MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY

CONSTRUCTION PLAN FOR ROUNDABOUT, GRADING, AGG.BASE, BIT. SURFACING, DRAINAGE, CURB & GUTTER, AND LIGHTING SYSTEMS

LOCATED ON CSAH 12 FROM 960' EAST OF NATIONAL ST. TO HEATHER CT.

LOCATED ON CR 53 FROM THE 35W OVERPASS TO MARVY ST.

STATE AID PROJ. NO. 002-612-013

CSAH 12				
GROSS LENGTH	1441.63	FEET	0.273	MILES
BRIDGES-LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	1441.63	FEET	0.273	MILES

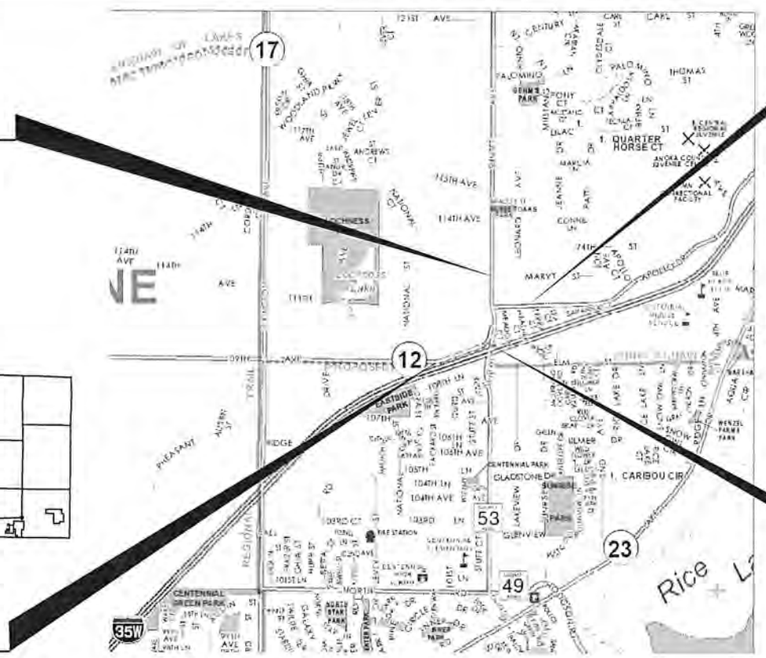
CR 53				
GROSS LENGTH	1144.81	FEET	0.216	MILES
BRIDGES-LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	1144.81	FEET	0.216	MILES

*** ALSO SEE ATTACHED ANOKA COUNTY STAND ALONE SUB PROJECT 16-10-53 ATTACHED TO THE BACK OF THIS PLAN.**

S.B. CR 53 STA. 21+41.37

END S.A.P. 002-612-013

E.B. CSAH 12 STA. 205+77.66

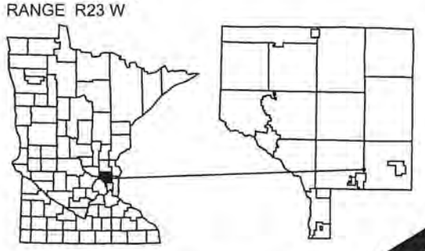


N.B. C.R. 53 STA. 798+67.94

BEGIN S.A.P. 002-612-013

E.B. CSAH 12 STA. 503+50.67

PROJECT LOCATION
ANOKA COUNTY
CITY OF BLAINE
CITY OF LINO LAKES
MN/DOT TRANSP.
DISTRICT - METRO
BLAINE SEC. 13
LINO LAKES SEC. 18
TOWNSHIP T31N
RANGE R23 W



BLAINE PROJECT LIMITS FOR
SAP 106-020-034
ALL OF 109TH AVENUE (CSAH 12 PORTION)
SB SUNSET AVENUE (CR 53 PORITON)

LINO LAKES PROJECT LIMITS FOR
SAP 210-020-007
ALL OF APOLLO DRIVE(CSAH 12 PORTION)
NB SUNSET AVENUE (CR 53 PORITON)

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

CSAH 12 DESIGN DESIGNATION	
ESAL 20	1,146,641
R VALUE	40
ADT (2016) =	6,222
Proj. ADT (2036) =	11,041
Proj. HCADT (2036) =	673
Soil Factor	NA
10 TON DESIGN	
Functional Classification	CSAH 12 A MINOR EXPANDER
Functional Classification	CR 53 MAJOR COLLECTOR
No. of Traffic Lanes	2 No. of Parking Lanes 0
Design Speed	55 MPH WEST LEG CSAH 12
Design Speed	50 MPH EAST LEG CSAH 12
Based on Stopping Sight Distance	N/A
Height of eye	3.5' Height of object 2.0'
Design Speed not achieved at:	
STA.	TO STA. MPH

CR 53 DESIGN DESIGNATION	
ESAL 20	1,096,799
R VALUE	40
ADT (2016) =	5951
Proj. ADT (2036) =	10,905
Proj. HCADT (2036) =	643
Soil Factor	NA
10 TON DESIGN	
Functional Classification	CSAH 12 A MINOR EXPANDER
Functional Classification	CR 53 MAJOR COLLECTOR
No. of Traffic Lanes	2 No. of Parking Lanes 0
Design Speed	45 MPH SOUTH LEG CR 53
Design Speed	45 MPH NORTH LEG CR 53
Based on Stopping Sight Distance	N/A
Height of eye	3.5' Height of object 2.0'
Design Speed not achieved at:	
STA.	TO STA. MPH

PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
SLOPE EASEMENT
EXISTING RIGHT OF WAY
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY
RIVER OR CREEK
DRAINAGE DITCH
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
WOOD FENCE
STONE WALL OR FENCE
HEDGE
LOWLAND
TIMBER
ORCHARD
BRUSH
NURSERY
CATTLE GUARD
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 C.B.
FIRE HYDRANT
CAST IRON MONUMENT
IRON PIN
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

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
T-AE
SEWER (Sanitary or Storm)
SEWER MANHOLE

SCALES

PLAN 0' 100'
PROFILE HORIZONTAL 0' 100'
VERTICAL 0' 10'
X-SECTIONS HORIZONTAL 0' 10'
VERTICAL 0' 10'
INDEX MAP 0' 2000'

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE 2016 EDITION OF THE "MATERIALS LAB SUMMPEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

THIS PLAN CONTAINS 141 SHEETS

1 - 53	STAND ALONE SUB PROJECT 16-10-53

Approved 5/10/20 16
ANOKA COUNTY ENGINEER

Approved 05/05/20 16
CITY OF BLAINE ENGINEER

Approved 05/11/20 16
CITY OF LINO LAKES ENGINEER

REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY 5/11/20 16
DISTRICT STATE AID ENGINEER

APPROVED FOR STATE AID FUNDING 5/11/20 16
STATE AID ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_TSH.dgn 05/03/2016 2:24:17 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

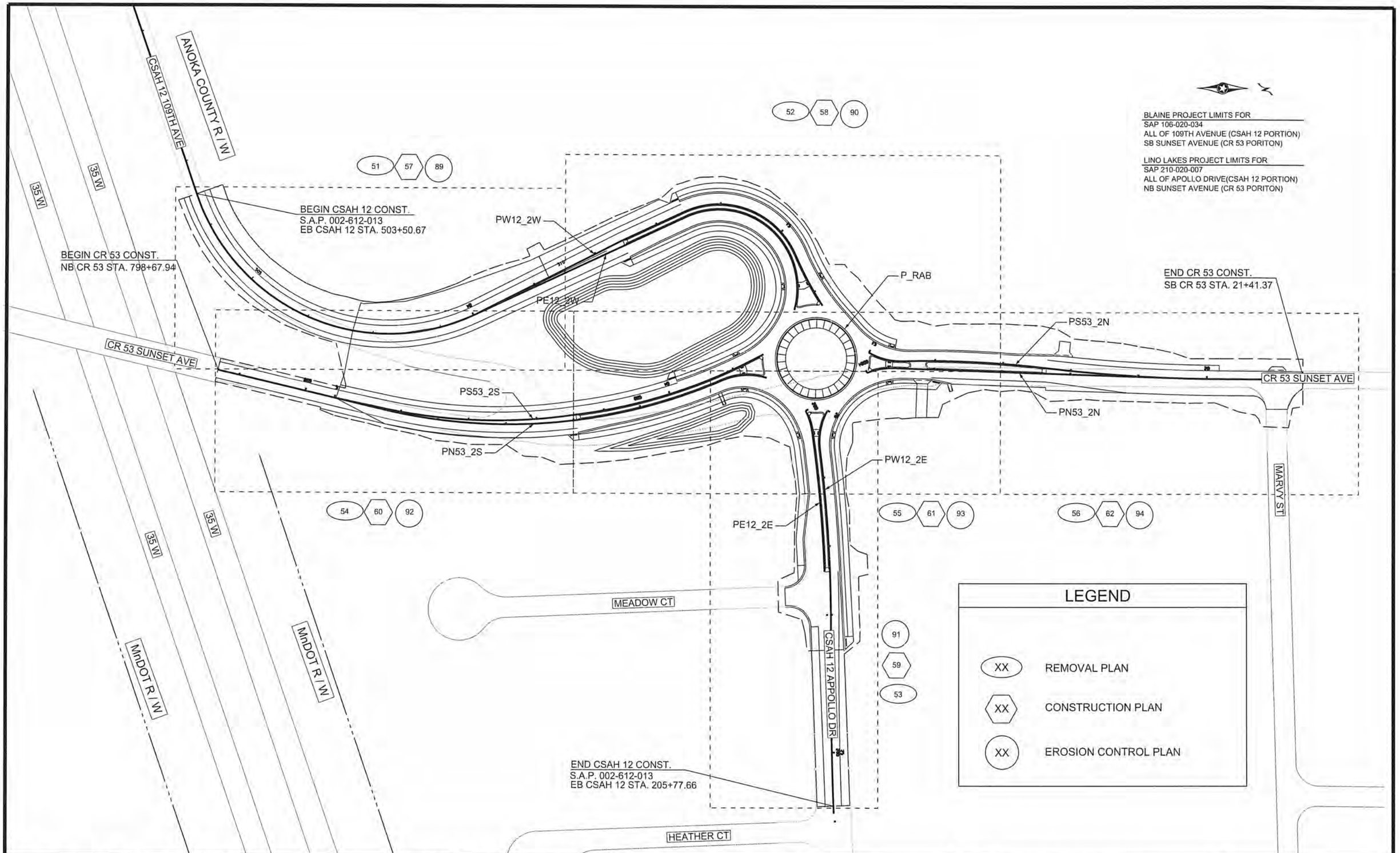
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TITLE SHEET

Sheet 1 of 141 Sheets



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/16	NJD	JFF	JEO	REVISED SAP 02-612-13 TO 002-622-013

NAME: P:\02-612-13\Plan\002612013_GEN_LAYOUT_1.dgn 04/22/2016 1:37:44 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

GENERAL LAYOUT

Sheet 2 of 141 Sheets

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT EST QTYS	PARTICIPATING- STATE AID FUNDS ANOKA COUNTY 002-612-013 ROADWAY EST QTYS	CITY OF BLAINE SAP 106-020-034 ROADWAY EST QTYS	CITY OF LINO LAKES 210-020-007 ROADWAY EST QTYS
	2013.601	SURVEY EQUIPMENT	LUMP SUM	1	1		
	2021.501	MOBILIZATION	LUMP SUM	1	0.922	0.031	0.047
	2031.501	FIELD OFFICE TYPE D	EACH	1	1		
A	2101.501	CLEARING	ACRE	1.52	1.52		
A	2101.502	CLEARING	TREE	142	142		
A	2101.506	GRUBBING	ACRE	1.52	1.52		
A	2101.507	GRUBBING	TREE	96	96		
B	2104.501	REMOVE PIPE CULVERTS	LIN FT	166	166		
B	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	154	154		
B	2104.501	REMOVE CURB AND GUTTER	LIN FT	625	625		
B	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	9523	9523		
[8]	2104.509	REMOVE LIGHTING UNIT	EACH	2	2		
B	2104.509	REMOVE CATCH BASINS	EACH	4	4		
B	2104.509	REMOVE CASTING	EACH	2	2		
ES2	2104.523	SALVAGE SIGN TYPE C	EACH	65	65		
B	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	166	166		
[1]	2104.521	SALVAGE GUARD RAIL	LIN FT	175	175		
ES2	2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	10	10		
DD	2105.501	COMMON EXCAVATION	CU YD	7717	7717		
DD	2105.507	SUBGRADE EXCAVATION (EV)	CU YD	3511	3511		
DD	2105.511	CHANNEL AND POND EXCAVATION (EV)	CU YD	6586	6586		
	2130.501	WATER	M GALLONS	200	200		
C [2]	2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD	228	228		
CC [3]	2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD	3096	3096		
C	2221.503	SHOULDERING BASE AGGREGATE (CV) CLASS 5	CU YD	32	32		
B	2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	1300	1300		
E	2301.503	CONCRETE PAVEMENT IRREGULAR WIDETH 7.0"	SQ YD	432	432		
E	2301.541	INTEGRANT CURB DESIGN B6	LIN FT	282	282		
E	2301.602	1.0" DOWEL BAR	EACH	330	330		
E	2301.602	NO 4 REINF TIE BAR (EPOXY COATED)	EACH	150	150		
D	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1310	1310		
D [11]	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,C) [MAINLINE]	TON	3292	3292		
D [11]	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,C) [TRAIL / DRIVEWAY]	TON	258	10	136	112
D [12]	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	1367	1367		
F	2501.515	15" CS PIPE APRON	EACH	1	1		
F	2501.567	18" CS PIPE APRON	EACH	1	1		
F	2501.515	21" RC PIPE APRON	EACH	1			1
H	2501.567	15" CS SAFETY APR & GRATE DES 3128	EACH	10	10		
F	2503.511	15" RC PIPE SEWER CLASS V	LIN FT	27.8			27.8
F	2503.511	21" RC PIPE SEWER CLASS III	LIN FT	131.3			131.3
F, H	2503.603	15" PIPE SEWER	LIN FT	850.7	850.7		
F	2503.603	18" PIPE SEWER	LIN FT	33.1	33.1		
F	2506.501	CONST. DRAINAGE STRUCTURE DESIGN H	LIN FT	16.0	12.8		3.2
F	2506.501	CONST. DRAINAGE STRUCTURE DES 48-4020	LIN FT	50.6	28.3		22.3
F, [4]	2506.516	CASTING ASSEMBLY	EACH	23	18		5
[7]	2506.521	FURNISH AND INSTALL CASTING	EACH	1	1		

GENERAL NOTES:

[1] NORTHBOUND GUARDRAIL TO BE SALVAGED AND STORED ON SITE.
ITEM INCLUDES ALL LABOR AND MATERIALS TO SALVAGE ENTIRE UNIT INCLUDING END TREATMENT. NO OTHER COMPENSATION SHALL BE MADE. LNB PN53_2S STATION 798+67 TO 800+27.
[2] DRIVEWAY AND BIT TRAIL CLASS 5.
[3] ROADWAY BASE CLASS 5.
[4] INCLUDES TWO CASTINGS AT NORTH END OF I 35W BRIDGE
[5] REINSTALL GUARD RAIL PER MNDOT STANDARD PLATE 8338-D, (22" CENTER OF PLATE BEAM TO SHOULDER SURFACE.) MATCHING NEW NORTHBOUND SHOULDER ELEVATION. INSTALLATION TO MEET MNDOT STANDARD SPECIFICATIONS
[6] SEE STREET LIGHTING TABULATION SHEET 104
[7] ITEM INCLUDES ALL LABOR AND MATERIALS TO FURNISH AND INSTALL TRENCH FRAME & SOLID GRATE SHOWN ON SHEET 1 OF THE DRAINAGE DETAILS. ITEM LOCATED ACROSS THE TRAIL AND CONVEYS WATER FROM THE FLUME ATTACHED TO SB CR 53 TO INFILTRATION POND 200
[8] EXISTING LIGHT POLE AT SE CORNER OF SUNSET / APOLLO AND APOLLO / HEATHER CT. SEE REMOVAL SHEET 53 FOR EXACT LOCATION.
[9] ITEM USED IN CONJUNCTION WITH BIOROLL AS A PERIMETER BARRIER TO PRESERVE INFILTRATION AREA FROM CONSTRUCTION ACTIVITY AND TOPSOIL. SEE POND GRADING PLAN.
[10] THIS IS FOR ALL 4 LEGS OF THE ROUNDABOUT. 40 FOR THE ROAD CLOSURE AND 40 FOR THE OPENING OF THE ROUNDABOUT.
[11] MNDOT PG GUIDELINES FOR PG 58 - 34 (PMB)
[12] MNDOT PG GUIDELINES FOR PG 58 - 28 (PMB)
[13] SEE STAGING TRAFFIC CONTROL SHEET 50

NO	DATE	BY	CKD	APPR	REVISION
6	5/4/2016	NJD	JFF	JEO	MODIFIED AGG SHLD QUANTITY
7	5/10/2016	NJD	JFF	JEO	MODIFIED AGGREGATE AND COMMON EXCAVATION (RAB CENTER)
1	4/5/2016	NJD	JFF	JEO	ADDED 2013.601 SURVEY EQUIPMENT
2	4/6/2016	NJD	JFF	JEO	ADDED 2503.511 15" RC PIPE SEWER CL V (LIN FT)
3	4/22/2016	JCF	NJD	JEO	REMOVED 2105.607 FILL SPECIAL (CU YD)
4	4/22/2016	JCF	NJD	JEO	CHANGED POND EXCAVATION QTY TO 6586 CU YDS
5	4/26/2016	JCF	NJD	JEO	REMOVED SCMR BINDER GR. REPLACED WITH PMB BINDER GR. NOTE 11&12.

NAME: P:\02-612-13\Plan\002612013_TABS.dgn 05/10/2016 11:05:18 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-10-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

STATEMENT OF ESTIMATED QUANTITIES

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT EST QTYS	PARTICIPATING- STATE AID FUNDS ANOKA COUNTY 002-612-013 ROADWAY EST QTYS	CITY OF BLAINE SAP 106-020-034 ROADWAY EST QTYS	CITY OF LINO LAKES 210-020-007 ROADWAY EST QTYS
B	2506.522	ADJUST FRAME & RING CASATING	EACH	2	2		
F , H	2511.501	RANDOM RIPRAP CLASS III	CU YD	31.1	31.1		
F , H	2511.511	GRANULAR FILTER	CU YD	1.5	1.5		
F , H	2511.515	GEOTEXTILE FILTER TYPE IV (MOD)	SQ YD	318	318		
E	2521.501	4" CONCRETE WALK	SQ FT	8207	8207		
E	2521.501	6" CONCRETE WALK	SQ FT	2077	2077		
E	2531.501	CONCRETE CURB & GUTTER DESIGN SPECIAL	LIN FT	358	358		
E	2531.501	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	LIN FT	2257	2257		
E	2531.501	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	3955	1980	1367	607
E	2531.618	TRUNCATED DOMES	SQ FT	276	276		
I	2540.602	MAIL BOX SUPPORT	EACH	2	2		
I	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	2	2		
[6]	2545.511	LIGHTING UNIT TYPE 9-30	EACH	15	7.50	3.75	3.75
[6]	2545.515	LIGHT FOUNDATION DESIGN E	EACH	15	7.50	3.75	3.75
[6]	2545.523	2" NON-METALLIC CONDUIT	LIN FT	1900	950	475	475
[6]	2545.531	UNDERGROUND WIRE 1 COND NO 8	LIN FT	8600	4300	2150	2150
[6]	2545.541	SERVICE CABINET TYPE L1	EACH	1.00	0.50	.25	.25
[6]	2545.544	SERVICE EQUIPMENT	EACH	1.00	0.50	.25	.25
[6]	2545.545	EQUIPMENT PAD B	EACH	1.00	0.50	.25	.25
[6]	2545.553	HAND HOLE	EACH	3.00	1.50	.75	.75
[5]	2554.603	INSTALL GUARDRAIL	LIN FT	175	175		
[9]	2557.603	SNOW FENCE	LIN FT	300	300		
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.922	0.031	0.047
[13]	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.922	0.031	0.047
DS	2563.601	DETOUR SIGNING	LUMP SUM	1	0.922	0.031	0.047
[10]	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UDAY	80	80		
SP1	2564.531	SIGN PANELS TYPE C	SQ FT	1059.7	1059.7		
ES2	2564.537	INSTALL SIGN TYPE SPECIAL	EACH	4	4		
G	2573.502	SILT FENCE, TYPE MS	LIN FT	3280	3280		
F ,G , H	2573.523	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	2358	2358		
G	2573.530	STORM DRAIN INLET PROTECTION	EACH	22	22		
G	2573.533	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LIN FT	364	364		
G	2573.560	CULVERT END CONTROLS	EACH	5	5		
G	2574.508	FERTILIZER TYPE 3	POUND	208.4	208.4		
G	2575.501	SEEDING	ACRE	3.47	3.47		
G	2575.502	SEED MIXTURE 25-121	POUND	211.9	211.9		
G	2575.502	SEED MIXTURE 33-261	POUND	16.3	16.3		
G	2575.502	SEED MIXTURE 35-221	POUND	25.0	25.0		
G	2575.505	SODDING TYPE SALT TOLERANT	SQ YD	1333.0	1333.0		
G	2575.511	MULCH MATERIAL TYPE 3	TON	9.2	9.2		
G	2575.519	DISK ANCHORING	ACRE	3.94	3.94		
G	2575.571	RAPID STABILIZATION METHOD 3	MGAL	27.7	27.7		
M2	2582.501	PAVT MSSG PREF THERMO	SQ FT	772.0	772.0		
M2	2582.502	4" SOLID LINE EPOXY (WHITE AND YELLOW)	LIN FT	10272	10272		
M2	2582.502	4" BROKEN LINE EPOXY (YELLOW)	LIN FT	170	170		
M2	2582.502	8" BROKEN LINE EPOXY (WHITE)	LIN FT	72	72		
M2	2582.502	4" DBLE SOLID LINE EPOXY (YELLOW)	LIN FT	2799	2799		

GENERAL NOTES:

[1] NORTHBOUND GUARDRAIL TO BE SALVAGED AND STORED ON SITE.
ITEM INCLUDES ALL LABOR AND MATERIALS TO SALVAGE ENTIRE UNIT INCLUDING END TREATMENT. NO OTHER COMPENSATION SHALL BE MADE. LNB PN53_2S STATION 798+67 TO 800+27.
[2] DRIVEWAY AND BIT TRAIL CLASS 5.
[3] ROADWAY BASE CLASS 5.
[4] INCLUDES TWO CASTINGS AT NORTH END OF I 35W BRIDGE
[5] REINSTALL GUARD RAIL PER MNDOT STANDARD PLATE 8338-D, (22" CENTER OF PLATE BEAM TO SHOULDER SURFACE.) MATCHING NEW NORTHBOUND SHOULDER ELEVATION. INSTALLATION TO MEET MNDOT STANDARD SPECIFICATIONS
[6] SEE STREET LIGHTING TABULATION SHEET 104
[7] ITEM INCLUDES ALL LABOR AND MATERIALS TO FURNISH AND INSTALL TRENCH FRAME & SOLID GRATE SHOWN ON SHEET 1 OF THE DRAINAGE DETAILS. ITEM LOCATED ACROSS THE TRAIL AND CONVEYS WATER FROM THE FLUME ATTACHED TO SB CR 53 TO INFILTRATION POND 200
[8] EXISTING LIGHT POLE AT SE CORNER OF SUNSET / APOLLO AND APOLLO / HEATHER CT. SEE REMOVAL SHEET 53 FOR EXACT LOCATION.
[9] ITEM USED IN CONJUNCTION WITH BIOROLL AS A PERIMETER BARRIER TO PRESERVE INFILTRATION AREA FROM CONSTRUCTION ACTIVITY AND TOPSOIL. SEE POND GRADING PLAN.
[10] THIS IS FOR ALL 4 LEGS OF THE ROUNDABOUT. 40 FOR THE ROAD CLOSURE AND 40 FOR THE OPENING OF THE ROUNDABOUT.
[11] MNDOT PG GUIDELINES FOR PG 58 - 34 (PMB)
[12] MNDOT PG GUIDELINES FOR PG 58 - 28 (PMB)
[13] SEE STAGING TRAFFIC CONTROL SHEET 50

NO	DATE	BY	CKD	APPR	REVISION
5	5/4/2016	NJD	JFF	JEO	MODIFIED 6" CONCRETE WALK, B424 C&G, RIPRAP, GEOTEXTILE FABRIC, & SIGN PANEL TYPE C QUANTITIES
1	4/6/2016	NJD	JFF	JEO	ADDED 2582.501 PAVT MSSG PREF THERMO (SQ FT)
2	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL QTYS TO REFLECT POND MODIFICATIONS
3	4/22/2016	JCF	NJD	JEO	UPDATED BIOROLL QTY
4	4/26/2016	JCF	NJD	JEO	REMOVED SCMR BINDER GR. REPLACED WITH PMB BINDER GR. NOTE 11&12.

NAME: P:\02-612-13\Plan\002612013_TABS.dgn 05/04/2016 11:05:44 AM

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PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

STATEMENT OF ESTIMATED QUANTITIES

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY.

STANDARD PLATES

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3022C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE TIES
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011E	PRECAST CONCRETE BASE
4018B	MANHOLE OR CATCH BASIN (REDUCER CONE SECTION PRECAST) - DESIGN D
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) – CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
4143E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180J	MANHOLE OR CATCH BASIN STEP
7020K	CONCRETE CURB (DESIGN B, DESIGN V, DESIGN S, DESIGN DR AND DESIGN BR)
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	PEDESTRIAN CURB RAMP (2 SHEETS)
7109C	MEDIAN NOSE AND ISLAND (UNDIVIDED TO DIVIDED ROADWAY)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000J	CHANNELIZERS
8106D	EQUIPMENT PAD B (CAST-IN-PLACE OR PRECAST)
8117G	PRECAST CONCRETE HAND HOLE (OR PULL BOX)
8127E	LIGHT BASE - DESIGN E (40 FT. POLE OR LESS) (2 SHEETS)
8150C	INSTALLATION OF CULVERT MARKERS
8338D	W-BEAM GUARDRAIL & END ANCHORAGES (STEEL POSTS)
9102E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)

INDEX OF TABULATION CHARTS

BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL * SQ YD * LIFT
2360.501	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS * SQ YD * IN / 2000
2360.502	TYPE SP12.5 NON-WEARING COURSE MIXTURE	115 LBS * SQ YD * IN / 2000
2575.502	SEED MIXTURE 25-121	61 LBS / ACRE
2575.502	SEED MIXTURE 33-261	35 LBS / ACRE
2575.502	SEED MIXTURE 35-221	36.5 LBS / ACRE
2575.511	MULCH MATERIAL TYPE 3	2 TONS / ACRE
2574.508	FERTILIZER TYPE 3	60 LBS / ACRE
2575.571	RAPID STABILIZATION METHOD 3	6MGAL/ACRE

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	MOD. PLATE #8000J CHANNELIZERS
2	4/22/2016	JCF	NJD	JEO	REMOVED DEP. OF TRANS. ON THISPROJECT FROM PLATES
3	4/22/2016	JCF	NJD	JEO	UPDATED FERTILIZER TYPE 3 SPEC #

NAME: P:\02-612-13\Plan\002612013_TABS.dgn 04/22/2016 10:58:31 AM

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DATE: 4-22-12 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

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STANDARD PLATES/PLANS, TAB INDEX & BASIS OF QUANTITIES

CLEARING & GRUBBING SPEC (2101)

A

ALIGNMENT	ID-NUM	STATION TO STATION	OFFSET	TO		CLEAR (TREE)	GRUB (TREE)	CLEAR (ACRE)	GRUB (ACRE)
PE12_2W	1	505+18	-33			1	1		
	2	505+27	-34			1	1		
	3	505+40	-35			1	1		
	A	505+79 TO 506+75	-42	TO	-22			0.08	0.08
	B	507+22 TO 507+56	-46	TO	-49			0.05	0.05
	4	507+51	-26			1	1		
	5	507+51	-36			1	1		
	6	507+61	-15			1	1		
	7	507+72	-32			1	1		
	8	507+88	-47				1		
	9	507+96	-2			1	1		
	10	508+72	-41			1	1		
	11	508+77	12			1	1		
	C	509+11 TO 509+61	-50	TO	-44			0.04	0.04
	12	509+30	15			5	1		
	D	511+04 514+56	-44	TO	230			1.19	1.19
	13	514+26	-34			1	1		
PE12_2E	14	200+12	63			1	1		
	15	200+16	52			2	1		
	16	200+37	53			1	1		
P_RAB	17	5003+00	-50			2	1		
	18	5003+02	-44			1	1		
	19	5003+01	-34			2	1		
	20	5003+06	-22			1	1		
	21	5003+08	-11			2	1		
	22	5003+14	-5			1	1		
	23	5003+15	-40			1	1		
	24	5003+15	-44			3	1		
	25	5003+30	-17			1	1		
	26	5003+33	-24			2	1		
	27	5003+36	-25			1	1		
	28	5003+46	-45			1	1		
	29	5003+52	-38			1	1		
	30	5003+54	-27			1	1		
	31	5003+58	-19			1	1		
	32	5003+55	-15			1	1		
	33	5003+63	19			1	1		
	34	5000+55	-44			1	1		
	35	5000+48	-43			2	1		
	36	5000+46	-48			2	1		
	37	5000+45	-49			2	1		
	38	5000+43	-54			2	1		
	39	5000+41	-58			4	1		
PN53_2S	40	803+84	-79			1	1		
	41	804+51	-66			1	1		
	42	804+72	-56			1	1		
	E	805+83 TO 806+94	-31	TO	0			0.16	0.16
					SUB TOTAL "A"	59	42	1.52	1.52

ALIGNMENT	ID-NUM	STATION TO STATION	OFFSET	TO		CLEAR (TREE)	GRUB (TREE)	CLEAR (ACRE)	GRUB (ACRE)
PN53_2N	43	1000+17	60			4	1		
	44	1000+44	61			1	1		
	45	1000+52	61			1	1		
	46	1000+33	-24			1	1		
	47	1000+40	-35			1	1		
	48	1000+70	-43			2	1		
	49	1000+74	-52			1	1		
	50	1000+79	-47			1	1		
	51	1000+76	-39			1	1		
	52	1000+83	-39			1	1		
	53	1000+87	-59			1	1		
	54	1000+91	-42			1	1		
	55	1000+95	-51			2	1		
	56	1001+04	-43			1	1		
	57	1001+07	47			1	1		
	58	1001+18	-49			1	1		
	59	1001+36	-38			1	1		
	60	1001+82	-49			1	1		
	61	1001+89	-40			1	1		
	62	1002+04	-39			1	1		
	63	1002+04	-64			1	1		
	64	1002+10	-67			1	1		
	65	1002+18	-64			1	1		
	66	1002+16	-52			1	1		
	67	1002+15	-45			1	1		
	68	1002+19	-32			3	1		
	69	1002+25	-35			1	1		
	70	1003+18	-43			2	1		
	71	1003+35	-43			3	1		
	72	1003+82	-33			5	1		
	73	1003+93	-38			1	1		
	74	1004+08	-34			3	1		
	75	1004+14	-34			1	1		
	76	1004+19	-35			2	1		
	77	1004+23	-31			3	1		
	78	1004+24	-35			3	1		
	79	1000+20	-105			1	1		
	80	1000+25	-98			1	1		
	81	1000+31	-70			1	1		
	82	1000+33	-66			1	1		
	83	1000+37	-71			2	1		
	84	1000+46	-68			1	1		
	85	1000+59	-69			4	1		
	86	1001+91	-69			2	1		
	87	20+55	46			2	1		
	88	20+69	47			2	1		
	89	20+75	47			2	1		
PW12_2E	90	22+18	-49			1	1		
	91	22+18	-39			1	1		
	92	22+24	-40			1	1		
	93	22+29	-37			1	1		
	94	22+35	-43			1	1		
	95	22+37	-43			1	1		
	96	22+44	-42			1	1		
					SUB TOTAL "B"	83	54	0.00	0.00
					SUB TOTAL "A"	59	42	1.52	1.52
					SUB TOTAL "B"	83	54	0.00	0.00
					PROJECT TOTAL	**142**	**96**	**1.52**	**1.52**

NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

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CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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CITY OF LINO LAKES SAP 210-020-007

TABULATIONS

REMOVALS, SAWING, MILLING AND ADJUST

B

LOCATION	ALIGNMENT	STATION TO STATION	REMOVALS (SPEC. 2104) CONCRETE CURB (LIN FT)	REMOVE CASTING EACH	PIPE CULVERTS (LIN FT)	PIPE SEWERS (LIN FT)	CATCH BASINS (EACH)	BIT. PAVEMENT (SQ YD)	SAWING (SPEC. 2104) BIT. PAVEMENT (LIN FT)	MILLING (SPEC. 2232) BIT. PAVEMENT (2") (SQ YD)	ADJUST (SPEC. 2506 FRAME & RING CASTING (EACH)	NOTES
MAINLINE BIT.												
BEG 109TH	PE12_W2	503+50							24	11		[1]
109TH	PE12_W2	503+50 - 514+57						2043				
APOLLO	PE12_E2	200+00 - 203+51						2037				
END FULL DEPTH APOLLO	PE12_E2	203+51							48			
APOLLO 2" MILL AREA	PE12_E2	203+51 - 205+77								1264		[5]
CR 53	PN53_S2 PS53_S2	798+78	24	2								[6]
CR 53	PN53_S2 PS53_N2	798+67 - 21+41						5303				
MARVY ST	PS53_2N	20+87 21+19							32	14		
END CR 53	PS53_2N	21+41							24	11		[1]
WEST LEG												
109TH, FIELD APROACH	PE12_W2	507+29 - 507+63			40							[3]
EAST LEG												
APOLLO	PE12_2E	200+41 - 203+40	293									
APOLLO	PE12_2E	201+54									1	[4]
APOLLO	PE12_2E	202+71									1	[4]
APOLLO	PE12_2E	202+14					1					
APOLLO	PE12_2E	202+14 - 22+19				80						
APOLLO	PE12_2E	202+14 - 202+55				44						
APOLLO	PE12_2E	202+55					1					
APOLLO	PE12_2E	202+55 - 202+86				30						
APOLLO	PE12_2E	202+86					1					
APOLLO	PW12_E2	22+17					1					
APOLLO	PW12_E2	20+25 - 23+40	308									
NORTH LEG												
SUNSET, #7262 S.	PN53_2N	1000+67 - 1001+04			30							[3]
SUNSET, #7262 S.	PN53_2N	1000+83						140	38			[2]
SUNSET, 11148 S.	PS53_2N	17+75 - 18+05			30							[3]
MARVY STREET	PS53_2N	20+65 21+32			66							
ROUNDABOUT												
CENTER	P_RAB	5000+07 - 5000+64			40							[3]
		PROJECT TOTAL	**625**	**2**	**166**	**154**	**4**	**9523**	**166**	**1300**	**2**	

REMOVALS NOTES:

[1] SAWCUT AND 4' WIDE X 2" DEEP MILL JOINT AT BEGINNING AND END OF PROJECT.
[2] BITUMINOUS ENTRANCE.
[3] DRIVEWAY CULVERT.
[4] SANITARY, REMOVE EXISTING CASTING AND INSTALL NEW CASTING AT NEW ELEVATION.
[5] 2" MAINLINE MILL FROM LIP TO LIP OF EXISTING CURB.
[6] AT EXISTING CATCH BASINS, COMING OFF BRIDGE.

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TABULATIONS

AGGREGATE — C

ADDRESS / LOCATION	ALIGNMENT	STATION TO STATION	DESCRIPTION	(SPEC 2211) BASE CLASS 5 (DR/BIT WALK) (CU YD)	(SPEC 2221) SHOULDER BASE CLASS 5 (CU YD)	NOTES
EASTBOUND 12						
SHLDR	PE12_2W	503+50 - 510+96			9	[2]
WESTBOUND 12						
SHLDR	PW12_2W	503+50 - 13+44			0	[2]
FIELD ENT.	PW12_2W	10+00	GRVL DRWAY	3		[1]
NORTHBOUND 53						
SHLDR	PN53_2S	798+67 - 804+04			7	[2]
#7262	PN53_2N	1000+80	BIT DRWAY	6		[1]
SHLDR	PN53_2N	1000+96 - 20+18			6	[2]
SOUTHBOUND 53						
SHLDR	PS53_2S	05+00 - 10+16			6	[2]
SHLDR	PS53_2N	18+00 - 21+41			4	[2]
S #11148	PS53_2N	17+86	GRVL DRWAY	3		
N #11148	PS53_2N	20+18	GRVL DRWAY	3		
BIT TRAIL AREA						
S.W. QUAD				54		[3]
S.E. QUAD				66		[3]
N.E. QUAD				51		[3]
N.W. QUAD				42		[3]
			TOTAL	**228**	**32**	

[1] 7 TONS CLASS 5 ADDED TO GRAVEL AND BITUMINOUS DRIVEWAYS TO TRANSITION TO NEW ROADWAY.
[2] 1' WIDE X 4" DEPTH CLASS 5 SHOULDERING, NON-CURB SHOULDER AREAS.
[3] CLASS 5 TO EXTEND 6" BEYOND EACH EDGE OF THE BITIMINOUS WALK (9' WIDE X 4" DEPTH).

BITUMINOUS SUMMARY — D

LOCATION / ADDRESS	ALI.	ALI.	STA.		STA.	SPEC 2360 2360 TYPE SP 9.5 WEAR (3,C) TON	2360 TYPE SP 12.5 NON-WEAR (3,B) TON	2360 TYPE SP 9.5 WEAR (3,C) TON	2357 BIT. TACK COAT GALLON	NOTES
WEST LEG CSAH 12	PE12_2W & PW12_2W		503+50	TO	514+57	1011	506		440	[1] [2]
EAST LEG CSAH 12	PE12_2E & PW12_2E		200+00	TO	203+51	388	194		169	[1] [2]
EAST LEG CSAH 12	PE12_2E & PW12_2E		203+51	TO	205+77	278			60	[5]
SOUTH LEG CR 53	PS53_2S & PN53_2S		798+67	TO	806+93	767	294		295	[1] [2]
NORTH LEG CR 53	PS53_2N & PN53_2N		1000+00	TO	20+18	650	274		261	[1] [2]
ROUNDABOUT	P_RAB		5000+00	TO	5003+76	198	99		86	[1] [2]
S.W. QUAD TRAIL	PE12_2W TO PS53_2S		510+27		9+03			62		[3]
S.E. QUAD TRAIL	PN53_2S TO PE12_2E		803+96		202+40			74		[3]
N.E. QUAD TRAIL	PW12_2E TO PN53_2N		21+33		1001+56			57		[3]
N.W. QUAD TRAIL	PS53_2N TO PW12_2W		18+01		13+79			55		[3]
#7262	PN53_2N		1001+32					11		[4]
					PROJECT TOTAL	**3292**	**1367**	**258**	**1310**	

BITUMINOUS SUMMARY NOTES:
[1] CURB AREAS MAINLINE AND SHOULDERS = 6" BIT, 3 - LIFTS, 2"- (3,B) NON-WEAR, 4" - (3,C) WEAR.
[2] NON-CURB SHOULDER AREAS = 4" BIT, 2 - LIFTS, 4" - (3,C) WEAR.
[3] 2.5" BITUMINOUS TRAIL, 1 - LIFT (3,C) WEAR AND 4" OF AGGREGATE BASE. AGGREGATE BASE CLASS 5 INCIDENTAL TO BIT TRAIL ITEM.
[4] 2.5" BITUMINOUS DRIVEWAY, 1 - LIFT (3,C) WEAR AND 4" OF AGGREGATE BASE.
[5] 2" MILL AND OVERLAY AREA BETWEEN EXISTING CURB.

NO	DATE	BY	CKD	APPR	REVISION
1	5 / 4 / 15	NJD	JFF	JEO	MODIFIED BITUMINOUS QUANTITY FOR WEST LEG REMOVED WEST LEG AGGREGATE SHOULDER QUANTITY

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TABULATIONS

Sheet 8 of 141 Sheets

CONCRETE

E

LOCATION	SPEC 2301				SPEC 2521		SPEC 2531				NOTES
	INTEGRANT DES. B6 C & G	CONCRETE PAVEMENT IRREGULAR	1" DOWEL BAR	NO. 4 REINF.TIE BAR	6" CONCRETE WALK	4" CONCRETE WALK	B418 MOD C & G	B424 C & G	SPECIAL C & G	TRUNCATED DOMES	
	LIN FT	SQ YDS	EACH	EACH	SQ FT	SQ FT	LIN FT	LIN FT	LIN FT	SQ FT	
ROUNDABOUT	282	432	330	150	96 [4]				358		
WEST LEG					24 [4]	2471	743	2259		72	
SOUTH LEG					24 [4]	1892	578	468		72	
NORTH LEG					72 [4]	2208	469	451		60	
EAST LEG					24 [4]	1636	467	753		72	
APRON #7262					285						[1]
APRON(S) #11148					472						[1]
CONC. FLUMES					1080						[2]
BRIDGE DRAINS								24			[3]
	282	**432**	**330**	**150**	**2077**	**8207**	**2257**	**3955**	**358**	**276**	

CONCRETE NOTES:

[1] DRIVEWAY APRONS BEHIND CONCRETE SLAB
[2] AS DIRECTED BY THE ENGINEER
[3] ASSUMED 6' ON EITHER SIDE OF CB REPLACEMENT (TWO CB'S TOTAL BEING REPLACED)
[4] QUANTITY FOR PLOW FRIENDLY MEDIAN APPROACHES (DESIGN 7113 APPROACH NOSE)

NO	DATE	BY	CKD	APPR	REVISION
1	5 / 4 / 15	NJD	JFF	JEO	INCREASED CONCRETE FLUME QUANTITY

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TABULATIONS

TURF ESTABLISHMENT AND EROSION CONTROL

G

LOCATION						TEMPORARY EROSION CONTROL SPEC 2575					PERMANENT EROSION CONTROL SPEC 2575								
						SILT FENCE TYPE MACHINE SLICED [10]	CULVERT END CONTROLS [9]	STORM DRAIN INLET PROTECTION	SEDIMENT CONTROL LOG TYPE WOOD FIBER [11]	RAPID STABILIZATION METHOD 3 [1] [2]	FERTILIZER TYPE 3 0-10-20 [4]	SEEDING	SEED MIXTURE 25-121 [5]	SEED MIXTURE 33-261 [3]	SEED MIXTURE 35-221 [12]	SODDING TYPE SALT TOLERANT	MULCH MATERIAL TYPE 3 [6]	DISK ANCHORING	EROSION CONTROL BLANKET CAT. 0 [7][8]
QUAD.	ALI.	STA.		ALI.	STA.	LIN FT	EACH	EACH	LIN FT	MGAL	POUND	ACRE	POUND	POUND	POUND	SQ YD	TON	ACRE	SQ YD
S.W.	PE12_2W	503+50	TO	PS53_2S	5+12	396													
	PE12_2W	509+75					1												
	PE12_2W	512+97	LT					1											
	PE12_2W	512+97	RT					1											
	PS53_2S	10+21	LT					1											
	PS53_2S	10+21	RT					1											
	PS53_2S	11+07	LT					1											
	PE12_2W	503+50	TO	PS53_2S	5+12					18.1	121.2	2.02	123.2	12.3	23.7		6.0	2.37	1703
S.E.	PN53_2S	800+27	TO	PE12_2E	202+41	887													
	PN53_2S	798+79	LT					1											
	PN53_2S	798+78	RT					1											
	PN53_2S	805+75	LT					1											
	PE12_2E	202+14	RT					1											
	PE12_2E	202+17	LT					1											
	PE12_2E	202+58	RT					1											
	PE12_2E	202+86	RT					1											
	PN53_2S	798+78	TO	PE12_2E	201+21				300	2.9	20.5	0.34	20.9	4.0	1.3		1.0	0.46	550
	PE12_2E	200+00	TO	PE12_2E	203+51											229			
N.E.	PW12_2E	23+11	TO	PW12_2E	23+57	57													
	PN53_2N	1001+02	TO	PN53_2N	1004+55	444													
	PN53_2N	1000+45					1												
	PW12_2E	22+31	LT					1											
	PW12_2E	22+32	RT					1											
	PN53_2N	1001+22	LT					1											
	PN53_2N	1001+27	TO	PN53_2N	1004+56					0.5	5.3	0.09	5.4				0.2	0.09	
	PW12_2E	23+57	TO	PN53_2N	1001+27											1104			
N.W.	PE12_2W	503+50	TO	PS53_2N	17+79	1496													
	PS53_2N	18+18					1												
	PS53_2N	20+18					1												
	PS53_2N	21+18					1												
	PW12_2W	14+45	RT					1											
	PW12_2W	14+46	LT					1											
	PS53_2N	15+55	RT					1											
	PS53_2N	16+08	LT					1											
	PS53_2N	16+08	RT					1											
	PE12_2W	503+50	TO	PS53_2N	20+18				64	5.3	52.7	0.88	53.6				1.8	0.88	
RDBT		CENTER OF ROUNDABOUT																	
	P_RAB	5002+30	LT					1											
	P_RAB	5002+30	LT					1											
	P_RAB	5000+00	TO	P_RAB	5000+00					0.9	8.7	0.14	8.8				0.3	0.14	
					PROJECT TOTAL	3280	5	22	364	27.7	208.4	3.47	211.9	16.3	25.0	1333.0	9.2	3.94	2253

NOTES:

*** QUANTITIES FOR RANDOM RIPRAP CLASS III (PERMANENT EROSION CONTROL) ARE LOCATED IN DRAINAGE TAB "G".**

[1] FOR USE AS DIRECTED BY THE ENGINEER.

[2] APPLICATION RATE 6 MGAL/ACRE. TEMPORARY SEED USED IN ITEM "RAPID STABILIZATION METHOD 3" SHALL BE INCIDENTAL TO THE ITEM. NO ADDITIONAL PAYMENT WILL BE MADE FOR TEMPORARY SEED.

[3] APPLICATION RATE 35 LB/ACRE. (POND SLOPES)

[4] APPLICATION RATE 60 LB/ACRE - FERTILIZER ANALYSIS 0-10-20 (NPK).

[5] APPLICATION RATE 61 LB/ACRE.

[6] APPLICATION RATE 2 TONS/ACRE.

[7] FOR USE ON POND SLOPES AND UNDERLAYMENT BELOW SEDIMENT CONTROL LOGS AS SHOWN IN MNDOT STANDARD PLAN SHEET 5-297.405 (3 OF 7).

[8] APPLICATION RATE OF 7 SQ YDS INLET APRONS 9 SQ YDS OUTLET APRONS OF CMP DRIVEWAY CULVERTS AS SHOWN IN MNDOT STANDARD PLATE 9102E. AND 9 SQ YDS PER RCP APRON AS SHOWN IN DRAINAGE TAB "F".

[9] CULVERT PROTECTION TO BE PLACED ON INLET APRONS OF CULVERTS AND INLET APRONS OF STORM SEWER AS SOON AS POSSIBLE AFTER INSTALLATION. QTY OF 1 - AT THE HIGH INVERT OF APRON.

[10] SILT FENCE LOCATION TO BE LAYED OUT BY THE ENGINEER PRIOR TO INSTALLATION - FOLLOWING CLEARING AND GRUBBING.

[11] SEDIMENT CONTROL LOGS TO BE INSTALLED AS SHOWN IN MNDOT STANDARD PLAN SHEET 5-297.405 (3 OF 7). LENGTH OF LOG USED FOR CALCULATION 16' EACH. ALSO FOR PERIMETER OF INFIL. POND 200 (BASE OF SNOW FENCE)

[12] APPLICATION RATE 36.5 LB/ACRE. (BROADCAST SPREAD ACROSS BOTTOM OF INFILTRATION PONDS)

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL QTYS TO REFLECT POND MODIFICATIONS

NAME: P:\02-612-13\Plan\002612013_TABS.dgn 04/22/2016 11:33:18 AM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TABULATIONS

CULVERT TABULATION

H

ADDRESS	ALIGNMENT	STA.	OFFSET	APRON INV. ELEV	TO	STA.	OFFSET	APRON INV. ELEV	%	15" PIPE SEWER	15" CS SAFETY APR & GRT DES 3128	GRANULAR FILTER UNDER APRON	RIPRAP CLASS III	EROSION CONTROL BLANKET CAT 0	GEOTEXTILE FABRIC TYPE IV MOD	NOTES
										LIN FT	EACH	CU YD	CU YD	SQ YD	SQ YD	
WEST APPROACH																
	PE12_2W	509+75	-39.4	903.56	-	509+75	37.6	903.00	0.73%	77.0	2	0.3	3.2	18	42	[1] [2] [3] [5]
	PE12_2W	503+53	28.4										1.6		9	[6]
	PE12_2W	503+53	-28.4										1.6		9	[6]
	PE12_2W	505+62	28.4										1.6		9	[6]
	PE12_2W	505+62	-28.4										1.6		9	[6]
	PE12_2W	509+56	28.4										1.6		9	[6]
	PW12_2W	11+49	-19.4										1.6		9	[6]
	PE12_2E	510+78	28.4										1.6		9	[6]
	PW12_2W	13+28	-28.4										1.6		9	[6]
SOUTH APPROACH																
	PN_53_2S	806+17	34										1.6		9	[6]
NORTH APPROACH																
MARVY ST	PS53_2N	20+71	32.7	904.67	-	21+32	27.2	904.46	0.34%	119	4			18	42	[1] [2] [3]
#11148	PS53_2N	17+60	-48.4	903.64	-	18+18	-36.00	904.10	0.79%	58	2			18	42	[1] [2] [3]
#7262	PN53_2N	1000+54	52.0	904.38	-	1000+99	52.14	903.62	1.69%	45	2			18	42	[1] [2] [3] [4]
									PROJECT TOTAL	299	10	0.3	17.6	72	249	

CULVERT SUMMARY NOTES:

[1] CULVERT ENDS TO HAVE BLANKET CAT 0 INSTALLED AS PER STANDARD PLATE 9102 E.

[2] HIGH INVERT OF APRONS TO HAVE CULVERT END CONTROLS (CULVERT PROTECTION) FOLLOWING INSTALLATION. QTY'S CAN BE FOUND IN TURF ESTABLISHMENT AND EROSION CONTROL , TAB "G".

[3] STATION / OFFSET ARE TO THE END OF APRON.

[4] NORTH APRON END (1000+99) PLACED BETWEEN EXISTING UTILITY BOXES AND EXISTING HIGH PRESSURE GAS LINE. ADJUST IN THE FIELD AS NECESSARY TO AVOID BOTH THE UTILITY BOX AND GAS LINE.

[5] THIS CULVERT SERVES AS BOTH THE EMERGENCY OVERFLOW FOR POND 100 AND AN INLET TO DRAIN THE NORTH PORTION OF THE PW12_2W DITCH. IT IS SLOPED TOWARDS POND 100 ON PURPOSE IN THE EVENT OF AN OVERFLOW OF POND 100, WATER WILL REVERSE DIRECTION OUT OF THIS CULVERT AND DRAIN TOWARDS THE SOUTH PORTION OF THE PW12_2W DITCH. NOTE THAT A DEPRESSION IN THE DITCH MUST BE SHAPED IN ORDER TO EXPOSE THE HIGH SIDE OF THIS CULVERT. DO NOT RE-GRADE THE ENTIRE DITCH (THE SOUTH PORTION OF THIS DITCH MUST CONTINUE TO DRAIN SOUTH)

[6] RIPRAP & GEO FAB. TYPE IV MOD. AT END OF CONCRETE FLUMES AS DIRECTED BY THE ENGINEER.

MAIL BOXES

I

ADDRESS	ALIGNMENT	STATION	DRWAY LOC.	BOX LOC.	MAIL BOX SUPPORT	RELOCATE MAIL BOX SUPPORT	NOTES
#7262	PN53_2N	1000+75	RT	RT	1	1	
#11148	PS53_2N	20+00	LT	RT	1	1	
				TOTALS	2	2	

UTILITY OWNERS

J

XCEL ENERGY
1700 EAST COUNTY ROAD E
WHITE BEAR LAKE, MN 55110
CONTACT ZACHERYE HUGHES
TEL 651-446-3169

CENTURYLINK
390 COMMERCE DRIVE
WOODBURY, MN 55125
CONTACT TOM BURNEY
TEL. 763-712-5006

COMCAST
3050 ECHO LAKE AVE
MAHTOMEDI, MN 55115
CONTACT DOUG ZAHN
TEL 651-755-2602

CITY OF BLAINE
10801 TOWN SQUARE DRIVE NE
BLAINE, MN 55449
CONTACT MIKE ULRICH
763-785-6167

CENTERPOINT ENERGY
700 WEST LINDEN AVE
MINNEAPOLIS, MN 55440-1165
CONTACT TRAVIS DENZEL
TEL 612-321-5207

MAGELLAN MIDSTREAM PARTNERS
PO BOX 22186 MD OTC-8
TULSA, OK 7421-2186
CONTACT DAVID S MAINS
TEL 918-574-7867

CITY OF LINO LAKES
600 TOWN HALL PARKWAY
LINO LAKES, MN 55014
CONTACT RICK DEGARDNER
TEL 651-982-2439

NO	DATE	BY	CKD	APPR	REVISION
1	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP & GEO FILTER QTYS FOR FLUMES

NAME: P:\02-612-13\Plan\002612013_TABS.dgn 05/04/2016 10:25:38 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TABULATIONS

1. SEE SOIL BORING REPORT IN THE SPECIAL PROVISIONS OF THIS PROJECT FOR ADDITIONAL INPLACE SOIL INFORMATION.

2. GRANULAR MATERIALS MEET THE REQUIREMETNS OF MNDOT 3149.2B1

3. TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MN/DOT SPECIFICATION 3877 THAT WOULD BE SUITABLE FOR REUSE.

4. INPLACE TOPSOIL IS ASSUMED TO BE 4 INCHES IN DEPTH ON ALL AREAS WHERE BITUMINOUS IS NOT PRESENT.

3. FOR THIS PROJECT, IT IS ASSUMED THAT POND EXCAVATION MATERIAL WILL MEET THE REQUIREMENTS FOR GRANULAR MATERIAL.

4. FOR THIS PROJECT IT IS ASSUMED THAT ALL OTHER INPLACE SOILS MEET THE REQUIREMENTS GRANULAR MATERIAL.

5. ALL TOPSOIL STRIPPING WILL BE QUANTIFIED AS COMMON EXCAVATION. RE-PLACING THIS STRIPPED MATERIAL WILL BE INCIDENTAL TO COMMON EXCAVATION.

6. IN ALL AREAS OF NEW OR RECONSTRUCTED MAINLINE ROADWAY RECONSTRUCTION, PROVIDE FOR A MINIMUM 12 INCH COMPACTION SUBCUT UNLESS OTHERWISE NOTED. BACKFILL WITH INPLACE GRANULAR MATERIAL OR GRANULAR MATERIAL TAKEN FROM ELSEWHERE WITHIN THE PROJECT LIMITS. ANY UNCONTAMINATED SUITABLE GRANULAR MATERIAL REMOVED FROM THE EXISTING SUBGRADE AREA MAY BE USED IN OTHER AREAS DESIGNATED FOR THE SAME MATERIAL.

7. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.

8. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT 1:2 SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

9. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:2 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

10. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:2 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

11. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS/SQ. YD. BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GALLONS/SQ. YD. ON CONCRETE OR MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPECIFICATION 2357.

12. PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.

13. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF THE INPLACE TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES.

14. EMBANKMENT QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE TOP OF SUBGRADE. QUANTITIES REQUIRED ABOVE THE TOP OF SUBGRADE OR FOR TEMPORARY CONSTRUCTION ARE PROVIDED IN DETAIL ON THE BITUMINOUS, AGGREGATE SUMMARY, OR TEMPORARY WIDENING TABS.

15. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.

16. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.

17. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.

18. UNSUITABLE SOILS NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MN/DOT SPECIFICATIONS.

19. FOR ESTIMATING PURPOSES, INPLACE BITUMINOUS PAVEMENT HAS BEEN ASSUMED TO BE 6". FOR INFORMATION ONLY, CONTRACTOR TO VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID.

20. IT IS ASSUMED THAT BITUMINOUS PAVEMENT WILL BE REMOVED FROM THE PROJECT SITE AND NOT RE-USED AS EMBANKMENT.

21. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF MN/DOT SPEC. 3138, CLASS 5.

22. COMPACTION OF ALL AGGREGATE BASE, GRANULAR, AND SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MN/DOT "MODIFIED PENETRATION INDEX METHOD"

23. COMPACTION OF ALL PERMANENT BITUMINOUS MIXTURES SHALL BE THE "MAXIMUM DENSITY METHOD"

24. NO OVER-EXCAVATION WILL BE ALLOWED INSIDE THE COUNTY'S RIGHT OF WAY OF THIS PROJECT.

25. EXCESS GRANULAR MATERIAL MUST BE DEEMED EXCESS BY THE PROJECT ENGINEER PRIOR TO REMOVING IT FROM THE PROJECT.

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS COMMON CY	EXCAVATION TOTALS SUBGRADE CY	EMBANKMENT VOLUMES TOPSOIL CY	EMBANKMENT VOLUMES GRANULAR FILL CY	EMBANKMENT VOLUMES GRANULAR ROADWAY CY
EAST					
200+01.00					
200+25.00	11	28	9	64	43
200+50.00	13	32	11	55	42
200+75.00	12	32	10	47	40
201+00.00	9	38	7	32	40
201+25.00	11	43	5	20	40
201+50.00	21	43	5	12	43
201+75.00	36	47	4	5	47
202+00.00	47	51	3	5	51
202+25.00	49	52	3	4	52
202+50.00	59	57	3	2	57
202+75.00	62	69	4	1	70
203+00.00	57	64	5	1	64
203+25.00	66	50	6	2	50
EAST SUBTOTAL (A)	**453**	**606**	**75**	**250**	**639**

MISC EARTHWORK — EE

ELEVATION	CUT CY	FILL CY
905-906	114	31
906-907	175	25
907-908	346	52
908-909	225	27
909-910	91	29
910-911	9	30
911-912	0	28
912-913	0	24
913-914	0	20
914-915	0	16
915-916	0	11
916-917	0	6
917-918	0	2
918-919	1	0
919-920	1	0
TOTAL	**961**	**302**
BALANCE	**660 CUT**	

POND 100 EARTHWORK (EX) — P1

ELEVATION	CUT CY	FILL CY
-	-	-
-	-	-
-	-	-
900-901	1102	0
901-902	1209	0
902-903	1321	0
903-904	1436	0
904-905	1517	2
TOTAL	**6586**	**2**
BALANCE	**6586 CUT**	

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS COMMON CY	EXCAVATION TOTALS SUBGRADE CY	EMBANKMENT VOLUMES TOPSOIL CY	EMBANKMENT VOLUMES GRANULAR FILL CY	EMBANKMENT VOLUMES GRANULAR ROADWAY CY
800+50.00	0	0	0	0	0
800+75.00	22	28	2	0	28
801+00.00	34	38	2	2	39
801+25.00	40	39	2	4	39
801+50.00	44	40	2	2	40
801+75.00	46	40	3	3	40
802+00.00	50	40	3	4	41
802+25.00	55	41	7	12	41
802+50.00	60	41	7	12	41
802+75.00	64	42	4	4	42
803+00.00	69	42	3	2	36
803+25.00	89	43	6	0	36
803+50.00	121	44	15	0	44
803+75.00	145	44	17	0	44
804+00.00	137	40	12	4	45
804+25.00	124	31	12	8	44
804+50.00	123	26	13	7	44
804+75.00	136	31	13	4	43
805+00.00	162	37	14	0	42
805+25.00	164	38	15	0	42
805+50.00	168	36	16	0	42
805+75.00	189	31	18	5	39
806+00.00	200	28	20	8	38
806+25.00	210	24	21	10	40
806+50.00	221	19	21	10	42
806+75.00	221	19	21	8	29
SOUTH SUBTOTAL (B)	**2894**	**882**	**269**	**109**	**1001**

POND AND MISC EARTHWORK NARRATIVE

TAB EE

961 CUBIC YARDS TO BE EXCAVATED WITHIN THE AREA OUTLINE IN PLAN SHEET NUMBER 77

OF THIS 961 CUBIC YARDS OF MATERIAL, 302 CUBIC YARDS WILL BE RE-DISTRIBUTED WITHIN THIS AREA AND PERMANENTLY PLACED

THIS LEAVES 657 CUBIC YARDS TO BE REMOVED FROM THIS AREA

SEE EARTHWORK BALANCE FOR ADDITIONAL INFORMATION

TAB P1

6586 CU YARDS TO BE EXCAVATED WITHIN POND 100

SEE EARTHWORK BALANCE AND POND GRADING PLANS FOR ADDITIONAL INFORMATION

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/15	NJD	JFF	JEO	REMOVED POND 100 EARTHWORK (FILL) TAB P1
2	4/22/15	NJD	JFF	JEO	REMOVED POND EXCAVATION BELOW 900.00 IN POND 100 (EX)
3	4/22/15	NJD	JFF	JEO	UPDATED EX. NARRATIVE TO REFLECT REMOVAL OF BACKFILL

NAME: P:\02-612-13\Plan\002612013_EW.dgn 04/22/2016 8:53:44 AM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EARTHWORK TAB

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON	SUBGRADE	TOPSOIL	GRANULAR FILL	GRANULAR ROADWAY
	CY	CY	CY	CY	CY
503+75.00	0	0	0	0	0
504+00.00	31	36	8	20	38
504+25.00	30	36	8	20	38
504+50.00	31	37	8	20	38
504+75.00	35	36	8	21	38
505+00.00	37	36	8	21	38
505+25.00	37	37	8	18	38
505+50.00	36	36	8	17	38
505+75.00	34	36	8	18	38
506+00.00	32	35	8	18	38
506+25.00	32	32	7	18	38
506+50.00	34	29	8	18	38
506+75.00	35	26	8	20	38
507+00.00	36	21	7	25	38
507+25.00	43	15	8	26	38
507+50.00	64	22	9	23	38
507+75.00	89	31	10	18	38
508+00.00	111	34	11	12	38
508+25.00	137	38	11	10	38
508+50.00	153	38	10	9	38
508+75.00	159	38	10	9	38
509+00.00	136	39	10	9	39
509+25.00	93	35	9	9	39
509+50.00	57	18	9	9	40
509+75.00	37	17	8	11	41
510+00.00	35	33	6	11	42
510+25.00	35	37	6	9	42
510+50.00	43	40	6	9	43
510+75.00	52	44	6	9	44
511+00.00	45	44	6	10	45
511+25.00	33	39	8	16	45
511+50.00	28	29	8	24	44
511+75.00	27	21	8	27	44
512+00.00	27	15	8	43	44
512+25.00	28	11	9	58	43
512+50.00	28	9	9	58	43
512+75.00	27	13	8	52	43
513+00.00	28	18	8	47	43
513+25.00	28	22	8	41	43
513+50.00	30	28	7	36	43
513+75.00	29	32	7	39	43
514+00.00	28	28	8	43	45
514+25.00	29	26	8	51	44
514+50.00	34	27	8	68	43
WEST SUBTOTAL (C)	**2133**	**1274**	**349**	**1050**	**1745**

ROUNDABOUT CNTR EARTHWORK — AA

ELEVATION	COMMON EX	GRANULAR FILL
	CY	CY
902-903	5	0
903-904	17	4
904-905	32	70
905-906	50	301
906-907	51	580
907-908	8	421
908-909	0	57
TOTAL (E)	**163**	**1433**

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON	SUBGRADE	TOPSOIL	GRANULAR FILL	GRANULAR ROADWAY
	CY	CY	CY	CY	CY
15+00.00	0	0	0	0	0
15+25.00	47	25	16	150	45
15+50.00	50	26	10	159	44
15+75.00	59	29	12	161	43
16+00.00	64	29	21	159	44
16+25.00	55	30	19	136	46
16+50.00	51	34	15	91	49
16+75.00	54	35	14	71	48
17+00.00	61	35	14	55	46
17+25.00	64	36	14	47	46
17+50.00	62	37	14	42	46
17+75.00	66	40	16	41	45
18+00.00	70	45	15	25	46
18+25.00	63	41	11	12	45
18+50.00	55	35	11	18	42
18+75.00	48	38	11	18	43
19+00.00	48	40	10	15	44
19+25.00	45	40	9	13	43
19+50.00	36	39	8	16	43
19+75.00	31	39	7	19	43
20+00.00	37	39	4	18	43
20+25.00	28	22	3	12	27
20+50.00	9	6	2	8	11
20+75.00	10	9	1	4	11
NORTH SUBTOTAL (D)	**1113**	**749**	**257**	**1290**	**943**
PROJECT SUBTOTAL (A+B+C+D+E)	**6756**	**3511**	**950**	**4132**	**4328**

NO	DATE	BY	CKD	APPR	REVISION
1	5/10/15	NJD	JFF	JEO	ADDED ROUNDABOUT CNTR EARTHWORK TAB (TOTAL E)
					REVISED WEST FILL (ADDED DUE TO CURB)

NAME: P:\02-612-13\Plan\002612013_EW.dgn 05/10/2016 11:01:43 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-10-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EARTHWORK TAB

AGGREGATE SUMMARY	CC AGGREGATE
STATION	AGGREGATE SUBBASE CY
200+01.00	
200+25.00	20
200+50.00	21
200+75.00	21
201+00.00	21
201+25.00	21
201+50.00	23
201+75.00	25
202+00.00	27
202+25.00	27
202+50.00	30
202+75.00	36
203+00.00	33
203+25.00	26
EAST SUBTOTAL (A)	331

AGGREGATE SUMMARY	CC AGGREGATE
STATION	AGGREGATE SUBBASE CY
800+50.00	0
800+75.00	20
801+00.00	27
801+25.00	28
801+50.00	29
801+75.00	29
802+00.00	29
802+25.00	29
802+50.00	30
802+75.00	31
803+00.00	30
803+25.00	29
803+50.00	29
803+75.00	29
804+00.00	29
804+25.00	28
804+50.00	26
804+75.00	25
805+00.00	24
805+25.00	24
805+50.00	25
805+75.00	24
806+00.00	22
806+25.00	21
806+50.00	23
806+75.00	24
SOUTH SUBTOTAL (B)	664

AGGREGATE SUMMARY	CC AGGREGATE
STATION	AGGREGATE SUBBASE CY
503+75.00	0
504+00.00	24
504+25.00	24
504+50.00	24
504+75.00	24
505+00.00	24
505+25.00	24
505+50.00	24
505+75.00	24
506+00.00	24
506+25.00	24
506+50.00	24
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510+50.00	27
510+75.00	28
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511+25.00	26
511+50.00	26
511+75.00	25
512+00.00	24
512+25.00	23
512+50.00	23
512+75.00	23
513+00.00	23
513+25.00	23
513+50.00	23
513+75.00	23
514+00.00	24
514+25.00	24
514+50.00	23
WEST SUBTOTAL (C)	1061

AGGREGATE SUMMARY	CC AGGREGATE
STATION	AGGREGATE SUBBASE CY
RAB CENTER	470
RAB CENTER (E)	470

AGGREGATE SUMMARY	CC AGGREGATE
STATION	AGGREGATE SUBBASE CY
15+00.00	0
15+25.00	24
15+50.00	21
15+75.00	21
16+00.00	22
16+25.00	26
16+50.00	30
16+75.00	30
17+00.00	29
17+25.00	28
17+50.00	28
17+75.00	25
18+00.00	26
18+25.00	29
18+50.00	28
18+75.00	28
19+00.00	27
19+25.00	27
19+50.00	27
19+75.00	27
20+00.00	30
20+25.00	21
20+50.00	8
20+75.00	8
NORTH SUBTOTAL (D)	570

PROJECT SUBTOTAL (A+B+C+D+E)	3096

NO	DATE	BY	CKD	APPR	REVISION
1	5/10/15	NJD	JFF	JEO	ADDED ROUNDABOUT CNTR AGGREGATE TAB (TOTAL E)

NAME: P:\02-612-13\Plan\002612013_EW.dgn 05/10/2016 10:59:30 AM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE: [signature]

DATE: 5-10-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

AGGREGATE TAB

EARTHWORK TABULATION TOTAL — BB

	EXCAVATION TOTALS		EMBANKMENT VOLUMES		
	COMMON	SUBGRADE	TOPSOIL	GRANULAR FILL	GRANULAR ROADWAY
	CY	CY	CY	CY	CY
PROJECT TOTAL	6,756	3,511	950	4,132	4,328

EARTHWORK BALANCE — DD

AVAILABLE EXCAVATION (CY)

COMMON (EV)(1)	7,717	COMMON	4,876	(EV) /	1.2	=	4,063	(CV)(7)
		MISC EARTHWORK (9)	961	(EV) /	1.2	=	801	(CV)(7)
		EXISTING TOPSOIL	1,880	(EV) /	1	=	1,880	(CV)
POND EXCAVATION (EV)(2)	6,586	POND EXCAVATION	6,586	(EV) /	1.2	=	5,488	(CV)(6)
SUBGRADE EXCAVATION (EV)(3)	3,511	SUBGRADE EXCAVATION (3)	3,511	(EV)/	1.2	=	2,926	(CV)(7)

NEEDED EMBANKMENT (CY)

TOPSOIL	950 (CV)	950 (CV)
GRANULAR FILL	4,132 (CV)	4,132 (CV)
GRANULAR ROADWAY	4,328 (CV)	4,328 (CV)

EXCESS (CY)

	NEEDED			AVAILABLE				
TOPSOIL	950	(CV)	-	1,880	(CV)	=	930	(CV) (4)
GRANULAR (FILL + ROADWAY)	8,460	(CV)	-	13,278	(CV)	=	4,818	(CV) (5)

(1) TOTAL COMMON EXCAVATION FOR PROJECT (INCLUDING TOPSOIL) PAID FOR AS 2105.501 COMMON EXCAVATION (EV)
(2) PAID FOR AS 2105.511 CHANNEL AND POND EXCAVATION (EV).
(3) TOTAL SUBGRADE EXCAVATION FOR PROJECT. PAID FOR AS 2105.507 SUBGRADE EXCAVATION (EV)
(4) EXCESS TOPSOIL TO BE DISTRIBUTED WITHIN PROJECT CONSTRUCTION LIMITS AT ENGINEERS DISCRETION
(5) EXCESS GRANULAR MATERIAL TO BECOME PROPERTY OF CONTRACTOR AND DISPOSED OF OFF SITE.
(6) IT IS ASSUMED ALL POND EXCAVATION WILL MEET REQUIREMENTS FOR GRANULAR MATERIAL
(7) IT IS ASSUMED ALL COMMON EXCAVATION AND SUBGRADE EXCAVATION WILL MEET REQUIREMTS FOR GRANULAR MATERIAL
(8) REMOVED
(9) EARTHWORK IN AREA DESCRIBED IN SHEET **76** AND TAB EE

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/15	NJD	JFF	JEO	UPDATED POND EXCAVATION QUANTITY (6,586 CY)
2	4/22/15	NJD	JFF	JEO	REMOVED FILL SPECIAL (BORROW) AND NOTE 8
3	5/10/15	NJD	JFF	JEO	REVISED TOTALS AND TABS - ADDED RAB CENTER EX & FILL

NAME: P:\02-612-13\Plan\002612013_EW.dgn 05/10/2016 10:58:08 AM

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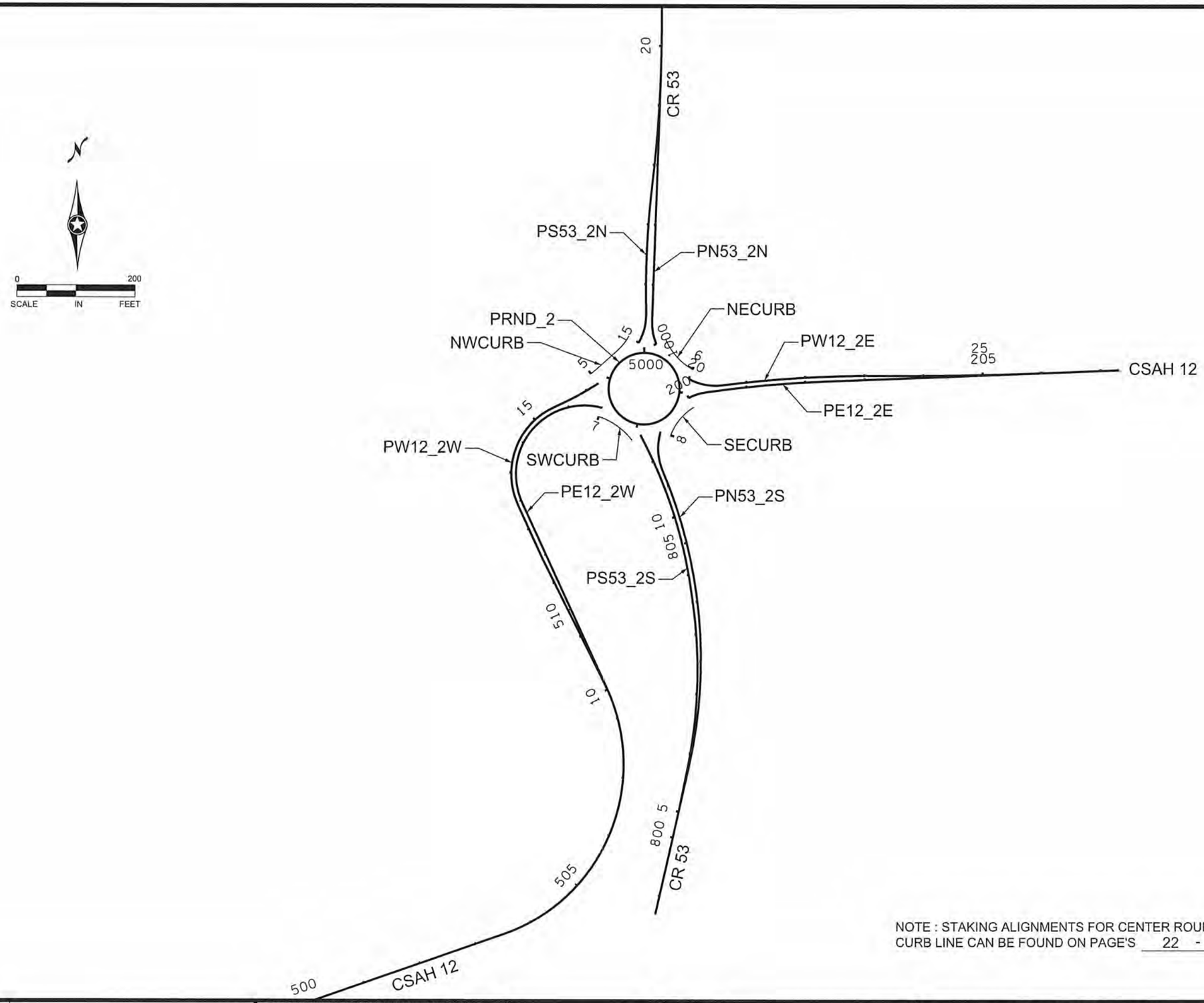
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EARTHWORK BALANCE



NOTE : STAKING ALIGNMENTS FOR CENTER ROUNDABOUT CURB LINE CAN BE FOUND ON PAGE'S 22 - 23

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_ALI.dgn 03/21/2016 1:43:06 PM

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ANOKA COUNTY

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CITY OF BLAINE SAP 106-020-034
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ALIGNMENTS

Sheet 17 of 141 Sheets

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ ROUNDABOUT <P_RAB>										
	PC	5000+00.000						531,940.7519	149,547.0093	Due East
P_RAB-1	PI	5000+00.025	359° 57' 08.11" RT	95° 29' 34.68"	60.000'	0.025'	376.941'	531,940.7269	149,547.0093	PI
			CC					531,940.7519	149,487.0093	
	PT	5003+76.941						531,940.7019	149,547.0093	N 89° 57' 08.11" E

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 12 <PE12_2W>										
76	POT	500+00.000						531,372.8916	148,459.4471	
	PC	503+50.672						531,704.3913	148,573.8109	N 70° 57' 58.04" E
PE12_2W-1	PI	506+81.769	95° 38' 30.37" LT	19° 05' 54.94"	300.000'	331.096'	500.779'	532,017.3853	148,681.7904	PI
	CC							531,606.5532	148,857.4087	
	PT	508+51.452						531,879.1589	148,982.6529	N 24° 40' 32.33" W
	PC	511+96.199						531,735.2336	149,295.9196	N 24° 40' 32.33" W
PE12_2W-2	PI	514+41.399	129° 44' 47.24" RT	49° 49' 20.70"	115.000'	245.200'	260.418'	531,632.8671	149,518.7297	PI
	CC							531,839.7324	149,343.9299	
	PT	514+56.616						531,869.6339	149,454.9745	S 74° 55' 45.09" E
77	POT	514+57.116						531,870.1167	149,454.8445	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 12 <PE12_2E>										
63	POT	200+00.000						532,016.4379	149,471.7547	
	PC	200+01.000						532,017.3332	149,472.2003	N 63° 32' 10.76" E
PE12_2E-1	PI	200+16.345	18° 21' 04.52" RT	60° 18' 40.85"	95.000'	15.345'	30.428'	532,031.0704	149,479.0386	PI
	CC							532,059.6680	149,387.1547	
	PCC	200+31.428						532,046.2620	149,481.2040	N 81° 53' 15.28" E
	PCC	200+31.428						532,046.2620	149,481.2040	N 81° 53' 15.28" E
PE12_2E-2	PI	201+34.384	5° 55' 02.58" RT	2° 52' 34.66"	1,992.000'	102.956'	205.729'	532,148.1880	149,495.7328	PI
	CC							532,327.3649	147,509.1378	
	PT	202+37.157						532,251.0687	149,499.6761	N 87° 48' 17.86" E
64	POT	207+31.684						532,745.2327	149,518.6171	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_ALI-TAB.dgn 03/21/2016 1:43:10 PM

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PRINT NAME: NICHOLAS J DOBDA

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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ALIGNMENT TAB

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 12 <PW12_2W>										
89	POT	10+00.000						531,879.1589	148,982.6529	
90	POT	12+44.878						531,769.7122	149,201.7112	
	PC	13+44.878						531,727.9641	149,292.5798	N 24° 40' 32.33" W
PW12_2W-1	PI	14+69.983	90° 58' 19.97" RT	46° 34' 54.96"	123.000'	125.105'	195.295'	531,675.7351	149,406.2609	PI
	CC							531,839.7324	149,343.9299	
	PRC	15+40.173						531,790.2861	149,456.5535	N 66° 17' 47.64" E
	PRC	15+40.173						531,790.2861	149,456.5535	N 66° 17' 47.64" E
PW12_2W-2	PI	15+81.749	9° 12' 47.11" LT	11° 06' 13.80"	516.000'	41.576'	82.972'	531,828.3544	149,473.2670	PI
	CC							531,582.8527	149,929.0229	
	PT	16+23.145						531,863.2556	149,495.8599	N 57° 05' 00.52" E
91	POT	16+23.645						531,863.6754	149,496.1316	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 12 <PW12_2E>										
65	POT	20+00.000						532,016.1760	149,503.6314	
	PC	20+01.000						532,017.0605	149,503.1647	S 62° 10' 55.13" E
PW12_2E-1	PI	20+31.055	35° 06' 42.13" LT	60° 18' 40.85"	95.000'	30.055'	58.217'	532,043.6424	149,489.1390	PI
	CC							532,061.3936	149,587.1860	
	PRC	20+59.217						532,073.4544	149,492.9547	N 82° 42' 22.74" E
	PRC	20+59.217						532,073.4544	149,492.9547	N 82° 42' 22.74" E
PW12_2E-2	PI	21+93.908	7° 42' 20.08" RT	2° 51' 53.24"	2,000.000'	134.691'	268.975'	532,207.0553	149,510.0544	PI
	CC							532,327.3649	147,509.1378	
	PRC	23+28.193						532,341.7426	149,509.0861	S 89° 35' 17.17" E
	PRC	23+28.193						532,341.7426	149,509.0861	S 89° 35' 17.17" E
PW12_2E-3	PI	24+58.572	2° 36' 24.97" LT	0° 59' 59.73"	5,730.000'	130.379'	260.713'	532,472.1182	149,508.1488	PI
	CC							532,382.9350	155,238.9380	
	PT	25+88.906						532,602.4014	149,513.1425	N 87° 48' 17.86" E

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_ALI-TAB.dgn 03/21/2016 1:43:08 PM

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ANOKA COUNTY

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ALIGNMENT TAB

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.R. 53 <PN53_2S>										
72	POT	798+67.943						531,959.8330	148,606.7250	
	PC	801+25.545						532,018.1316	148,857.6441	N 12° 40' 35.81" E
PN53_22S-1	PI	803+85.268	35° 58' 20.48" LT	7° 09' 43.10"	800.000'	259.722'	502.269'	532,075.1272	149,111.0356	PI
	CC							531,237.6322	149,033.2025	
	PRC	806+27.814						531,972.4128	149,349.5843	N 23° 17' 44.67" W
	PRC	806+27.814						531,972.4128	149,349.5843	N 23° 17' 44.67" W
PN53_22S-2	PI	806+62.204	39° 48' 00.75" RT	60° 18' 40.85"	95.000'	34.390'	65.991'	531,958.8125	149,381.1704	PI
	CC							532,059.6680	149,387.1547	
	PT	806+93.805						531,968.5823	149,414.1432	N 16° 30' 16.07" E
73	POT	806+94.305						531,968.7243	149,414.6226	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.R. 53 <PN53_2N>										
87	POT	1000+00.000						531,961.2170	149,561.8633	
	PC	1000+00.500						531,961.0303	149,562.3272	N 21° 55' 01.50" W
PN53_2N-1	PI	1000+20.597	23° 53' 22.29" RT	60° 18' 40.85"	95.000'	20.097'	39.610'	531,953.5288	149,580.9719	PI
	CC							532,049.1642	149,597.7873	
	PT	1000+40.110						531,954.2205	149,601.0571	N 1° 58' 20.79" E
88	POT	1004+55.896						531,968.5313	150,016.5966	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_ALI-TAB.dgn 03/21/2016 1:43:09 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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ALIGNMENT TAB

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.R. 53 <PS53_2S>										
74	POT	5+00.000						531,999.7743	148,778.6335	
	PC	5+80.777						532,016.3025	148,857.7012	N 11° 26' 23.57" E
PS53_2S-1	PI	7+21.001	20° 00' 36.69" LT	7° 12' 30.65"	794.835'	140.224'	277.591'	532,044.1144	148,995.1392	PI
	CC							531,237.2583	149,015.3485	
	PCC	8+58.368						532,023.2178	149,133.7971	N 8° 34' 13.12" W
	PCC	8+58.368						532,023.2178	149,133.7971	N 7° 17' 49.45" W
PS53_2S-2	PI	10+05.511	21° 02' 58.25" LT	7° 14' 03.47"	792.002'	147.143'	290.968'	532,004.5286	149,279.7483	PI
	CC							531,237.6303	149,033.2019	
	PT	11+49.336						531,934.6646	149,409.2475	N 28° 20' 47.70" W
75	POT	11+49.836						531,934.4274	149,409.6872	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.R. 53 <PS53_2N>										
	PC	15+00.000						531,931.6474	149,564.4761	N 30° 01' 29.20" E
PS53_2N-1	PI	15+26.169	31° 25' 55.56" LT	61° 36' 30.11"	93.000'	26.169'	51.019'	531,944.7418	149,587.1337	PI
	CC							531,851.1271	149,611.0110	
	PRC	15+51.019						531,944.0991	149,613.2950	N 1° 24' 26.36" W
	PRC	15+51.019						531,944.0991	149,613.2950	N 1° 24' 26.36" W
PS53_2N-2	PI	16+57.909	8° 09' 07.06" RT	3° 49' 10.99"	1,500.000'	106.889'	213.418'	531,941.4739	149,720.1521	PI
	CC							533,443.6466	149,650.1350	
	PRC	17+64.437						531,954.0275	149,826.3017	N 6° 44' 40.70" E
	PRC	17+64.437						531,954.0275	149,826.3017	N 6° 44' 40.70" E
PS53_2N-3	PI	18+91.457	6° 20' 38.50" LT	2° 29' 59.34"	2,292.000'	127.020'	253.780'	531,968.9452	149,952.4424	PI
	CC							529,677.8894	150,095.4844	
	PT	20+18.217						531,969.8333	150,079.4590	N 0° 24' 02.20" E
110	POT	21+49.240						531,970.7494	150,210.4792	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_ALI-TAB.dgn 03/21/2016 1:43:10 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

ALIGNMENT TAB

NOTE : SEE INTERSECTION DETAIL SHEET 67

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ LIP OF CURB <NWCURB> - THROUGH THE TRANSITION										
	PC	5+00.000						531,852.2960	149,510.8953	N 52° 22' 33.48" E
NWCURB-1	PI	5+11.210	4° 15' 05.40" LT	18° 58' 19.60"	302.000'	11.210'	22.409'	531,861.1745	149,517.7386	PI
	CC							531,667.9318	149,750.0894	
	PT	5+22.409						531,869.5212	149,525.2213	N 48° 07' 28.08" E
	PC	5+57.878						531,895.9310	149,548.8971	N 48° 07' 28.08" E
NWCURB-2	PI	5+73.981	17° 56' 34.76" LT	56° 10' 20.40"	102.000'	16.103'	31.943'	531,907.9214	149,559.6462	PI
	CC							531,827.8445	149,624.8459	
	PT	5+89.821						531,916.0171	149,573.5664	N 30° 10' 53.32" E

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ LIP OF CURB <NECURB> - THROUGH THE TRANSITION										
	PC	6+00.000						532,024.0430	149,518.1534	N 61° 33' 15.74" W
NECURB-1	PI	6+34.138	37° 00' 33.49" RT	56° 10' 20.40"	102.000'	34.138'	65.885'	531,994.0266	149,534.4142	PI
	CC							532,072.6282	149,607.8389	
	PCC	6+65.885						531,979.8454	149,565.4672	N 24° 32' 42.26" W
	PCC	6+65.885						531,979.8454	149,565.4672	N 24° 32' 42.26" W
NECURB-2	PI	6+67.822	1° 49' 08.31" RT	46° 57' 42.62"	122.005'	1.937'	3.873'	531,979.0408	149,567.2290	PI
	CC							532,090.8254	149,616.1492	
	PT	6+69.759						531,978.2926	149,569.0155	N 22° 43' 33.95" W

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_INT-ALI.dgn 03/21/2016 1:43:20 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

INTERSECTION CURB LINE ALIGNMENT STAKING TAB

NOTE : SEE INTERSECTION DETAIL SHEET 67

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ LIP OF CURB <SWCURB> - THROUGH THE TRANSITION										
	PC	7+00.000						531,865.3582	149,439.1158	S 73° 10' 03.63" E
SWCURB-1	PI	7+06.342	8° 09' 04.41" RT	64° 22' 38.21"	89.000'	6.342'	12.662'	531,871.4280	149,437.2795	PI
	CC							531,839.5863	149,353.9289	
	PCC	7+12.662						531,877.1762	149,434.6011	S 65° 00' 59.22" E
	PCC	7+12.662						531,877.1762	149,434.6011	S 65° 00' 59.22" E
SWCURB-2	PI	7+41.719	26° 47' 37.32" RT	46° 57' 49.51"	122.000'	29.057'	57.052'	531,903.5146	149,422.3284	PI
	CC							531,825.6485	149,324.0167	
	PT	7+69.714						531,921.4931	149,399.5006	S 38° 13' 21.90" E

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ LIP OF CURB <SECURB> - THROUGH THE TRANSITION										
	PC	8+00.000						531,987.0024	149,407.7500	N 20° 36' 23.15" E
SECURB-1	PI	8+31.796	38° 07' 54.03" RT	62° 16' 40.88"	92.000'	31.796'	61.228'	531,998.1931	149,437.5121	PI
	CC							532,073.1163	149,375.3709	
	PCC	8+61.228						532,025.3728	149,454.0129	N 58° 44' 17.18" E
	PCC	8+61.228						532,025.3728	149,454.0129	N 58° 44' 17.18" E
SECURB-2	PI	8+61.903	0° 38' 02.96" RT	46° 57' 49.51"	122.000'	0.675'	1.350'	532,025.9499	149,454.3633	PI
	CC							532,088.6848	149,349.7268	
	PT	8+62.578						532,026.5309	149,454.7072	N 59° 22' 20.15" E

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_INT-ALI.dgn 03/21/2016 1:43:21 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

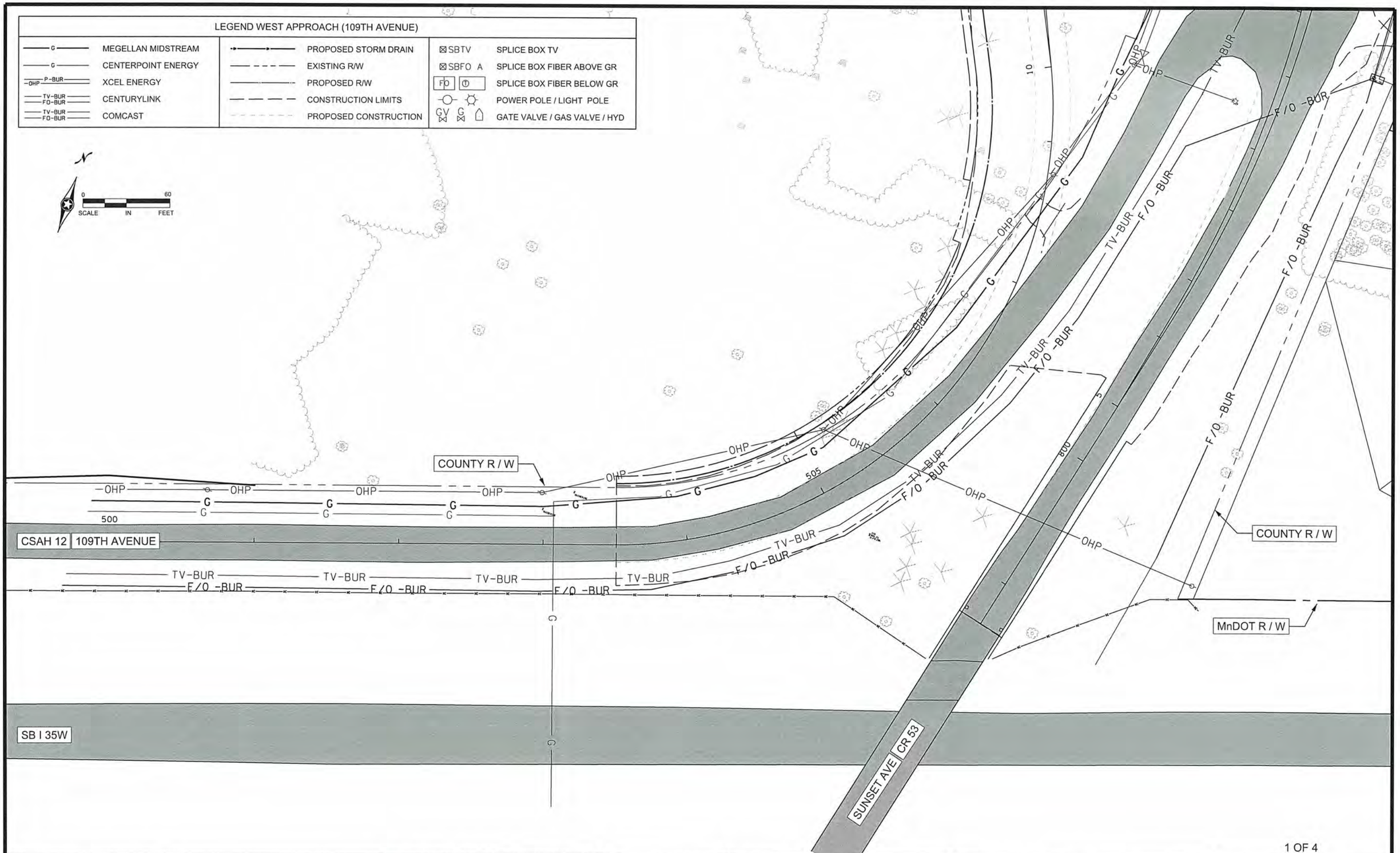
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

INTERSECTION CURB LINE ALIGNMENT STAKING TAB

LEGEND WEST APPROACH (109TH AVENUE)					
G	MEGELLAN MIDSTREAM		PROPOSED STORM DRAIN	SBTV	SPLICE BOX TV
G	CENTERPOINT ENERGY		EXISTING R/W	SBFO A	SPLICE BOX FIBER ABOVE GR
OHP P-BUR	XCEL ENERGY		PROPOSED R/W	FO	SPLICE BOX FIBER BELOW GR
TV-BUR FO-BUR	CENTURYLINK		CONSTRUCTION LIMITS		POWER POLE / LIGHT POLE
TV-BUR FO-BUR	COMCAST		PROPOSED CONSTRUCTION	GV G	GATE VALVE / GAS VALVE / HYD



1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_UT_P1.dgn 03/21/2016 1:43:53 PM

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

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SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

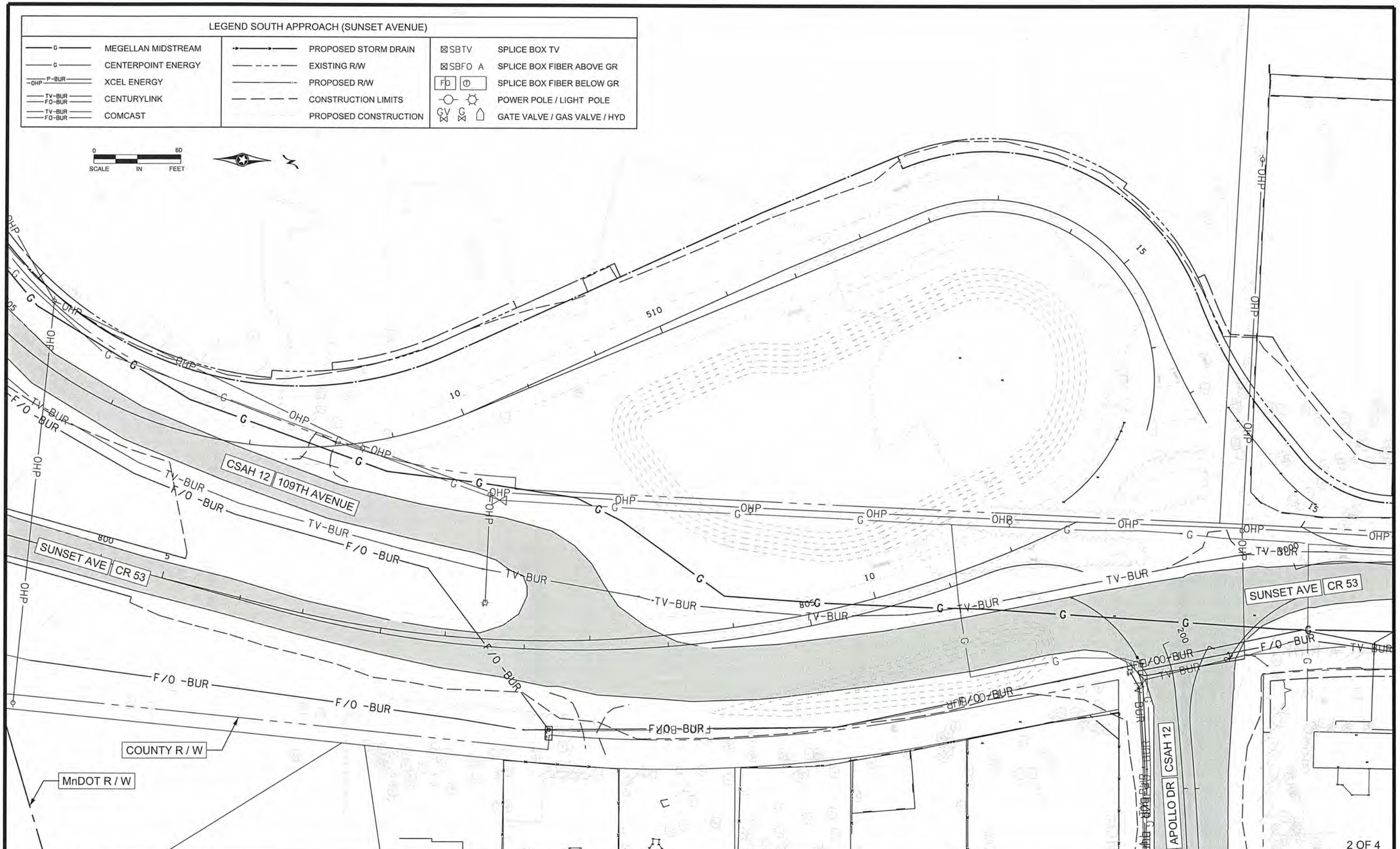
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING UTILITIES
WEST APPROACH

Sheet 24 of 141 Sheets

LEGEND SOUTH APPROACH (SUNSET AVENUE)

—G—	MEGELLAN MIDSTREAM		PROPOSED STORM DRAIN	SBTV	SPLICE BOX TV
—G—	CENTERPOINT ENERGY		EXISTING R/W	SBFO A	SPLICE BOX FIBER ABOVE GR
—OHP— P-BUR	XCEL ENERGY		PROPOSED R/W	FO T	SPLICE BOX FIBER BELOW GR
TV-BUR / FO-BUR	CENTURYLINK		CONSTRUCTION LIMITS		POWER POLE / LIGHT POLE
TV-BUR / FO-BUR	COMCAST		PROPOSED CONSTRUCTION	GV G	GATE VALVE / GAS VALVE / HYD



2 OF 4

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

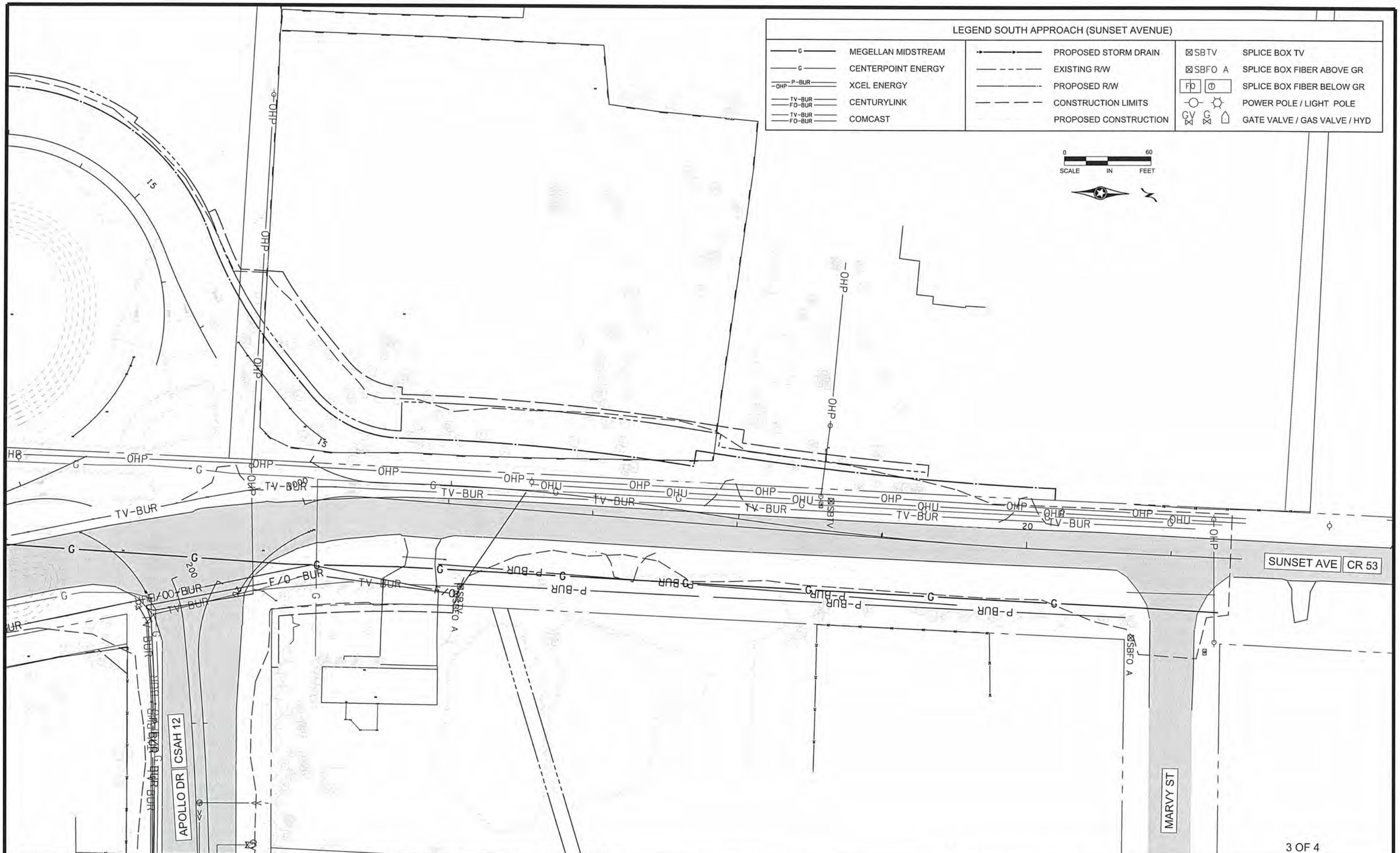
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING UTILITIES
SOUTH APPROACH

Sheet 25 of 141 Sheets



3 OF 4

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

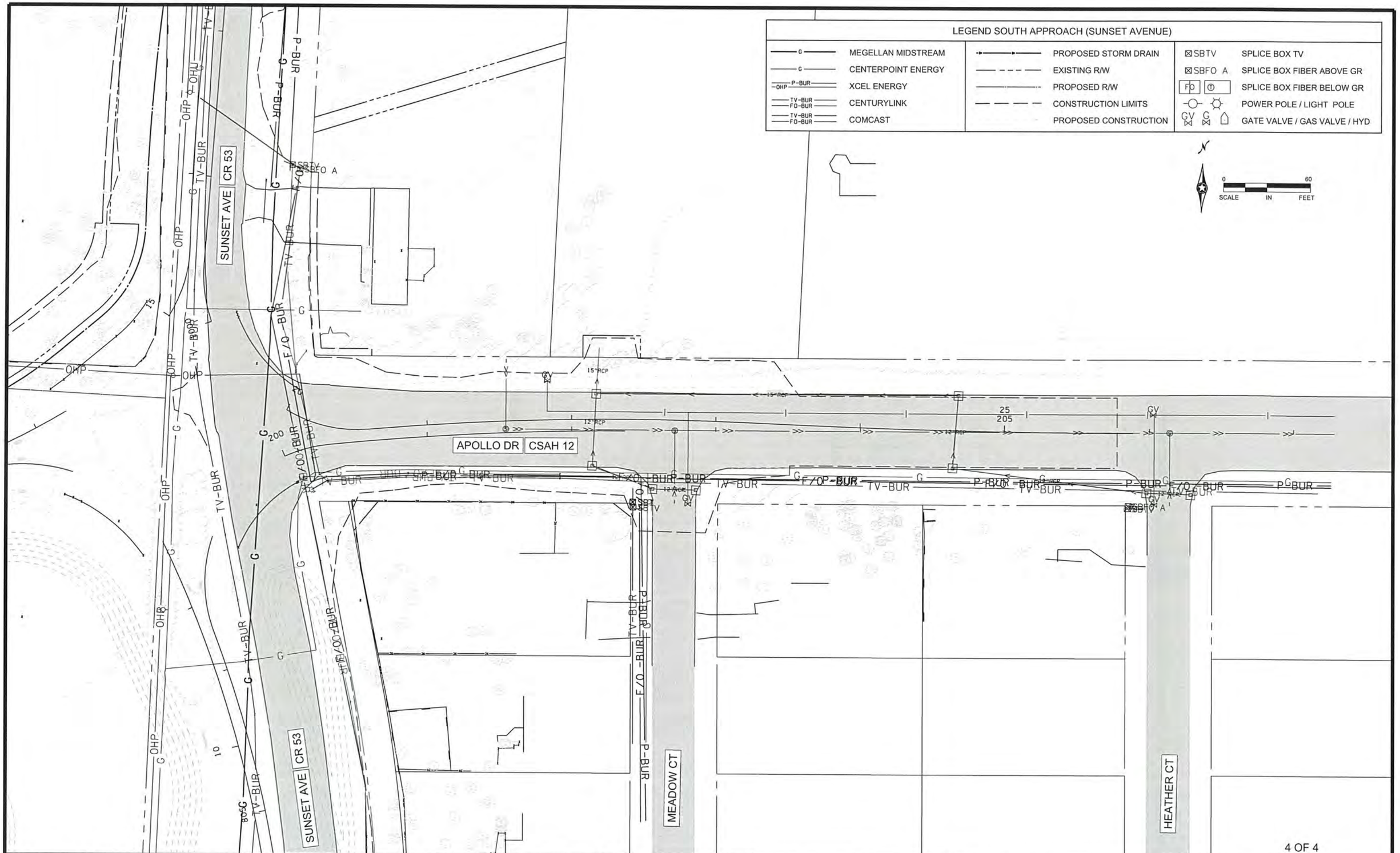
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING UTILITIES
NORTH APPROACH

Sheet 26 of 141 Sheets



4 OF 4

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

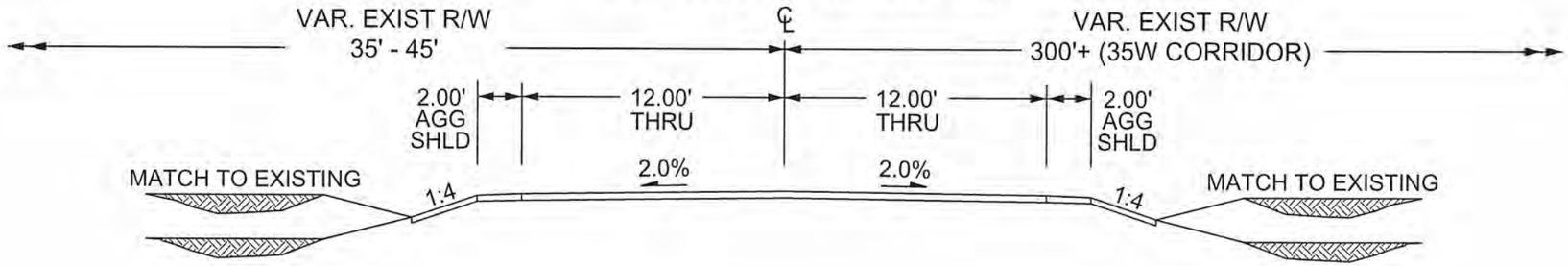
EXISTING UTILITIES
EAST APPROACH

Sheet 27 of 141 Sheets

CSAH 12

WEST OF CR 53

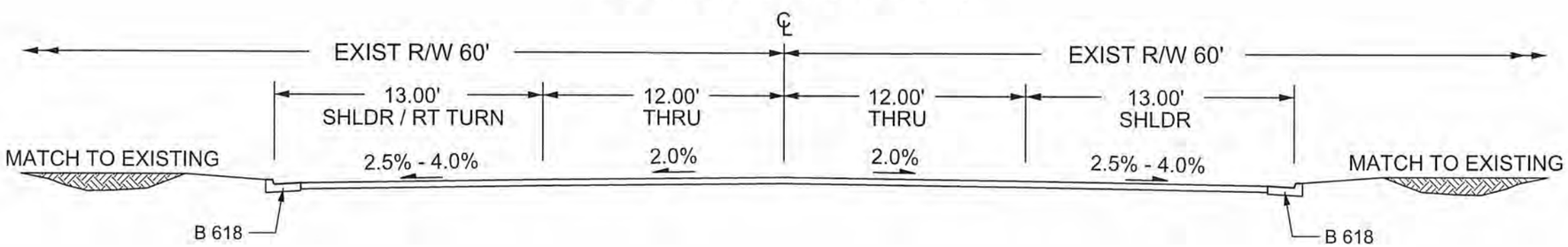
PE12_2W STA. 503+50.67 - 514+57.12



CSAH 12

EAST OF CR 53

PE12_2E STA. 200+00.00 - 205+77.66



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

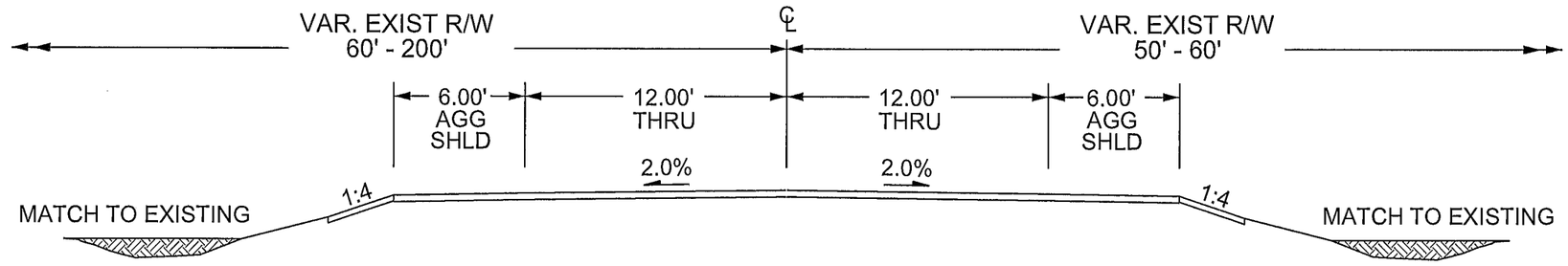
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

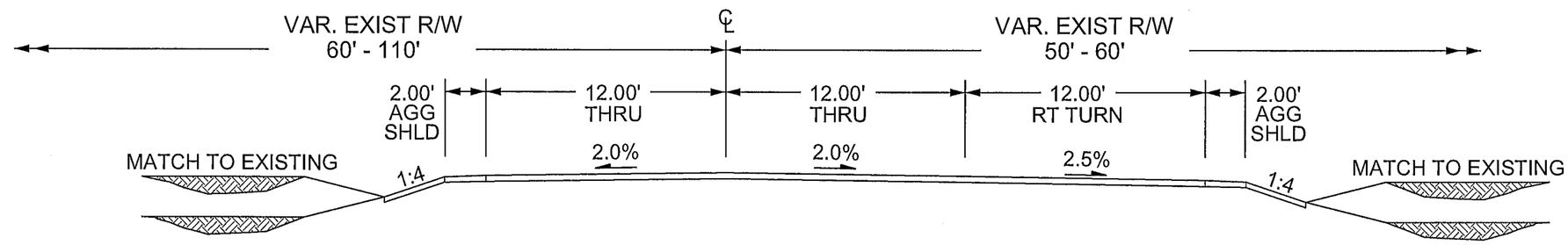
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
EXISTING CSAH 18

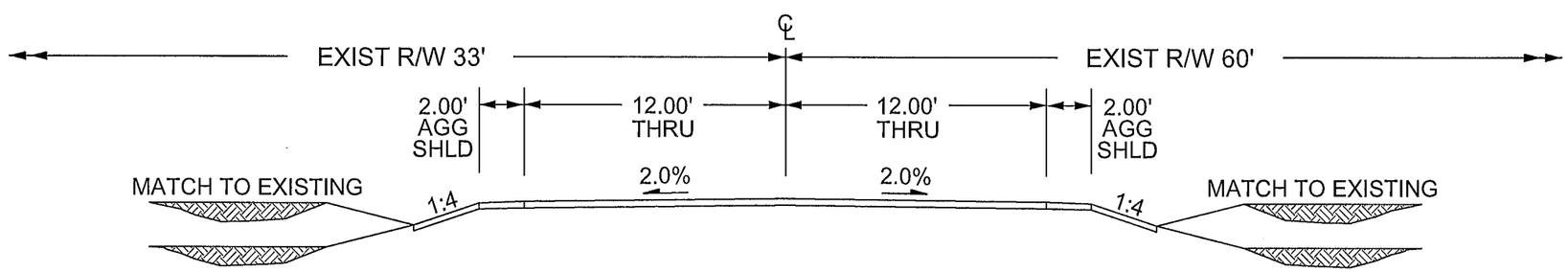
CR 53
SOUTH OF CSAH 12
PN53_2S STA. 798+67.94 - 804+04.43



CR 53
BETWEEN WEST AND EAST CSAH 12
PN53_2S STA. 804+04.43 - 806+94.31



CR 53
NORTH OF CSAH 12
PN53_2N STA. 1000+00.00 - PS53_2N STA. 21+41.37



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_TYP_P1.dgn 03/21/2016 1:43:46 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

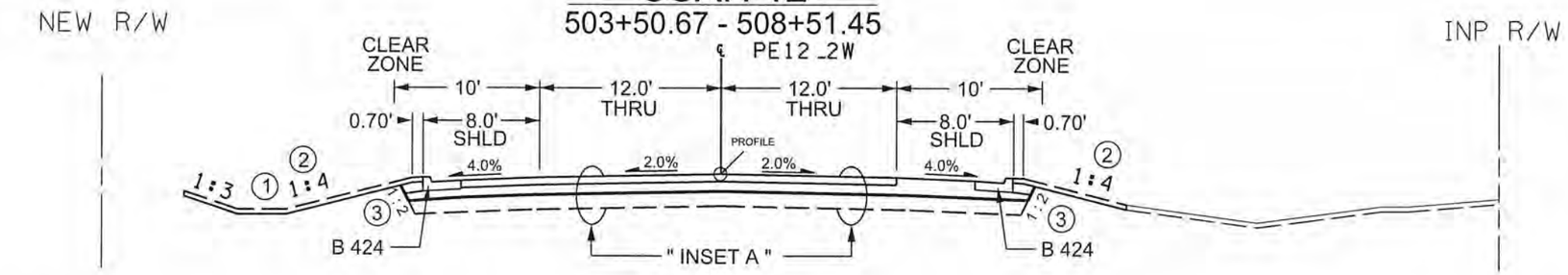
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
EXISTING CR 62

CSAH 12
503+50.67 - 508+51.45

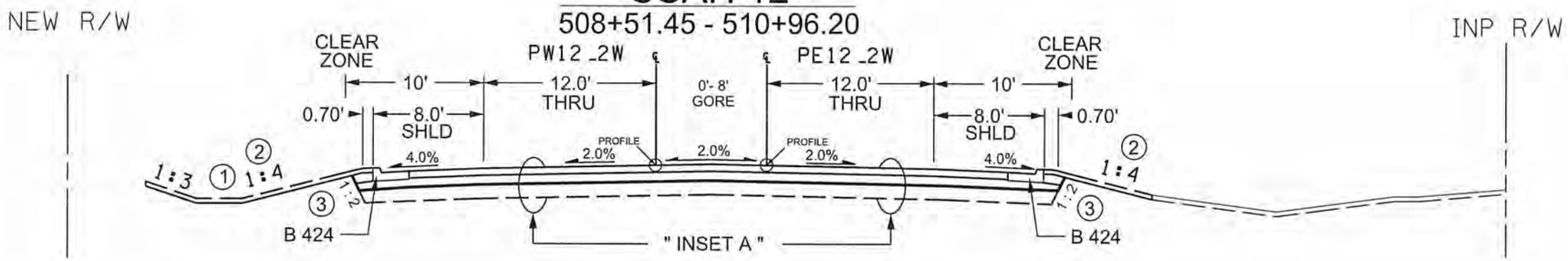


NOTES:

ALL STATIONING FOR THESE SECTIONS BASED - OFF <PE12_2W> ALIGNMENT

1. SEE PROFILE & X-SECTIONS FOR SPECIAL - DITCH GRADES.
2. PLACE 4" TOPSOIL.
3. BACKFILL WITH SUITABLE GRADING MATERIAL.
4. SEE CONSTRUCTION PLAN SHEETS FOR WALK LOCATIONS . CL-5 EXTENDED 6" BEYOND EACH EDGE OF BITUMINOUS WALK.

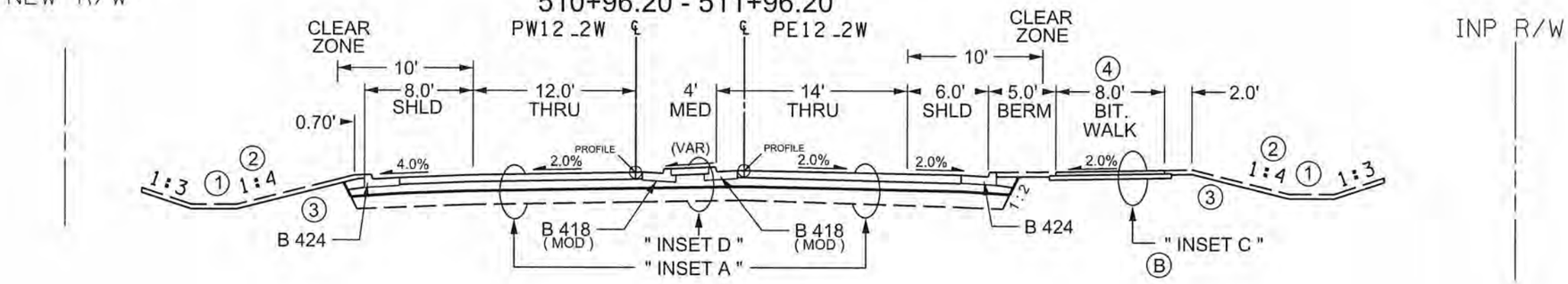
CSAH 12
508+51.45 - 510+96.20



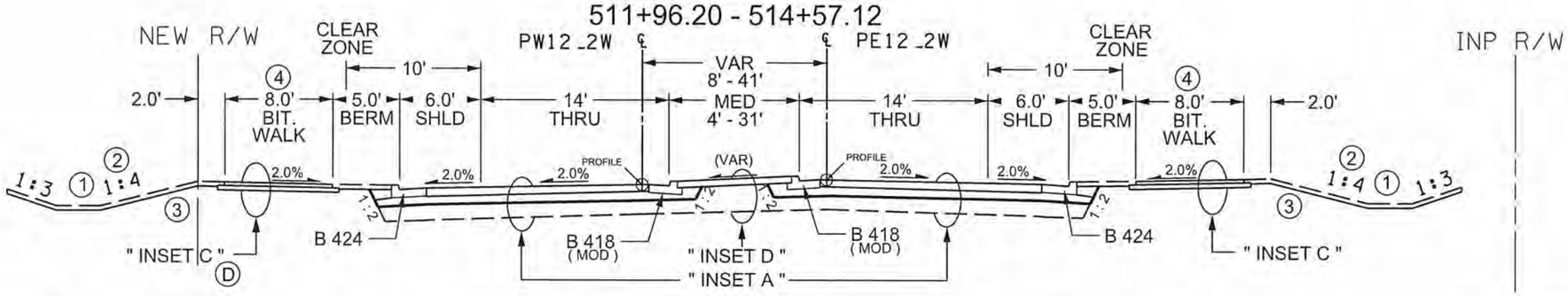
(B) END TRAIL LEB AT STA. 510+96.20

(D) END TRAIL LWB AT STA. 511+96.20

CSAH 12
510+96.20 - 511+96.20



CSAH 12
511+96.20 - 514+57.12



NO	DATE	BY	CKD	APPR	REVISION
1	5/3/16	NJD	JFF	JEO	ADDED REVISIONS RELATING TO EXTENDING CURB ALL THE WAY TO THE WESTERN PROJECT LIMIT

NAME: P:\02-612-13\Plan\002612013_TYP_P1.dgn 05/03/2016 2:23:06 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

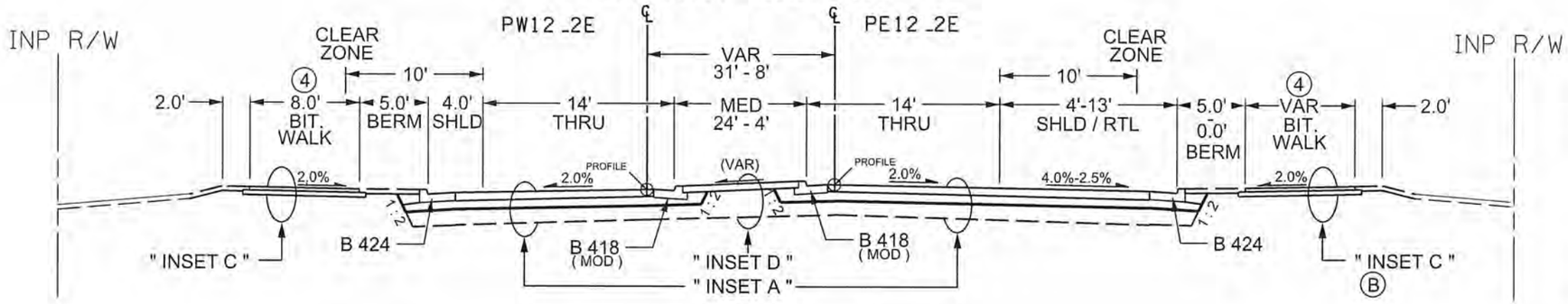
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
PROPOSED CSAH 18
WEST LEG

CSAH 12
200+00.00 - 202+37.11



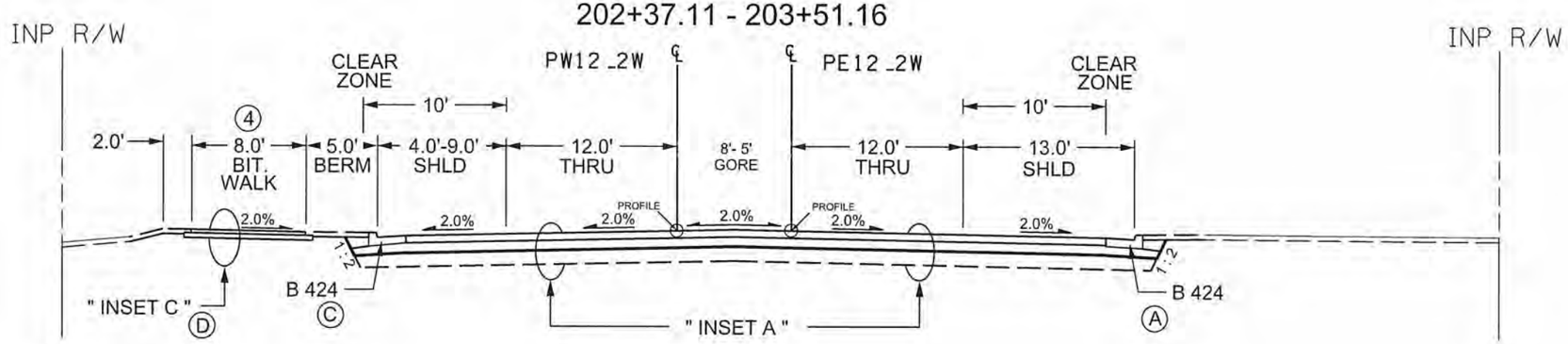
NOTES:

ALL STATIONING FOR THESE SECTIONS BASED - OFF <PE12_2E> ALIGNMENT

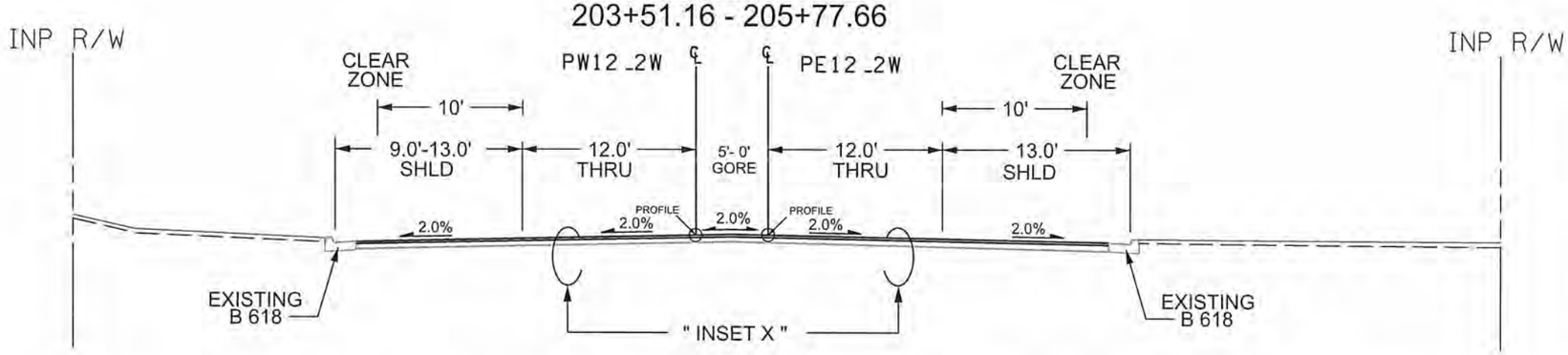
1. SEE PROFILE & X-SECTIONS FOR SPECIAL - DITCH GRADES.
2. PLACE 4" TOPSOIL.
3. BACKFILL WITH SUITABLE GRADING MATERIAL.
4. SEE CONSTRUCTION PLAN SHEETS FOR WALK LOCATIONS . CL-5 EXTENDED 6" BEYOND EACH EDGE OF BITUMINOUS WALK.

A. END CURB LEB AT STA. 202+48.93
B. END TRAIL LEB AT STA. 203+51.19
C. END CURB LWB AT STA. 203+32.30
D. END TRAIL LWB AT STA. 203+32.30

CSAH 12
202+37.11 - 203+51.16



CSAH 12
203+51.16 - 205+77.66



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_TYP_P1.dgn 03/21/2016 1:43:48 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

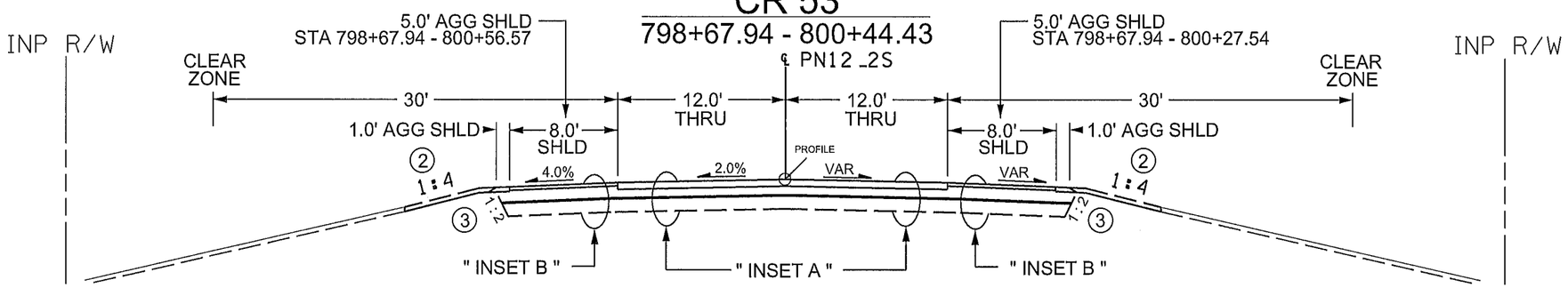
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
PROPOSED CSAH 18
EAST LEG

CR 53
798+67.94 - 800+44.43

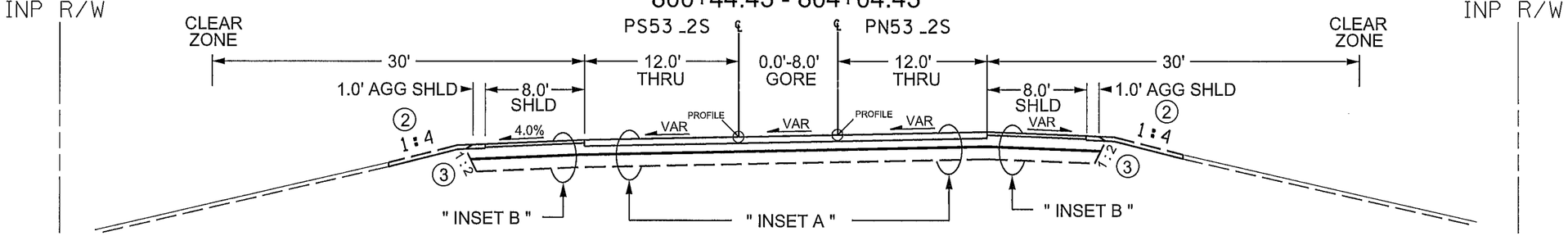


NOTES:

ALL STATIONING FOR THESE SECTIONS BASED - OFF <PN53_2S> ALIGNMENT

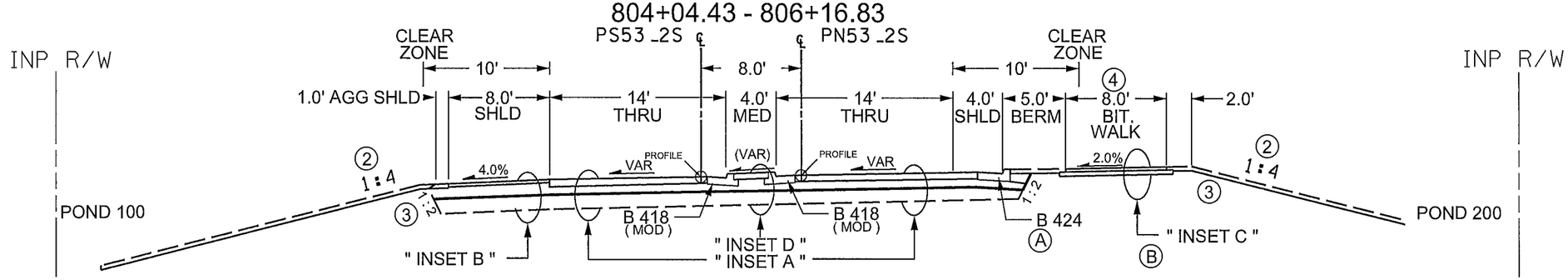
1. SEE PROFILE & X-SECTIONS FOR SPECIAL - DITCH GRADES.
2. PLACE 4" TOPSOIL.
3. BACKFILL WITH SUITABLE GRADING MATERIAL.
4. SEE CONSTRUCTION PLAN SHEETS FOR WALK LOCATIONS . CL-5 EXTENDED 6" BEYOND EACH EDGE OF BITUMINOUS WALK.

CR 53
800+44.43 - 804+04.43

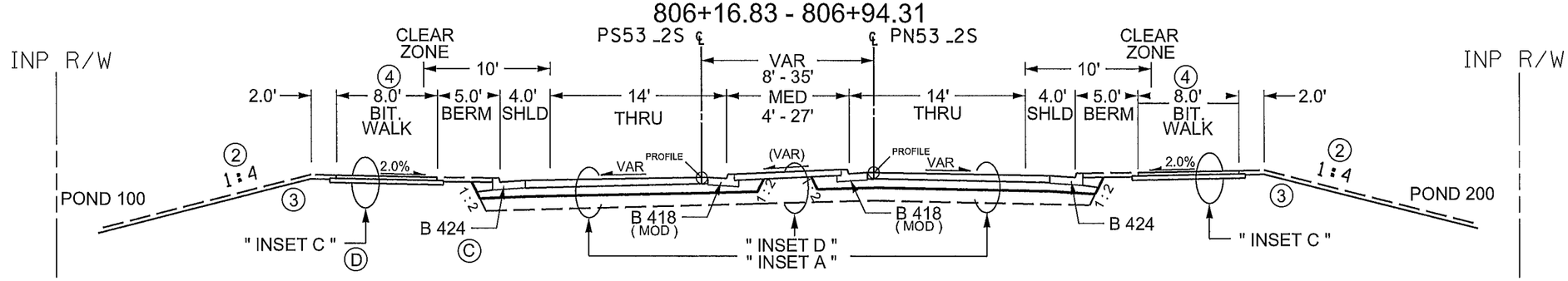


(A) END CURB LNB AT STA. 804+04.39
(B) END TRAIL LNB AT STA. 804+04.39
(C) END CURB LSB AT STA. 805+63.85
(D) END TRAIL LSB AT STA. 805+63.85

CR 53
804+04.43 - 806+16.83



CR 53
806+16.83 - 806+94.31



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_TYP_P1.dgn 03/21/2016 1:43:50 PM

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

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SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

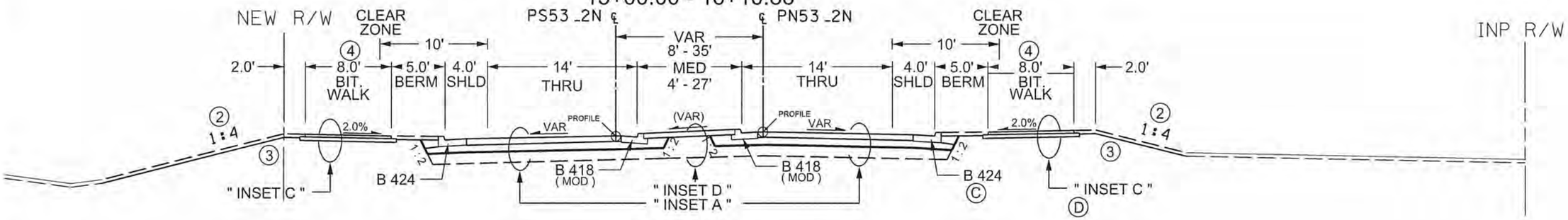
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

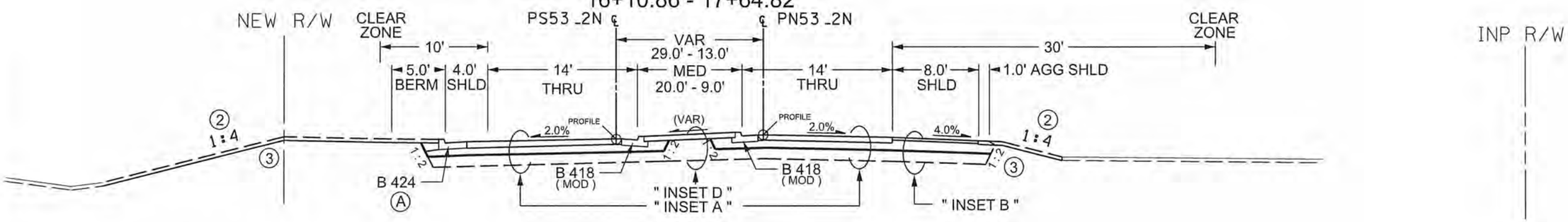
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
PROPOSED CSAH 18
SOUTH LEG

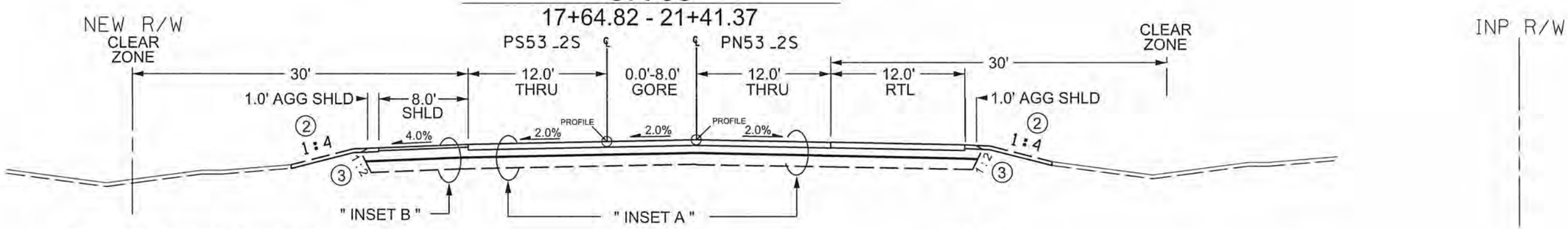
CR 53
15+00.00 - 16+10.86



CR 53
16+10.86 - 17+64.82



CR 53
17+64.82 - 21+41.37



*NOTE 8' SHLDR ENDS STA. 20+18.22
1' AGG SHLDR STA. 20+18.22 - STA. 21+41.37

NOTES:

ALL STATIONING FOR THESE SECTIONS BASED - OFF <PS53_2N> ALIGNMENT

1. SEE PROFILE & X-SECTIONS FOR SPECIAL - DITCH GRADES.
2. PLACE 4" TOPSOIL.
3. BACKFILL WITH SUITABLE GRADING MATERIAL.
4. SEE CONSTRUCTION PLAN SHEETS FOR WALK LOCATIONS . CL-5 EXTENDED 6" BEYOND EACH EDGE OF BITUMINOUS WALK.

A. END CURB LSB AT STA. 17+46.30
B. END TRAIL LSB AT STATION 15+39.38
C. END CURB LNB AT STA. 16+18.51
D. END TRAIL LNB AT STA 15+72.64

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_TYP_P1.dgn 03/21/2016 1:43:49 PM

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ANOKA COUNTY

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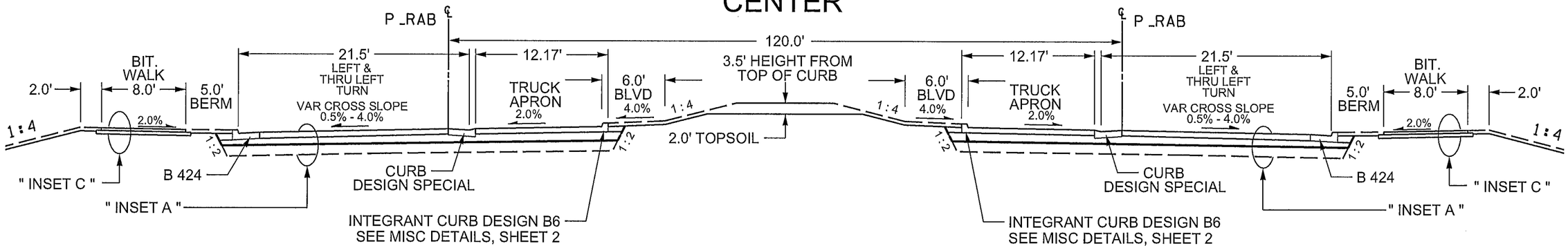
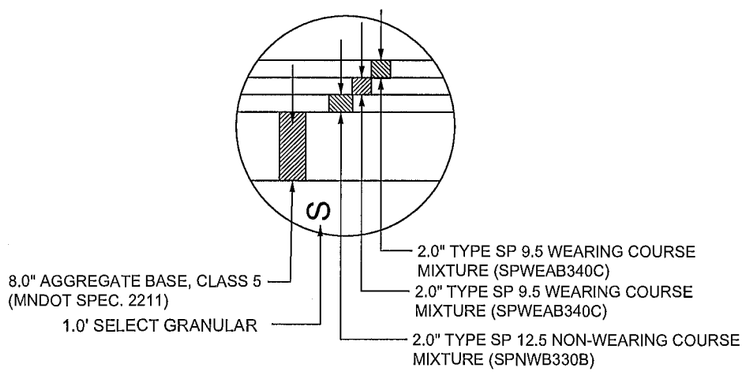
CITY OF LINO LAKES SAP 210-020-007

TYPICALS
PROPOSED CSAH 18
NORTH LEG

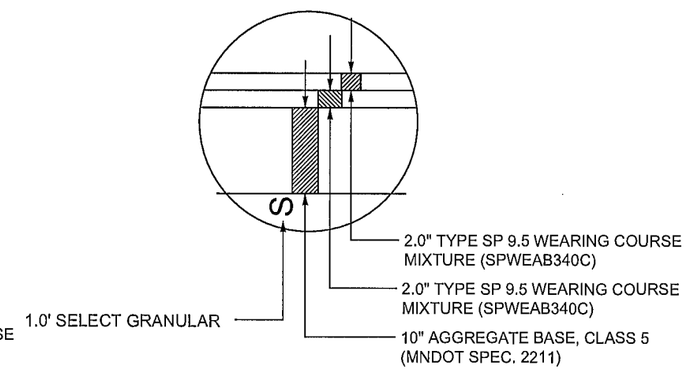
CSAH 12 & CSAH 53 ROUNDABOUT
CENTER



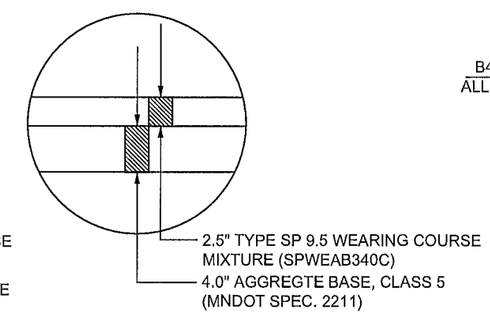
INSET "A" PAVEMENT DESIGN



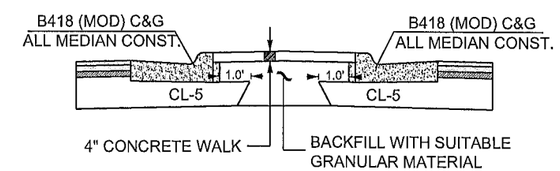
INSET "B" PAVEMENT DESIGN



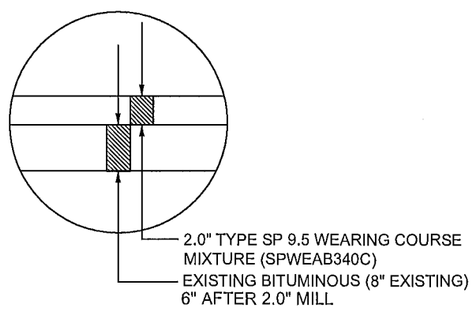
INSET "C" BITUMINOUS WALK / BITUMINOUS DRIVEWAYS



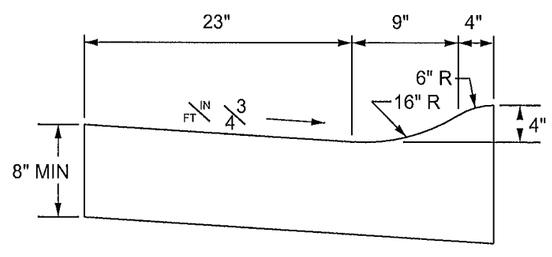
INSET "D" MEDIAN



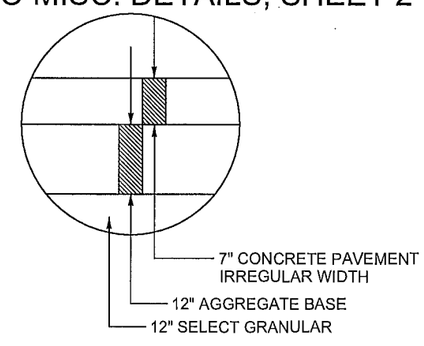
INSET "X" MILL / OVERLAY



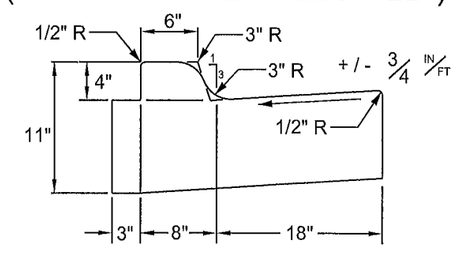
CURB DESIGN SPECIAL (NO VARIANCES ALLOWED)



TRUCK APRON SEE ALSO MISC. DETAILS, SHEET 2



MEDIAN B4 MODIFIED CURB & GUTTER (NO VARIANCES ALLOWED)



NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY

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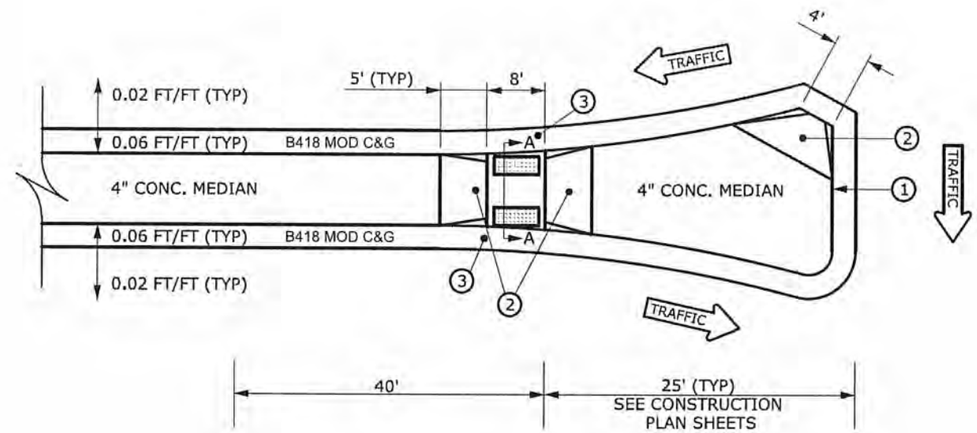
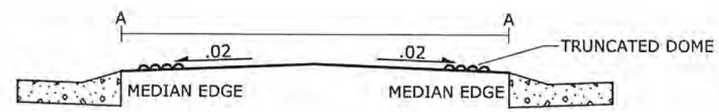
CITY OF LINO LAKES SAP 210-020-007

TYPICAL DETAILS





SPLITTER ISLAND DETAIL

NOTES: INSTALL PEDESTRIAN WALKWAY THROUGH MEDIAN. THE WALKWAY SHALL CUT THROUGH THE MEDIAN AT ROADWAY LEVEL. SEE STANDARD PLATE 7036 FOR DETAILS. USE TRUNCATED DOMES AT EACH CURB AND FLARED SIDES SHALL BE SLOPED AT 0.08 FT/FT AS SHOWN ON STANDARD PLATE 7036.

1. GUTTER SLOPE SHALL BE THE SAME AS ROADWAY SO THAT A LOW POINT IS NOT CREATED.
2. DESIGN 7113 APPROACH NOSE. PAID FOR AS CONCRETE WALK.
3. MAINTAIN GUTTER THRU MEDIAN OPENING.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_MISC DETAILS_1.dgn 03/22/2016 11:08:33 AM

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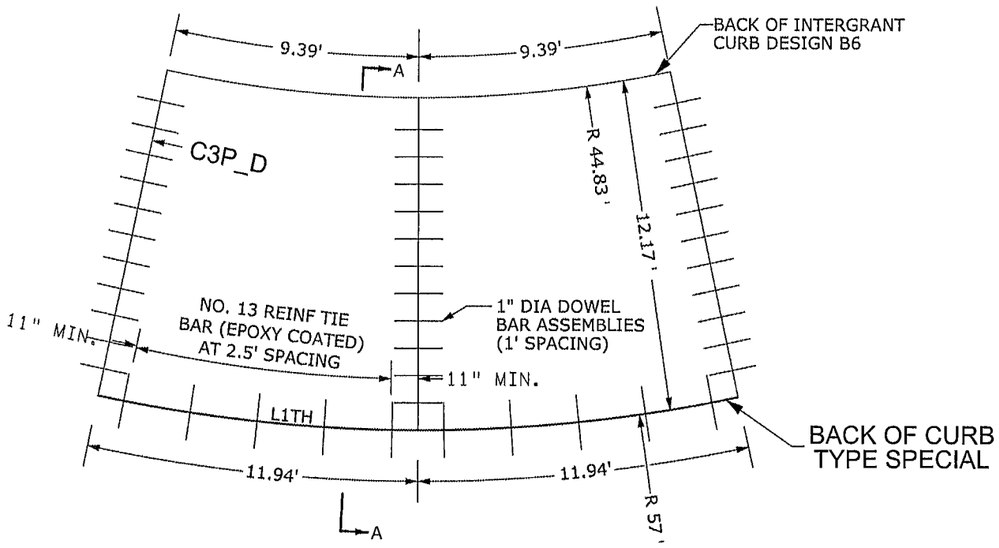
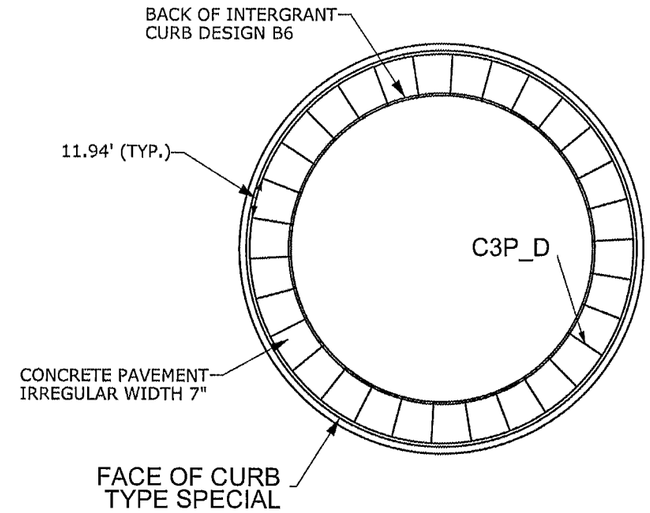
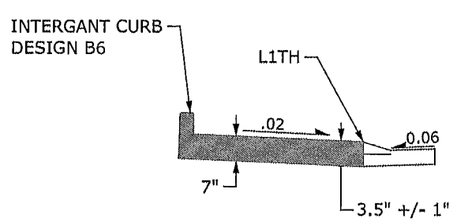
CITY OF LINO LAKES SAP 210-020-007

MISCELLANEOUS DETAILS





PLAN VIEW JOINT LAYOUT



SECTION A-A

CONCRETE PANELS & REBAR

(NOT TO SCALE)

GENERAL NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CURB AND GUTTER DETAILS.

DOWEL BAR ASSEMBLIES SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

TIE BARS:
USE NO. 13 BARS 2' LONG AT 2.5' SPACING.

C3P_D JOINT SHOULD EXTEND THROUGH INTERGRANT CURB B6.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_MISC DETAILS_2.dgn 03/21/2016 1:43:25 PM

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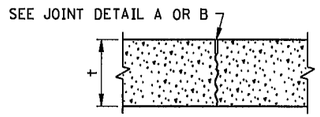
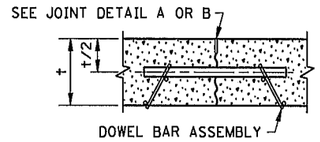
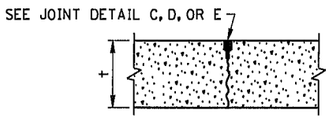
MISCELLANEOUS DETAILS



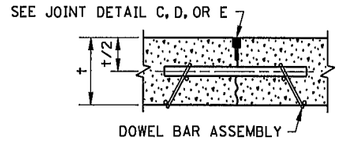
C1U & C2H



C1U-D & C2H-D



C3P, C4S, C5H



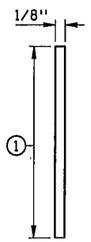
C3P-D, C4S-D, C5H-D

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

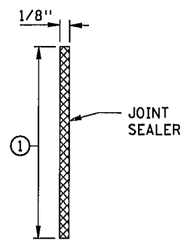
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

LEGEND — EXAMPLE: C2H-D

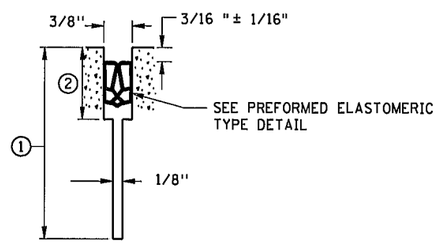
- C = CONTRACTION JOINT
- NO. = JOINT REFERENCE
- U = UNSEALED
- H = HOT POURED
- P = PREFORMED
- S = SILICONE
- -D = DOWEL BARS



JOINT DETAIL A
SAWED & UNSEALED



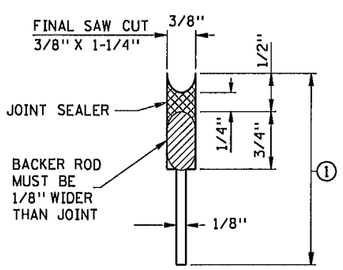
JOINT DETAIL B③
SAWED & SEALED



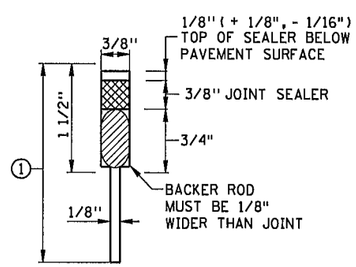
JOINT DETAIL C③
SAWED AND SEALED

DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS t	DOWEL BAR DIAMETER
LESS THAN 6"	NONE
6" - 6 1/2"	1" OR NONE
7" - 7 1/2"	1"
8" - 10"	1 1/4"
10 1/2" AND GREATER	1 1/2"



JOINT DETAIL D③④
SAWED AND SEALED



JOINT DETAIL E③⑤
SAWED AND SEALED

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS.

JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219, FOR CONCRETE MAINLINE/RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

① JOINT DEPTH SHALL BE:
FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS
FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS

② SEE CONTRACTION JOINT SEALER DETAIL.
WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.

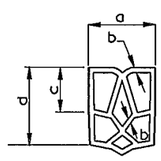
③ WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

④ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".

⑤ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



SPEC. REFERENCE 3721

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

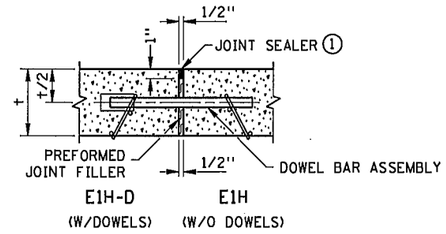
PREFORMED ELASTOMERIC TYPE DETAIL

EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

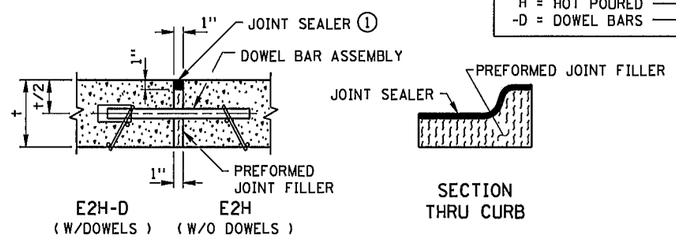
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"

LEGEND — EXAMPLE: E4H-D

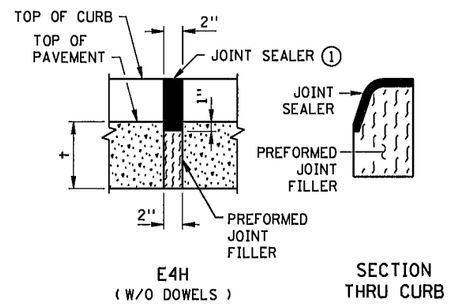
- E = EXPANSION JOINT
- NO. = JOINT REFERENCE
- H = HOT POURED
- -D = DOWEL BARS



JOINT DETAIL A



JOINT DETAIL B



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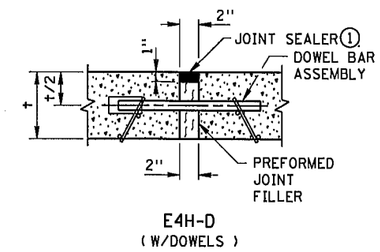
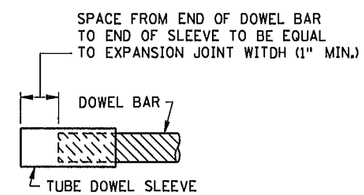


JOINT DETAIL D



DOWEL BAR SLEEVE DETAIL

NOTES:

PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

① JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE ±1/8".

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

CONTRACTION JOINTS
DESIGN C

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

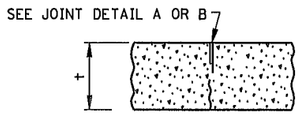
APPROVED: 8-6-2014

PAVEMENT JOINTS

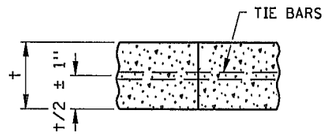
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

STANDARD PLAN 5-297.221 — 1 OF 2

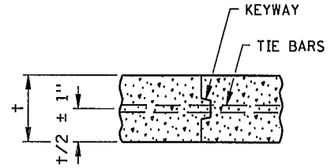
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



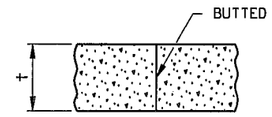
L1U & L1H①



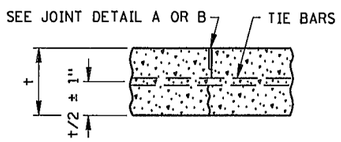
L2TU②



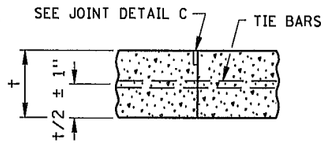
L2KTU③



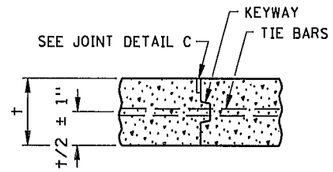
L3U



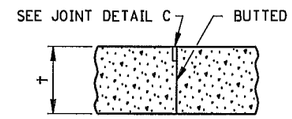
L1TU & L1TH①



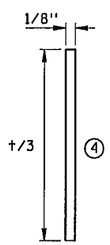
L2TH②



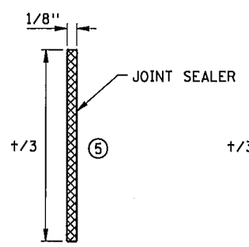
L2KTH③



L3H



JOINT DETAIL A
SAWED & UNSEALED



JOINT DETAIL B
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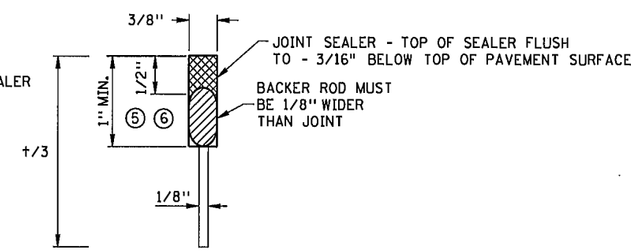
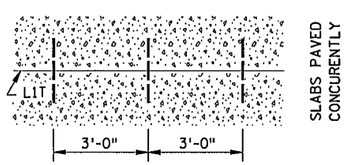
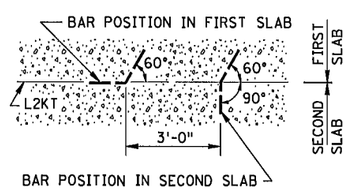


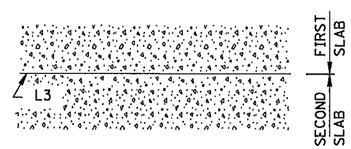
JOINT DETAIL C
SAWED & SEALED



L1T PAVING DETAIL



L2T & L2KT TIE BAR BENDING AND PAVING DETAIL



L3 PAVING DETAIL

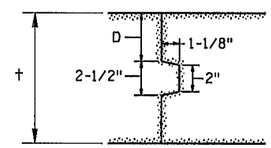
TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



PAVEMENT KEYWAY DETAIL

KEYWAY DIMENSION TABLE

t PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7" TO 7-1/2"	3"
8" TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" x 2" x 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.

LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"

LEGEND

L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
1 = PAVED CONSTRUCTION JOINT
2 = TIED/KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
K = KEYWAY
T = TIE BARS
U = UNSEALED
H = HOT POURED

EXAMPLE

L2KTH

NOTES:

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

WHEN CURB AND GUTTER IS PLACED ADJACENT TO CONCRETE MAINLINE, THE TIEBARS SHALL BE PLACED A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

① SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.

② CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

③ CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

④ THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

⑤ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

⑥ PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.

REVISION:
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

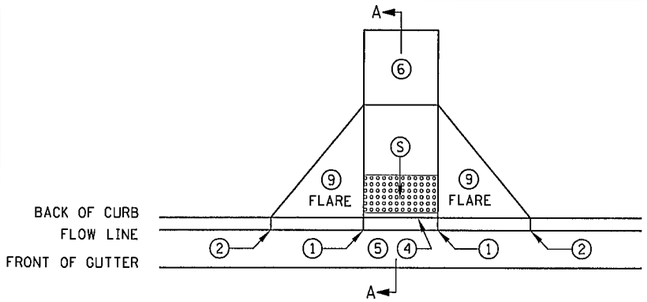
MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
STATE DESIGN ENGINEER
APPROVED: 8-6-2014

PAVEMENT JOINTS

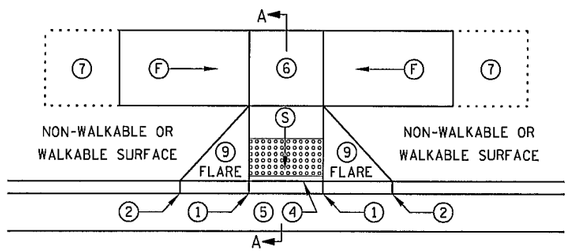
LONGITUDINAL (DESIGN L)

STANDARD PLAN 5-297.221 — 2 OF 2

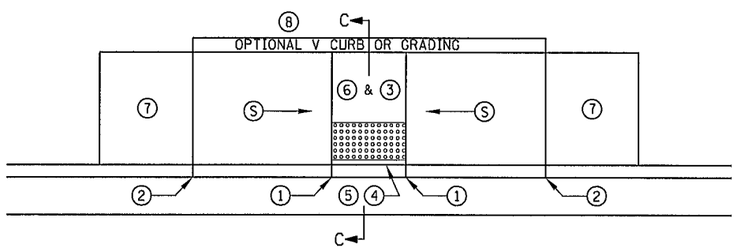
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



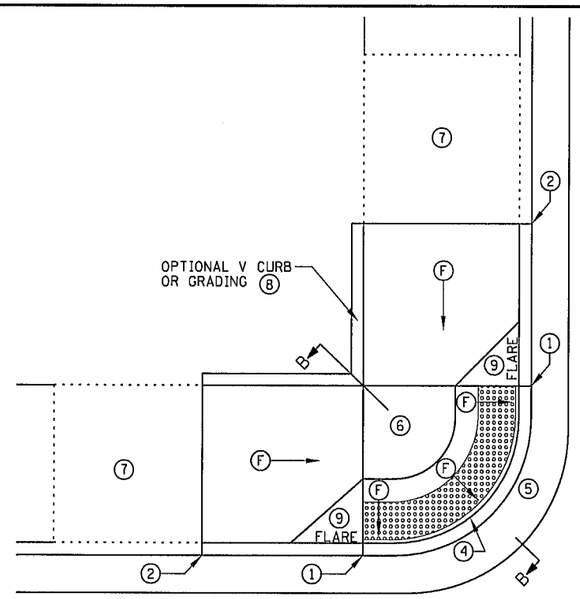
PERPENDICULAR



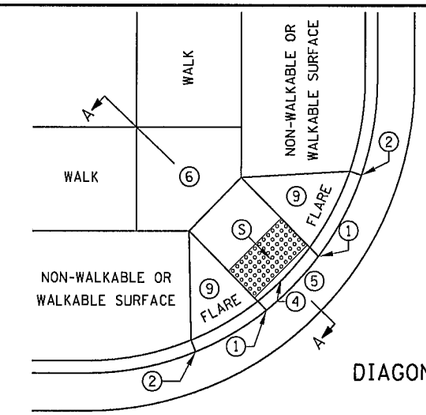
TIERED PERPENDICULAR



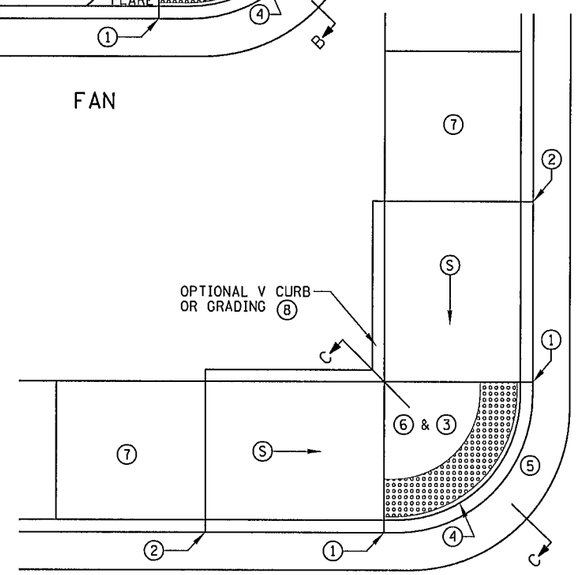
PARALLEL



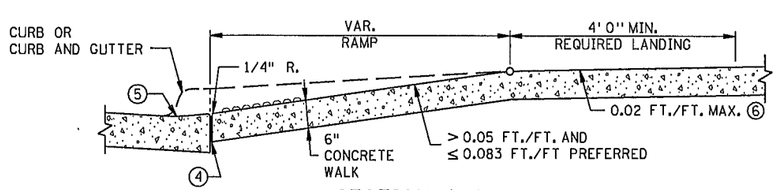
FAN



DIAGONAL 10

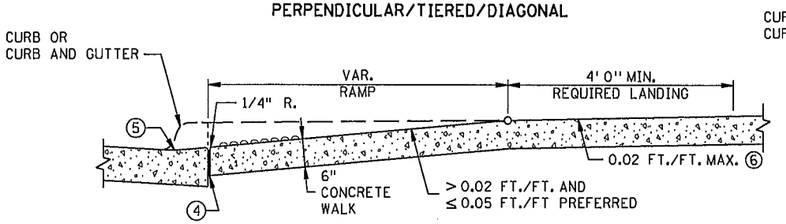


DEPRESSED CORNER



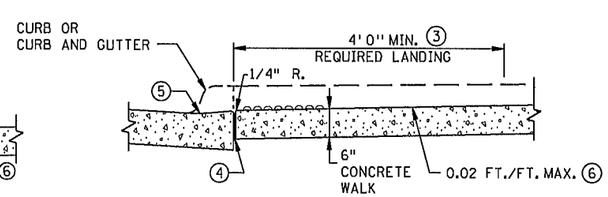
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



SECTION B-B

FAN



SECTION C-C

PARALLEL/DEPRESSED CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

1. 0" CURB HEIGHT.
2. FULL CURB HEIGHT.
3. DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
4. 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
5. SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
6. 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
7. IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
8. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
9. SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
10. DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

S — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

F — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISION:

APPROVED: 8-6-2014

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

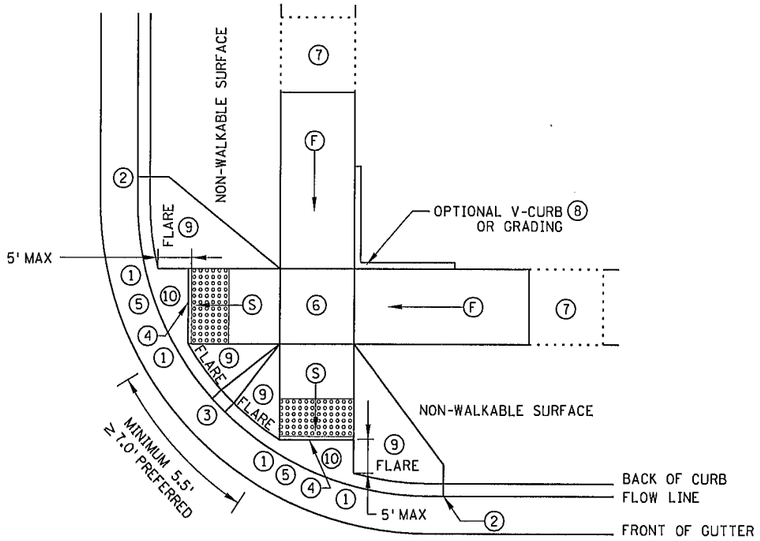
STATE DESIGN ENGINEER

APPROVED: 8-6-2014

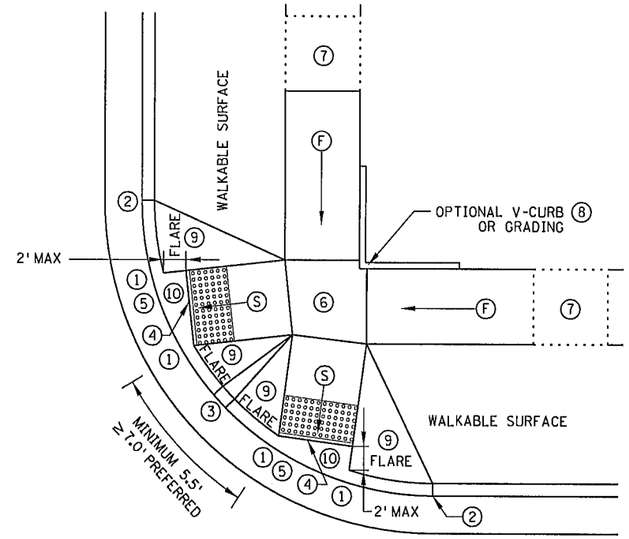
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 1 OF 5

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

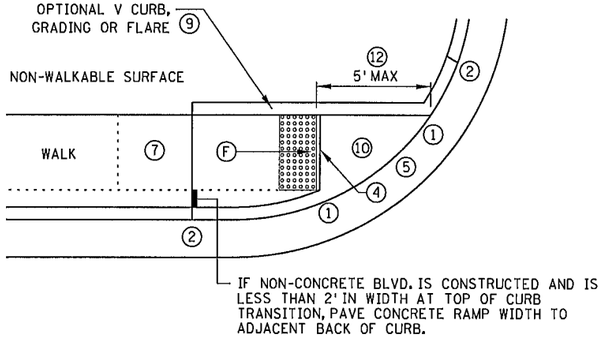


ADJACENT TO NON-WALKABLE SURFACE

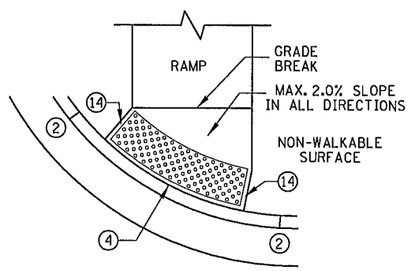


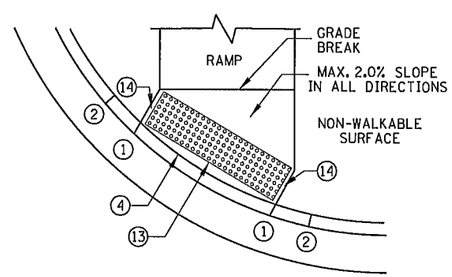
ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL ⑮

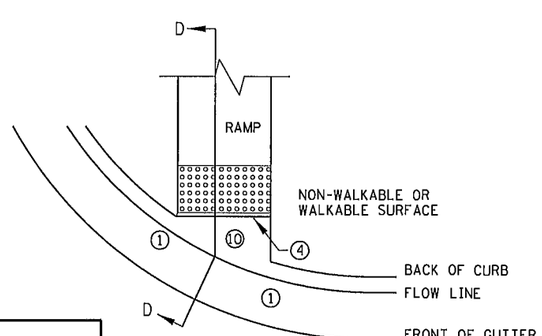


ONE-WAY DIRECTIONAL

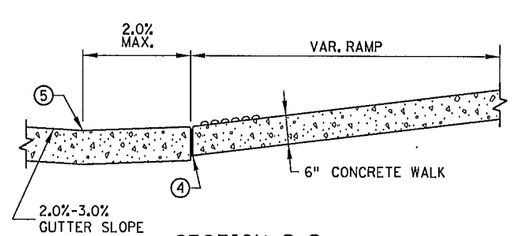




DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS ⑪



SECTION D-D

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 3" MINIMUM CURB HEIGHT, 4" PREFERRED.

④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.

⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

⑨ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

⑩ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑪ TO BE USED FOR ALL DIRECTIONAL RAMPS.

⑫ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑬ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑭ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑮ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

Ⓕ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISION:

APPROVED: 8-6-2014
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

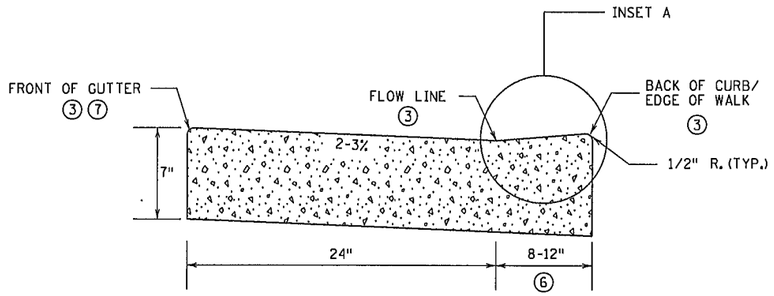
STATE DESIGN ENGINEER

APPROVED: 8-6-2014

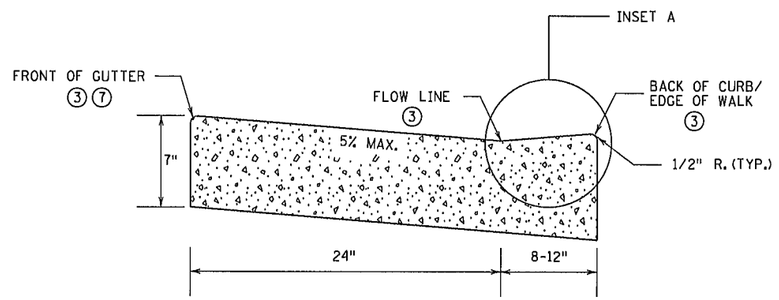
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 2 OF 5

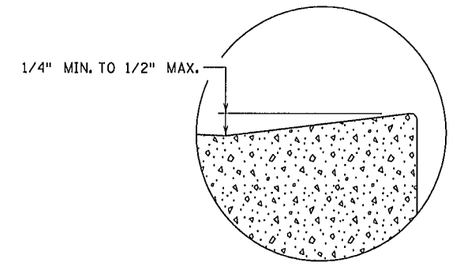
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



NON PERPENDICULAR ①

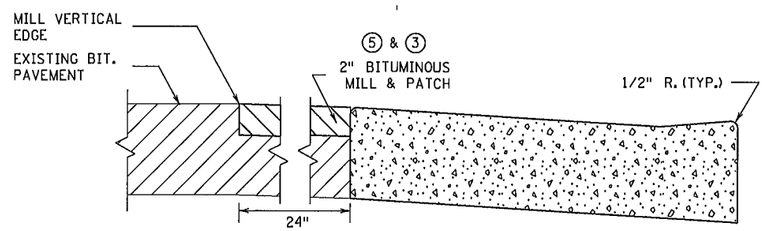


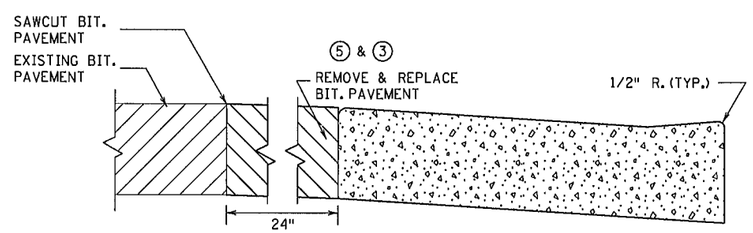
PERPENDICULAR ②

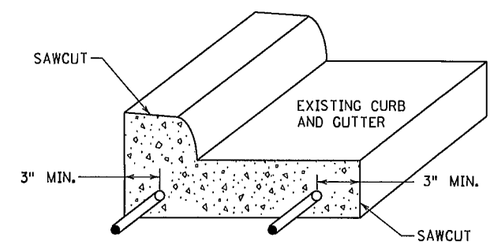


INSET A

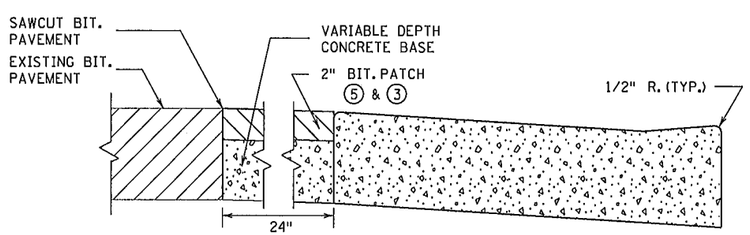
PEDESTRIAN ACCESS ROUTE
CURB & GUTTER DETAIL

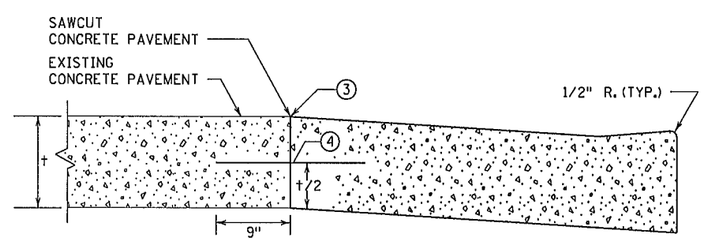






CURB AND GUTTER
REINFORCEMENT ⑧
FOR USE ON CURB RAMP RETROFITS





PAVEMENT TREATMENT OPTIONS
IN FRONT OF CURB & GUTTER
FOR USE ON CURB RAMP RETROFITS

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

REVISION:

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OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

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STATE DESIGN ENGINEER

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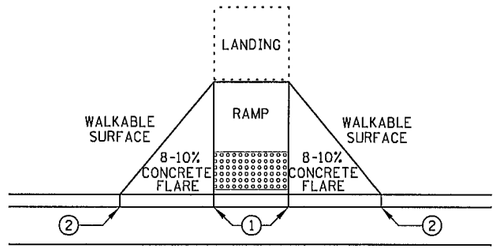
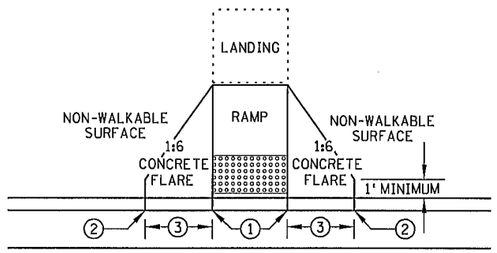
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 3 OF 5

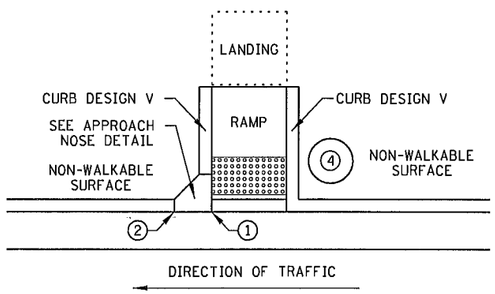
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



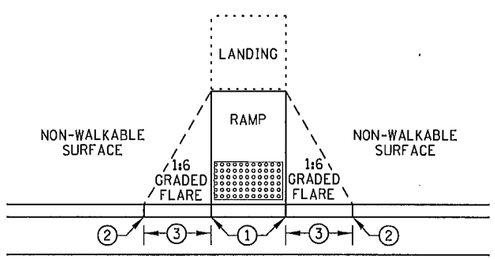
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

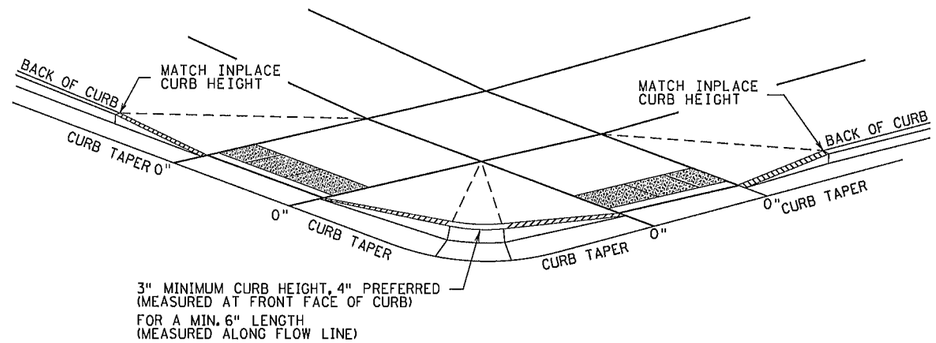


RETURNED CURB

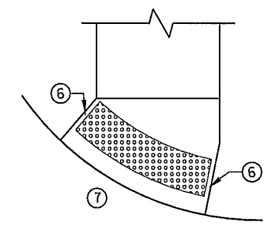


GRADED FLARES

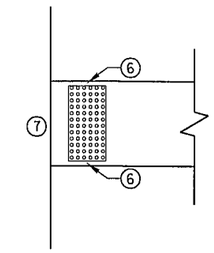
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

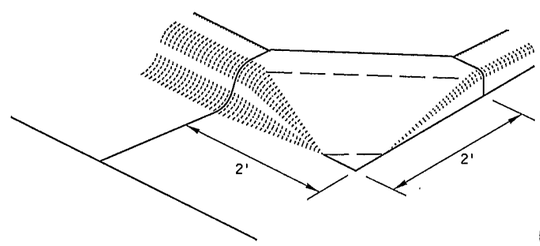


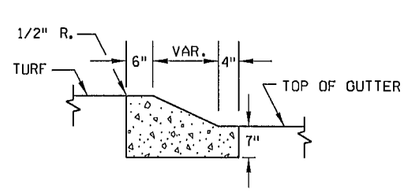
RADIAL DETECTABLE WARNING



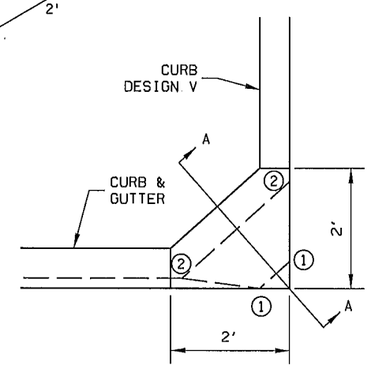
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A-A



APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

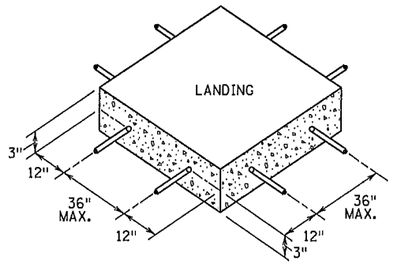
CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

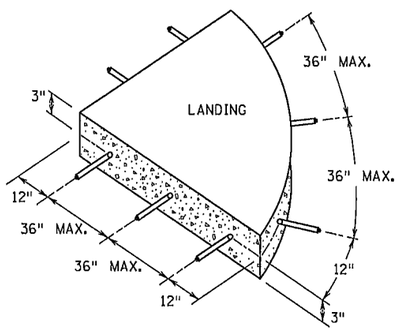
① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' - 3' FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

REVISION:
APPROVED: 8-6-2014
OPERATIONS ENGINEER

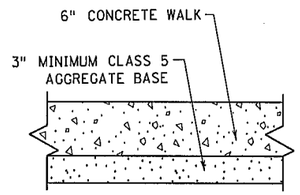
MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
STATE DESIGN ENGINEER
APPROVED: 8-6-2014

PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250 4 OF 5
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007
SHEET 42 OF 141

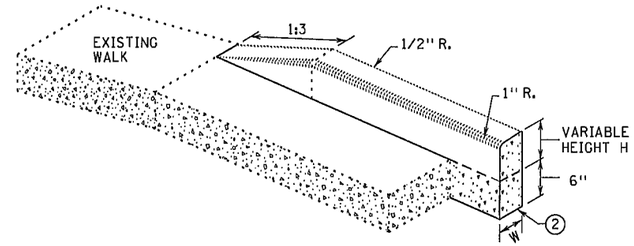




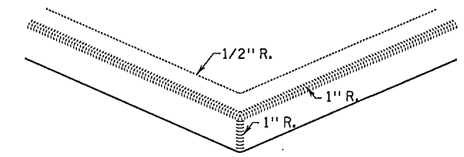
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

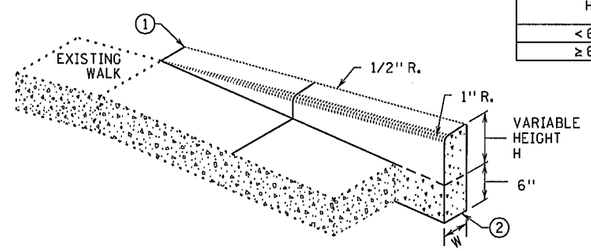


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

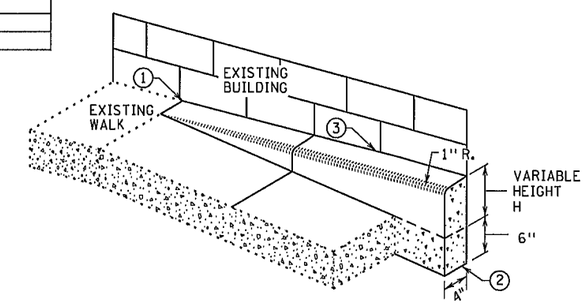


V CURB INTERSECTION

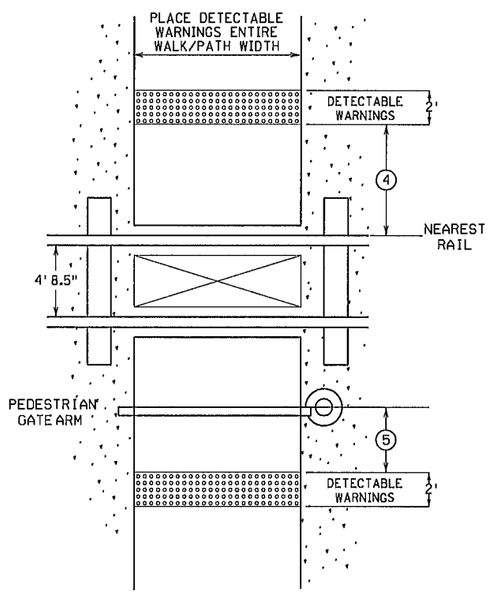
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



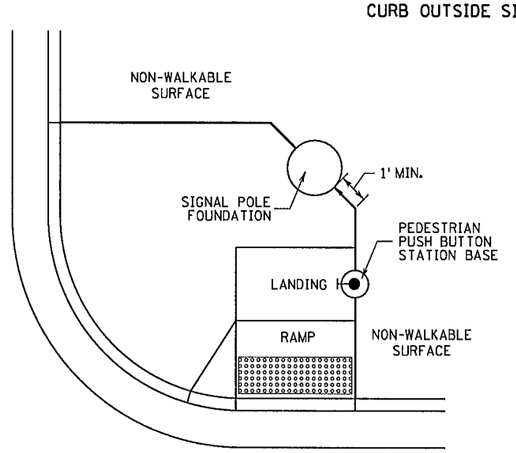
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING
OR BARRIER



RAILROAD CROSSING
PLAN VIEW



CONCRETE WALK EDGES ADJACENT
TO CONCRETE STRUCTURES

NOTES:

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.

⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).

⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

REVISION:
APPROVED: 2-9-2015
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
STATE DESIGN ENGINEER
APPROVED: 2-9-2015

PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250 5 OF 5
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007
SHEET 43 OF 141

EXISTING SIGN TAB — ES1

STATION	ALIGN	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL (1)	INSTALL SIGN TYPE SPECIAL (1)	SIGN NUMBER	SIGN LEGEND	NOTES
			EACH	EACH	EACH			
CSAH 12 (109TH AVE/APOLLO DR.)								
103+20	WB	RT	1			W3-1A	STOP AHEAD	2
106+00	WB	LT	1			R2-1	SL55	2
107+25	WB	LT	1			W1-2R	CURVE AHEAD	2
	WB	LT	1			W13-1	45MPH	2
107+90	WB	RT	1			W1-6	RIGHT ARROW	2
	WB	RT	2			X4-2	OBJECT MARKER	2
108+50	WB	RT	1			W1-6	RIGHT ARROW	2
	WB	RT	2			X4-2	OBJECT MARKER	2
109+75	WB	RT	1			M1-6A	53	2
	WB	RT	1			M2-1A	JCT	2
110+20	WB	LT	1			M1-1R	CURVE AHEAD	2
	WB	LT	1			W13-1	30MPH	2
111+60	WB	LT	1			M1-6A	12	2
	WB					M34A	WEST	2
111+90	WB	LT		1			CITY OF BLAINE ORD	2, 1
112+25	WB	RT	1			R1-1	STOP	2
	WB		1			M1-6A	53	2
	WB		1			M6-4A	DOUBLE ARROW	2
	WB		1			M1-6A	12	2
	WB		1			M6-1AL	ARROW	2
112+30	WB	LT	1			W1-6	ARROW	2
	WB	LT	2			X4-2	OBJECT MARKER	2
112+35	WB	LT	1			W1-6	ARROW	2
	WB	LT	2			X4-2	OBJECT MARKER	2
113+00	WB	RT		1			SUNSET AVE/109TH AVE	2, 1
113+70	WB	LT	1			R1-1	STOP	2
	WB	LT	1			M1-6A	12	2
	WB	LT	1			M6-1AL	ARROW	2
	WB	LT				M1-6	53	2
	WB	LT				M6-4A	DOUBLE ARROW	2
	WB	RT				R1-1	STOP	2
114+85	WB	RT				M1-6	12	2
	WB					M3-2A	EAST	2
116+00	WB	RT		1	1		MEADOW CT/APOLLO DR	2, 1
116+50	WB	RT	1			R1-1	STOP	2
116+80	WB	RT	1			R2-1	SL50	2
	WB	LT	1			R3-X1	RIGHT TURN LANE	2
118+25	WB	LT	1			M1-6	53	2
	WB	LT	1			M2-1A	JCT	2
121+50	WB	LT	1			W3-1a	STOP AHEAD	2
	WB	RT	1			W3-1a	STOP AHEAD	2
		TOTAL	36	3	1			

EXISTING SIGN TAB — ES2

STATION	ALIGN	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL (1)	INSTALL SIGN TYPE SPECIAL (1)	SIGN NUMBER	SIGN LEGEND	NOTES
			EACH	EACH	EACH			
CR53 (Sunset Ave)								
9+90	NB	LT	1			S3-1	SCHOOL BUS AHEAD	2
10+80	NB	LT	1			R2-1	SL45	2
11+50	NB	LT	1			M1-6	53	2
	NB					M3-3A	SOUTH	2
12+00	NB	RT	1			M1-6	12	2
	NB		1			M6-6AL	DOUBLE ARROW	2
12+70	NB	RT	1			W1-7	DOUBLE ARROW	2
	NB		2			X4-2	OBJECT MARKER	2
13+80	NB	LT	1				BUS STOP	2
	NB	LT	1			M1-6	12	2
	NB	LT	1			M1-6R	RIGHT ARROW	2
14+00	NB	RT	1			R3-X1	RIGHT TURN LANE	2
16+10	NB	RT	1			M1-6	12	2
	NB	RT	1			M6-1AR	RIGHT ARROW	2
17+00	NB	LT	1			W1-7	DOUBLE ARROW	2
	NB		2			X4-2	OBJECT MARKER	2
18+20	NB	RT	1			M1-6	53	2
	NB		1			M3-1A	NORTH	2
18+80	NB	RT	1			R2-1	SL45	2
	NB	LT	1			M6-6AL	12	2
	NB	LT	1			M1-6	DOUBLE ARROW	2
	NB	LT	1			M1-6	53	2
	NB	LT	1			M3-3A	SOUTH	2
	NB	LT	1			M6-3A	ARROW	2
21+20	NB	LT	1			M1-6	12	2
	NB		1			M2-1A	JCT	2
22+20	NB	RT	1			W14-3	NO PASSING ZONE	2
23+30	NB	RT		1	1		MARVY ST/ SUNSET AVE	2,1
24+00	NB	RT	1			R1-1	STOP	2
		TOTAL	29	7	3			
		PROJECT TOTAL	65	10	4			

NOTES:

1. SIGN TYPE SPECIAL ARE TO REMAIN VISIBLE AT ALL TIMES. SHALL BE PAID BY THE EACH, WHEN RELOCATION IS REQUIRED.
2. EXISTING ALIGNMENT AND STATIONING ARE FOR REFERENCE ONLY.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\0261213 Perm pvmt mrkg guide notes_guidelines.dwg, 03/21/2016 3:45:33 PM

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

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: LICENSE NO. 20235

DRAWN BY JB DATE 02/29/16

DESIGN BY JB DATE 02/29/16

CHECKED BY ST DATE 03/03/16

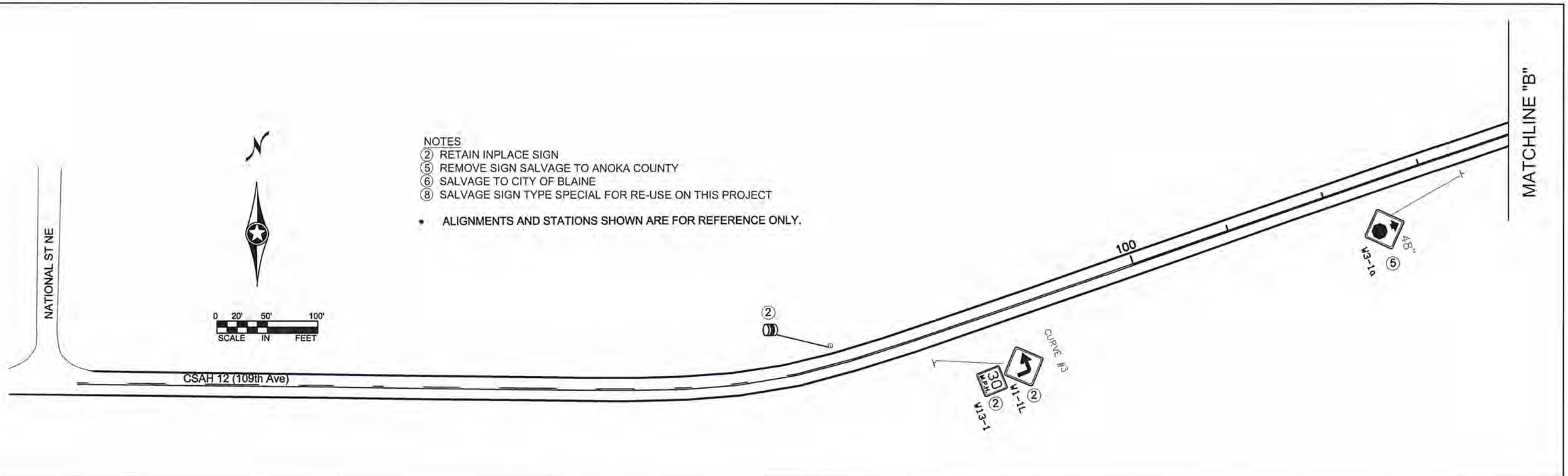
ANOKA COUNTY HIGHWAY DEPT.

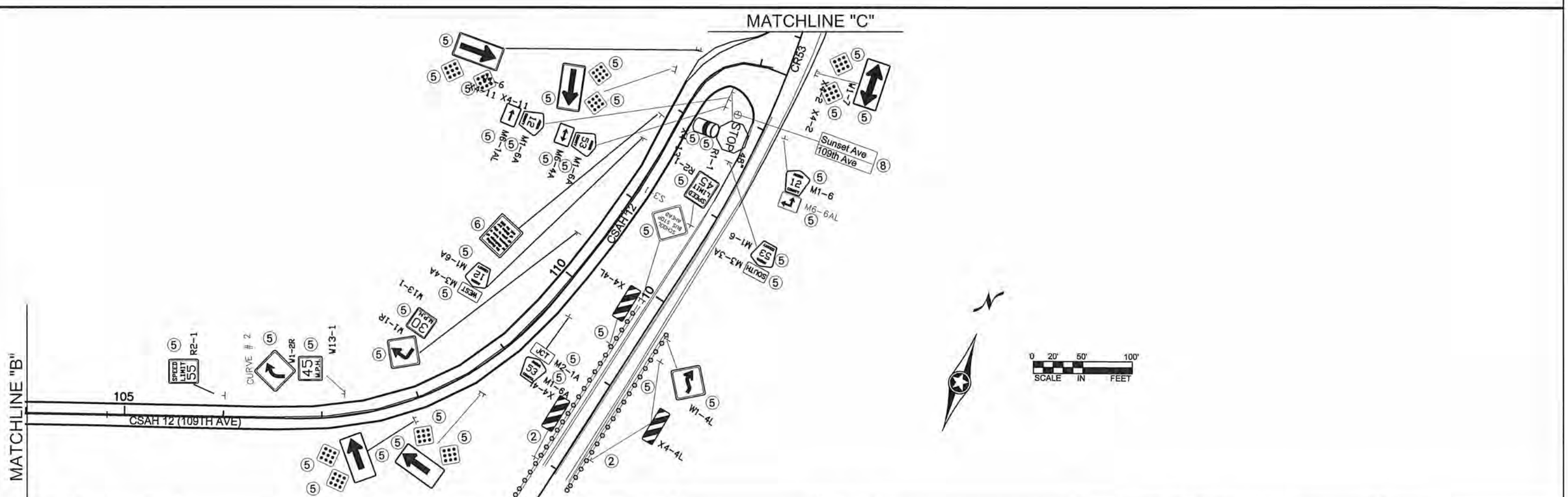
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING SIGN TABULATION

NOTES
② RETAIN INPLACE SIGN
⑤ REMOVE SIGN SALVAGE TO ANOKA COUNTY
⑥ SALVAGE TO CITY OF BLAINE
⑧ SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT

• ALIGNMENTS AND STATIONS SHOWN ARE FOR REFERENCE ONLY.





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\Existing Signing & Striping.dwg, 03/21/2016 3:48:11 PM

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.

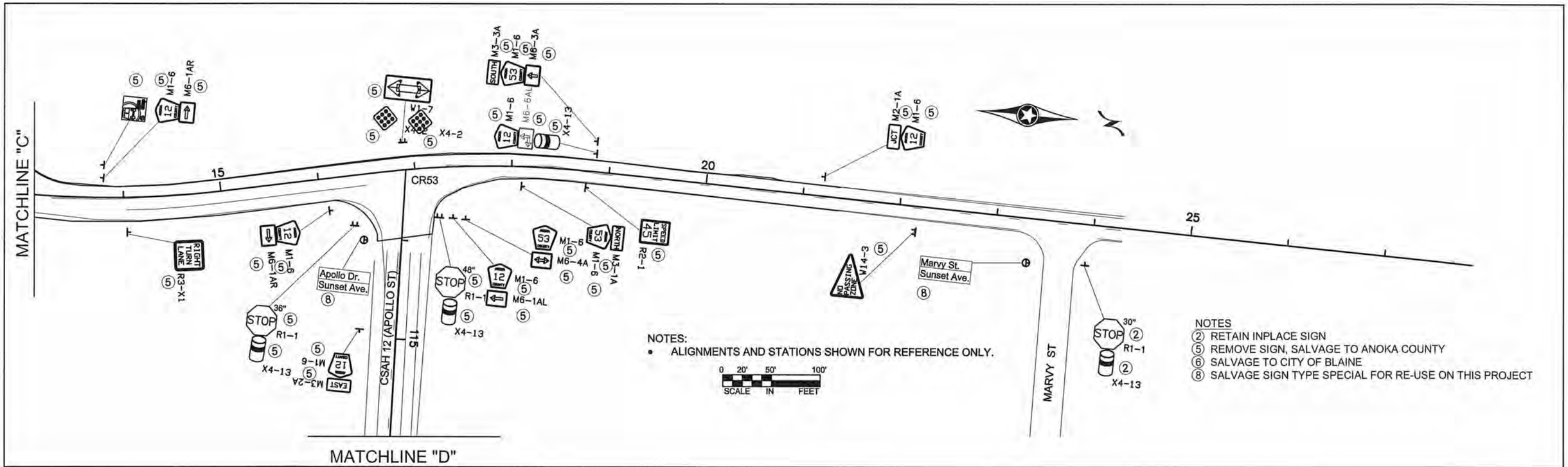
PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 4/1/16 REG. NO. 20235

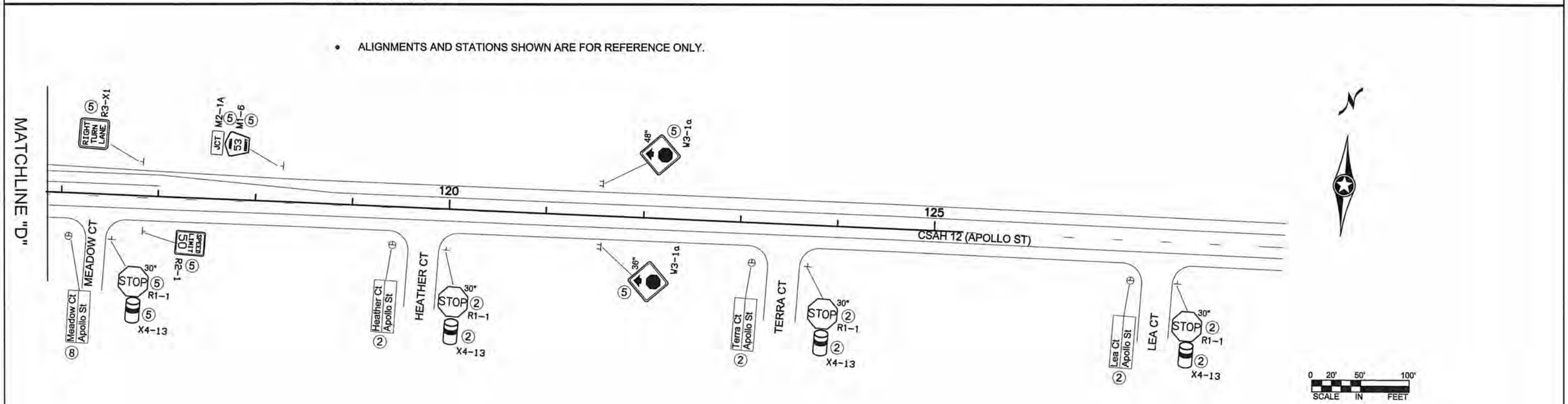
DRAWN BY JB DATE 03/03/16
DESIGN BY JB DATE 03/03/16
CHECKED BY ST DATE 03/03/16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING SIGNING AND STRIPING





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\Existing Signing & Striping.dwg, 03/21/2016 3:48:54 PM

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.

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/1/16 REG. NO. 20235

DRAWN BY JB DATE 03/03/16

DESIGN BY JB DATE 03/03/16

CHECKED BY ST DATE 03/03/16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EXISTING SIGNING AND STRIPING

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\0261213_Detour.dwg, 04/05/2016 9:55:53 AM

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

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/5/16 LICENSE NO. 20235

DRAWN BY JJS DATE 12/31/15

DESIGN BY JJS DATE 12/31/15

CHECKED BY ST DATE 03/11/16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

Detour
CSAH 12/CR 53
Roundabout

DETOUR SIGNING TABULATION

DS

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"	ROAD WORK AHEAD	2
W20-2	48" x 48"	DETOUR AHEAD	2
W20-3	48" x 48"	ROAD CLOSED AHEAD	10
W20-100P	24" x 18"	500 FEET	4
W20-100P	24" x 18"	1000 FEET	4
M4-10R	48" x 18"	DETOUR	SEE NOTE 2
TYPE III	8 FOOT		2
M4-10L	48" x 18"	DETOUR	SEE NOTE 2
TYPE III	8 FOOT		2
R11-2	48" x 30"	ROAD CLOSED	SEE NOTE 2
TYPE III	8 FOOT		2
R11-3a	48" x 30"	ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY	SEE NOTE 2
TYPE III	8 FOOT		2
R11-3	48" x 30"	ROAD CLOSED 2 MILES AHEAD LOCAL TRAFFIC ONLY	SEE NOTE 2
TYPE III	8 FOOT		1

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
R11-3	48" x 30"	ROAD CLOSED 0.75 MILES AHEAD LOCAL TRAFFIC ONLY	SEE NOTE 2
TYPE III	8 FOOT		1
TYPE III	8 FOOT		2
TYPE III	8 FOOT		2
G20-X1	60" x 48"	ROAD CLOSED BEGINING XXXX	* 4
G20-X2	132" x 108"	12 ROAD CLOSED National St. To Sunset Ave. FOLLOW DETOUR	** 3
G20-X2	114" x 20"	G20-X2 BEGINS MM/DD/YY	3
G20-X2	132" x 108"	12 ROAD CLOSED Heather Ct. To Sunset Ave. FOLLOW DETOUR	** 1
G20-X2	114" x 20"	G20-X2 BEGINS MM/DD/YY	1
G20-X2	132" x 108"	53 ROAD CLOSED I-35W Bridge To Apollo Dr. FOLLOW DETOUR	** 1
G20-X2	114" x 20"	G20-X2 BEGINS MM/DD/YY	1
G20-X2	132" x 108"	53 ROAD CLOSED Apollo Dr. To I-35W Bridge FOLLOW DETOUR	** 1
G20-X2	114" x 20"	G20-X2 BEGINS MM/DD/YY	1

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
M4-6A	24" x 12"	END DETOUR ANOKA 53 COUNTY	2
M4-8A	24" x 12"		
M1-6A	24" x 24"		
M4-6A	24" x 12"	END DETOUR ANOKA 12 COUNTY	2
M4-8A	24" x 12"		
M1-6A	24" x 24"		
M4-8A	24" x 12"	DETOUR SOUTH ANOKA 53 COUNTY	M5-1AR 2
M3-4A	24" x 12"		M6-1AR 2
M1-6A	24" x 24"		M5-1AL 2
	21" x 15"		M6-1AL 2
			M6-3A 5
M4-8A	24" x 12"	DETOUR NORTH ANOKA 53 COUNTY	M5-1AR 2
M3-4A	24" x 12"		M6-1AR 2
M1-6A	24" x 24"		M5-1AL 3
	21" x 15"		M6-1AL 2
			M6-3A 6
M4-8A	24" x 12"	DETOUR WEST ANOKA 12 COUNTY	M5-1AR 2
M3-2A	24" x 12"		M6-1AR 2
M1-6A	24" x 24"		M6-3A 8
	21" x 15"		
M4-8A	24" x 12"	DETOUR EAST ANOKA 12 COUNTY	M5-1AR 2
M3-2A	24" x 12"		M6-1AR 2
M1-6A	24" x 24"		M5-1AL 3
	21" x 15"		M6-1AL 2
			M6-3A 9
CMS		CMS	*** 4

NOTES:

1) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED JANUARY,2014.

2) ALL TYPE III BARICADES SHALL BE REFLECTORIZED OM BOTH SIDES. BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE M.U.T.C.D.

* SIGN TO BE INSTALLED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION.

** INSTALL G20-X2 SIGNS 10 DAYS PRIOR WITH BEGIN/DATE PLATE. REMOVE PLATE AT START DATE OF CONSTRUCTION SO SIGN READS "FOLLOW DETOUR"

*** SIGN TO BE INSTALLED A MINIMUM OF TEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION. PAID UNDER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN, U DAY (80)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\0261213_DetourQty.dwg, 04/05/2016 10:02:16 AM

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.

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/5/16 REG. NO. 20235

DRAWN BY JJS DATE 12/31/15

DESIGN BY JJS DATE 12/31/15

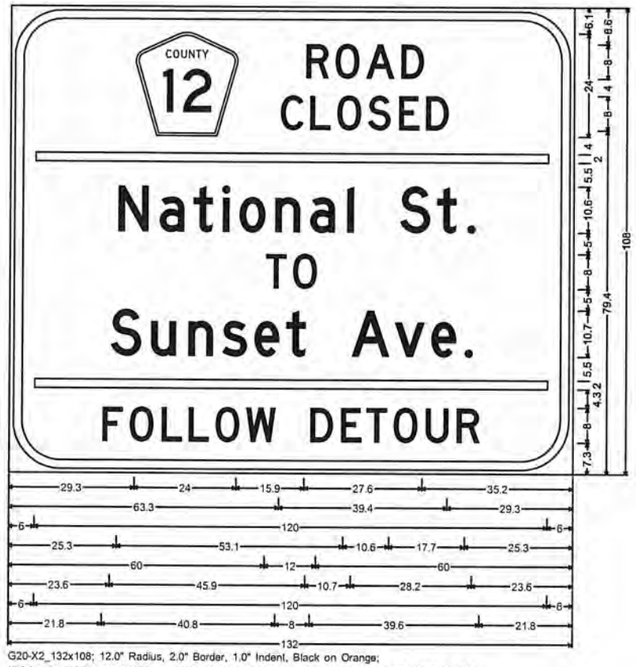
CHECKED BY ST DATE 03/11/16

ANOKA COUNTY

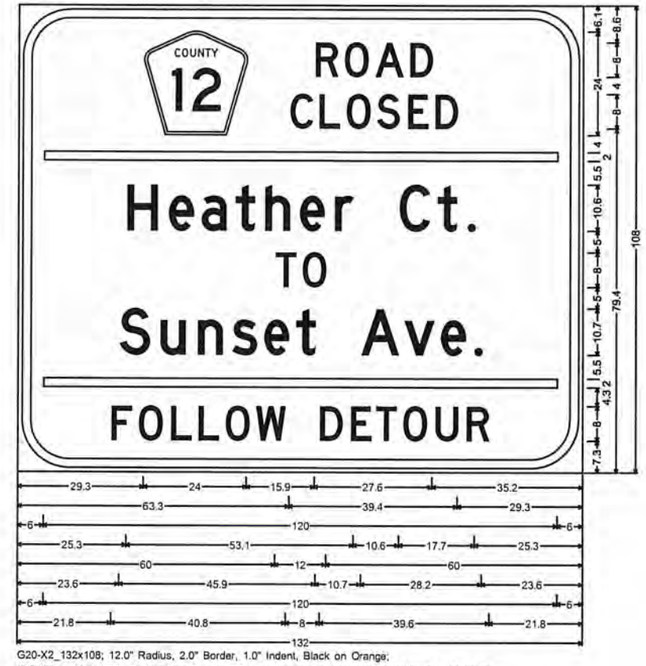
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

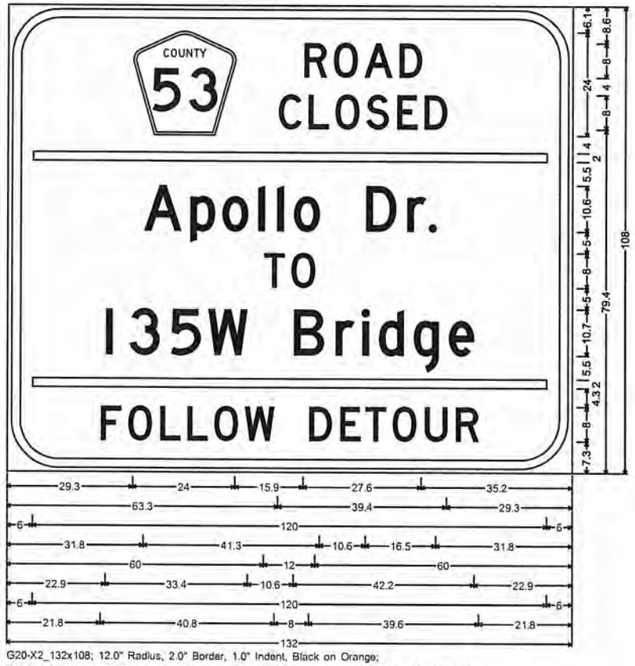
Detour
CSAH 12/CR 53 Roundabout
Quantity Sheet



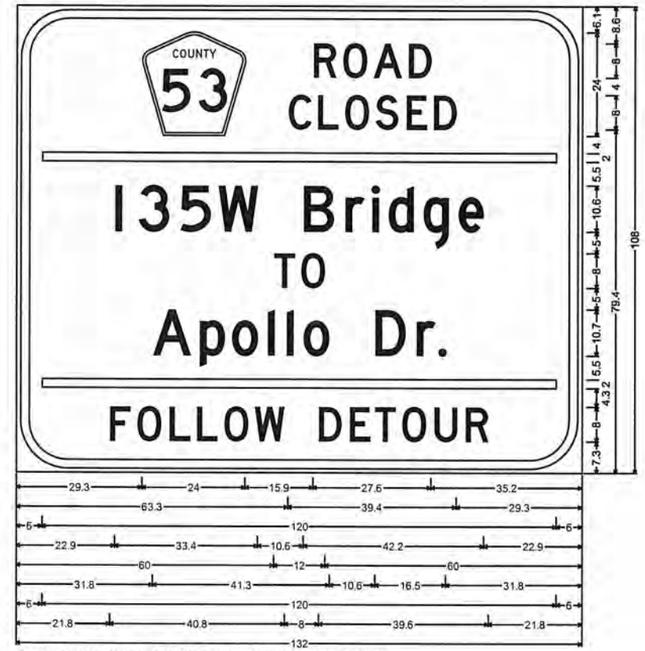
G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [Heather Ct.] D; [TO] D; [Sunset Ave.] D; [FOLLOW] D; [DETOUR] D;



G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [Heather Ct.] D; [TO] D; [Sunset Ave.] D; [FOLLOW] D; [DETOUR] D;



G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [Apollo Dr.] D; [TO] D; [I35W Bridge] D; [FOLLOW] D; [DETOUR] D;



G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [I35W Bridge] D; [TO] D; [Apollo Dr.] D; [FOLLOW] D; [DETOUR] D;

NO	DATE	BY	CKD	APPR	REVISION

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.

PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 4/5/16 REG. NO. 20235

DRAWN BY JJS DATE 12/31/15
DESIGN BY JJS DATE 12/31/15
CHECKED BY ST DATE 03/11/16

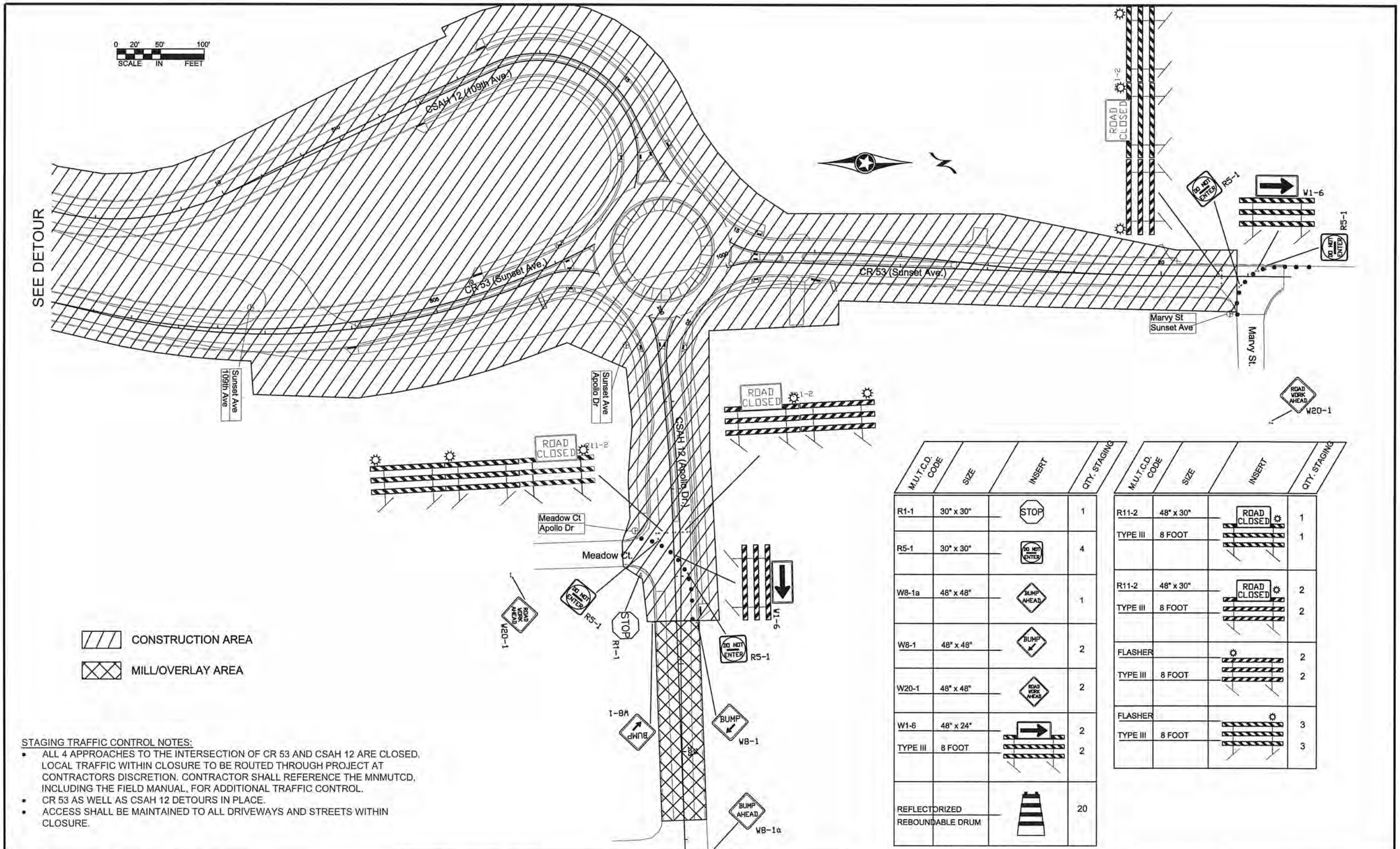
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

Detour
CSAH 12/CR 53 Roundabout
Quantity Sheet

Sheet 49 of 141 Sheets

FILENAME: W:\2012-13\Base\TRAFFIC\0261213_DetourQty.dwg, 04/05/2016 9:51:48 AM



M.U.T.C.D. CODE	SIZE	INSERT	QTY. STAGING
R1-1	30" x 30"	STOP	1
R5-1	30" x 30"	DO NOT ENTER	4
W8-1a	48" x 48"	BUMP AHEAD	1
W8-1	48" x 48"	BUMP	2
W20-1	48" x 48"	ROAD WORK AHEAD	2
W1-6	48" x 24"		2
TYPE III	8 FOOT		2
REFLECTORIZED REBOUNDABLE DRUM			20

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STAGING
R11-2	48" x 30"	ROAD CLOSED	1
TYPE III	8 FOOT		1
R11-2	48" x 30"	ROAD CLOSED	2
TYPE III	8 FOOT		2
FLASHER			2
TYPE III	8 FOOT		2
FLASHER			3
TYPE III	8 FOOT		3

STAGING TRAFFIC CONTROL NOTES:

- ALL 4 APPROACHES TO THE INTERSECTION OF CR 53 AND CSAH 12 ARE CLOSED. LOCAL TRAFFIC WITHIN CLOSURE TO BE ROUTED THROUGH PROJECT AT CONTRACTORS DISCRETION. CONTRACTOR SHALL REFERENCE THE MNMUTCD, INCLUDING THE FIELD MANUAL, FOR ADDITIONAL TRAFFIC CONTROL.
- CR 53 AS WELL AS CSAH 12 DETOURS IN PLACE.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS WITHIN CLOSURE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\TC Staging.dwg, 3/3/2016 4:11:06 PM

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.

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/1/16 REG. NO. 20235

DRAWN BY S.T. DATE 02/29/16

DESIGN BY S.T. DATE 02/29/16

CHECKED BY R.B. DATE 03/03/16

ANOKA COUNTY

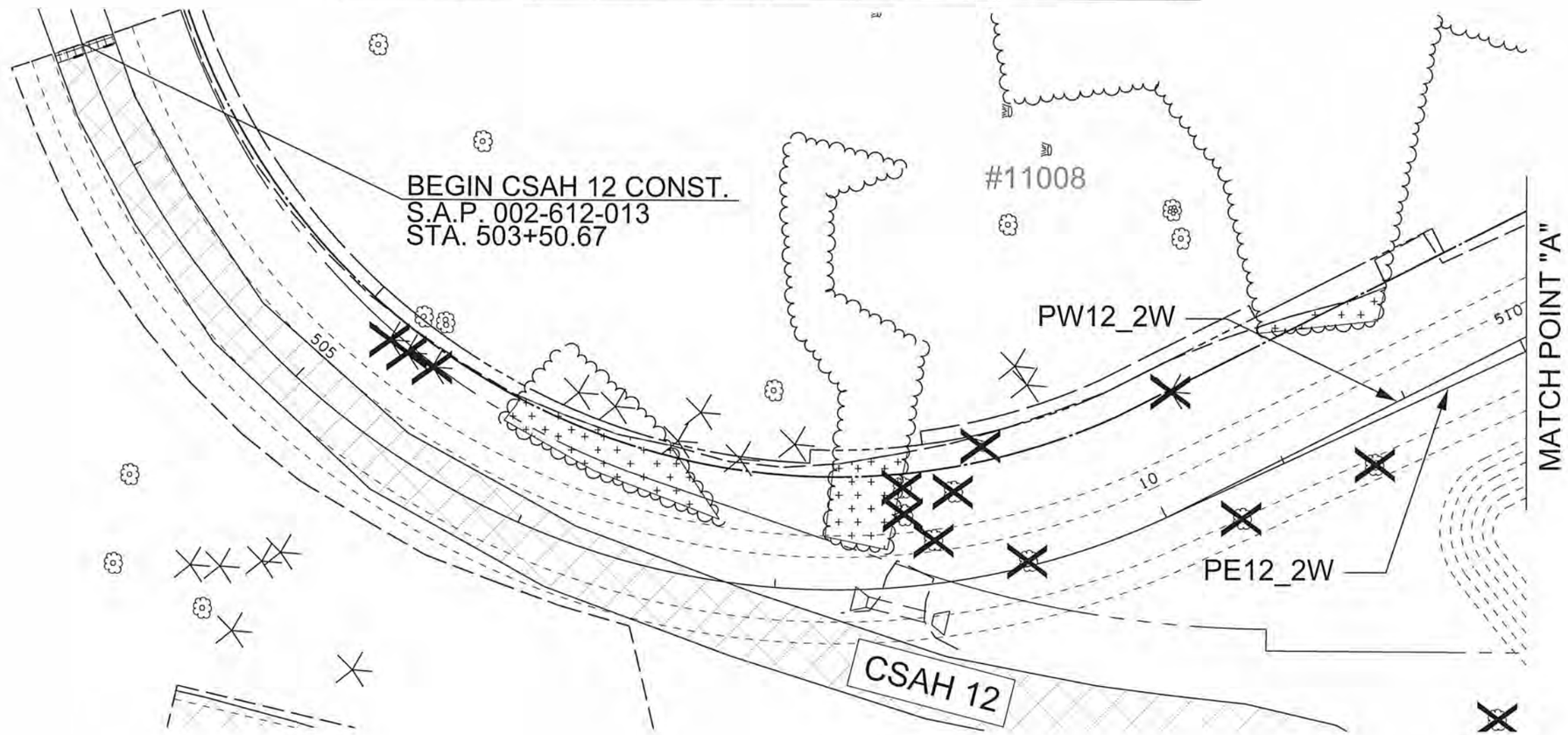
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

STAGING TRAFFIC CONTROL

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT

0 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_REM_P1.dgn 03/22/2016 11:12:24 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEQ DATE 01-15-16

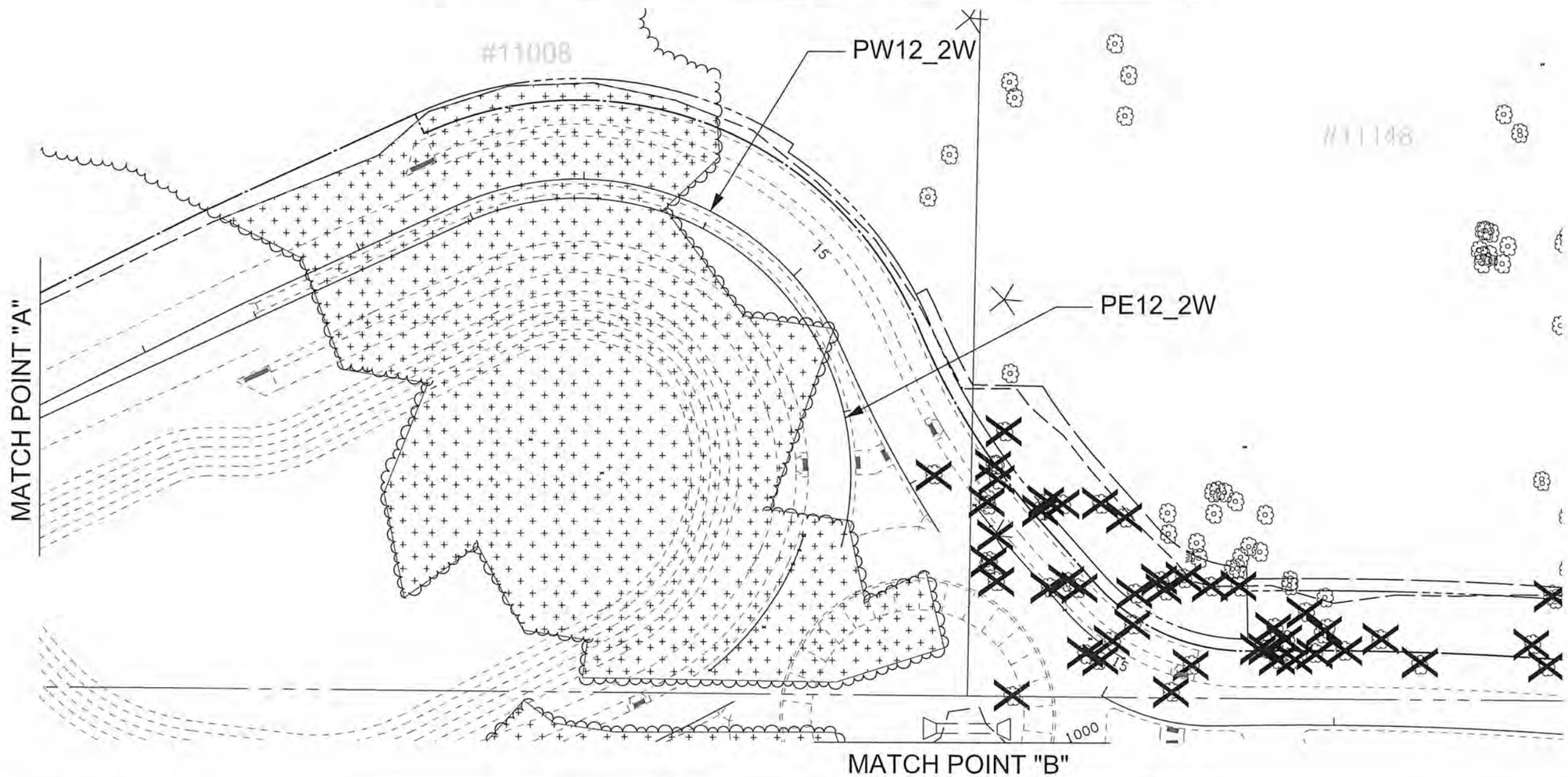
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

REMOVALS
WEST APPROACH
STA 503+50.67 TO STA 510+00.00

Sheet 51 of 141 Sheets

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_REM_P2.dgn 04/22/2016 1:10:14 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

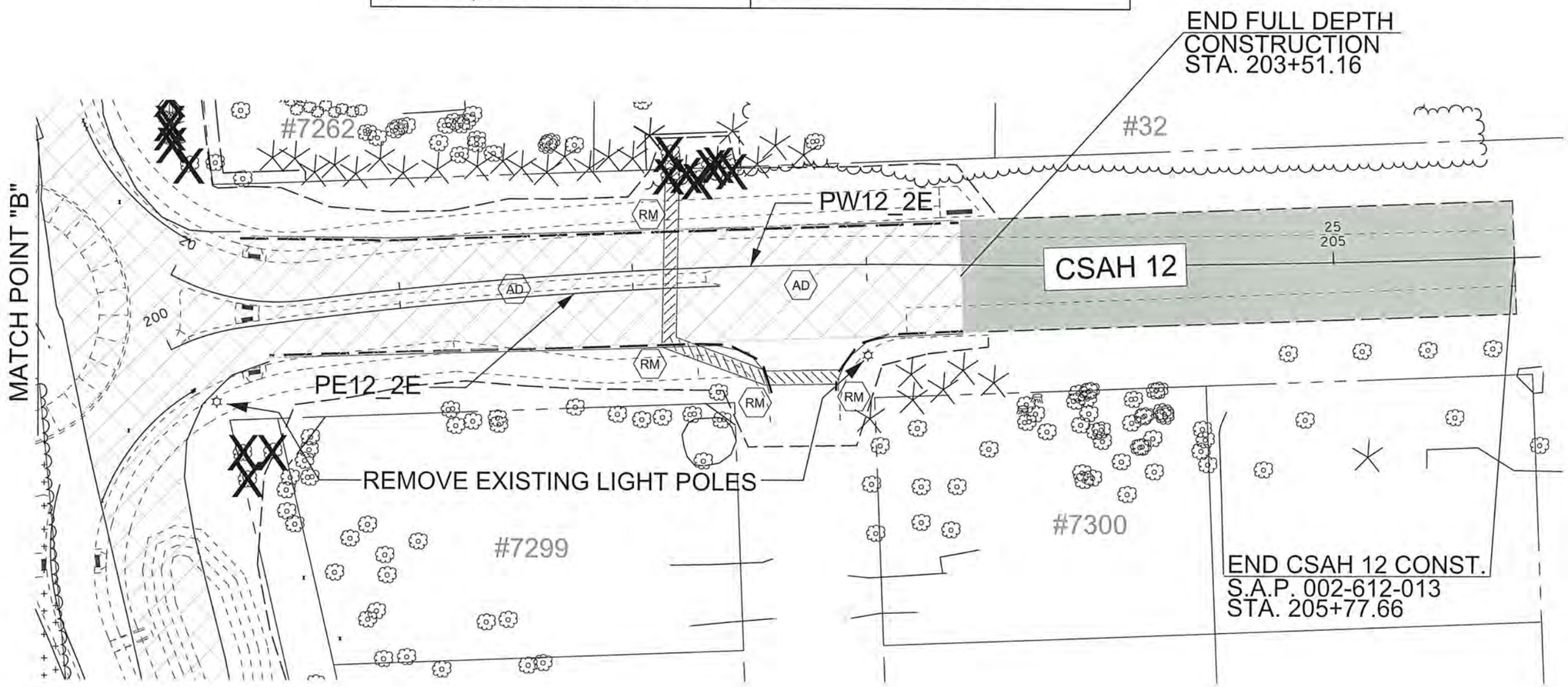
REMOVALS
WEST APPROACH CONT.
STA 510+00.00 TO STA 514+57.12

Sheet 52 of 141 Sheets

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT

N

0 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_REM_P3.dgn 03/21/2016 2:17:36 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

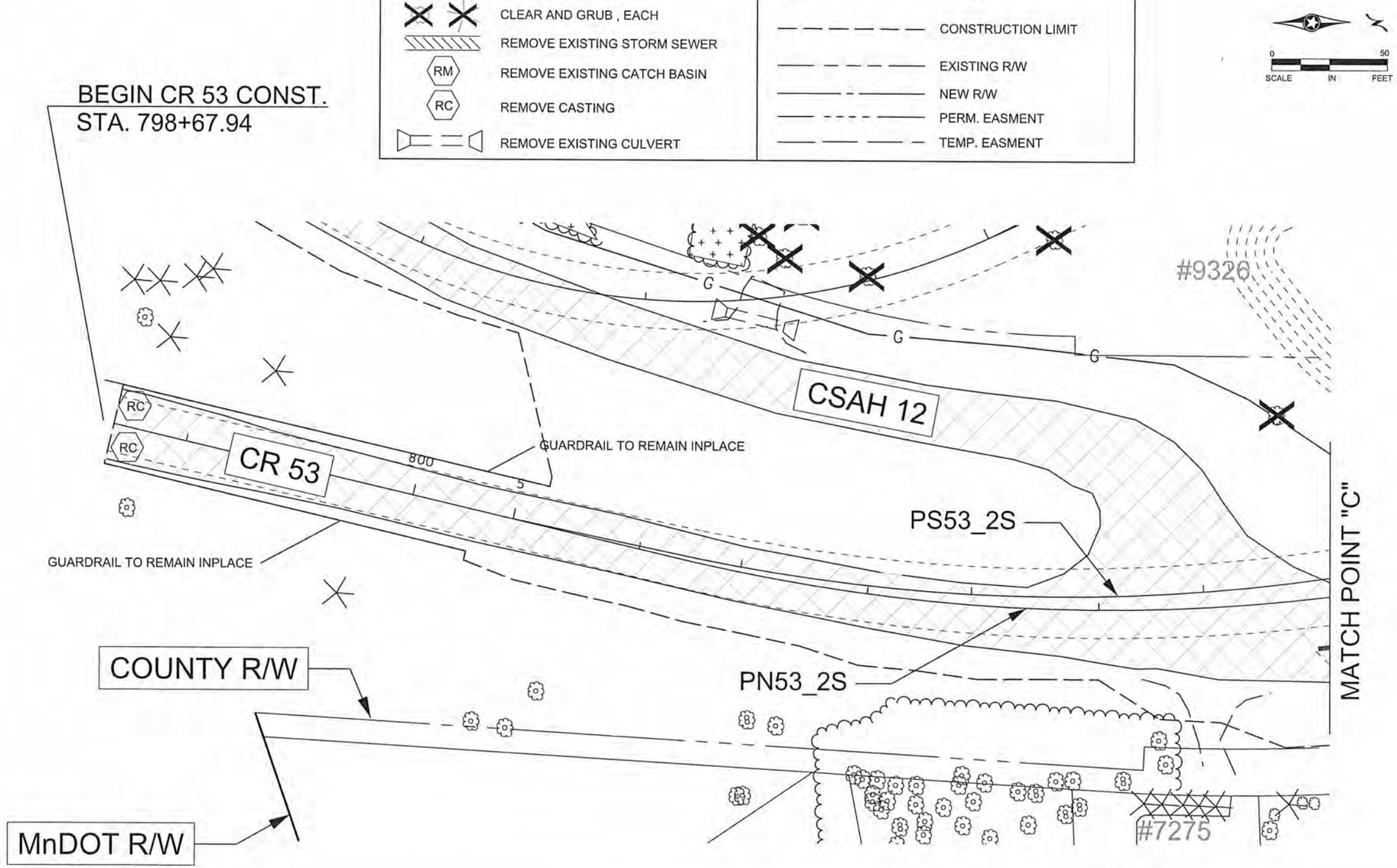
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

REMOVALS
EAST APPROACH
STA 200+00.00 TO STA 205+77.66

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT

0 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_REM_P4.dgn 03/21/2016 2:17:39 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

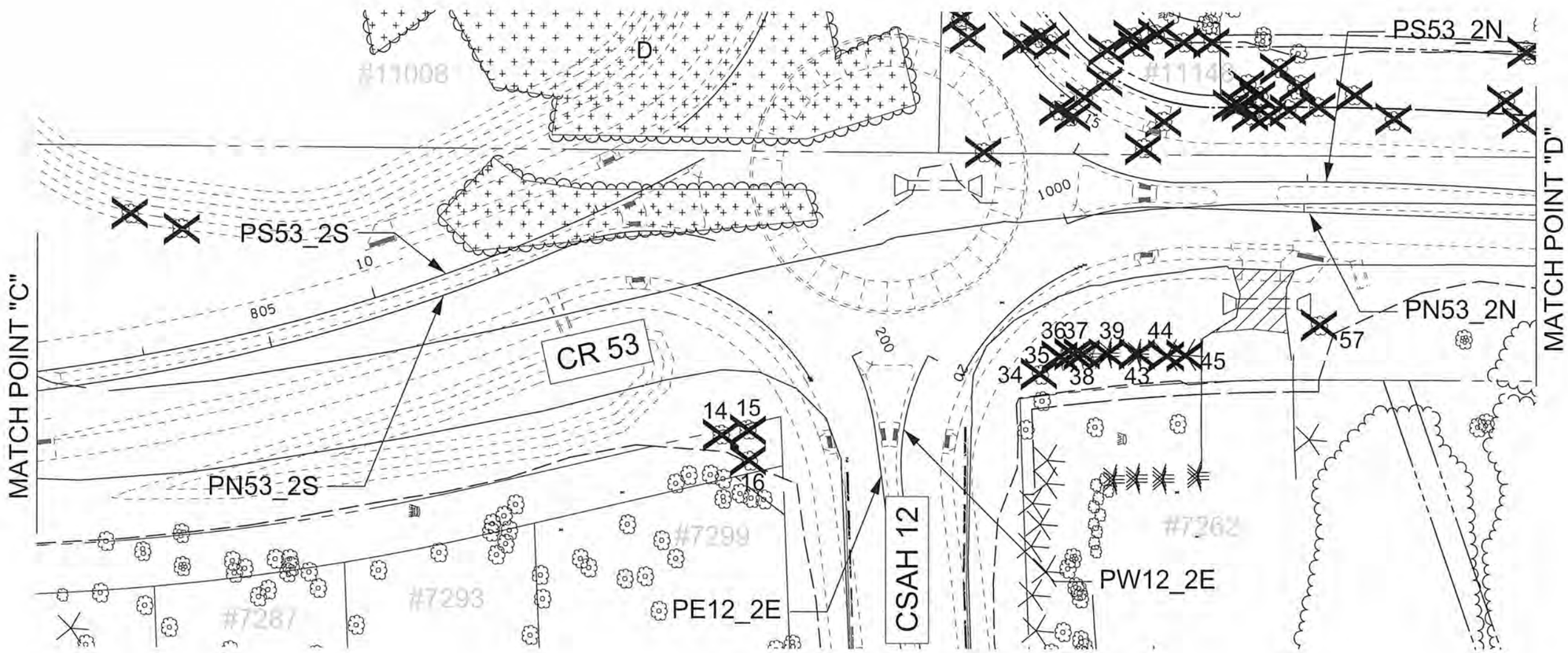
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

REMOVALS
SOUTH APPROACH
STA 798+67.94 TO STA 804+00.00

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT

0 50
SCALE IN FEET



5 OF 6

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_REM_P5.dgn 04/22/2016 1:11:03 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

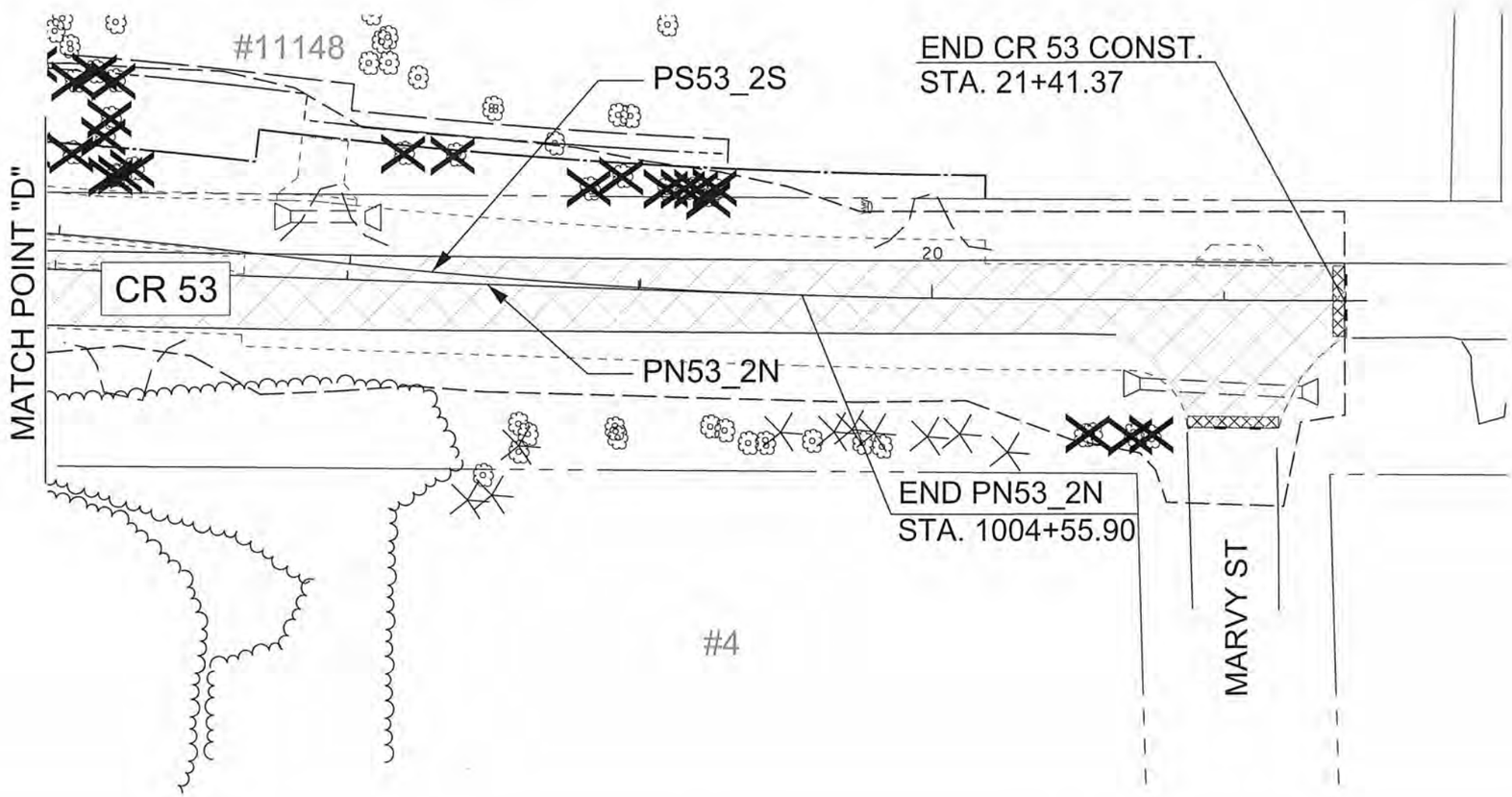
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

REMOVALS
CENTER
STA 804+00.00 TO STA 806+94.31
STA 1000+00.00 TO STA 1002+00.00

Sheet 55 of 141 Sheets

LEGEND	
PROPOSED CONSTRUCTION	2" MILL JOINT
BITUMINOUS PAVEMENT REMOVAL	REMOVE CURB & GUTTER
REMOVE BITUMINOUS DRIVEWAY	2" MILL BIT. MAINLINE
CLEAR AND GRUB , ACRE	SAWCUT
CLEAR AND GRUB , EACH	CONSTRUCTION LIMIT
REMOVE EXISTING STORM SEWER	EXISTING R/W
RM REMOVE EXISTING CATCH BASIN	NEW R/W
RC REMOVE CASTING	PERM. EASMENT
REMOVE EXISTING CULVERT	TEMP. EASMENT

0 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_REM_P6.dgn 03/21/2016 2:17:43 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

REMOVALS
NORTH APPROACH
STA 1002+00.00 TO STA 21+41.37

NOTE: RADIUS INFORMATION CAN BE FOUND ON PAGE 68

503+51

BEGIN CSAH 12 CONST.
S.A.P. 002-612-013
STA. 503+50.67

505+63

505+63

PE12_2W

PW12_2W

#11008

11+50

MATCH POINT "A"

509+56

PE12_2W

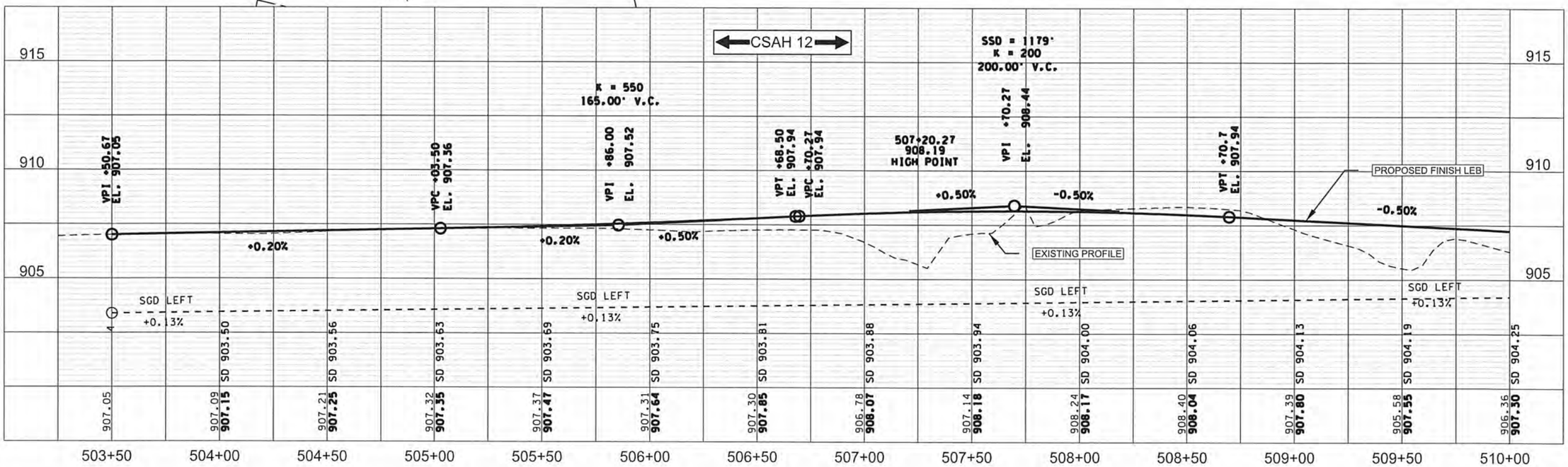
8.0' SHLD
12.0' THRU
12.0' THRU
8.0' SHLD

CONSTRUCTION NOTES:

- (A) 8' BITUMINOUS WALK
- (B) B418 MOD CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CURB TYPE SPECIAL
- (E) INTERGRANT CURB B6
- (F) 4" CONCRETE MEDIAN
- (G) CONCRETE APPROACH NOSE STD. PLATE 7113
- (H) CONC. PEDESTRIAN RAMP
- (I) 1' AGGREGATE SHOULDER
- (J) 5' AGGREGATE SHOULDER
- (K) CONCRETE FLUME
- EXISTING R/W
- PROPOSED R/W
- CONST. LIMITS
- PERM EASMENT
- TEMP EASMENT
- EXISTING ROAD
- WETLAND DELINEATION

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

SCALE 0 IN 50 FEET



NO	DATE	BY	CKD	APPR	REVISION
1	5/3/16	NJD	JFF	JEO	EXTENDED CURB ALL THE WAY TO THE END OF CSAH 12 AND ADDED FLUMES

NAME: P:\02-612-13\Plan\002612013_PP_P1.dgn 05/03/2016 1:52:10 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE: [signature]
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

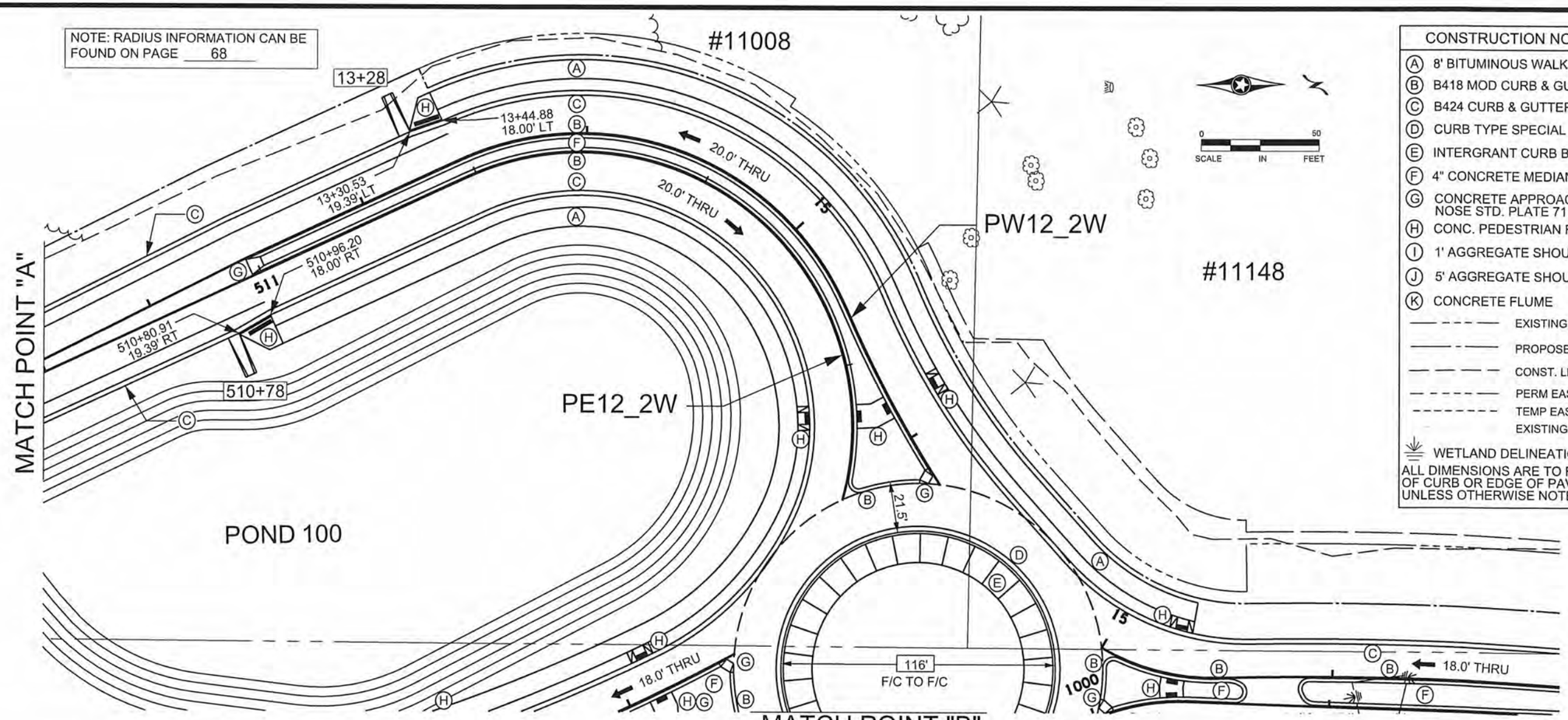
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
WEST APPROACH
STA 503+50.67 TO STA 510+00.00

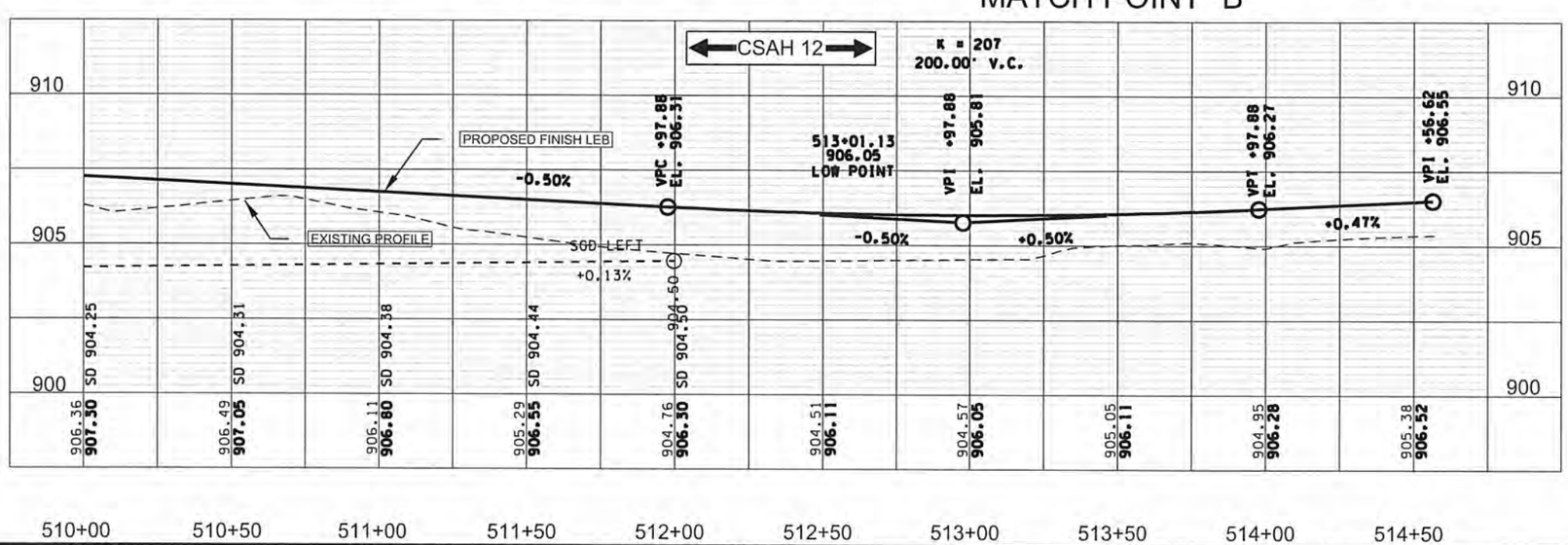
NOTE: RADIUS INFORMATION CAN BE FOUND ON PAGE 68



CONSTRUCTION NOTES:

- (A) 8' BITUMINOUS WALK
- (B) B418 MOD CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CURB TYPE SPECIAL
- (E) INTERGRANT CURB B6
- (F) 4" CONCRETE MEDIAN
- (G) CONCRETE APPROACH NOSE STD. PLATE 7113
- (H) CONC. PEDESTRIAN RAMP
- (I) 1' AGGREGATE SHOULDER
- (J) 5' AGGREGATE SHOULDER
- (K) CONCRETE FLUME
- EXISTING R/W
- PROPOSED R/W
- CONST. LIMITS
- PERM EASMENT
- TEMP EASMENT
- EXISTING ROAD
- WETLAND DELINEATION

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_PP_P2.dgn 05/03/2016 1:54:59 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 8-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

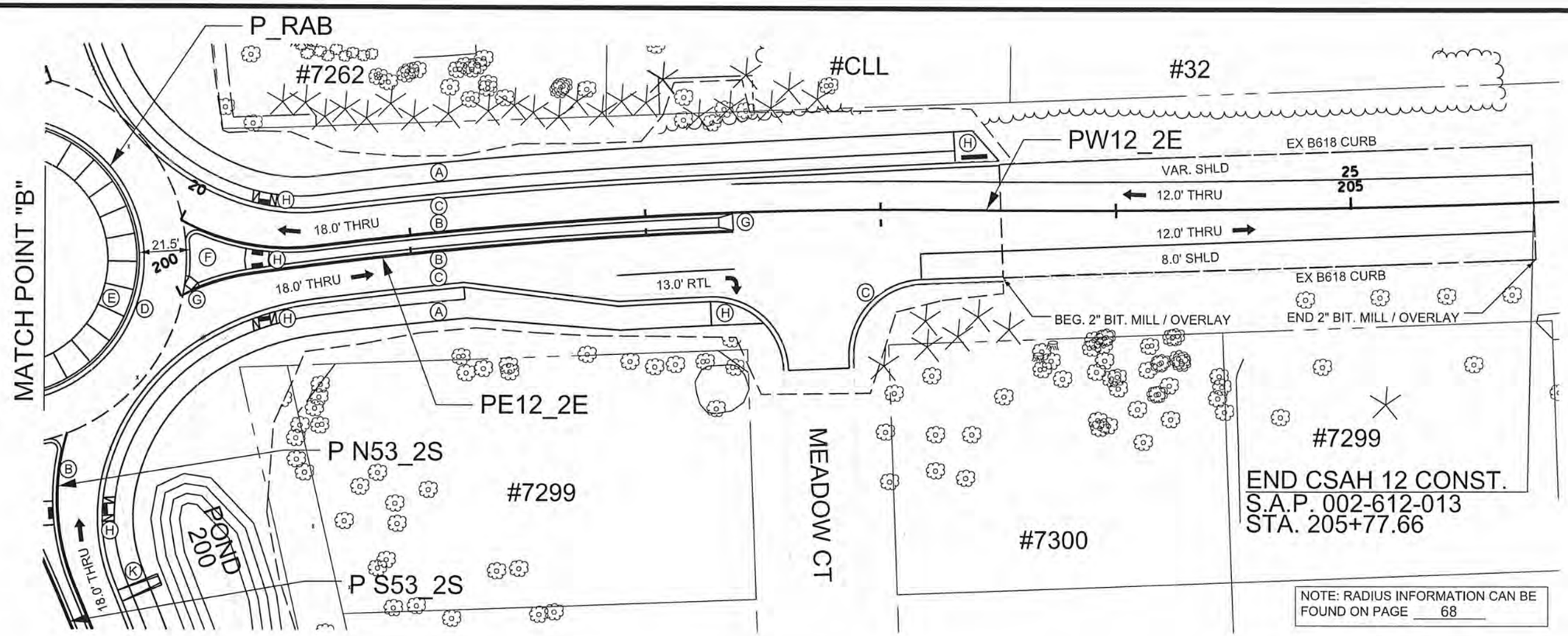
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

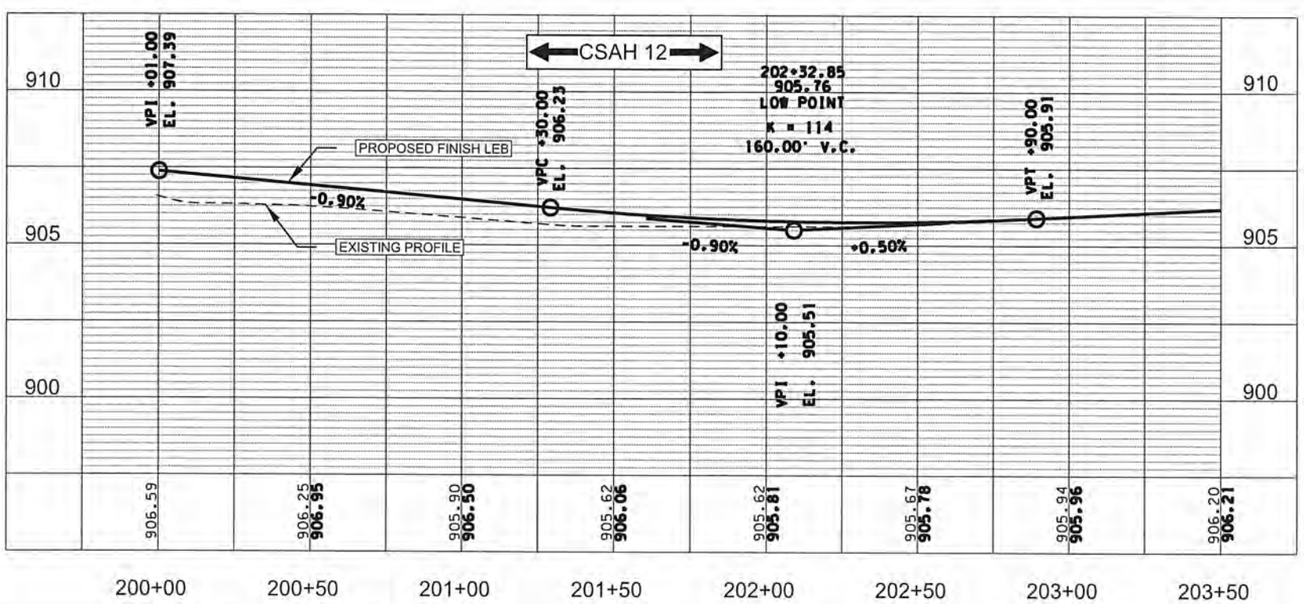
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
WEST APPROACH CONT.
STA 510+00.00 TO STA 514+57.12

Sheet 58 of 141 Sheets



NOTE: RADIUS INFORMATION CAN BE FOUND ON PAGE 68



CONSTRUCTION NOTES:

- (A) 8' BITUMINOUS WALK
- (B) B418 MOD CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CURB TYPE SPECIAL
- (E) INTERGRANT CURB B6
- (F) 4" CONCRETE MEDIAN
- (G) CONCRETE APPROACH NOSE STD. PLATE 7113
- (H) CONC. PEDESTRIAN RAMP
- (I) 1' AGGREGATE SHOULDER
- (J) 5' AGGREGATE SHOULDER
- (K) CONCRETE FLUME
- EXISTING R/W
- PROPOSED R/W
- CONST. LIMITS
- PERM EASMENT
- TEMP EASMENT
- EXISTING ROAD
- WETLAND DELINEATION

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

N

0 50
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_PP_P3.dgn 03/21/2016 2:18:08 PM

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

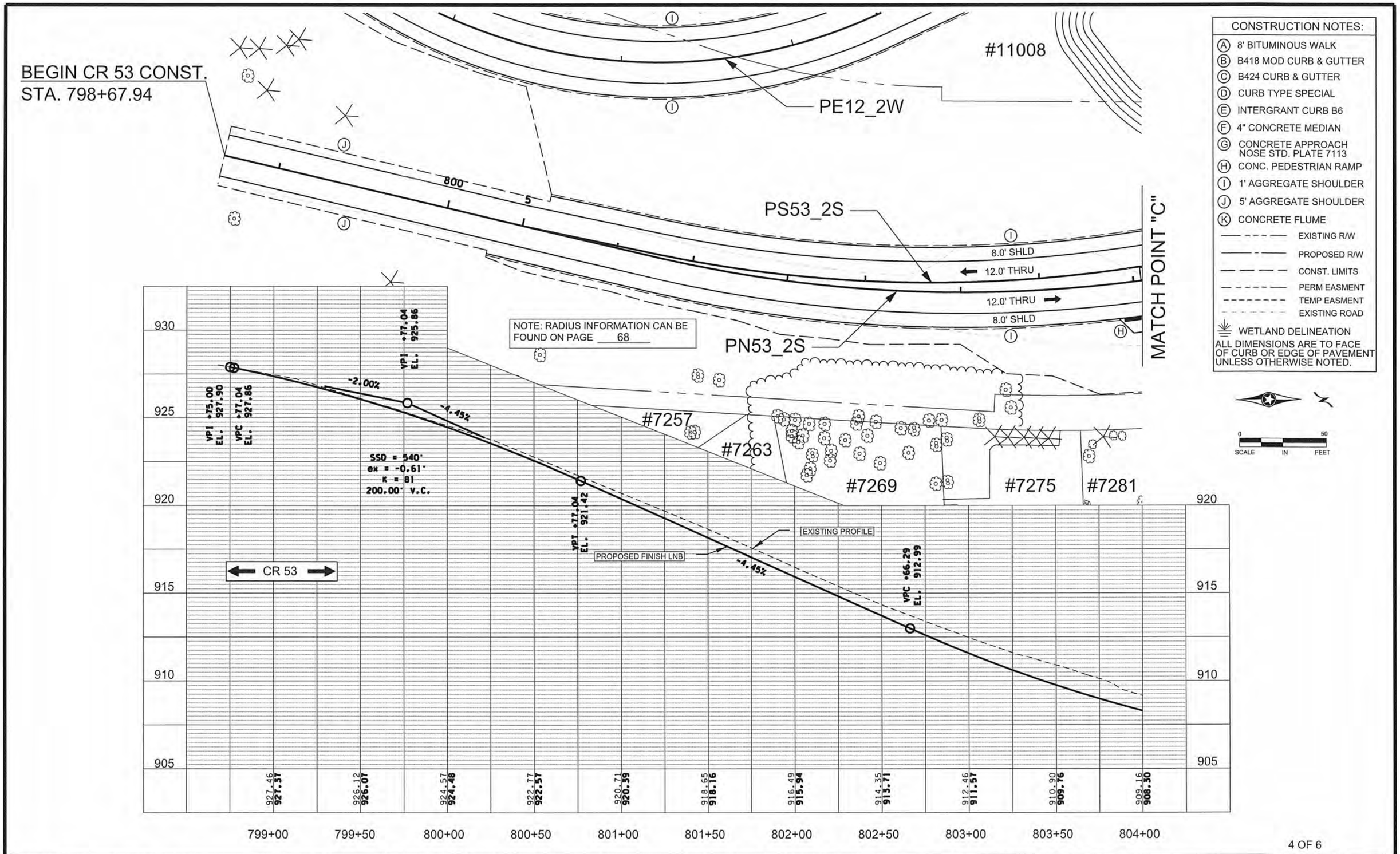
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
EAST APPROACH
STA 200+00.00 TO STA 205+77.66



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_PP_P4.dgn 03/21/2016 2:18:10 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
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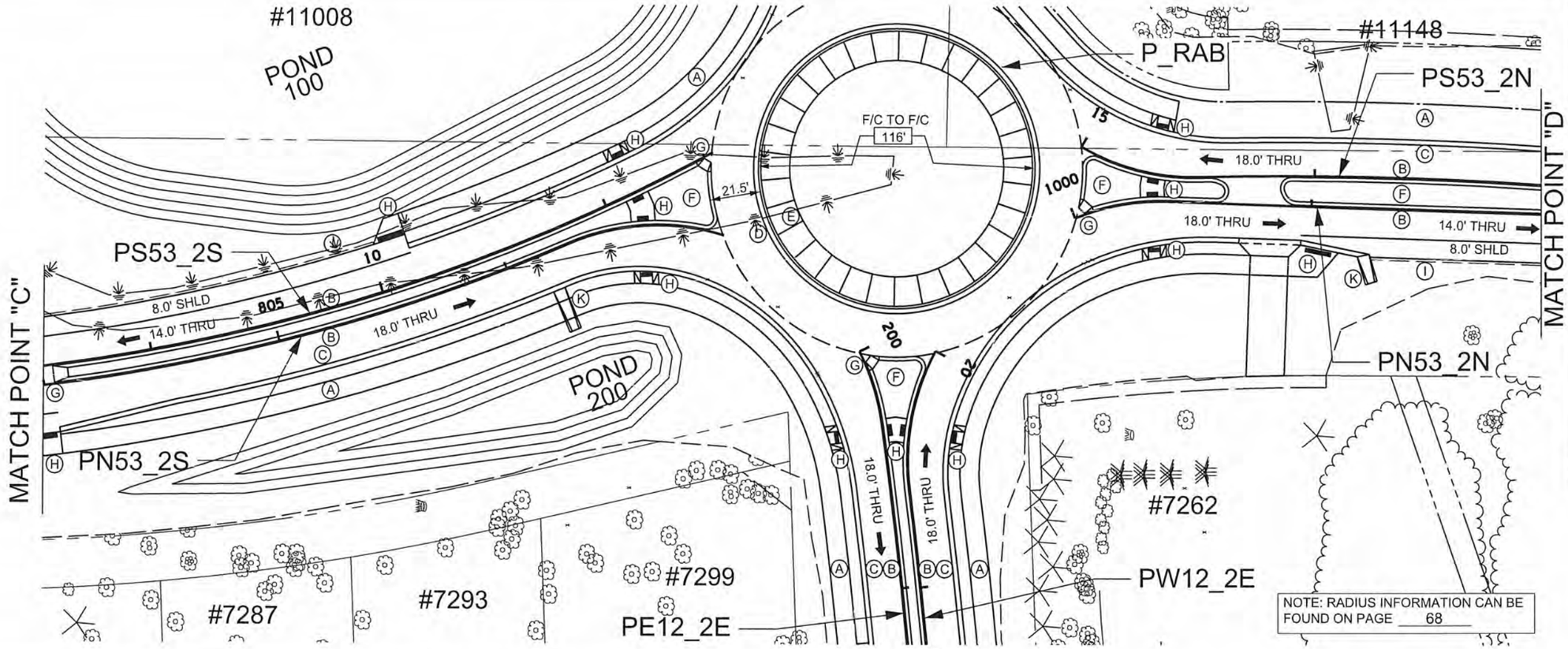
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
SOUTH APPROACH
STA 798+67.94 TO STA 804+00.00



NOTE: RADIUS INFORMATION CAN BE FOUND ON PAGE 68

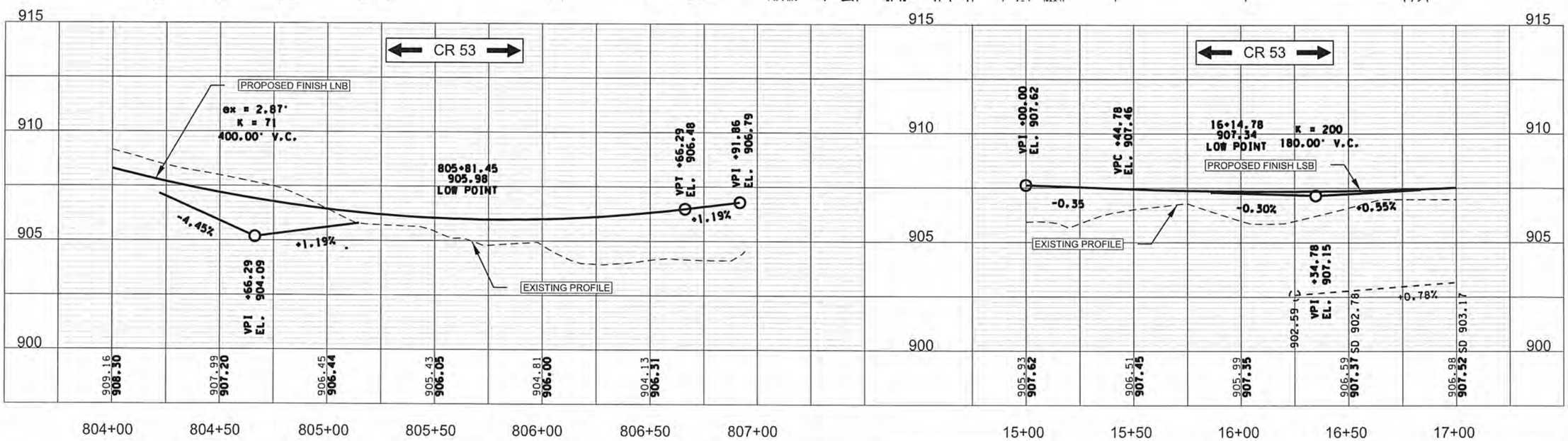
CONSTRUCTION NOTES:

- (A) 8' BITUMINOUS WALK
- (B) B418 MOD CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CURB TYPE SPECIAL
- (E) INTERGRANT CURB B6
- (F) 4" CONCRETE MEDIAN
- (G) CONCRETE APPROACH NOSE STD. PLATE 7113
- (H) CONC. PEDESTRIAN RAMP
- (I) 1' AGGREGATE SHOULDER
- (J) 5' AGGREGATE SHOULDER
- (K) CONCRETE FLUME

EXISTING R/W
PROPOSED R/W
CONST. LIMITS
PERM EASMENT
TEMP EASMENT
EXISTING ROAD
WETLAND DELINEATION

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

0 50 SCALE IN FEET



5 OF 6

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_PP_P5.dgn 04/22/2016 1:15:38 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 4-22-16 LICENSE NO. 49046

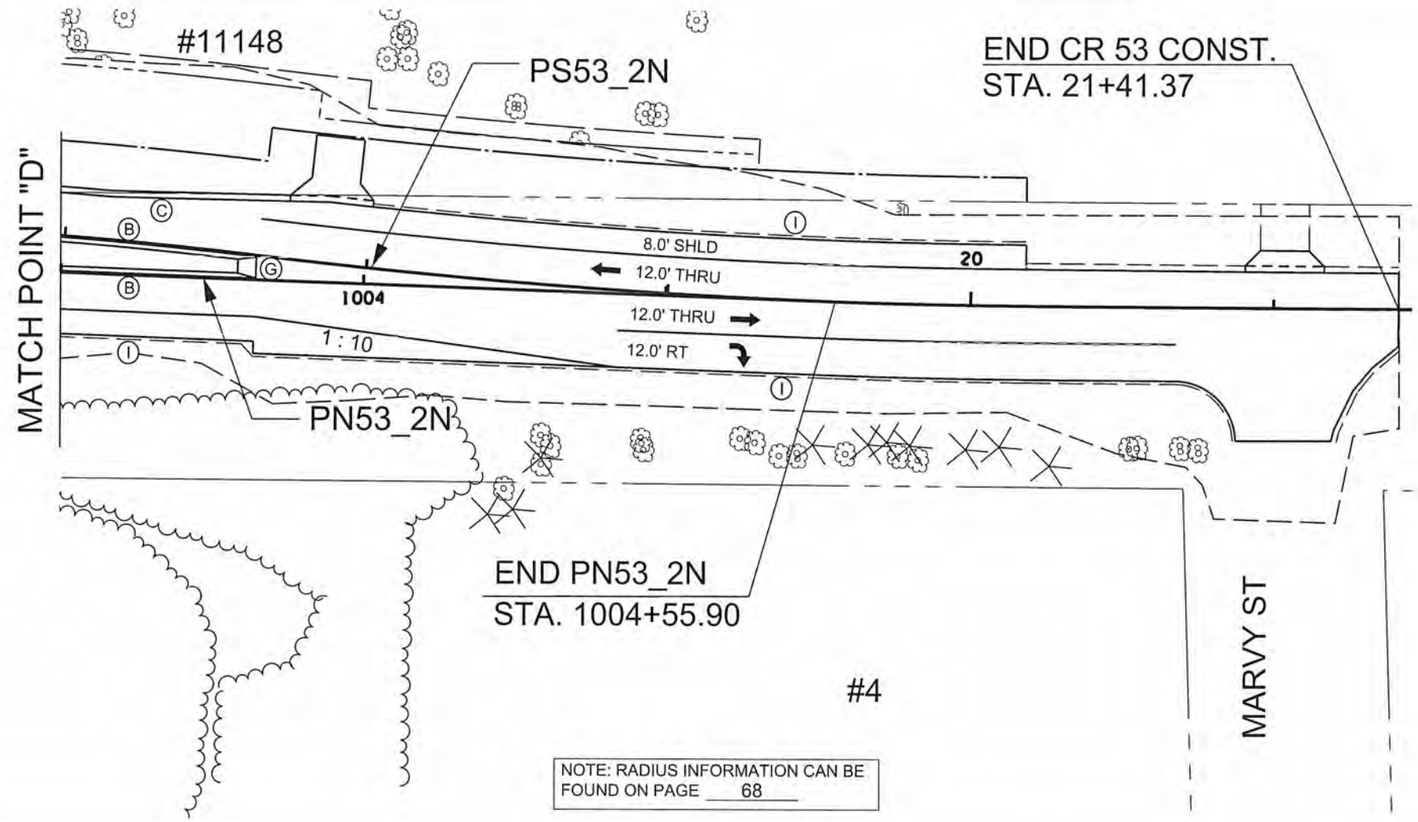
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
CENTER
STA 804+00.00 TO STA 806+94.31
STA 1000+00.00 TO STA 1002+00.00

Sheet 61 of 141 Sheets



CONSTRUCTION NOTES:

- (A) 8' BITUMINOUS WALK
- (B) B418 MOD CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CURB TYPE SPECIAL
- (E) INTERGRANT CURB B6
- (F) 4" CONCRETE MEDIAN
- (G) CONCRETE APPROACH NOSE STD. PLATE 7113
- (H) CONC. PEDESTRIAN RAMP
- (I) 1' AGGREGATE SHOULDER
- (J) 5' AGGREGATE SHOULDER
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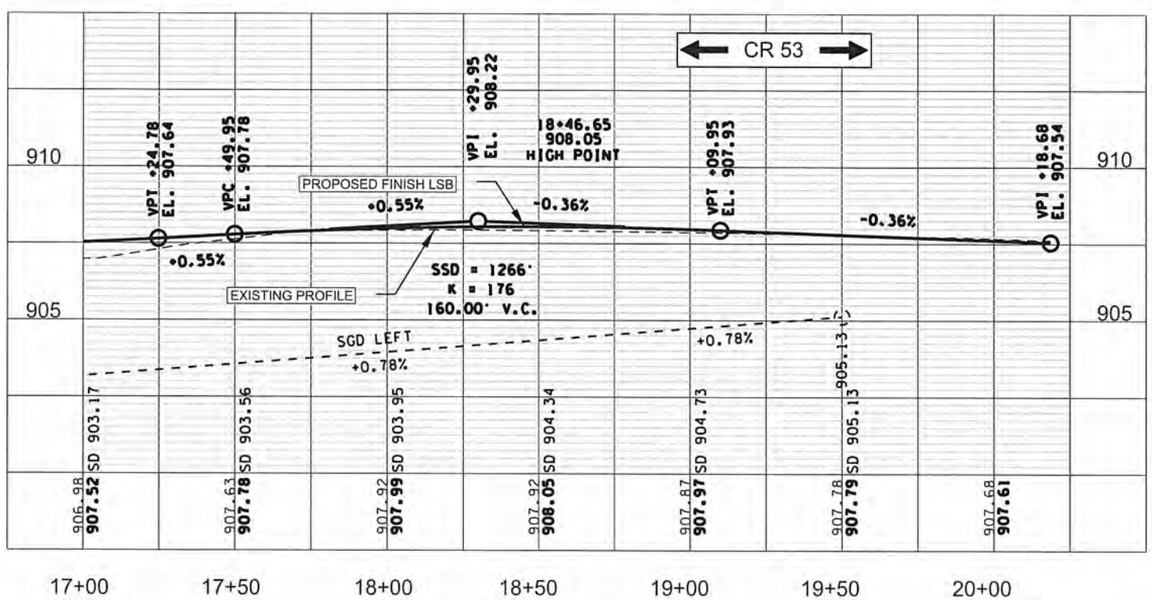
0 50
SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/16	NJD	JFF	JEO	REMOVED SAP 02-612-13 FROM CONSTRUCTION LIMIT LABEL

NAME: P:\02-612-13\Plan\002612013_PP_P6.dgn 04/22/2016 9:33:20 AM

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

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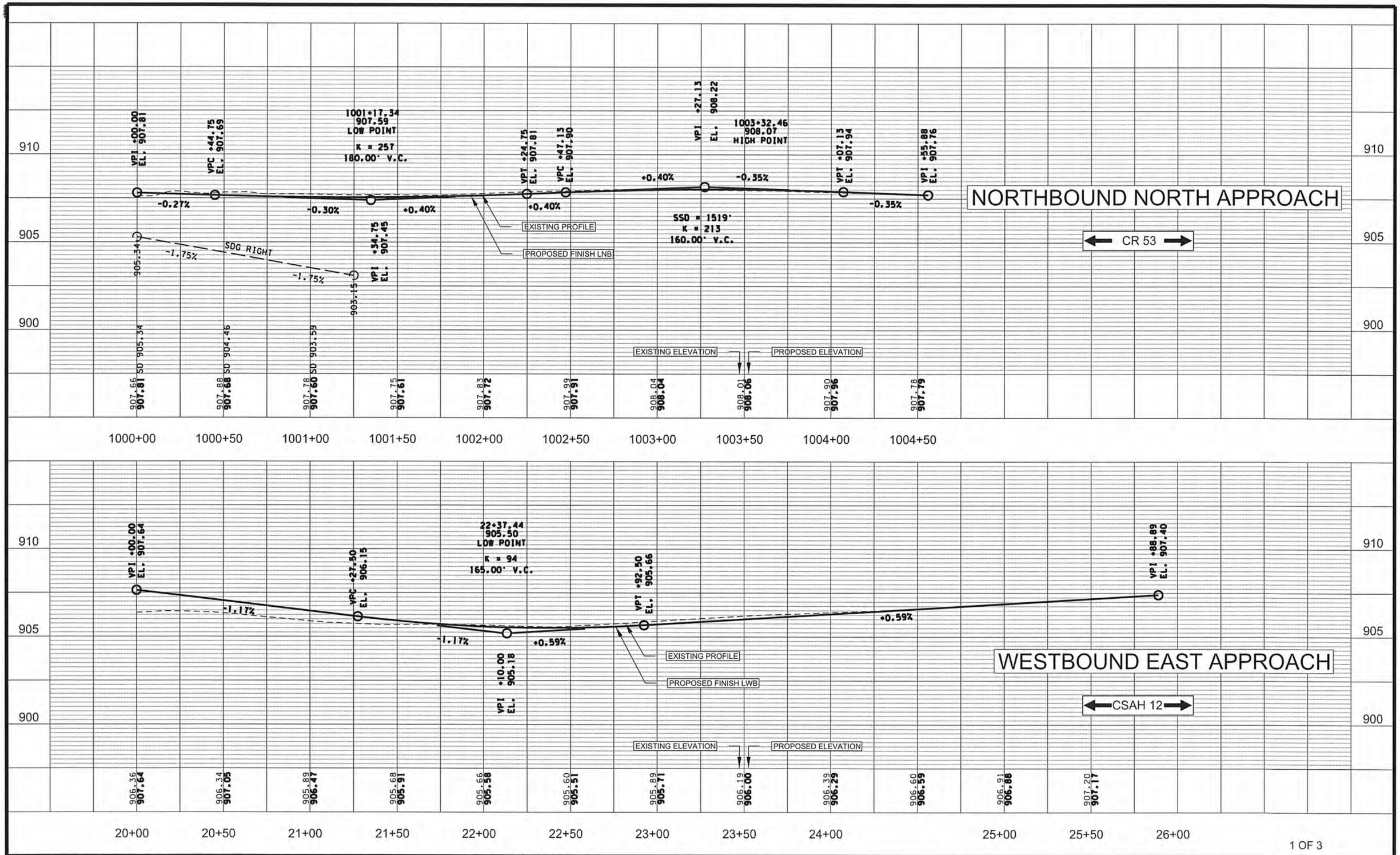
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

CONSTRUCTION PLAN
NORTH APPROACH
STA 1002+00.00 TO STA 21+41.37



1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_PR_P1.dgn 03/21/2016 2:18:15 PM

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

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SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

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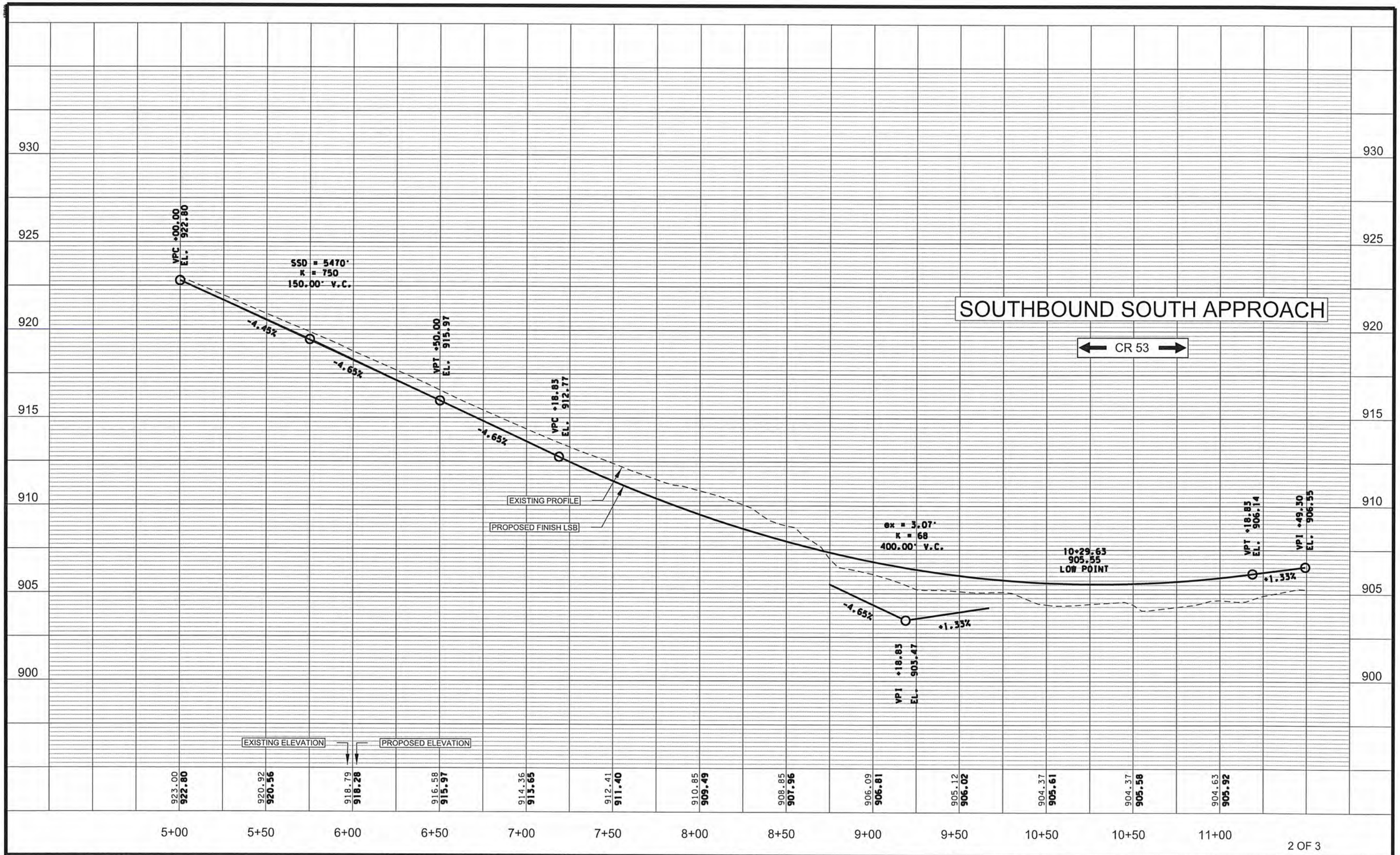
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

PROFILES

Sheet 63 of 141 Sheets



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_PR_P2.dgn 03/21/2016 2:18:17 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

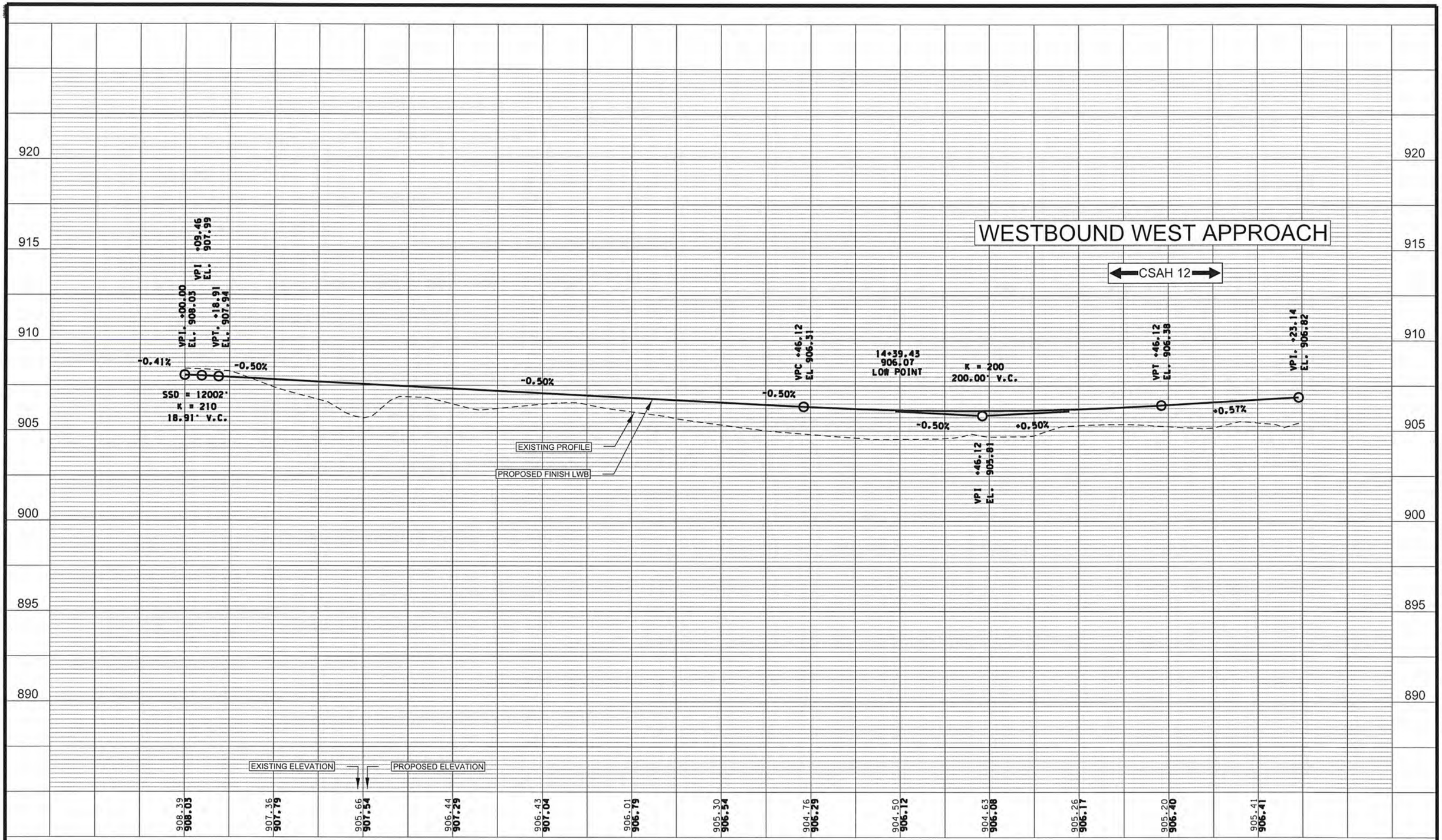
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

PROFILES

Sheet 64 of 141 Sheets



3 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_PR_P3.dgn 03/21/2016 2:18:19 PM

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

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SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

PROFILES

Sheet 65 of 141 Sheets

NOTES:

1. ALL CROSS SLOPES ARE EXPRESSED AS A PERCENT
2. STATIONING FOR SOUTH BOUND CR 53 BASED ON SOUTH BOUND ALIGNMENT
3. STATIONING FOR NORTH BOUND CR 53 BASED ON NORTH BOUND ALIGNMENT

LEGEND

SUPERELEVATION TRANSITION

0 100
SCALE IN FEET

SOUTH LEG
SUNSET AVENUE

℄ NB CR 53 (PN53 2S)
℄ SB CR 53 (PS53 2S)

505
510
10
800
805
+79.45
+61.95
+44.43
+65.09
+00.00
+20.75
+64.88
+91.35
+09.25
+37.75
+76.90
+21.78
+79.48
-2.0
+2.5
+5.9
COUNTY R/W
MnDOT R/W

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_SE_P1.dgn 03/21/2016 2:20:55 PM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

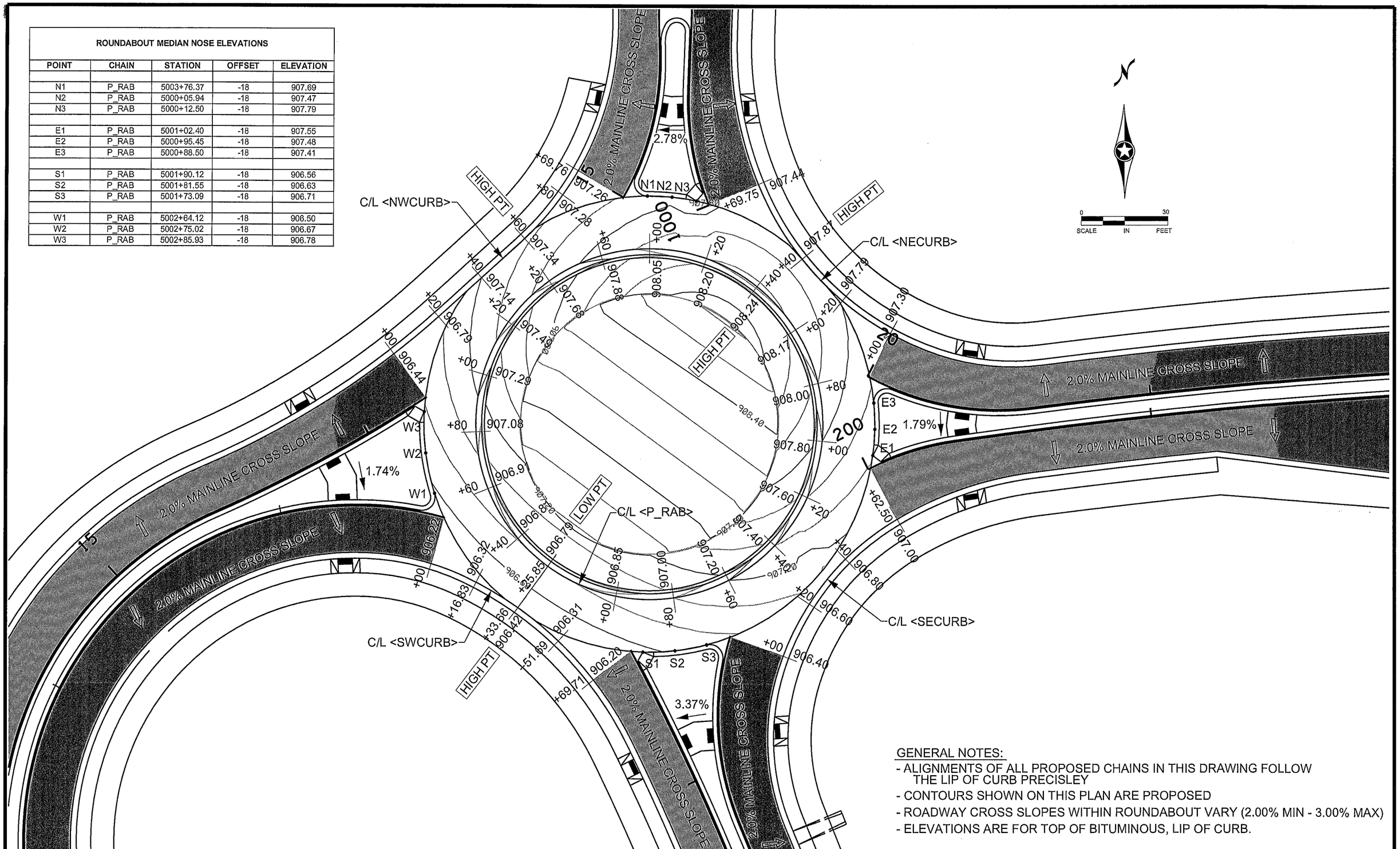
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SUPERELEVATION PLAN

Sheet 66 of 141 Sheets

ROUNDABOUT MEDIAN NOSE ELEVATIONS				
POINT	CHAIN	STATION	OFFSET	ELEVATION
N1	P_RAB	5003+76.37	-18	907.69
N2	P_RAB	5000+05.94	-18	907.47
N3	P_RAB	5000+12.50	-18	907.79
E1	P_RAB	5001+02.40	-18	907.55
E2	P_RAB	5000+95.45	-18	907.48
E3	P_RAB	5000+88.50	-18	907.41
S1	P_RAB	5001+90.12	-18	906.56
S2	P_RAB	5001+81.55	-18	906.63
S3	P_RAB	5001+73.09	-18	906.71
W1	P_RAB	5002+64.12	-18	906.50
W2	P_RAB	5002+75.02	-18	906.67
W3	P_RAB	5002+85.93	-18	906.78



GENERAL NOTES:

- ALIGNMENTS OF ALL PROPOSED CHAINS IN THIS DRAWING FOLLOW THE LIP OF CURB PRECISLEY
- CONTOURS SHOWN ON THIS PLAN ARE PROPOSED
- ROADWAY CROSS SLOPES WITHIN ROUNDABOUT VARY (2.00% MIN - 3.00% MAX)
- ELEVATIONS ARE FOR TOP OF BITUMINOUS, LIP OF CURB.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_IN-1.dgn 03/22/2016 11:29:00 AM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

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CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

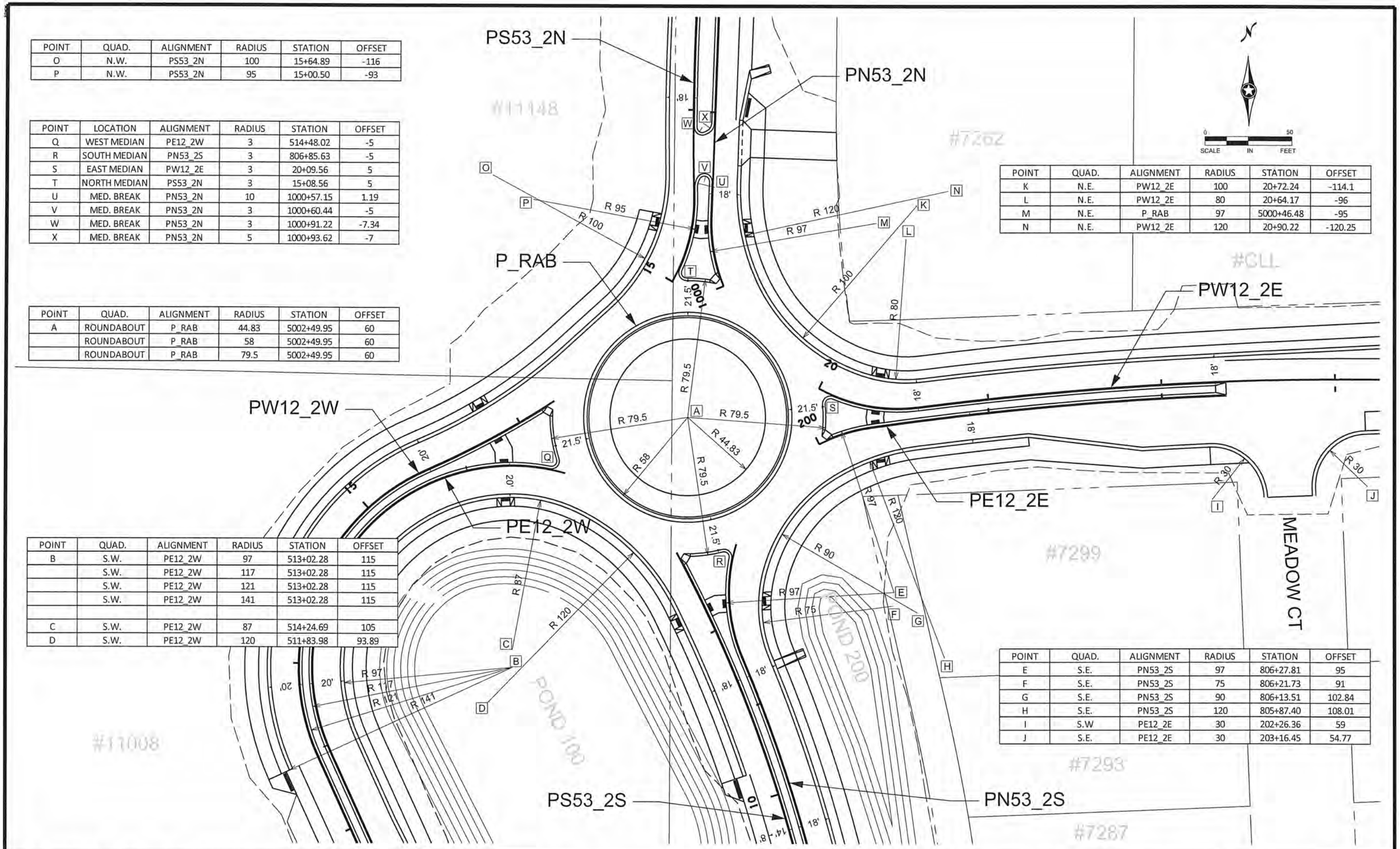
ROUNDABOUT INTERSECTION DETAIL

POINT	QUAD.	ALIGNMENT	RADIUS	STATION	OFFSET
O	N.W.	PS53_2N	100	15+64.89	-116
P	N.W.	PS53_2N	95	15+00.50	-93

POINT	LOCATION	ALIGNMENT	RADIUS	STATION	OFFSET
Q	WEST MEDIAN	PE12_2W	3	514+48.02	-5
R	SOUTH MEDIAN	PN53_2S	3	806+85.63	-5
S	EAST MEDIAN	PW12_2E	3	20+09.56	5
T	NORTH MEDIAN	PS53_2N	3	15+08.56	5
U	MED. BREAK	PN53_2N	10	1000+57.15	1.19
V	MED. BREAK	PN53_2N	3	1000+60.44	-5
W	MED. BREAK	PN53_2N	3	1000+91.22	-7.34
X	MED. BREAK	PN53_2N	5	1000+93.62	-7

POINT	QUAD.	ALIGNMENT	RADIUS	STATION	OFFSET
A	ROUNDABOUT	P_RAB	44.83	5002+49.95	60
	ROUNDABOUT	P_RAB	58	5002+49.95	60
	ROUNDABOUT	P_RAB	79.5	5002+49.95	60

POINT	QUAD.	ALIGNMENT	RADIUS	STATION	OFFSET
B	S.W.	PE12_2W	97	513+02.28	115
	S.W.	PE12_2W	117	513+02.28	115
	S.W.	PE12_2W	121	513+02.28	115
	S.W.	PE12_2W	141	513+02.28	115
C	S.W.	PE12_2W	87	514+24.69	105
D	S.W.	PE12_2W	120	511+83.98	93.89



POINT	QUAD.	ALIGNMENT	RADIUS	STATION	OFFSET
K	N.E.	PW12_2E	100	20+72.24	-114.1
L	N.E.	PW12_2E	80	20+64.17	-96
M	N.E.	P_RAB	97	5000+46.48	-95
N	N.E.	PW12_2E	120	20+90.22	-120.25

POINT	QUAD.	ALIGNMENT	RADIUS	STATION	OFFSET
E	S.E.	PN53_2S	97	806+27.81	95
F	S.E.	PN53_2S	75	806+21.73	91
G	S.E.	PN53_2S	90	806+13.51	102.84
H	S.E.	PN53_2S	120	805+87.40	108.01
I	S.W	PE12_2E	30	202+26.36	59
J	S.E.	PE12_2E	30	203+16.45	54.77

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_RAD. LAYOUT.dgn 04/22/2016 1:17:24 PM

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RADIUS LAYOUT

Sheet 68 of 141 Sheets

DRAINAGE TAB

F

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	ALIGN	CENTER OF CASTING STATION	CENTER OF CASTING O/S	CENTER OF CASTING L / R	DRAINAGE STRUCTURES TYPE	DRAINAGE STRUCTURES DESIGN	PAY HEIGHT H LIN FT	PAY HEIGHT 48-4020 LIN FT	PAY HEIGHT 54-4020 LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	STORM SEWER 15" PIPE SEWER LIN FT	STORM SEWER 15" RCP SEWER LIN FT	STORM SEWER 15" CS APRON EACH	STORM SEWER 18" PIPE SEWER LIN FT	STORM SEWER 18" CS APRON EACH	STORM SEWER 21" RCP CL III LIN FT	STORM SEWER 21" RCP APRON EACH	EROSION CONTROL BLANKET CAT. 0 SQ YD	RIPRAP CLASS III CU YD	GEOTEXTILE FABRIC TYPE IV MOD SQ YD	GRANULAR FILTER UNDER APRON CU YD	NOTES
100	105	PS53_2N	16+08.31	15.00	L	H	H	3.2			C		906.98	903.73	903.65	0.50	16.0											
103	105	PN53_2N	1001+21.89	1.00	L	H	H	3.2			A		907.53	904.28	903.65	3.73	17.0											
105	110	PS53_2N	16+08.31	1.00	R	48-4020	48-4020		3.6		A		907.28	903.65	903.49	0.30	52.8											
110	115	PS53_2N	15+55.44	1.00	R	48-4020	48-4020		3.8		B		907.37	903.49	902.94	0.30	182.3											
115	120	P_RAB	5002+25.97	1.00	R	48-4020	48-4020		3.7		D		906.72	902.94	902.88	0.30	19.8											
120	199	P_RAB	5002+25.76	18.77	L	54-4020	54-4020			6.1	C	YES	906.51	900.75	96+	0.30				33.1								
	199	PE12_2W	514+46.50	54.33	R	APRON								900.65							1			9	3.2	20.8	0.3	
200	205	PW12_2W	14+46.12	17.00	L	H	H	3.2			C		905.66	902.41	902.35	0.30	18.0											
205	210	PW12_2W	14+46.12	1.00	R	40-4020	40-4020				A		908.39	902.35	902.32	0.30	9.4											
210	215	PE12_2W	512+97.88	1.00	L	48-4020	48-4020		3.6		A		906.00	902.32	902.27	0.30	18.0											
215	299	PE12_2W	512+97.88	17.00	R	48-4020	48-4020		3.3		C		905.65	902.27	902.16	0.30	35.7											
	299	PE12_2W	512+97.88	51.13	R	APRON									902.16				1					9	3.2	20.8	0.3	
300	305	PN53_2S	805+75.86	1.00	L	H	H	3.2			A		905.92	902.67	902.25	4.65	9.1											
305	310	PS53_2S	10+21.26	1.00	R	48-4020	48-4020		3.2		A		905.50	902.25	901.47	4.86	16.0											
310	315	PS53_2S	10+21.27	15.00	L	48-4020	48-4020		3.2		C		904.72	901.47	901.22	0.30	83.5											
315	120	PS53_2S	11+06.47	15.00	L	48-4020	48-4020		3.9		D		905.15	901.22	901.00	0.30	74.0											
500	505	PE12_2E	202+85.46	58.85	R	H	H	3.2			D		904.91	901.66	901.58	0.30		27.8										
505	510	PE12_2E	202+57.68	58.93	R	48-4020	48-4020		3.8		D		904.91	901.08	900.92	0.30						50.7						
510	515	PE12_2E	202+17.21	28.00	R	48-4020	48-4020		4.8		D	YES	905.72	900.92	900.84	0.30						29.0						
515	520	PE12_2E	202+17.21	1.00	L	48-4020	48-4020		4.8		A	YES	905.72	900.84	900.79	0.30						15.5						
520	525	PW12_2E	22+31.49	1.00	R	48-4020	48-4020		4.6		A	YES	905.45	900.79	900.74	0.30						16.2						
525	599	PW12_2E	22+31.48	15.17	L	48-4020	48-4020		4.3		C		905.06	900.74	900.68	0.30						20.0						
	599	PW12_2E	22+31.48	35.67	L	APRON									900.68								1	15	7.1	27.4	0.6	
				PROJECT TOTALS				16.0	50.6		21						551.7	27.8	1	33.1	1	131.3	1	33	13.5	69.0	1.2	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_DR_LEAD.dgn 03/22/2016 11:36:49 AM

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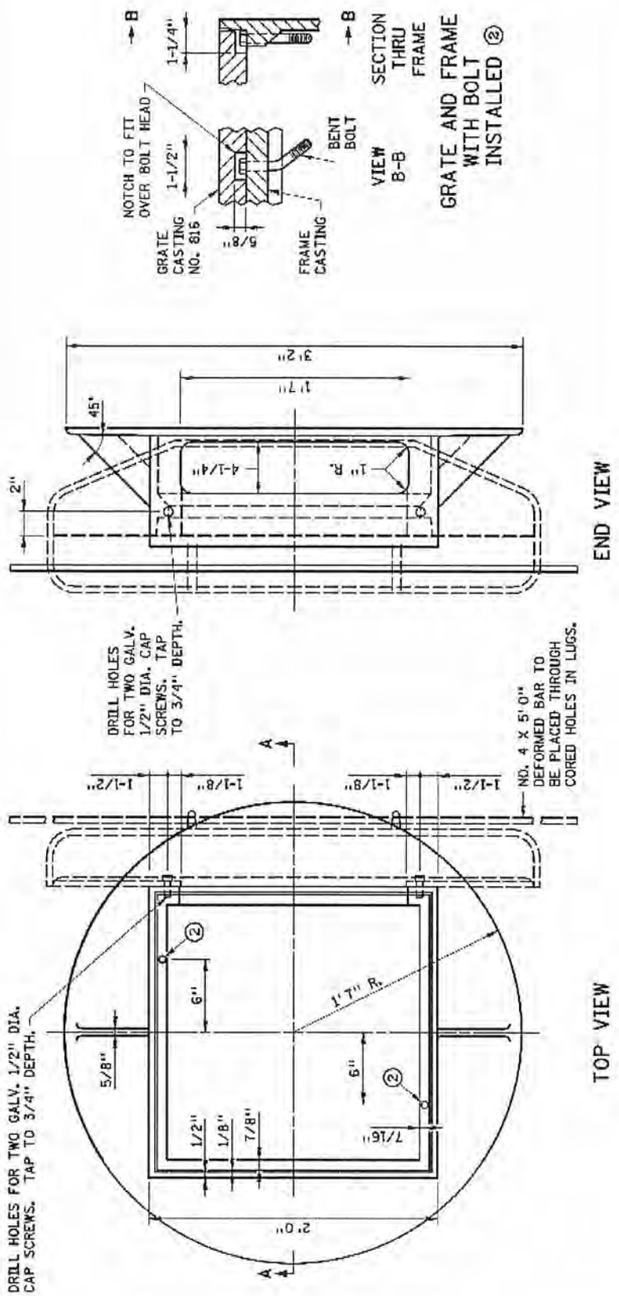
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

DRAINAGE TAB



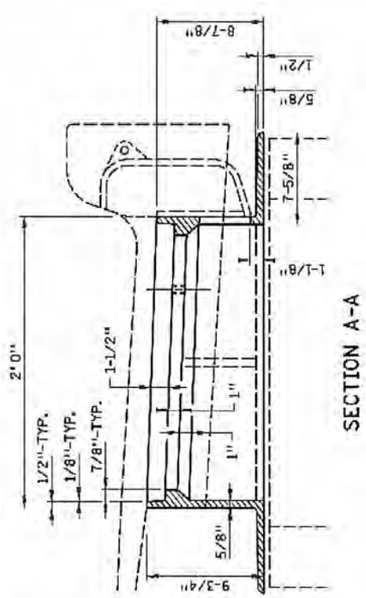
CASTINGS USED FOR ASSEMBLY

GRATE NO. 816 (MNDOT STD PLATE 4154B)

CURB BOX ① NO. 823A (MNDOT STD PLATE 416D) OR

NOTES:

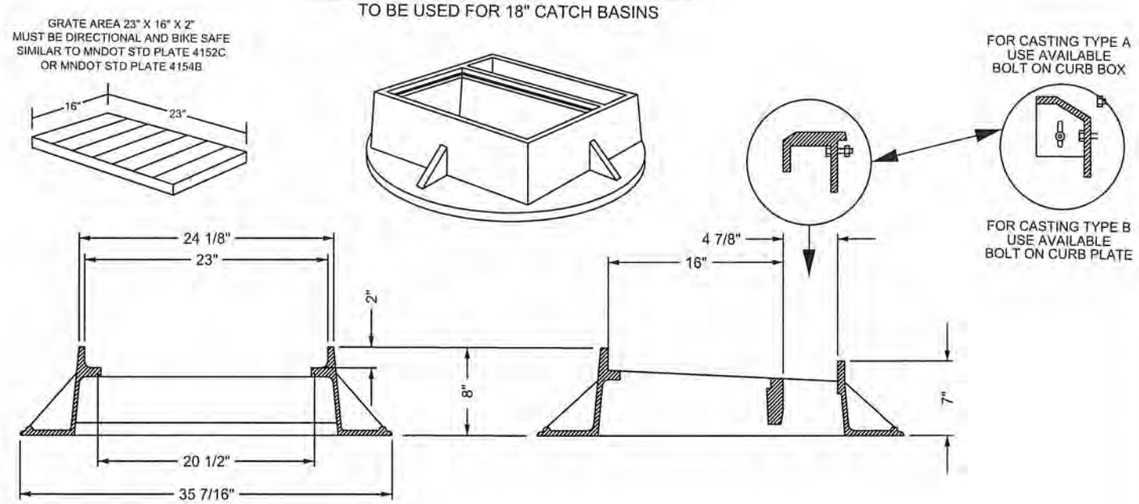
USE 1/4" FILLETS IN ALL CORNERS.
SEE MNDOT STANDARD PLATE 7111 FOR INSTALLATION REQUIREMENTS.
① APPLIES TO DESIGN B OR V CURB AND CURB AND GUTTER.
② AT LOCATIONS INDICATED IN TOP VIEW, PROVIDE 9/16" DIA. HOLES WHEN GRATE NO 816 (MNDOT STD PLATE 4154) IS USED WITH THIS FRAME. FIELD PLACE 1/2" DIA X 4" LONG GALV BOLT IN UP STREAM SIDE AND BENT UNDERSIDE TO PREVENT REMOVAL. THIS WILL PREVENT GRATE NO. 816 (MNDOT STD PLATE 4154) FROM BEING PLACED IN WRONG AND NOT BEING BICYCLE SAFE



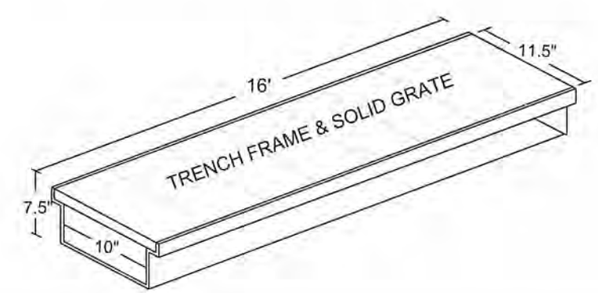
GRATE FRAME CASTING TYPE C & D

FRAME RING AND CASTING TYPE A
FRAME RING AND CASTING TYPE B

TO BE USED FOR 18" CATCH BASINS



CASTING	ITEM	SIZE	HEIGHT	LOCATION / USE	QTY
A	CB	18"	0.7500	MEDIAN BOX	11
B	CB	18"	0.7500	MEDIAN NO BOX	1
C	CB	24"	0.7500	SHLDR BOX	8
D	CB	24"	0.7500	SHLDR NO BOX	2
T	WALK / COVER	16'	0.6250	TRENCH FRAME	1



TRENCH FRAME WITH SOLID COVER. TO BE INSTALLED IN BITUMINOUS WALK WITH CONCRETE FLUME ON ROAD SIDE AND A CONCRETE FLUME ON THE POND SIDE. TOTAL LENGTH OF TRENCH FRAME 16' WITH A SOLID GRATE. BOTH ENDS TO BE OPEN, LIGHT DUTY. NEENAH R-4995-B1 WITH SOLID COVER OR EQUIVALENT. (NOTE: SHALLOW GAS LINE CROSSING)

NO	DATE	BY	CKD	APPR	REVISION

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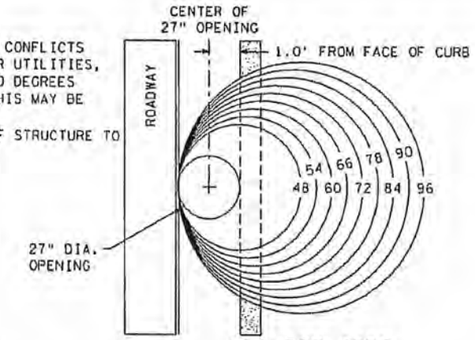
DRAINAGE DETAILS

TABLE A

4020 DIAMETER	*OFFSET FEET
48"	0.79
54"	1.08
60"	1.29
66"	1.58
72"	1.79
78"	2.08
84"	2.29
90"	2.58
96"	2.88
102"	3.17
108"	3.29
120"	3.79

WHERE THE 4020 DIAMETER CONFLICTS WITH OTHER STRUCTURES OR UTILITIES, ROTATE THE STRUCTURE 180 DEGREES TO PROVIDE CLEARANCE. THIS MAY BE ADJUSTED IN THE FIELD.

* OFFSET IS FROM CENTER OF STRUCTURE TO CENTER OF OPENING.



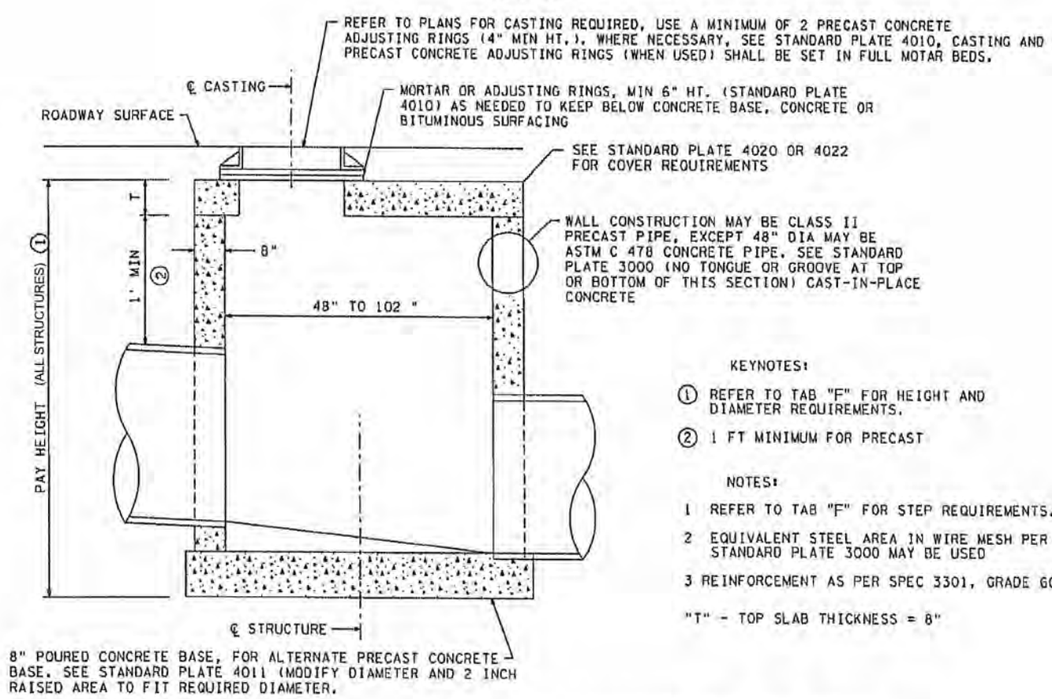
USE FOR 4020

THE FOLLOWING PLACEMENT LOCATIONS SHALL BE USED WITH CONCRETE CURB AND GUTTER.

1. THE CENTER OF GRATE STATION AND OFFSET LOCATION IS GIVEN IN THE DRAINAGE TABULATION
2. THE OFFSET FROM THE CENTER OF STRUCTURE TO THE CENTER OF GRATE IS GIVEN IN TABLE "A" TO THE LEFT FOR 4020 STRUCTURES. OFFSET FOR 4005 STRUCTURES IS 0.9 FT.
3. THE CENTER OF OPENING IS 1.0' TOWARD THE ROADWAY FROM THE FACE OF CURB.
4. THE STRUCTURES THAT HAVE STEPS SHALL BE LOCATED ON THE ROADSIDE OF THE 27" OPENING AND MUST BE EASILY ACCESSIBLE. THE STEP LOCATION MAY NEED TO BE ADJUSTED IF THERE IS A LARGE PIPE DIRECTLY BELOW THE OPENING.

STRUCTURE LOCATION

NO SCALE



KEYNOTES:

① REFER TO TAB "F" FOR HEIGHT AND DIAMETER REQUIREMENTS.

② 1 FT MINIMUM FOR PRECAST

NOTES:

1 REFER TO TAB "F" FOR STEP REQUIREMENTS.

2 EQUIVALENT STEEL AREA IN WIRE MESH PER STANDARD PLATE 3000 MAY BE USED

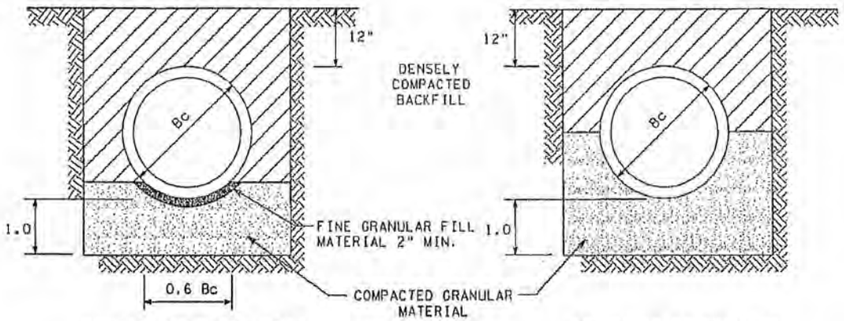
3 REINFORCEMENT AS PER SPEC 3301, GRADE 60

"T" - TOP SLAB THICKNESS = 8"

VIEW OF INSTALLATION

DRAINAGE STUCTURE DESIGN 4020

NO SCALE



SHAPED SUBGRADE WITH GRANULAR FOUNDATION (FOR GRANULAR SOILS)

GRANULAR FOUNDATION FOR COHESIVE SOILS

CLASS B

B_f = 1.9

LEGEND

B_c = OUTSIDE DIAMETER
H = BACKFILL COVER ABOVE TOP OF PIPE
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

NOTES:

FOR CLASS B BEDDINGS, SUBGRADES SHOULD BE EXCAVATED OR OVER EXCAVATED, IF NECESSARY, SO A UNIFORM FOUNDATION FREE OF PROTRUDING ROCKS MAY BE PROVIDED.

PIPE BEDDING FOR PIPE LAYED IN TRENCHES WHERE UNSUITABLE SOILS ARE ENCOUNTERED IS INCIDENTAL.

A MINIMUM OF ONE FOOT OF GRANULAR FOUNDATION SHALL BE PLACED BELOW BOTTOM OF PIPE, SEE SPECIFICATION.

TRENCH BEDDING CLASS B

NO SCALE

NO	DATE	BY	CKD	APPR	REVISION

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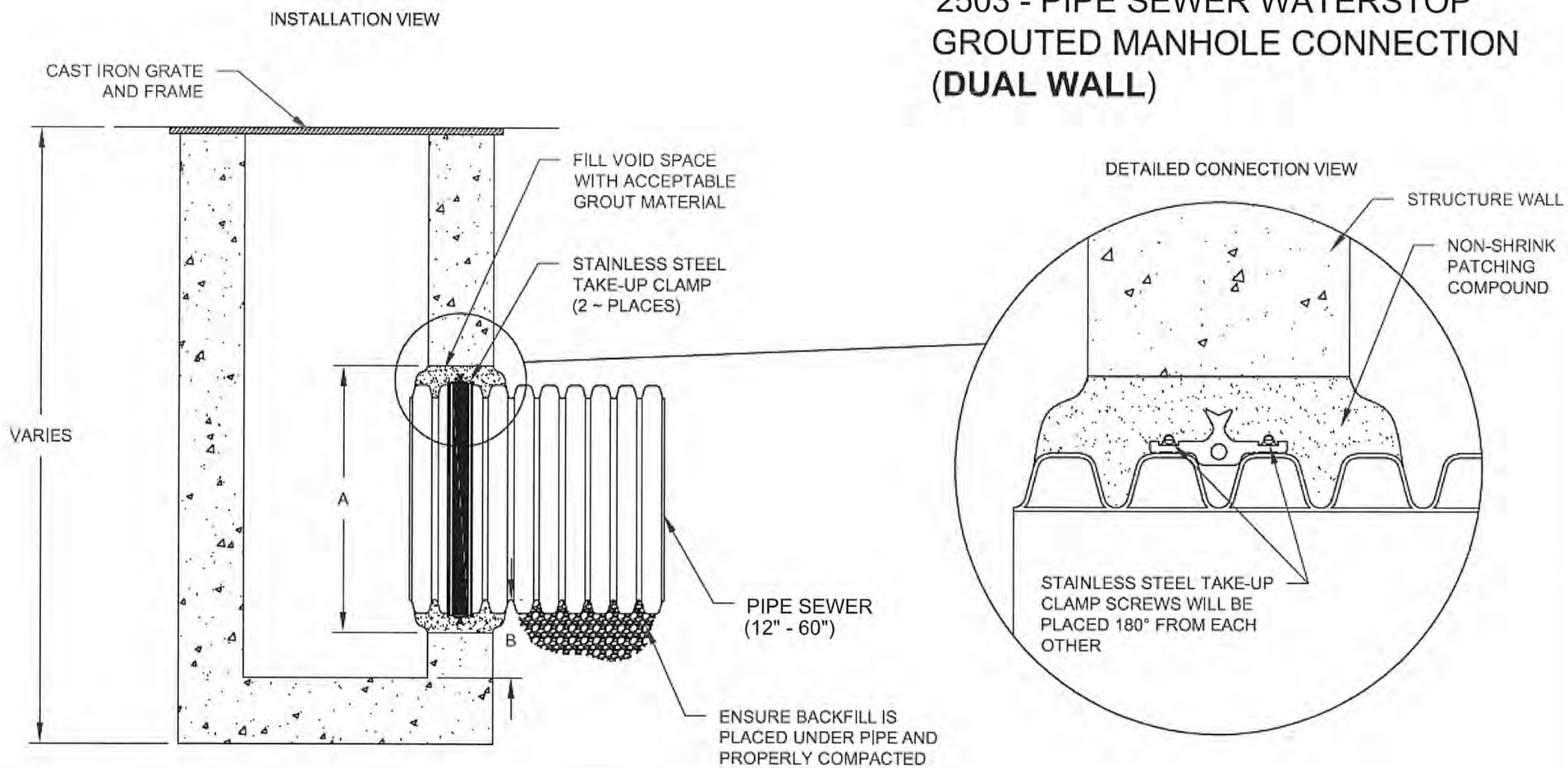
DRAINAGE DETAILS

2503 - PIPE SEWER WATERSTOP GROUTED MANHOLE CONNECTION (**DUAL WALL**)



PIPE SIZE (IN)	PIPE OD (IN)	"A" MIN. HOLE Ø (IN)	"B" MIN. DISTANCE FROM PIPE INVERT TO STRUCTURE INVERT (IN)
12	14.5	19.50	3.7
15	17.6	23.00	4.0
18	21.2	26.50	4.2
21	24.8	30.25	4.5
24	27.8	33.25	4.5
30	35.1	40.50	5.2
36	41.1	47.00	5.5
42	47.7	53.00	5.7
48	53.6	59.00	5.7
60	66.3	72.00	6.4

NOTES:

PERFORMANCE HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.

INSTALLATION RECOMMENDATIONS ARE ALSO SPECIFIED IN INSTALLATION GUIDE 1.05; WATERSTOP INSTALLATION

NO	DATE	BY	CKD	APPR	REVISION

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DRAINAGE DETAILS

2503 - PIPE SEWER **AASHTO M330 TRENCH INSTALLATION DETAIL**

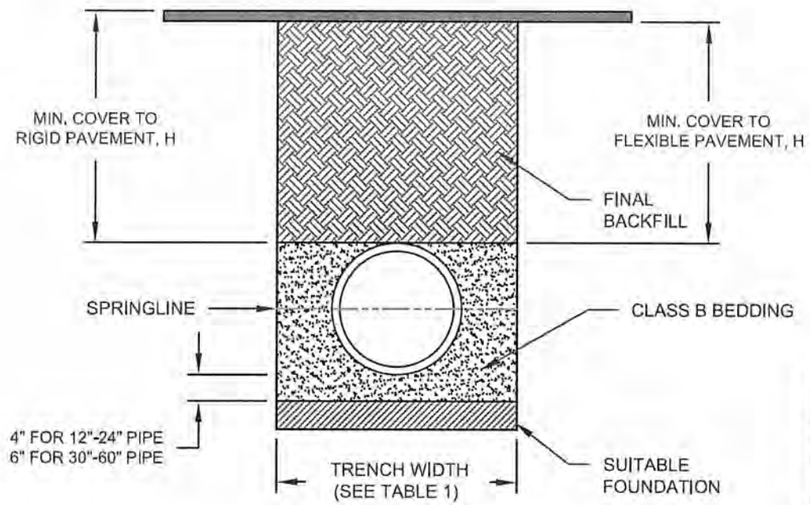


TABLE 1, RECOMMENDED TRENCH WIDTHS

MAXIMUM TRENCH WIDTH FOR PIPE SEWER	
PIPE DIAMETER	MAXIMUM TRENCH WIDTH *
< 42" (1,050mm)	OD PLUS 24" (600mm)
42" - 54" (1,050mm - 1,350mm)	1.5 TIMES OD
> 54" (1,350mm)	OD PLUS 36" (900mm)
* 1' (300mm) ABOVE PIPE	

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD)
12" - 48" (300mm - 1200mm)	12" (300mm)	48" (1200mm)
60" (1500mm)	24" (600mm)	60" (1500mm)

TABLE 3, TEMPORARY COVER FOR CONSTRUCTION TRAFFIC

	TYPE OF VEICHLE			
PIPE DIAM.	SKID-STEER LOADER	LIGHT DUTY PICK-UP TRUCK	SEMI-TRACTOR	HEAVY CONSTRUCTION
GROSS VEHICLE WEIGHT RATING	2 TON	3.5 TON	5 TON	30 - 60 TON
12" - 48" (300mm - 1200mm)	3" (80mm)	6" (150mm)	9" (230mm)	36" (900mm)
60" (1500mm)	6" (150mm)	9" (230mm)	12" (300mm)	36" (900mm)

NOTE: VEHICLES IN EXCESS OF 60T MAY REQUIRE ADDITIONAL COVER

TABLE 4, MAXIMUM COVER

	COMMON BORROW	GRANULAR	
PIPE DIAM.	MnDOT 2105.1A6	BORROW MnDOT 3149.2B1	SELECT MnDOT 3149.2B2
12" (300mm)	12 (3.7m)	21 (6.4m)	27 (8.2m)
15" (375mm)	12 (3.7m)	22 (6.7m)	29 (8.8m)
18" (450mm)	12 (3.7m)	19 (5.8m)	25 (7.6m)
24" (600mm)	11 (3.4m)	16 (4.9m)	22 (6.7m)
30" (750mm)	12 (3.7m)	17 (5.2m)	23 (7.0m)
36" (900mm)	11 (3.4m)	16 (6.7m)	22 (6.7m)
42" (1050mm)	11 (3.4m)	16 (6.7m)	22 (6.7m)
48" (1200mm)	10 (3.1m)	15 (4.6m)	21 (6.4m)
60" (1500mm)	11 (3.4m)	16 (4.9m)	23 (7.0m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE
UNIT WEIGHT OF SOIL (γs) = 120 PCF

NOTES:

1. ALL PIPE SYSTEMS SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT PER TABLE 3.
2. CONSTRUCTION SEQUENCE SHALL BE PER MnDOT 2451.3D.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL PER MnDOT 2145.3D.
4. CLASS B BEDDING: SUITABLE MATERIAL SHALL BE PER MnDOT 2105. COMPACTION SHALL MEET THE REQUIREMENTS OF MnDOT 2105.3F1 "SPECIFIED DENSITY". UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-900mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED.
5. FINAL BACKFILL: SUITABLE MATERIAL SHALL MEET PROJECT SPECIFICATIONS FOR EXCAVATION AND EMBANKMENT.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_DR_LEAD.dgn 03/21/2016 2:20:49 PM

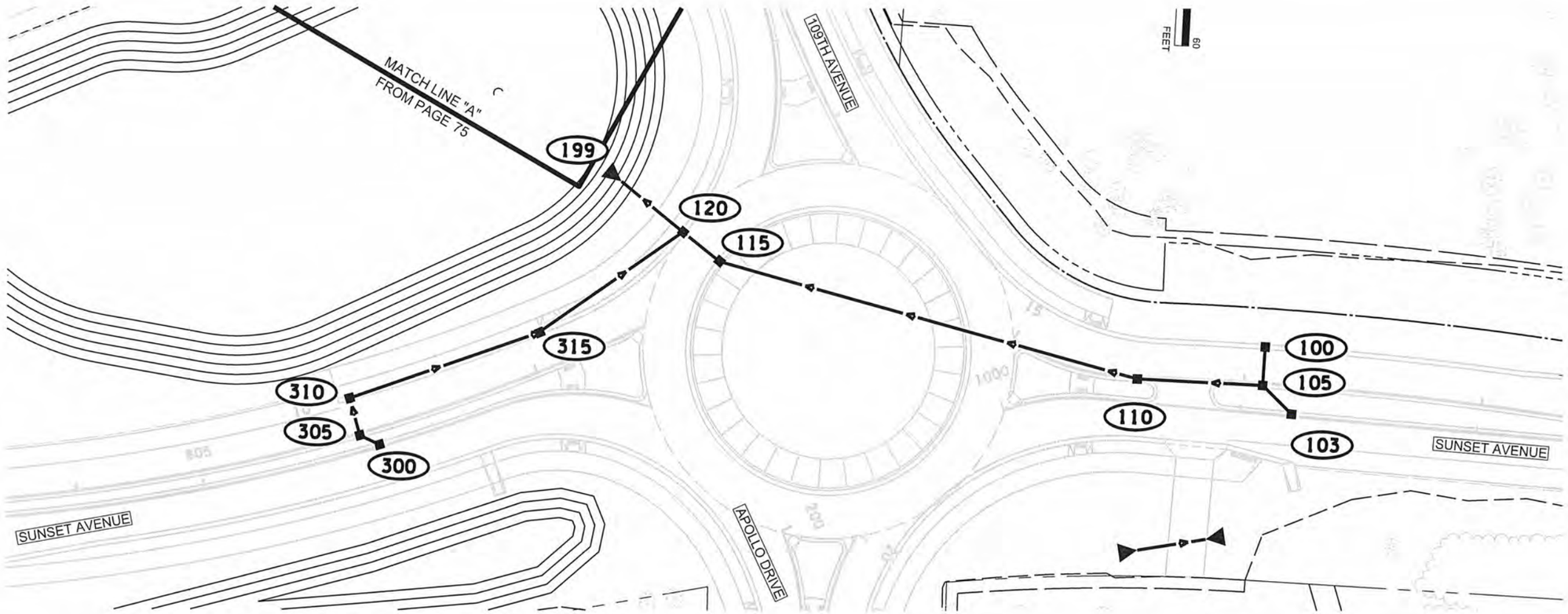
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 3-22-16 LICENSE NO. 49046

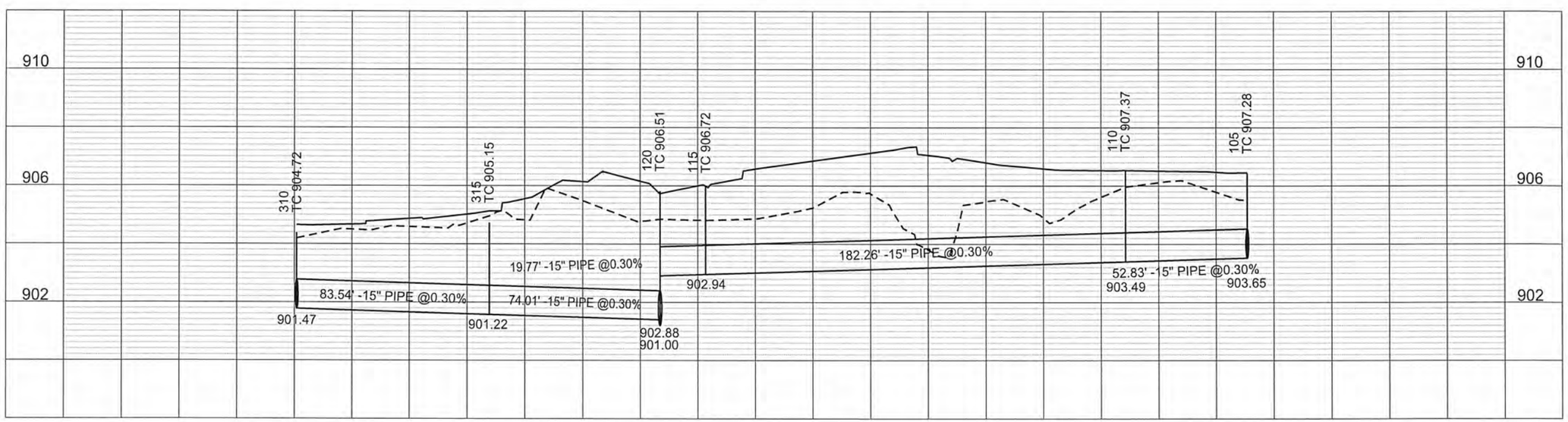
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

DRAINAGE DETAILS





NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_DR_P1.dgn 04/22/2016 1:26:43 PM

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CITY OF BLAINE SAP 106-020-034
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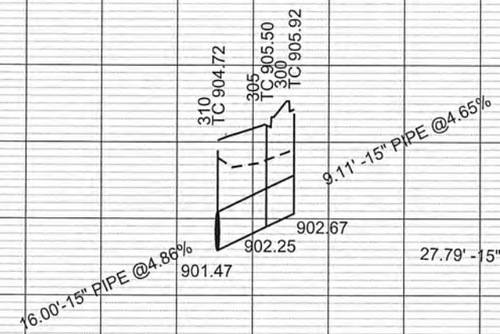
DRAINAGE LINE 100 & 300

120-199



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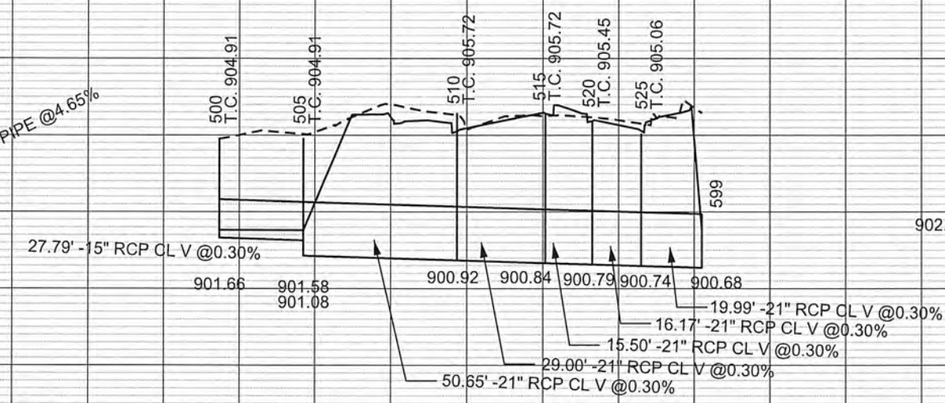

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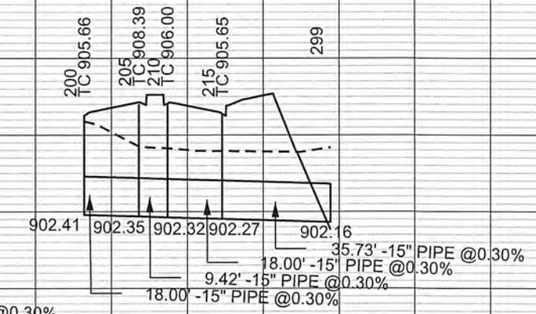

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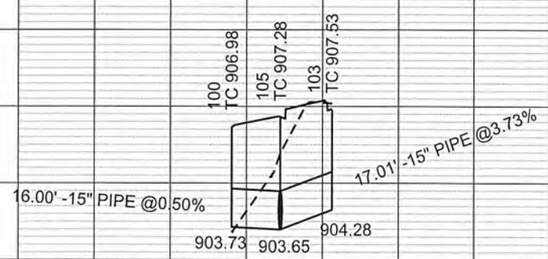

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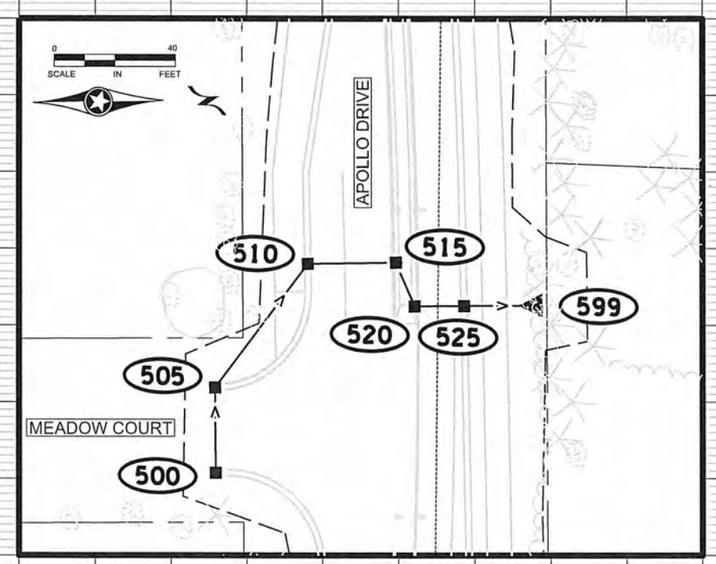

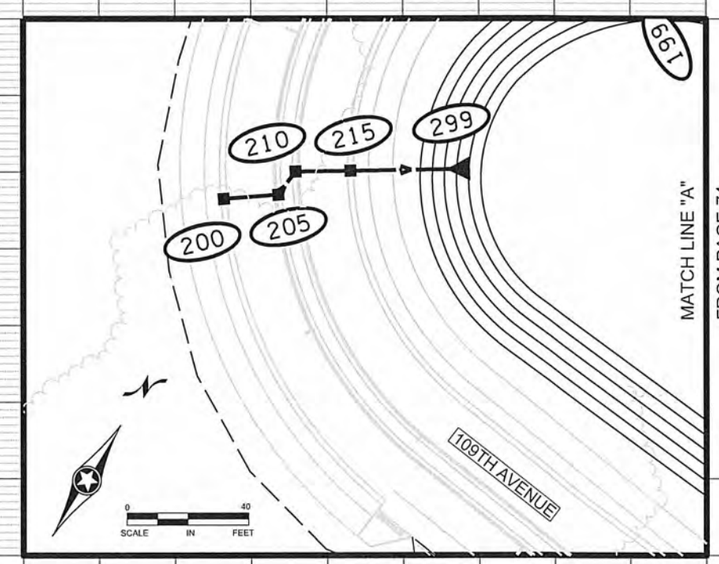

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED POND GRAPHIC

NAME: P:\02-612-13\Plan\002612013_DR_P1.dgn 04/22/2016 1:26:52 PM

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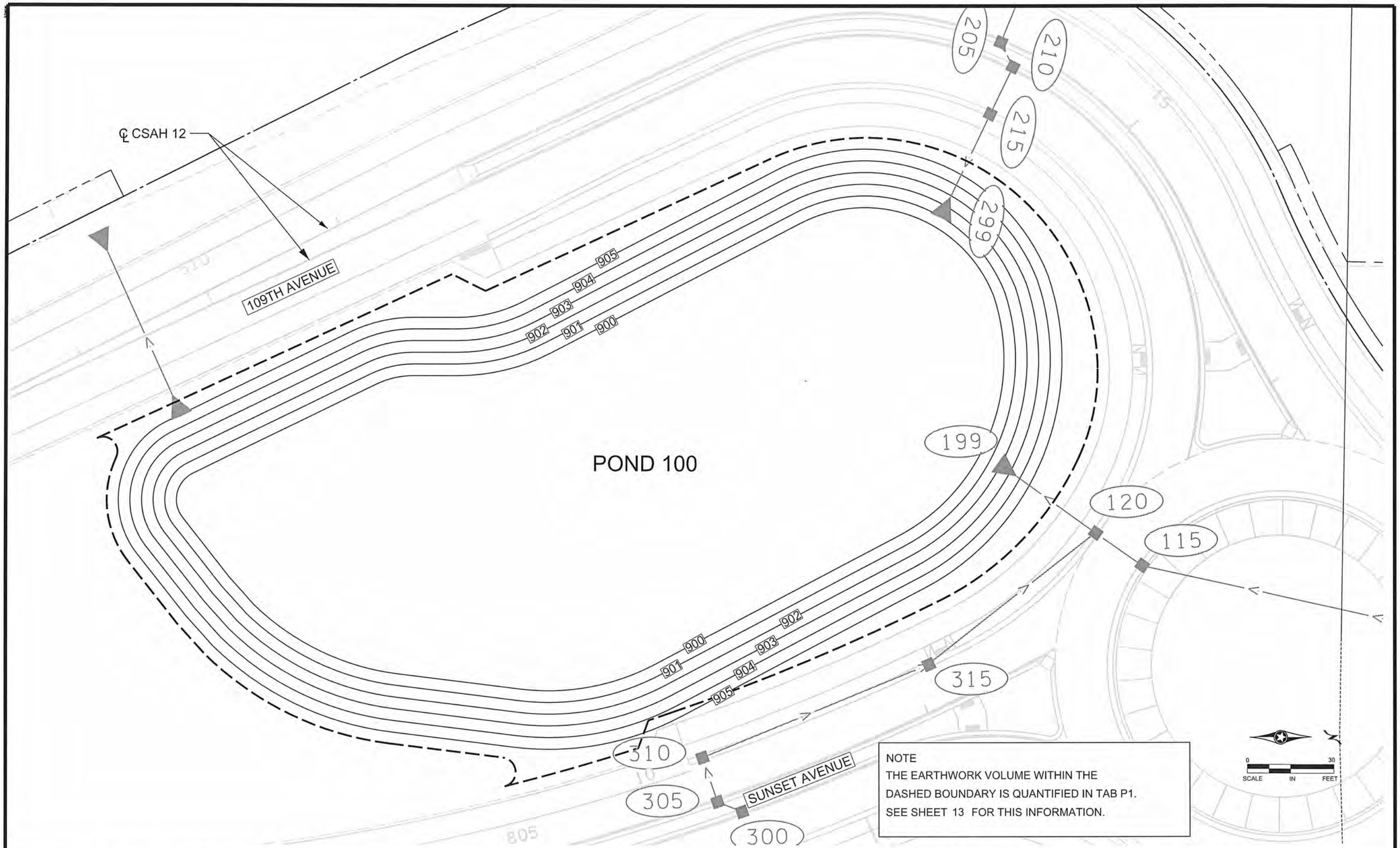
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

DRAINAGE LEADS
DRAINAGE LINE 200



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	REMOVED FILL SPECIAL AREAS, CONTOURS AND NOTES
2	4/22/2016	JCF	NJD	JEO	REMOVED SNOW FENCE AND BIOROLL

NAME: P:\02-612-13\Plan\002612013_POND_P1.dgn 04/22/2016 11:26:11 AM

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CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

POND 100 GRADING PLAN

℄ CSAH 12

℄ CR 53

APPROX. DITCH SPLIT

109TH AVENUE

SUNSET AVENUE

NOTE
THE EARTHWORK VOLUME WITHIN THE
DASHED BOUNDARY IS QUANTIFIED IN TAB EE.
SEE SHEET 13 FOR THIS INFORMATION.

0 40
SCALE IN FEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_GRADING.dgn 03/21/2016 2:28:16 PM

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

PRINT NAME: NICHOLAS J DOBDA

SIGNATURE:

DATE: 3-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16

DESIGN BY NJD DATE 08-01-15

CHECKED BY JEO DATE 01-15-16

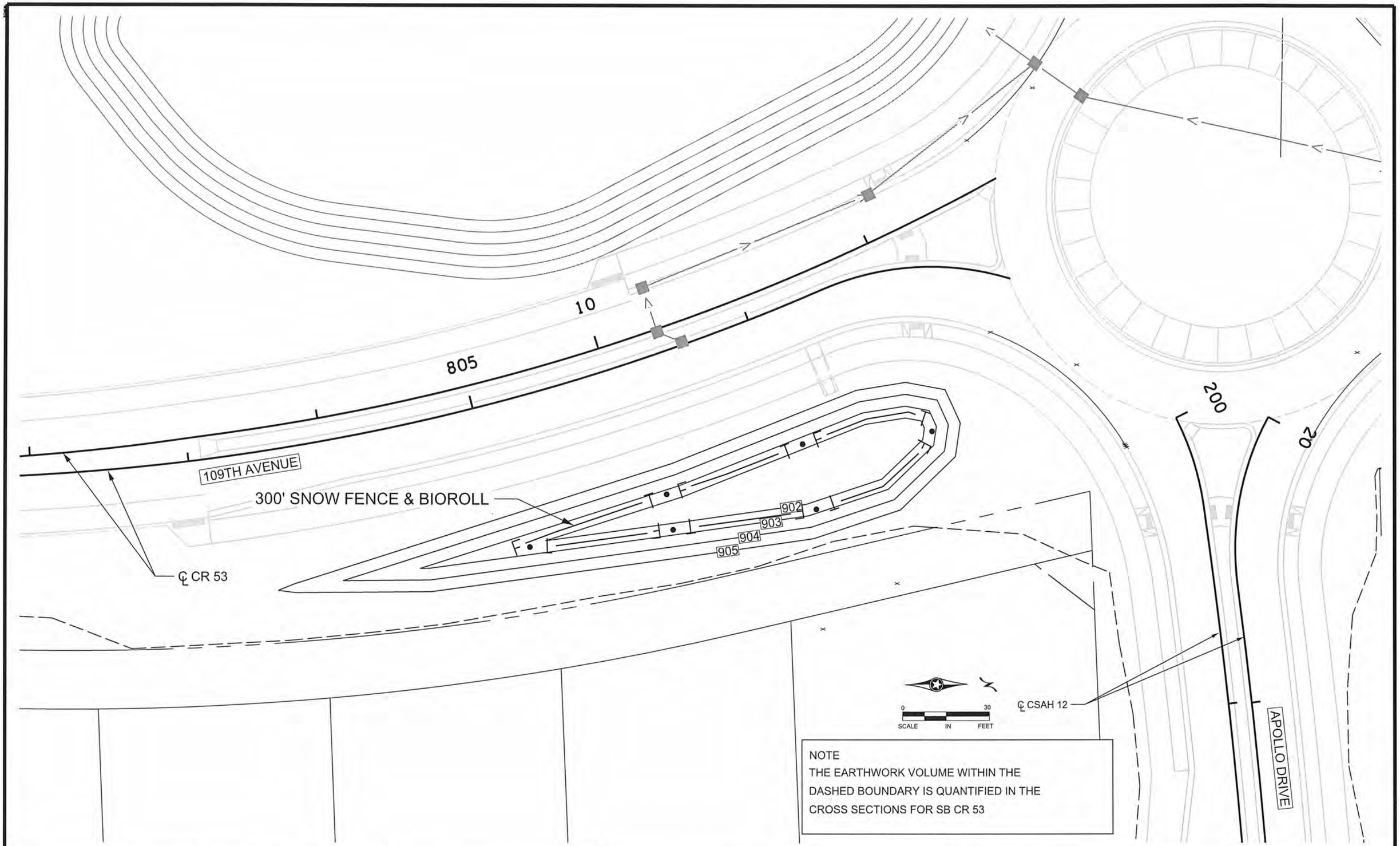
ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

MISC. GRADING PLAN

Sheet 77 of 141 Sheets



NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	UPDATED BIOROLL / SNOW FENCE QTY

NAME: P:\02-612-13\Plan\002612013_POND_P2.dgn 04/22/2016 11:22:50 AM

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

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SIGNATURE:

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

POND 200 GRADING PLAN

Sheet 78 of 141 Sheets

PROJECT LOCATION AND GENERAL INFORMATION

THIS ROAD CONSTRUCTION PROJECT ADDS A ROUNDABOUT, MEDIAN AND BITUMINOUS TRAIL.

THIS PROJECT WILL PRIMARILY CONSIST OF GRADING, PLACING AGGREGATE BASE, BITUMINOUS PAVING, CURB AND GUTTER, STORM SEWER CONSTRUCTION, STORM WATER PONDING.

THIS PROJECT WILL REQUIRE THE DISTURBANCE OF **8.191 ACRES** OF SOILS AND DOES CREATE THE POTENTIAL FOR SEDIMENT DISCHARGE FROM THE SITE.

TRAINING REQUIREMENTS

THE CONTRACTOR WILL ENSURE COMPLIANCE WITH THE TRAINING REQUIRED IN PART 111.A.2 OF THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY.

THE INDIVIDUALS TRAINED AND THE TRAINING RECEIVED WILL BE RECORDED IN THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS PERSONEL FOR THE PROJECT HAVE BEEN DETERMINED.

LONG TERM OPERATION AND MAINTENANCE

THE CITTIES OF BLAINE AND LINO LAKES STREETS DIVISIONS WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT AND SNOW REMOVAL OPERATIONS ALONG THE PROPOSED TRAIL.

JEAN KEELY	RICK DEGARDNER
CITY ENGINEER	CITY OF LINO LAKES
Jjkeely@ci.blaine.mn.us	rick.degardner@ci.lino-lakes.mn.us
CITY OF BLAINE	600 TOWN CENTER PARKWAY
10801 TOWN SQUAR DR NE	LINO LAKES, MN 55014
BLAINE, MN 55449	651-982-2444
763-785-6171	651-982-2439

RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS

THE FOLLOWING TABLE IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE PROJECT DISTURBED SOIL BOUNDARIES, WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE, DURING OR AFTER CONSTRUCTION.

STORMWATER FROM A DISCHARGE POINT ON THE PROJECT THAT FLOWS TO A SURFACE WATER IDENTIFIED AS IMPAIRED AND/OR SPECIAL MUST INCLUDE THE FOLLOWING ADDITIONAL BMP REQUIREMENTS:

1) ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

2) TEMPORARY SEDIMENT BASINS OR PERMANENT PONDS MUST BE USED FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (10+) OR MORE ACRES DISTURBED AT ONE TIME.

RECEIVING SURFACE WATERS WITHIN 1 MILE OF PROJECT		
NAME OF WATER BODY	SPECIAL	IMPAIRED
LOCHNESS LAKE	NO	NO
UNNAMED LAKE (W. OF APPALOOSA LN)	NO	NO
COUNTY DITCH 62 (APPROX 1 MILE AWAY)	NO	NO
COUNTY DITCH 10 (APPROX 1 MILE AWAY)	NO	NO

DISTURBED SOIL AREA

TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS **8.191 ACRES**

IMPERVIOUS SOIL AREA

EXISTING AREA OF IMPERVIOUS SURFACE IS **2.266 ACRES.**

POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE **4.109 ACRES.**

SOIL TYPES

THE PREDOMINANT SOIL TYPE FOUND ON THIS PROJECT IS SAND.

SEDIMENT CONTROL PRACTICES

TEMPORARY STOCKPILED TOPSOIL BERMS MUST INCLUDE PERIMETER BMP'S AS PROVIDED IN THE PLAN AT LOCATIONS WHERE CONSTRUCTION STORMWATER DRAINS FROM THE PROJECT

IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES, THERE SHALL BE NO UNBROKEN SLOPE LENGTH OF GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 1:3 OR STEEPER

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMP'S DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL DISCHARGE TO THE INLET HAVE BEEN STABILIZED

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED. STREET SWEEPING MUST BE USED IF SEDIMENT IS BEING TRACKED OFF THE CONSTRUCTION SITE

POLLUTION PROVENTION MEASURES

THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DIRECTED IN THE NPDES PERMIT PART IV.F AS PERTAINING TO SOLID WASTE, HAZARDOUS MATERIALS EXTERNAL TRUCK WASHING, AND CONCRETE WASHOUT ONSITE.

THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

CONSTRUCTION PHASING

SILT FENCE AND/OR OTHER SUITABLE PERIMETER BMP'S AS PROVIDED IN THE PLANS WILL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY. CONSTRUCTION WILL BE REQUIRED TO BE PHASED SO THAT ALL DOWN GRADIENT SEDIMENT CONTROL MEASURES ARE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ANY SOIL DISTURBING ACTIVITIES.

WHEN TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS AT THE TOE OF THE STRIPPED SLOPES ALONG THE PROJECT LIMITS. TEMPORARY VEGETATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH RAPID STABILIZATION AS PROVIDED IN THE PLAN.
STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPPING THE TOPSOIL THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 3 MULCH AND SEED WITHIN 7 OR RAPID STABILIZATION 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

TEMPORARY SEDIMENT BASINS

THIS ROAD CONSTRUCTION PROJECT AS DESIGNED DOES NOT MEET ANY OF THE TEMPORARY SEDIMENT BASIN DISTURBED AREA THRESH HOLD REQUIREMENTS IF PERMANENT POND LOCATIONS ARE CONSTRUCTED PRIOR TO DISCHARGE , TEMPORARY SEDIMENT BASINS WILL NOT BE REQUIRED.

PERMANENT STORMWATER MANAGEMENT SYSTEM

ALL STORMWATER MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING WATERS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING A SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

THIS ROAD CONSTRUCTION PROJECT HAS A GREATER THEN 1 ACRE INCREASE IN IMPERVIOUS AREA.

EROSION PREVENTION PRACTICES

ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THEN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. FOR ALL AREAS WHERE DISTURBED SOILS DRAIN TO AN IMPAIRED OR SPECIAL WATER THE EXPOSED SOIL MUST BE STABILIZED NO LATER THEN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA CEASED. SEE THE IMPAIRED & SPECIAL WATERS SECTION OF THIS SWPPP FOR ADDITIONAL BMP REQUIREMENTS FOR DISTURBED AREAS THAT DRAIN TO A SPECIAL OR IMPAIRED WATER

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.

PIPE CULVERT OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER. THIS WILL INCLUDE DRAINAGE DITCHES THAT DRAIN WATER FROM ANY PORTION OF THE CONSTRUCTION SITE

PROJECT CONTACTS

MPCA	NPDES	LAURAL MEZNER	218-316-3889
MPCA	EMERGENCY	STATE DUTY OFFICER	800-422-0798
DNR	NOT REQUIRED		
COE	NOT REQUIRED		
ANOKA COUNTY DESIGN SWPPP PREPARATION	U OF MN DESIGN OF SWPPP EXPIRES 5/17	JEFF FOSTER	763-862-4268
ANOKA COUNTY PROJECT REPRESENTATIVE	U OF MN SITE MANAGEMENT EXPIRES 5/17	HARRY GRAMS	763-238-8966
EROSION CONTROL SUPERVISOR (CONTRACTOR)			

Withholding of PaymentNoncompliance

If the Contractor fails to install erosion or sediment control measures ordered by the Engineer, the Engineer may withhold payment from related work until the control measures are undertaken by the Contractor. When the Contractor fails to conduct the quality control program, doesn't conduct the inspections required in the NPDES permit, or fails to take action ordered by the Engineer to remedy erosion or sediment control problems: The Engineer will issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the required work or be subject to a $500.00 per calendar day deduction for noncompliance.

LOCATION OF SWPPP REQUIREMENTS

REQUIREMENT	PLAN		MN/DOT SPECIFICATION	SPECIAL PROVISION
	TITLE	LOCATION		
NPDES PERMIT COMPLIANCE			1701, 1702, &1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CERTIFIED PERSONNEL IN EROSION AND SEDIMENT CONTROL SITE MANAGEMENT			1506, 1717, & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CHAIN OF RESPONSIBILITY	AGENCY CONTACTS		1506, 1717, & 2573	
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETING INSPECTION / MAINTENANCE LOG	AGENCY CONTACTS		1717 & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION	AGENCY CONTACTS			
SITE MAP / RECEIVING WATERS / DIRECTION OF FLOW			1717	
PROJECT SPECIFIC CONSTRUCTION STAGING			1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME)
TEMPORARY EROSION AND SEDIMENT CONTROL BMP LOCATIONS, INSTALLATION, TIMING OF INSTALLATION AND TYPE OF BMP	QUANTITY TABULATIONS		2573 & 2525	2575 (RAPID STABILIZATION SPECIFICATION)
ADDITIONAL TEMPORARY AND OR PERMANENT EROSION AND SEDIMENT CONTROL BMP'S NOT PROVIDED OR SHOWN IN THE PLAN			1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 2575 (RAPID STABILIZATION SPECIFICATION)
MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES, REMOVAL OF TRACKED SEDIMENT, REMOVAL OF DEVICES			1717 & 2573	1514 (MAINTENANCE DURING CONSTRUCTION) 1717 (LAND AIR & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
DEWATERING			2105.3B, & 2451.3C	DEWATERING MAY ALSO REQUIRE DNR PERMIT. NO DEWATERING IS ANTICIPATED FOR THIS PROJECT
FINAL STABILIZATION	QUANTITY TABULATIONS EROSION CONTROL PLAN		1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS	QUANTITY TABULATIONS EROSION CONTROL PLAN		2575	2575 (RAPID STABILIZATION SPECIFICATION)
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL DETAILS		2575	2575 (CONTROLLING EROSION AND ESTABLISHING VEGETATION)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_SWPPP.dgn 03/21/2016 2:32:06 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SWPPP NARRATIVE

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Training

Individual revising or amending the SWPPP and individuals performing inspections must fill in the following table.

Name of on-site personel trained	
Dates of training	
Name of instructor(s)	
Entity providing training	
Content of training course or workshop	

Amending the SWPPP

The SWPPP must be amended to record changes or modifications to permanent BMP's or other storm water treatment systems and removals of temporary BMP's. Changes to temporary BMP's may be recorded on this sheet. Include a brief description of the problem, location, nature of alteration, and comments. This record is to be retained for three years after project completion.

Date Reported	Plan Location (sheet)	Project Location (station)	Problem, solution, and notes

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Plan\002612013_SWPPP.dgn 03/21/2016 2:32:07 PM

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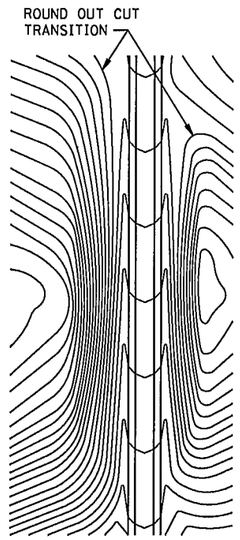
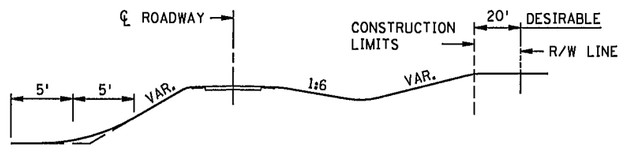
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

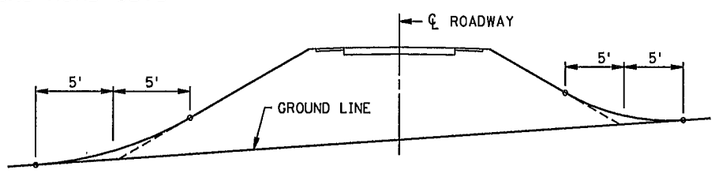
SWPPP NARRATIVE



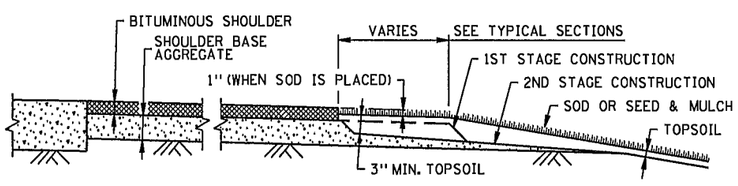
CONTOURING ROAD CUTS



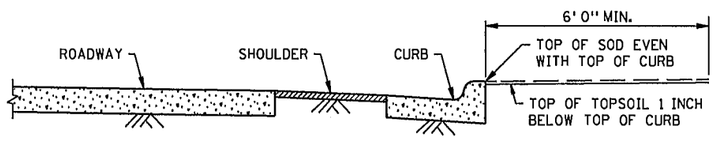
ROUNDING SHOULDERS AND BACKSLOPES



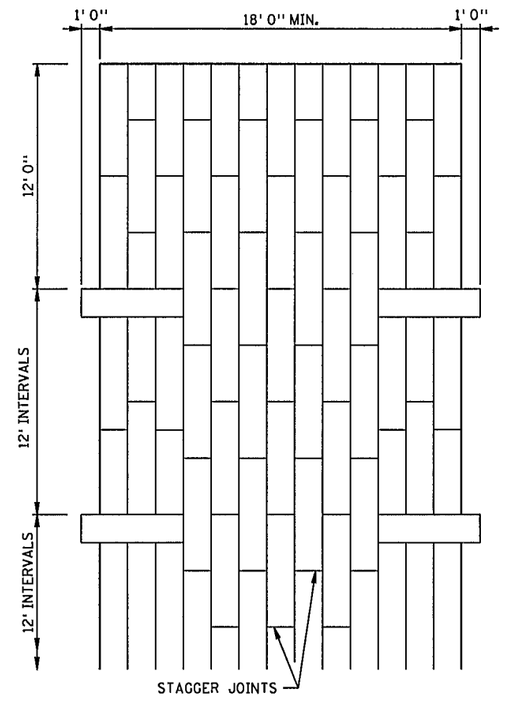
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



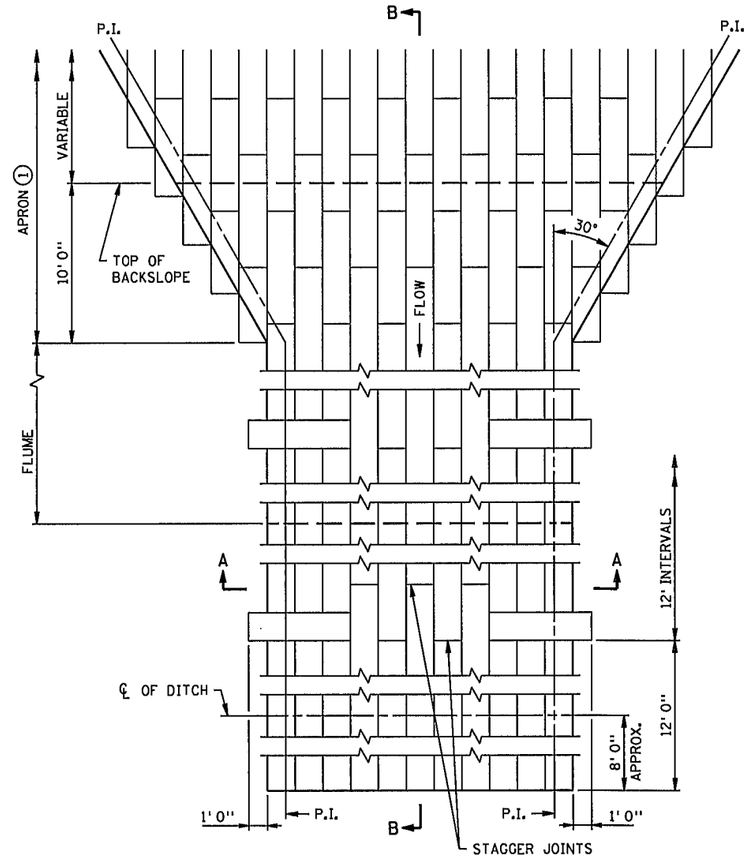
SHAPING AND TOPSOILING INSLOPES



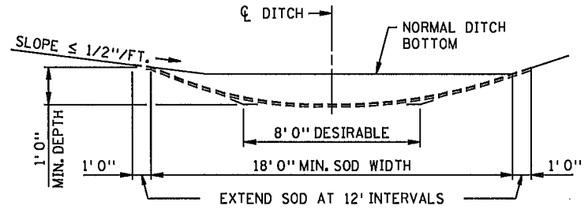
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

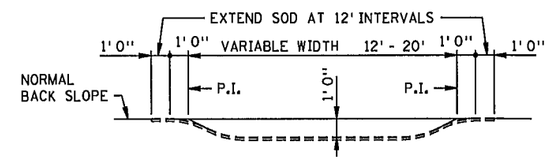


PLAN VIEW

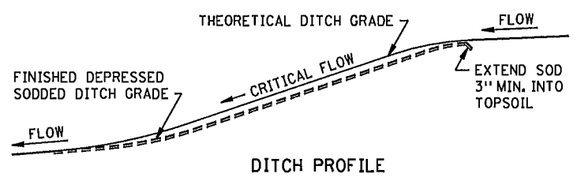


SODDED DITCH CROSS SECTION

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

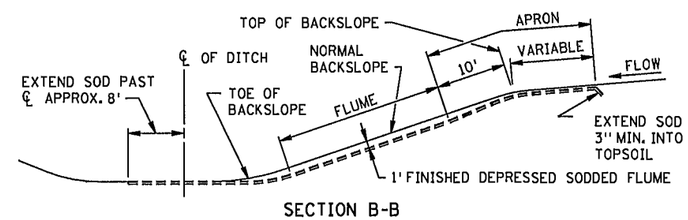


SECTION A-A



DITCH PROFILE

SODDED DITCH DETAILS



SECTION B-B

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-6-2014

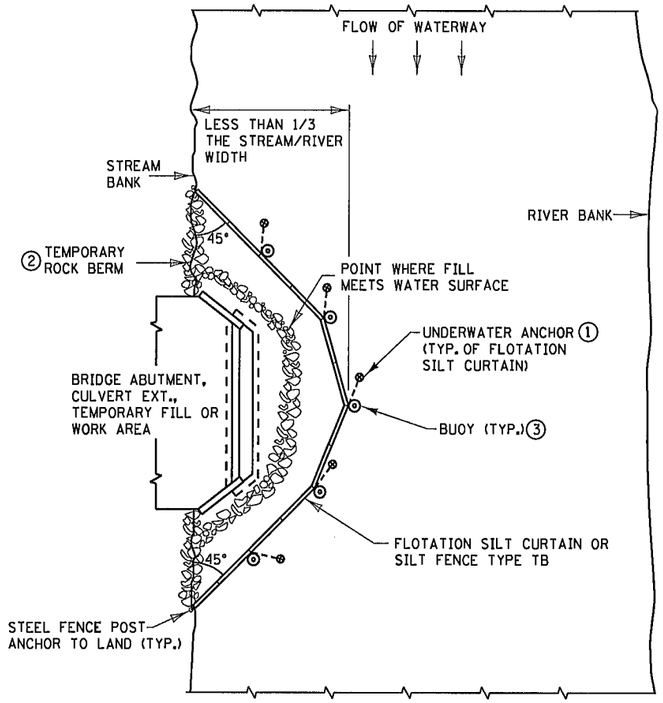
PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

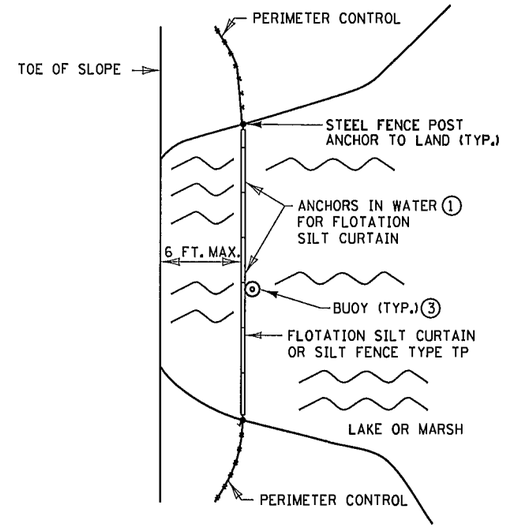
STANDARD PLAN 5-297.404 — 1 OF 1

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

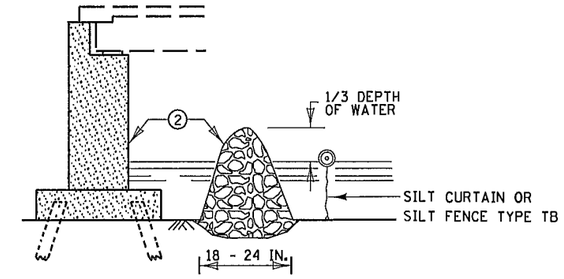
SHEET 81 OF 141



PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤

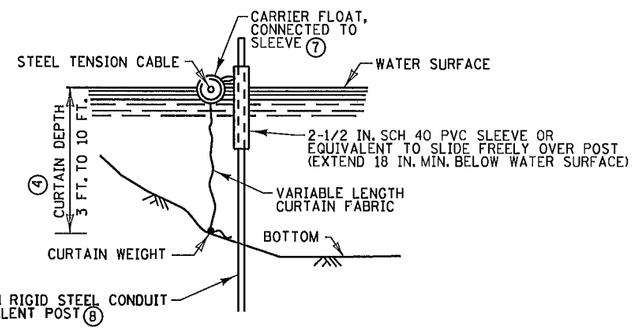


TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

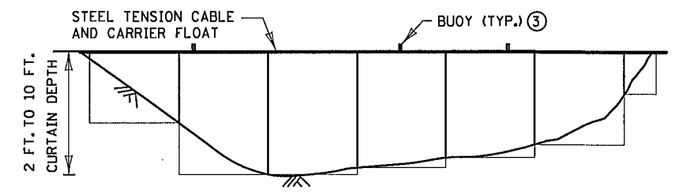
INSTALLATION GUIDELINES
SILT FENCE TYPE TB
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: STILL WATER
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 2 FT./SEC.
MAXIMUM WAVE HEIGHT: 1 FT

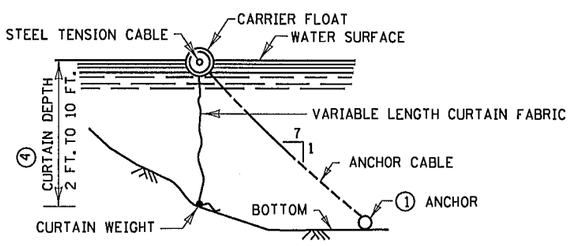
INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



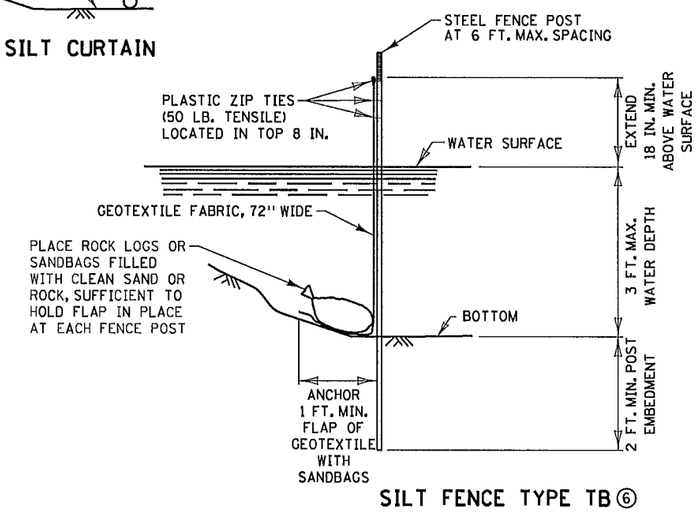
ALTERNATE FLOTATION SILT CURTAIN



FRONT VIEW FOR FLOTATION SILT CURTAIN



FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥

NOTES:

SEE SPECS. 2573, 3886, 3887 & 3893.

① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.

② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.

③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.

④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.

⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.

⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.

⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.

⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

REVISION:
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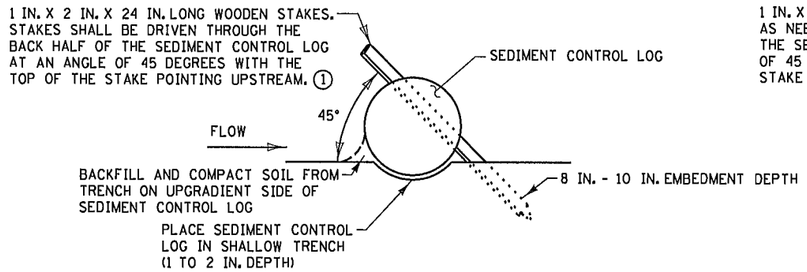
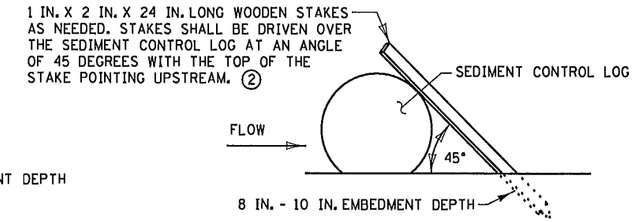
MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
REVISED:
APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL
SILT CURTAIN OR SILT FENCE TYPE TB
STANDARD PLAN 5-297.405 — 1 OF 7
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007
SHEET 82 OF 141

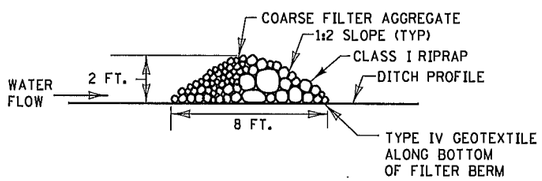


TYPES: STRAW, WOOD FIBER, OR COIR

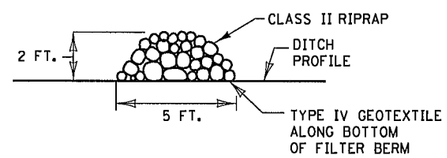


TYPES: WOOD CHIP, COMPOST, OR ROCK

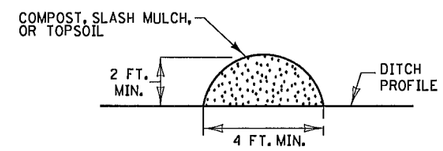
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

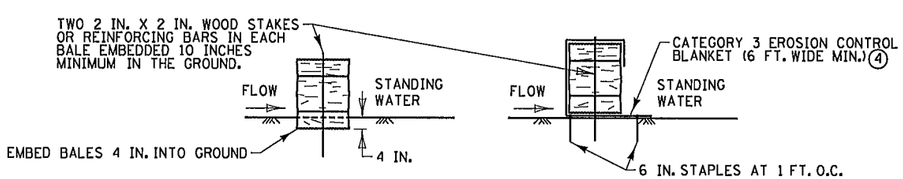


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

BLANKET METHOD (ALTERNATE)

BALE BARRIERS 3

NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

1. SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
2. PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
3. TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
4. INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

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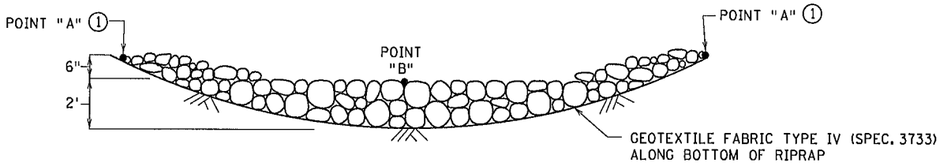
TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

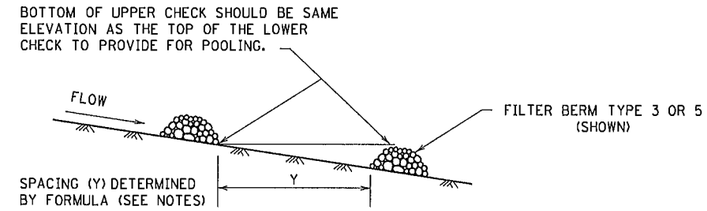
STANDARD PLAN 5-297.405 — 2 OF 7

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

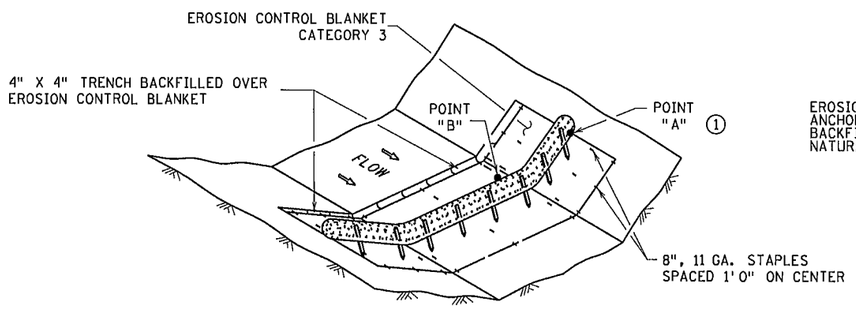
SHEET 83 OF 141

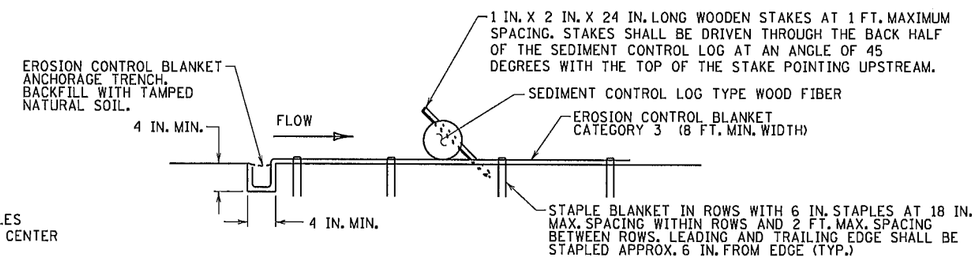


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
(FOR USE ON ROUGH GRADED AREAS)

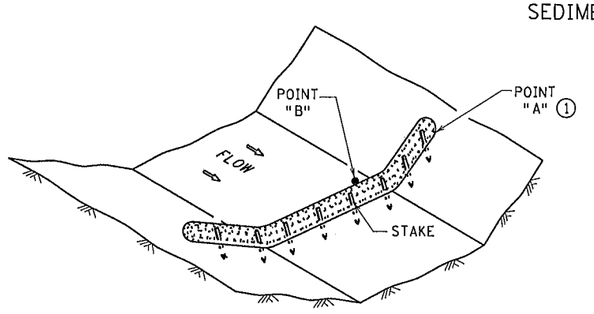


DITCH CHECK SPACING
(FOR ALL FILTER BERM TYPES)





SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
(FOR USE ON ROUGH GRADED AREAS)

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

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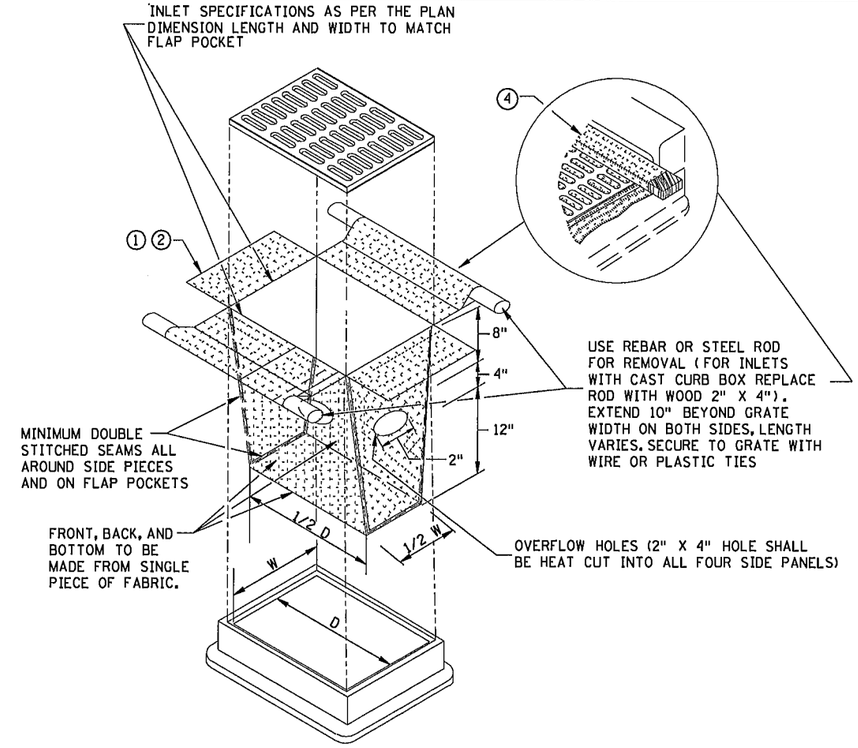
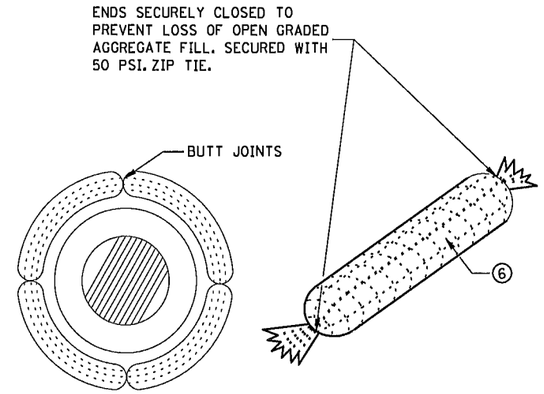
MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
STATE DESIGN ENGINEER
APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL
DITCH CHECK
STANDARD PLAN 5-297.405 — 3 OF 7
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007
SHEET 84 OF 141

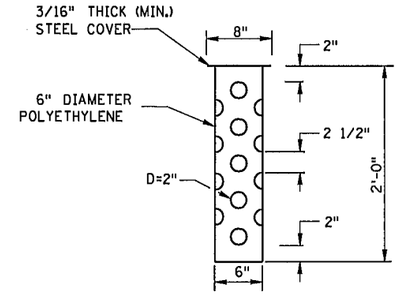


FILTER BAG INSERT 3

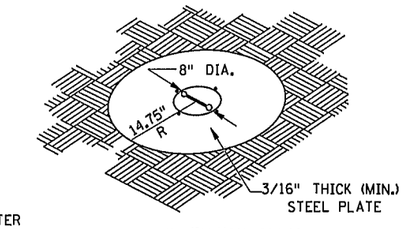
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



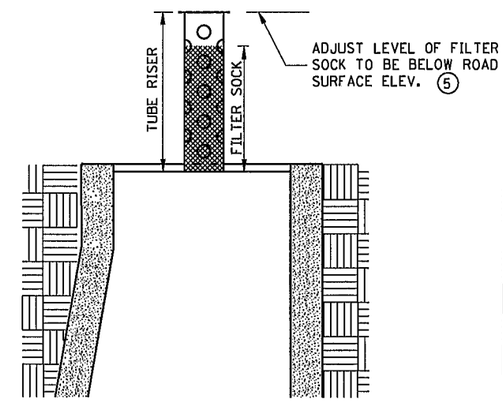
ROCK LOG/COMPOST LOG



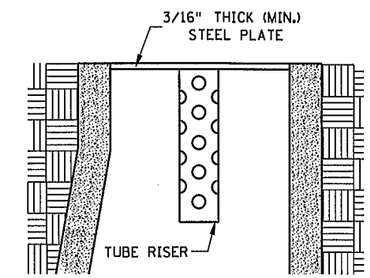
TUBE RISER



PERSPECTIVE VIEW

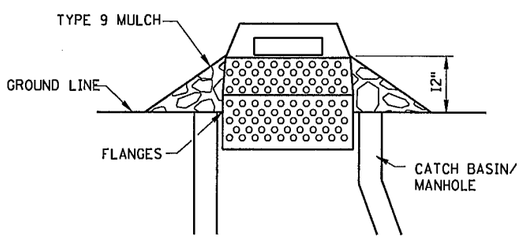


SECTION (UP POSITION)



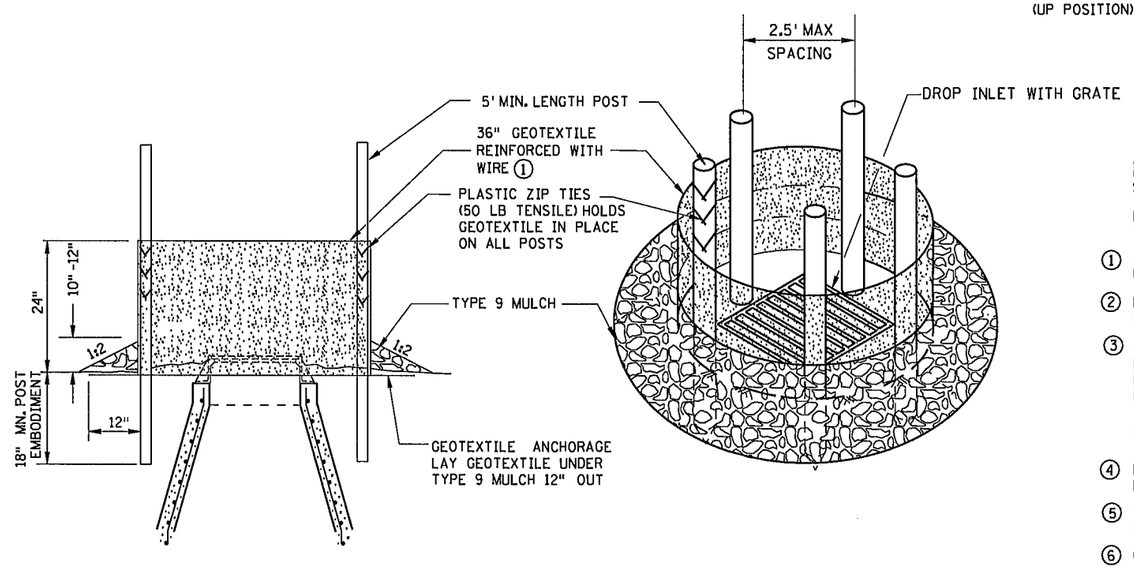
SECTION (DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

1. ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
2. FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
3. INSTALLATION NOTES:
   DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
4. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
5. SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
6. GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

APPROVED: 8-6-2014

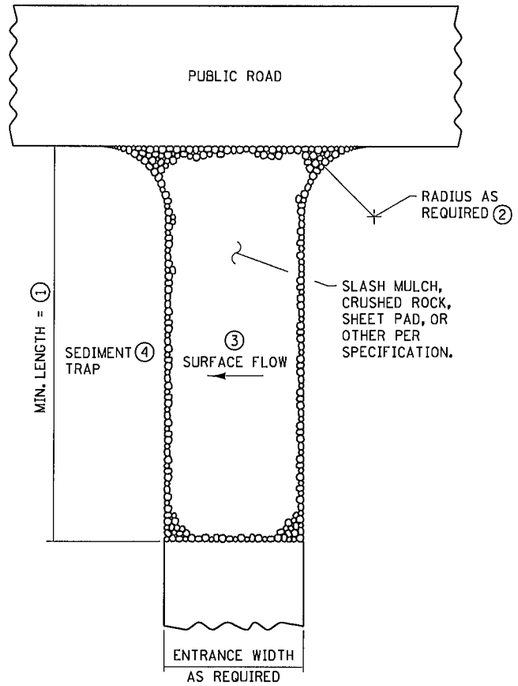
TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

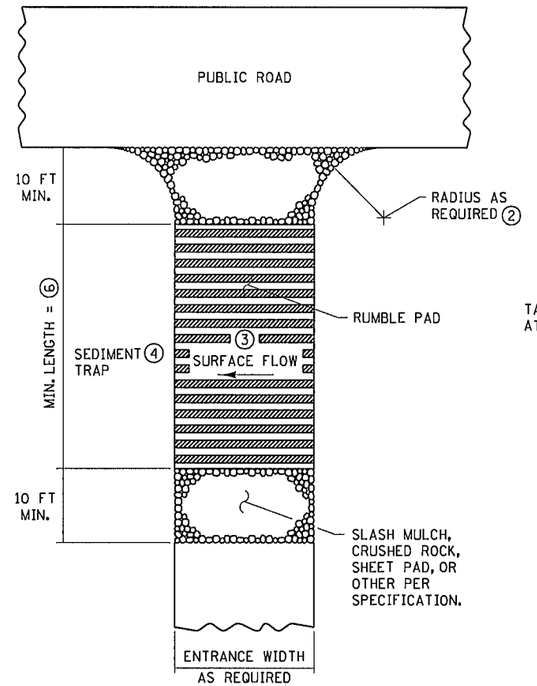
STANDARD PLAN 5-297.405 — 4 OF 7

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

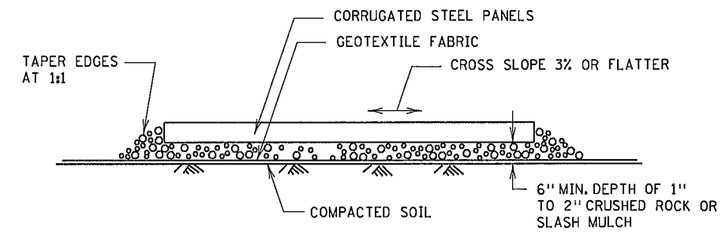
SHEET 85 OF 141



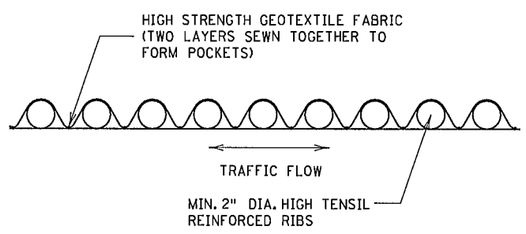
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



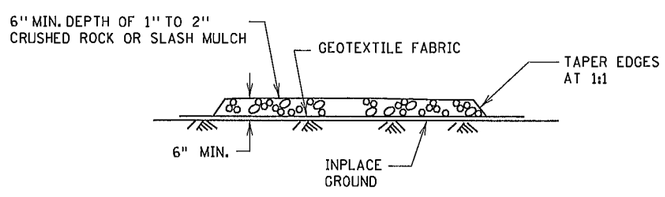
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

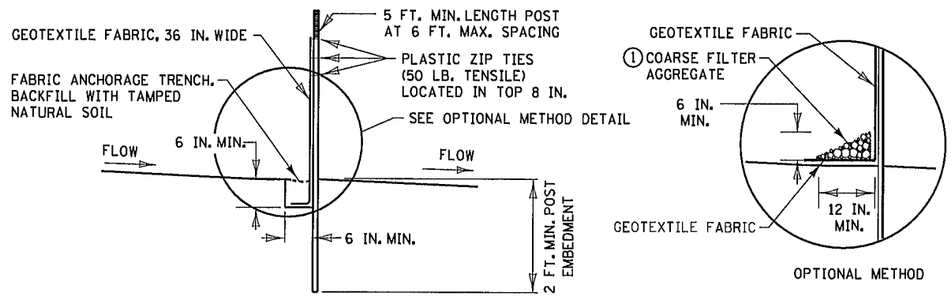
APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL

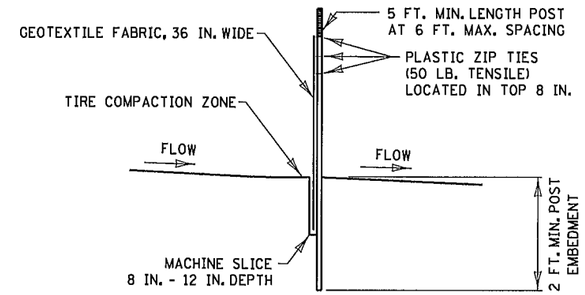
CONSTRUCTION EXITS

STANDARD PLAN 5-297.405 — 5 OF 7

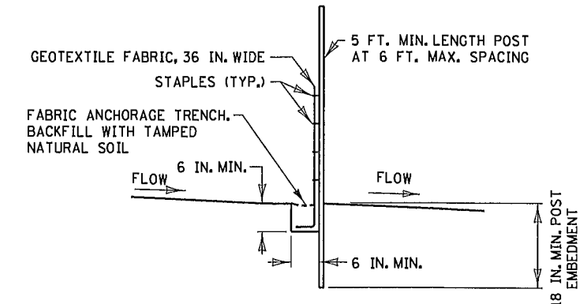
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



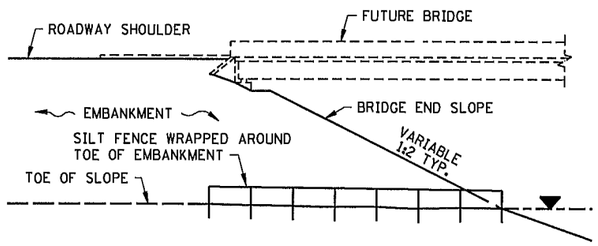
SILT FENCE TYPE HI ②
(HAND INSTALLED)



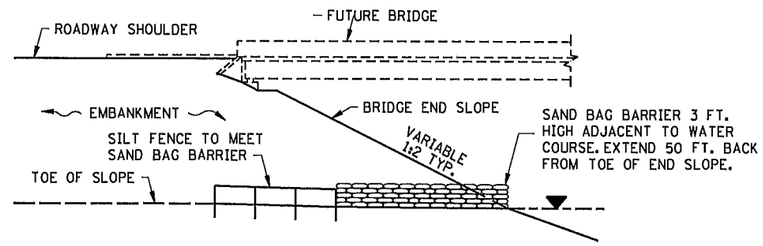
SILT FENCE TYPE MS ②
(MACHINE SLICED)



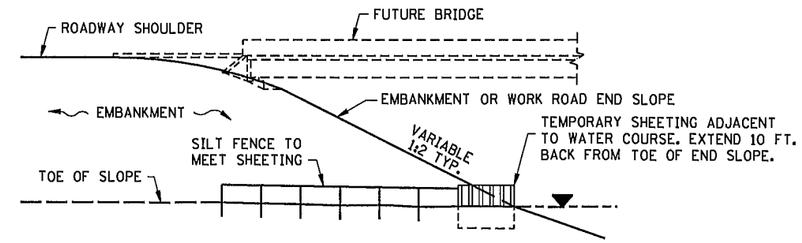
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

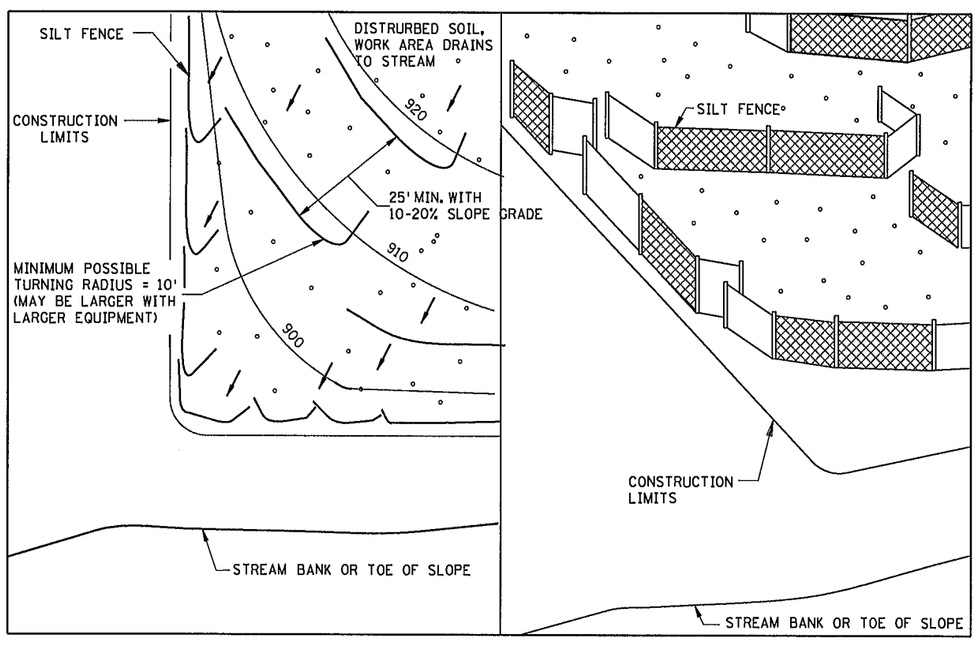


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

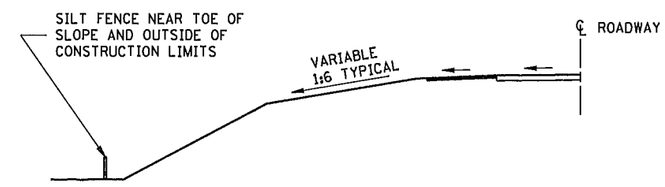
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 8-6-2014
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

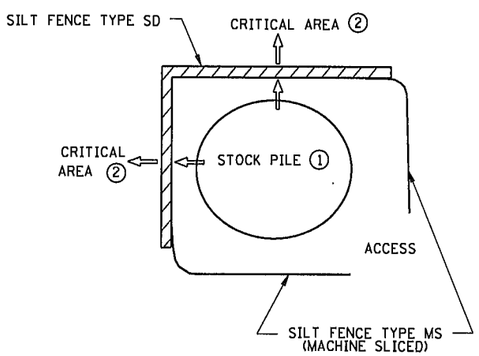
STATE DESIGN ENGINEER

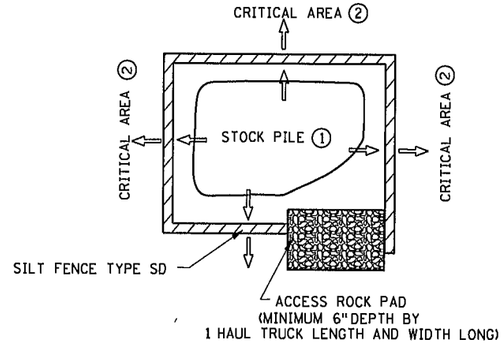
APPROVED: 8-6-2014

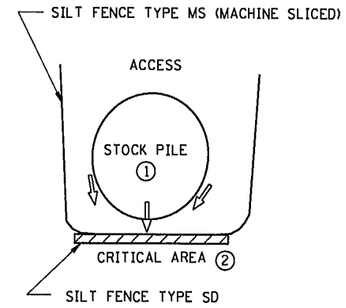
TEMPORARY SEDIMENT CONTROL
SILT FENCE

STANDARD PLAN 5-297.405 — 6 OF 7

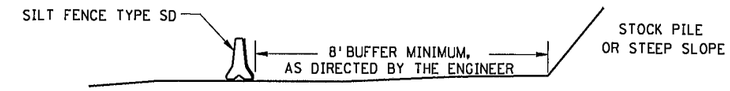
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



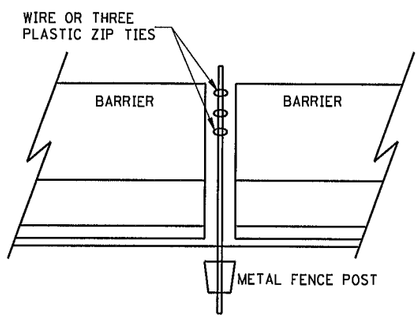




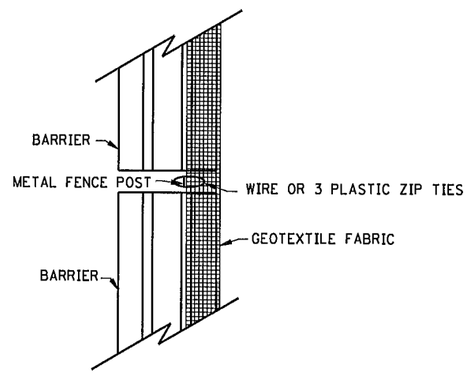
STOCK PILE CONTAINMENT



STOCKPILE SEDIMENT CONTROL

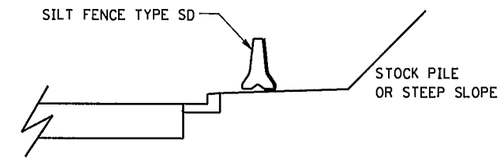


PROFILE VIEW

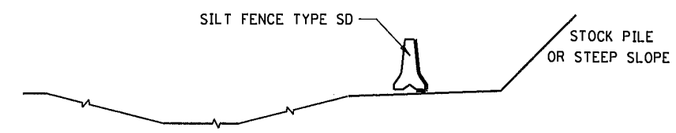


TOP VIEW

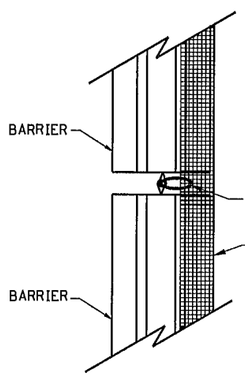
SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITHOUT LOOP BARS



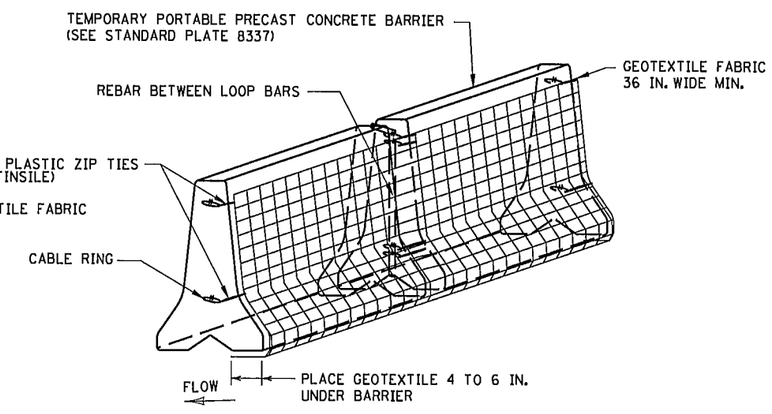
CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW



PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITH LOOP BARS

NOTES:

SEE SPECS. 2533, 2573 & 3886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.

② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISION:

APPROVED: 8-6-2014

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL

SUPER DUTY SILT FENCE

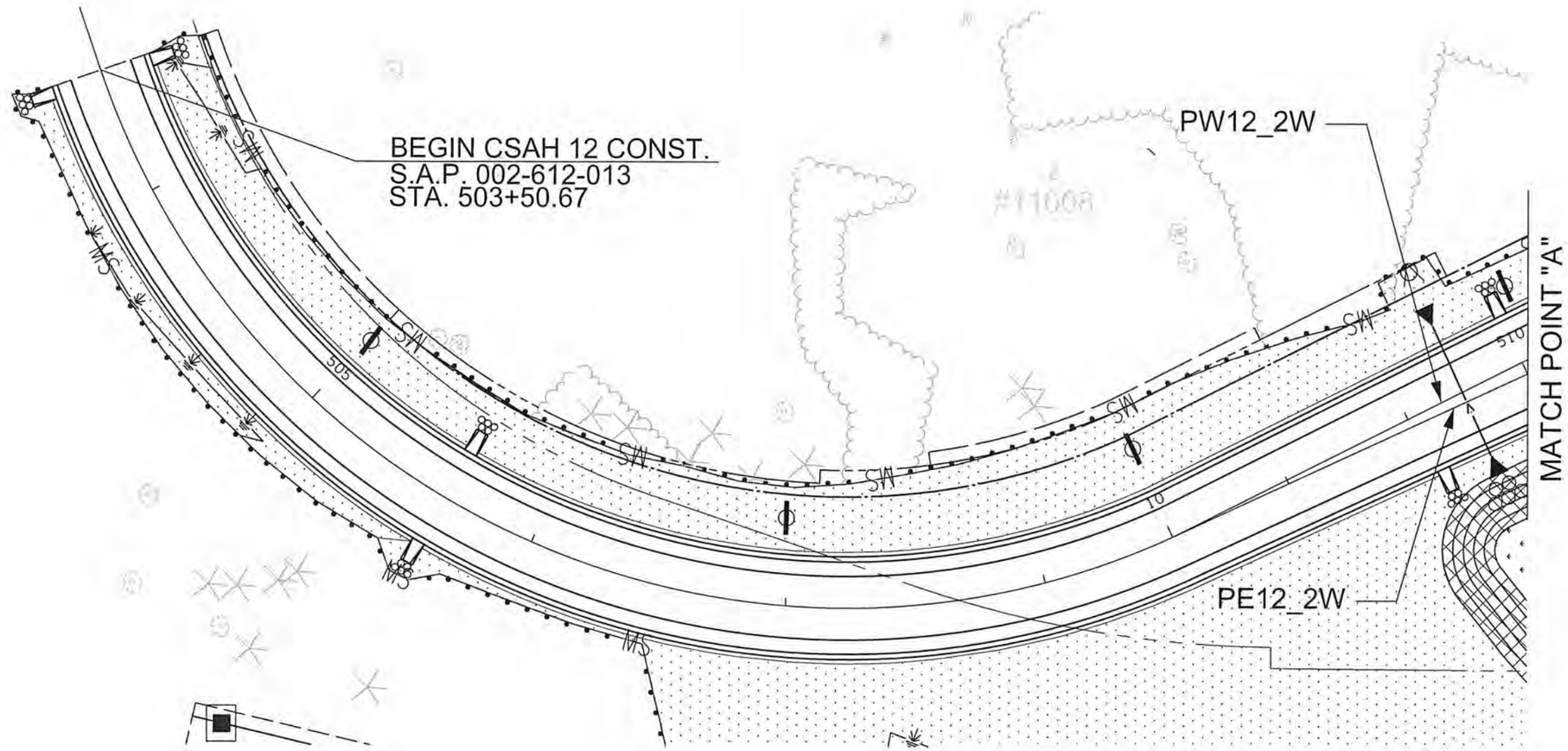
STANDARD PLAN 5-297.405 — 7 OF 7

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

LEGEND

FLOW ARROW	SEED MIXTURE 25-121 (DISK ANC.) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
STORM SEWER	SOD TYPE SALT RESISTANT
SILT FENCE, TYPE MACHINE SLICED	SEED MIXTURE 35-221 (BROADCAST) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
SEDIMAT CONTROL LOG TYP WOOD FIBER EROSION CONTROL BLANKET CAT 3	SEED MIXTURE 33-261 (DISK ANC.) FERTILIZER TYPE 3 EROSION CONTROL BLANKET TYPE 0
CULVERT END CONTROLS (CULVERT PROTECTION)	
STORM DRIAN INLET PROTECTION	
RANDOM RIPRAP	
WETLAND DELINEATION	

0 50
SCALE IN FEET



1 OF 6
WEST APPROACH

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
2	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP / GEO FILTER AT ENDS OF ADDED CONC. FLUMES

NAME: P:\02-612-13\Plan\002612013_ERO_P1.dgn 05/04/2016 10:43:26 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

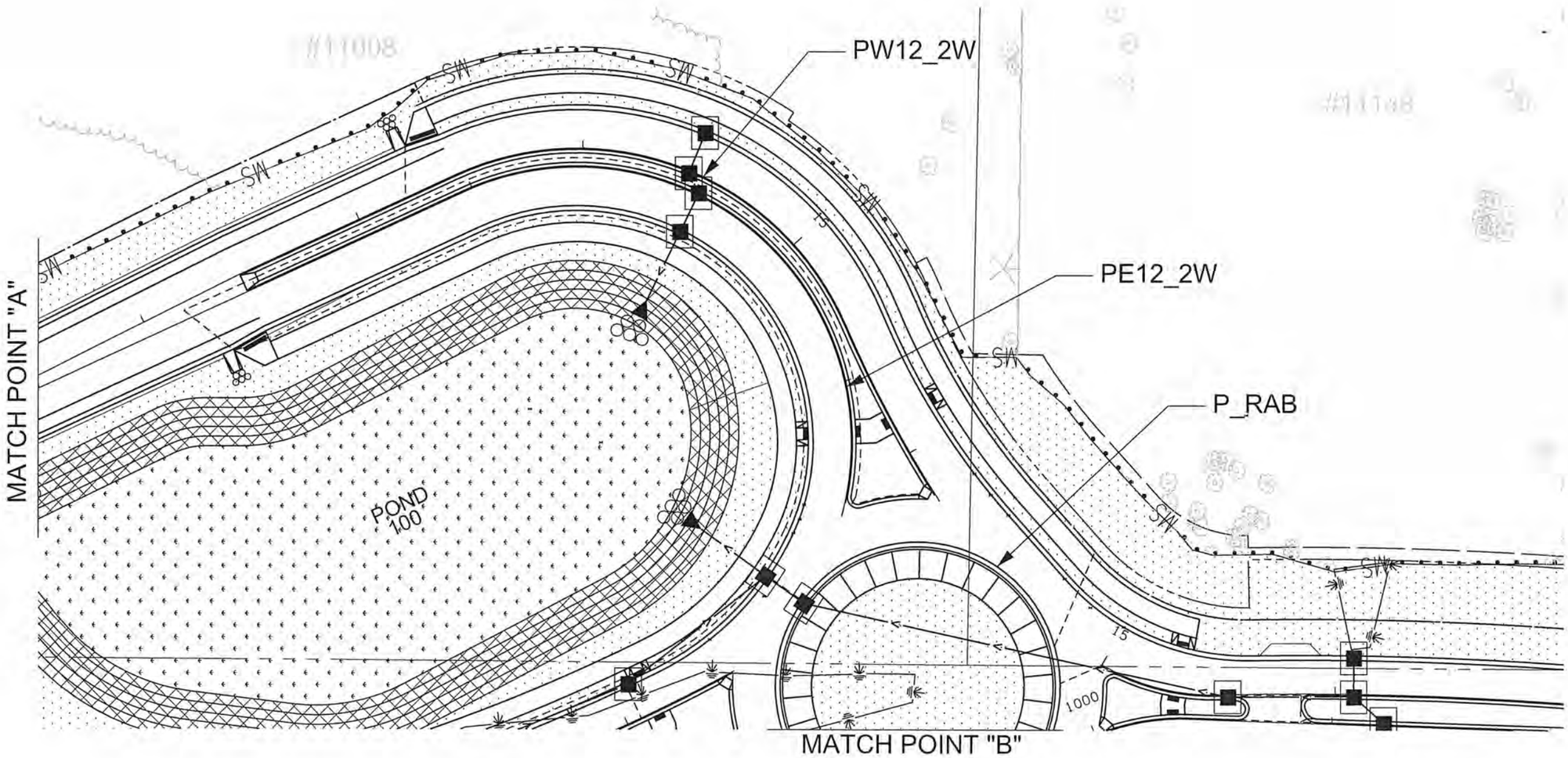
ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TURF ESTABLISHMENT &
EROSION CONTROL PLAN
STA 503+50.67 TO STA 510+00.00

Sheet 89 of 141 Sheets

LEGEND	
FLOW ARROW	SEED MIXTURE 25-121 (DISK ANC.) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
STORM SEWER	
MS SILT FENCE, TYPE MACHINE SLICED	SOD TYPE SALT RESISTANT
SEDIMAT CONTROL LOG TYP WOOD FIBER EROSION CONTROL BLANKET CAT 3	SEED MIXTURE 35-221 (BROADCAST) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
CULVERT END CONTROLS (CULVERT PROTECTION)	
STORM DRIAN INLET PROTECTION	SEED MIXTURE 33-261 (DISK ANC.) FERTILIZER TYPE 3 EROSION CONTROL BLANKET TYPE 0
RANDOM RIPRAP	
WETLAND DELINEATION	

0 50
SCALE IN FEET



2 OF 6
WEST APPROACH CONT.

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
2	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP / GEO FILTER AT ENDS OF ADDED CONC. FLUMES

NAME: P:\02-612-13\Plan\002612013_ERO_P2.dgn 05/04/2016 10:43:28 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

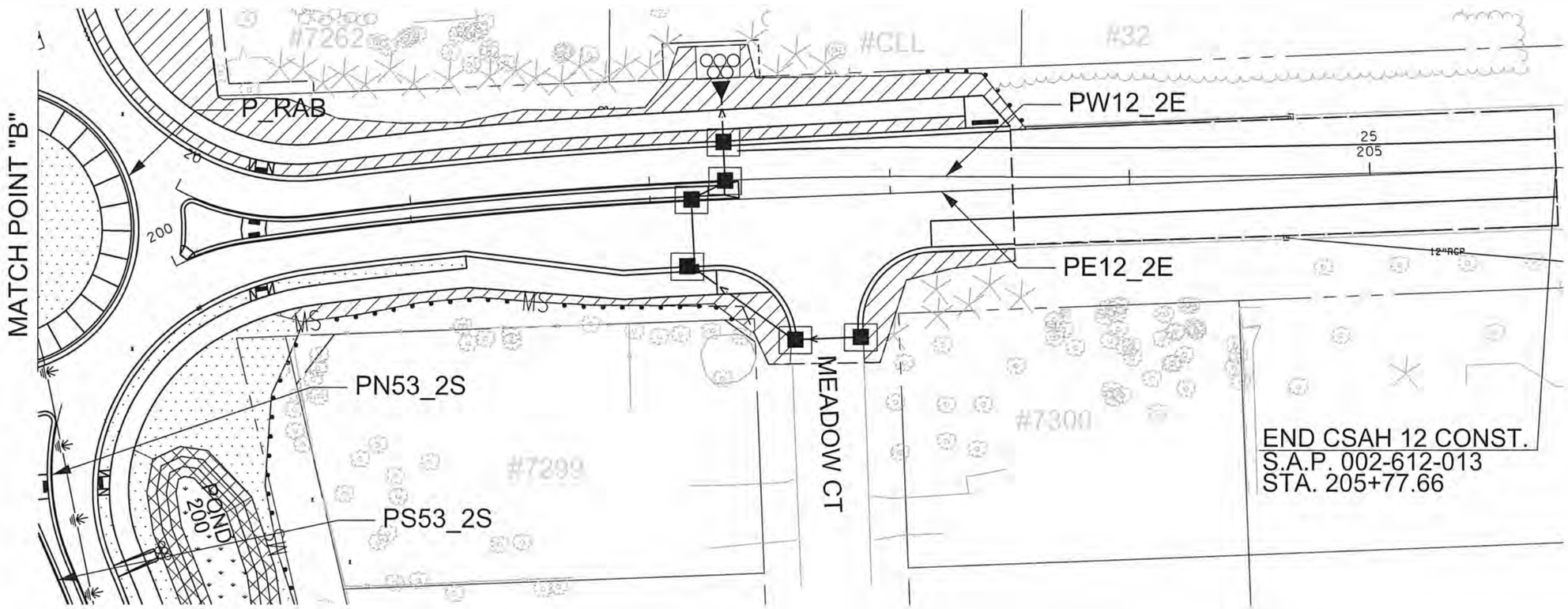
TURF ESTABLISHMENT &
EROSION CONTROL PLAN
STA 510+00.00 TO STA 514+57.12

LEGEND

FLOW ARROW	SEED MIXTURE 25-121 (DISK ANC.) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
STORM SEWER	SOD TYPE SALT RESISTANT
SILT FENCE, TYPE MACHINE SLICED	SEED MIXTURE 35-221 (BROADCAST) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
SEDIMAT CONTROL LOG TYP WOOD FIBER EROSION CONTROL BLANKET CAT 3	SEED MIXTURE 33-261 (DISK ANC.) FERTILIZER TYPE 3 EROSION CONTROL BLANKET TYPE 0
CULVERT END CONTROLS (CULVERT PROTECTION)	
STORM DRIAN INLET PROTECTION	
RANDOM RIPRAP	
WETLAND DELINEATION	

N

0 50
SCALE IN FEET



3 OF 6
EAST APPROACH

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
2	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP / GEO FILTER AT ENDS OF ADDED CONC. FLUMES

NAME: P:\02-612-13\Plan\002612013_ERO_P3.dgn 05/04/2016 10:43:30 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

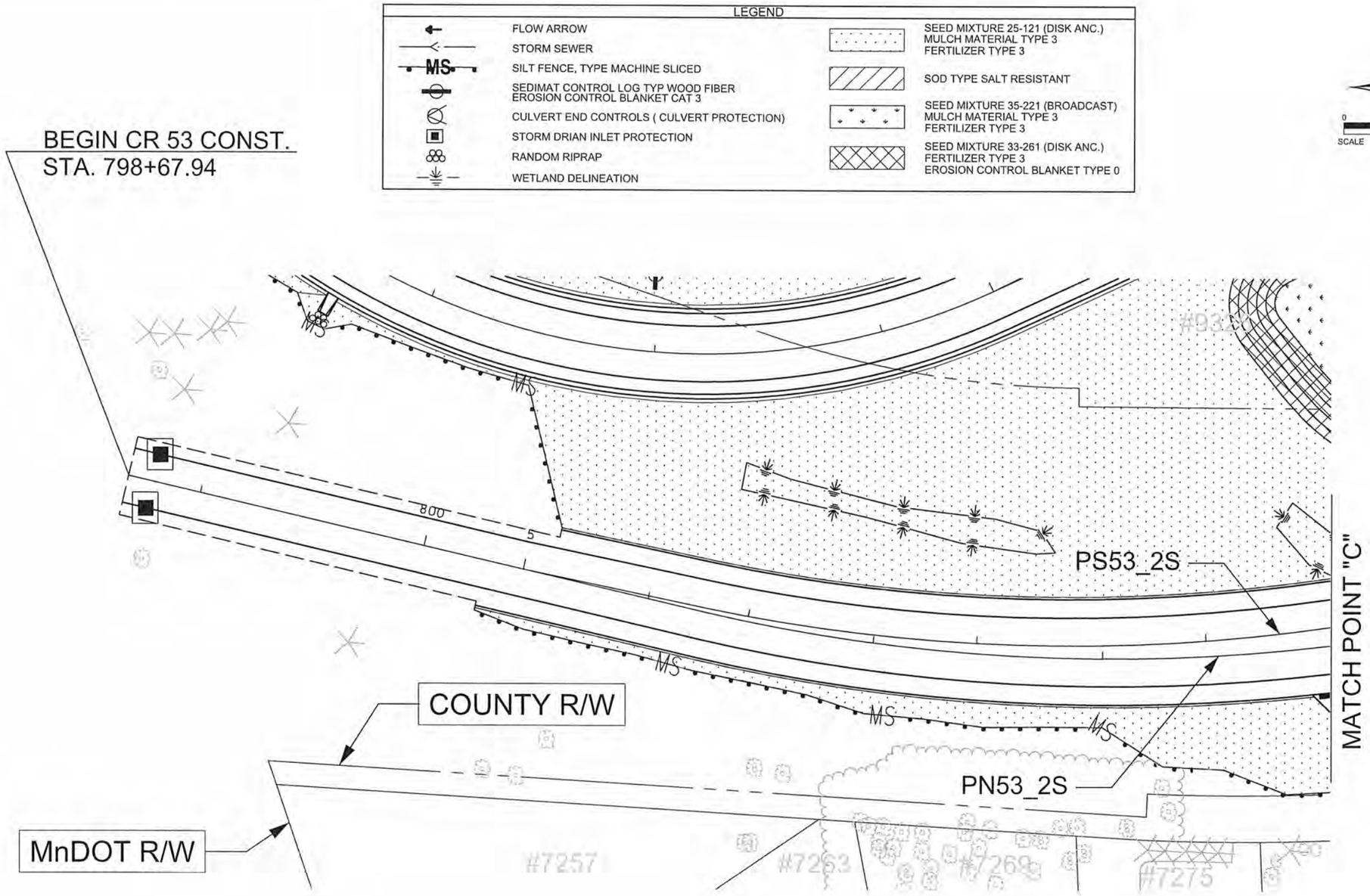
ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

TURF ESTABLISHMENT &
EROSION CONTROL PLAN
STA 200+00.00 TO STA 205+77.66

Sheet 91 of 141 Sheets



4 OF 6
SOUTH APPROACH

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
2	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP / GEO FILTER AT ENDS OF ADDED CONC. FLUMES

NAME: P:\02-612-13\Plan\002612013_ERO_P4.dgn 05/04/2016 10:47:04 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

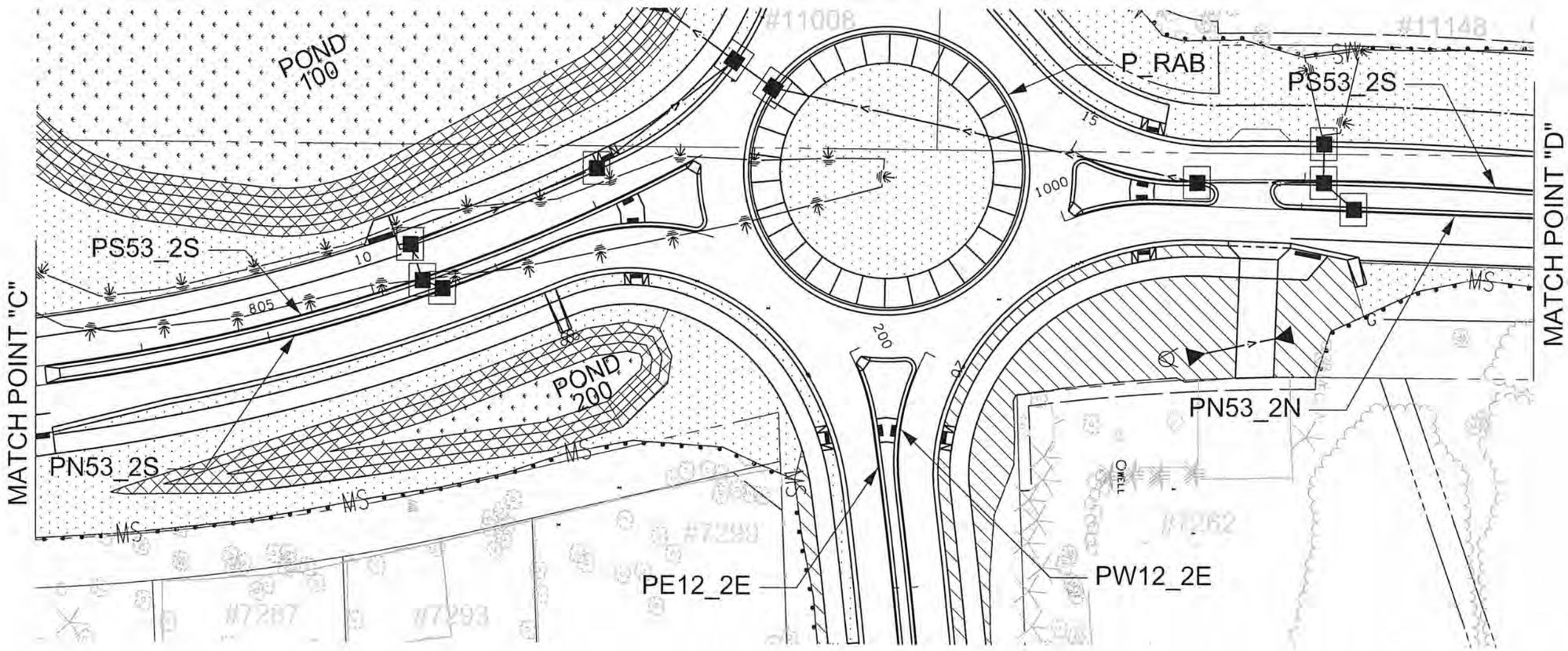
TURF ESTABLISHMENT & EROSION CONTROL PLAN
STA 798+67.94 TO STA 804+00.00

Sheet 92 of 141 Sheets

LEGEND

FLOW ARROW	
STORM SEWER	
MS SILT FENCE, TYPE MACHINE SLICED	
SEDIMAT CONTROL LOG TYP WOOD FIBER EROSION CONTROL BLANKET CAT 3	
CULVERT END CONTROLS (CULVERT PROTECTION)	
STORM DRIAN INLET PROTECTION	
RANDOM RIPRAP	
WETLAND DELINEATION	
	SEED MIXTURE 25-121 (DISK ANC.) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
	SOD TYPE SALT RESISTANT
	SEED MIXTURE 35-221 (BROADCAST) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
	SEED MIXTURE 33-261 (DISK ANC.) FERTILIZER TYPE 3 EROSION CONTROL BLANKET TYPE 0

0 50
SCALE IN FEET



5 OF 6
CENTER

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
2	5/04/2016	JCF	NJD	JEO	ADDED RIPRAP / GEO FILTER AT ENDS OF ADDED CONC. FLUMES

NAME: P:\02-612-13\Plan\002612013_ERO_P5.dgn 05/04/2016 10:43:36 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 5-4-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

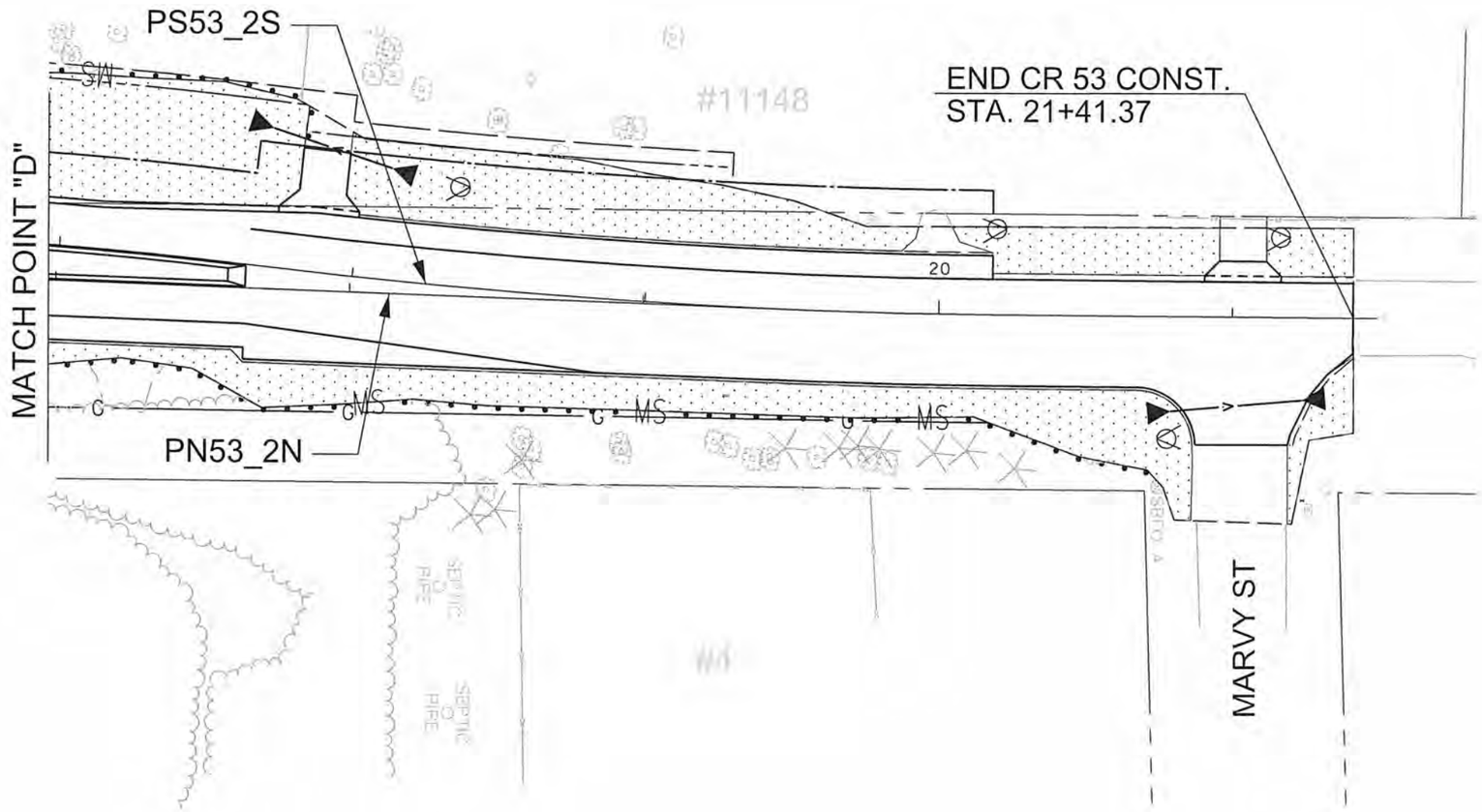
TURF ESTABLISHMENT & EROSION CONTROL PLAN
STA 804+00.00 TO STA 806+94.31
STA 1000+00.00 TO STA 1002+00.00

Sheet 93 of 141 Sheets

LEGEND

FLOW ARROW	
STORM SEWER	
SILT FENCE, TYPE MACHINE SLICED	
SEDIMAT CONTROL LOG TYP WOOD FIBER EROSION CONTROL BLANKET CAT 3	
CULVERT END CONTROLS (CULVERT PROTECTION)	
STORM DRIAN INLET PROTECTION	
RANDOM RIPRAP	
WETLAND DELINEATION	
	SEED MIXTURE 25-121 (DISK ANC.) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
	SOD TYPE SALT RESISTANT
	SEED MIXTURE 35-221 (BROADCAST) MULCH MATERIAL TYPE 3 FERTILIZER TYPE 3
	SEED MIXTURE 33-261 (DISK ANC.) FERTILIZER TYPE 3 EROSION CONTROL BLANKET TYPE 0

0 50
SCALE IN FEET



6 OF 6
NORTH APPROACH

NO	DATE	BY	CKD	APPR	REVISION
1	4/22/2016	JCF	NJD	JEO	CHANGED ALL EROSION CONTROL / TURF EST. SHEETS TO REFLECT POND GRAPHIC MODIFICATIONS
1	4/22/2016	JCF	NJD	JEO	CHANGED SEEDING AREA GRAPHIC AT DRWAY 21+00 LSB.

NAME: P:\02-612-13\Plan\002612013_ERO_P6 .dgn 04/22/2016 11:55:11 AM

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

PRINT NAME: NICHOLAS J DOBDA
SIGNATURE:
DATE: 4-22-16 LICENSE NO. 49046

DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
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TURF ESTABLISHMENT &
EROSION CONTROL PLAN
STA 1002+00.00 TO STA 21+41.37

Sheet 94 of 141 Sheets

PERMANENT PAVEMENT MARKING PLAN

NOTES AND GUIDELINES

GENERAL INFORMATION:
THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS, LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

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

A TOLERANCE OF $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS, ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

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

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

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

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

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

PREFORMED THERMOPLASTIC:
THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

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

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

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

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

PERMANENT & TEMPORARY PAVEMENT MARKING TABULATION			M2
ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
2582.501	PAVT MSSG PREF THERMO	SQ FT	772
2582.502	4" SOLID LINE EPOXY (WHITE AND YELLOW)	LIN FT	10272
2582.502	8" BROKEN LINE EPOXY (WHITE - 3' STRIPE, 3' SKIP)	LIN FT	72
2582.502	4" BROKEN LINE EPOXY (YELLOW - 10' STRIPE, 40' SKIP)	LIN FT	170
2582.502	4" DBLE SOLID LINE EPOXY (YELLOW)	LIN FT	2799

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE-POLY PREFORM

PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

STRIPING KEY

CIRCLE - EPOXY

SQUARE -THERMOPLASTIC

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S – SOLID B – BROKEN D – DOUBLE	W – WHITE Y – YELLOW B – BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE – EPOXY

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\0261213 Perm pvmt mrkg guide notes_guidelines.dwg, 04/06/2016 10:12:12 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 4/8/16 LICENSE NO. 20235

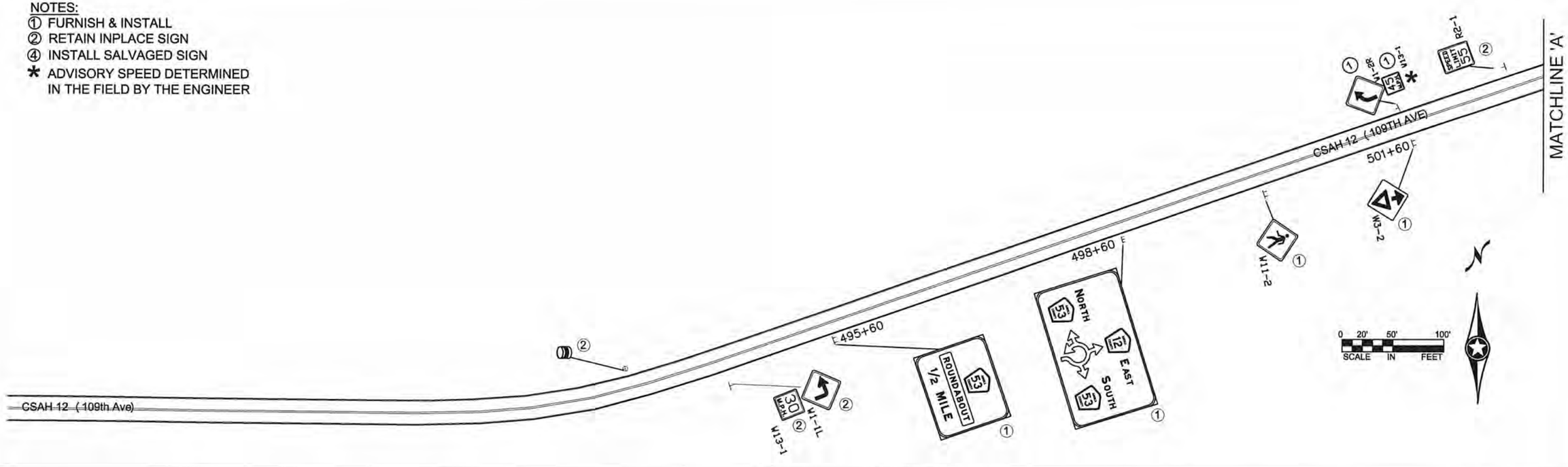
DRAWN BY JB DATE 02/29/16
DESIGN BY JB DATE 02/29/16
CHECKED BY ST DATE 03/03/16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

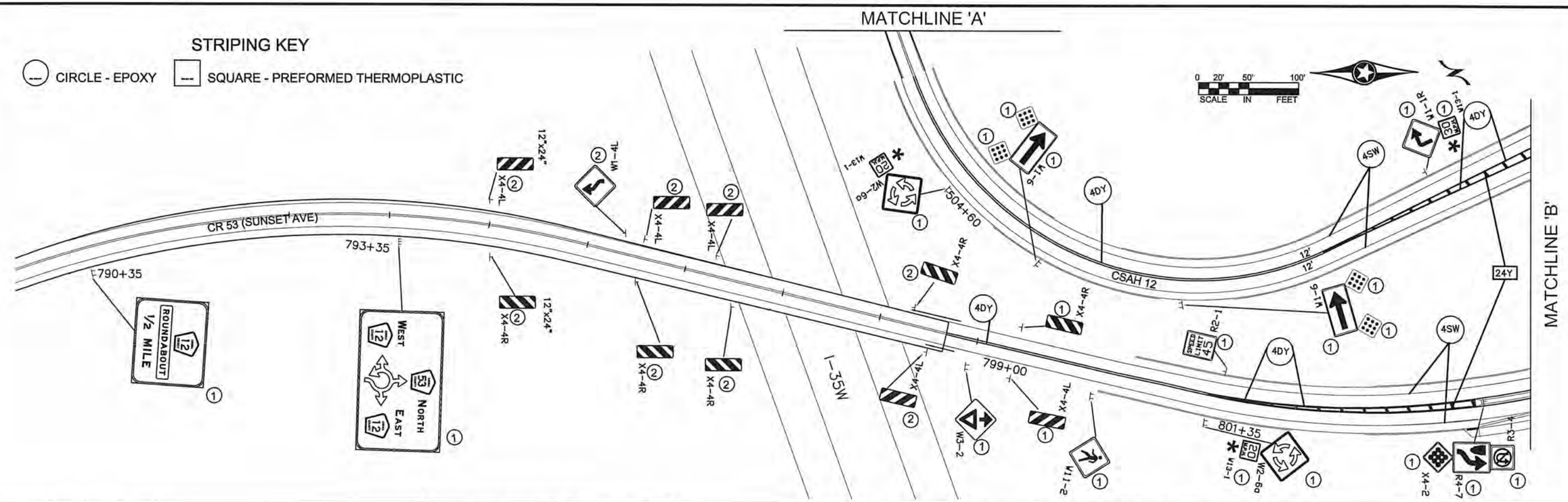
PERMANENT MARKING TABULATION

NOTES:
① FURNISH & INSTALL
② RETAIN INPLACE SIGN
④ INSTALL SALVAGED SIGN
* ADVISORY SPEED DETERMINED IN THE FIELD BY THE ENGINEER



STRIPING KEY

CIRCLE - EPOXY SQUARE - PREFORMED THERMOPLASTIC



NO	DATE	BY	CKD	APPR	REVISION
1	05/03/16	ST	JR	JR	ROUNDABOUT ADV SPEED CHANGE; CURVE DELINEATION W/ CHEVRONS

NAME: P:\02-612-13\Base\TRAFFIC\02B1213_permanent signing & striping.dwg, 05/04/2016 9:25:04 AM

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.

PRINT NAME: DOUGLAS W. FISSHER
SIGNATURE:
DATE: 5/10/16 REG. NO. 20235

DRAWN BY JB DATE 2/25/16
DESIGN BY JB DATE 2/25/16
CHECKED BY ST DATE 3/03/16

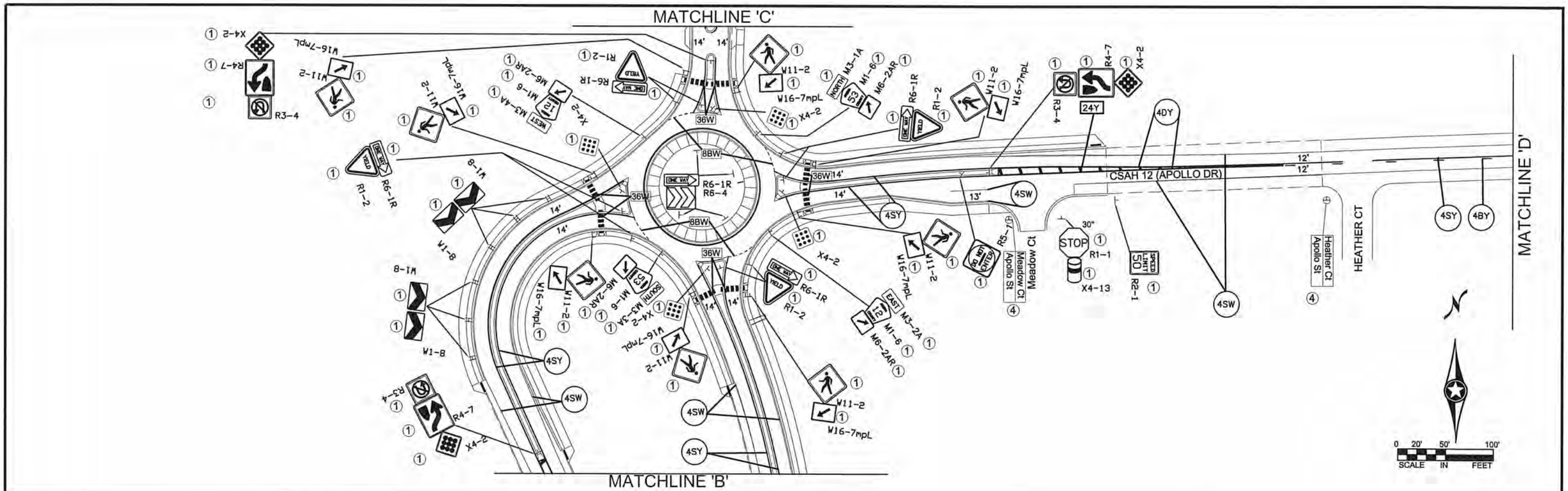
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

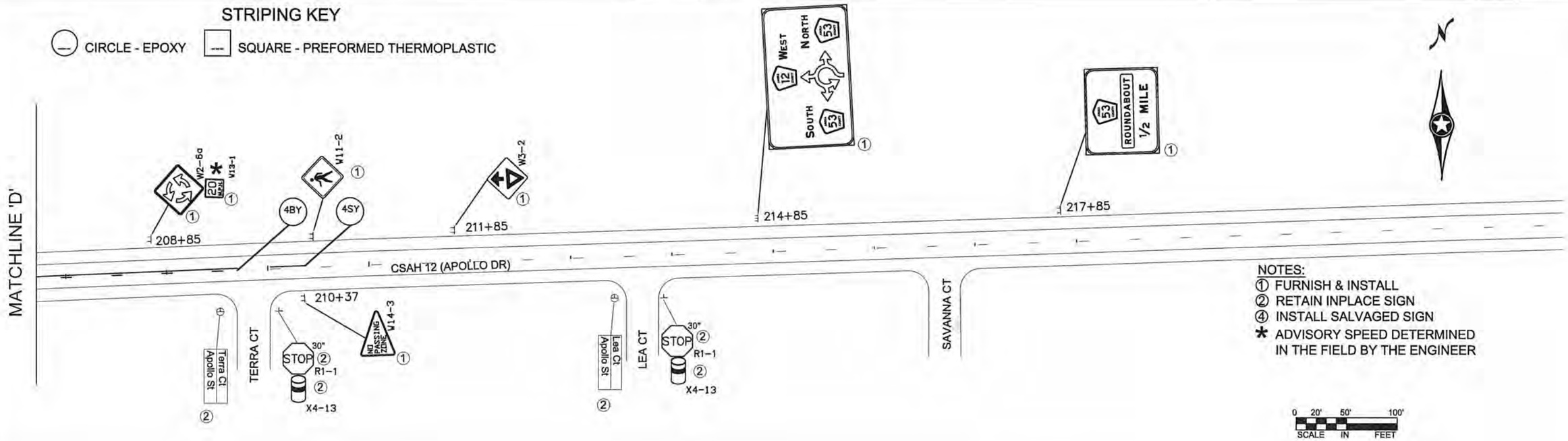
PERMANENT SIGNING & STRIPING

Sheet 96 of 141 Sheets



STRIPING KEY

CIRCLE - EPOXY SQUARE - PREFORMED THERMOPLASTIC



NOTES:
① FURNISH & INSTALL
② RETAIN INPLACE SIGN
④ INSTALL SALVAGED SIGN
* ADVISORY SPEED DETERMINED IN THE FIELD BY THE ENGINEER

NO	DATE	BY	CKD	APPR	REVISION
1	05/03/16	ST	JR	JR	ROUNDABOUT ADV SPEED CHANGE; CURVE DELINEATION W/ CHEVRONS

NAME: P:\02-612-13\Base\TRAFFIC\0201213_ permanent signing & striping.dwg, 05/04/2016 9:12:17 AM

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.

PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 3/10/16 REG. NO. 20235

DRAWN BY JB DATE 02/25/16
DESIGN BY JB DATE 2/25/16
CHECKED BY ST DATE 3/03/16

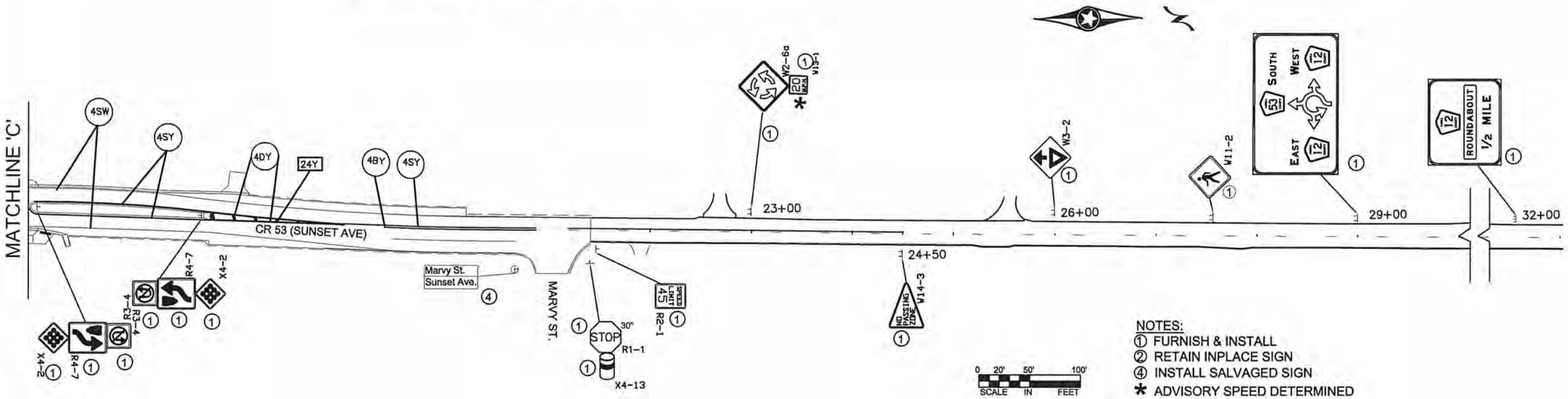
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

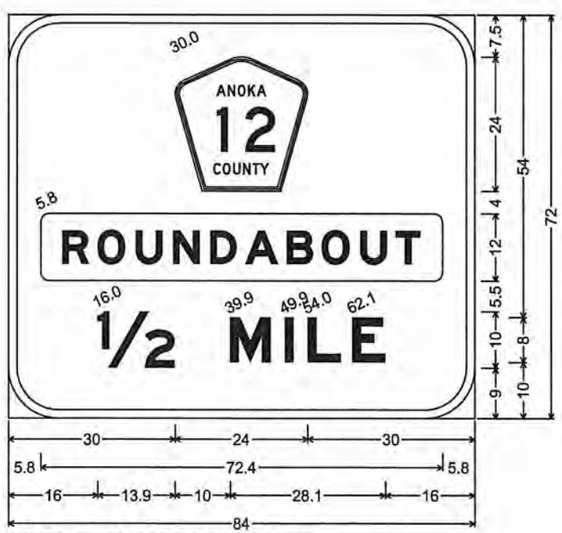
PERMANENT SIGNING & STRIPING

STRIPING KEY

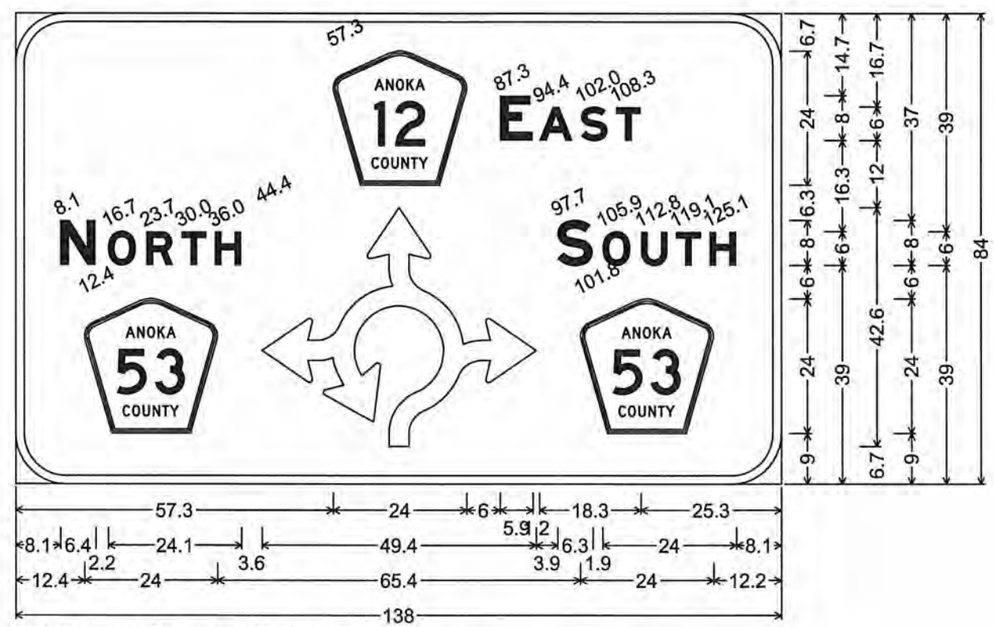
CIRCLE - EPOXY SQUARE - PREFORMED THERMOPLASTIC



NOTES:
① FURNISH & INSTALL
② RETAIN INPLACE SIGN
④ INSTALL SALVAGED SIGN
* ADVISORY SPEED DETERMINED IN THE FIELD BY THE ENGINEER



9.0" Radius, 1.5" Border, White on Green;
Rounded Rectangle 1.5" Radius Yellow;
[1/2 MILE] E Mod;



9.0" Radius, 1.5" Border, White on Green;
[EAST] E Mod; [NORTH] E Mod; RA Arrow-4hd; [SOUTH] E Mod;

NO	DATE	BY	CKD	APPR	REVISION
1	05/03/16	ST	JR	JR	ROUNDABOUT ADV SPEED CHANGE; CURVE DELINEATION W/ CHEVRONS

NAME: P:\02-612-13\Base\TRAFFIC\0261213_permanent signing & striping.dwg, 05/04/2016 9:12:58 AM

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.

PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 5/10/16 REG. NO. 20235

DRAWN BY JB DATE 02/25/16
DESIGN BY JB DATE 2/25/16
CHECKED BY ST DATE 3/03/16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

PERMANENT SIGNING & STRIPING

SIGN PANELS TYPE C — SP1

M.U.T.C.D. CODE	SIZE	INSERT	PANEL AREA SQ FT	TOTAL AREA SQ FT	QUANTITY	No. POST	MOUNTING HEIGHT (TO PAVEMENT EDGE) FT.
R1-1	30" x 30"	STOP	6.25	12.5	2	1	7.0'
x4-13	4" x 15"		1.31	2.62	2		
W2-6a	36" x 36"		9.00	36.00	4	2	7.0'
W3-2	36" x 36"		9.00	36.00	4	2	7.0'
W14-3	48" x 36"	NO PASSING ZONE	6.00	12.00	2	2	7.0'
R1-2	36" x 36"	YIELD	3.90	31.20	8	1	7.0'
W11-2	36" x 36"		9.00	108.00	12	2	7.0'
W16-7mpL	30" x 24"		5.00	40.00	8	0	7.0'
R5-1	30" x 30"	DO NOT ENTER	6.25	6.25	1	1	7.0'
R6-4	30" x 24"		5.00	20.00	4	1	4.0'
W1-6	48" x 24"		8.00	16.00	2	2	7.0'
W1-8L	18" x 24"		3.00	18.00	6	1	5.0'
W1-8R	18" x 24"		3.00	18.00	6	0	5.0'
W1-1R	30" x 30"		6.25	6.25	1	1	7.0'
W1-2R	30" x 30"		6.25	6.25	1	1	7.0'

SIGN PANELS TYPE C — SP1

M.U.T.C.D. CODE	SIZE	INSERT	PANEL AREA SQ FT	TOTAL AREA SQ FT	QUANTITY	No. POST	MOUNTING HEIGHT (TO PAVEMENT EDGE) FT.
M3-1A	24" x 12"	NORTH	2.00	2.00	1	0	7.0'
M3-3A	24" x 12"	SOUTH	2.00	2.00	1	0	7.0'
M1-6A	24" x 24"	53	4.00	8.00	2	1	7.0'
M6-2AR	21" x 15"		2.19	4.38	2	0	7.0'
M3-2A	24" x 12"	EAST	2.00	2.00	1	0	7.0'
M3-4A	24" x 12"	WEST	2.00	2.00	1	0	7.0'
M1-6A	24" x 24"	12	4.00	8.00	2	1	7.0'
M6-2AR	21" x 15"		2.19	4.38	2	0	7.0'
R4-7	24" x 30"		5.00	30.00	6	1	7.0'
X4-2	18" x 18"		2.25	22.50	10	0	4.0'
R6-1R	12" x 36"	ONE WAY	3.00	36.00	12	0	7.0'
R3-4	24" x 24"		4.00	28.00	7	0	7.0'
W13-1	24" x 24"	XX M.P.H.	4.00	24.00	6	0	4.0'
R2-1	24" x 30"	SPEED LIMIT 45	5.00	10.00	2	1	7.0'
R2-1	24" x 30"	SPEED LIMIT 50	5.00	5.00	1	1	7.0'
X4-2	18" x 18"		2.25	9.00	4	1	5.0'
X4-4R	12" x 36"		3.00	3.00	1	1	4.0'
X4-4L	12" x 36"		3.00	3.00	1	1	4.0'

PROJECT TOTAL = 1059.7 SQ FT

SIGN PANELS TYPE C — SP1

M.U.T.C.D. CODE	SIZE	INSERT	PANEL AREA SQ FT	TOTAL AREA SQ FT	QUANTITY	No. POST	MOUNTING HEIGHT (TO PAVEMENT EDGE) FT.
D1-5	138" x 84"	53 NORTH; EAST 12; WEST 12	80.5	80.5	1	3	7.0'
D1-5	138" x 84"	12 WEST; SOUTH 53; NORTH 53	80.5	80.5	1	3	7.0'
D1-5	138" x 84"	53 SOUTH; WEST 12; EAST 12	80.5	80.5	1	3	7.0'
D1-5	138" x 84"	12 EAST; NORTH 53; SOUTH 53	80.5	80.5	1	3	7.0'
D1-5	84" x 72"	12 ROUNDABOUT 1/2 MILE	42.0	84.0	2	2	7.0'
D1-	84" x 72"	53 ROUNDABOUT 1/2 MILE	42.00	84.00	2	2	7.0'

NO	DATE	BY	CKD	APPR	REVISION
1	05/03/16	ST	JR	JR	ROUNDABOUT ADV SPEED CHANGE; CURVE DELINEATION W/ CHEVRONS

NAME: P:\02-612-13\Base\TRAFFIC\0261213_permanent signing & striping.dwg, 05/04/2016 9:19:07 AM

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.

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 5/10/16 REG. NO. 20235

DRAWN BY JB DATE 02/25/16

DESIGN BY JB DATE 2/25/16

CHECKED BY ST DATE 3/03/16

ANOKA COUNTY HIGHWAY DEPT.

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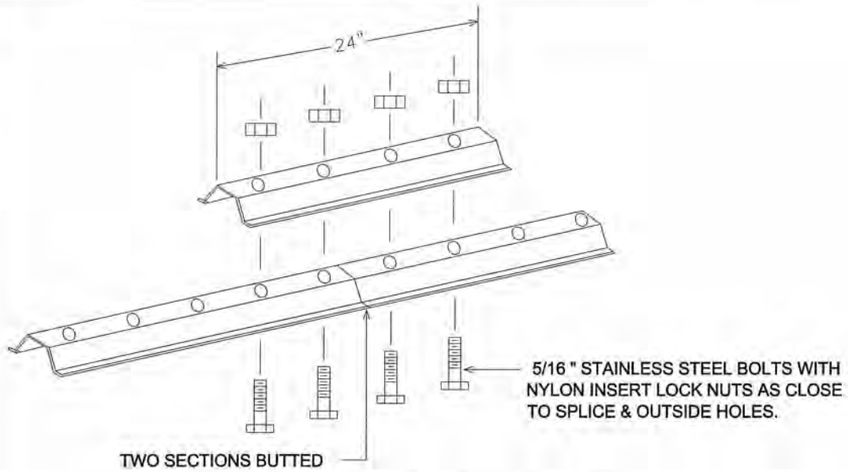
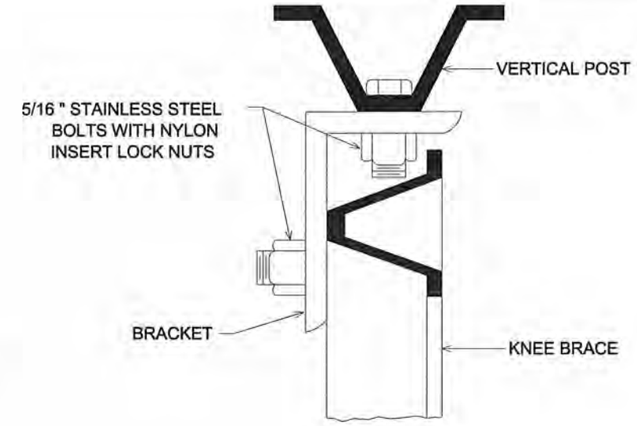
CITY OF LINO LAKES SAP 210-020-007

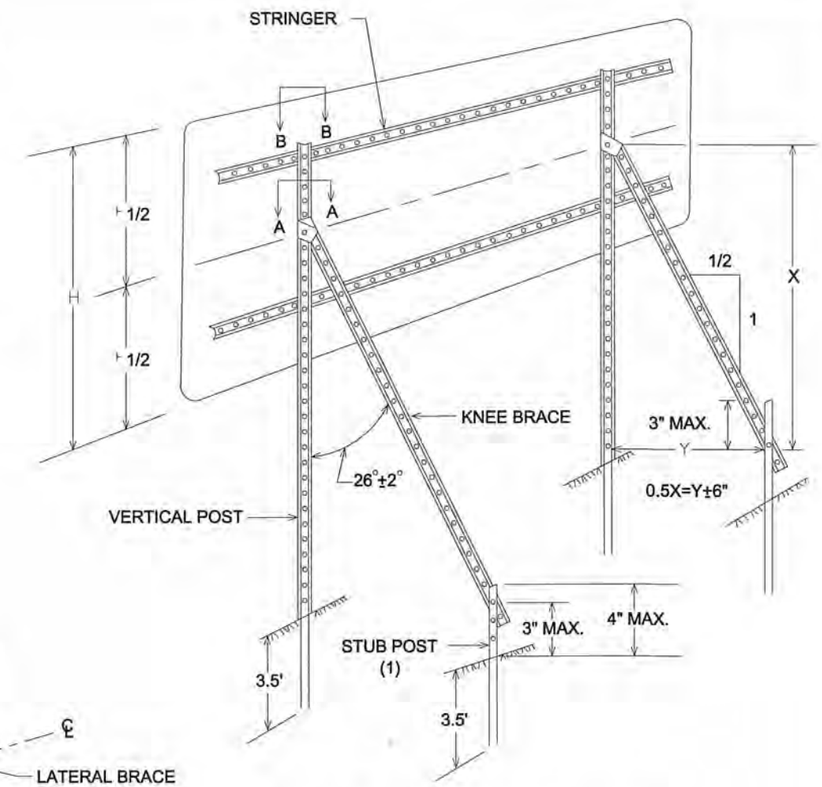
PERMANENT SIGNING & STRIPING



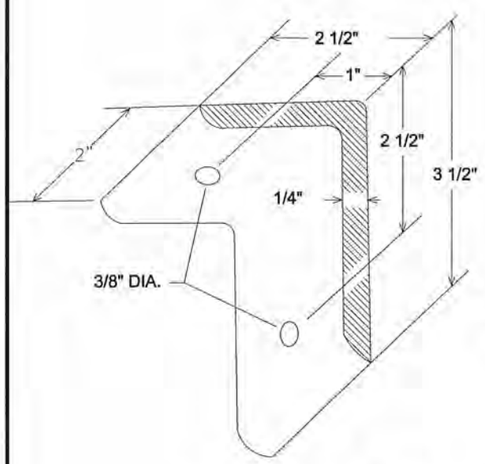
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

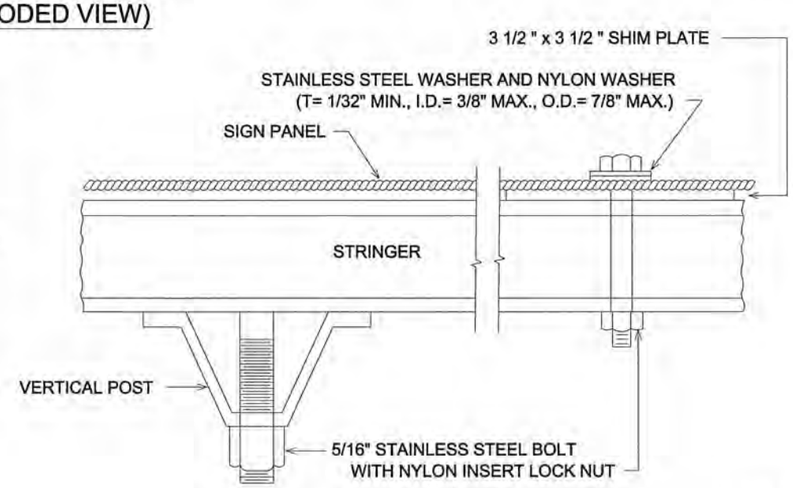


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

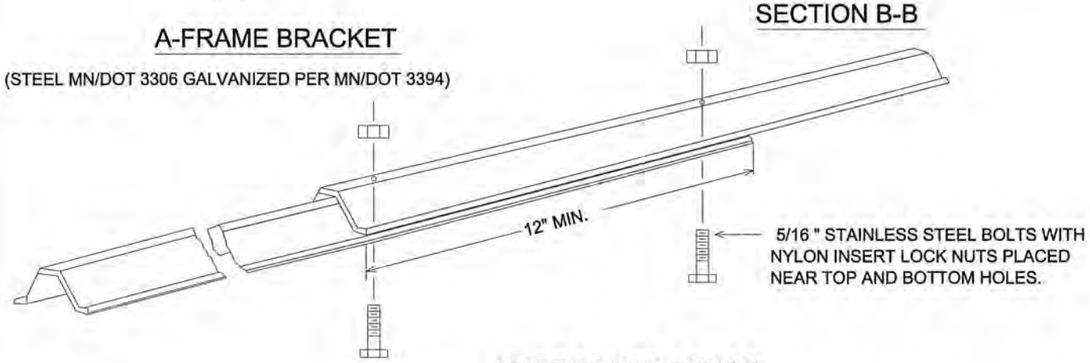


A-FRAME BRACKET

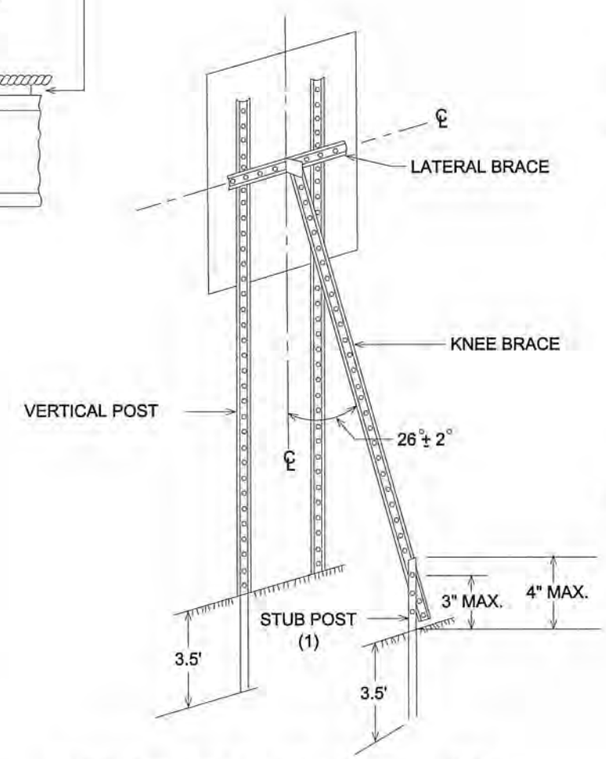
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B-B



KNEE BRACE SPLICE



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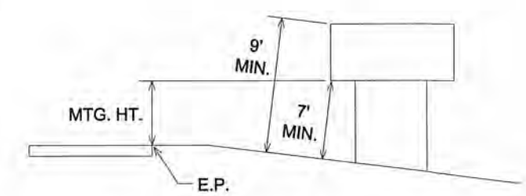


TYPICAL MOUNTING

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

TYPE C & D SIGN STRUCTURAL DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-612-13\Base\TRAFFIC\0261213 Sign&Stripe_Details.dwg, 03/21/2016 4:03:44 PM

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.

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/1/16 REG. NO. 20235

DRAWN BY JB DATE 2/29/16

DESIGN BY JB DATE 2/29/16

CHECKED BY ST DATE 2/29/16

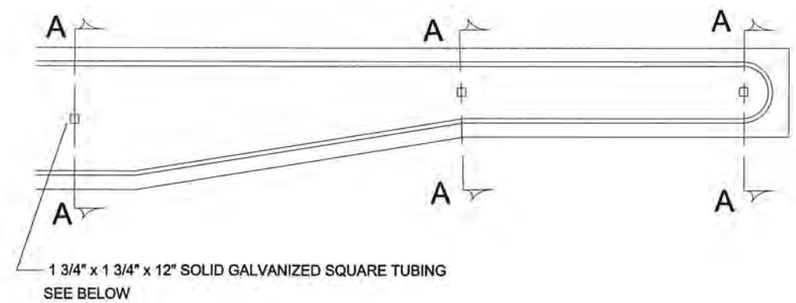
ANOKA COUNTY

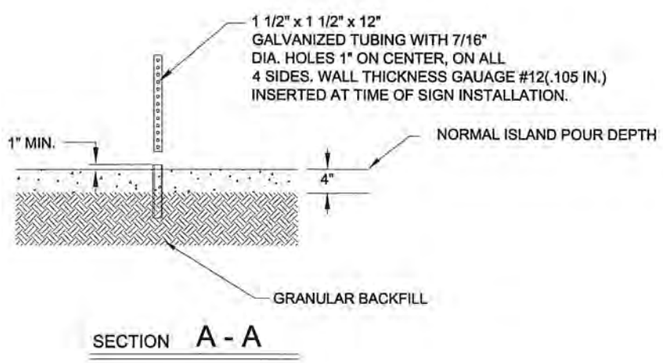
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SIGNING & STRIPING DETAILS

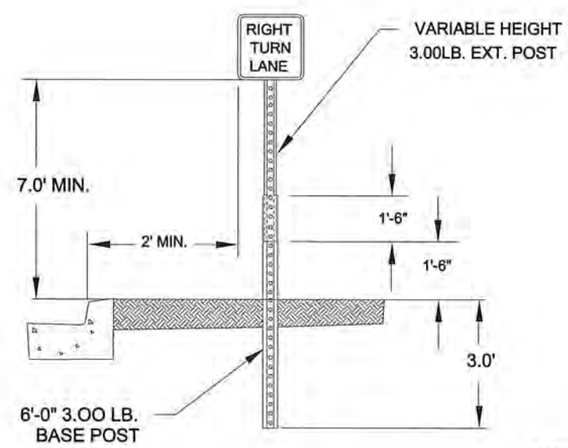
Sheet 100 of 141 Sheets



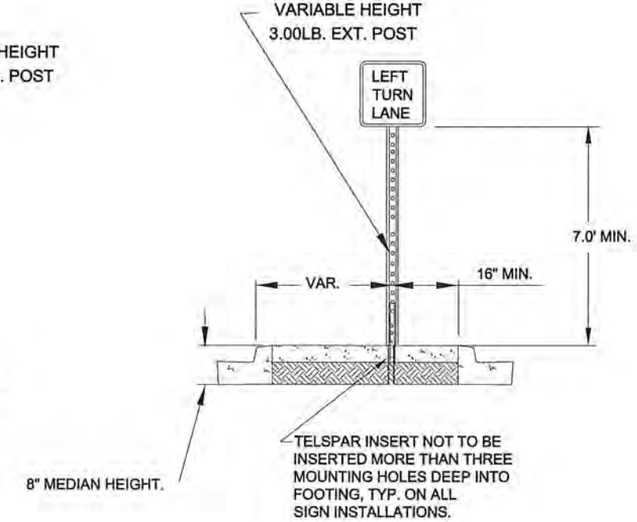


SECTION A - A

GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



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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.

PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 4/1/16 REG. NO. 20235

DRAWN BY JB DATE 2/29/16
DESIGN BY JB DATE 2/29/16
CHECKED BY ST DATE 2/29/16

ANOKA COUNTY

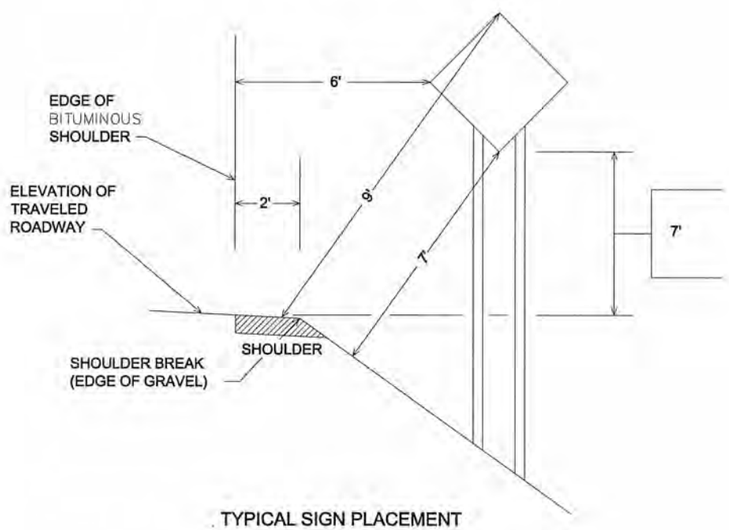
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SIGNING & STRIPING
DETAILS

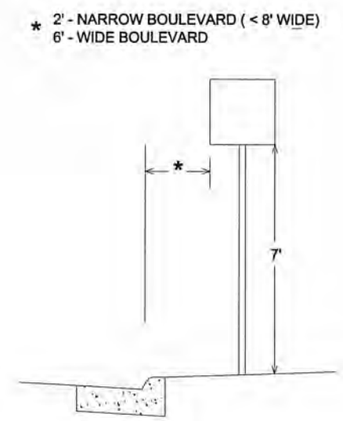
Sheet 101 of 141 Sheets

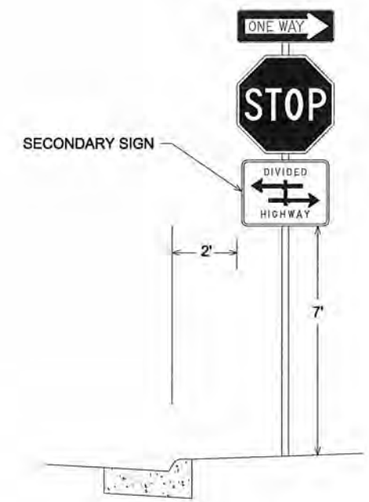
RURAL



TYPICAL SIGN PLACEMENT

URBAN





TYPICAL SIGN PLACEMENT

NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

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PRINT NAME: DOUGLAS W. FISCHER

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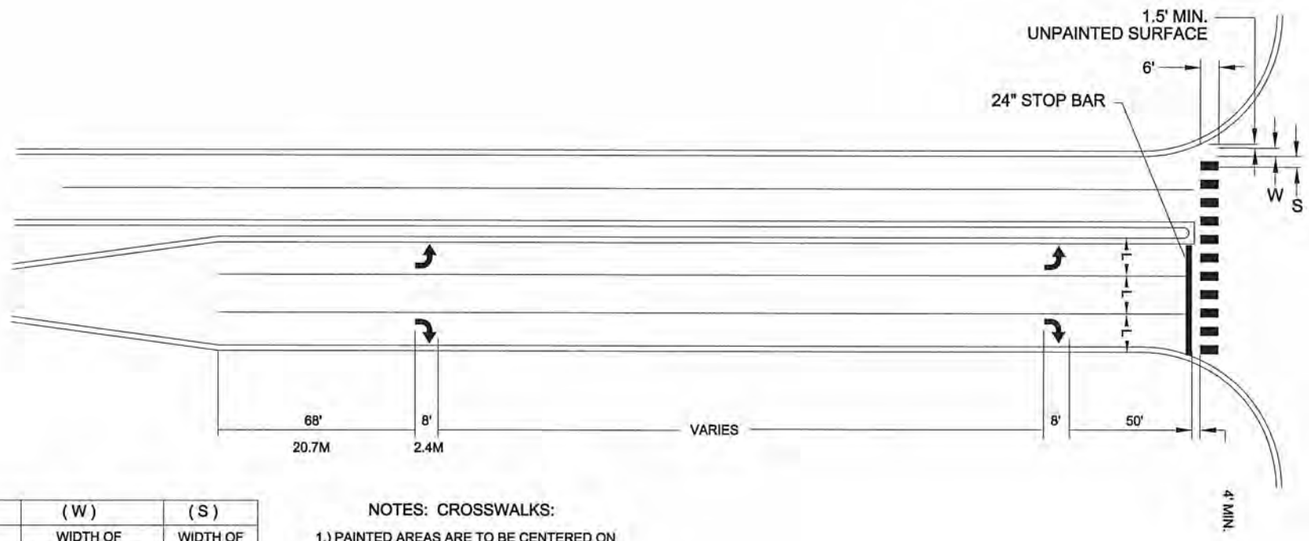
SIGNING & STRIPING DETAILS

MARKINGS FOR PEDESTRIAN CROSSWALKS



(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	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.

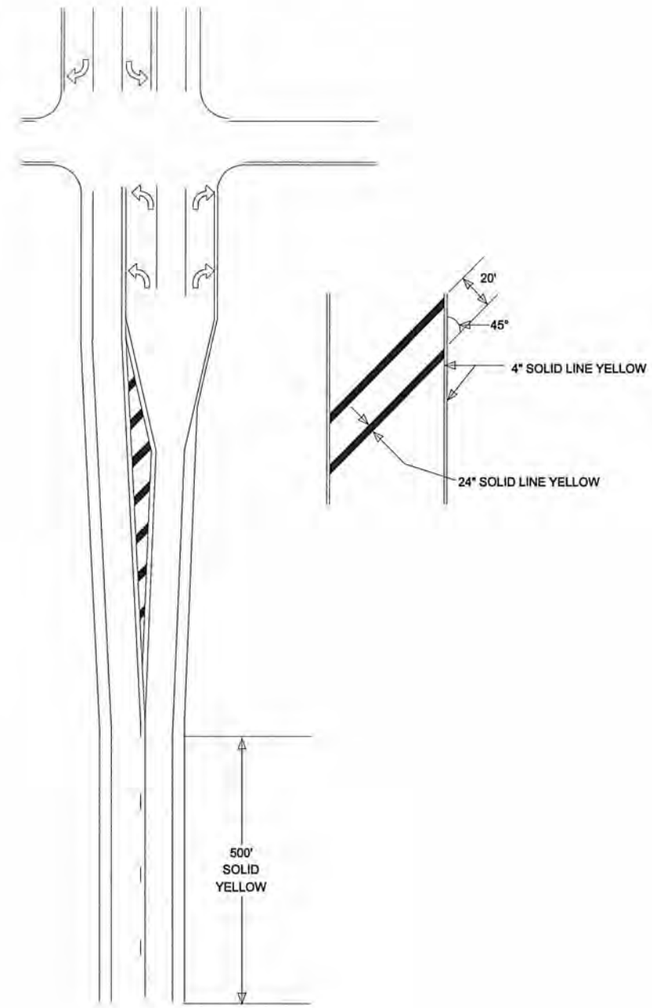
2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERFIED DURING CONSTRUCTION BY THE FIELD ENGR.

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

4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.

5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

TYPICAL MARKINGS FOR LEFT TURN ISLANDS



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PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 4/1/16 REG. NO. 20235

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SIGNING & STRIPING DETAILS

FEEDPOINT A

LIGHTING STANDARDS AND BASES

NO.	STATION	LT.	RT.	LOCATION	TYPE	MH
1	1002+23	---		CR 53 NORTH LEG	9-30	30
2	1000+73	---		CR 53 NORTH LEG	9-30	30
3	514+30	---		CSAH 12 WEST LEG	9-30	30
4	513+73		---	CSAH 12 WEST LEG	9-30	30
5	513+30		---	CSAH 12 WEST LEG	9-30	30
6	510+76		---	CSAH 12 WEST LEG	9-30	30
7	806+68	---		CR 53 SOUTH LEG	9-30	30
8	815+00		---	CR 53 NORTH LEG	9-30	30
9	209+24	---		CSAH 12 EAST LEG	9-30	30
10	207+76	---		CSAH 12 EAST LEG	9-30	30
11	206+86		---	CSAH 12 EAST LEG	9-30	30
12	209+73		---	CSAH 12 EAST LEG	9-30	30
13	806+21		---	CR 53 SOUTH LEG	9-30	30
14	804+76		---	CR 53 SOUTH LEG	9-30	30
15	803+31		---	CR 53 SOUTH LEG	9-30	30

NOTE:

PLACE LIGHT FOUNDATIONS 36" TO CENTER BEHIND SIDEWALK/TRAIL. WHERE NO SIDEWALK/TRAIL IS PRESENT, PLACE LIGHT FOUNDATIONS 10' TO CENTER BEHIND CURB.

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY.

STANDARD PLATES

8106D	EQUIPMENT PAD B
8127E	LIGHT FOUNDATION DESIGN E (2 SHEETS)
8129A	SHIM AND WASHER

STREET LIGHTING TABULATION

ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITIES
2545.511	LIGHTING UNIT TYPE 9-30	EACH	15
2545.515	LIGHT FOUNDATION DESIGN E	EACH	15
2545.523	2" NON-METALLIC CONDUIT	LIN. FT.	1900
2545.531	UNDERGROUND WIRE 1 COND NO 8	LIN. FT.	8600
2545.541	SERVICE CABINET TYPE L1	EACH	1
2545.544	SERVICE EQUIPMENT	EACH	1
2545.545	EQUIPMENT PAD B	EACH	1
2545.553	HANDHOLE	EACH	3

Date Printed: 4/22/2016
WSB Filename: K:\0666-290\Cad\Plan\1666lp01.dgn

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Design By: ES
Plan By: ACJ
Checked By: SDD
Approved By: ES

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CERTIFIED BY _____
LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE, PTOE
DATE: 4/22/2016 LIC. NO: 40945

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

ANOKA COUNTY

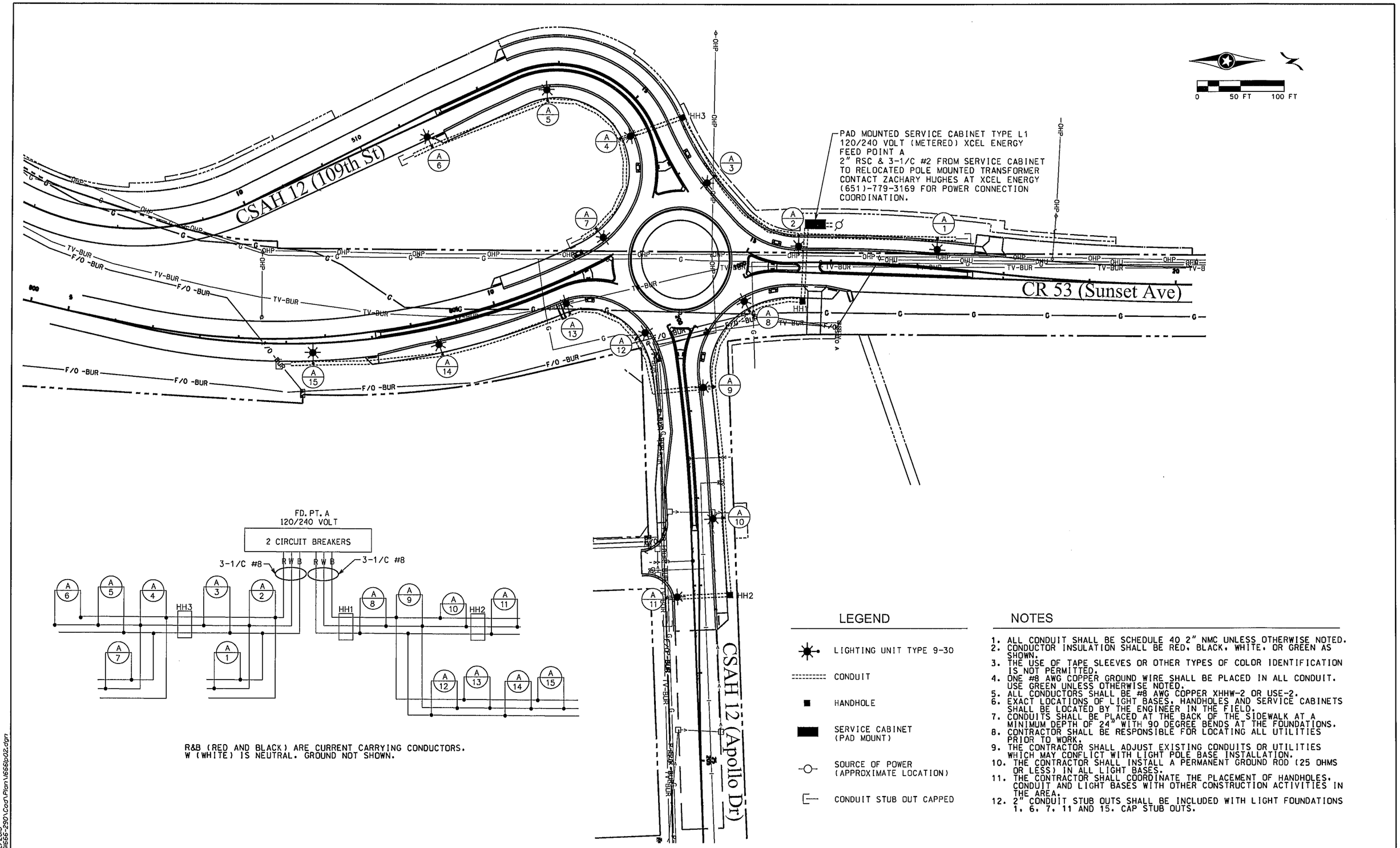
CSAH 12 / CR 53 Roundabout

Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



R&B (RED AND BLACK) ARE CURRENT CARRYING CONDUCTORS.
W (WHITE) IS NEUTRAL. GROUND NOT SHOWN.

LEGEND

- LIGHTING UNIT TYPE 9-30
- CONDUIT
- HANDHOLE
- SERVICE CABINET (PAD MOUNT)
- SOURCE OF POWER (APPROXIMATE LOCATION)
- CONDUIT STUB OUT CAPPED

NOTES

1. ALL CONDUIT SHALL BE SCHEDULE 40 2" NMC UNLESS OTHERWISE NOTED.
2. CONDUCTOR INSULATION SHALL BE RED, BLACK, WHITE, OR GREEN AS SHOWN.
3. THE USE OF TAPE SLEEVES OR OTHER TYPES OF COLOR IDENTIFICATION IS NOT PERMITTED.
4. ONE #8 AWG COPPER GROUND WIRE SHALL BE PLACED IN ALL CONDUIT. USE GREEN UNLESS OTHERWISE NOTED.
5. ALL CONDUCTORS SHALL BE #8 AWG COPPER XHHW-2 OR USE-2.
6. EXACT LOCATIONS OF LIGHT BASES, HANDHOLES AND SERVICE CABINETS SHALL BE LOCATED BY THE ENGINEER IN THE FIELD.
7. CONDUITS SHALL BE PLACED AT THE BACK OF THE SIDEWALK AT A MINIMUM DEPTH OF 24" WITH 90 DEGREE BENDS AT THE FOUNDATIONS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO WORK.
9. THE CONTRACTOR SHALL ADJUST EXISTING CONDUITS OR UTILITIES WHICH MAY CONFLICT WITH LIGHT POLE BASE INSTALLATION.
10. THE CONTRACTOR SHALL INSTALL A PERMANENT GROUND ROD (25 OHMS OR LESS) IN ALL LIGHT BASES.
11. THE CONTRACTOR SHALL COORDINATE THE PLACEMENT OF HANDHOLES, CONDUIT AND LIGHT BASES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.
12. 2" CONDUIT STUB OUTS SHALL BE INCLUDED WITH LIGHT FOUNDATIONS 1, 6, 7, 11 AND 15. CAP STUB OUTS.

NO.	DATE	BY	CHK	REVISIONS

Design By: ES
Plan By: ACJ
Checked By: SDD
Approved By: ES

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

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE, PTOE

DATE: 4/22/2016 LIC. NO: 40945

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

ANOKA COUNTY

CSAH 12 / CR 53 Roundabout

Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

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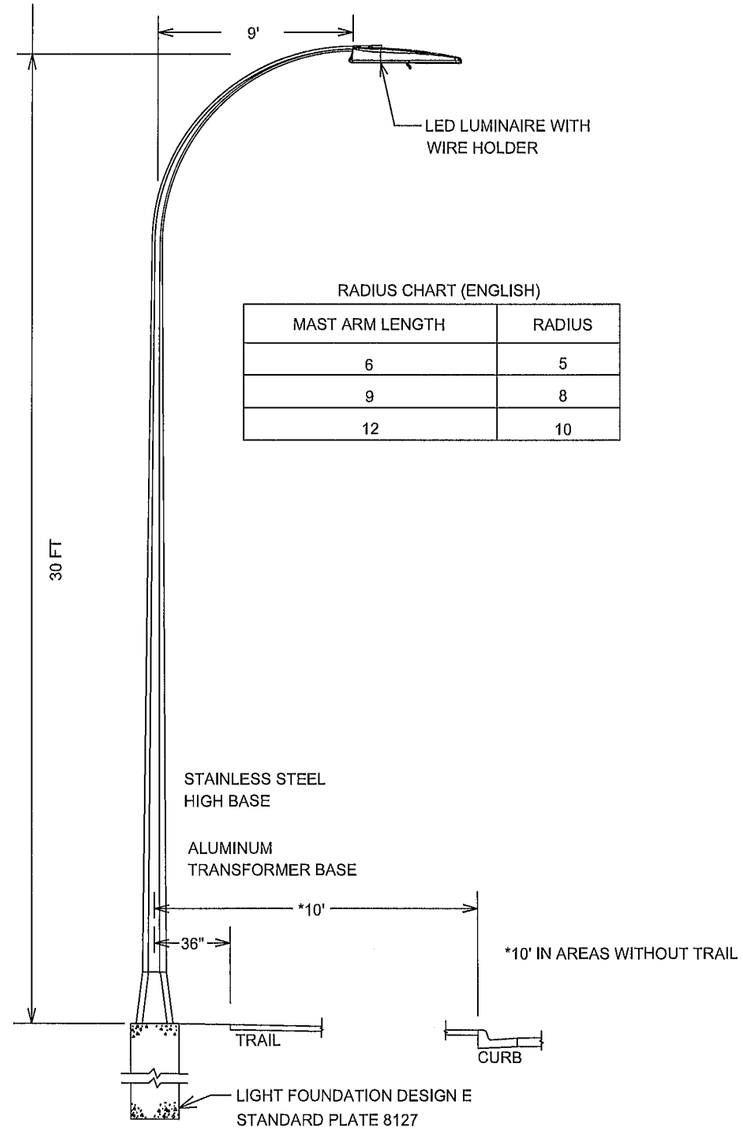

RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
6	5
9	8
12	10

LIGHTING UNIT TYPE 9-30

(BREAKAWAY)

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Design By: ES
Plan By: ACJ
Checked By: SDD
Approved By: ES

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

CERTIFIED BY: Sean Delmore
LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE, PTOE
DATE: 4/22/2016 LIC. NO: 40945

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
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763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

ANOKA COUNTY

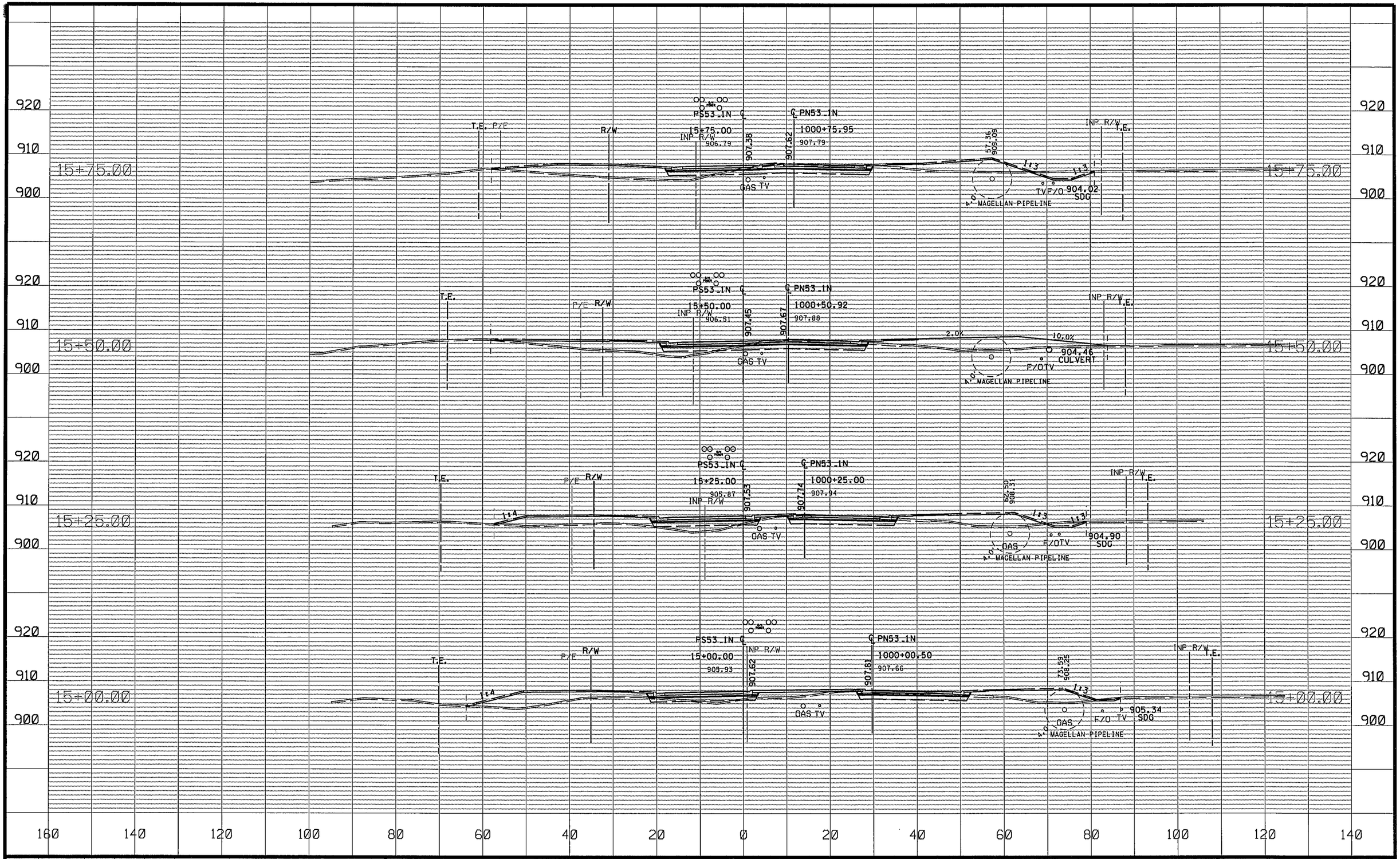
CSAH 12 / CR 53 Roundabout

Anoka County, Minnesota

ANOKA COUNTY, MINNESOTA

LIGHTING PLAN

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007



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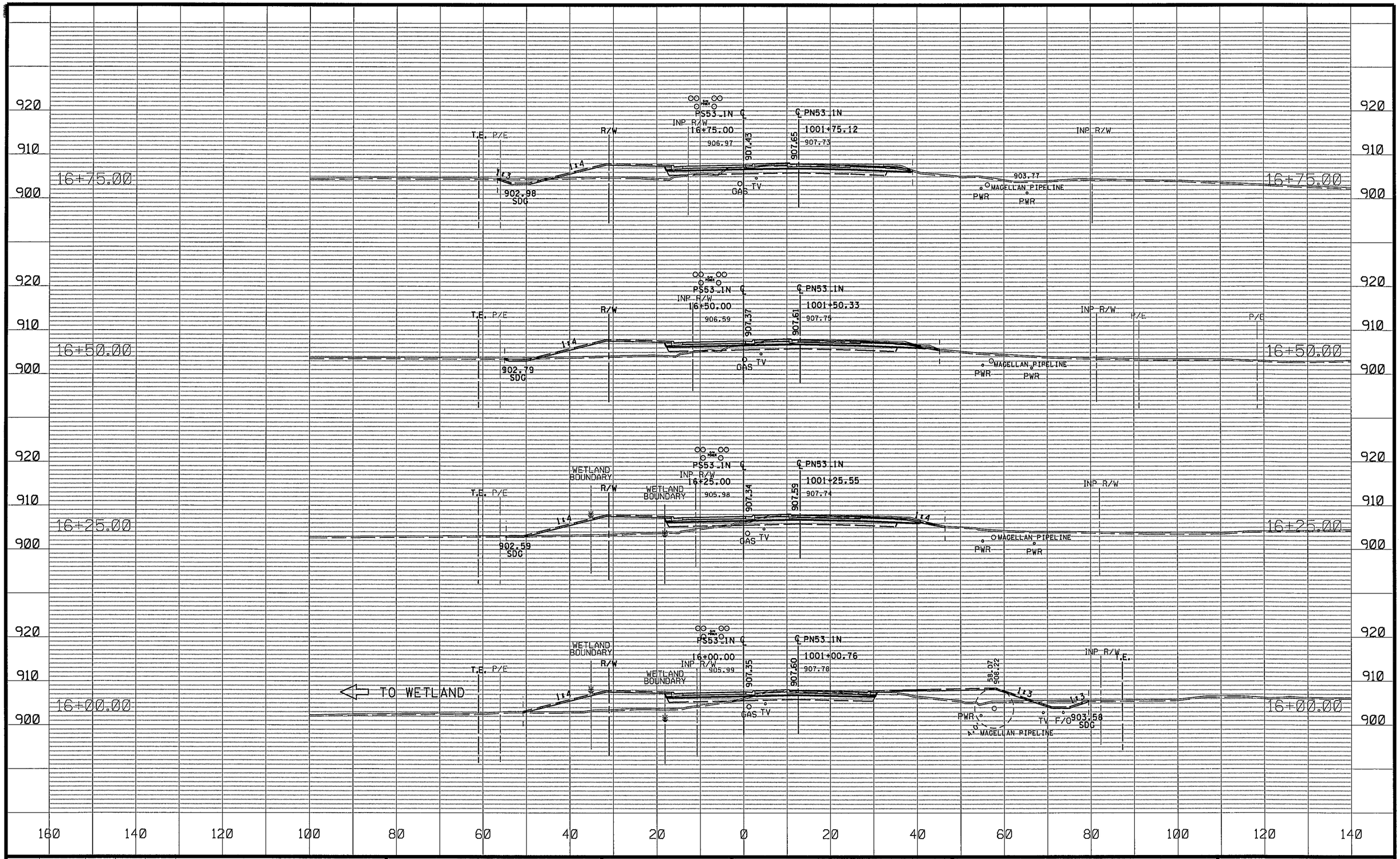
CITY OF LINO LAKES SAP 210-020-007

NORTH CROSS SECTIONS
STA 15+00.00 TO 15+75.00

Sheet 107 of 141 Sheets



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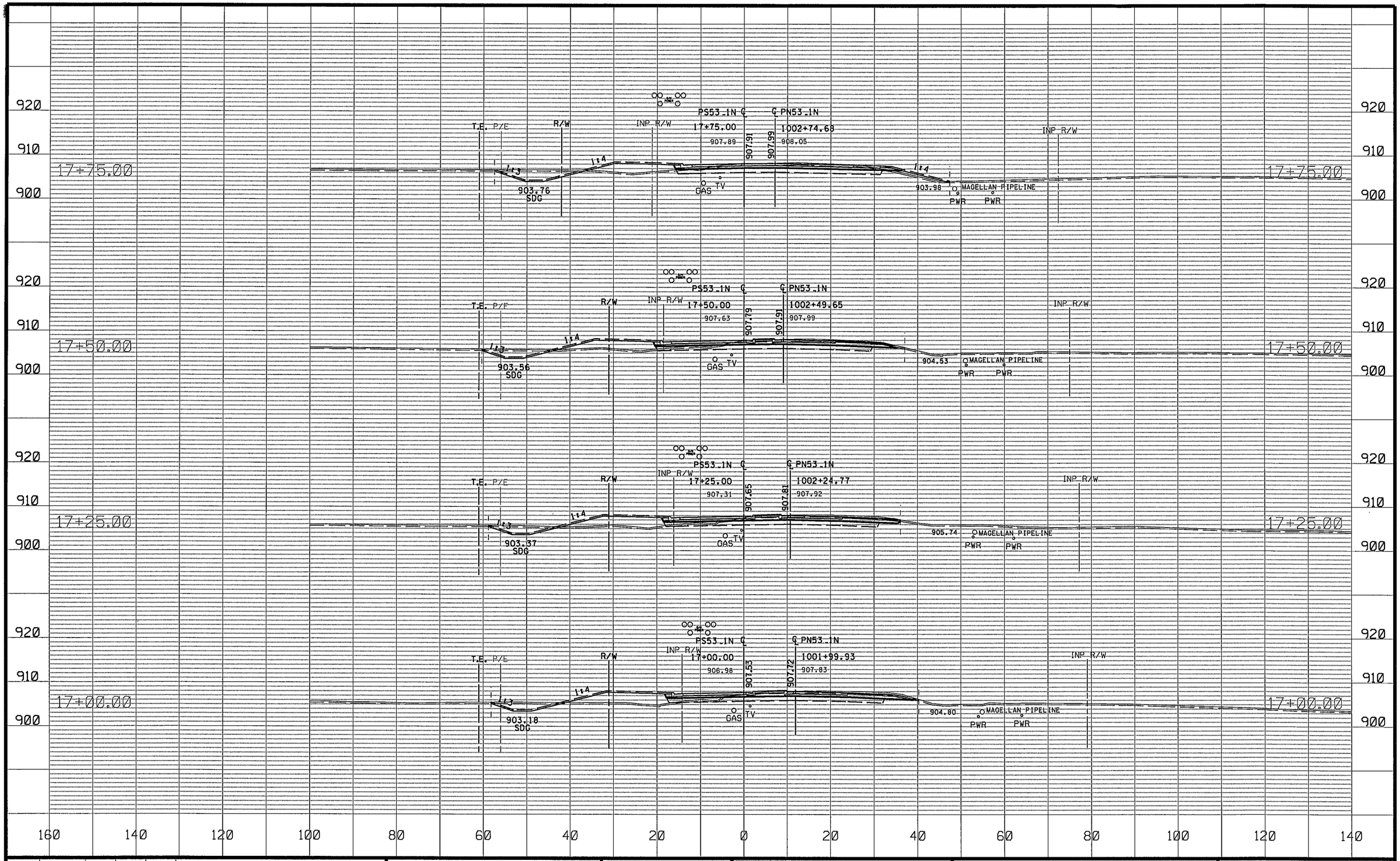
NORTH CROSS SECTIONS
STA 16+00.00 TO 16+75.00

Sheet 108 of 141 Sheets



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NORTH CROSS SECTIONS
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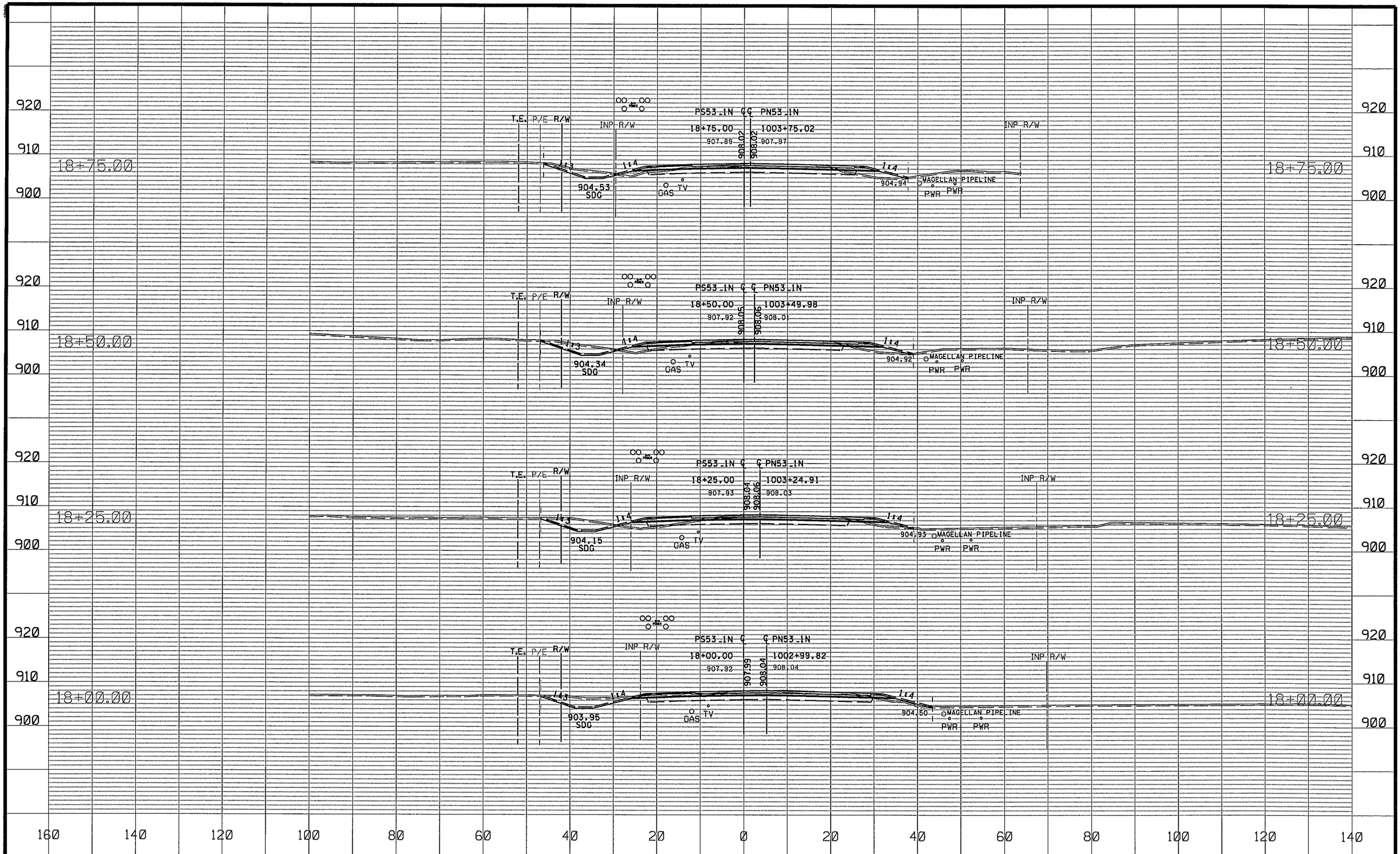
Sheet 109 of 141 Sheets



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NORTH CROSS SECTIONS
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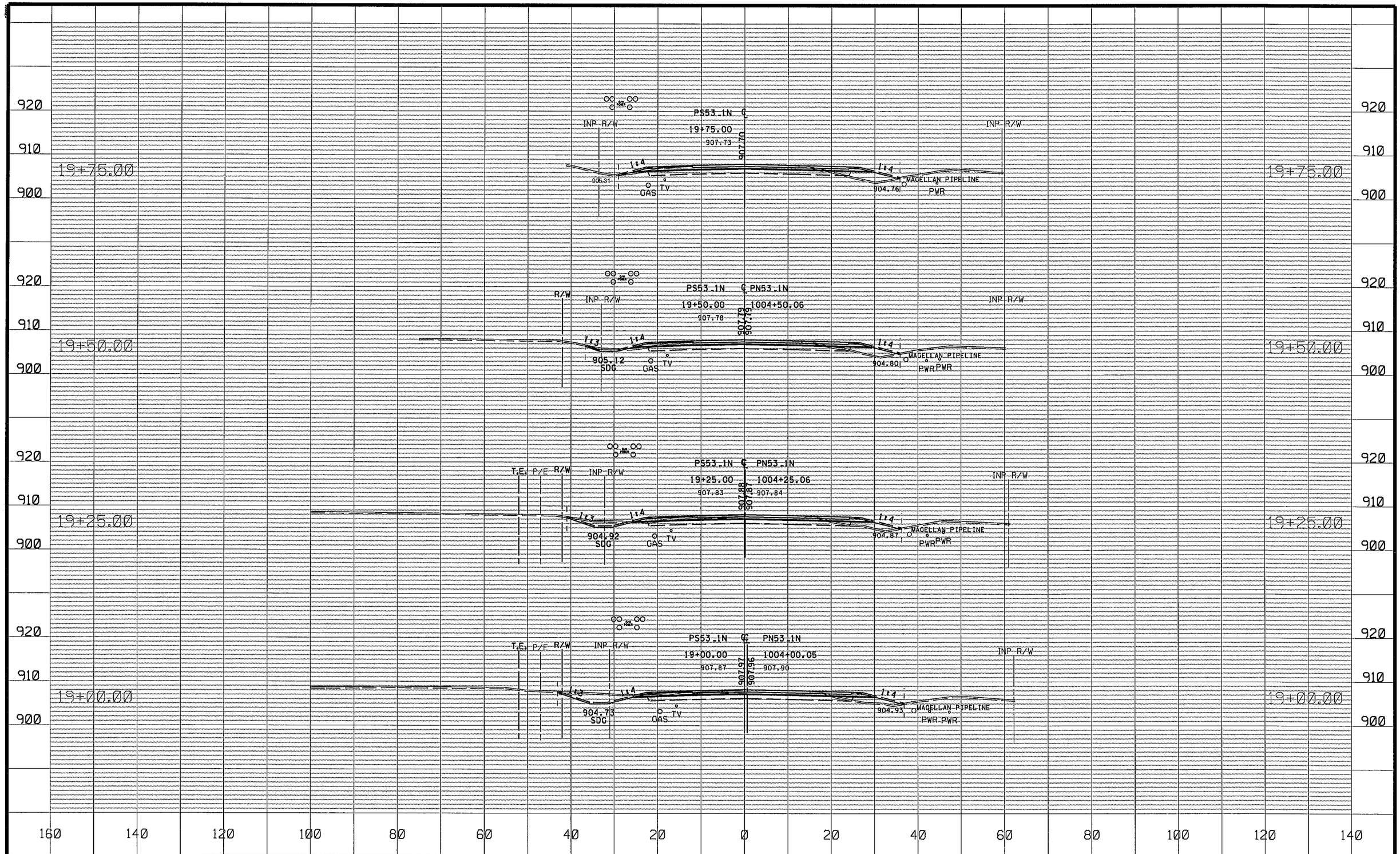

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NORTH CROSS SECTIONS
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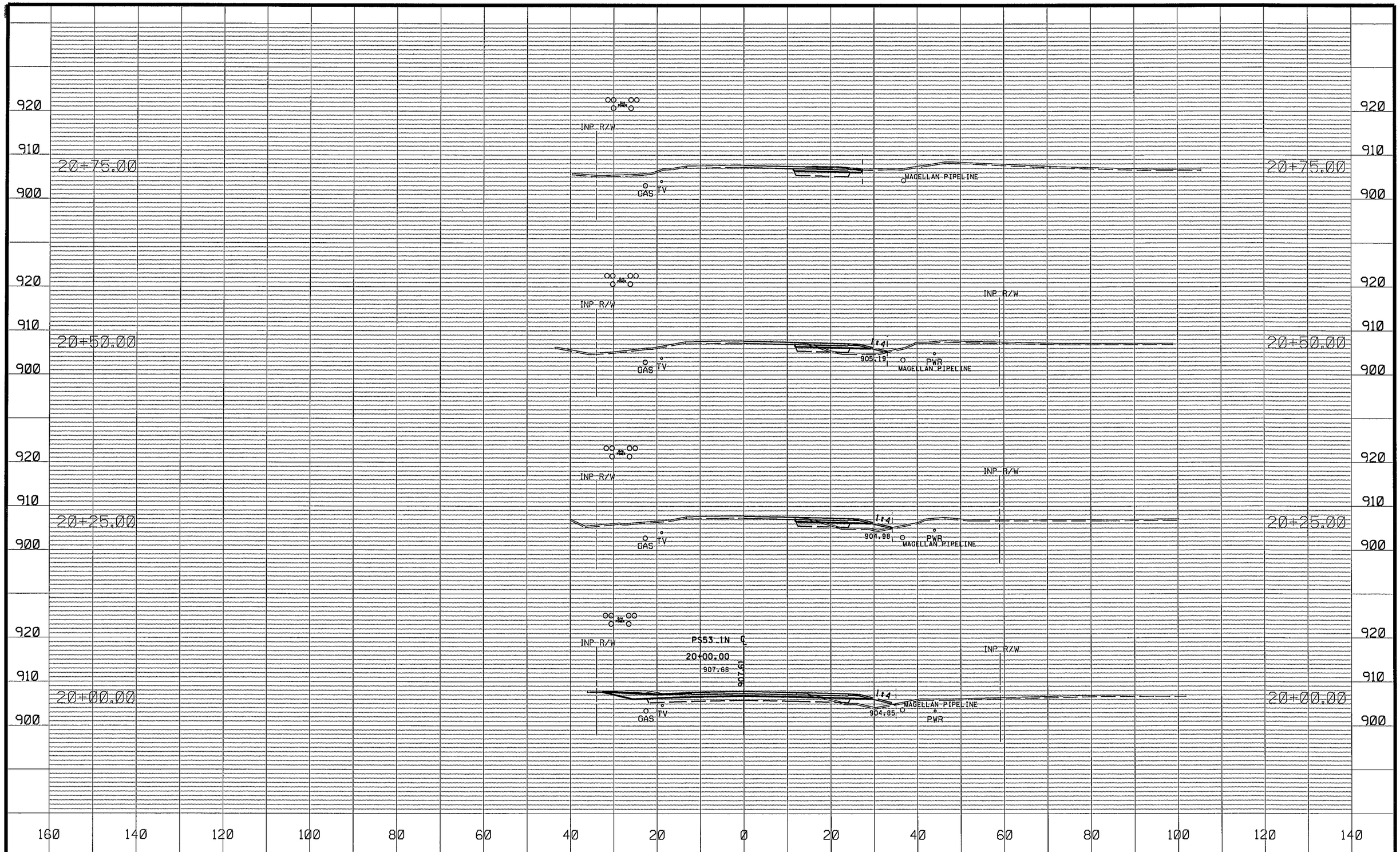

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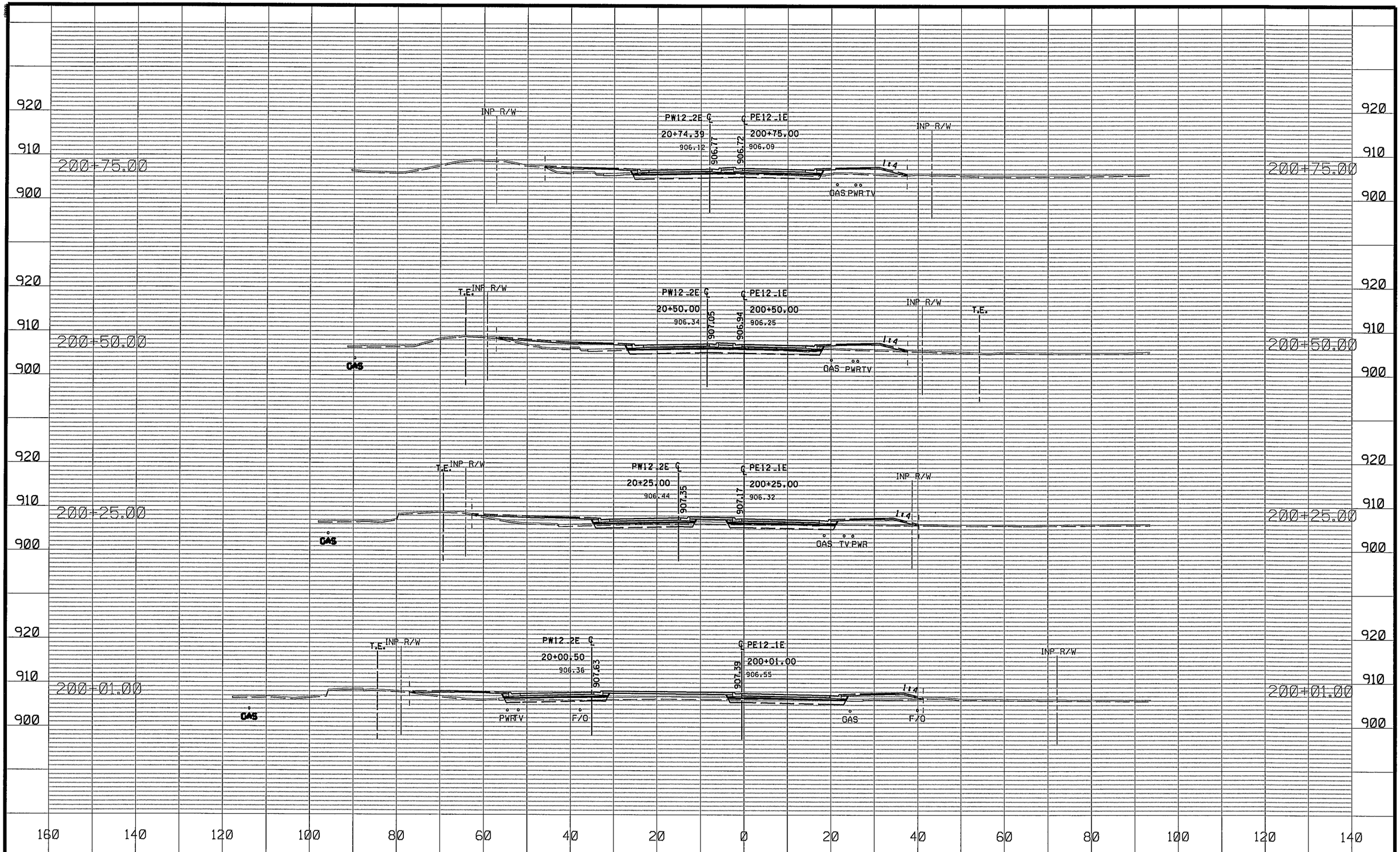
NORTH CROSS SECTIONS
STA 20+00.00 TO 20+00.00

Sheet 112 of 141 Sheets



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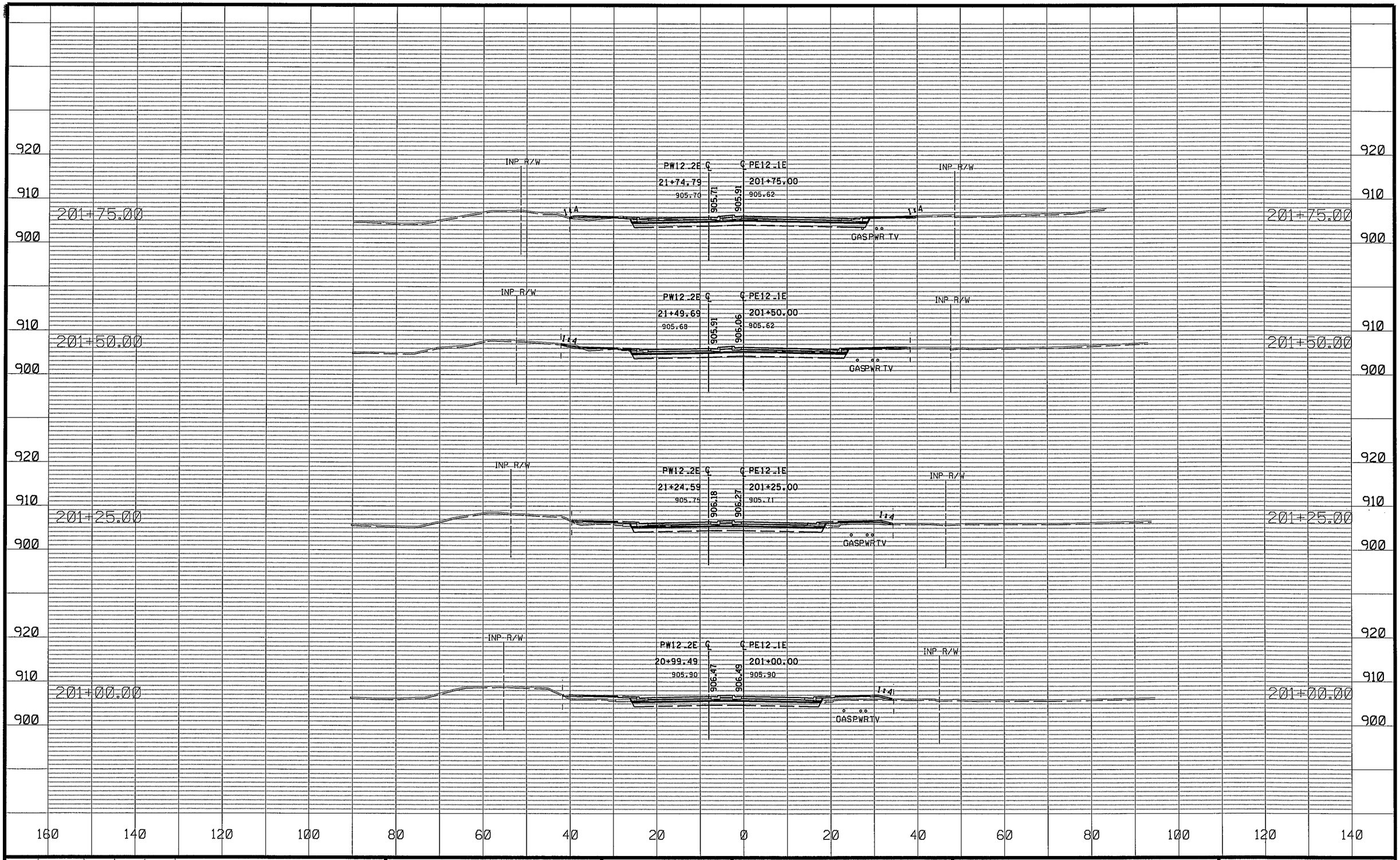
EAST CROSS SECTIONS
STA 200+01.00 TO 200+75.00

Sheet 113 of 141 Sheets



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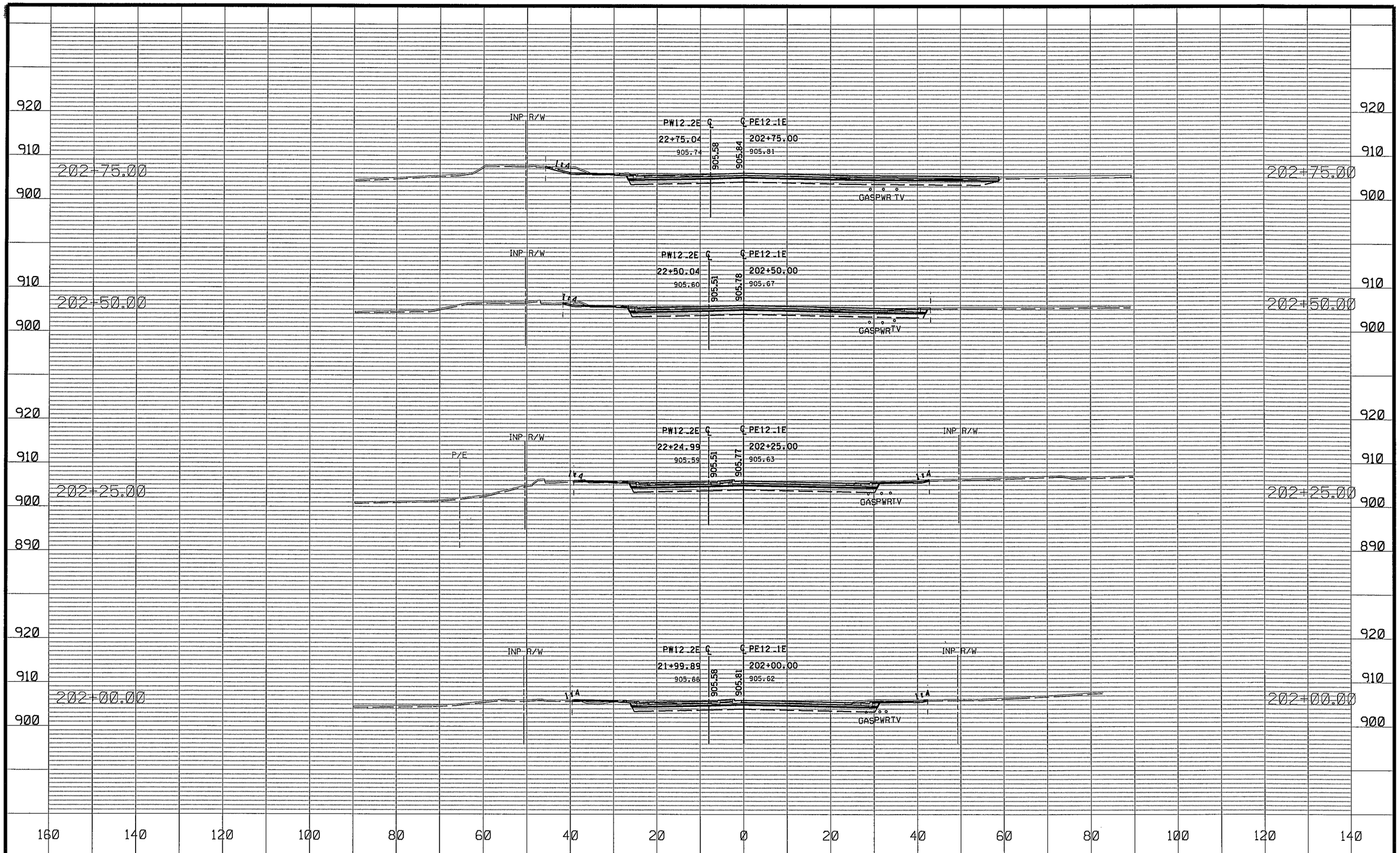
EAST CROSS SECTIONS
STA 201+00.00 TO 201+75.00

Sheet 114 of 141 Sheets



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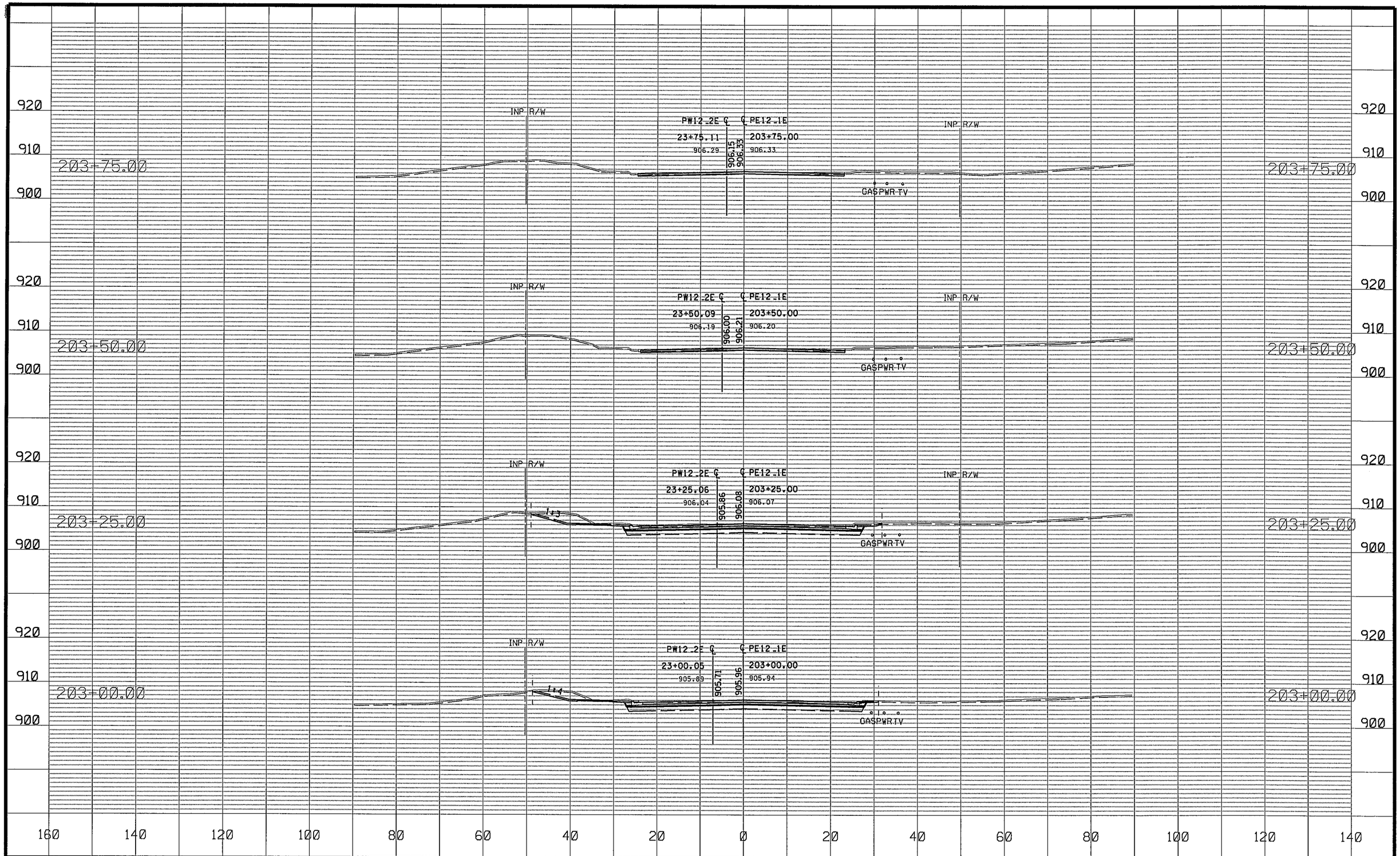
EAST CROSS SECTIONS
STA 202+00.00 TO 202+75.00



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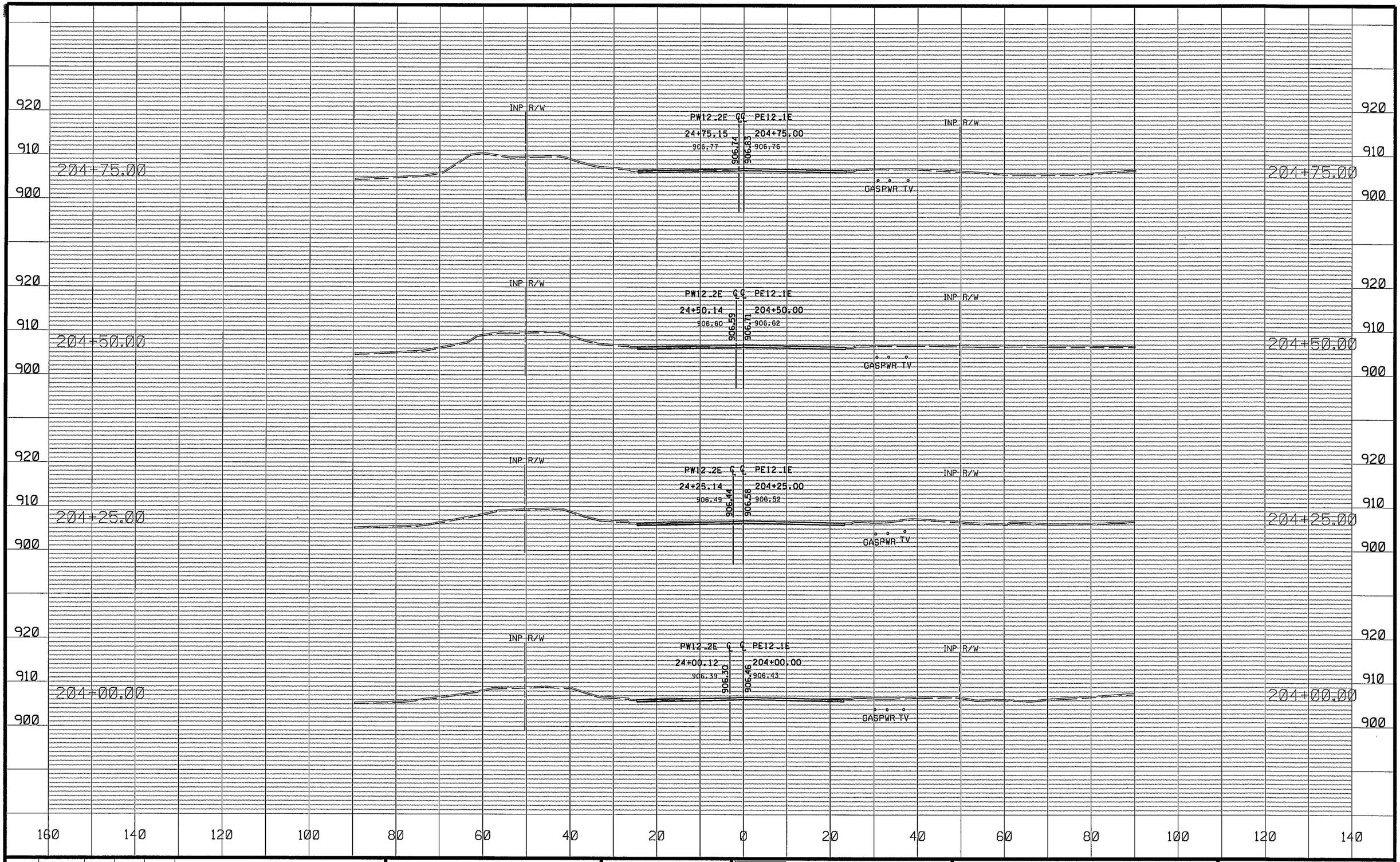
EAST CROSS SECTIONS
STA 203+00.00 TO 203+75.00

Sheet 116 of 141 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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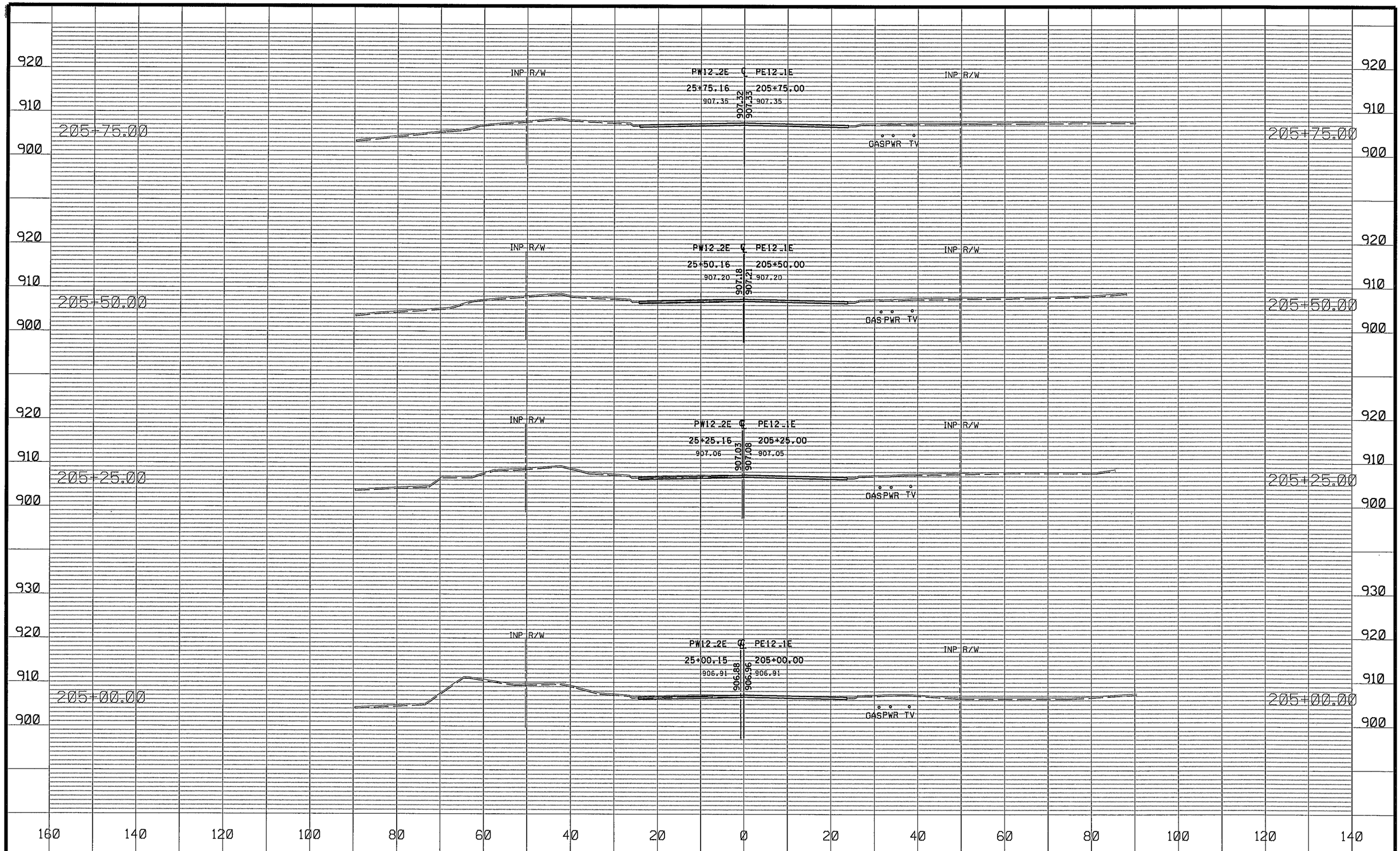
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EAST CROSS SECTIONS
STA 204+00.00 TO 204+75.00



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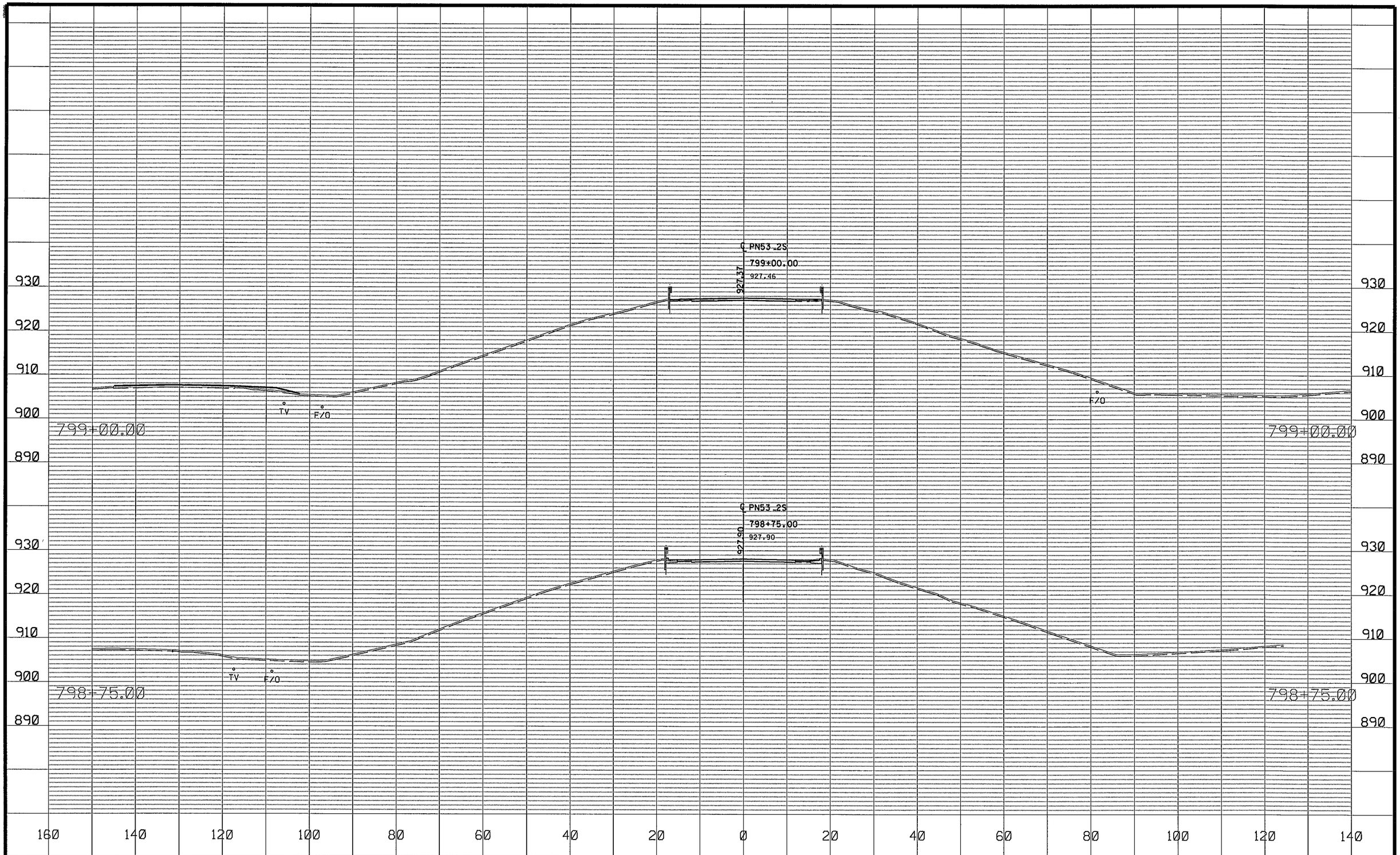
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

EAST CROSS SECTIONS
STA 205+00.00 TO 205+75.00



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CHECKED BY JEO DATE 01-15-16

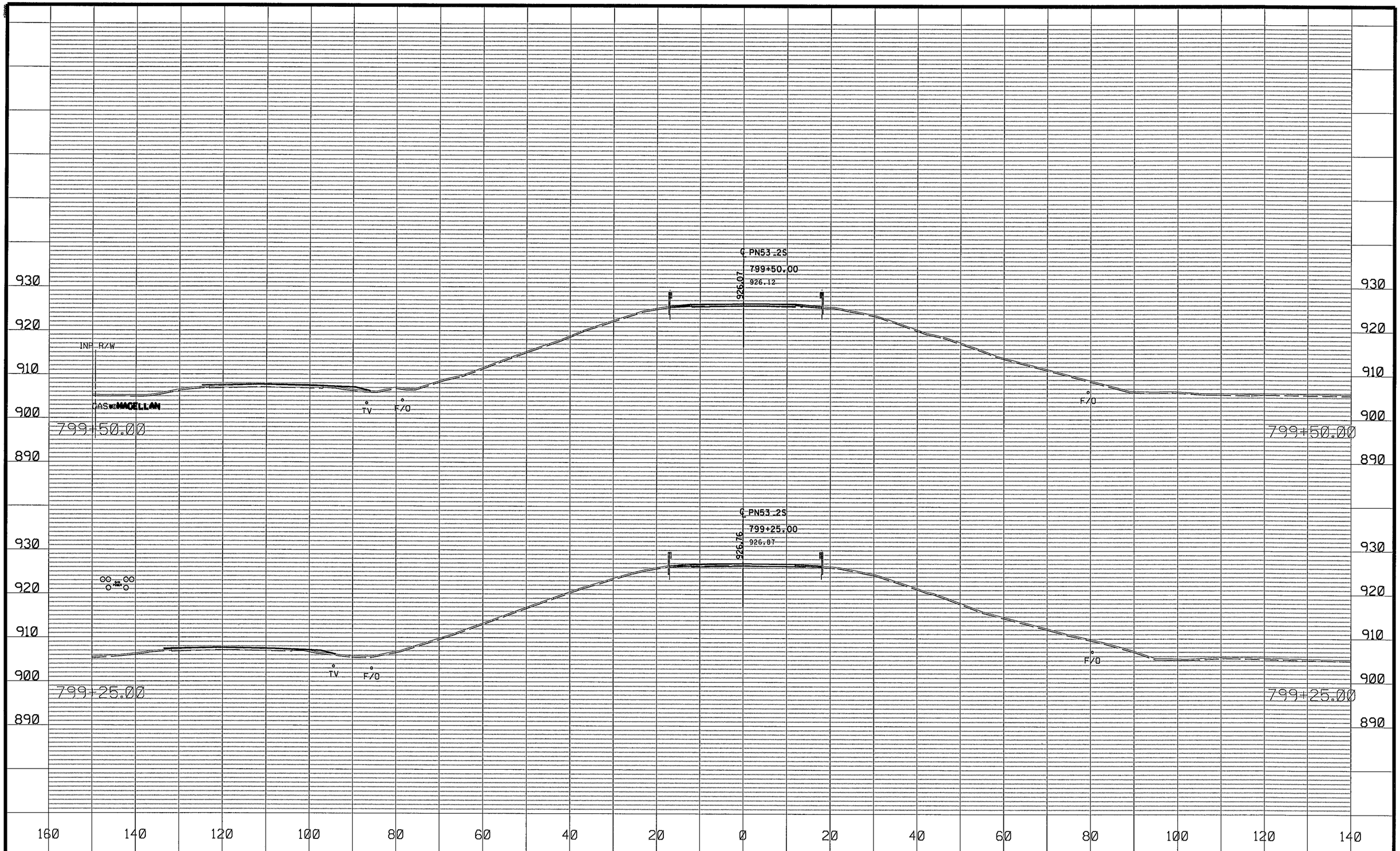
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 798+75.00 TO 799+00.00

Sheet 119 of 141 Sheets



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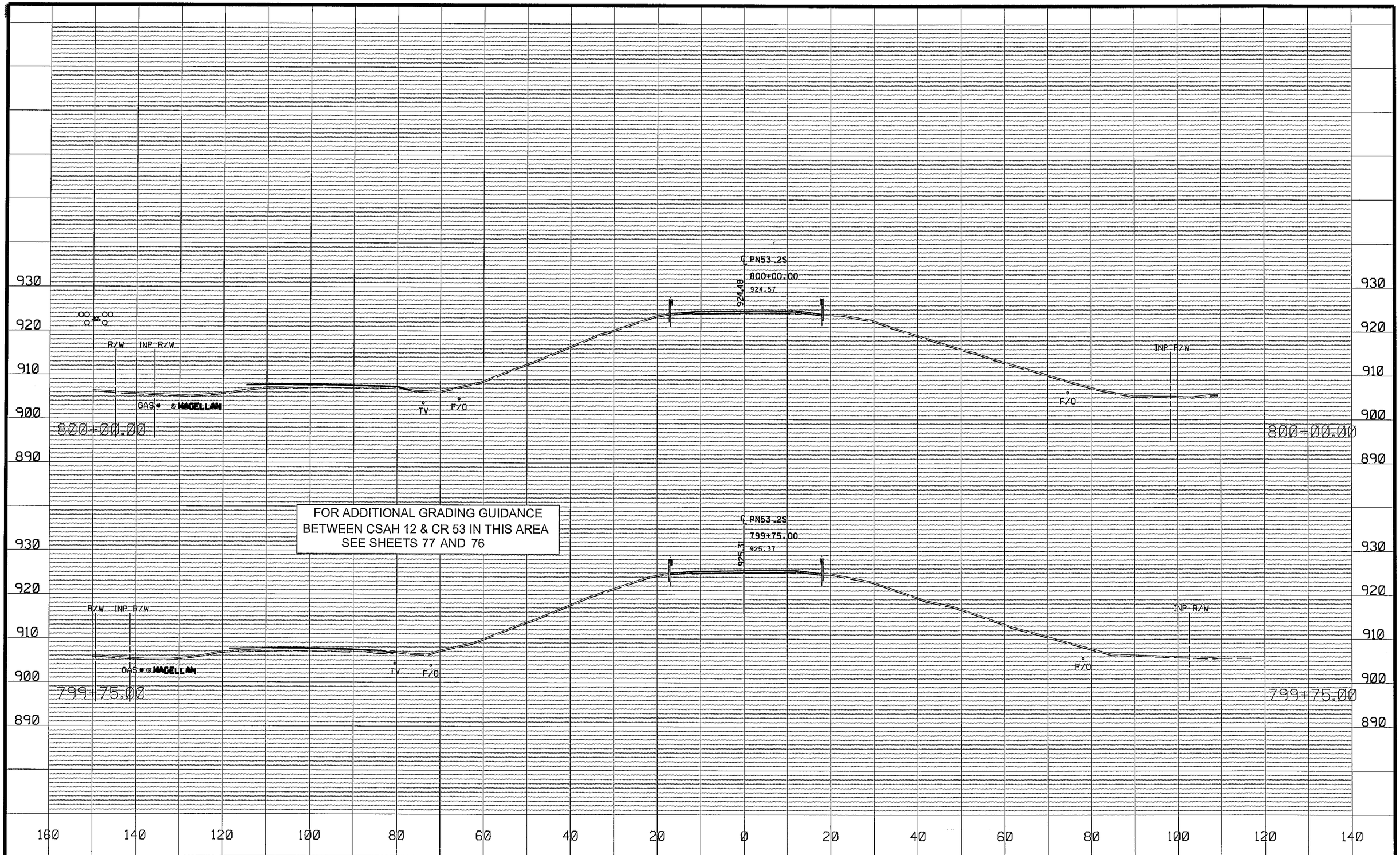
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 799+25.00 TO 799+50.00

Sheet 120 of 141 Sheets



FOR ADDITIONAL GRADING GUIDANCE BETWEEN CSAH 12 & CR 53 IN THIS AREA SEE SHEETS 77 AND 76

NO	DATE	BY	CKD	APPR	REVISION

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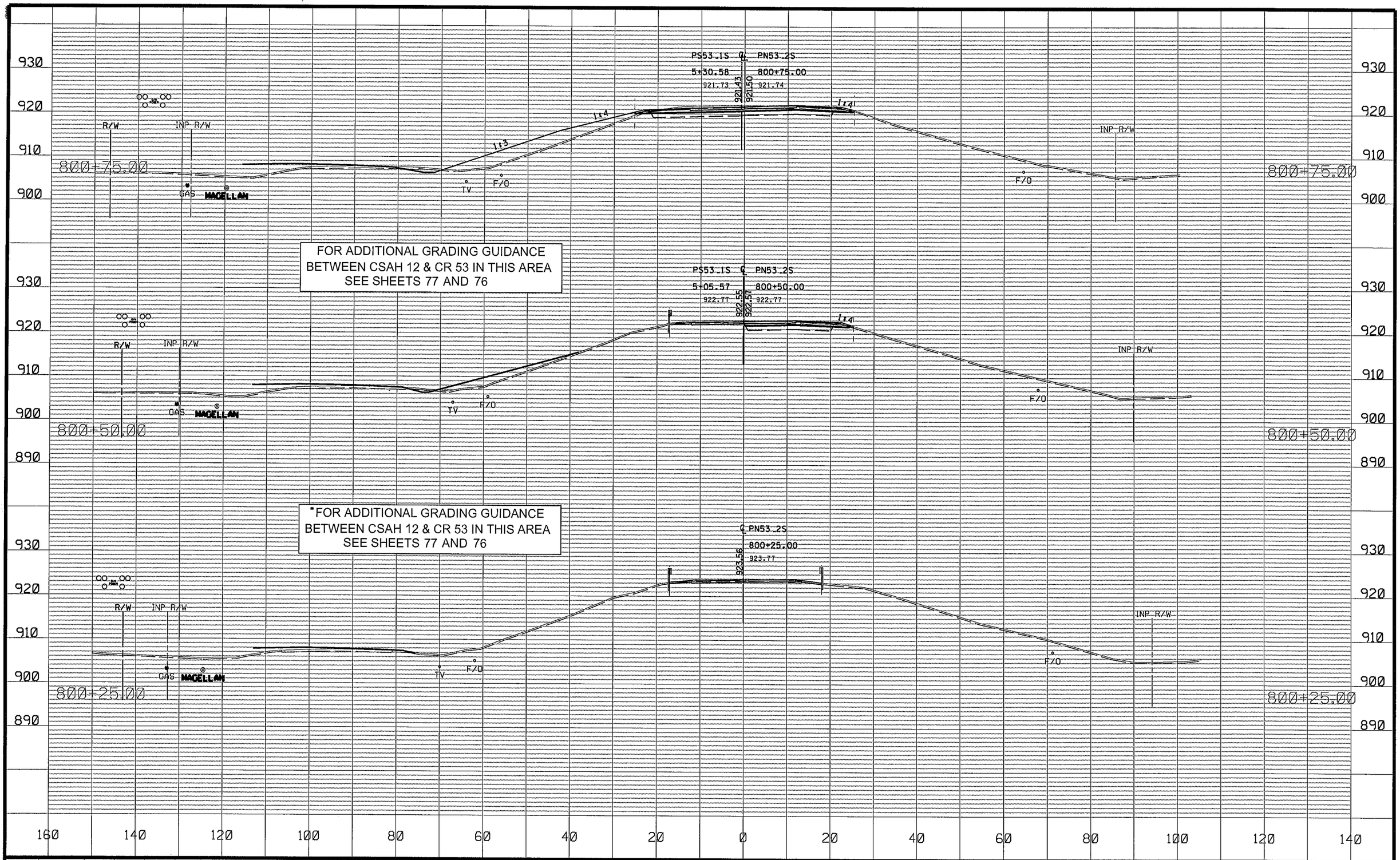
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 799+75.00 TO 800+00.00



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DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

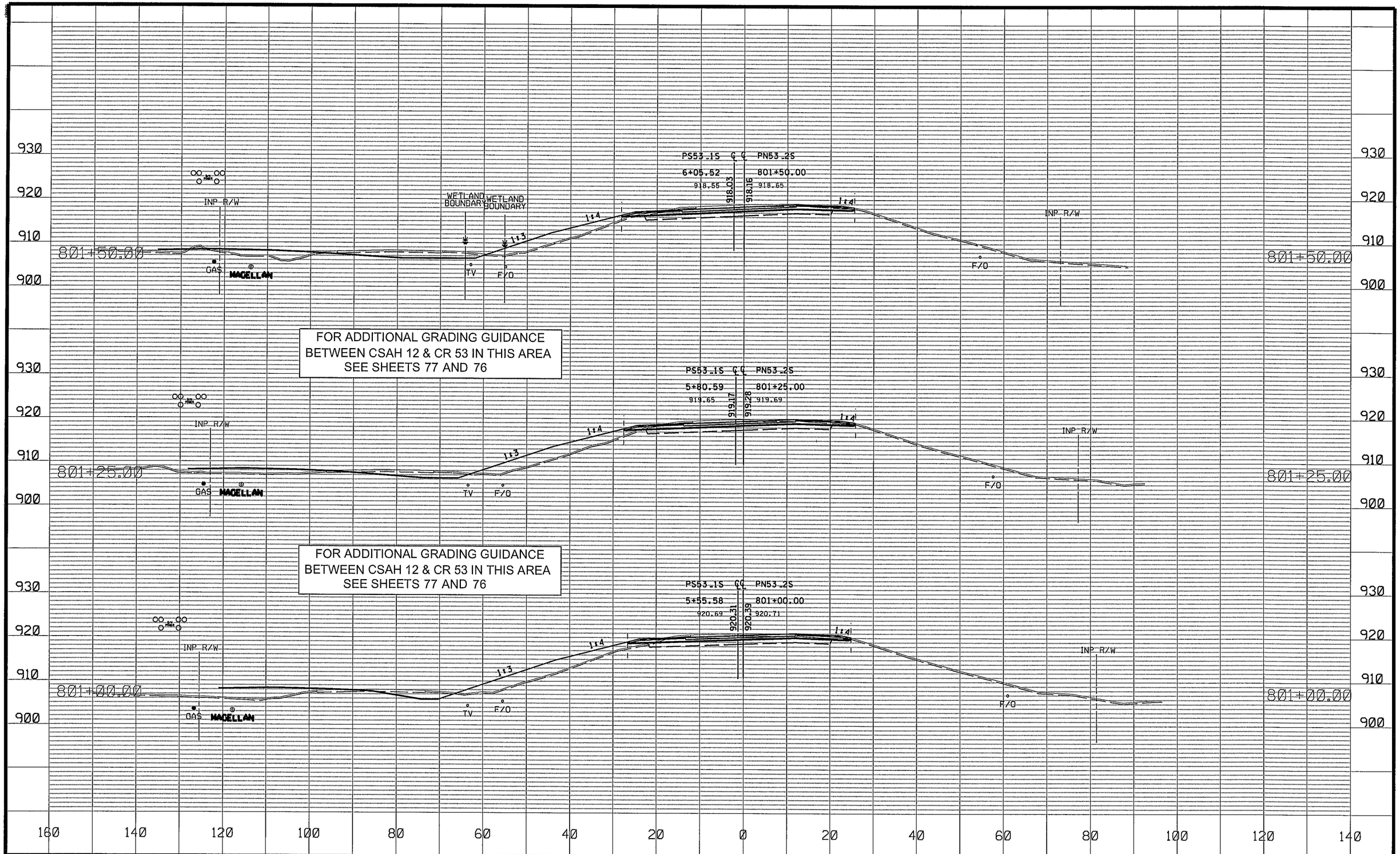
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS

STA 800+25.00 TO 800+75.00

Sheet 122 of 141 Sheets



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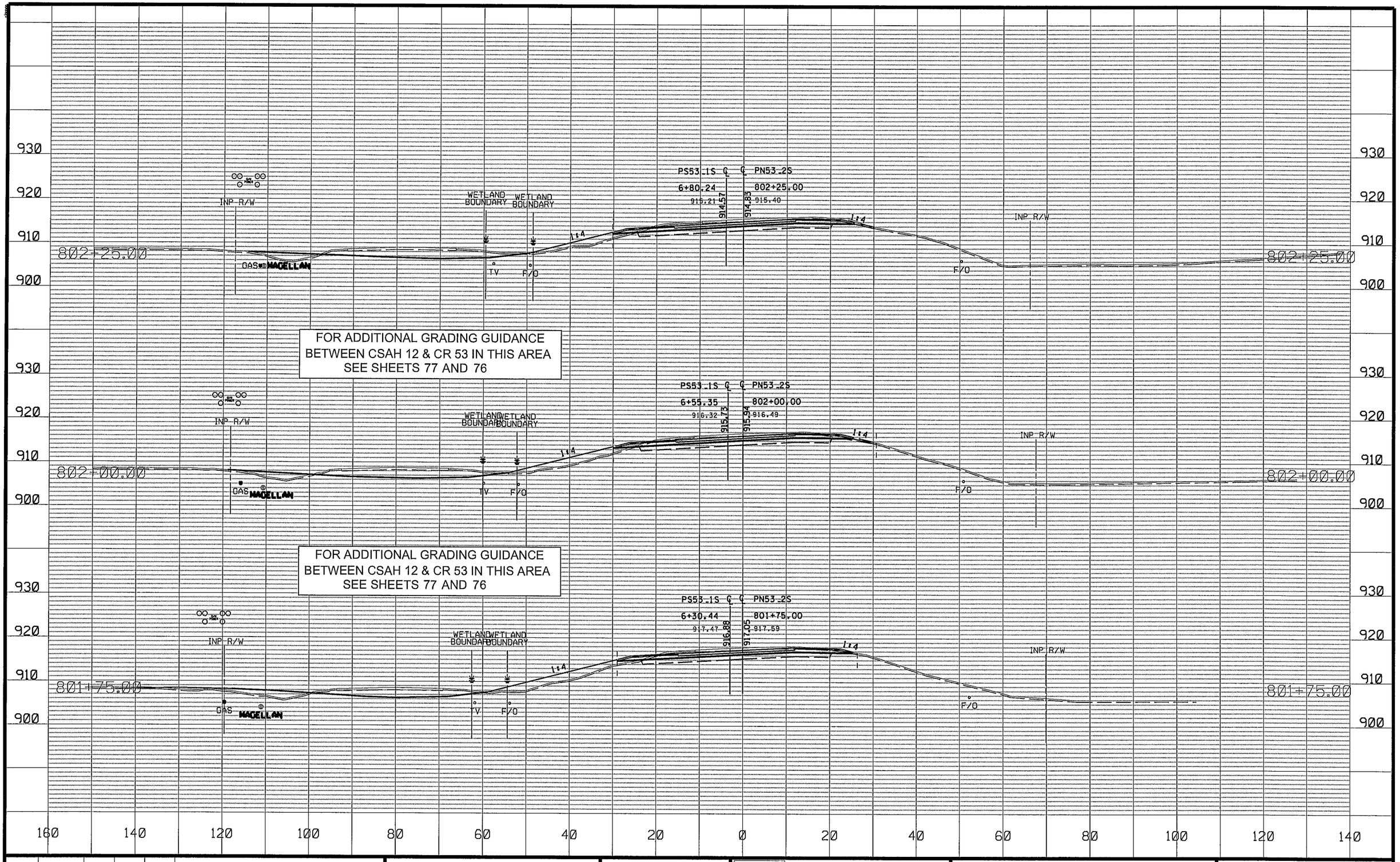
DESIGN BY NJD DATE 08-01-16
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 801+00.00 TO 801+50.00

Sheet 123 of 141 Sheets



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DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

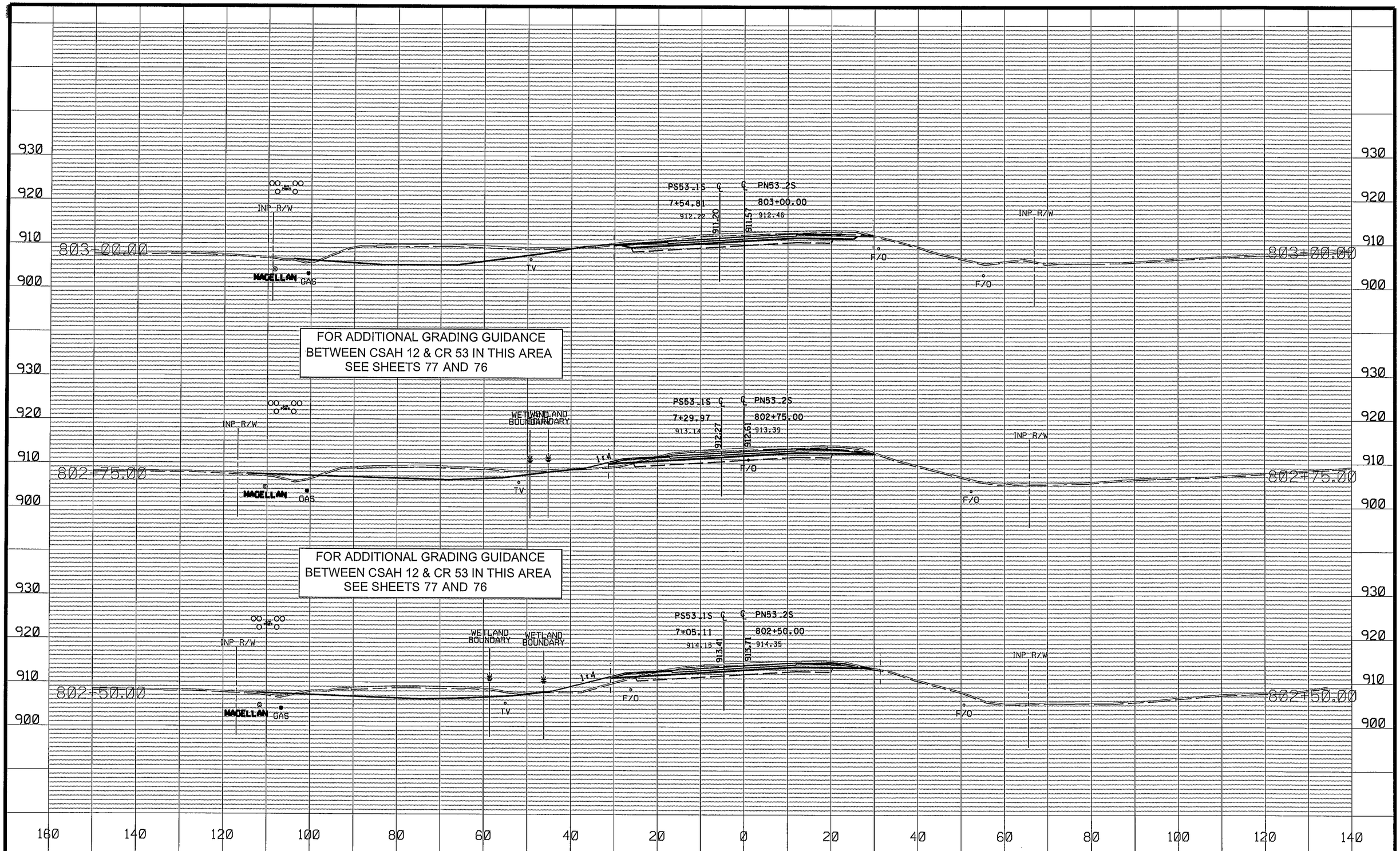
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 801+75.00 TO 802+25.00

Sheet 124 of 141 Sheets



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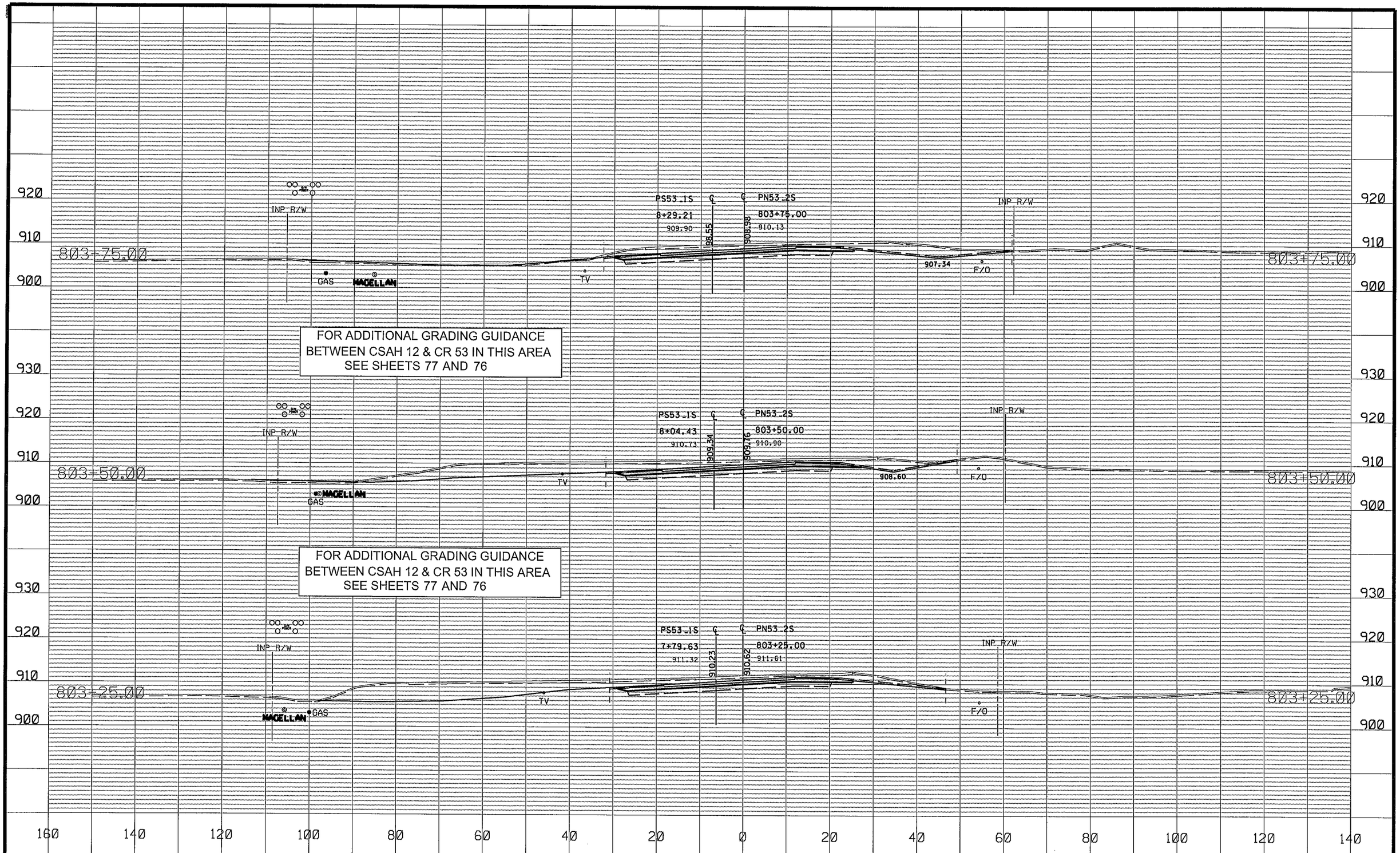
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 802+50.00 TO 803+00.00

Sheet 125 of 141 Sheets



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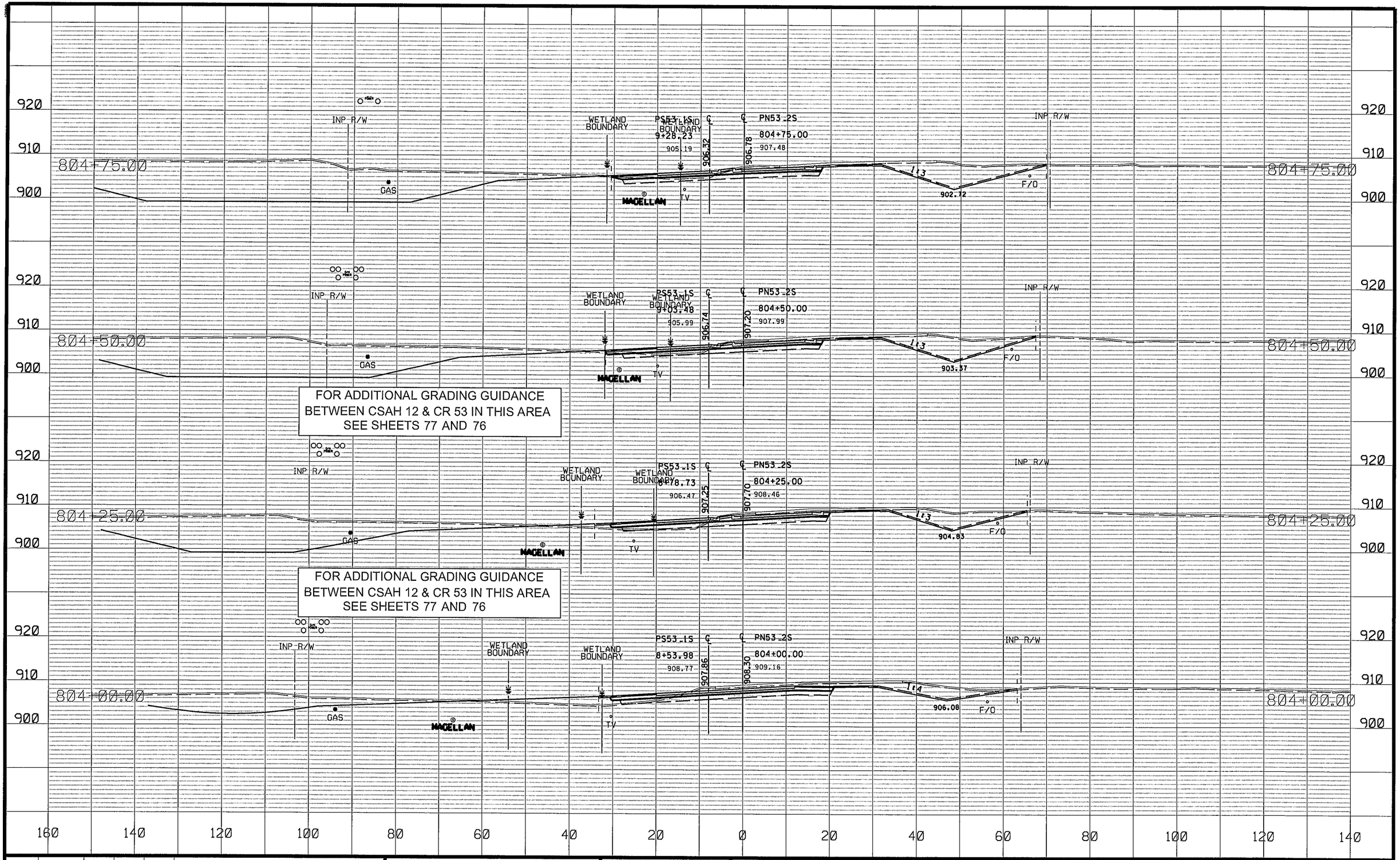
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 803+25.00 TO 803+75.00



FOR ADDITIONAL GRADING GUIDANCE BETWEEN CSAH 12 & CR 53 IN THIS AREA SEE SHEETS 77 AND 76

FOR ADDITIONAL GRADING GUIDANCE BETWEEN CSAH 12 & CR 53 IN THIS AREA SEE SHEETS 77 AND 76

NO	DATE	BY	CKD	APPR	REVISION

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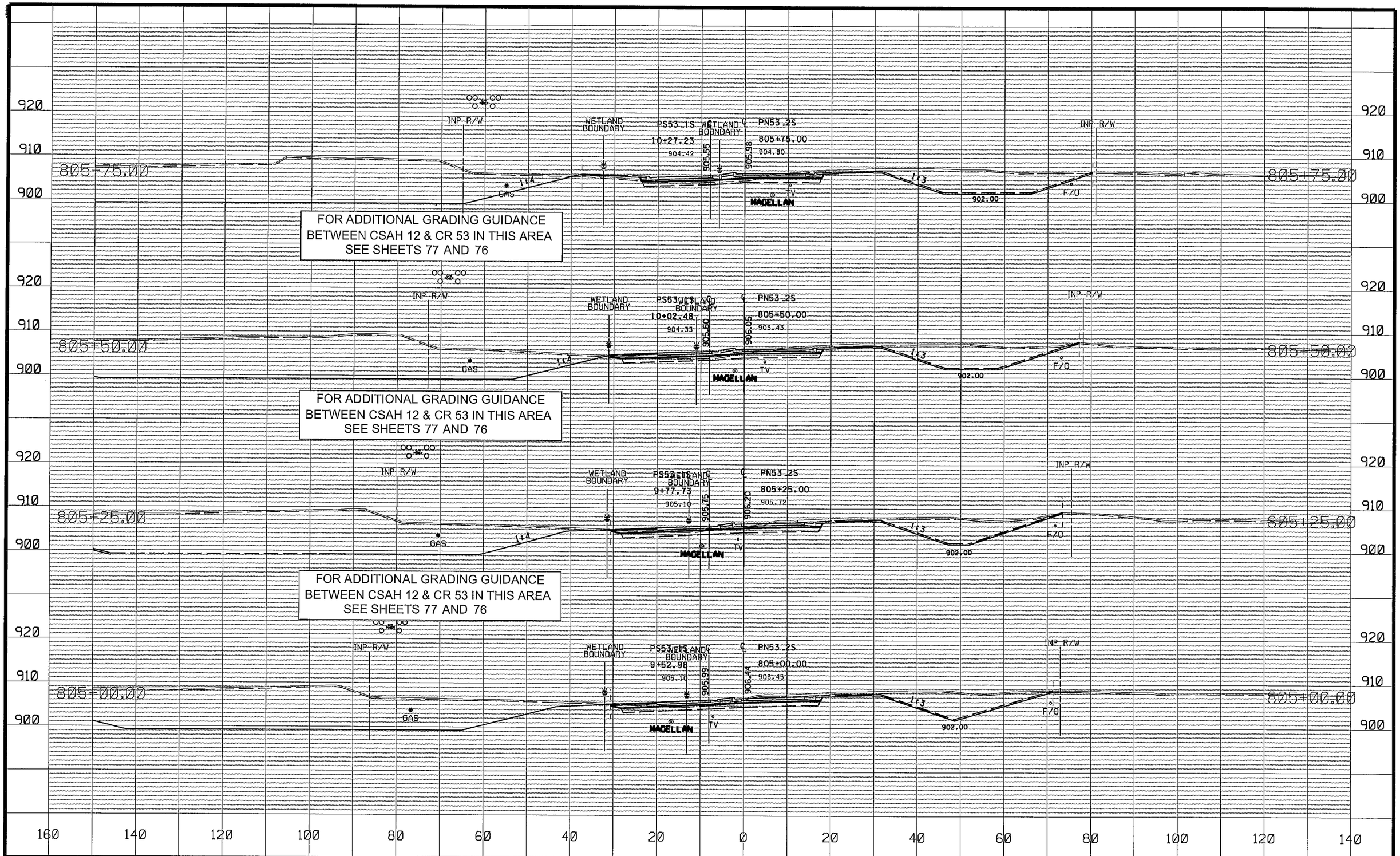
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 804+00.00 TO 804+75.00



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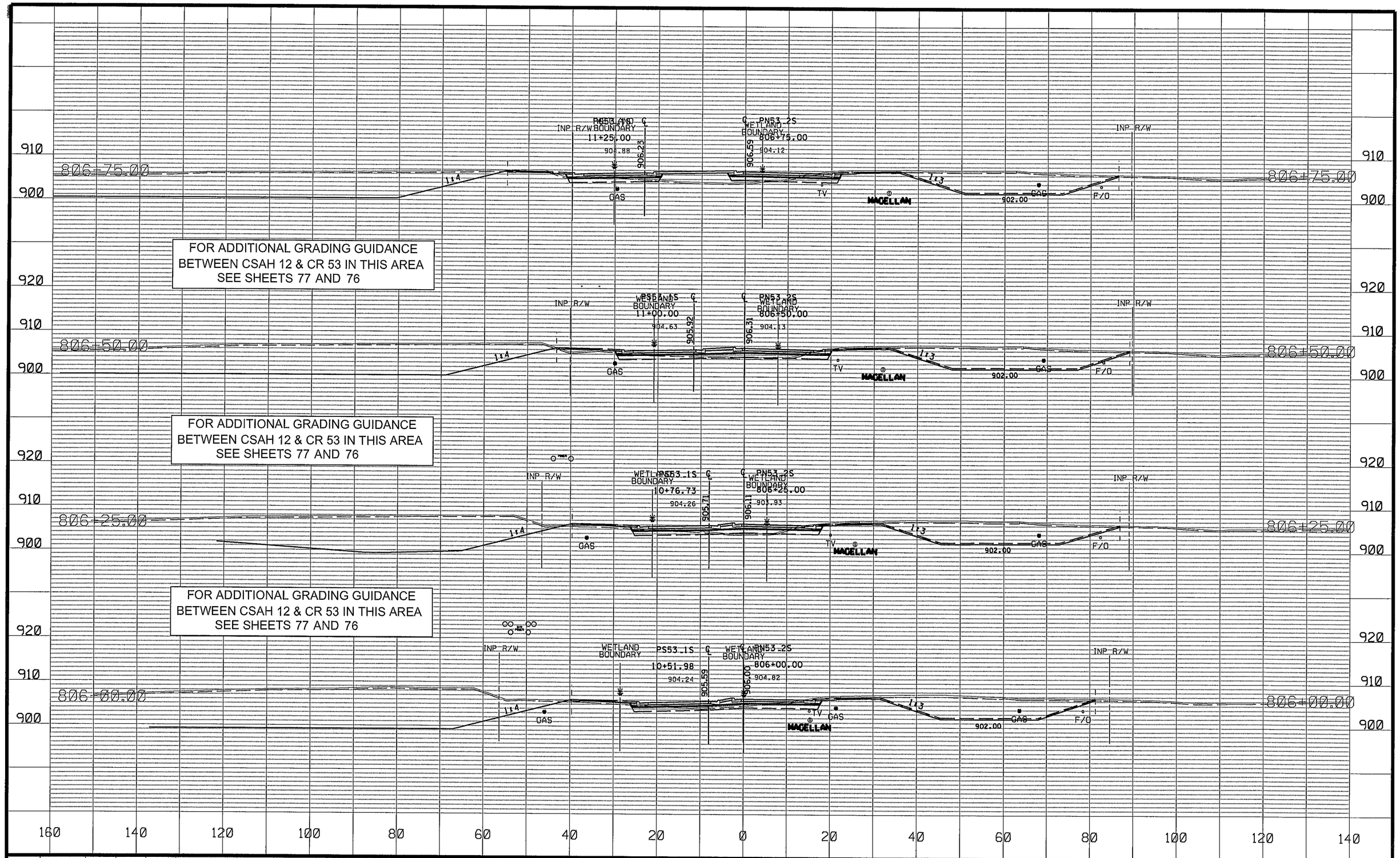
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 805+00.00 TO 805+75.00



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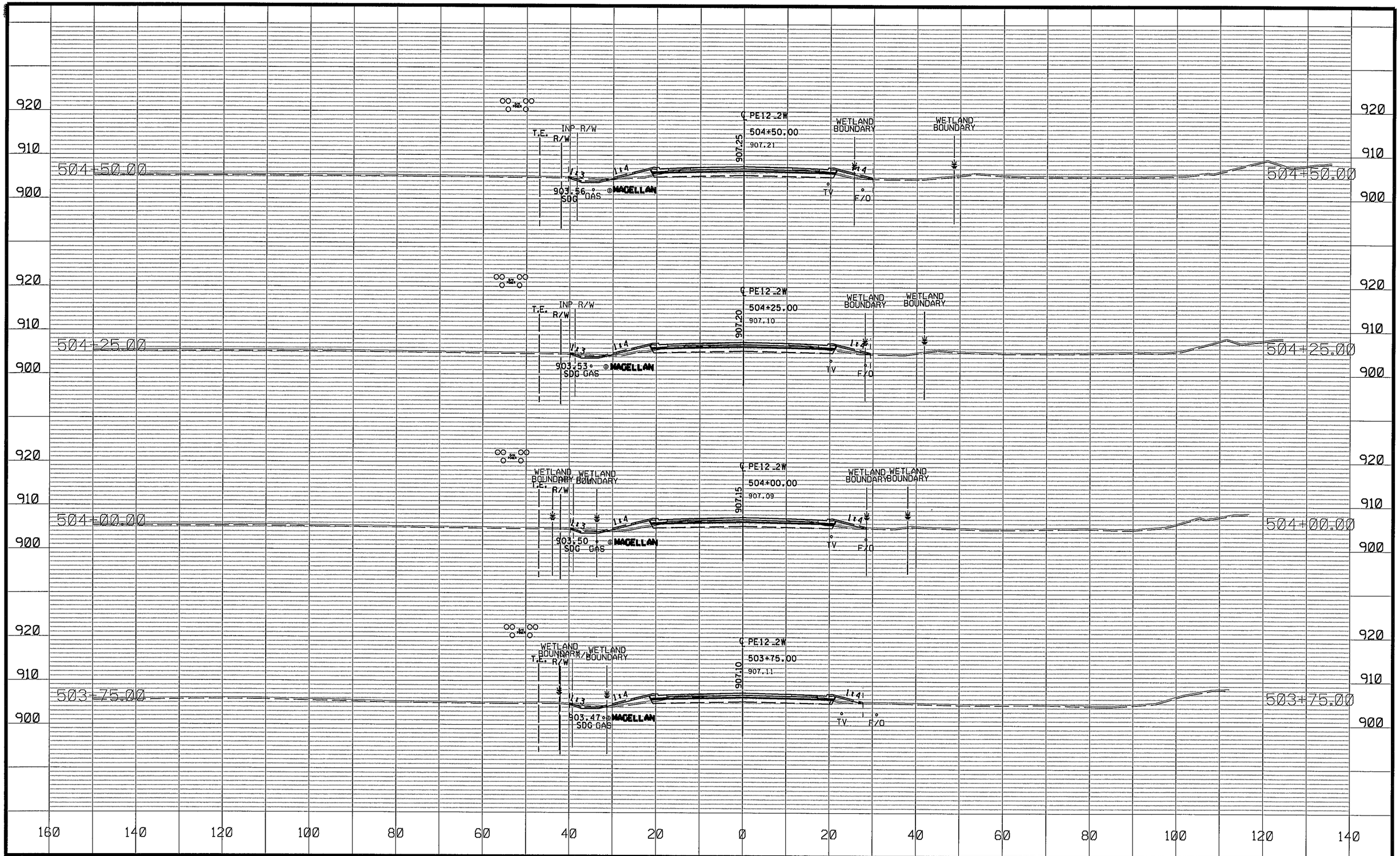
CHECKED BY JEQ DATE 01-15-16

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

SOUTH CROSS SECTIONS
STA 806+00.00 TO 806+75.00



NO	DATE	BY	CKD	APPR	REVISION
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DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

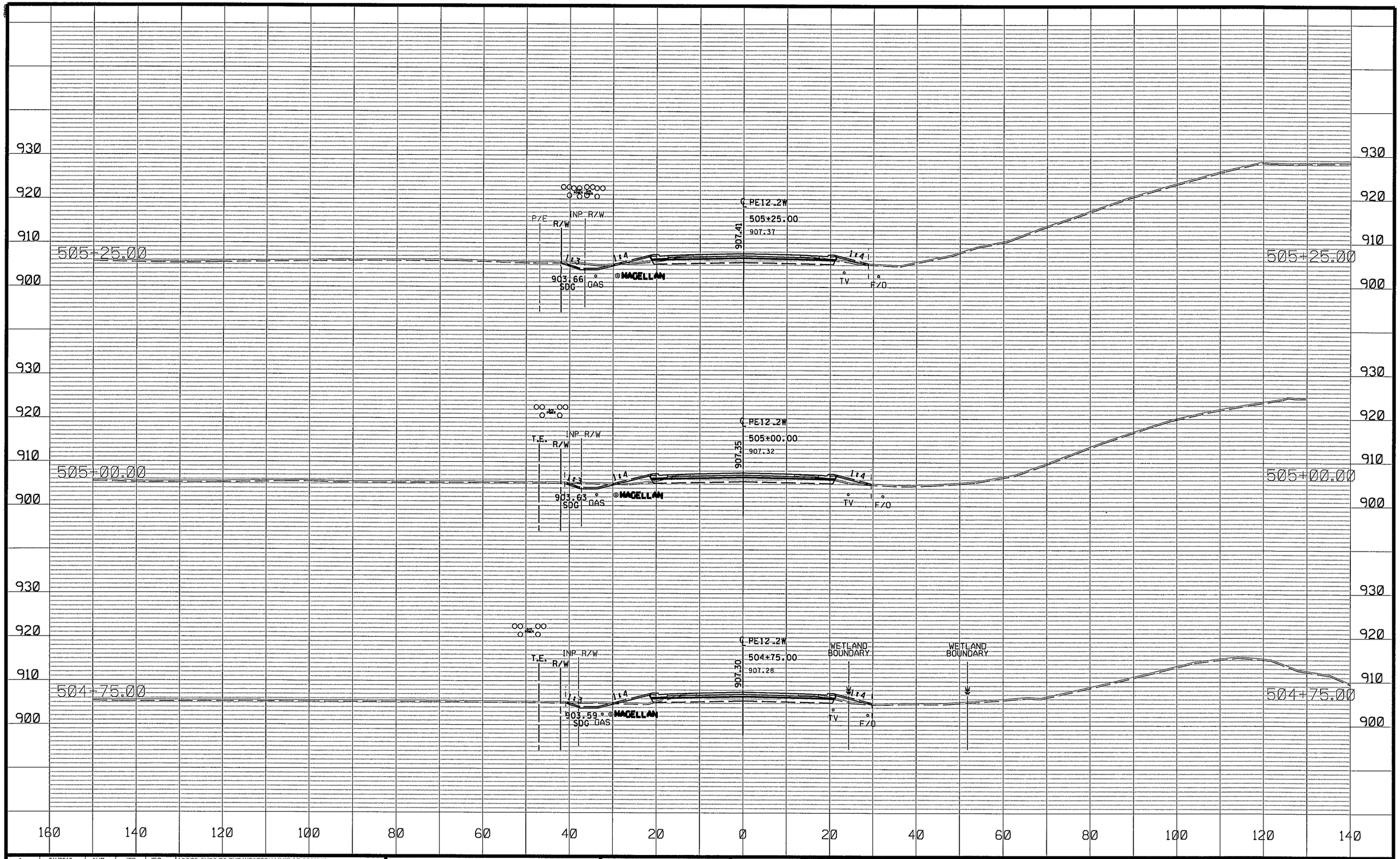
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 503+75.00 TO 504+50.00

Sheet 130 of 141 Sheets



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DESIGN BY NJD DATE 08-01-15
CHECKED BY JEO DATE 01-15-16

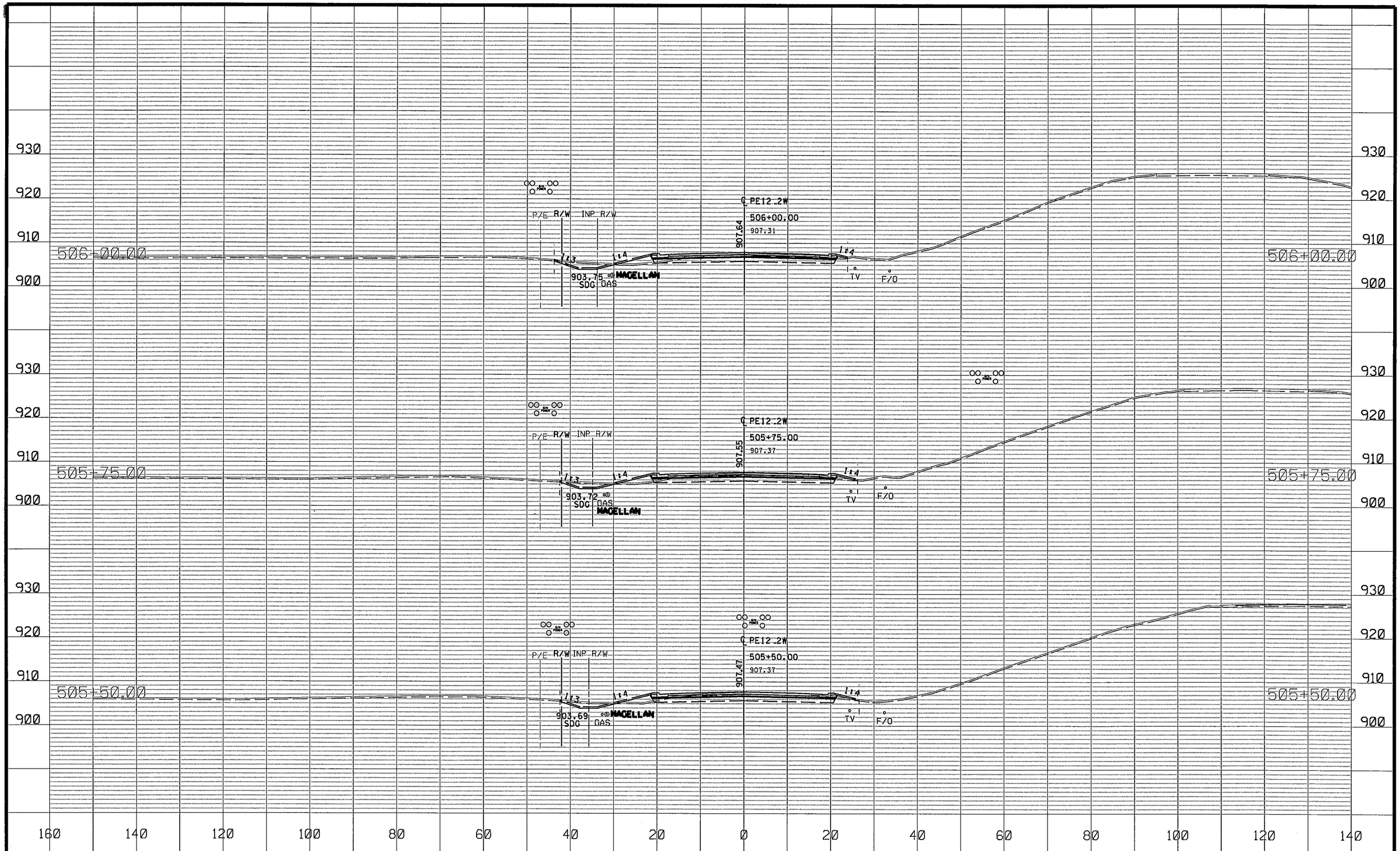
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 504+75.00 TO 505+25.00

Sheet 131 of 141 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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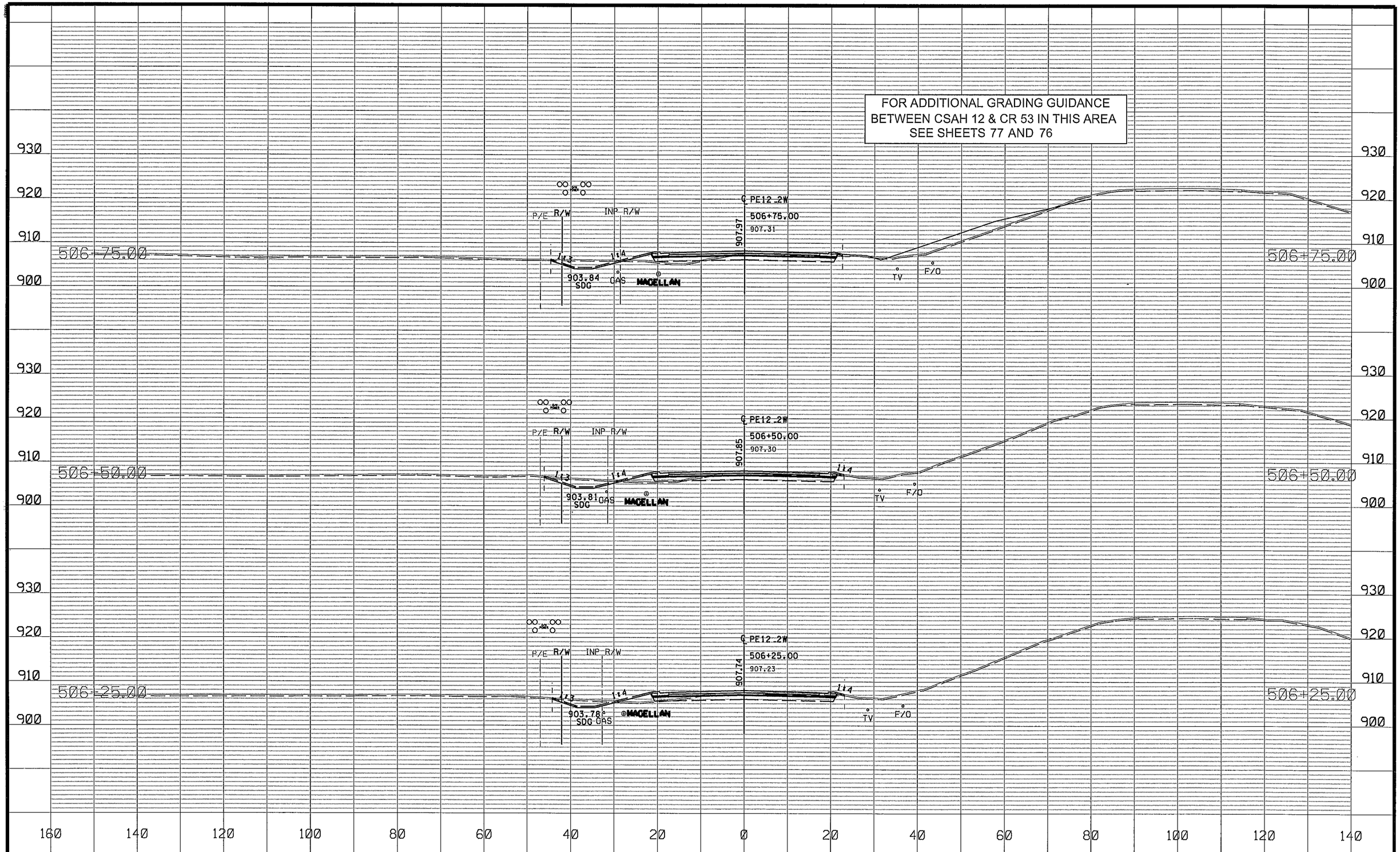
DRAWN BY JCF DATE 01-01-16
DESIGN BY NJD DATE 08-01-16
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 505+50.00 TO 506+00.00

Sheet 132 of 141 Sheets



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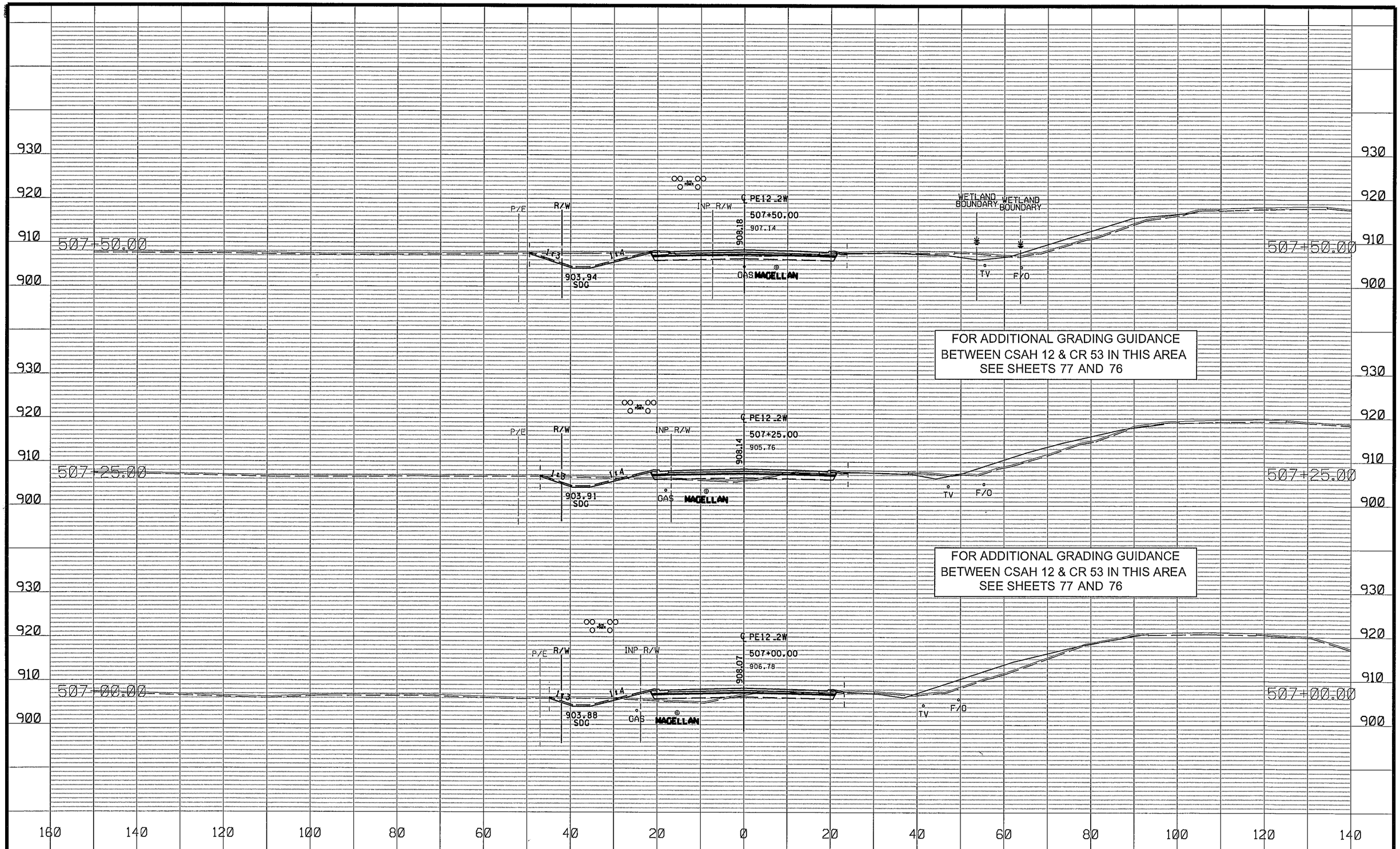
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 506+25.00 TO 506+75.00

Sheet 133 of 141 Sheets



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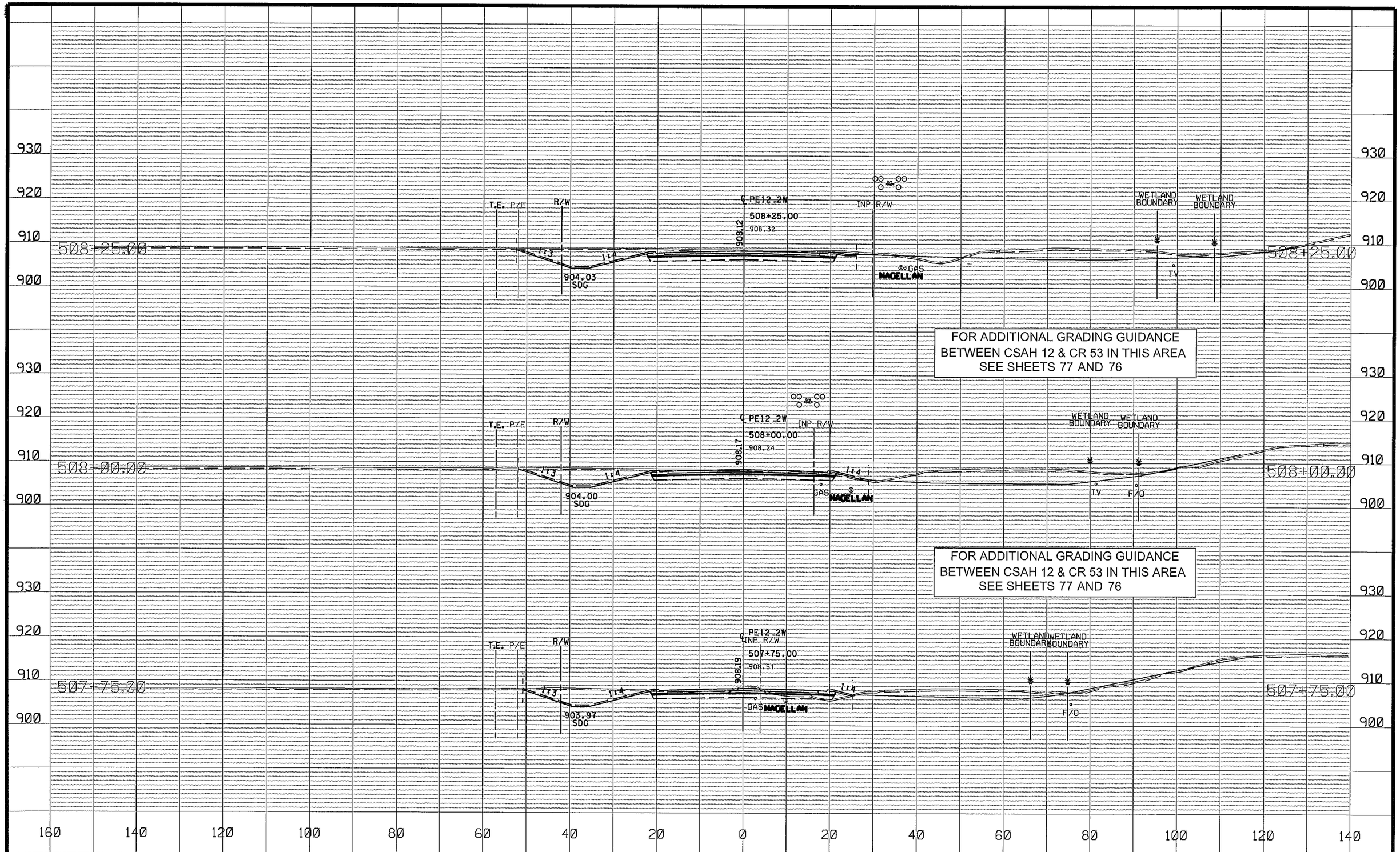
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 507+00.00 TO 507+50.00



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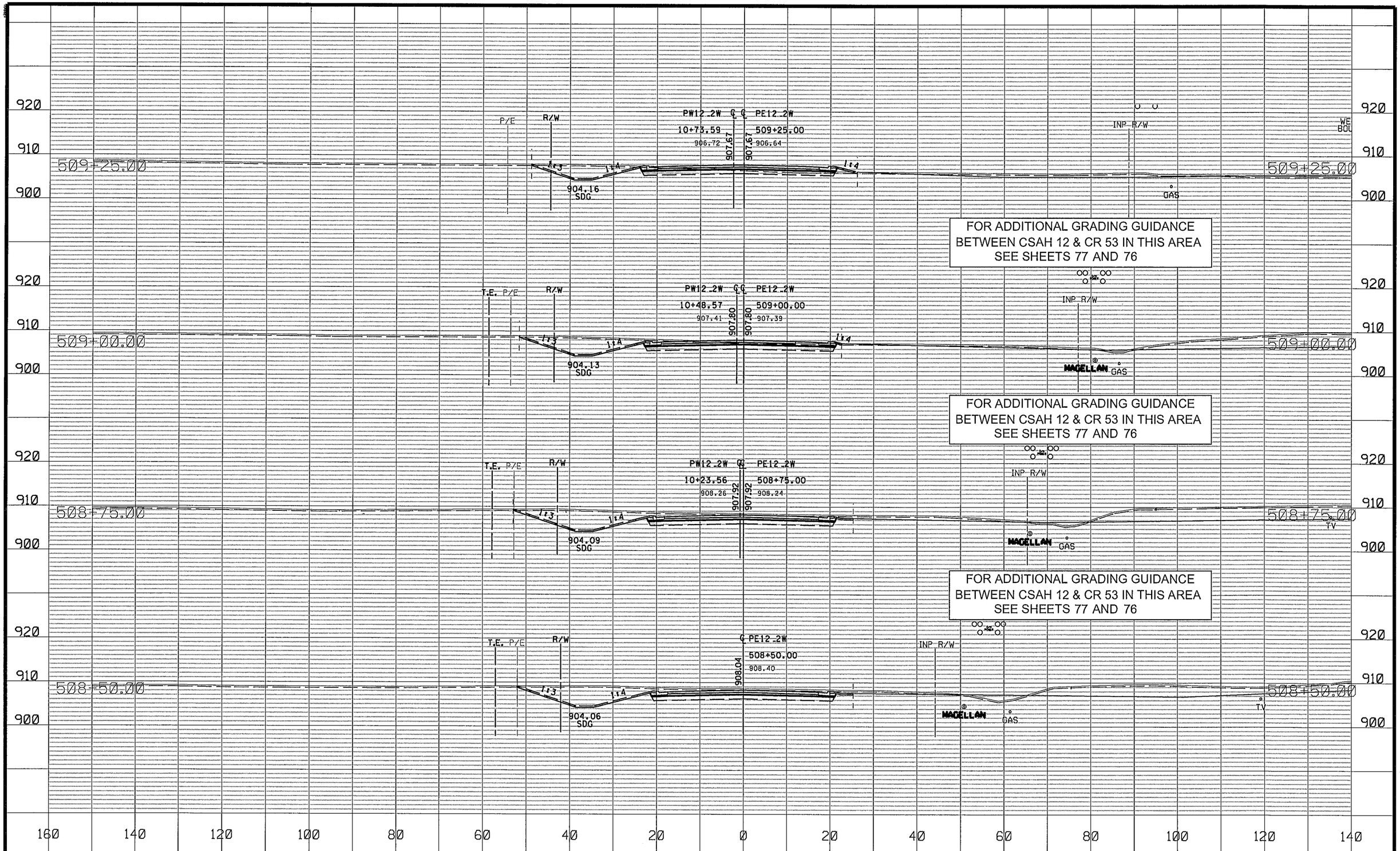
CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 507+75.00 TO 508+25.00



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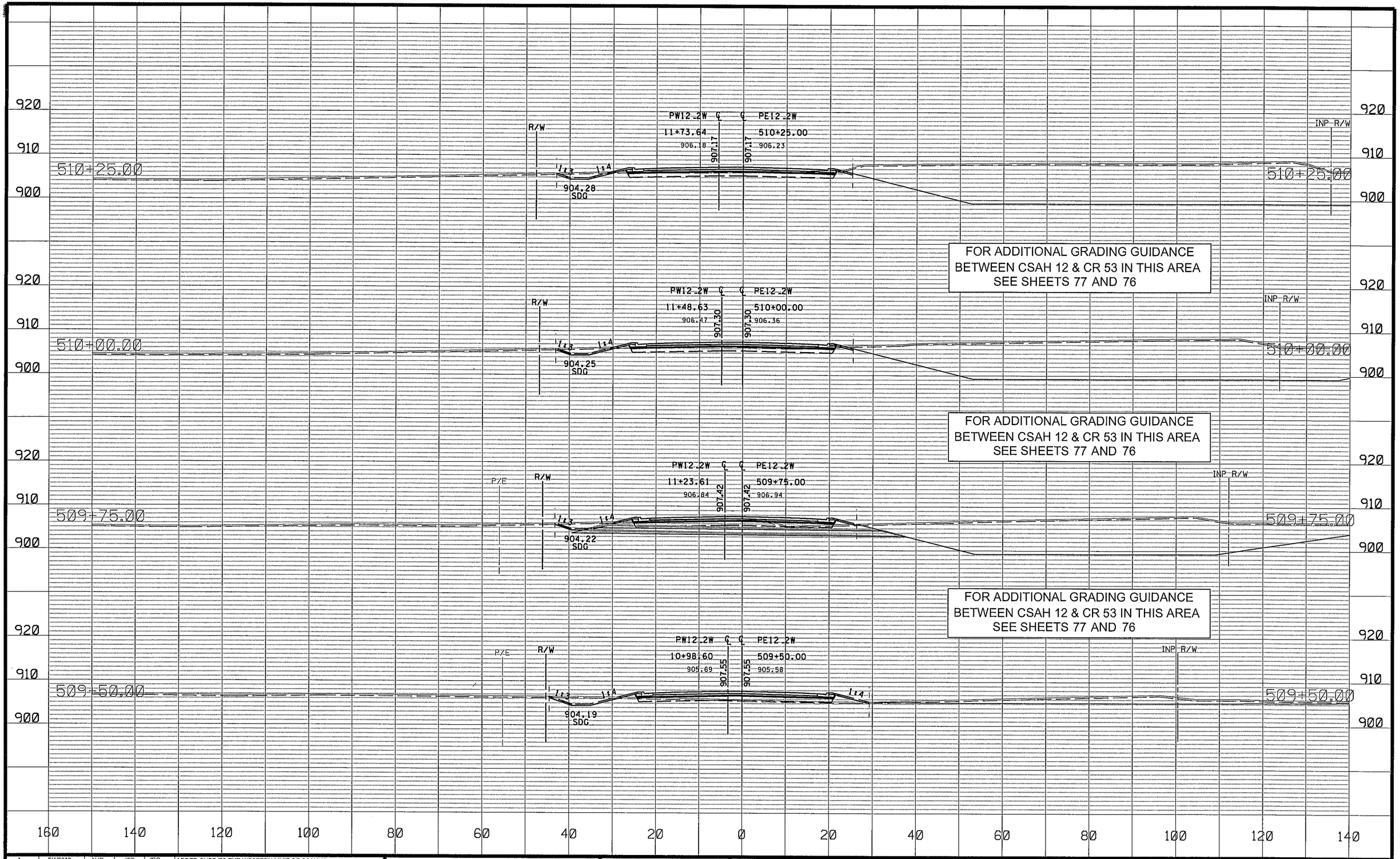
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 508+50.00 TO 509+25.00



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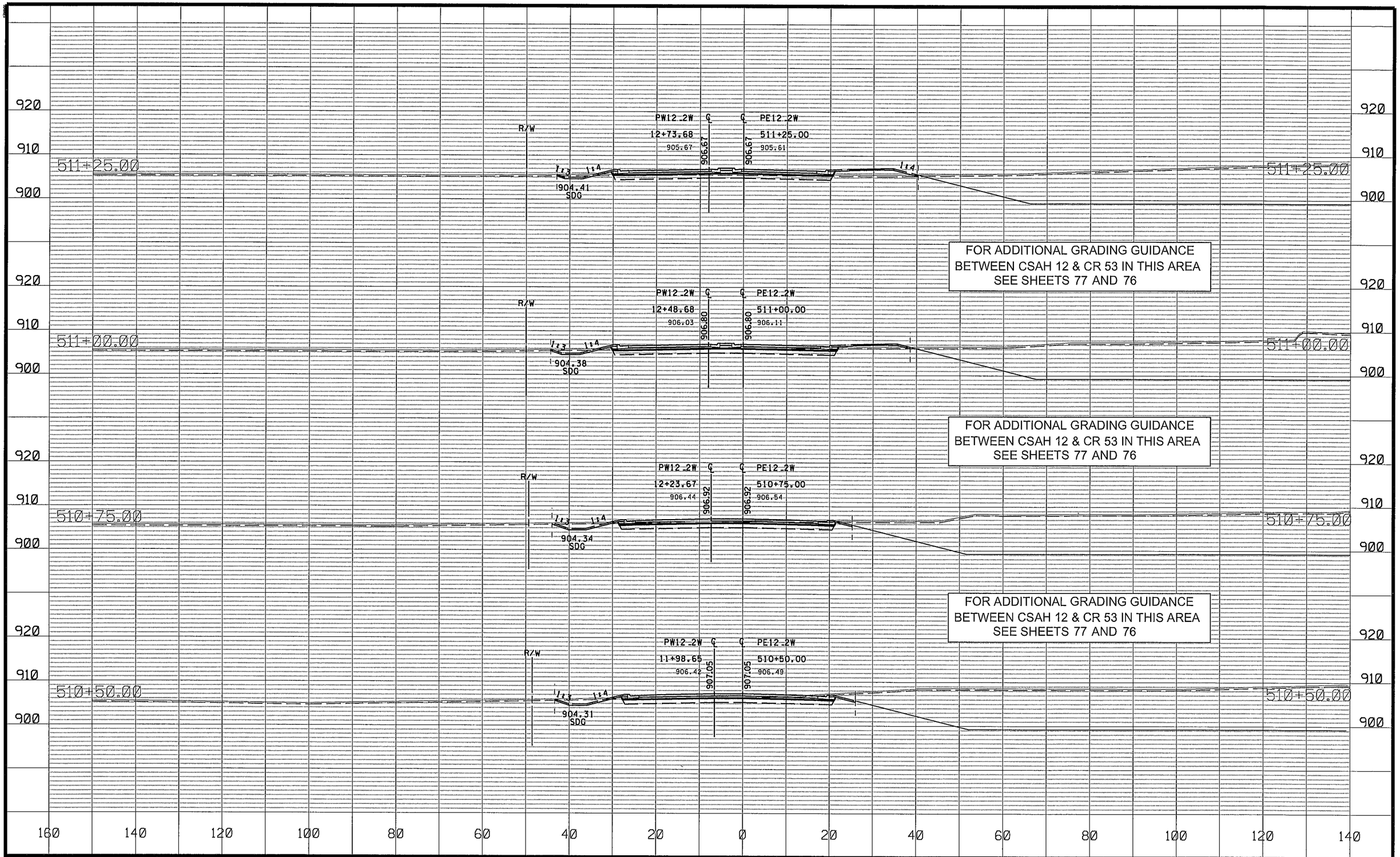
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 509+50.00 TO 510+25.00

Sheet 137 of 141 Sheets



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CHECKED BY JEO DATE 01-15-16

ANOKA COUNTY

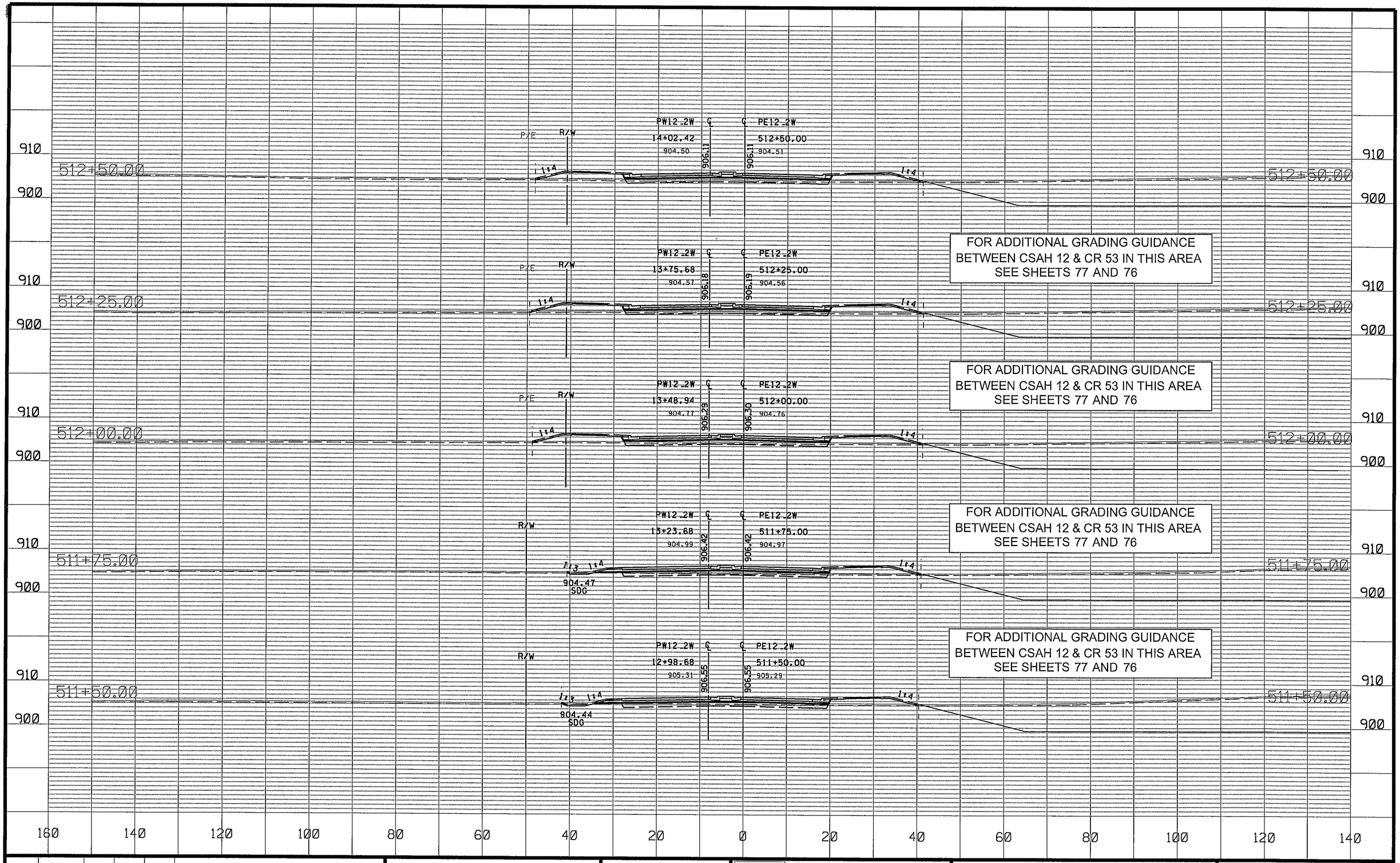
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS

STA 510+50.00 TO 511+25.00

Sheet 138 of 141 Sheets



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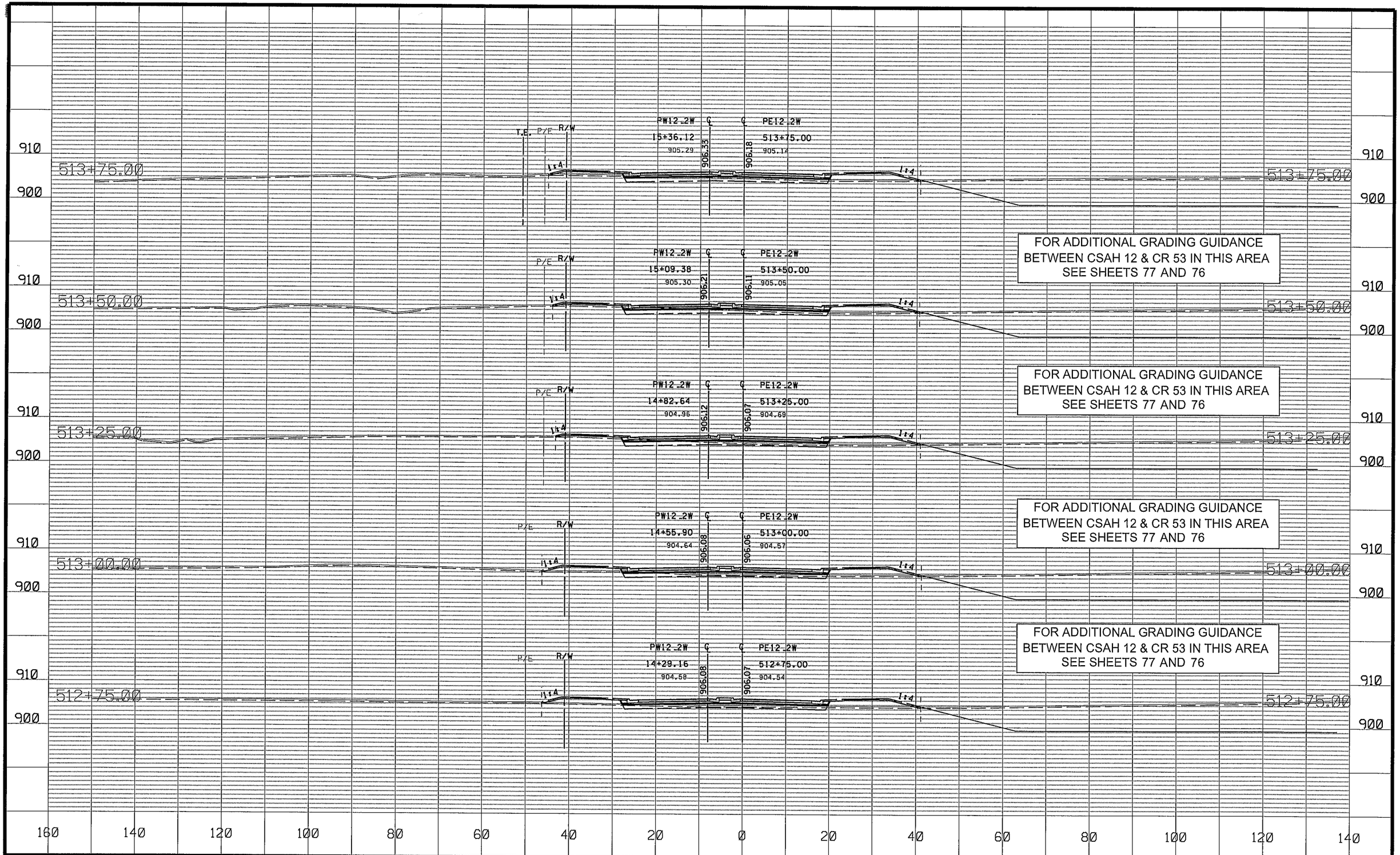
ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 511+50.00 TO 512+50.00



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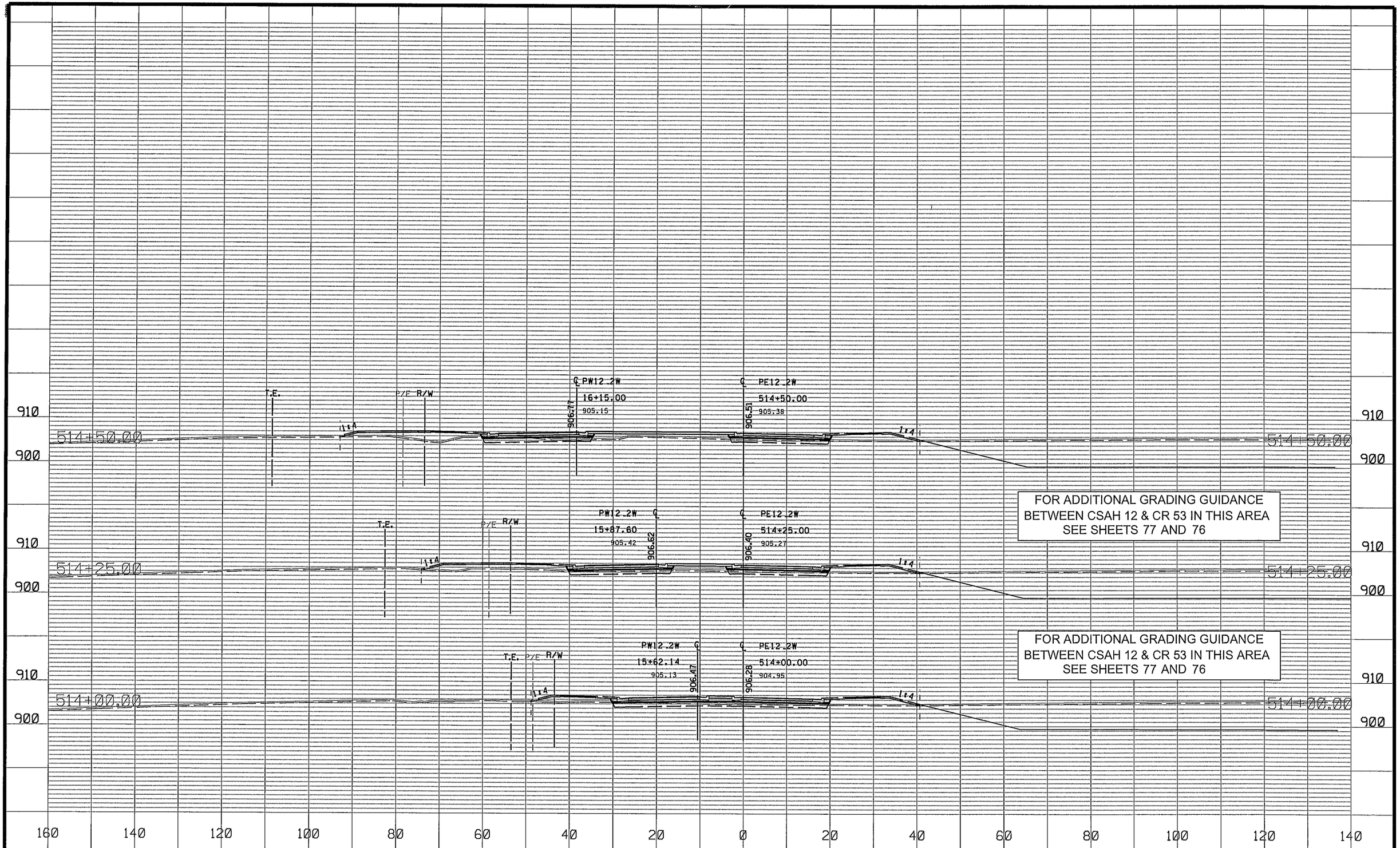
ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 512+75.00 TO 513+75.00

Sheet 140 of 141 Sheets



FOR ADDITIONAL GRADING GUIDANCE BETWEEN CSAH 12 & CR 53 IN THIS AREA SEE SHEETS 77 AND 76

FOR ADDITIONAL GRADING GUIDANCE BETWEEN CSAH 12 & CR 53 IN THIS AREA SEE SHEETS 77 AND 76

NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY SAP 002-612-013
CITY OF BLAINE SAP 106-020-034
CITY OF LINO LAKES SAP 210-020-007

WEST CROSS SECTIONS
STA 514+00.00 TO 514+50.00