMANENT RECORD. THE DESIGN SHALL BE PER AASHTO AND Mn/DOT ROADWAY DESIGN MANUAL EXCEPT AS NOTED.

B THE DETAILED DRAWING SHALL CONTAIN ALL THE NECESSARY INFORMATION FOR THE CONSTRUCTION OF THE WALL. INCLUDED SHALL BE A TYPICAL SECTION DETAILING EXCAVATION LIMITS, GEOTEXTILE LOCATIONS, BLOCK EMBEDMENTS, LEVELING PAD DIMENSIONS, BACKFILL, ETC. INCLUDE AS MANY SECTIONS AND OTHER VIEWS NECESSARY FOR THE CONSTRUCTION AND INSPECTION OF THE WALL. THE INFORMATION ON EMBEDMENT, GEOTEXTILE LOCATIONS, AND GEOTEXTILE LENGTH AS THEY RELATE TO WALL HEIGHTS MAY BE SHOWN IN TABULATE FORM. ALSO INCLUDED SHALL BE THE PERTINENT INFORMATION ON THE INDIVIDUAL BLOCKS AND THE GEOTEXTILE MATERIALS.

C ALL PLANS SHALL CLEARLY IDENTIFY THE NAME OF THE RESPONSIBLE ENGINEERING FIRM AND THE NAME OF THE PERSON CERTIFYING THE PLANS. EACH SHEET SHALL BE CERTIFIED.

CONSTRUCTION NOTES

(1) THE MINIMUM DEPTH OF BLOCK EMBEDMENT SHALL BE 3.5 FEET MEASURED PERPENDICULAR TO THE SLOPE UNLESS A DETAILED ANALYSIS SHOWS A GREATER DEPTH IS REQUIRED (AASHTO 5.8)

(2A) THE MINIMUM REINFORCEMENT LENGTH SHALL BE 70 PERCENT OF THE TOTAL WALL HEIGHT UNLESS A DETAILED ANALYSIS SHOWS A LONGER LENGTH IS REQUIRED (AASHTO 5.8).

(2B) GEOTEXTILE VERTICAL SPACING TO BE DETERMINED BY DETAILED ANALYSIS.

(3A) A 4-INCH DRAINAGE PIPE, Mn/DOT 3278, WRAPPED IN TYPE 1 GEOTEXTILE, Mn/DOT 3733, SHALL BE INSTALLED.

(3B) THE PROJECT ENGINEER HAS THE OPTION OF HAVING ADDITIONAL DRAINS PLACED TO INTERCEPT ANY WATER-BEARING SOIL STRATA DISCOVERED DURING CONSTRUCTION.

(4) PAY LIMITS OF STRUCTURE EXCAVATION.

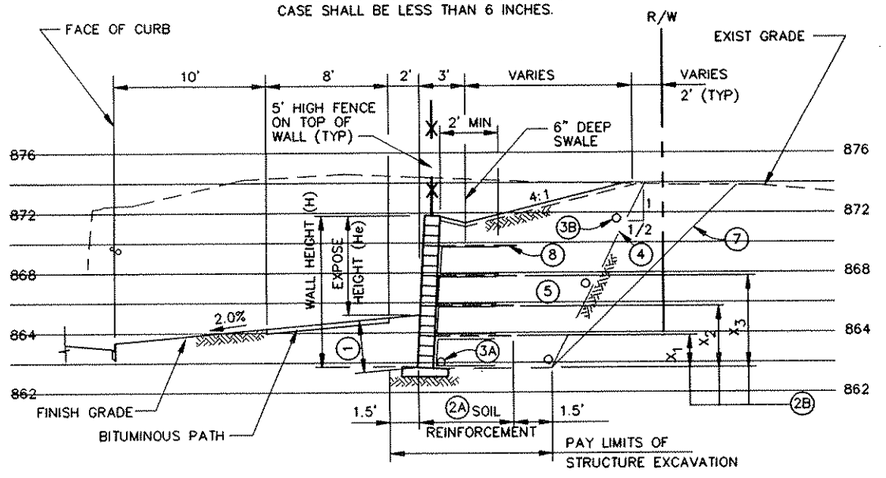
(5) BACKFILL TO MEET 3149.2B MODIFIED TO 40% OR LESS PASSING THE # 200 SIEVE. IN ADDITION, 100% MUST PASS THE 4-INCH SIEVE. COMPACTION TO BE IN ACCORDANCE WITH 2451.3D.

(6) ANY SUITABLE BACKFILL. COMPACTION TO BE IN ACCORDANCE WITH 2105.3F2. ORDINARY COMPACTION.

(7) SLOPE DETERMINATION BY IN-SITU SOILS AND/OR OSHA REGULATIONS. ANY EXCAVATION BEYOND "LIMITS OF EXCAVATION" SHALL BE AT THE CONTRACTOR'S EXPENSE.

(8) TYPE 1 GEOTEXTILE TO BE PLACED ON BACK SIDE OF FACINF BLOCKS AS SHOWN.

(9) THE LEVELING PAD SHALL BE EITHER UNREINFORCED CONCRETE OR COMPACTED AGGREGATE. THE THICKNESS SHALL BE AS DETERMINED BY ANALYSIS BUT IN NO CASE SHALL BE LESS THAN 6 INCHES.



RETAINING WALL SECTION A-A

REVISIONS

DATE	BY	DATE	BY

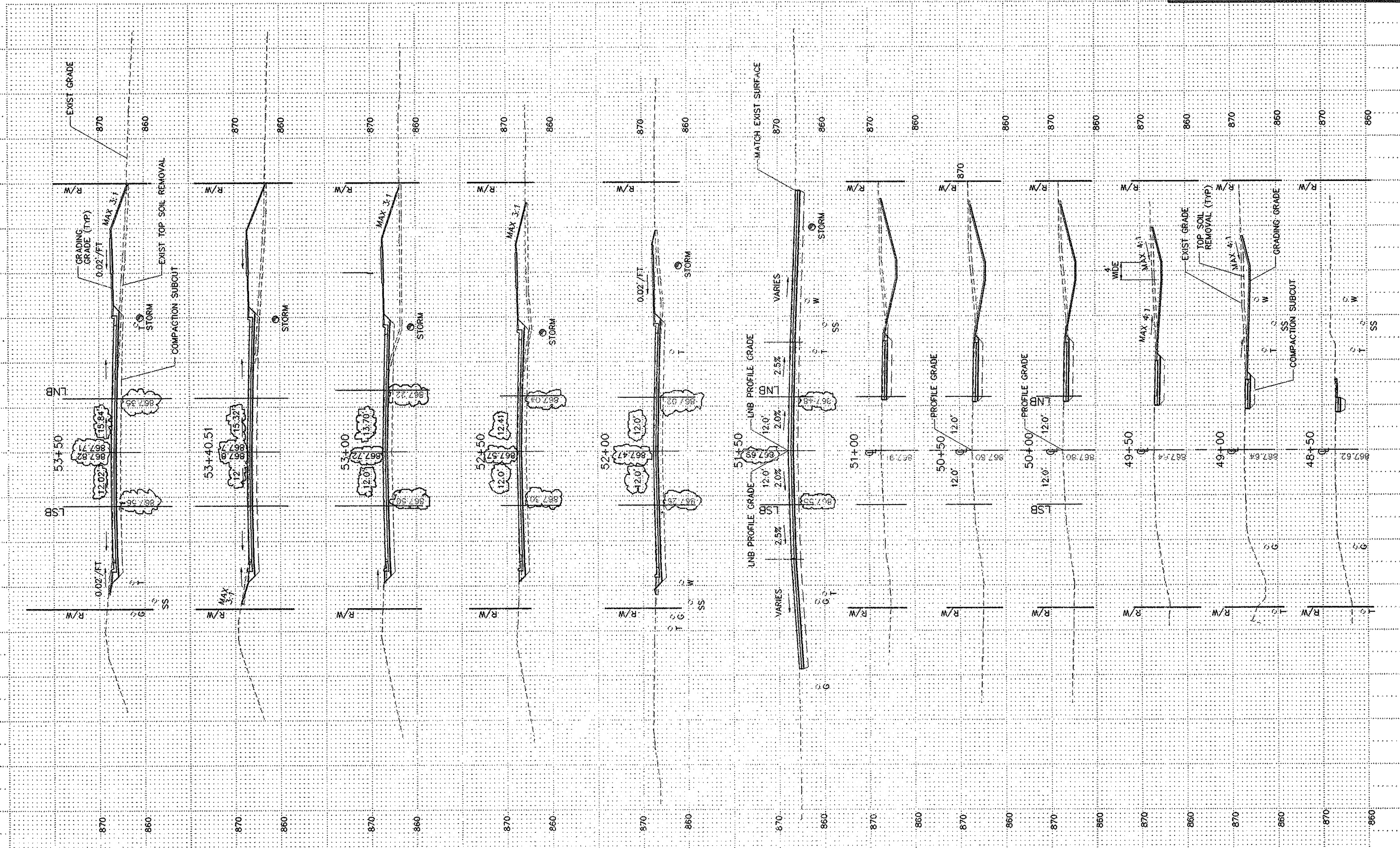
FILE NAME: CVP\90231161\Plans\47116027.DWG MN(5-16-96)

CERTIFIED BY Douglas M Reindl P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 44 of 56 Sheets

Fed. Project No.



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REVISIONS			
DATE	BY	DATE	BY
09/20/96	KJO		

CROSS-SECTION

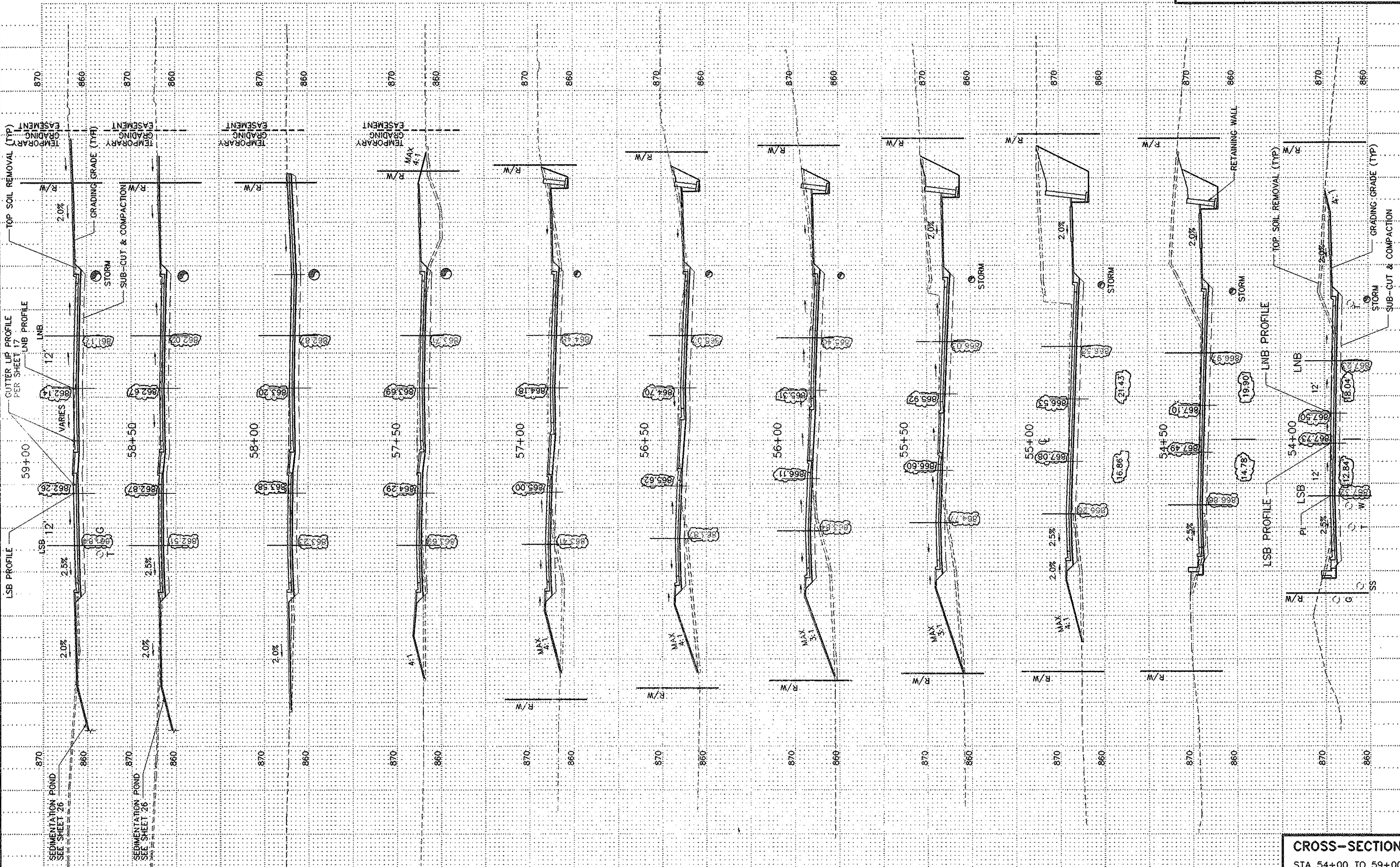
STA 48+50 TO 53+50

CERTIFIED BY [signature] P.E. REG NO. 20235 10/2 1996

S.P. 0206-47 S.A.P. 02-716-01 C.P. ________

Sheet No. 45 of 56 Sheets

Fed. Project No.



REVISIONS			
DATE	BY	DATE	BY
9/20/96	KAO		

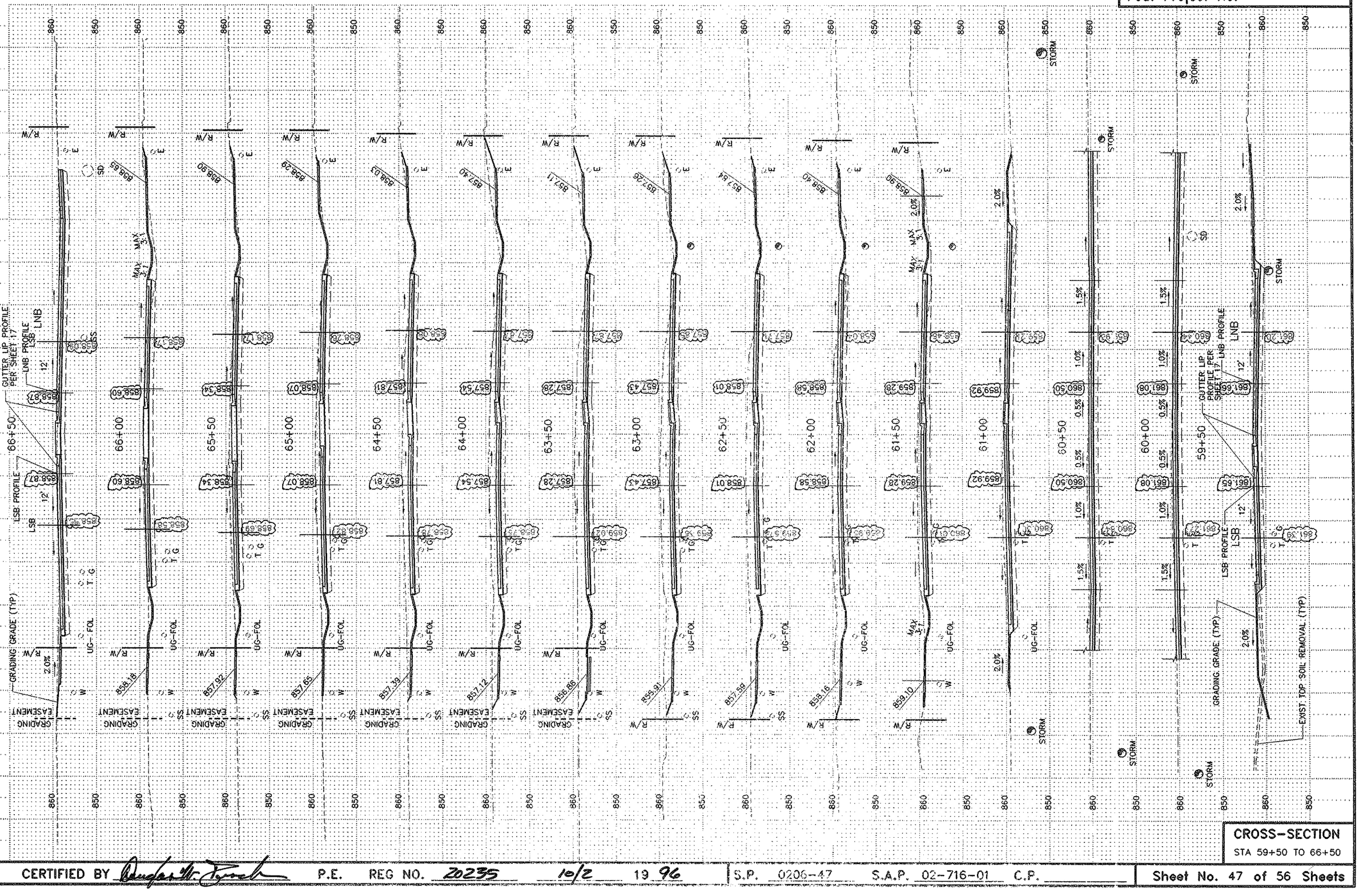
CERTIFIED BY [signature] P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

CROSS-SECTION
STA 54+00 TO 59+00

Sheet No. 46 of 56 Sheets

Fed. Project No.



CROSS-SECTION
STA 59+50 TO 66+50

REVISIONS			
DATE	BY	DATE	BY
9/20/96	KAO		

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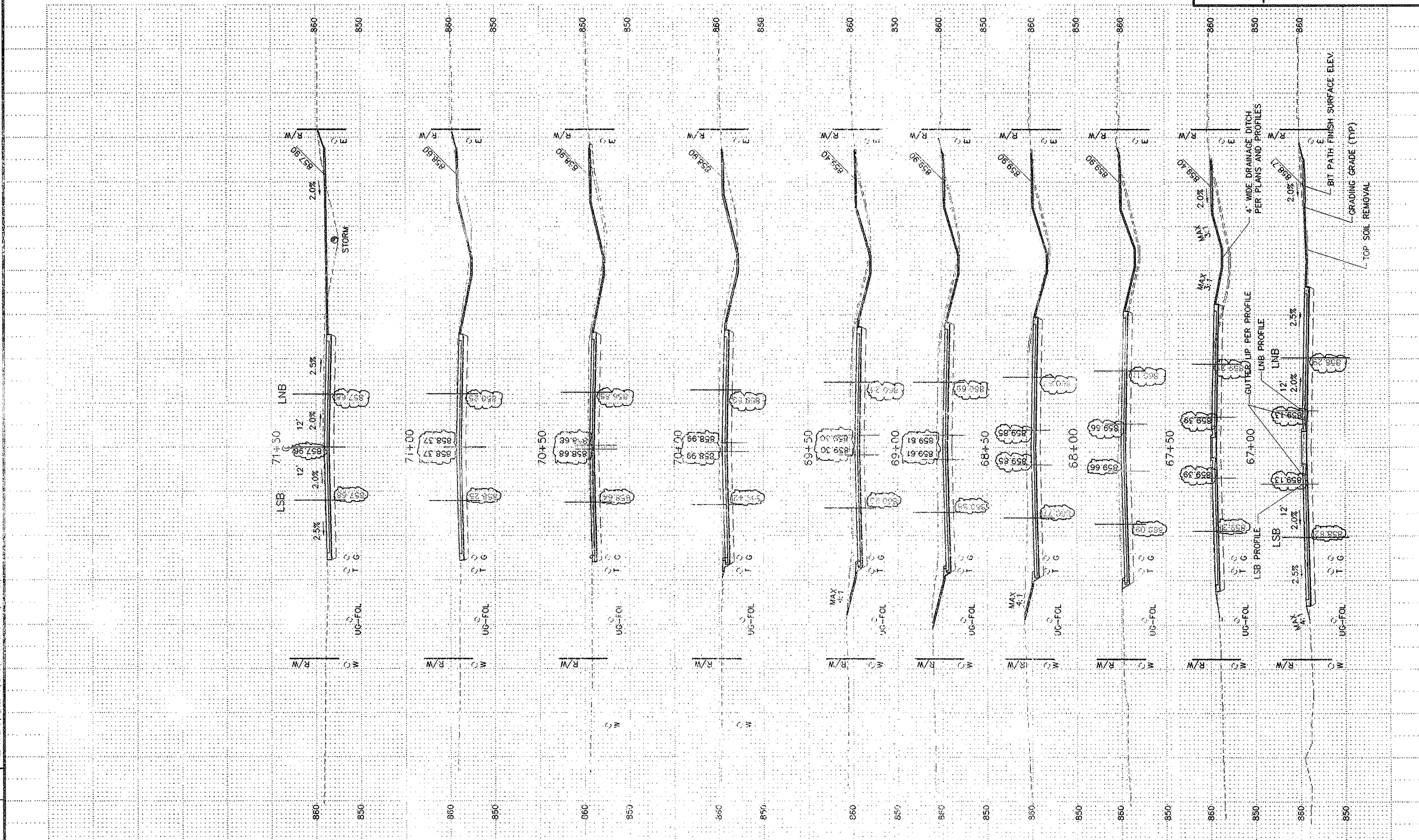
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 47 of 56 Sheets

Fed. Project No.



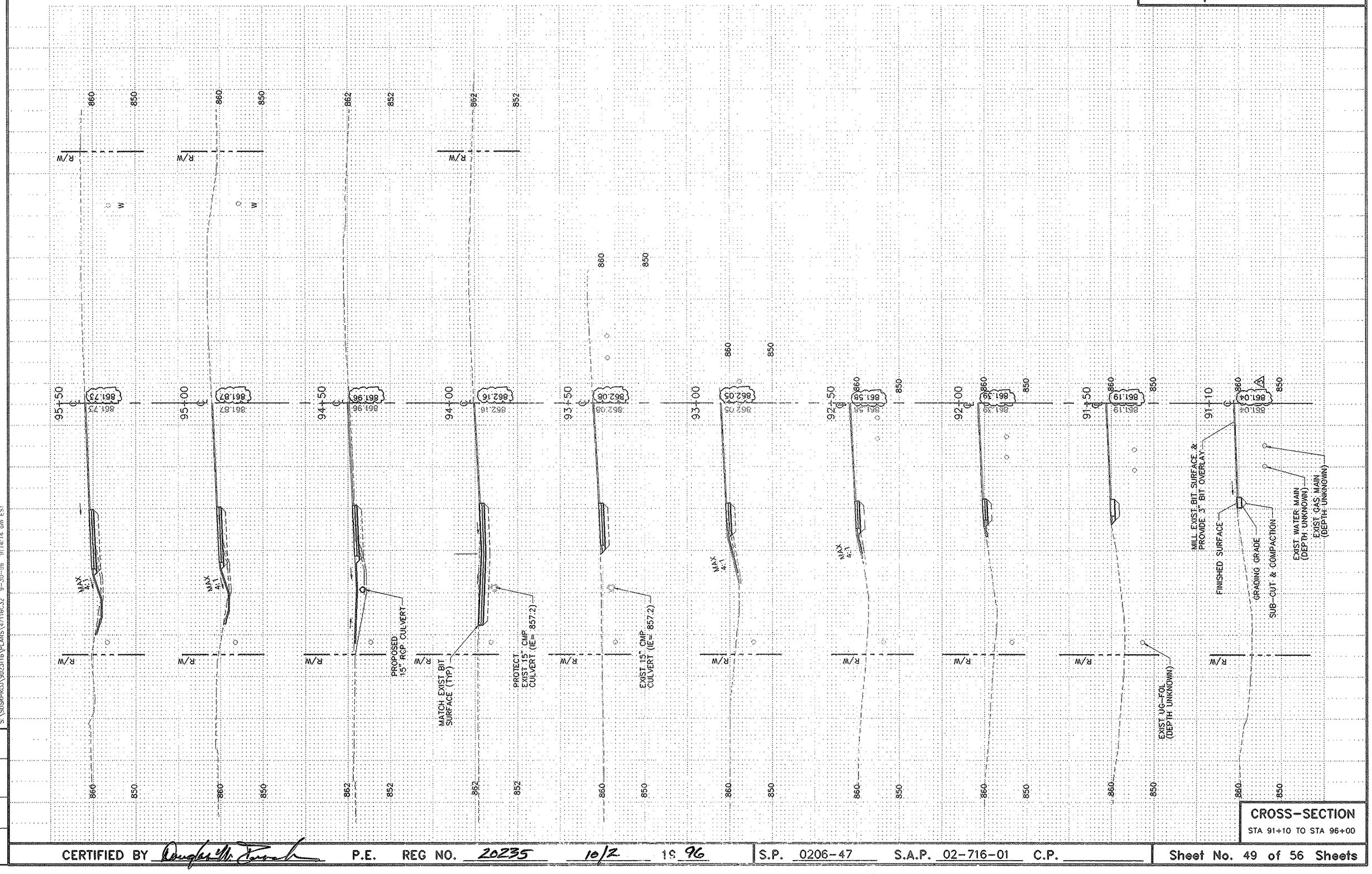
REVISIONS			
DATE	BY	DATE	BY
9/20/96	KTY		

CROSS-SECTION
STA 67+00 TO 71+50

CERTIFIED BY [signature] P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. ______

Fed. Project No.



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9-20-96	KTY		

CROSS-SECTION
STA 91+10 TO STA 96+00

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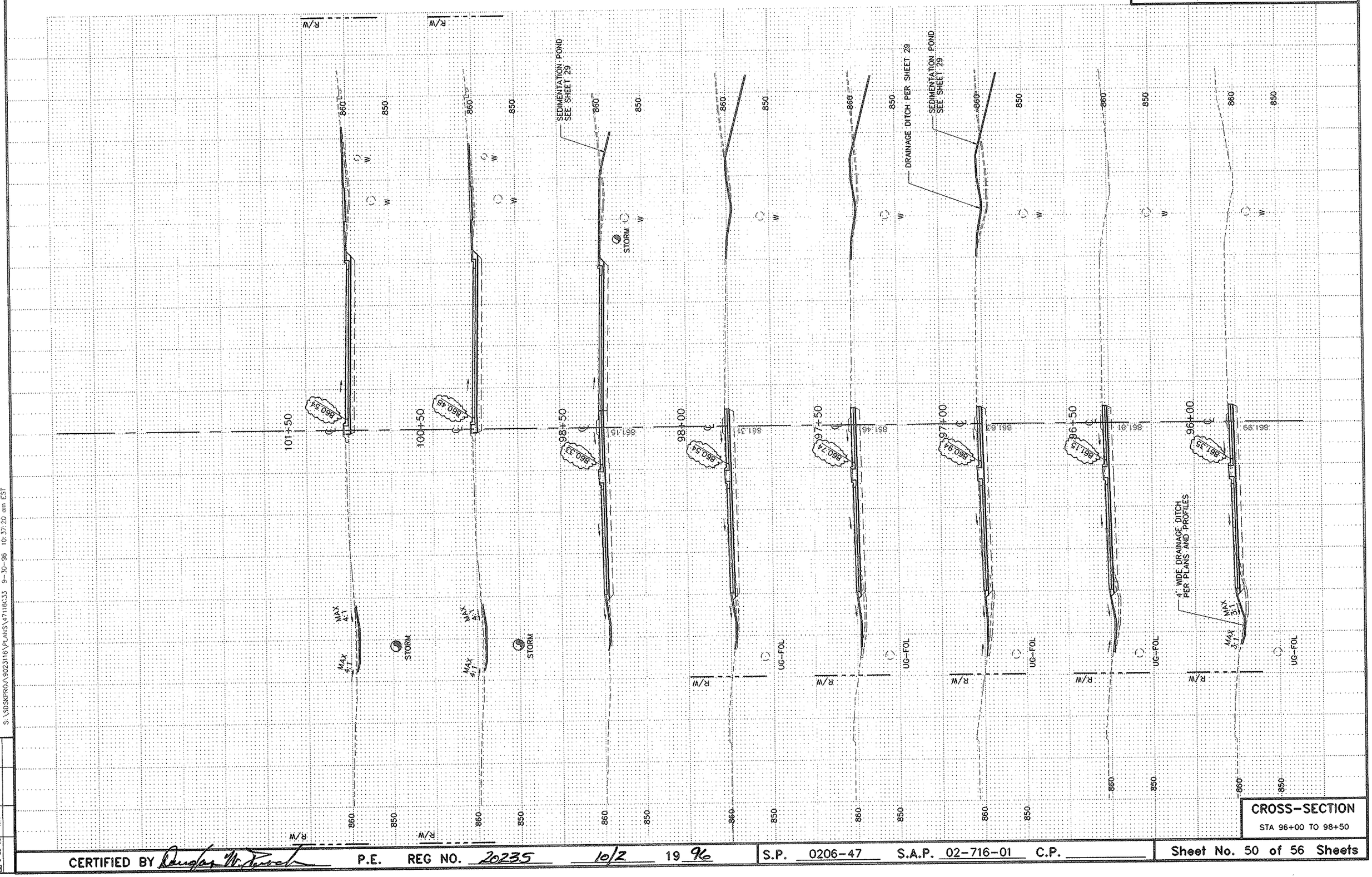
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Fed. Project No.



CROSS-SECTION
STA 96+00 TO 98+50

REVISIONS			
DATE	BY	DATE	BY
9-20-96	KTY		

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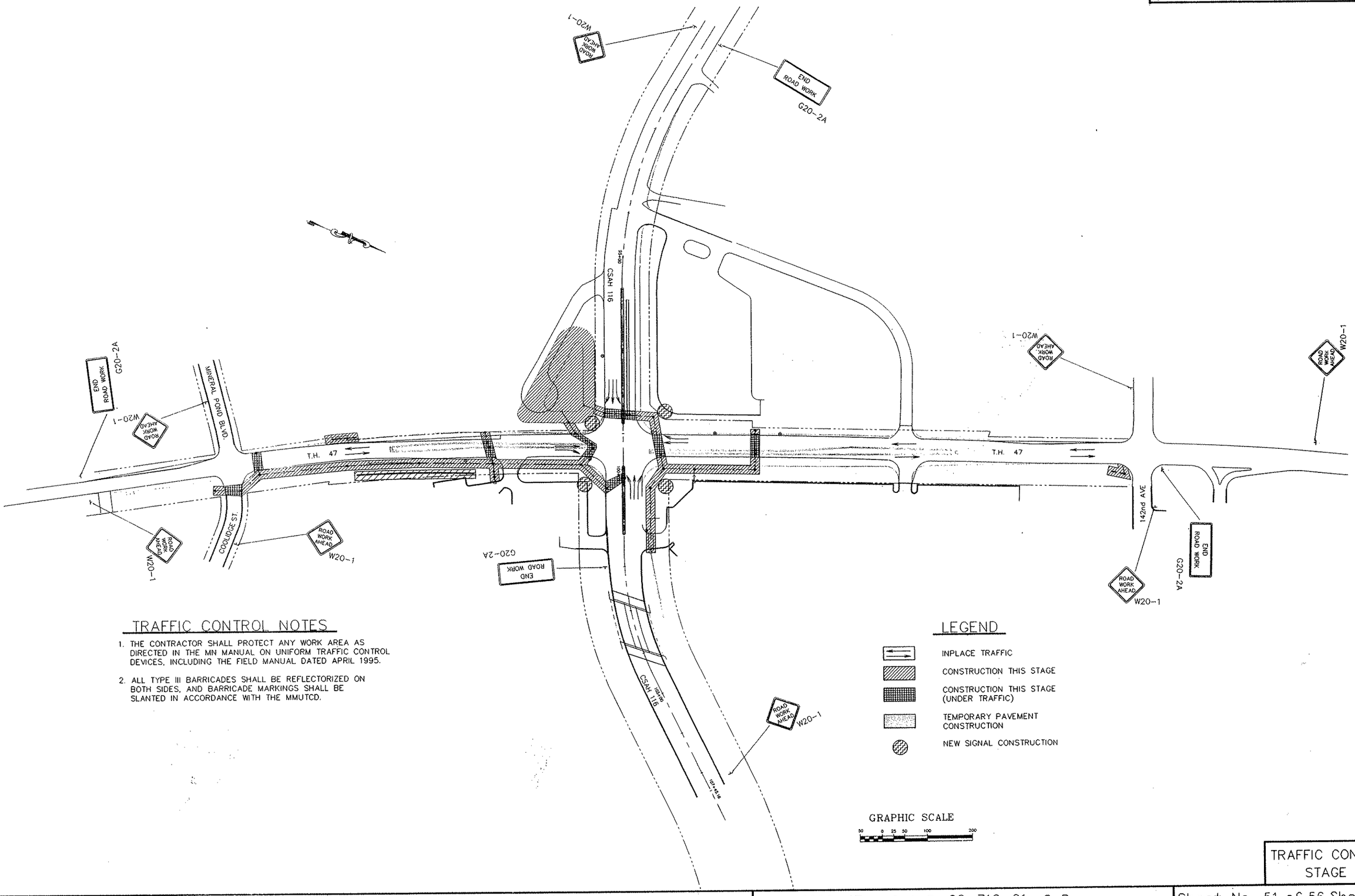
CERTIFIED BY Douglas W. Powell P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 50 of 56 Sheets

Fed. Project No. _____



TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL PROTECT ANY WORK AREA AS DIRECTED IN THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- TEMPORARY PAVEMENT CONSTRUCTION
- NEW SIGNAL CONSTRUCTION

GRAPHIC SCALE

50 0 25 50 100 200

TRAFFIC CONTROL
STAGE 1

T:\RANDY\47@116\TCSTAGE1.DWG

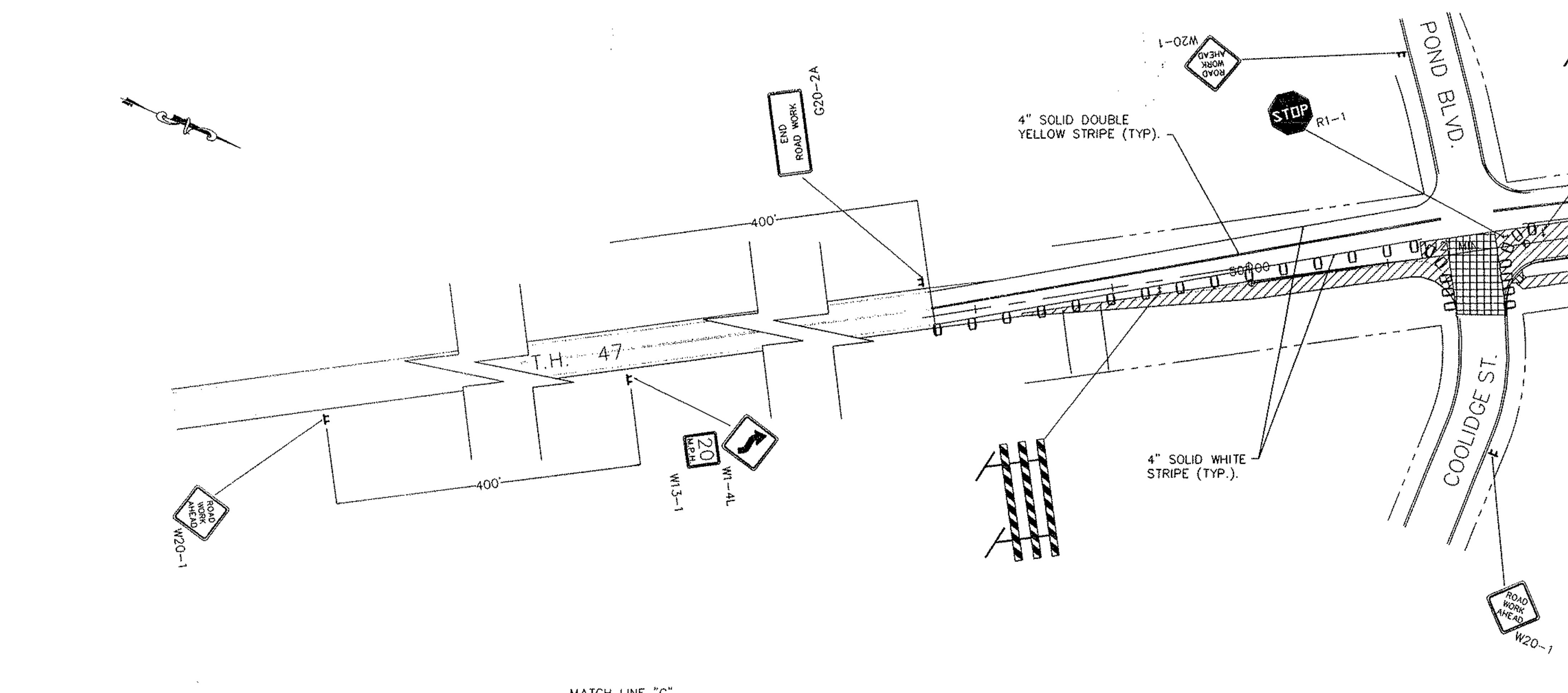
REVISIONS			
DATE	BY	DATE	BY

CERTIFIED BY _____ P. E. REG NO. 20235 7/16 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

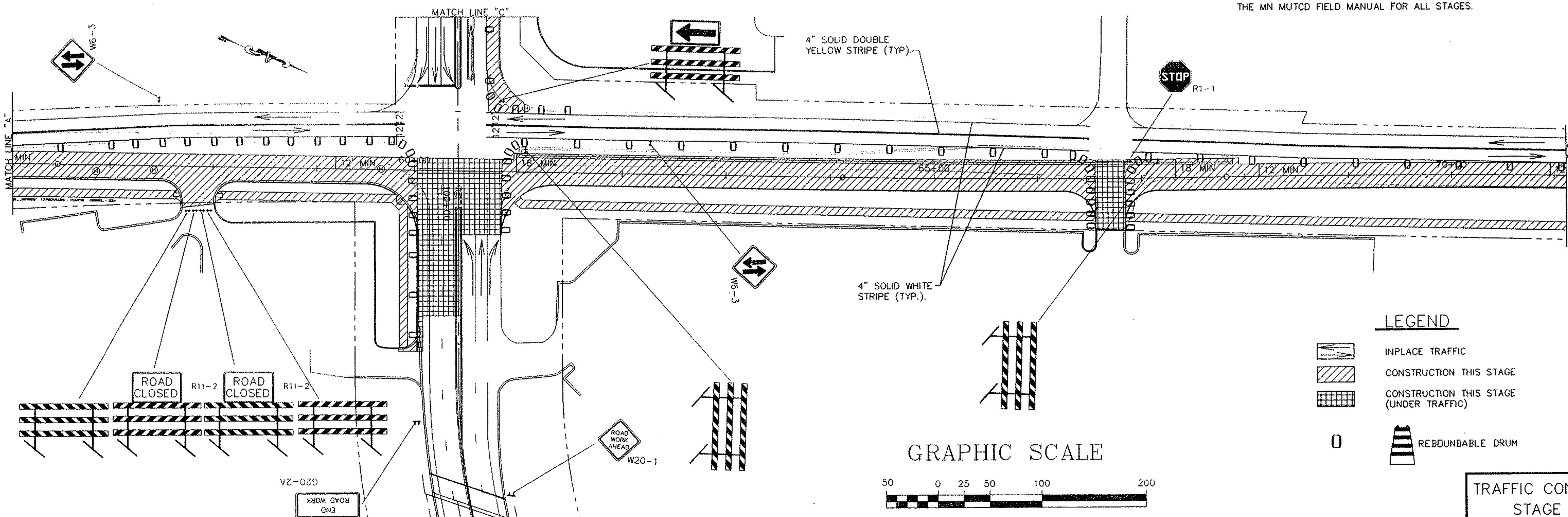
Sheet No. 51 of 56 Sheets

Fed. Project No. ______



TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. PAVEMENT MARKINGS ON TH 47 FROM STA. 51+30 TO STA. 71+50 SHALL BE PAINT. PAVEMENT MARKINGS SOUTH OF STA. 51+30, NORTH OF STA. 71+50, AND ON CSAH 116 SHALL BE REMOVABLE LANE TAPE.
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 2 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.



LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM

GRAPHIC SCALE

50 0 25 50 100 200

T:\RANDY\47@116\TCSTAGE2.DWG 5/16/96

REVISIONS

DATE	BY	DATE	BY

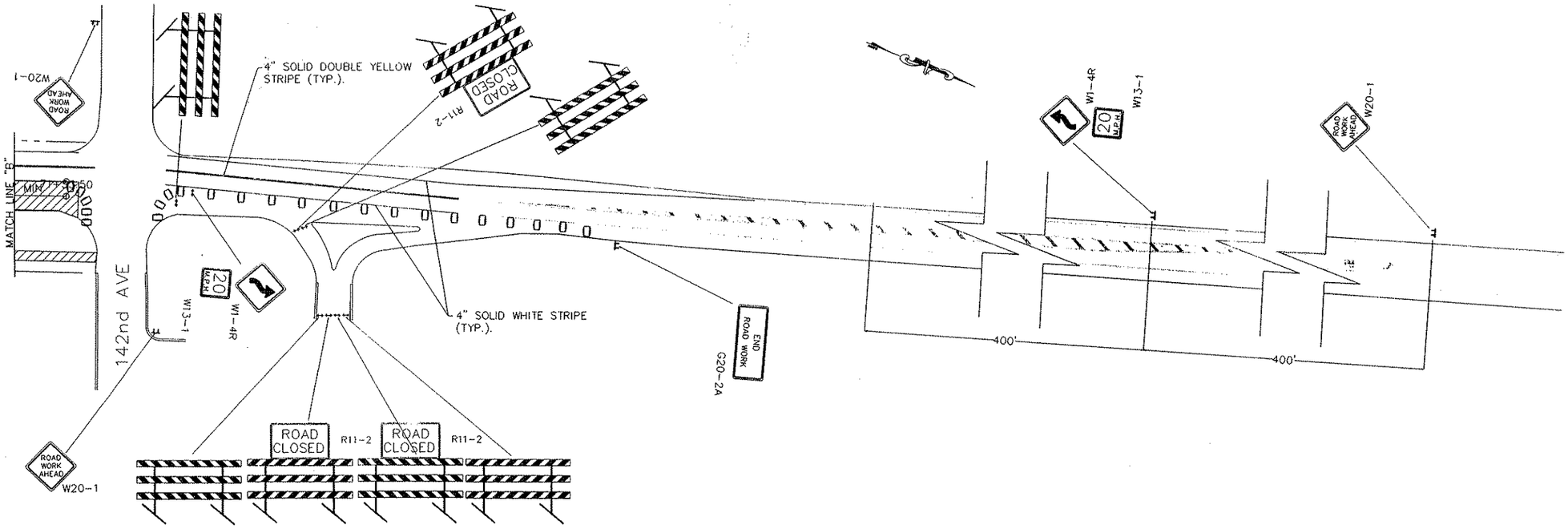
TRAFFIC CONTROL STAGE 2

CERTIFIED BY ______ P.E REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P. ______

Sheet No. 52 of 56 Sheets

Fed. Project No. _____

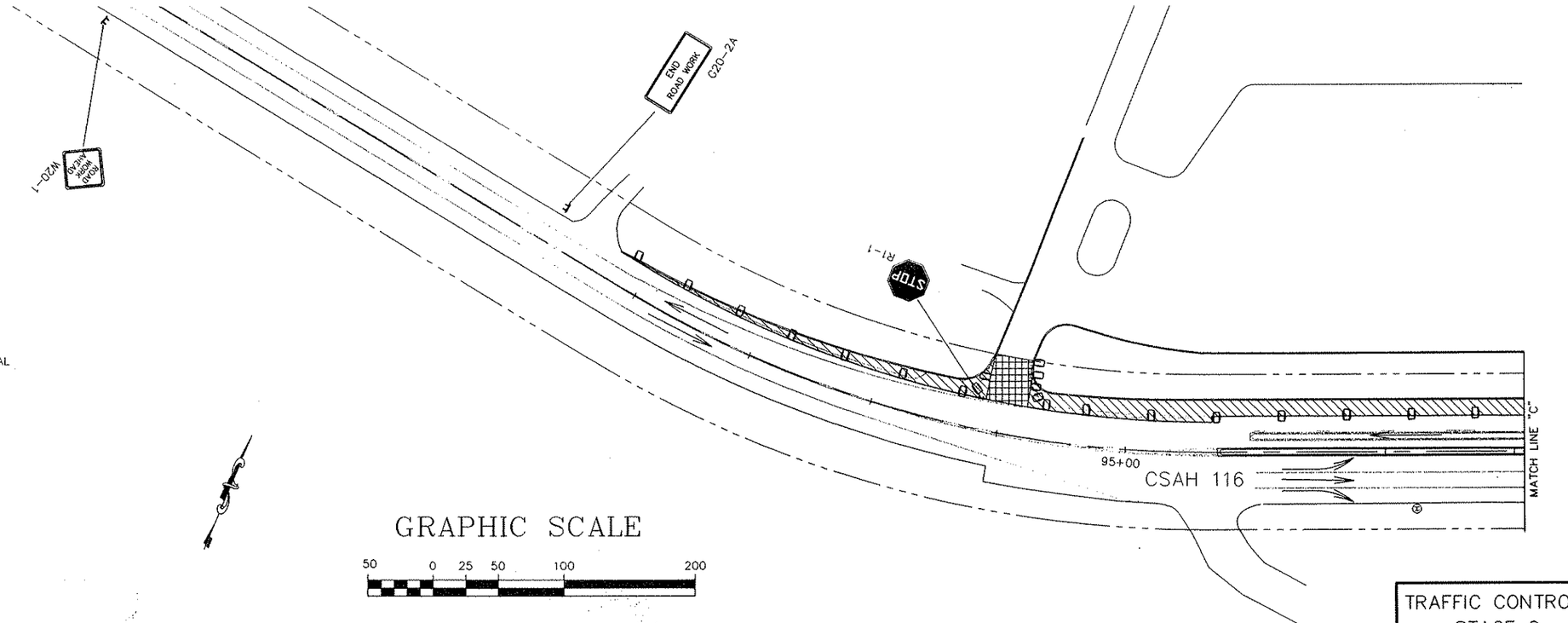


TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. PAVEMENT MARKINGS ON TH 47 FROM STA. 51+30 TO STA. 71+50 SHALL BE PAINT. PAVEMENT MARKINGS SOUTH OF STA. 51+30, NORTH OF STA. 71+50, AND ON CSAH 116 SHALL BE REMOVABLE LANE TAPE.
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 2 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM



GRAPHIC SCALE

50 0 25 50 100 200

TRAFFIC CONTROL STAGE 2

REVISIONS

DATE	BY	DATE	BY

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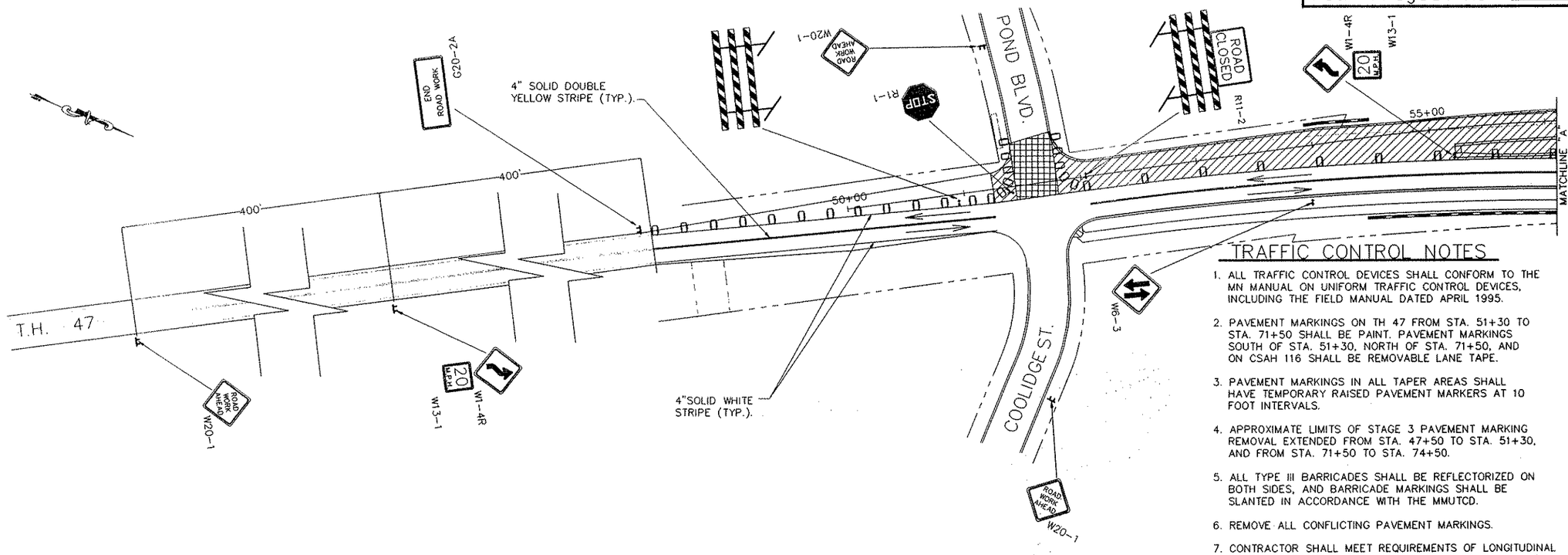
CERTIFIED BY _____ P. E. REG NO. 20225 7/18 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 53 of 56 Sheets

Fed. Project No. _____



TRAFFIC CONTROL NOTES

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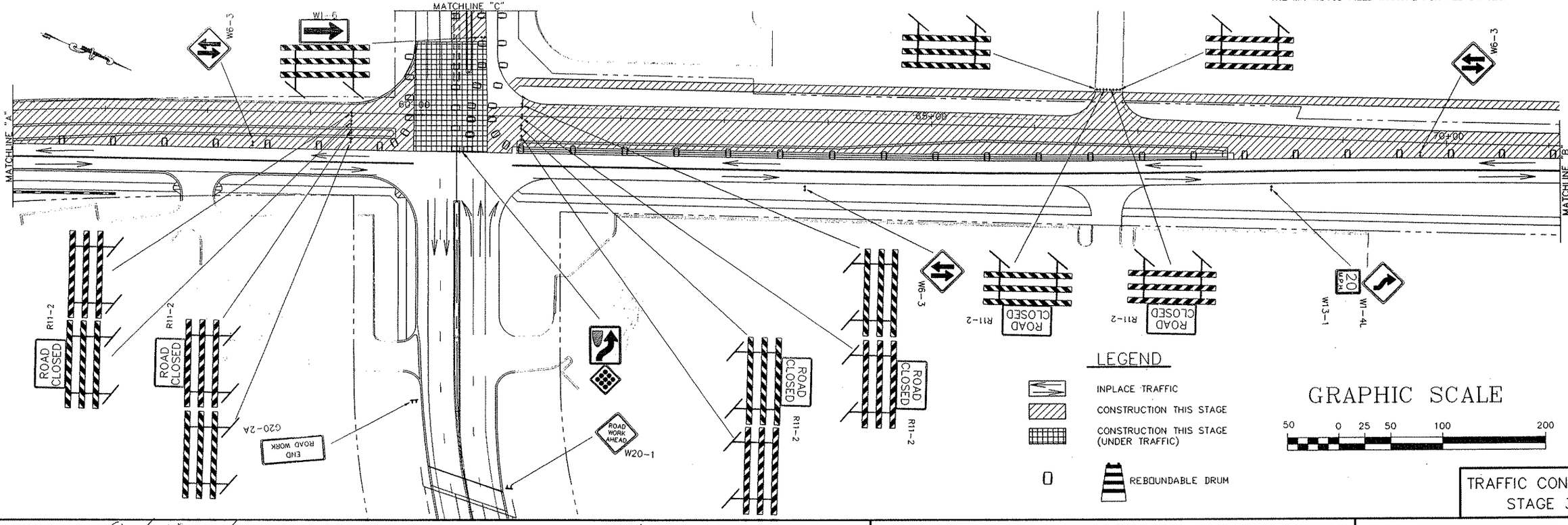
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 3 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 51+30, AND FROM STA. 71+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.



LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM

GRAPHIC SCALE

50 0 25 50 100 200

TRAFFIC CONTROL STAGE 3

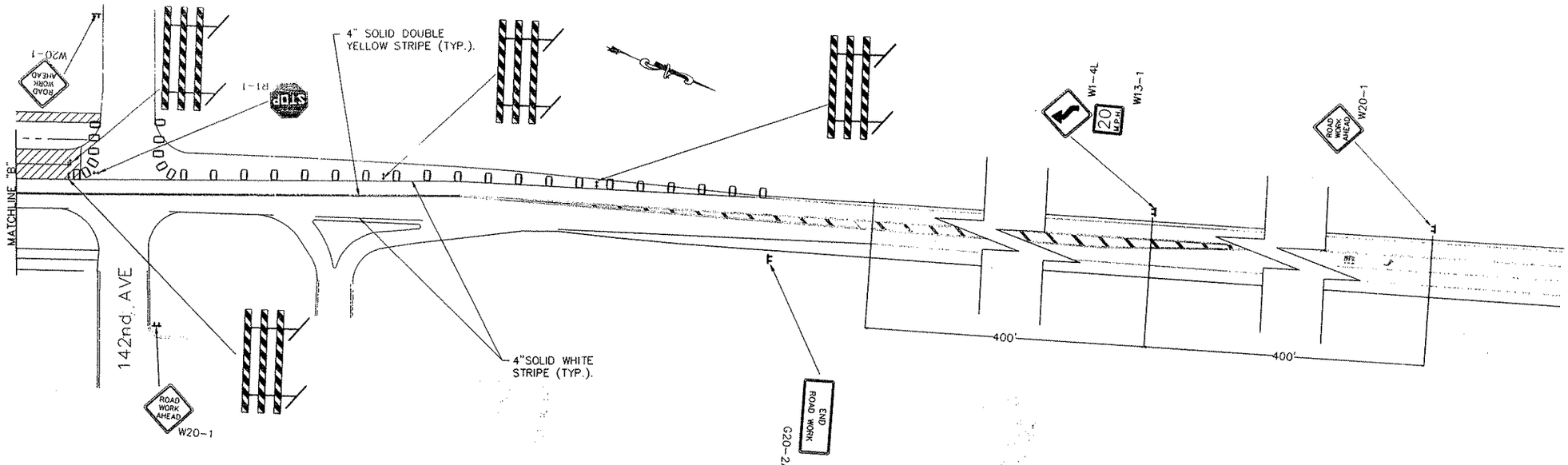
T:\RANDY\46@116\STAGE3.DWG 5/16/96

REVISIONS					
DATE	BY	DATE	BY	DATE	BY

CERTIFIED BY _____ P. E. REG NO. _____ 7/16 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Fed. Project No. _____



TRAFFIC CONTROL NOTES

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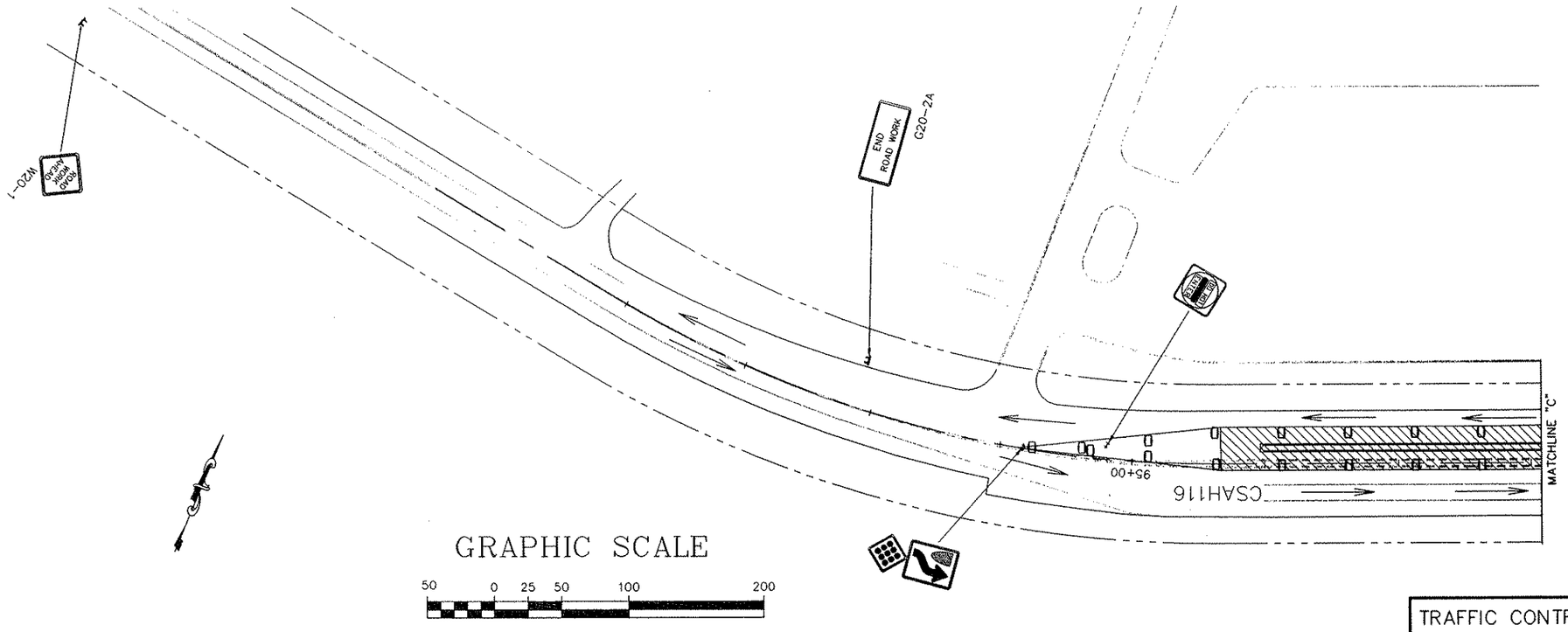
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 3 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 51+30, AND FROM STA. 71+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM



GRAPHIC SCALE

50 0 25 50 100 200

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REVISIONS			
DATE	BY	DATE	BY
7-29-96	KTY		

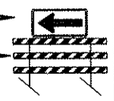
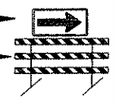
TRAFFIC CONTROL STAGE 3

CERTIFIED BY _____ P. E. REG NO. 20235 7/8 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 55 of 56 Sheets

Fed. Project No. _____

M. U. T. C. D. CODE	SIZE	INSERT	STAGE I QTY	STAGE II QTY	STAGE III QTY
R1-1	48"x48"		• 0	• 3	• 2
R4-7	30"x36"		• 0	• 0	• 2
X4-2	18"x18"		• 0	• 0	• 2
R11-2	48"x30"		• 0	• 2	• 3
TYPE III	8 FT.		• 0	• 5	• 6
R11-2	48"x30"		• 0	• 3	• 4
TYPE III	8 FT.		• 0	• 5	• 9
W1-6L	48"x24"		• 0	• 1	• 1
TYPE III	8 FT.		• 0	• 6	• 3
W1-6R	48"x24"		• 0	• 0	• 1
TYPE III	8 FT.		• 0	• 0	• 1
W1-4L	48"x48"		• 0	• 2	• 2
W13-1	24"x24"		• 0	• 2	• 2
W1-4R	48"x48"		• 0	• 2	• 2
W13-1	24"x24"		• 0	• 2	• 2
W6-3	48"x48"		• 0	• 2	• 4
W20-1	48"x48"		• 8	• 8	• 8
REBOUNDABLE DRUM REFLECTORIZED			• 0	• 150	• 134
G20-2A	48"x24"		• 4	• 4	• 4

TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. PAVEMENT MARKINGS ON TH 47 FROM STA. 51+30 TO STA. 71+50 SHALL BE PAINT. PAVEMENT MARKINGS SOUTH OF STA. 51+30, NORTH OF STA. 71+50, AND ON CSAH 116 SHALL BE REMOVABLE LANE TAPE.
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.

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REVISIONS					
DATE	BY	DATE	BY	DATE	BY

STAGE QUANTITIES
TRAFFIC CONTROL

CERTIFIED BY _____ P. E. REG NO. 21235 7/18 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____